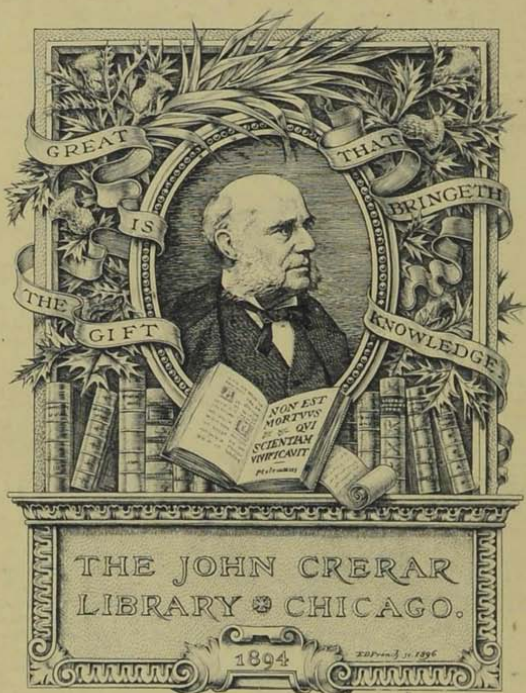


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A. A. GRIFFING IRON COMPANY

Catalogue G 11



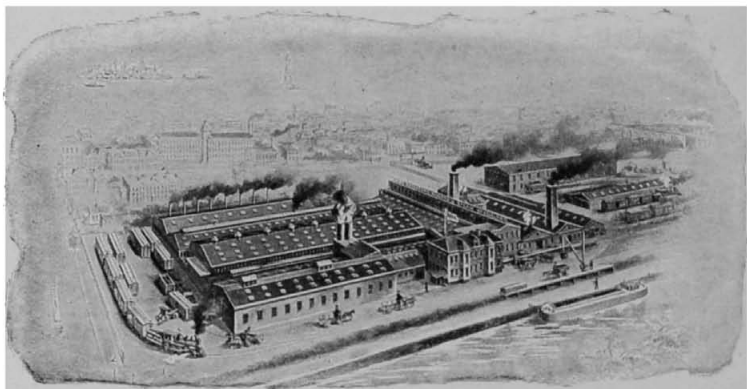
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THE

JOHN CREVIER

Illustrated

Trade Catalogue and Price List

of

Trade **BUNDY** Mark

Radiators, Boilers, Tank Heaters

Steam Traps, Separators

Feed Water Heaters

And other Specialties and Supplies

Pipe and Fittings, Boiler Tubes

Brass and Iron Goods

for

Steam, Water, Gas, Air and Electricity



Manufactured by

**A. A. GRIFFING IRON COMPANY**

*OFFICES:*

NEW YORK, 66 AND 68 CENTRE STREET

BOSTON, 177 AND 179 FORT HILL SQUARE

PHILADELPHIA, 382 BOURSE BUILDING

LONDON    PARIS    HAMBURG    BRUSSELS

*WORKS:*

JERSEY CITY, N. J., U. S. A

CATALOGUE G-11, AUGUST, 1901

317  
RADIO BLDG.  
WASH.



NEW YORK STORE OF A. A. GRIFFING IRON COMPANY,  
66 & 68 CENTRE STREET, CORNER WORTH.

PRESS OF BELLMER H. FORCE,  
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260 WEST BROADWAY, NEW YORK.

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# Conditions of Sale.

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The ratings of all Bundy Boilers provide that in estimating the size of boiler required, all piping (mains and risers, flow and return) shall be figured as radiating surface in addition to the cast iron direct radiation to be used, and are based on a standard of two pounds pressure at the boiler for steam and a temperature of 180 degrees for water.

When a pipe coil or cast iron section is introduced into the fire-pot, or a steam coil placed in a tank for the purpose of heating water for domestic use, additional capacity should be provided for in estimating size of boiler required at the rate of  $1\frac{1}{4}$  square feet of direct radiation, if steam, or 2 square feet, if water, for each gallon of water to be thus heated per hour.

For figuring size of boiler required refer to formula given in back of catalogue.

No goods are to be returned until permission from us has first been obtained. Goods returned without said permission will not be credited, but held subject to orders. Our charge on goods returned, after permission is given, is to deduct 10% for handling.

Our responsibility ceases as soon as goods are delivered in good order and condition at Railroad Depot or Wharf and receipt taken for the same; or, for local deliveries, the delivering of the goods at the place designated by the Buyer releases us from all claims.

All orders are received subject to fires, accidents, strikes, lock-outs, the action of the elements, political disturbances affecting commerce and transportation, and other causes beyond our control.

TERMS: Cash until a credit is granted, then 60 days net on boilers and radiators, or 1% discount for cash received within 15 days from date of invoice, pipe, 1% in 10 days, fittings and supplies, 2% in 10 days.

On steam specialties, 30 days net or 2% for cash received within 10 days from date of invoice.

All prices and discounts are made subject to change without notice.

All claims for corrections or deductions must be made within 10 days after receipt of goods.

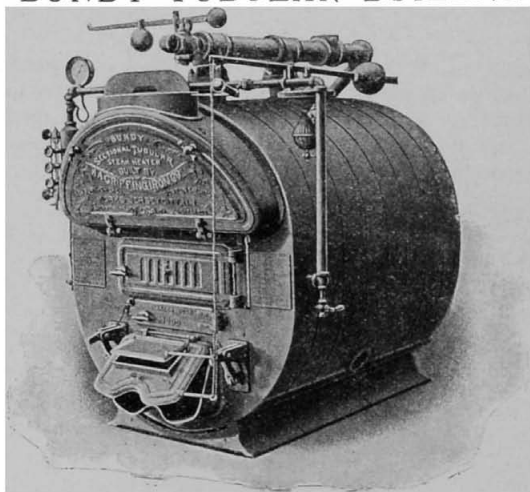
Boxing and crating, when required, charged at cost.

Cartage subject to our regular charges, or special arrangement.

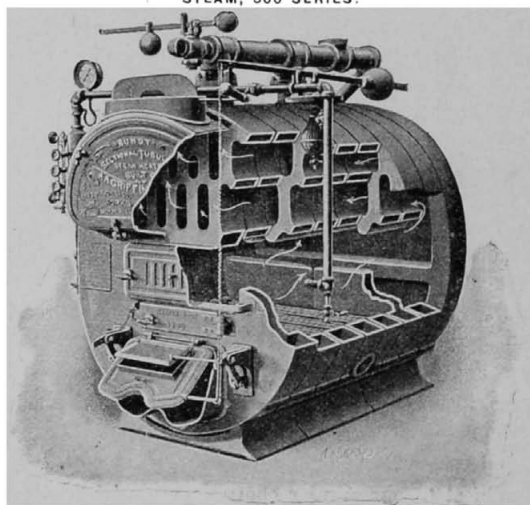
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## BUNDY TUBULAR BOILERS.



STEAM, 500 SERIES.



SHOWING WROUGHT IRON HEADER.

## BUNDY TUBULAR BOILERS.

## 300 SERIES—STEAM.

No.	Rating, sq. ft.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height,* inches.	Water Line, inches.	Smoke Pipe, inches.	Number of Sections.	Weight, lbs.
304	350	\$250	26 x 16	32	32	52	42	8	4	2600
305	550	320	26 x 24	40	32	52	42	8	5	3200
306	750	390	26 x 32	48	32	52	42	8	6	3800
307	950	460	26 x 40	56	32	52	42	10	7	4400
308	1150	530	26 x 48	64	32	52	42	10	8	5000
309	1350	600	26 x 56	72	32	52	42	10	9	5600

\* Does not include Header, which adds 12 inches.

## 500 SERIES—STEAM.

No.	Rating, sq. ft.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height,* inches.	Water Line, inches.	Smoke Pipe, inches.	Number of Sections.	Weight, lbs.
505	900	\$480	34 $\frac{1}{2}$ x 24	40	48	60	46	10	5	5000
506	1300	590	34 $\frac{1}{2}$ x 32	48	48	60	46	10	6	5900
507	1700	700	34 $\frac{1}{2}$ x 40	56	48	60	46	12	7	6800
508	2200	810	40 x 40	64	48	60	46	12	8	7700
509	2600	920	40 x 40	72	48	60	46	12	9	8600
510	3100	1030	40 x 48	80	48	60	46	14	10	9500
511	3500	1140	40 x 56	88	48	60	46	14	11	10400
512	3900	1250	40 x 64	96	48	60	46	14	12	11300
513	4300	1360	40 x 64	104	48	60	46	18	13	12200
514	4700	1470	40 x 64	112	48	60	46	18	14	13100
515	5100	1580	40 x 64	120	48	60	46	18	15	14000
516	5500	1690	40 x 64	128	48	60	46	18	16	14900

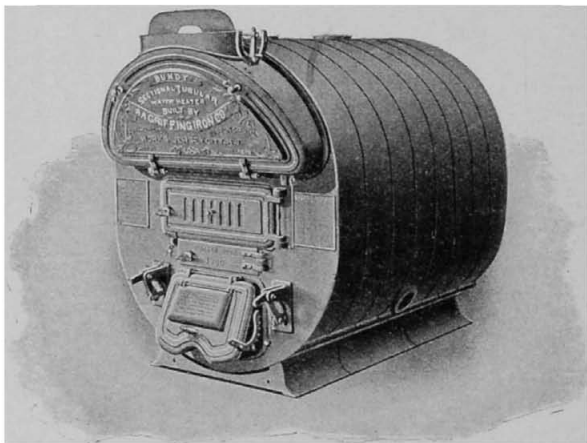
\* Does not include Header, which adds 17 inches.

For List of Tappings, see another page.

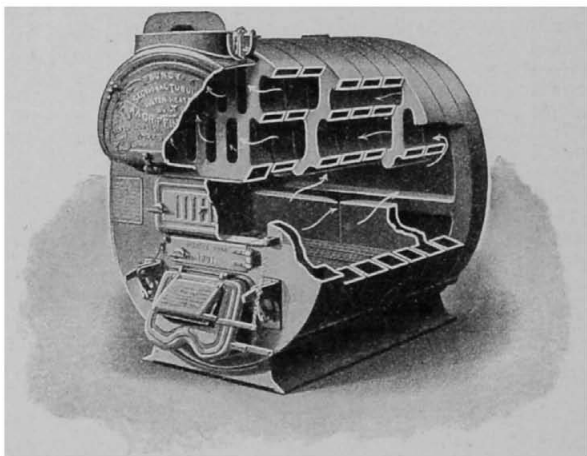
Unless otherwise ordered, Boilers Nos. 304, 305, 505, 506 and 507 will have rear smoke connection; larger sizes, front smoke connection, excepting for burning soft coal, when all sizes will have front smoke connection. When specially ordered, grates of larger size may be furnished.

All Bundy Sectional Tubular Steam Boilers (300 and 500 series) are made to conform with the requirements of the Boiler Inspection Department of Massachusetts District Police, excepting that the police safety valve is not furnished unless specially ordered, when it will be sent and charged for extra. Each boiler has a safety fusible plug.

## BUNDY TUBULAR BOILERS.



WATER, 600 SERIES



INTERIOR VIEW.

## BUNDY TUBULAR BOILERS.

## 400 SERIES—WATER.

No.	Rating, sq. ft.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Smoke Pipe, inches.	Number of Sections.	Weight, lbs.
401	575	\$234	26 x 16	32	32	52	8	4	2600
405	925	304	26 x 24	40	32	52	8	5	3200
406	1250	374	26 x 32	48	32	52	8	6	3800
407	1575	444	26 x 40	56	32	52	10	7	4400
408	1900	514	26 x 48	64	32	52	10	8	5000
409	2250	584	26 x 56	72	32	52	10	9	5600

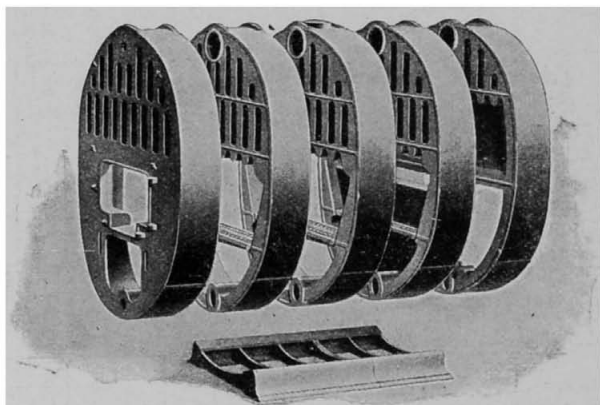
## 600 SERIES—WATER.

No.	Rating, sq. ft.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Smoke Pipe, inches.	Number of Sections.	Weight, lbs.
605	1500	\$464	34 $\frac{1}{2}$ x 24	40	48	60	10	5	5000
606	2150	574	34 $\frac{1}{2}$ x 32	48	48	60	10	6	5900
607	2825	684	34 $\frac{1}{2}$ x 40	56	48	60	12	7	6800
608	3650	794	40 x 40	64	48	60	12	8	7700
609	4300	904	40 x 40	72	48	60	12	9	8600
610	5125	1014	40 x 48	80	48	60	14	10	9500
611	5800	1124	40 x 56	88	48	60	14	11	10400
612	6450	1234	40 x 64	96	48	60	14	12	11300
613	7100	1344	40 x 64	104	48	60	18	13	12200
614	7775	1454	40 x 64	112	48	60	18	14	13100
615	8425	1564	40 x 64	120	48	60	18	15	14000
616	9100	1674	40 x 64	128	48	60	18	16	14900

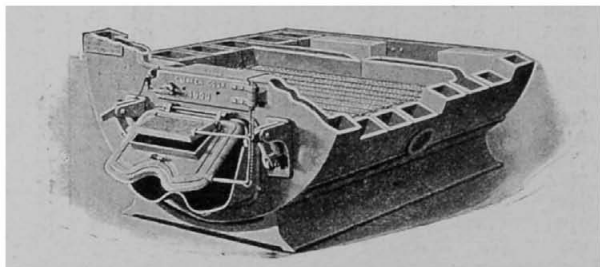
For List of Tappings, see another page.

Unless otherwise ordered, Boilers Nos. 401, 405 and 605 will have rear smoke connection; larger sizes, front smoke connection, excepting for burning soft coal, when all sizes will have front smoke connection. When specially ordered, grates of larger size may be furnished.

## BUNDY TUBULAR BOILERS.



SHOWING CONSTRUCTION.



SHOWING GRATE AND BASE.

Water circulates all around underneath the ash pit.

## BUNDY TUBULAR BOILERS.

### LIST OF TAPPINGS—STEAM.

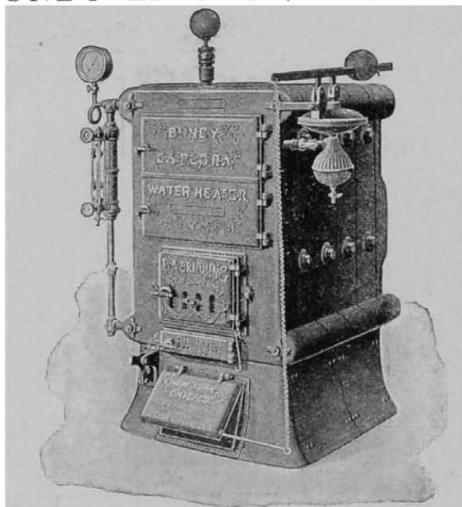
No.	No. of Outlets.	Size of Outlets, inches.	No. of Side Return Sections.	No. of Side Returns.	Size of Side Returns, inches.	No. of Rear Returns.	Size of Rear Returns, inches.
304	1	3				1	2 $\frac{1}{2}$
305	1	3				1	2 $\frac{1}{2}$
306	1	4				1	3
307	1	4	1	2	2 $\frac{1}{2}$	1	2 $\frac{1}{2}$
308	1	4	1	2	2 $\frac{1}{2}$	1	2 $\frac{1}{2}$
309	1	5	1	2	2 $\frac{1}{2}$	1	2 $\frac{1}{2}$
505	1	3				1	2 $\frac{1}{2}$
506	1	4				1	3
507	1	4				1	3
508	1	4	1	2	3	1	3
509	1	5	1	2	3	1	3
510	1	5	1	2	4	1	3
511	1	5	1	2	4	1	3
512	1	5	1	2	4	1	3
513	1	6	1	2	4	1	3
514	1	6	1	2	4	1	3
515	1	7	1	2	4	1	3
516	1	7	1	2	4	1	3

### LIST OF TAPPINGS—WATER.

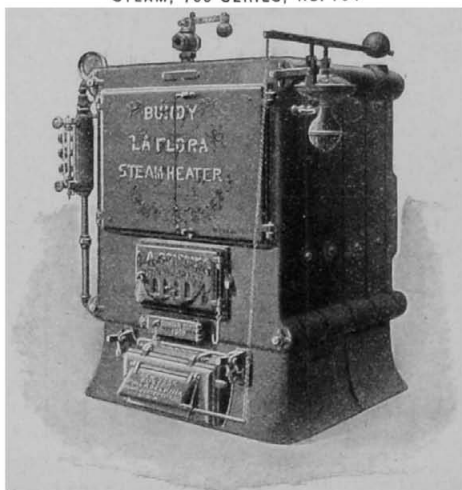
No.	No. of Outlets.	Size of Outlets, inches.	No. of Side Return Sections.	No. of Side Returns.	Size of Side Returns, inches.	No. of Rear Returns.	Size of Rear Returns, inches.
404	1	3				2	2
405	1	3				2	2
406	2	3	1	2	3	2	2
407	2	3	1	2	3	2	2
408	3	3	2	4	3	2	2
409	3	3	2	4	3	2	2
605	1	4				2	3
606	2	4	1	2	4	2	3
607	2	4	1	2	4	2	3
608	2	4	1	2	4	2	3
609	3	4	2	4	4	2	3
610	3	4	2	4	4	2	3
611	3	4	2	4	4	2	3
612	3	4	2	4	4	2	3
613	3	4	2	4	4	2	3
614	3	4	2	4	4	2	3
615	3	4	2	4	4	2	3
616	3	4	2	4	4	2	3

All Bundy Tubular Steam Boilers are furnished with wrought iron header connected by branches, and with an equalizing pipe to the rear section.

## BUNDY LA FLORA BOILERS.



STEAM, 700 SERIES, No. 704



STEAM, 700 SERIES No. 708



## BUNDY LA FLORA BOILERS.

## 700 SERIES—STEAM.

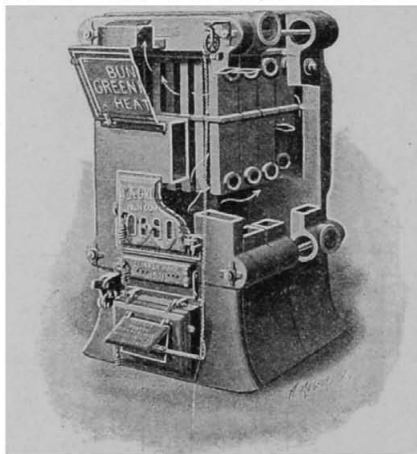
No.	Rating Sq. Feet.		Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Water Line, inches.	Outlets, inches.	Inlets, inches.	Smoke Pipe, inches.	No. of sections.	Weight, lbs.
		Price.										
702	300	\$150	19½ x 16	27	33	56	44	2-2½	2-2	8	4	1800
703	500	210	19½ x 24	35	33	56	44	2-2½	2-2	8	5	2300
703a	600	240	24 x 24	35	37½	64	51	2-2½	2-2	8	5	2800
704	700	270	19½ x 32	43	33	56	44	2-2½	2-2	8	6	2900
704a	800	300	19½ x 40	51	33	56	44	2-2½	2-2	8	7	3100
705	900	330	24 x 32	43	37½	64	51	2-2½	2-2	10	6	3700
706	1100	390	24 x 40	51	37½	64	51	2-3	2-2½	10	7	4300
707	1300	450	24 x 48	59	37½	64	51	2-3	2-2½	10	8	4900
708	1500	504	37 x 32	43	50½	64	51	2-3	2-2½	12	6	5100
709	1800	576	37 x 40	51	50½	64	51	2-4	2-2½	12	7	5900
710	2100	648	37 x 48	59	50½	64	51	2-4	2-2½	14	8	6700
711	2400	720	37 x 56	67	50½	64	51	2-4	2-2½	14	9	7500

## 1000 SERIES—WATER.

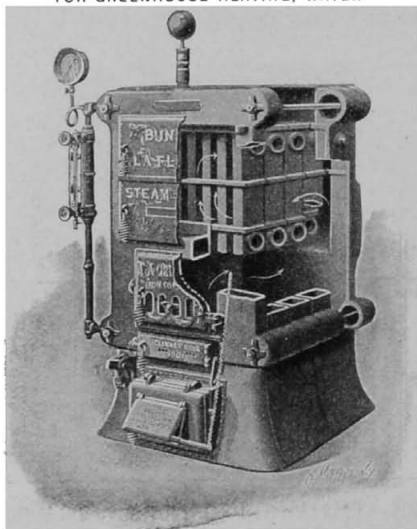
No.	Rating Sq. Feet.		Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Outlet, inches.	Inlets, inches.	Smoke Pipe, inches.	No. of Sections.	Weight, lbs.
		Price.									
1002	500	\$140	19½ x 16	27	33	56	2-2½	2-2	8	4	1800
1003	825	200	19½ x 24	35	33	56	2-2½	2-2	8	5	2300
1003a	1000	230	24 x 24	35	37½	64	2-2½	2-2	8	5	2800
1004	1150	260	19½ x 32	43	33	56	2-2½	2-2	8	6	2900
1004a	1300	286	19½ x 40	51	33	56	2-2½	2-2	8	7	3300
1005	1500	324	24 x 32	43	37½	64	2-2½	2-2	10	6	3700
1006	1800	376	24 x 40	51	37½	64	2-3	2-2½	10	7	4300
1007	2150	440	24 x 48	59	37½	64	2-3	2-2½	10	8	4900

Boilers Nos. 709, 710, 711 and 1006, 1007 have 2.3 inch side returns.

## BUNDY LA FLORA BOILERS.



FOR GREENHOUSE HEATING, WATER



STEAM, 700 SERIES. INTERIOR VIEW.

BUNDY LA FLORA GREENHOUSE  
BOILERS.  
1500 SERIES—STEAM.

No.	CAPACITY, LINEAL FEET.			
	2-inch Pipe.	1½-inch Pipe.	1¼-inch Pipe.	1-inch Pipe.
1502	325	425	475	600
1503	550	700	800	1000
1503a	650	825	950	1200
1504	775	975	1100	1400
1504a	875	1100	1275	1600
1505	1000	1250	1425	1800
1506	1200	1525	1750	2200
1507	1425	1800	2050	2600

Price, weight, dimensions, etc., same as corresponding sizes of Steam Heaters on page 13.

1600 SERIES—WATER.

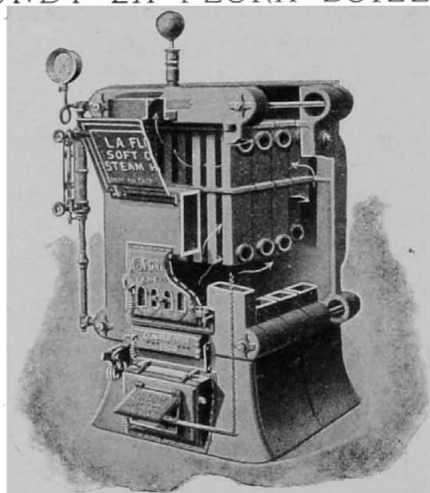
No.	CAPACITY, LINEAL FEET.			
	4-inch Pipe.	3-inch Pipe.	2-inch Pipe.	1½-inch Pipe.
1602	450	500	525	700
1603	750	850	900	1150
1603a	900	1000	1050	1350
1604	1000	1200	1275	1600
1604a	1150	1350	1425	1800
1605	1850	1550	1650	2050
1606	1600	1900	2000	2500
1607	2000	2200	2350	3000

Price, weight, dimensions, etc., same as corresponding sizes of Water Heaters on page 13.

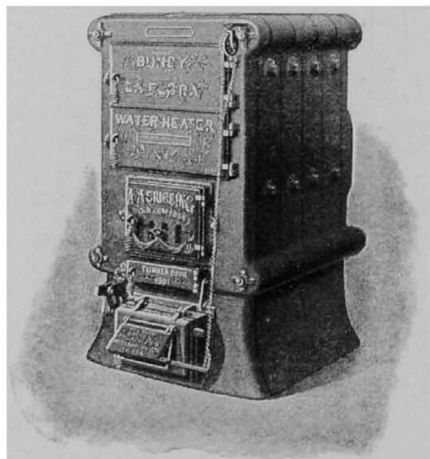
Capacity in 4-inch and 3-inch pipe is figured for cast iron pipe; other capacities, for wrought iron pipe.

Hubs are furnished for cast iron pipe connection or threaded for wrought iron. Heater can be furnished with either top or side outlets.

## BUNDY LA FLORA BOILERS.



FOR BURNING SOFT COAL.



WATER, 1000 SERIES, No. 1004

## BUNDY LA FLORA BOILERS.

FOR BURNING SOFT COAL.

## 1100 SERIES--STEAM.

No.	Rating, sq. ft.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Water Line, inches.	Outlets, inches.	Inlets, inches.	Smoke Pipe, inches.	No. of Sections.
1102	300	19½ x 16	27	33	56	44	2-2½	2-2	8	4
1103	500	19½ x 24	35	33	56	44	2-2½	2-2	8	5
1103a	600	24 x 24	35	37½	64	51	2-2½	2-2	8	5
1104	700	19½ x 32	43	33	56	44	2-2½	2-2	8	6
1104a	800	19½ x 40	51	33	56	44	2-2½	2-2	8	7
1105	900	24 x 32	43	37½	64	51	2-2½	2-2	10	6
1106	1100	24 x 40	51	37½	64	51	2-3	2-2½	10	7
1107	1300	24 x 48	59	37½	64	51	2-3	2-2½	10	8

List prices same as those of corresponding sizes of Steam Boilers on page 13.

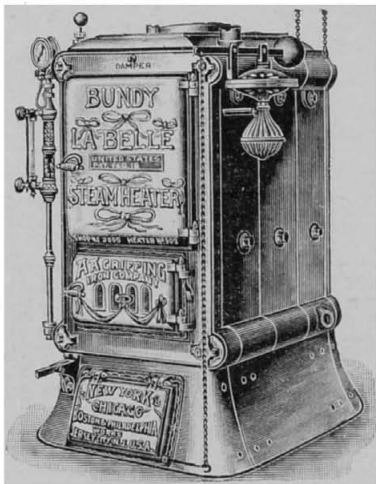
## 1200 SERIES--WATER.

No.	Rating, sq. ft.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Outlets, inches.	Inlets, inches.	Smoke Pipe, inches.	No. of Sections.
1202	500	19½ x 16	27	33	56	2-2½	2-2½	8	4
1203	825	19½ x 24	35	33	56	2-2½	2-2½	8	5
1203a	1000	24 x 24	35	37½	64	2-2½	2-2½	8	5
1204	1150	19½ x 32	43	33	56	2-2½	2-2½	8	6
1204a	1300	19½ x 40	51	33	56	2-2½	2-2½	8	7
1205	1500	24 x 32	43	37½	64	2-2½	2-2½	10	5
1206	1800	24 x 40	51	37½	61	2-3	2-2½*	10	7
1207	2150	24 x 48	59	37½	61	2-3	2-2½*	10	8

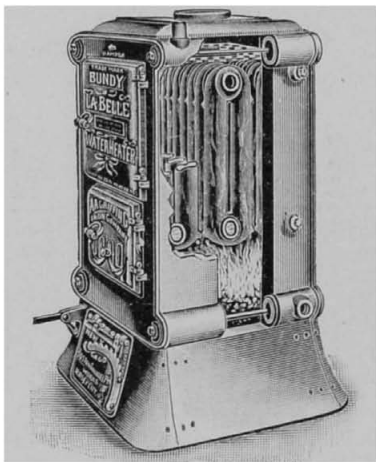
List prices same as those of corresponding sizes of Water Heaters on page 13.

\* Heaters Nos. 1206 and 1207 also have 2-3 inch Side Inlets.

## BUNDY LA BELLE BOILERS.



STEAM 900 SERIES, No. 903.



SHOWING FIRE TRAVEL.

## BUNDY LA BELLE BOILERS.

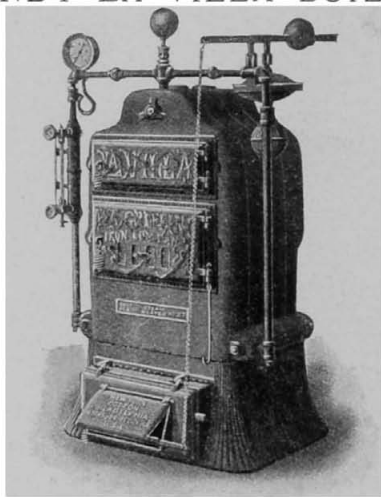
## 900 SERIES—STEAM.

No.	Rating Sq. Feet.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Water Line, inches.	Outlets, inches.	Inlets, inches.	Smoke Pipe, inches.	Number of Sections.	Weight, lbs.
902	300	\$130	19½ x 16	27	33	60	46	2-2½	2-2	8	2	1250
903	500	190	19½ x 24	35	33	60	46	2-2½	2-2	8	3	1700
904	650	235	19½ x 32	43	33	60	46	2-2½	2-2	8	4	2160
905	850	295	19½ x 40	51	33	60	46	2-2½	2-2	8	5	2620
906	1000	340	19½ x 48	59	33	60	46	2-3	2-2½	10	6	3080

## 800 SERIES—WATER.

No.	Rating Sq. Feet.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Outlets, inches.	Inlets, inches.	Smoke Pipe, inches.	Number of Sections.	Weight, lbs.
802	500	\$120	19½ x 16	27	33	60	2-2½	2-2½	8	2	1250
803	825	180	19½ x 24	35	33	60	2-2½	2-2½	8	3	1700
804	1050	220	19½ x 32	43	33	60	2-2½	2-2½	8	4	2160
805	1400	288	19½ x 40	51	33	60	2-2½	2-2½	8	5	2620
806	1650	330	19½ x 48	59	33	60	2-3	2-3	10	6	3080

## BUNDY LA VILLA BOILERS.



STEAM, 25 SERIES



WATER, 50 SERIES.



## BUNDY LA VILLA BOILERS.

## 25 SERIES—STEAM.

No.	Rating, sq. ft.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Water Line, inches.	Outlets, inches.	Inlets, inches.	Smoke Pipe, inches.	Number of Sections.	Weight, lbs.
25	200	\$100	12 x 18	31	25	53	47	2-1½	2-1¼	6	4	1200
26	250	115	12 x 24	37	25	53	47	2-2	2-1½	6	5	1400
27	350	145	18 x 18	31	31	53	47	2-2	2-1½	8	4	1600
28	475	183	18 x 24	37	31	53	47	2-2½	2-2	8	5	1800
29	600	220	18 x 30	43	31	53	47	2-2½	2-2	8	6	2100
30	700	250	18 x 36	49	31	53	47	2-2½	2-2	8	7	2400
31	800	280	18 x 42	55	31	53	47	2-2½	2-2	8	8	2700

NOTE.—The 25 and 50 Series La Villa Boilers are made *without* the ornamental side plates and ash pit base.

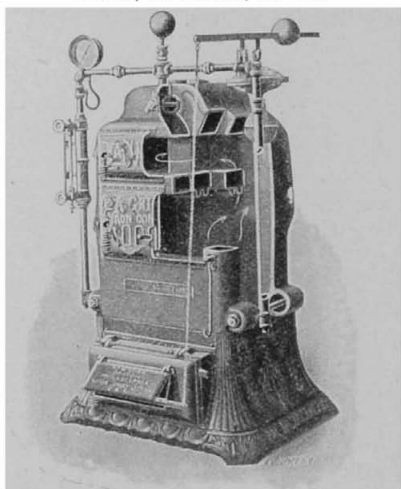
## 50 SERIES—WATER.

No.	Rating, sq. ft.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Outlets, inches.	Inlets, inches.	Smoke Pipe, inches.	Number of Sections.	Weight, lbs.
50	325	\$ 90	12 x 18	31	25	53	2-1½	2-1½	6	4	1200
52	400	105	12 x 24	37	25	53	2-2	2-2	6	5	1400
54	575	135	18 x 18	31	31	53	2-2	2-2	8	4	1600
56	775	173	18 x 24	37	31	53	2-2½	2-2½	8	5	1800
58	1000	210	18 x 30	43	31	53	2-2½	2-2½	8	6	2100
60	1150	240	18 x 36	49	31	53	2-3	2-3	8	7	2400
62	1300	266	18 x 42	55	31	53	2-3	2-3	8	8	2700

## BUNDY LA VILLA BOILERS.



STEAM, 100 SERIES, No 109.



SHOWING FIRE TRAVEL.

## BUNDY LA VILLA BOILERS.

## 100 SERIES—STEAM.

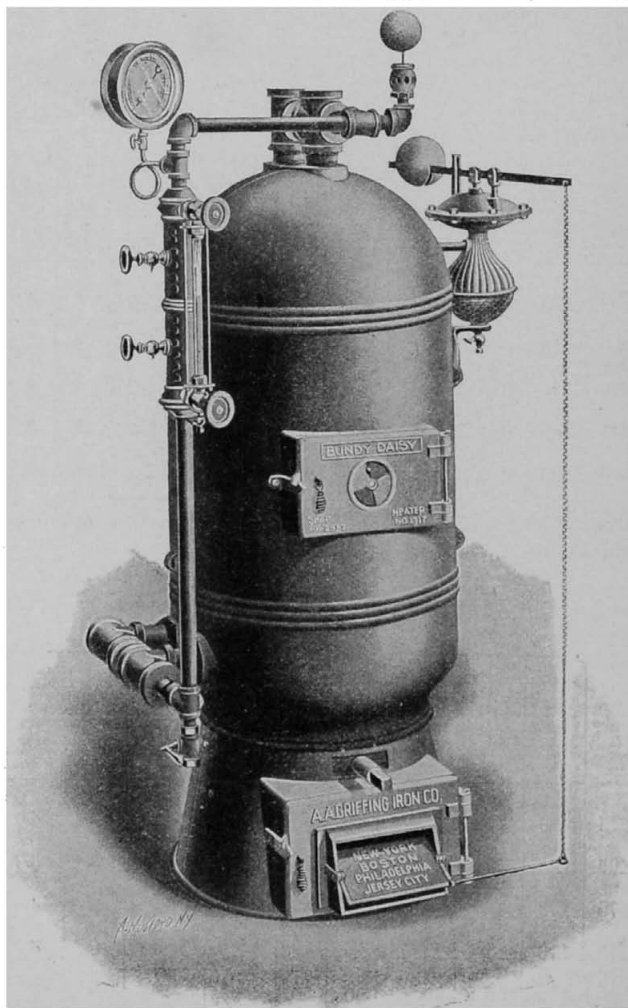
No.	Rating.	Price.	Grate, Inches.	Length, Inches.	Width, Inches.	Height, Inches.	Water Line, Inches.	Outlet, Inches.	Inlet, Inches.	Smoke Pipe, Inches.	Number of Sections.	Weight, lbs.
105	200	\$100	12 x 18	37	31	56	50	2-1½	2-1¼	6	4	1400
106	250	115	12 x 24	43	31	56	50	2-2	2-1½	6	5	1600
107	350	145	18 x 18	37	37	56	50	2-2	2-1½	8	4	1800
108	475	183	18 x 24	43	37	56	50	2-2½	2-2	8	5	2100
109	610	220	18 x 30	49	37	56	50	2-2½	2-2	8	6	2400

NOTE.—The 100 and 200 Series La Villa Boilers are made *with* the ornamental side plates and ash pit base.

## 200 SERIES—WATER.

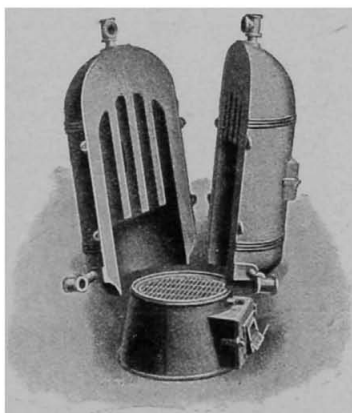
No.	Rating.	Price.	Grate, Inches.	Length, Inches.	Width, Inches.	Height, Inches.	Outlet, Inches.	Inlet, Inches.	Smoke Pipe, Inches.	Number of Sections.	Weight, lbs.
210	325	90	12 x 18	37	31	56	2-1½	2-1½	6	4	1400
212	400	105	12 x 24	43	31	56	2-2	2-2	6	5	1600
214	575	135	18 x 18	37	37	56	2-2	2-2	8	4	1800
216	775	173	18 x 24	43	37	56	2-2½	2-2½	8	5	2100
218	1000	210	18 x 30	49	37	56	2-2½	2-2½	8	6	2400

## BUNDY DAISY TANK HEATER—STEAM.



L EXTERIOR VIEW

## BUNDY DAISY TANK HEATER.



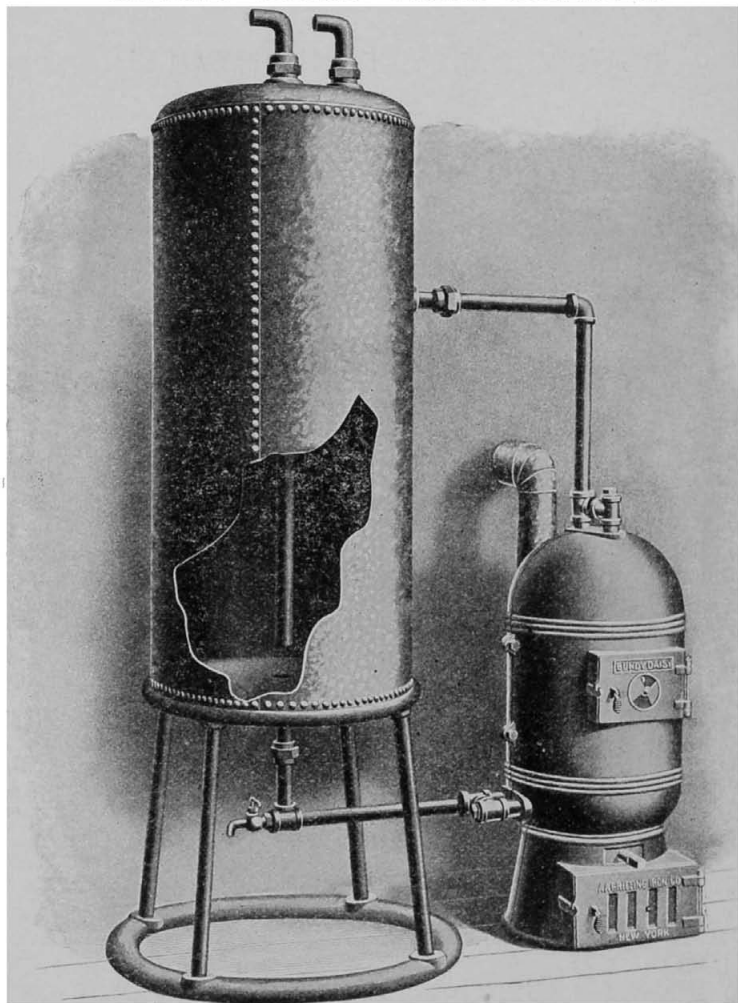
INTERIOR VIEW, SHOWING CONSTRUCTION.

Can be arranged to use each half of heater on separate circulation.

## LIST OF SIZES—STEAM.

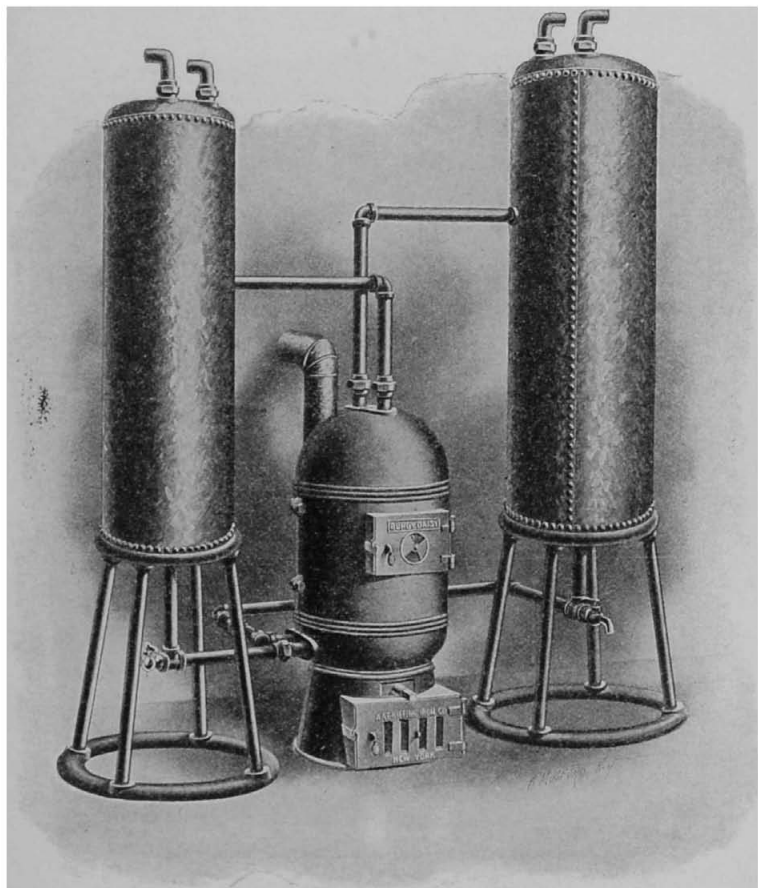
No.	Grate, diameter in inches.	Capacity, square feet.	Price.
1313	13	125	\$64.40
1315	15	150	72.20
1317	17	200	100.00

## BUNDY DAISY TANK HEATER.



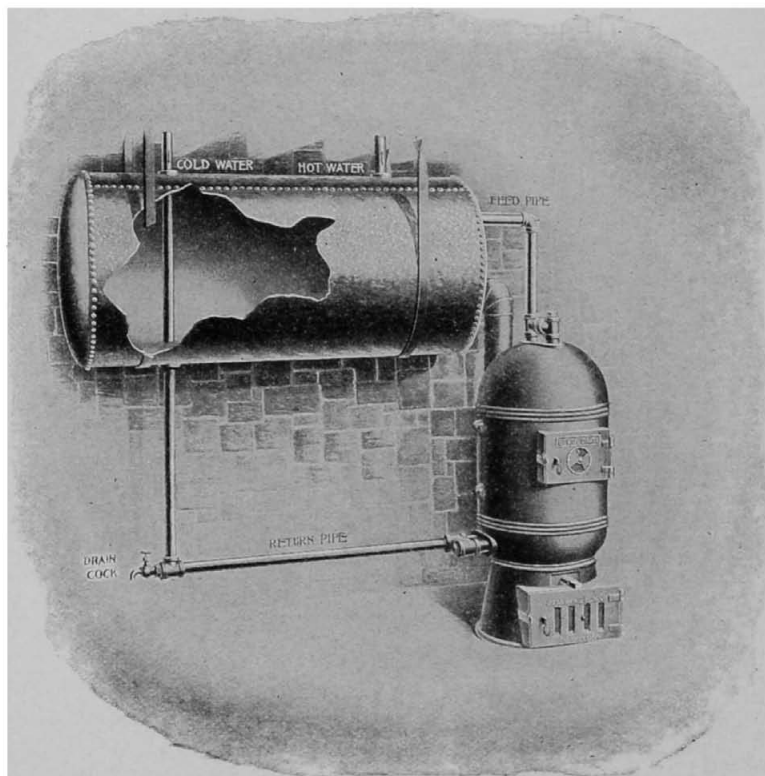
SHOWING CONNECTION TO ONE VERTICAL TANK.

BUNDY DAISY TANK HEATER  
AND TWO VERTICAL TANKS.



SHOWING DAISY TANK HEATER WITH EACH HALF CONNECTED TO SEPARATE VERTICAL TANK

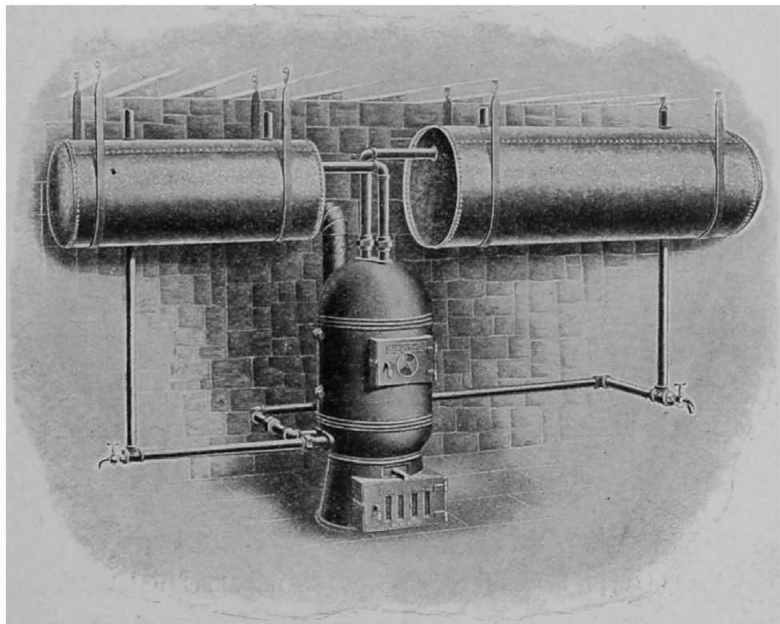
## BUNDY DAISY TANK HEATER.



CONNECTED TO ONE HORIZONTAL TANK.

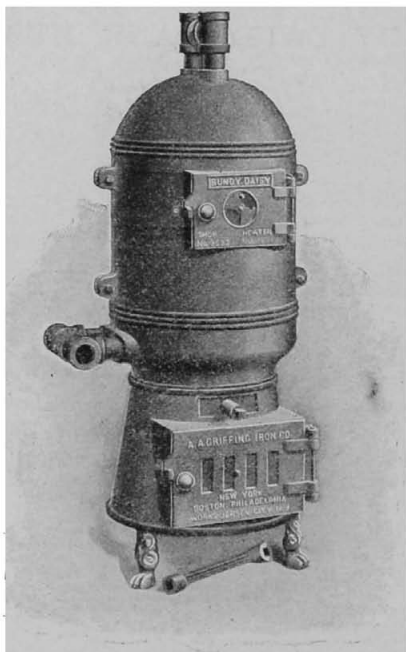


BUNDY DAISY TANK HEATER.



SHOWING DAISY TANK HEATER, WITH EACH HALF CONNECTED TO SEPARATE HORIZONTAL TANK

## BUNDY DAISY TANK HEATER.



WATER—1400 SERIES.—No. 1411.

Used to supply hot water to laundries, bath tubs, kitchen sinks, etc

## LIST OF SIZES.

No.	Grate, diameter in inches.	Capacity.		Price.
		Square feet.	Gallons per hour.	
1411	11	150	195	\$36 60
1413	13	200	260	44.40
1415	15	250	325	52.20
1417	17	300	390	60.00

## BUNDY LA VILLA TANK HEATER.



## 50 SERIES—WATER.

No.	Gals. per hour.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Outlets, inches	Inlets, inches.	Smoke Pipe, inches.	No. of Sections
50	425	\$ 90	12 x 18	31	25	53	2-1½	2 1½	6	4
52	525	105	12 x 24	37	25	53	2-2	2-2	6	5
54	745	135	18 x 18	31	31	53	2-2	2-2	8	4
56	1015	173	18 x 24	37	31	53	2-2½	2-2½	8	5
58	1300	210	18 x 30	43	31	53	2-2½	2-2½	8	6

## BUNDY LA VILLA TANK HEATER.



## 200 SERIES—WATER.

No.	Gals. per hour.	Price.	Grate, inches.	Length, inches.	Width, inches.	Height, inches.	Outlets, inches.	Inlets, inches.	Smoke Pipe, inches.	No. of Sections.
210	425	\$90	12 x 18	37	31	56	2-1½	2-1½	6	4
212	525	105	12 x 24	43	31	56	2-2	2-2	6	5
214	745	135	18 x 18	37	37	56	2-2	2-2	8	4
216	1015	173	18 x 24	43	37	56	2-2½	2-2½	8	5
218	1300	210	18 x 30	49	37	56	2-2½	2-2½	8	6

PAGES

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MISSING

IN

ORIGINAL



## BUNDY PYRO WALL DIRECT STEAM AND WATER RADIATORS.

No. of Sections.	Length, 10¼ inches per Section. *	Heating Surface—Square Feet
		38-inch Height, 8 square feet per section.
1	10¼	8
2	20½	16
3	30¾	24
4	41	32
5	51¼	40
6	61½	48
7	71¾	56
8	82	64
9	92¼	72
10	102½	80
Price per section .....		\$3.36
Price per foot .....		.42

Each section is 3 inches wide. Width of legs, 5 inches.

Unless otherwise ordered, all Pyro Wall Radiators are tapped 1½ inches and bushed according to tapping list.

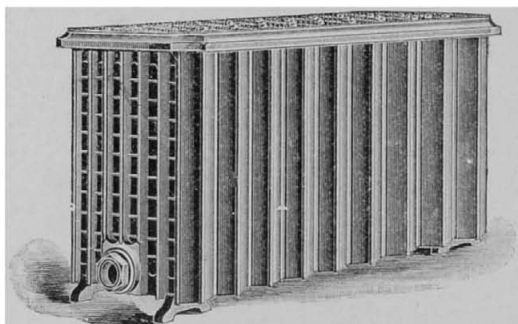
All openings have right-hand threads unless otherwise ordered.

Connected with extra heavy 1½ inch right and left-hand threaded nipples; steam, at bottom; water, at bottom and top.

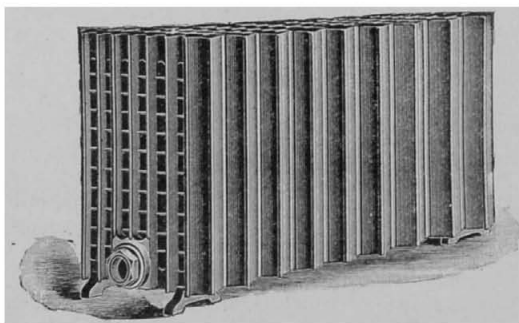
Height of center of tapping from floor: 51⅞ inches.

\*In estimating length of radiators, add 1 inch for the bushing or plug at each end, when so tapped.

BUNDY DEFIANCE STEAM AND WATER  
RADIATORS.



WITH TOP.



WITHOUT TOP.



## BUNDY DEFIANCE DIRECT STEAM AND WATER RADIATORS.

Number of sections.	Length, 4 inches per section. *	Heights, 18½, 19, 19½, 20, 20½, 21, 21½, 22, 22½, 23, and 23½ inches. Heating Surface. 7 sq. ft. per sec.	Heights, 13½, 14, 14½, 15, 15½, 16, 16½, 17, 17½, 18 and 18½ inches. Heating Surface. 4 sq. ft. per sec.
		2	8
3	12	21	12
4	16	28	16
5	20	35	20
6	24	42	24
7	28	49	28
8	32	56	32
9	36	63	36
10	40	70	40
11	44	77	44
12	48	84	48
13	52	91	52
14	56	98	56
15	60	105	60
16	64	112	64
17	68	119	68
18	72	126	72
19	76	133	76
20	80	140	80
21	84	147	84
22	88	154	88
23	92	161	92
24	96	168	96
25	100	175	100
Price per section.....		\$4 06	2 64
Price per foot.....		57	58

Each 7-foot section is 11 inches wide. Each 4-foot section is 8 inches wide.

Unless otherwise ordered, Defiance Radiators are tapped 2 inches and bushed according to tapping list.

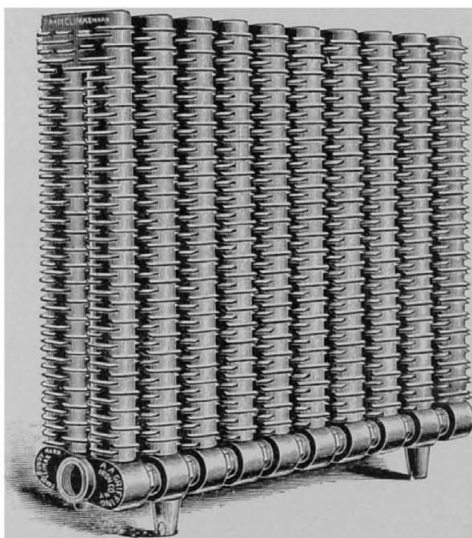
All openings have right-hand threads unless otherwise ordered.

Connected with extra heavy 2 inch right-hand threaded nipples; steam, at bottom; water, at bottom and top.

Height of center of tapping from floor, for the 20 inch or 15 inch height, if tapped ¾-inch, 3¼ inches; 1-inch, 3½ inches; 1¼-inch, 3¾ inches; 1½-inch and 2 inch, 3¾ inches; the distance for other heights increasing or decreasing according to the height of radiator. The height of the radiator depends upon the height of the detachable legs used.

\*In estimating length of radiator, add 1 inch for each bushing or plug.

BUNDY CLIMAX DIRECT STEAM  
RADIATOR.



CLIMAX VERTICAL, DIRECT.

## BUNDY CLIMAX DIRECT STEAM RADIATOR.

No. of Sections.	Length, 4-inches per Section. *	Heating Surface—Square Feet.
		38-inches Height, 13 square feet per section.
2	8	26
3	12	39
4	16	52
5	20	65
6	24	78
7	28	91
8	32	104
9	36	117
10	40	130
11	44	143
12	48	156
13	52	169
14	56	182
15	60	195
Price per section .....		\$5.46
Price per foot .....		.42

Each section is 11 inches wide. Width of legs, 11 inches.

Unless otherwise ordered, all Climax Direct Radiators are tapped 2 inches and bushed according to tapping list.

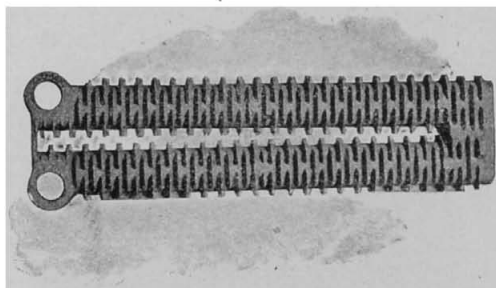
All openings have right-hand threads unless otherwise ordered.

Connected with extra heavy 2 inch right and left-hand threaded nipples.

Height of center of tapping from floor, 2 $\frac{1}{4}$  inches.

\*In estimating length of radiator, add 1 inch for the bushing or plug at each end, when so tapped.

## BUNDY CLIMAX INDIRECT STEAM OR WATER RADIATORS.



SINGLE SECTION

Each section of Climax Indirect contains 13 square feet of heating surface.

Length of section, 36 inches ; height, at connecting end, 11 inches ; at opposite end, 9 inches.

Width each section occupies in stack,  $3\frac{1}{2}$  inches ; or, when specially ordered connected with extra long nipples, to give additional air area between sections, this can be increased to 4 inches or  $4\frac{1}{2}$  inches.

The nipples used for connecting sections are extra heavy 2 inches right and left-hand threaded, with hexagon nut in the center.

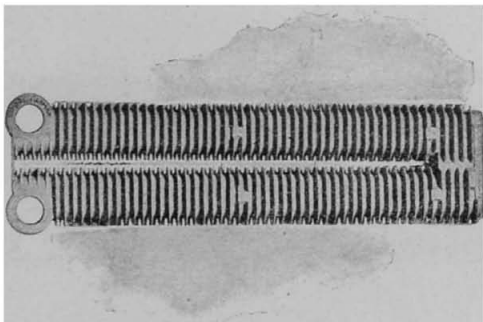
Unless otherwise ordered, Climax Radiators are tapped 2 inches, same end, and bushed according to tapping list. Both supply and return tappings are right hand.

If location of tapping is desired other than regular, we can furnish special tappings ; feed in top or end, return in end or bottom,  $1\frac{1}{2}$  inches tapping or smaller.

NOTE.—For convenience in handling, Indirects will be shipped loose, unless expressly ordered to be built into stacks. Customers should, when ordering, be particular to specify the number of stacks into which the sections are to be built, so that necessary vent sections and nipples may be shipped.

## BUNDY SCHOOL CLIMAX RADIATOR.

STEAM AND WATER—INDIRECT.



BUNDY SCHOOL CLIMAX SECTION

Each section of School Climax Indirect contains 15 sq. feet of heating surface. Price per section, \$4.05 ; per sq. ft., \$0.27.

Length of section, 36 inches ; height, at connecting end, 11 inches ; at opposite end, 9 inches.

Width each section occupies in stack,  $3\frac{1}{2}$  inches ; or, when specially ordered connected with extra long nipples, to give additional air area between sections, this can be increased to 4 inches or  $4\frac{1}{2}$  inches.

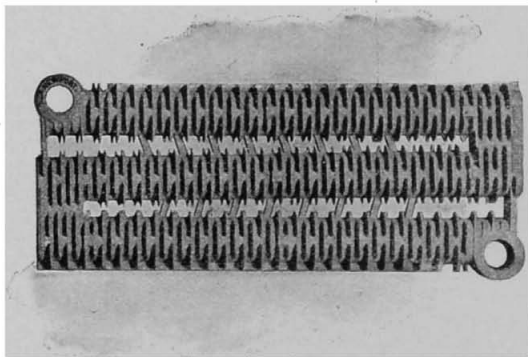
The nipples used for connecting sections are extra heavy 2-inch right and left-handed threaded, with hexagon nut in the center.

Unless otherwise ordered, School Climax Radiators are tapped 2 inches, same end, and bushed according to Tapping List. Both supply and return tapings are right-hand.

If location of tapping is desired other than regular, we can furnish special tapings ; feed in top or end, return in end or bottom,  $1\frac{1}{2}$ -inch tapping or smaller.

NOTE.—For convenience in handling, Indirects will be shipped loose, unless expressly ordered to be built into stacks. Customers should, when ordering be particular to specify the number of stacks into which the sections are to be built, so that necessary vent sections and nipples may be shipped.

## BUNDY NEWPORT INDIRECT STEAM OR WATER RADIATOR.



SINGLE SECTION.

Each section of Newport Indirect contains 20 square feet of heating surface.

Length of section, 37 inches ; height, 16 inches.

Width each section occupies in stack,  $3\frac{1}{2}$  inches ; or, when specially ordered connected with extra long nipples, to give additional air area between sections, can be increased to 4 inches or  $4\frac{1}{2}$  inches.

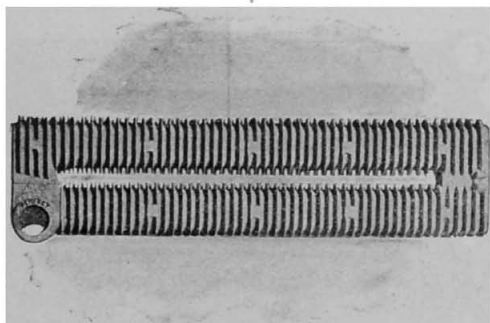
The nipples used for connecting sections are extra heavy 2 inch right and left-hand threaded, with hexagon nut in the center.

Unless otherwise ordered, Newport Radiators are tapped 2 inches, same end, and bushed according to tapping list.

Both supply and return tappings are right-hand.

If location of tapping is desired other than regular, we can furnish special tappings ; feed in top or end, return in end or bottom, 2 inches or smaller.

**NOTE.**—For convenience in handling, Indirects will be shipped loose, unless expressly ordered to be built into stacks. Customers should, when ordering, be particular to specify the number of stacks into which the sections are to be built, so that necessary vent sections and nipples may be shipped.

BUNDY PERFECT INDIRECT STEAM  
RADIATOR.

SINGLE SECTION.

The Bundy Perfect Indirect sections are made 36, 29, 23 and 19 inches long.

Each 36-inch section of Perfect Indirect contains 15 square feet of heating surface; 29-inch section,  $12\frac{1}{2}$  square feet; 23-inch section, 10 square feet; and 19-inch section, 8 square feet.

Length of section, 36 inches; height at connecting end,  $9\frac{3}{4}$  inches; at opposite end,  $9\frac{1}{8}$  inches.

Width each section occupies in stack,  $3\frac{1}{2}$  inches; or, when specially ordered connected with extra long nipples, to give additional air area between sections, this can be increased to 4 inches or  $4\frac{1}{2}$  inches.

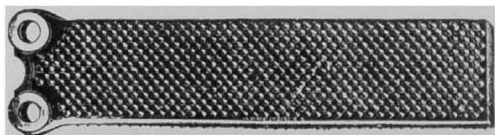
The nipples used for connecting sections are extra heavy 2 inches, right and left-hand threaded, with hexagon nut in the center.

Regular tapping is 2 inches; supply tapping has right-hand threads; return tapping left-hand threads. If smaller than 2 inches tapping be required for Perfect Indirect, a 2-inch nipple and a reducing elbow should be used, instead of a bushing, to avoid interference with diaphragm opening.

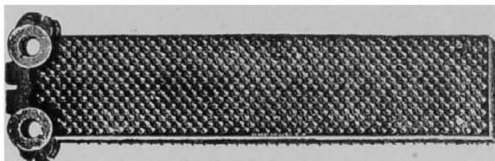
If location of tapping is desired other than regular, we can furnish special tappings; feed in top or end, return in end or bottom,  $1\frac{1}{2}$  inches tapping or smaller.

NOTE.—For convenience in handling, Indirects will be shipped loose, unless expressly ordered to be built into stacks. Customers should, when ordering, be particular to specify the number of stacks into which the sections are to be built, so that necessary vent sections and nipples may be shipped.

## BUNDY PIN INDIRECT STEAM OR WATER RADIATORS.



SCREW NIPPLE CONNECTED.



GASKET OR SLIP NIPPLE CONNECTED.

Each section of Pin Indirect contains 10 square feet of heating surface.

Length of section, 36 inches; height, nipple connected, at connecting end,  $9\frac{1}{2}$  inches, at opposite end,  $7\frac{1}{2}$  inches; gasket or slip nipple connected, at connecting end,  $11\frac{1}{4}$  inches, at opposite end,  $7\frac{1}{2}$  inches.

Width each section occupies in stack,  $2\frac{3}{4}$  inches; or when specially ordered, this can be increased  $\frac{1}{2}$  inch or more, to give additional air area between sections, by furnishing extra long nipples with screw nipple-connected Pin and sections with extra heavy bosses of gasket-connected Pin.

The nipples used for connecting nipple-connected Pin sections are extra heavy 2 inch right and left-hand threaded, with hexagon nut in center or slip nipple.

The gasket-connected Pin sections are faced absolutely true and smooth at point of contact, in addition to which we furnish a paper gasket, and when the sections are drawn together by bolts, the joints are positively tight.

Unless otherwise ordered, all Pin Radiators are tapped 2 inches same end, and bushed according to tapping list. Both supply and return tappings are right-hand.

If location of tapping is desired other than regular, we can furnish special tappings; feed in top or end, return in end or bottom,  $1\frac{1}{4}$  inch tapping or smaller.

NOTE.—For convenience in handling, Indirects will be shipped loose, unless expressly ordered to be built into stacks. Customers, should, when ordering, be particular to specify the number of stacks into which the sections are to be built, so that necessary vent sections and nipples may be shipped.

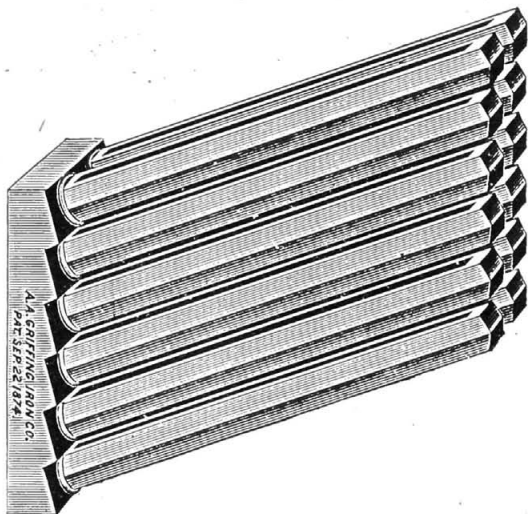


To enable users of Bundy Standard Radiators to figure the amount of surface each loop contains we print the following :

Height of Radiator, inches.	STEAM.		WATER.	
	Standard Loop.	Enlarged or Extended Loop.	Standard Loop.	Enlarged or Extended Loop.
45	.....	.....	4	4 $\frac{3}{4}$
43	.....	.....	3 $\frac{5}{8}$	4 $\frac{1}{2}$
42	3 $\frac{1}{2}$	4 $\frac{1}{4}$	3 $\frac{3}{4}$	4 $\frac{3}{8}$
41	.....	.....	3 $\frac{2}{3}$	4 $\frac{1}{4}$
40	3 $\frac{1}{3}$	4	3 $\frac{7}{8}$	4 $\frac{1}{8}$
39	.....	.....	3 $\frac{1}{2}$	4
38	3 $\frac{3}{8}$	3 $\frac{3}{4}$	3 $\frac{5}{8}$	3 $\frac{11}{8}$
37	3 $\frac{1}{2}$	3 $\frac{5}{8}$	3 $\frac{1}{2}$	3 $\frac{5}{8}$
36	3	3 $\frac{1}{2}$	3 $\frac{1}{3}$	3 $\frac{3}{4}$
35	2 $\frac{11}{12}$	3 $\frac{5}{8}$	3 $\frac{1}{4}$	3 $\frac{2}{3}$
34	2 $\frac{5}{8}$	3 $\frac{1}{2}$	3 $\frac{1}{8}$	3 $\frac{1}{2}$
33	2 $\frac{3}{4}$	3 $\frac{1}{4}$	3	3 $\frac{1}{2}$
32	2 $\frac{2}{3}$	3 $\frac{1}{4}$	2 $\frac{11}{12}$	3 $\frac{1}{8}$
31	2 $\frac{1}{2}$	3 $\frac{1}{8}$	2 $\frac{5}{6}$	3 $\frac{1}{4}$
30	2 $\frac{1}{2}$	3	2 $\frac{3}{4}$	3 $\frac{1}{8}$
29	2 $\frac{1}{3}$	2 $\frac{8}{6}$	2 $\frac{2}{3}$	3
28	2 $\frac{1}{3}$	2 $\frac{5}{6}$	2 $\frac{2}{3}$	2 $\frac{11}{12}$
27	2 $\frac{1}{4}$	2 $\frac{5}{6}$	2 $\frac{1}{2}$	2 $\frac{5}{8}$
26	2 $\frac{1}{4}$	2 $\frac{5}{6}$	2 $\frac{5}{8}$	2 $\frac{3}{4}$
25	2 $\frac{1}{2}$	2 $\frac{5}{6}$	2 $\frac{1}{2}$	2 $\frac{2}{3}$
24	2	2 $\frac{1}{3}$	2 $\frac{1}{4}$	2 $\frac{1}{3}$
23	1 $\frac{11}{12}$	2 $\frac{1}{4}$	2 $\frac{1}{8}$	2 $\frac{1}{2}$
22	1 $\frac{5}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{12}$	2 $\frac{3}{8}$
21	1 $\frac{3}{4}$	2 $\frac{1}{12}$	2	2 $\frac{1}{4}$
20	1 $\frac{2}{3}$	2	1 $\frac{11}{12}$	2 $\frac{1}{4}$
19	1 $\frac{1}{2}$	1 $\frac{11}{12}$	1 $\frac{5}{6}$	2 $\frac{1}{12}$
18	1 $\frac{1}{2}$	1 $\frac{5}{8}$	1 $\frac{3}{4}$	2
17	1 $\frac{5}{8}$	1 $\frac{3}{4}$	1 $\frac{2}{3}$	1 $\frac{11}{12}$
16	1 $\frac{1}{3}$	1 $\frac{2}{3}$	1 $\frac{7}{12}$	1 $\frac{5}{8}$
15	1 $\frac{1}{4}$	1 $\frac{1}{3}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$
14	1 $\frac{1}{8}$	1 $\frac{1}{2}$	1 $\frac{6}{8}$	1 $\frac{2}{3}$
13	1 $\frac{1}{2}$	1 $\frac{5}{12}$	1 $\frac{1}{3}$	1 $\frac{1}{12}$
12	1	1 $\frac{1}{3}$	.....	.....
11	1 $\frac{1}{2}$	1 $\frac{1}{4}$	.....	.....
10	1 $\frac{5}{8}$	1 $\frac{1}{4}$	.....	.....

There is one-half square foot of surface per loop in the base and also in the upper circulating chamber of the Water Radiators.

## BUNDY ANGLE INDIRECT RADIATOR.



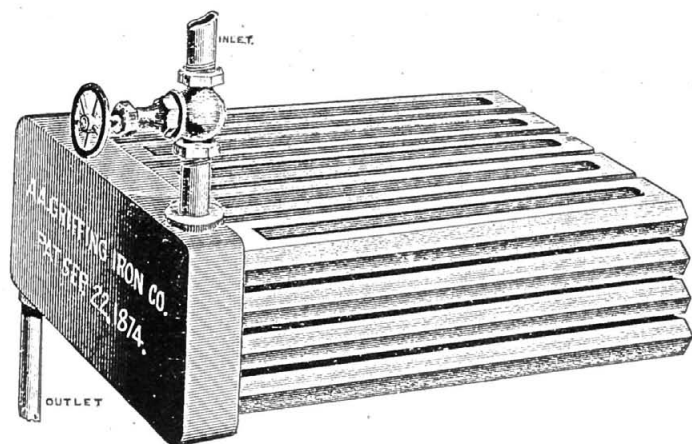
Adapted to either high or low pressure steam for indirect heating, (also used as a direct-indirect radiator and under window seats, when specially cased), can be used at bottom or top of ventilating flues, to induce circulation of air.

# BUNDY ANGLE INDIRECT.

## LIST OF ANGLE INDIRECT RADIATORS.

Note.—We make the following sizes, but if more or less surface is required in each stack they can be made any size. The length can be varied by using longer or shorter loops.

Shape of Radiators.	Number of Loops.	Depth of Radiator, inches.	Width of Radiator, Inches.	Length of Radiator, inches.	STANDARD.		ENLARGED.	
					Feet of Heating Surface.	Price.	Each Loop Represents 3 Feet of Heating Surface. List Price. Per Foot, 70c. Per Loop, \$2.10.	Each Loop Represents 3½ Feet of Heating Surface. List Price. Per Foot, 67½c. Per Loop, \$2.30.
3 x 3	9	11 5/8	10 5/8	33	27	\$18 90	31 1/2	\$21 26
3 x 4	12	11 5/8	13 7/8	33	36	25 20	42	28 35
4 x 4	16	15 3/8	13 7/8	33	48	33 60	56	37 80
4 x 5	20	15 3/8	17 1/8	33	60	42 00	70	47 25
4 x 6	24	15 3/8	20 3/8	33	72	50 40	84	56 70
4 x 7	28	15 3/8	23 1/2	33	84	58 80	98	66 15
4 x 8	32	15 3/8	26 1/4	33	96	67 20	112	75 60
4 x 9	36	15 3/8	30	33	108	75 60	126	85 05
4 x 10	40	15 3/8	33 1/8	33	120	84 00	140	94 50
5 x 3	15	19 1/4	10 5/8	33	45	31 50	52 1/2	35 44
5 x 4	20	19 1/4	13 7/8	33	60	42 00	70	47 25
5 x 5	25	19 1/4	17 1/8	33	75	52 50	87 1/2	59 06
5 x 6	30	19 1/4	20 3/8	33	90	63 00	105	70 88
5 x 7	35	19 1/4	23 1/2	33	105	73 50	122 1/2	82 69
5 x 8	40	19 1/4	26 3/4	33	120	84 00	140	94 50
5 x 9	45	19 1/4	30	33	135	94 50	157 1/2	106 31
5 x 10	50	19 1/4	33 1/8	33	150	105 00	175	118 12
6 x 3	18	23	10 5/8	33	54	37 80	63	42 53
6 x 4	24	23	13 1/8	33	72	50 40	84	56 70
6 x 5	30	23	17 1/8	33	90	63 00	105	70 88
6 x 6	36	23	20 3/8	33	108	75 60	126	85 05

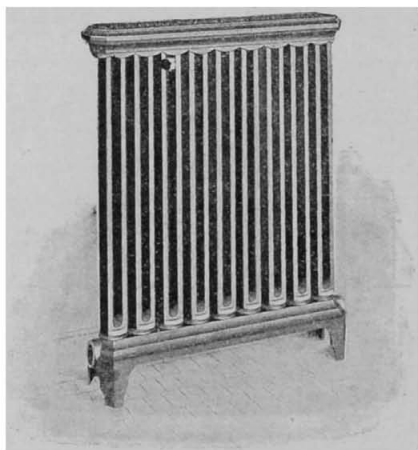
BUNDY HORIZONTAL INDIRECT  
RADIATOR.

Adapted to either High or Low Pressure Steam for indirect heating (also used as a direct-indirect radiator, and under window seats when specially cased). Can be used at bottom or top of vent flues to induce circulation of air.

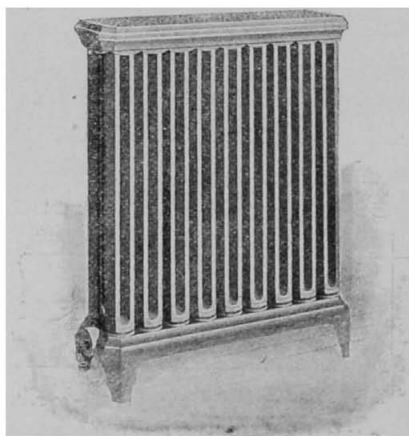
## BUNDY HORIZONTAL INDIRECT.

LIST OF HORIZONTAL INDIRECT RADIATORS.							STANDARD.		ENLARGED.	
NOTE.—We make the following sizes, but if more or less surface is wanted in each stack, they can be made any size required. The length can be varied by substituting longer or shorter loops.							Each Loop represents 3 Feet of Heating Surface. List Price—Per Ft., 67¢.	Each Loop Represents 3½ Ft. of Heating Surface. List Price—Per Ft., 62¢. Per Loop \$2.25.	Price.	Price.
Shape of Radiators.	Number of Loops.	Depth of Radiators, Inches.	Width of Radiators, Inches.	Length of Radiators, inches.	Feet of Heating Surface.	Price.	Feet of Heating Surface.	Price.		
3 X 3	9	10½	10½	33	27	\$18 23	31½	\$20 48		
3 X 4	12	10½	13½	33	36	24 30	42	27 30		
4 X 3	12	14½	10½	33	36	24 30	42	27 30		
4 X 4	16	14½	13½	33	48	32 40	56	36 40		
4 X 5	20	14½	17½	33	60	40 50	70	45 50		
4 X 6	24	14½	20½	33	72	48 60	84	54 60		
4 X 7	28	14½	23½	33	84	56 70	98	63 70		
4 X 8	32	11½	26½	33	96	64 80	112	72 80		
4 X 9	36	14½	30	33	108	72 90	126	81 90		
4 X 10	40	14½	33½	33	120	81 00	140	91 00		
5 X 3	15	17½	10½	33	45	30 38	52½	34 13		
5 X 4	20	17½	13½	33	60	40 50	70	45 50		
5 X 5	25	17½	17½	33	75	50 63	87½	56 88		
5 X 6	30	17½	20½	33	90	60 75	105	68 25		
5 X 7	35	17½	23½	33	105	70 88	123½	79 63		
5 X 8	40	17½	26½	33	120	81 00	140	91 00		
5 X 9	45	17½	30	33	135	91 13	157½	102 38		
5 X 10	50	17½	33½	33	150	101 25	175	113 75		
6 X 3	18	21½	10½	33	54	36 45	63	40 95		
6 X 4	24	21½	13½	33	72	48 60	84	54 60		
6 X 5	30	21½	17½	33	90	60 75	105	68 25		
6 X 6	36	21½	20½	33	108	72 90	126	81 90		
6 X 7	42	21½	23½	33	126	85 05	147	95 55		
6 X 8	48	21½	26½	33	144	97 20	168	109 20		
6 X 9	54	21½	30	33	162	109 35	189	122 85		
6 X 10	60	21½	33½	33	180	121 50	210	136 50		

BUNDY STANDARD RADIATOR.  
STEAM.



ONE ROW.



TWO ROW.

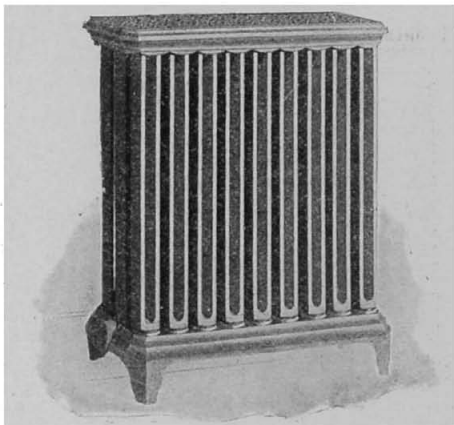
## BUNDY STANDARD RADIATOR—DIRECT. STANDARD LOOP—STEAM.

Width of Base, 5½ inches.		Heating Surface—Square Feet.				
Size.	Length in inches.	42-in. high, 3½ sq. ft. per Loop.	36-in. high, 3 sq. ft. per Loop.	30-in. high, 2½ sq. ft. per Loop.	24-in. high, 2 sq. ft. per Loop.	18-in. high, 1½ sq. ft. per Loop.
1 x 3	12	10½	9	7½	6	4½
1 x 4	15½	14	12	10	8	6
1 x 5	18½	17½	15	12½	10	7½
1 x 6	21¾	21	18	15	12	9
1 x 7	25	24½	21	17½	14	10½
1 x 8	28½	28	24	20	16	12
1 x 9	31¾	31½	27	22½	18	13½
1 x 10	34¾	35	30	25	20	15
1 x 11	38	38½	33	27½	22	16½
1 x 12	41¼	42	36	30	24	18
1 x 13	44½	45½	39	32½	26	19½
1 x 14	47¾	49	42	35	28	21
1 x 15	51	52½	45	37½	30	22½
1 x 16	54½	56	48	40	32	24
1 x 18	61¾	63	54	45	36	27
1 x 20	67¼	70	60	50	40	30
1 x 22	73¾	77	66	55	44	33
1 x 24	80¼	84	72	60	48	36
1 x 26	86¾	91	78	65	52	39
Price per loop.....		\$2.45	\$2.25	\$2.12½	\$2.00	\$1.87½
Price per foot.....		.70	.75	.85	1.00	1.25

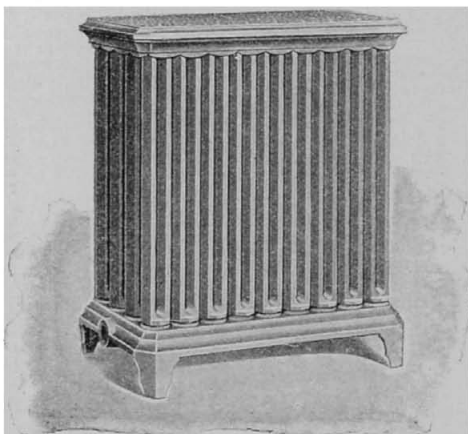
## ENLARGED LOOP—STEAM.

Width of Base, 5½ inches.		Heating Surface—Square Feet.				
Size.	Length in inches.	42-in. high, 4½ sq. ft. per Loop.	36-in. high, 3½ sq. ft. per Loop.	30-in. high, 3 sq. ft. per Loop.	24-in. high, 2½ sq. ft. per Loop.	18-in. high, 1½ sq. ft. per Loop.
1 x 3	12	12¾	10½	9	7	5½
1 x 4	15¼	17	14	12	9½	7½
1 x 5	18½	21½	17½	15	11½	9½
1 x 6	21¾	25½	21	18	14	11
1 x 7	25	29½	24½	21	16½	13½
1 x 8	28½	34	28	24	18½	14½
1 x 9	31¾	38½	31½	27	21	16½
1 x 10	34¾	42½	35	30	23½	18½
1 x 11	38	46½	38½	33	25½	20½
1 x 12	41¼	51	42	36	28	22½
1 x 13	44½	55½	45½	39	30½	24½
1 x 14	47¾	59½	49	42	32½	26½
1 x 15	51	63½	52½	45	35	27½
1 x 16	54½	68	56	48	37½	29½
1 x 18	60¾	76½	63	54	42	33
1 x 20	67¼	85	70	60	46½	36½
1 x 22	73¾	93½	77	66	51½	40½
1 x 24	80¼	102	84	72	56	44
1 x 26	86¾	110½	91	78	60½	47½
Price per loop.....		\$2.87	\$2.53¾	\$2.47½	\$2.27½	\$2.24½
Price per foot.....		.67½	.72½	.82½	.97½	1.22½

BUNDY STANDARD RADIATOR.  
STEAM.



THREE ROW.



FOUR ROW.



BUNDY STANDARD RADIATOR—DIRECT.  
STANDARD LOOP—STEAM.

Width of Base, 9 $\frac{3}{4}$ inches.		Heating Surface—Square Feet.				
Sizes.	Length in inches.	42-in. high, 3 $\frac{3}{4}$ sq. ft. per Loop.	36-in. high, 3 sq. ft. per Loop.	30-in. high, 2 $\frac{1}{2}$ sq. ft. per Loop.	24-in. high, 2 sq. ft. per Loop.	18-in. high, 1 $\frac{1}{2}$ sq. ft. per Loop.
2 x 3	12	21	18	15	12	9
2 x 4	15 $\frac{1}{4}$	28	24	20	16	12
2 x 5	18 $\frac{1}{4}$	35	30	25	20	15
2 x 6	21 $\frac{1}{4}$	42	36	30	24	18
2 x 7	25	49	42	35	28	21
2 x 8	28 $\frac{1}{4}$	56	48	40	32	24
2 x 9	31 $\frac{1}{2}$	63	54	45	36	27
2 x 10	34 $\frac{3}{4}$	70	60	50	40	30
2 x 11	38	77	66	55	44	33
2 x 12	41 $\frac{1}{4}$	84	72	60	48	36
2 x 13	44 $\frac{1}{2}$	91	78	65	52	39
2 x 14	47 $\frac{3}{4}$	98	84	70	56	42
2 x 15	51	105	90	75	60	45
2 x 16	54 $\frac{1}{4}$	112	96	80	64	48
2 x 18	60 $\frac{3}{4}$	126	108	90	72	54
2 x 20	67 $\frac{1}{4}$	140	120	100	80	60
2 x 22	73 $\frac{3}{4}$	154	132	110	88	66
2 x 24	80 $\frac{1}{4}$	168	144	120	96	72
2 x 26	86 $\frac{3}{4}$	182	156	130	104	78
Price per loop.....		\$2.45	\$2.25	\$2.12 $\frac{1}{2}$	\$2.00	\$1.87 $\frac{1}{2}$
Price per foot.....		.70	.75	.85	1.00	1.25

ENLARGED LOOP—STEAM.

Width of Base, 9 $\frac{3}{4}$ inches.		Heating Surface—Square Feet.				
Sizes.	Length in inches.	42-in. high, 4 $\frac{1}{4}$ sq. ft. per Loop.	36-in. high, 3 $\frac{3}{4}$ sq. ft. per Loop.	30-in. high, 3 sq. ft. per Loop.	24-in. high, 2 $\frac{1}{4}$ sq. ft. per Loop.	18-in. high, 1 $\frac{3}{4}$ sq. ft. per Loop.
2 x 3	12	25 $\frac{1}{2}$	21	18	14	11
2 x 4	15 $\frac{1}{4}$	34	28	24	18 $\frac{1}{2}$	14 $\frac{1}{2}$
2 x 5	18 $\frac{1}{4}$	42 $\frac{1}{2}$	35	30	23 $\frac{1}{2}$	18 $\frac{1}{2}$
2 x 6	21 $\frac{1}{4}$	51	42	36	28	22
2 x 7	25	59 $\frac{1}{2}$	49	42	32 $\frac{1}{2}$	25 $\frac{1}{2}$
2 x 8	28 $\frac{1}{4}$	68	56	48	37 $\frac{1}{2}$	29 $\frac{1}{2}$
2 x 9	31 $\frac{1}{2}$	76 $\frac{1}{2}$	63	54	42	33
2 x 10	34 $\frac{3}{4}$	85	70	60	46 $\frac{1}{2}$	36 $\frac{1}{2}$
2 x 11	38	93 $\frac{1}{2}$	77	66	51 $\frac{1}{2}$	40 $\frac{1}{2}$
2 x 12	41 $\frac{1}{4}$	102	84	72	56	44
2 x 13	44 $\frac{1}{2}$	110 $\frac{1}{2}$	91	78	60 $\frac{1}{2}$	47 $\frac{1}{2}$
2 x 14	47 $\frac{3}{4}$	119	98	84	65 $\frac{1}{2}$	51 $\frac{1}{2}$
2 x 15	51	127 $\frac{1}{2}$	105	90	70	55
2 x 16	54 $\frac{1}{4}$	136	112	96	74 $\frac{1}{2}$	58 $\frac{1}{2}$
2 x 18	60 $\frac{3}{4}$	153	126	108	84	66
2 x 20	67 $\frac{1}{4}$	170	140	120	93 $\frac{1}{2}$	73 $\frac{1}{2}$
2 x 22	73 $\frac{3}{4}$	187	154	132	102 $\frac{1}{2}$	80 $\frac{1}{2}$
2 x 24	80 $\frac{1}{4}$	204	168	144	112	88
2 x 26	86 $\frac{3}{4}$	221	182	156	121 $\frac{1}{2}$	95 $\frac{1}{2}$
Price per loop.....		\$2.87	\$2.53 $\frac{1}{4}$	\$2.47 $\frac{1}{2}$	\$2.27 $\frac{1}{2}$	\$2.24 $\frac{1}{2}$
Price per foot.....		.67 $\frac{1}{2}$	.72 $\frac{1}{2}$	.82 $\frac{1}{2}$	.97 $\frac{1}{2}$	1.22 $\frac{1}{2}$

## BUNDY STANDARD RADIATOR—DIRECT. STANDARD LOOP—STEAM.

Width of Base, 13 $\frac{1}{2}$ inches.		Heating Surface—Square feet.				
Size.	Length in inches.	42-in. high, 3 $\frac{1}{2}$ sq. ft. per Loop.	36-in. high, 3 sq. ft. per Loop.	30-in. high, 2 $\frac{1}{2}$ sq. ft. per Loop.	24-in. high, 2 sq. ft. per Loop.	18-in. high, 1 $\frac{1}{2}$ sq. ft. per Loop.
3 x 3	13	31 $\frac{1}{2}$	27	22 $\frac{1}{2}$	18	13 $\frac{1}{2}$
3 x 4	16 $\frac{1}{4}$	42	36	30	24	18
3 x 5	19 $\frac{1}{2}$	52 $\frac{1}{2}$	45	37 $\frac{1}{2}$	30	22 $\frac{1}{2}$
3 x 6	22 $\frac{3}{4}$	63	54	45	36	27
3 x 7	26	73 $\frac{1}{2}$	63	52 $\frac{1}{2}$	42	31 $\frac{1}{2}$
3 x 8	29 $\frac{1}{4}$	84	72	60	48	36
3 x 9	32 $\frac{1}{2}$	94 $\frac{1}{2}$	81	67 $\frac{1}{2}$	54	40 $\frac{1}{2}$
3 x 10	35 $\frac{3}{4}$	105	90	75	60	45
3 x 11	39	115 $\frac{1}{2}$	99	82 $\frac{1}{2}$	66	49 $\frac{1}{2}$
3 x 12	42 $\frac{1}{4}$	126	108	90	72	54
3 x 13	45 $\frac{1}{2}$	136 $\frac{1}{2}$	117	97 $\frac{1}{2}$	78	58 $\frac{1}{2}$
3 x 15	52	157 $\frac{1}{2}$	135	112 $\frac{1}{2}$	90	67 $\frac{1}{2}$
Price per loop....		\$2 45	\$2 25	\$2 12 $\frac{1}{2}$	\$2 00	\$1 87 $\frac{1}{2}$
Price per foot....		50	75	85	1 00	1 25

## ENLARGED LOOP—STEAM.

Width of Base, 13 $\frac{1}{2}$ inches.		Heating Surface—Square feet.				
Size.	Length in inches.	42-in. high, 4 $\frac{1}{4}$ sq. ft. per Loop.	36-in. high, 3 $\frac{1}{2}$ sq. ft. per Loop.	30-in. high, 3 sq. ft. per Loop.	24-in. high, 2 $\frac{1}{2}$ sq. ft. per Loop.	18-in. high, 1 5-8 sq. ft. per Loop.
3 x 3	13	38 $\frac{1}{4}$	31 $\frac{1}{2}$	27	21	16 $\frac{1}{2}$
3 x 4	16 $\frac{1}{4}$	51	42	36	28	22
3 x 5	19 $\frac{1}{2}$	63 $\frac{3}{4}$	52 $\frac{1}{2}$	45	35	27 $\frac{1}{2}$
3 x 6	22 $\frac{3}{4}$	76 $\frac{1}{2}$	63	54	42	33
3 x 7	26	89 $\frac{1}{4}$	73 $\frac{1}{2}$	63	49	38 $\frac{1}{2}$
3 x 8	29 $\frac{1}{4}$	102	84	72	56	44
3 x 9	32 $\frac{1}{2}$	114 $\frac{3}{4}$	94 $\frac{1}{2}$	81	63	49 $\frac{1}{2}$
3 x 10	35 $\frac{3}{4}$	127 $\frac{1}{2}$	105	90	70	55
3 x 11	39	140 $\frac{1}{4}$	115 $\frac{1}{2}$	99	77	60 $\frac{1}{2}$
3 x 12	42 $\frac{1}{4}$	153	126	108	84	66
3 x 13	45 $\frac{1}{2}$	165 $\frac{3}{4}$	136 $\frac{1}{2}$	117	91	71 $\frac{1}{2}$
3 x 15	52	191 $\frac{1}{4}$	157 $\frac{1}{2}$	135	105	82 $\frac{1}{2}$
Price per loop....		\$2.87	\$2.53 $\frac{3}{4}$	\$2.47 $\frac{1}{2}$	\$2.27 $\frac{1}{2}$	\$2.24 $\frac{1}{2}$
Price per foot....		.67 $\frac{1}{2}$	.72 $\frac{1}{2}$	.82 $\frac{1}{2}$	.97 $\frac{1}{2}$	1 22 $\frac{1}{2}$

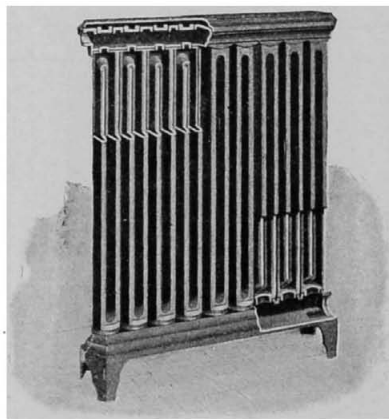
## BUNDY STANDARD RADIATOR—DIRECT. STANDARD LOOP—STEAM.

Width of Base, 17½ in.		Heating Surface—Square Feet.				
Sizes.	Length in inches.	42-in. high, 3½ sq. ft. per Loop.	36-in. high, 3 sq. ft. per Loop.	30-in. high, 2½ sq. ft. per Loop.	24-in. high, 2 sq. ft. per Loop.	18-in. high, 1½ sq. ft. per Loop.
4 x 4	16¼	56	48	40	32	24
4 x 5	19¼	70	60	50	40	30
4 x 6	22¼	84	72	60	48	36
4 x 7	25	98	84	70	56	42
4 x 8	29¼	112	96	80	64	48
4 x 9	32¼	126	108	90	72	54
4 x 10	35¼	140	120	100	80	60
4 x 12	42¼	168	144	120	96	72
4 x 14	48¼	196	168	140	112	84
4 x 18	61¼	252	216	180	144	108
4 x 20	68¼	280	240	200	160	120
4 x 22	74¼	308	264	220	176	132
4 x 24	81¼	336	288	240	192	144
Price per loop.....		\$2.45	\$2.25	\$2.12½	\$2.00	\$1.87½
Price per foot.....		.70	.75	.85	1.00	1.25

## ENLARGED LOOP—STEAM.

Width of Base, 17½ in.		Heating Surface—Square Feet.				
Sizes.	Length in inches.	42-in. high, 4¼ sq. ft. per Loop.	36-in. high, 3½ sq. ft. per Loop.	30-in. high, 3 sq. ft. per Loop.	24-in. high, 2½ sq. ft. per Loop.	18-in. high, 1.5-6 sq. ft. per Loop.
4 x 4	16¼	68	56	48	37½	29¼
4 x 5	19¼	85	70	60	47½	37½
4 x 6	22¼	102	84	72	56	44
4 x 7	25	119	98	84	65½	51¼
4 x 8	29¼	136	112	96	74½	58½
4 x 9	32¼	153	126	108	84	66
4 x 10	35¼	170	140	120	93½	73¼
4 x 12	42¼	204	168	144	112	88
4 x 14	48¼	238	196	168	130½	102½
4 x 18	61¼	306	252	216	168	132
4 x 20	68¼	340	280	240	187½	147½
4 x 22	74¼	374	308	264	205½	161½
4 x 24	81¼	408	336	288	224	176
Price per loop.....		\$2.87	\$2.53¼	\$2.47½	\$2.27½	\$2.21¼
Price per foot.....		.67½	.72½	.82½	.97½	1.22½

BUNDY STANDARD RADIATOR.  
WATER.



ONE ROW BUNDY.

Bundy Standard Water Radiators are the same in general appearance as the Steam, the difference being that in hot water radiators an upper circulating chamber is used which is united to the loops by the use of right-hand threaded taper nipples (see cut above). In both steam and water radiators the loops are screwed into the base.

Distance from floor to center of tapping, regular legs,  $3\frac{1}{8}$  inches; high legs,  $4\frac{1}{2}$  inches. For complete information as to tapping, etc., see Tapping List of Bundy Standard Radiators.

## BUNDY STANDARD RADIATOR—DIRECT, STANDARD LOOP—WATER.

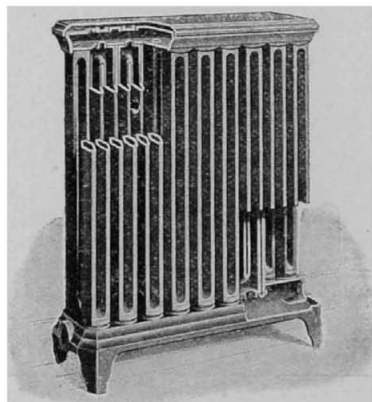
Width of Base, 5½ inches.		Heating Surface—Square Feet.				
Size.	Length in inches.	45-in. high, 4 sq. ft. per Loop.	39-in. high, 3½ sq. ft. per Loop.	33-in. high, 3 sq. ft. per Loop.	27-in. high, 2½ sq. ft. per Loop.	21-in. high, 2¼ sq. ft. per Loop.
1 x 3	12	12	11½	9	7½	6
1 x 4	15¼	16	14	12	10	8
1 x 5	18½	20	17½	15	12½	10
1 x 6	21¾	24	21	18	15	12
1 x 7	25	28	24½	21	17½	14
1 x 8	28¼	32	28	24	20	16
1 x 9	31½	36	31½	27	22½	18
1 x 10	34¾	40	35	30	25	20
1 x 11	38	44	38½	33	27½	22
1 x 12	41¼	48	42	36	30	24
1 x 13	44½	52	45½	39	32½	26
1 x 14	47¾	56	49	42	35	28
1 x 15	51	60	52½	45	37½	30
1 x 16	54¼	64	56	48	40	32
1 x 18	60¾	72	63	54	45	36
1 x 20	67¼	80	70	60	50	40
Price per loop.....		\$3.10	\$3.15	\$3.00	\$2.87½	\$2.80
Price per foot.....		.85	.90	1.00	1.15	1.40

## ENLARGED LOOP—WATER.

Width of Base, 5½ inches.		Heating Surface—Square Feet.				
Size.	Length in inches.	45-in. high, 4¾ sq. ft. per Loop.	39-in. high, 4 sq. ft. per Loop.	33-in. high, 3½ sq. ft. per Loop.	27-in. high, 2¾ sq. ft. per Loop.	21-in. high, 2¼ sq. ft. per Loop.
1 x 3	12	14¼	12	10½	8½	6¾
1 x 4	15¼	19	16	14	11½	9
1 x 5	18½	23½	20	17½	14½	11¼
1 x 6	21¾	28½	24	21	17	13¾
1 x 7	25	33¼	28	24½	19½	15¾
1 x 8	28¼	38	32	28	22½	18
1 x 9	31½	42¾	36	31½	25½	20¼
1 x 10	34¾	47½	40	35	28½	22½
1 x 11	38	52¼	44	38½	31½	24¾
1 x 12	41¼	57	48	42	34	27
1 x 13	44½	61¾	52	45½	36½	29¼
1 x 14	47¾	66½	56	49	39½	31½
1 x 15	51	71¼	60	52½	42½	33¾
1 x 16	54¼	76	64	56	45½	36
1 x 18	60¾	85½	72	63	51	40½
1 x 20	67¼	95	80	70	56½	45
Price per loop.....		\$3.92	\$3.50	\$3.41¼	\$3.18¾	\$3.09¾
Price per foot.....		.82½	.87½	.97½	1.12½	1.37½

## BUNDY STANDARD RADIATOR.

WATER.



TWO ROW

Bundy Standard Water Radiators are the same in general appearance as the Steam, the difference being that in hot water radiators an upper circulating chamber is used which is united to the loops by the use of right-hand threaded taper nipples (see cut above). In both steam and water radiators the loops are screwed into the base.

Distance from floor to center of tapping, regular legs,  $3\frac{1}{8}$  inches ; high legs,  $4\frac{1}{2}$  inches. For complete information as to tapping, etc., see Tapping List of Bundy Standard Radiators.

## BUNDY STANDARD RADIATOR—DIRECT.

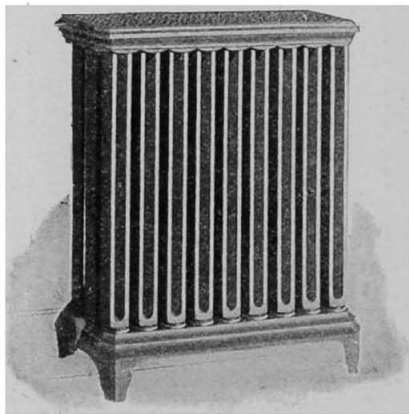
## STANDARD LOOP—WATER.

Width of Base, 9 $\frac{3}{4}$ inches.		Heating Surface—Square Feet.				
Size.	Length in inches.	45-in. high, 4 sq. ft. per Loop.	39-in. high, 3 $\frac{1}{2}$ sq. ft. per Loop.	33-in. high, 3 sq. ft. per Loop.	27-in. high, 2 $\frac{1}{2}$ sq. ft. per Loop.	21-in. high, 2 sq. ft. per Loop.
2 x 3	12	21	21	18	15	12
2 x 4	15 $\frac{1}{4}$	32	29	24	20	16
2 x 5	18 $\frac{1}{2}$	40	35	30	25	20
2 x 6	21 $\frac{3}{4}$	48	42	36	30	24
2 x 7	25	56	49	42	35	28
2 x 8	28 $\frac{1}{4}$	64	56	48	40	32
2 x 9	31 $\frac{1}{2}$	72	63	54	45	36
2 x 10	34 $\frac{3}{4}$	80	70	60	50	40
2 x 11	38	88	77	66	55	44
2 x 12	41 $\frac{1}{4}$	96	84	72	60	48
2 x 13	44 $\frac{1}{2}$	104	91	78	65	52
2 x 14	47 $\frac{3}{4}$	112	98	84	70	56
2 x 15	51	120	105	90	75	60
2 x 16	54 $\frac{1}{4}$	128	112	96	80	64
2 x 18	60 $\frac{3}{4}$	144	126	108	90	72
2 x 20	67 $\frac{1}{4}$	160	140	120	100	80
Price per loop.....		\$3.40	\$3.15	\$3.00	\$2.87 $\frac{1}{2}$	\$2.80
Price per foot.....		.85	.90	1.00	1.15	1.40

## ENLARGED LOOP—WATER.

Width of Base, 9 $\frac{3}{4}$ inches.		Heating Surface—Square Feet.				
Size.	Length in inches.	45-in. high, 4 $\frac{3}{4}$ sq. ft. per Loop.	39-in. high, 4 sq. ft. per Loop.	33 in. high, 3 $\frac{1}{2}$ sq. ft. per Loop.	27-in. high, 2 $\frac{1}{2}$ sq. ft. per Loop.	21-in. high, 2 $\frac{1}{4}$ sq. ft. per Loop.
2 x 3	12	28 $\frac{3}{4}$	24	21	17	13 $\frac{1}{4}$
2 x 4	15 $\frac{1}{4}$	38	32	28	22 $\frac{2}{3}$	18
2 x 5	18 $\frac{1}{2}$	47 $\frac{1}{2}$	40	35	28 $\frac{1}{2}$	22 $\frac{1}{2}$
2 x 6	21 $\frac{3}{4}$	57	48	42	34	27
2 x 7	25	66 $\frac{1}{2}$	56	49	39 $\frac{3}{4}$	31 $\frac{1}{2}$
2 x 8	28 $\frac{1}{4}$	76	64	56	45 $\frac{1}{2}$	36
2 x 9	31 $\frac{1}{2}$	85 $\frac{1}{2}$	72	63	51	40 $\frac{1}{2}$
2 x 10	34 $\frac{3}{4}$	95	80	70	56 $\frac{1}{2}$	45
2 x 11	38	104 $\frac{1}{2}$	88	77	62 $\frac{1}{2}$	49 $\frac{1}{2}$
2 x 12	41 $\frac{1}{4}$	114	96	84	68	54
2 x 13	44 $\frac{1}{2}$	123 $\frac{1}{2}$	104	91	73 $\frac{1}{2}$	58 $\frac{1}{2}$
2 x 14	47 $\frac{3}{4}$	133	112	98	79 $\frac{1}{2}$	63
2 x 15	51	142 $\frac{1}{2}$	120	105	85	67 $\frac{1}{2}$
2 x 16	54 $\frac{1}{4}$	152	128	112	90 $\frac{1}{2}$	72
2 x 18	60 $\frac{3}{4}$	171	144	126	102	81
2 x 20	67 $\frac{1}{4}$	190	160	140	113 $\frac{1}{2}$	90
Price per loop.....		\$3.92	\$3.50	\$3.41 $\frac{1}{4}$	\$3.18 $\frac{1}{4}$	\$3.09 $\frac{1}{2}$
Price per foot.....		.82 $\frac{1}{2}$	.87 $\frac{1}{2}$	.97 $\frac{1}{2}$	1.12 $\frac{1}{2}$	1.37 $\frac{1}{2}$

## BUNDY STANDARD RADIATOR.



THREE ROW.

Bundy Standard Water Radiators are the same in general appearance as the Steam, the difference being that in hot water radiators an upper circulating chamber is used which is united to the loops by the use of right-hand threaded taper nipples. In both steam and water radiators the loops are screwed into the base.

Distance from floor to center of tapping, regular legs,  $3\frac{1}{8}$  inches; high legs,  $4\frac{1}{2}$  inches. For complete information as to tapping, etc., see Tapping List of Bundy Standard Radiators.



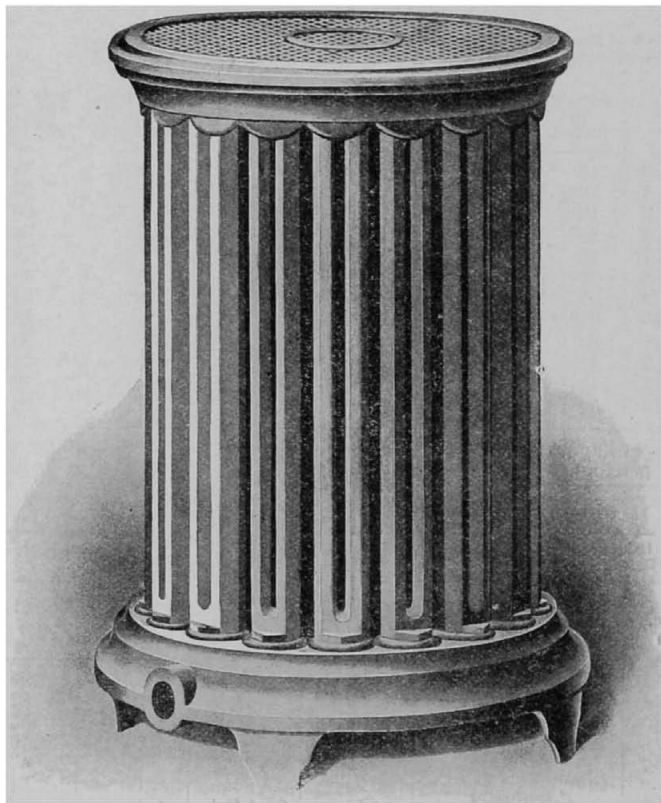
BUNDY STANDARD RADIATOR—DIRECT.  
STANDARD LOOP—WATER.

Width of Base, 13 $\frac{1}{4}$ inches.		Heating Surface—Square Feet.				
Size	Length in inches.	45-in. high, 4 sq. ft. per Loop.	39-in. high, 3 $\frac{1}{2}$ sq. ft. per Loop.	33-in. high, 3 sq. ft. per Loop.	27-in. high, 2 $\frac{1}{2}$ sq. ft. per Loop.	21-in. high, 2 sq. ft. per Loop.
3 x 3	13	36	31 $\frac{1}{2}$	27	22 $\frac{1}{2}$	18
3 x 4	16 $\frac{1}{4}$	48	42	36	30	24
3 x 5	19 $\frac{1}{2}$	60	52 $\frac{1}{2}$	45	37 $\frac{1}{2}$	30
3 x 6	22 $\frac{3}{4}$	72	63	54	45	36
3 x 7	26	84	73 $\frac{1}{2}$	63	52 $\frac{1}{2}$	42
3 x 8	29 $\frac{1}{4}$	96	84	72	60	48
3 x 9	32 $\frac{1}{2}$	108	94 $\frac{1}{2}$	81	67 $\frac{1}{2}$	54
3 x 10	35 $\frac{3}{4}$	120	105	90	75	60
3 x 11	39	132	115 $\frac{1}{2}$	99	82 $\frac{1}{2}$	66
3 x 12	42 $\frac{1}{4}$	144	126	108	90	72
3 x 13	45 $\frac{1}{2}$	156	136 $\frac{1}{2}$	117	97 $\frac{1}{2}$	78
3 x 15	52	180	157 $\frac{1}{2}$	135	112 $\frac{1}{2}$	90
Price per loop ...		\$3.40	\$3.15	\$3.00	\$2.87 $\frac{1}{2}$	\$2.80
Price per foot ...		.85	.90	1.00	1.15	1.40

ENLARGED LOOP—WATER.

Width of Base, 13 $\frac{1}{4}$ inches.		Heating Surface—Square Feet.				
Size.	Length in inches.	45-in. high, 4 $\frac{3}{4}$ sq. ft. per Loop.	39-in. high, 4 sq. ft. per Loop.	33-in. high, 3 $\frac{3}{4}$ sq. ft. per Loop.	27-in. high, 2 $\frac{5}{8}$ sq. ft. per Loop.	21-in. high, 2 $\frac{1}{4}$ sq. ft. per Loop.
3 x 3	13	42 $\frac{3}{4}$	36	31 $\frac{1}{2}$	25 $\frac{1}{2}$	20 $\frac{1}{4}$
3 x 4	16 $\frac{1}{4}$	57	48	42	34	27
3 x 5	19 $\frac{1}{2}$	71 $\frac{1}{4}$	60	52 $\frac{1}{2}$	42 $\frac{1}{2}$	33 $\frac{3}{4}$
3 x 6	22 $\frac{3}{4}$	85 $\frac{1}{2}$	72	63	51	40 $\frac{1}{2}$
3 x 7	26	99 $\frac{3}{4}$	84	73 $\frac{1}{2}$	59 $\frac{1}{2}$	47 $\frac{1}{4}$
3 x 8	29 $\frac{1}{4}$	114	96	84	68	54
3 x 9	32 $\frac{1}{2}$	128 $\frac{1}{4}$	108	94 $\frac{1}{2}$	76 $\frac{1}{2}$	60 $\frac{3}{4}$
3 x 10	35 $\frac{3}{4}$	142 $\frac{1}{2}$	120	105	85	67 $\frac{1}{2}$
3 x 11	39	156 $\frac{3}{4}$	132	115 $\frac{1}{2}$	93 $\frac{1}{2}$	74 $\frac{1}{4}$
3 x 12	42 $\frac{1}{4}$	171	144	126	102	81
3 x 13	45 $\frac{1}{2}$	185 $\frac{1}{4}$	156	136 $\frac{1}{2}$	110 $\frac{1}{2}$	87 $\frac{3}{4}$
3 x 15	52	213 $\frac{3}{4}$	180	157 $\frac{1}{2}$	127 $\frac{1}{2}$	101 $\frac{1}{4}$
Price per loop ...		\$3.92	\$3.50	\$3.41 $\frac{1}{4}$	\$3.18 $\frac{3}{4}$	\$3.09 $\frac{3}{8}$
Price per foot ...		.82 $\frac{1}{2}$	.87 $\frac{1}{2}$	.97 $\frac{1}{2}$	1.12 $\frac{1}{2}$	1.37 $\frac{1}{2}$

BUNDY STANDARD CIRCULAR RADIATOR.  
STEAM AND WATER DIRECT.



BUNDY STANDARD RADIATOR, CIRCULAR.

Unless otherwise ordered, Bundy Standard Circular Radiators will be tapped according to Tapping List in base at opposite sides.

All openings will have right-hand threads, unless otherwise ordered.

Connected by screwing the loops into the base for steam and uniting them with the upper circulating chamber with right-hand threaded taper nipples for water.

Distance from floor to center of tapping, regular legs,  $3\frac{1}{4}$  ins.; high legs,  $4\frac{1}{2}$  ins. For complete information as to tapping, etc., see Tapping List of Bundy Standard Radiators.

BUNDY STANDARD CIRCULAR RADIATOR—DIRECT.  
STANDARD LOOP—STEAM.

Size of Radiator.		Heating Surface—Square Feet.			
Number of Loops.	Diameter in inches.	48-in. high, 3½ sq. ft. per Loop.	42-in. high, 3 sq. ft. per Loop.	42-in. high, 3½ sq. ft. per Loop.	36-in. high, 3 sq. ft. per Loop.
10	17¼	.....	.....	35	30
15	18¾	.....	.....	52½	45
20	21½	.....	.....	70	60
26	22½	.....	.....	91	78
34	26½	.....	.....	119	102
50	31¼	.....	.....	175	150
72	36	.....	.....	252	216
*142	57½	497	426	.....	.....
Price per loop.....		\$2.97½	\$2.70	\$2.62½	\$2.40
Price per foot.....		.85	.90	.75	.80

ENLARGED LOOP—STEAM.

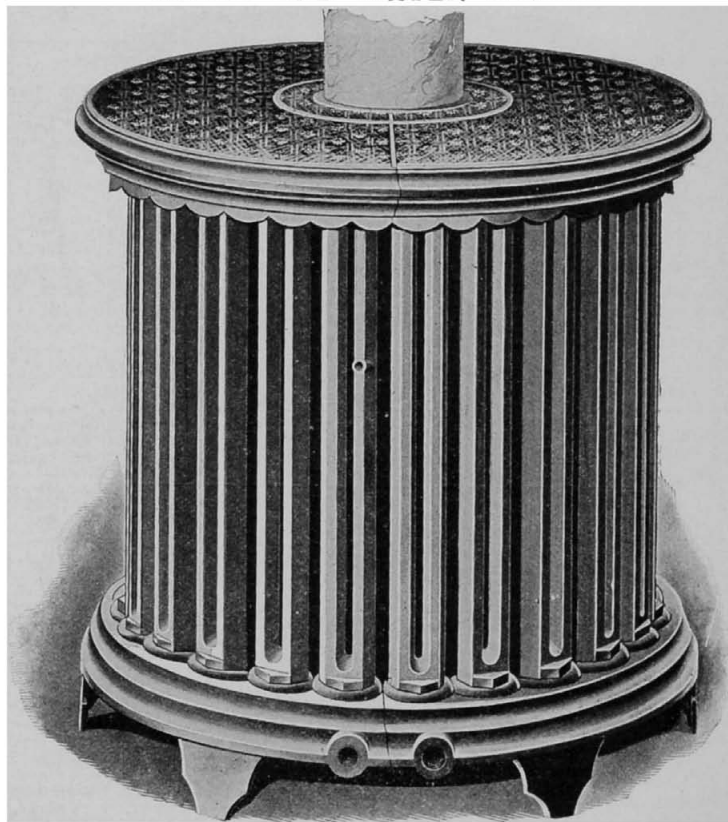
Size of Radiator.		Heating Surface—Square Feet.			
Number of Loops.	Diameter in inches.	48-in. high, 4¼ sq. ft. per Loop.	42-in. high, 3½ sq. ft. per Loop.	42-in. high, 4¼ sq. ft. per Loop.	36-in. high, 3½ sq. ft. per Loop.
10	17¼	.....	.....	42½	35
15	18¾	.....	.....	63½	52½
20	21½	.....	.....	85	70
26	22½	.....	.....	110½	91
34	26½	.....	.....	144½	119
50	31¼	.....	.....	212½	175
72	36	.....	.....	306	252
*142	57½	683½	497	.....	.....
Price per loop.....		\$3.50½	\$3.06¼	\$3.08¼	\$2.71¼
Price per foot.....		.82½	.87½	.72½	.77½

\*Price includes binder for marble top; iron top, \$60.00 per Radiator, extra.

CIRCULAR—WATER.

Size of Radiator.		Standard Loop.		Enlarged Loop.	
Number of Loops.	Diameter in inches.	45-in. high, 4 sq. ft. per Loop.	39-in. high, 3½ sq. ft. per Loop.	45-in. high, 4¼ sq. ft. per Loop.	39-in. high, 4 sq. ft. per Loop.
10	17¼	40	35	47½	40
15	18¾	60	52½	71¼	60
20	21½	80	70	95	80
26	22½	104	91	123½	104
34	26½	136	119	161½	136
50	31¼	200	175	237½	200
Price per loop.....		\$3.80	\$3.50	\$4.30½	\$3.90
Price per foot.....		.95	1.00	.92½	.97½

BUNDY STANDARD COLUMN RADIATOR.  
STEAM AND WATER-DIRECT.



BUNDY STANDARD RADIATOR, COLUMN.

Unless otherwise ordered, Bundy Standard Column Radiators will be tapped according to Tapping List in base at opposite sides.

All openings will have right-hand threads, unless otherwise ordered.

Connected by screwing the loops into the base for steam and uniting them with the upper circulating chamber with right-hand threaded taper nipples for water.

Distance from floor to center of tapping, regular legs,  $3\frac{1}{4}$  ins.; high legs,  $4\frac{1}{4}$  ins. For complete information as to tapping, etc., see Tapping List of Bundy Standard Radiators.

## BUNDY STANDARD COLUMN RADIATOR—DIRECT. STANDARD LOOP—STEAM.

Size of Radiator.			Heating Surface—Square Feet.			
Number of Loops.	Diameter in inches.		48-in. high, 3½ sq. ft. per Loop.	42-in. high, 3 sq. ft. per Loop.	42-in. high, 3½ sq. ft. per Loop.	30-in. high, 3 sq. ft. per Loop.
	Outside.	Inside.				
26	26	9	....	....	91	78
31	30	12¾	....	....	119	102
50	36	17	....	....	175	150
58	41	24	....	....	203	174
*142	57½	18	497	426	....	....
Price per loop.....			\$2.97½	\$2.70	\$2.80	\$2.55
Price per foot.....			.85	.90	.80	.85

## ENLARGED—LOOP STEAM.

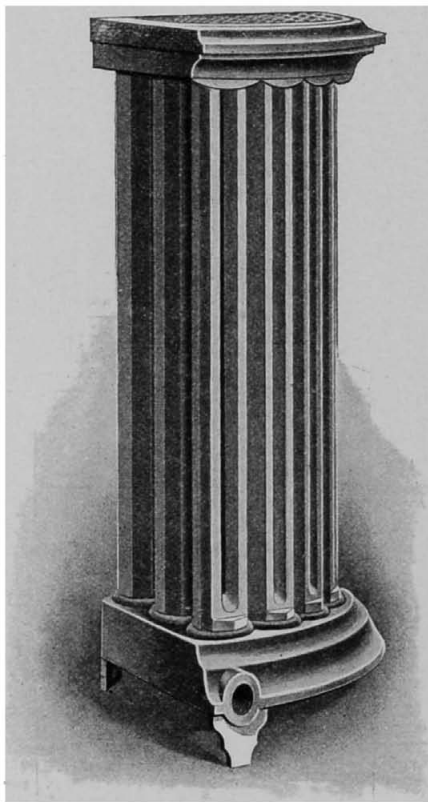
Size of Radiator.			Heating Surface—Square Feet.			
Number of Loops.	Diameter in inches.		48-in. high, 4¼ sq. ft. per Loop.	42 in. high, 3½ sq. ft. per Loop.	42-in. high, 4¼ sq. ft. per Loop.	30-in. high, 3½ sq. ft. per Loop.
	Outside.	Inside.				
26	26	9	....	....	111½	91
31	30	12¾	....	....	144½	119
50	36	17	....	....	212½	175
58	41	24	....	....	246½	203
*142	57½	18	602½	497	....	....
Price per loop.....			\$3.50½	\$3.06¼	\$3.29¾	\$2.88¼
Price per foot.....			.82½	.87½	.77½	.82½

\*Price includes binder for marble top; iron top, \$60.00 per radiator extra.

## BUNDY STANDARD RING COLUMN RADIATOR. DIRECT—STEAM.

Size of Radiator.			Heating Surface—Square Feet.			
Number of Loops.	Diameter in inches.		Standard Loop.		Enlarged Loop.	
	Outside.	Inside.	42-in. high, 3½ sq. ft. per Loop.	30-in. high, 3 sq. ft. per Loop.	42-in. high, 4¼ sq. ft. per Loop.	30-in. high, 3½ sq. ft. per Loop.
18	26	12	....	....	....	....
22	30	16	63	54	76½	63
28	36	22½	77	66	9½	77
32	41	28½	98	81	119	98
			112	96	136	112
Price per loop.....			\$3.32½	\$3.00	\$3.93¼	\$3.41¼
Price per foot.....			.95	1.00	.92½	.97½

BUNDY STANDARD CORNER RADIATOR.  
DIRECT.  
STEAM AND WATER.



BUNDY STANDARD RADIATOR.

A radiator unequalled for use in the corner of a room. When equipped with a marble top the radiator is an excellent pedestal for statuary or other bric-a-brac.

## BUNDY STANDARD CORNER RADIATOR. DIRECT-STEAM.

Size of Radiator.		Heating Surface—Square Feet.			
Number of Loop.	Radius of circle in inches.	Standard Loop.		Enlarged Loop.	
		42-in. high, 3½ sq. ft. per Loop.	36-in. high, 3 sq. ft. per Loop.	42-in. high, 4¼ sq. ft. per Loop.	36-in. high, 3¼ sq. ft. per Loop.
10	15	35	30	42½	35
15	17¼	52½	45	63¾	52½
20	19¼	70	60	85	70
25	22½	87½	75	106¼	87½
28	22½	98	84	119	98
Price per loop.....		\$2.62½	\$2.40	3.08¼	\$2.71¼
Price per foot.....		.75	.80	.72½	.77½

Unless otherwise ordered, Bundy Standard Corner Steam Radiators are tapped according to Tapping List in base at opposite corners.

Connected by screwing the loops into the base.

Height of center of tapping from floor, 31½ inches, except on 25 and 28 loop radiators, when it is 4¼ inches.

## DIRECT-WATER.

Size of Radiator.		Heating Surface—Square Feet.			
Number of Loop.	Radius of circle in inches.	Standard Loop.		Enlarged Loop.	
		45-in. high, 4 sq. ft. per Loop.	39-in. high, 3½ sq. ft. per Loop.	45-in. high, 4¼ sq. ft. per Loop.	39-in. high, 4 sq. ft. per Loop.
10	15	40	35	47½	40
15	17¼	60	52	71¼	60
20	19¼	80	70	95	80
Price per loop ....		\$3.80	\$3.50	\$4.39½	\$3.90
Price per foot ....		.95	1.00	.92½	.97½

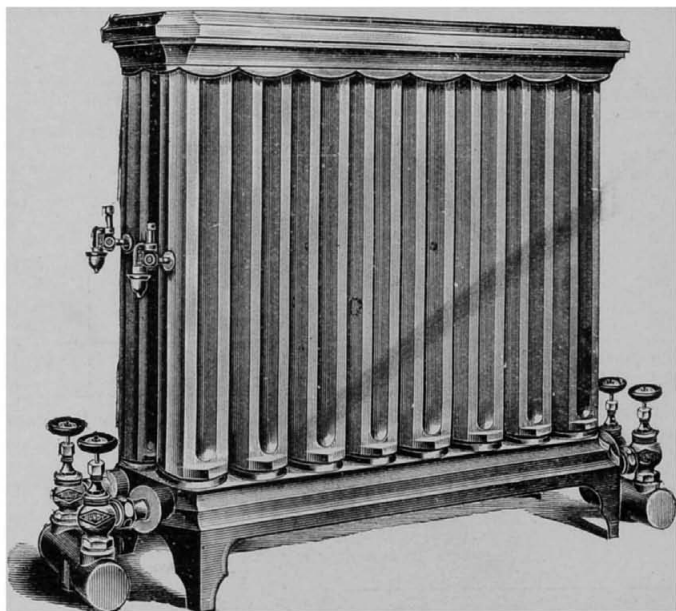
Unless otherwise ordered, Bundy Standard Corner Water Radiators are tapped according to Tapping List in base at opposite corners.

All openings have right-hand threads, unless otherwise ordered.

Connected by screwing the loops into the base and uniting them with the upper circulating chamber with right-hand threaded taper nipples.

Height of center of tapping from floor, regular legs, 31½ inches; high legs, 4½ inches.

## BUNDY STANDARD RADIATOR.



DUPLIX BASE DIRECT STEAM RADIATOR.

Unless otherwise ordered, the header at the supply end will be tapped: underneath,  $1\frac{1}{4}$  inches; on top  $\frac{3}{4}$  inches; and the header at the return end: underneath, 1 inch; on top  $\frac{3}{4}$  inches.

All openings will have right-hand threads, unless otherwise ordered.

Height of center of radiator tapping from floor, 5 inches.

For one pipe system, the two return valves and one header are omitted.

An air valve tapping is in the return end loop of each row. It is considered the best practice to use one automatic air valve and the rest positive air valves.

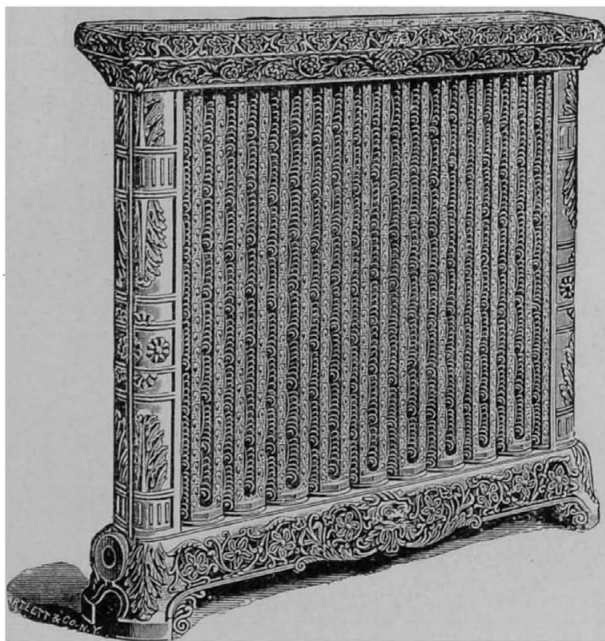
List prices to be added to prices of regular Bundy Radiators :

Style of Radiator.	Steam.	Hot Water.	Header.
Two rows of loops. . . . .	\$4.00	\$8.00	\$2.00
Three rows of loops. . . . .	8.00	16.00	2.50
Four rows of loops. . . . .	12.00	Not made.	3.00



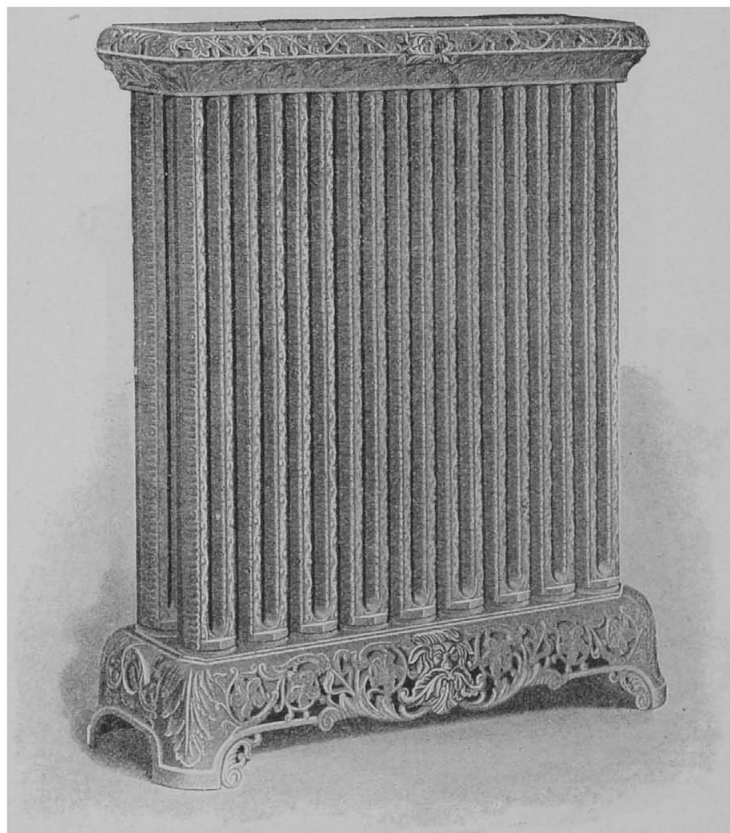
BUNDY RENAISSANCE RADIATOR.

WITH CORNER PILLARS.



ONE ROW.

BUNDY RENAISSANCE RADIATOR.  
DIRECT-STEAM.



BUNDY RENAISSANCE RADIATOR, TWO ROW.

Unless otherwise ordered, Bundy Renaissance Steam Radiators will be tapped according to Tapping List.

All openings will have right-hand threads, unless otherwise ordered.

Connected by screwing the loops into the base.

Distance from floor to center of tapping,  $4\frac{1}{4}$  inches height.

## BUNDY RENAISSANCE DIRECT RADIATORS—STEAM. STANDARD LOOP.

Widths of Base: $\left\{ \begin{array}{l} \text{One Row, } 7\frac{1}{2} \text{ in.} \\ \text{Two Row, } 11\frac{1}{4} \text{ in.} \\ \text{Three Row, } 15\frac{1}{2} \text{ in.} \end{array} \right.$		Heating Surface—Square Feet.		
		37 $\frac{1}{2}$ -in. high, 3 sq. ft. per Loop.	31-in. high, 2 $\frac{1}{2}$ sq. ft. per Loop.	25-in. high, 2 sq. ft. per Loop.
Size of Radiator.	Length in inches.			
1 x 5	18 $\frac{1}{2}$	15	12 $\frac{1}{2}$	10
1 x 7	25	21	17 $\frac{1}{2}$	14
1 x 9	31 $\frac{1}{2}$	27	22 $\frac{1}{2}$	18
1 x 11	38	33	27 $\frac{1}{2}$	22
1 x 13	44 $\frac{1}{2}$	39	32 $\frac{1}{2}$	26
1 x 15	51	45	37 $\frac{1}{2}$	30
2 x 5	18 $\frac{1}{2}$	30	25	20
2 x 7	25	42	35	28
2 x 9	31 $\frac{1}{2}$	54	45	36
2 x 11	38	66	55	44
2 x 13	44 $\frac{1}{2}$	78	65	52
2 x 15	51	90	75	60
3 x 5	19 $\frac{1}{2}$	45	37 $\frac{1}{2}$	30
3 x 7	26	63	52 $\frac{1}{2}$	42
3 x 9	32 $\frac{1}{2}$	81	67 $\frac{1}{2}$	54
3 x 11	39	99	82 $\frac{1}{2}$	66
3 x 13	45 $\frac{1}{2}$	117	97 $\frac{1}{2}$	78
3 x 15	52	135	112 $\frac{1}{2}$	90
Price per loop.....		\$1.50	\$4.25	\$4.00
Price per foot.....		1.50	1.70	2.00

## ENLARGED LOOP.

Widths of Base: $\left\{ \begin{array}{l} \text{One Row, } 7\frac{1}{2} \text{ in.} \\ \text{Two Row, } 11\frac{1}{4} \text{ in.} \\ \text{Three Row, } 15\frac{1}{2} \text{ in.} \end{array} \right.$		Heating Surface—Square Feet.		
		37 $\frac{1}{2}$ -in. high, 3 $\frac{1}{2}$ sq. ft. per Loop.	31-in. high, 3 sq. ft. per Loop.	25-in. high, 2 $\frac{1}{2}$ sq. ft. per Loop.
Size of Radiator.	Length in inches.			
1 x 5	18 $\frac{1}{2}$	17 $\frac{1}{2}$	15	11 $\frac{1}{2}$
1 x 7	25	24 $\frac{1}{2}$	21	16 $\frac{1}{2}$
1 x 9	31 $\frac{1}{2}$	31 $\frac{1}{2}$	27	21
1 x 11	38	38 $\frac{1}{2}$	33	27 $\frac{1}{2}$
1 x 13	44 $\frac{1}{2}$	45 $\frac{1}{2}$	39	30 $\frac{1}{2}$
1 x 15	51	52 $\frac{1}{2}$	45	35
2 x 5	18 $\frac{1}{2}$	35	30	23 $\frac{1}{2}$
2 x 7	25	49	42	32 $\frac{1}{2}$
2 x 9	31 $\frac{1}{2}$	63	51	42
2 x 11	38	77	66	51 $\frac{1}{2}$
2 x 13	44 $\frac{1}{2}$	91	78	60 $\frac{1}{2}$
2 x 15	51	105	90	70
3 x 5	19 $\frac{1}{2}$	52 $\frac{1}{2}$	45	35
3 x 7	26	73 $\frac{1}{2}$	63	49
3 x 9	32 $\frac{1}{2}$	91 $\frac{1}{2}$	81	63
3 x 11	39	115 $\frac{1}{2}$	99	77
3 x 13	45 $\frac{1}{2}$	136 $\frac{1}{2}$	117	91
3 x 15	52	157 $\frac{1}{2}$	135	105
Price per loop.....		\$5.07 $\frac{1}{2}$	\$4.95	\$4.55
Price per foot.....		1.45	1.65	1.95

Length of Radiator has reference to radiator proper into which pipe connections are made and does not include the ornamental detachable base skirt, which adds about 1 $\frac{1}{2}$  inches in length to each end of the radiator.

If furnished with Corner Pillars, add \$7.50 to list price of radiator.

## BUNDY RENAISSANCE DIRECT RADIATORS—WATER. STANDARD LOOP.

Widths of Base: { One Row, 7½ in. Two Row, 11¾ in. Three Row, 16½ in.		Heating Surface—Square Feet.		
		40½-in. high, 3½ sq. ft. per Loop.	34-in. high, 3 sq. ft. per Loop.	28-in. high, 2½ sq. ft. per Loop.
Size of Radiator.	Length in inches.			
1 x 5	18½	17½	15	12½
1 x 7	25	24½	21	17½
1 x 9	31½	31½	27	22½
1 x 11	38	38½	33	27½
1 x 13	44½	45½	39	32½
1 x 15	51	52½	45	37½
2 x 5	18½	35	30	25
2 x 7	25	49	42	35
2 x 9	31½	63	51	45
2 x 11	38	77	66	55
2 x 13	44½	91	78	65
2 x 15	51	105	90	75
3 x 5	19½	52½	45	37½
3 x 7	26	78½	63	52½
3 x 9	32½	94½	81	67½
3 x 11	39	110½	99	82½
3 x 13	45½	136½	117	97½
3 x 15	52	157½	135	112½
Price per loop.....		\$6.30	\$6.00	\$5.75
Price per foot.....		1.80	2.00	2.30

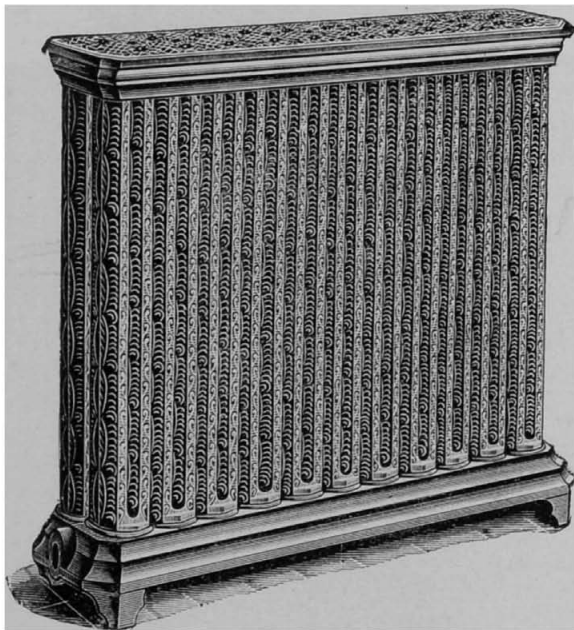
## ENLARGED LOOP.

Widths of Base: { One Row, 7½ in. Two Row, 11¾ in. Three Row, 16½ in.		Heating Surface—Square Feet.		
		40½-in. high, 4 sq. ft. per Loop.	34-in. high, 3½ sq. ft. per Loop.	28-in. high, 2½ sq. ft. per Loop.
Size of Radiator.	Length in inches.			
1 x 5	18½	20	17½	14½
1 x 7	25	28	24½	19½
1 x 9	31½	36	31½	25½
1 x 11	38	44	38½	31½
1 x 13	44½	52	45½	36½
1 x 15	51	60	52½	42½
2 x 5	18½	40	35	28½
2 x 7	25	56	49	39½
2 x 9	31½	72	63	51
2 x 11	38	88	77	62½
2 x 13	44½	104	91	73½
2 x 15	51	120	105	85
3 x 5	19½	60	52½	42½
3 x 7	26	84	73½	59½
3 x 9	32½	108	94½	76½
3 x 11	39	132	115½	93½
3 x 13	45½	156	136½	110½
3 x 15	52	180	157½	127½
Price per loop.....		\$7.00	\$6.82½	\$6.37½
Price per foot.....		1.75	1.95	2.25

Length of Radiator has reference to radiator proper into which connections are made and does not include the ornamental detachable base skirt, which adds about 1½ inches in length to each end of the radiator.

If furnished with Corner Pillars, add \$7.50 to list price of radiator.

## BUNDY SEMI-RENAISSANCE RADIATOR.



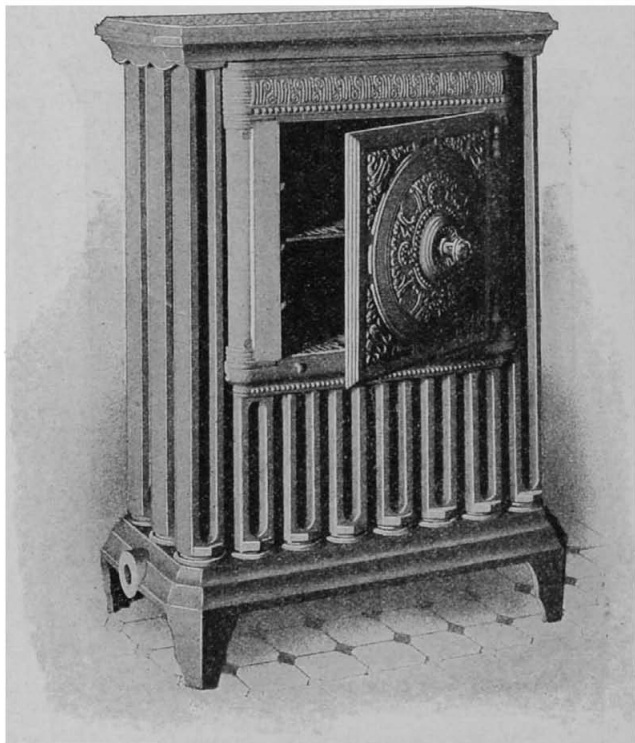
BUNDY SEMI-RENAISSANCE RADIATOR, TWO ROW.

The Bundy Semi-Renaissance Radiator is made in all sizes, widths, lengths, heights and styles in which the regular Bundy Standard Radiator is made, including Circular, Column, Corner, both for Steam and Water.

The same sizes, measurements, explanations, etc., apply that are given concerning plain Bundy Standard Radiators.

It makes available at but the slight additional cost of fifty cents per loop list extra, the handsome Renaissance loop in connection with the plain base and top.

BUNDY STANDARD HOT CLOSET RADIATOR.  
SINGLE OVEN—STEAM.



STEAM—38 INCHES HIGH.

No.	Size.	Length, inches.	Style Loop.	Heating Surface, sq. ft.	Price.
1	3 x 8	29 $\frac{1}{4}$	Standard	45	\$77
2	3 x 8	29 $\frac{1}{4}$	Enlarged	54	86
3	3 x 10	35 $\frac{1}{4}$	Standard	63	91
4	3 x 10	35 $\frac{1}{4}$	Enlarged	75	101
5	3 x 12	42 $\frac{1}{4}$	Standard	81	105
6	3 x 12	42 $\frac{1}{4}$	Enlarged	96	116

# BUNDY STANDARD HOT CLOSET RADIATOR.

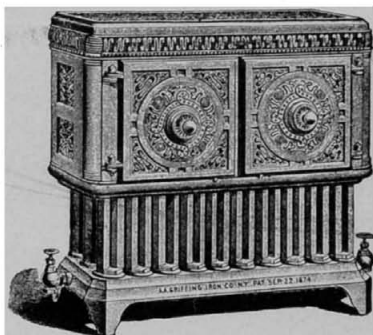
DOUBLE OVEN-STEAM.



STEAM, 38 INCHES HIGH.

No.	Size.	Length, inches.	Style Loop.	Heating Surface, sq. ft.	Price.
21	3 x 15	52	Standard	81	\$142
22	3 x 15	52	Enlarged	97½	164

## BUNDY STANDARD DINING ROOM HOT CLOSET RADIATOR.



STYLE A, STEAM.

### LIST OF SIZES AND PRICES.

Style of Loop.	48-inch Height.		42-inch Height.		36-inch Height.	
	Heating Surface, sq. ft.	Price.	Heating Surface, sq. ft.	Price.	Heating Surface, sq. ft.	Price.
Standard Loop.	59	\$99.00	44	\$94.00	33	\$91.00
	61	101.00	46	96.00	34½	93.00
	63	103.00	48	98.00	36	95.00
	65	105.00	50	100.00	37½	96.75
	67	107.00	52	102.00	39	98.50
	69	109.00	54	104.00	40½	100.50
	71	111.00	56	106.00	42	102.00
	73	113.00	58	108.00	43½	104.00
75	115.00	60	110.00	45	106.00	
Enlarged Loop.	70	106.00	51½	100.00	38½	97.25
	72½	108.25	53¾	102.00	40¼	99.50
	75	110.50	56	104.50	42	101.50
	77½	112.75	58½	107.00	43¾	103.50
	80	115.00	60¾	109.00	45½	105.75
	82½	117.25	63	111.00	47¼	108.00
	85	119.50	65½	113.50	49	110.25
	87½	121.75	67¾	116.00	50¾	112.50
	90	124.00	70	118.25	52½	114.50



## BUNDY STANDARD DINING ROOM HOT CLOSET RADIATOR.



STYLE B. STEAM.

### LIST OF SIZES AND PRICES.

Style of Loop.	48-inch Height.		42-inch Height.		36-inch Height.	
	Heating Surface, sq. ft.	Price.	Heating Surface, sq. ft.	Price.	Heating Surface, sq. ft.	Price.
Standard Loop.	59	\$106.50	44	\$101.50	33	\$ 98.50
	61	108.50	46	103.50	34½	100.50
	63	110.50	48	105.50	36	102.50
	65	112.50	50	107.50	37½	104.25
	67	114.50	52	109.50	39	106.00
	69	116.50	54	111.50	40½	108.00
	71	118.50	56	113.50	42	109.50
	73	120.50	58	115.50	43½	111.50
	75	122.50	60	117.50	45	113.50
Enlarged Loop.	70	113.50	51½	\$107.50	38½	104.75
	72½	115.75	53½	109.50	40½	107.00
	75	118.00	56	112.00	42	109.00
	77½	120.25	58½	114.50	43¾	111.00
	80	122.50	60½	116.50	45½	113.25
	82½	124.75	63	118.50	47¼	115.50
	85	127.00	65½	121.00	49	117.75
	87½	129.25	67¾	123.50	50¾	120.00
	90	131.50	70	125.75	52½	122.00

## BUNDY STANDARD DINING ROOM HOT CLOSET RADIATOR.

### STYLE A—WATER.

#### LIST OF SIZES AND PRICES.

Style of Loop.	53-in. Height.		47-in. Height.		41-in. Height.	
	Heating Surface, sq. ft.	Price.	Heating Surface, sq. ft.	Price.	Heating Surface, sq. ft.	Price.
Standard Loop.	70	\$137.50	63	\$135.25	52	\$132.25
	72½	140.00	64½	137.00	53	134.00
	75	142.50	66	138.50	54	135.50
	77½	145.00	67½	140.25	55	137.25
	80	147.50	69	142.00	56	139.00
	82½	150.00	70½	143.50	57	140.50
	85	152.50	72	145.00	58	142.00
	87½	155.00	73½	146.75	59	143.75
	90	157.50	75	148.50	60	145.50
Enlarged Loop.	81	144.00	73⅓	142.00	59⅓	139.25
	84	147.00	74⅔	143.75	60⅔	141.00
	87	150.00	76	145.75	62	143.00
	90	153.00	77⅓	147.75	63⅓	145.00
	93	156.00	78⅔	149.75	64⅔	147.00
	96	159.00	80	151.75	66	149.00
	99	162.00	81⅓	153.50	67⅓	150.75
	102	165.00	82⅔	155.50	68⅔	152.75
	105	168.00	84	157.50	70	154.75

### STYLE B—WATER.

SIZES, same as above list.

PRICES, add \$7.50 to the above list for each radiator

All sizes and styles of Bundy Standard Dining Room Hot Closet Radiators are made with the 3 x 10 Bundy Standard Radiator, and the dimensions are as follows: Length, 35 inches; width, 13½.

Dimensions of Hot Closet alone are: For steam, length, 35 inches; width, 14 inches; height, 18 inches. For hot water, length, 35 inches; width, 14 inches; height, 21 inches.

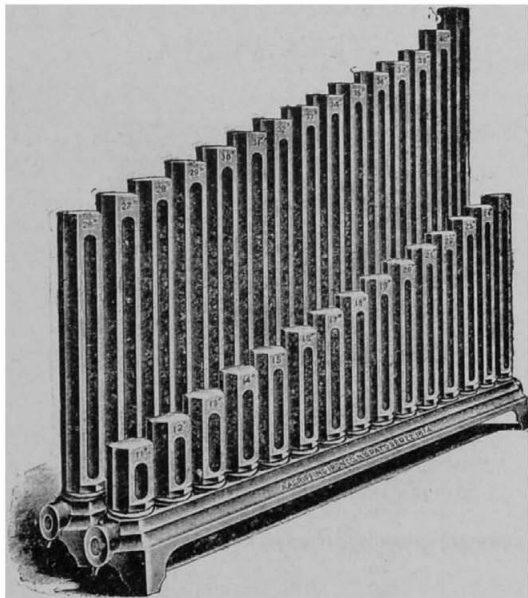
The different amounts of heating surface are secured by omitting from 1 to 8 intermediate loops of the middle row.

Tapping, same as for 3 x 10 Bundy Standard Radiator.

Height from floor to center of tapping, 4½ inches.

## BUNDY STANDARD RADIATORS.

The following are the different heights in which are made Bundy Standard Radiators, based on centre of tapping being  $3\frac{1}{8}$  inches from floor.



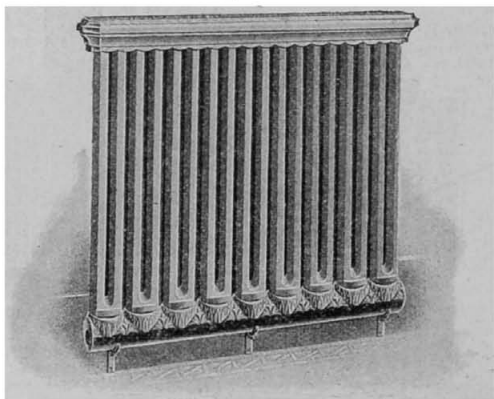
N. B.—All Bundy Standard Radiators of heights other than those listed take the list prices given below.

STEAM.		WATER.	
Heights.	Take Price per Loop.	Heights.	Take Price per Loop.
10 to 18 inch inclusive	18 inch high.	13 to 21 inch inclusive	21 inch high.
19 to 24 " "	24 " "	22 to 27 " "	27 " "
25 to 30 " "	30 " "	28 to 33 " "	33 " "
31 to 36 " "	36 " "	33 to 39 " "	39 " "
37 to 42 " "	42 " "	40 to 45 " "	45 " "
43 to 48 " "	48 " "		
Bundy Foot Blocks up to 2 inch.....		\$0.25	
Bundy Foot Blocks over 2 inch.....		.40	

Extra high legs for Bundy Standard Radiators cost as follows: 5-inch high legs, \$1.00 per radiator extra; 6-inch, \$2.00; 7-inch, \$3.00; 8-inch, \$4.00; 9-inch, \$5.00; 10-inch, \$6.00.

## BUNDY STANDARD SECTIONAL RADIATOR.

STEAM-DIRECT.



BUNDY STANDARD SECTIONAL RADIATOR, 26 INCHES HIGH.

The above cut illustrates the Bundy Standard Sectional Radiator which is furnished in any height from 10 inches to 44 inches, varying by single inches, and in any length where the total number of loops in the radiator is divisible by three. The base is sectional, made of two lengths, for three and six loops, united closely with screw thread nipples, and so the radiator must have three, six, nine, twelve or more loops, the total number of which must be a multiple of three.

This radiator is furnished for steam only, either with brackets for fastening to the wall (as illustrated above) or with detachable legs to set on the floor.

# BUNDY STANDARD SECTIONAL RADIATOR.

## STANDARD LOOP-STEAM.

### LIST OF SIZES.

Sizes.	Length, inches.	HEATING SURFACE—SQUARE FEET.				
		44-in. High.	38-in. High.	32-in. High.	26-in. High.	20-in. High.
1 x 3	9 $\frac{3}{4}$	10 $\frac{1}{2}$	9	7 $\frac{1}{2}$	6	4 $\frac{1}{2}$
1 x 6	19 $\frac{1}{2}$	21	18	15	12	9
1 x 9	29 $\frac{1}{4}$	31 $\frac{1}{2}$	27	22 $\frac{1}{2}$	18	13 $\frac{1}{2}$
1 x 12	39	42	36	30	24	18
1 x 15	48 $\frac{3}{4}$	52 $\frac{1}{2}$	45	37 $\frac{1}{2}$	30	22 $\frac{1}{2}$
1 x 18	58 $\frac{1}{2}$	63	54	45	36	27
1 x 21	68 $\frac{1}{4}$	73 $\frac{1}{2}$	63	52 $\frac{1}{2}$	42	31 $\frac{1}{2}$
1 x 24	78	84	72	60	48	36
1 x 27	87 $\frac{3}{4}$	94 $\frac{1}{2}$	81	67 $\frac{1}{2}$	54	40 $\frac{1}{2}$
1 x 30	97 $\frac{1}{2}$	105	90	75	60	45
1 x 33	107 $\frac{1}{4}$	115 $\frac{1}{2}$	99	82 $\frac{1}{2}$	66	49 $\frac{1}{2}$
1 x 36	117	126	108	90	72	54
Price per loop . . . . .		\$2.45	\$2.25	\$2.12 $\frac{1}{2}$	\$2.00	\$1.87 $\frac{1}{2}$
Price per foot . . . . .		.70	.75	.85	1.00	1.25

The Bundy cast iron top is furnished for all sizes up to and including 1 x 24.

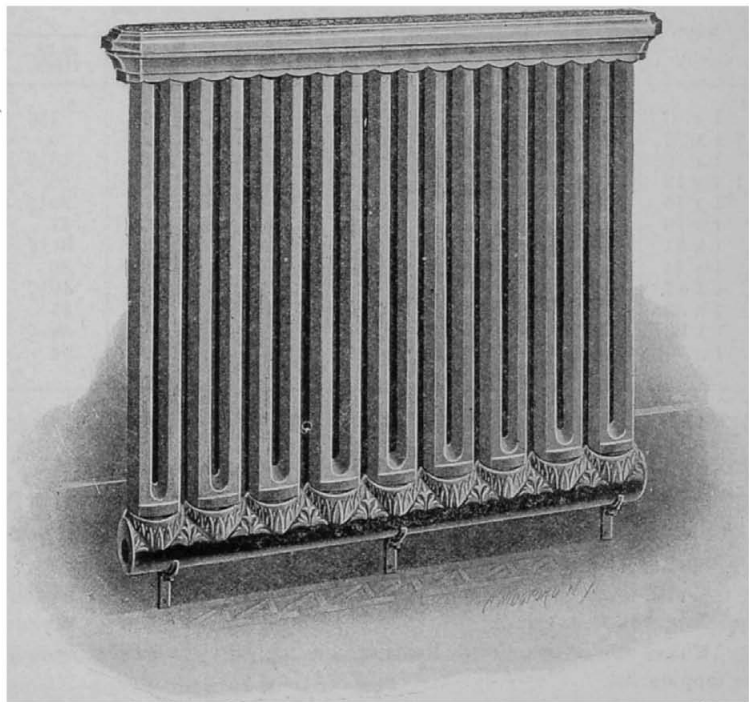
Width of radiator, loops 3 $\frac{1}{4}$  inches, top 4 $\frac{1}{2}$  inches, base 3 $\frac{1}{4}$  inches, legs 5 inches.

Unless otherwise ordered, Radiators are tapped right hand according to tapping list.

Height from floor to center of tapping, when furnished with legs, 4 $\frac{1}{2}$  inches.

Base is made by uniting with screw thread nipples the necessary number of three and six loop sections to build size of radiator required.

BUNDY STANDARD SECTIONAL  
RADIATOR.  
STEAM-DIRECT.



BUNDY STANDARD SECTIONAL RADIATOR.

Size, 1 x 9, 33 inches high.

## BUNDY STANDARD SECTIONAL RADIATOR.

### ENLARGED LOOP-STEAM.

#### LIST OF SIZES.

Sizes.	Length inches.	HEATING SURFACE—SQUARE FEET.				
		44 in. high.	38-in. high.	32-in. high.	26-in. high.	20 in. high.
1 x 3	9 $\frac{3}{4}$	12 $\frac{3}{4}$	10 $\frac{1}{2}$	9	7	5 $\frac{1}{2}$
1 x 6	19 $\frac{1}{2}$	25 $\frac{1}{2}$	21	18	14	11
1 x 9	29 $\frac{1}{4}$	38 $\frac{1}{4}$	31 $\frac{1}{2}$	27	21	16 $\frac{1}{2}$
1 x 12	39	51	42	36	28	22
1 x 15	48 $\frac{3}{4}$	63 $\frac{3}{4}$	52 $\frac{1}{2}$	45	35	27 $\frac{1}{2}$
1 x 18	58 $\frac{1}{2}$	76 $\frac{1}{2}$	63	54	42	33
1 x 21	68 $\frac{1}{4}$	89 $\frac{1}{4}$	73 $\frac{1}{2}$	63	49	38 $\frac{1}{2}$
1 x 24	78	102	84	72	56	44
1 x 27	87 $\frac{3}{4}$	114 $\frac{3}{4}$	94 $\frac{1}{2}$	81	63	49 $\frac{1}{2}$
1 x 30	97 $\frac{1}{2}$	127 $\frac{1}{2}$	105	90	70	55
1 x 33	107 $\frac{1}{4}$	140 $\frac{1}{4}$	115 $\frac{1}{2}$	99	77	60 $\frac{1}{2}$
1 x 36	117	153	126	108	84	66
Price per loop .....		\$2.87	\$2.54	\$2.47 $\frac{1}{2}$	\$2.27 $\frac{1}{2}$	\$2.24 $\frac{1}{2}$
Price per foot.....		.67 $\frac{1}{2}$	.72 $\frac{1}{2}$	.82 $\frac{1}{2}$	.97 $\frac{1}{2}$	1.22 $\frac{1}{2}$

The Bundy cast iron top is furnished for all sizes up to and including 1 x 24.

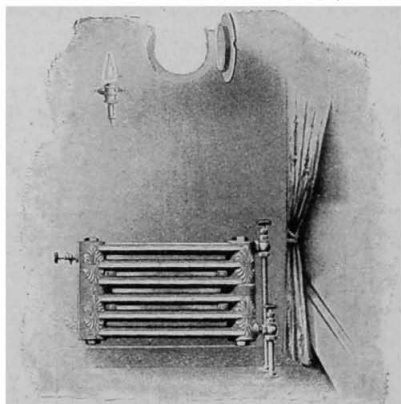
Width of radiator, loops 3 $\frac{1}{4}$  inches, top 4 $\frac{1}{2}$  inches, base 3 $\frac{1}{4}$  inches, legs 5 inches.

Unless otherwise ordered Radiators are tapped right hand according to tapping list.

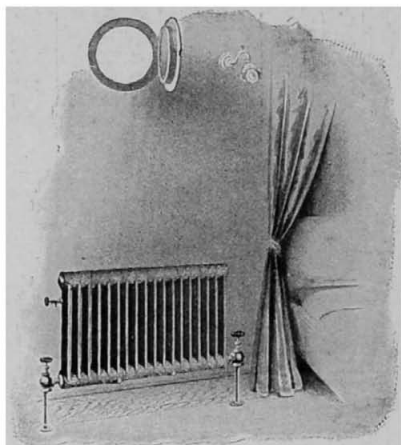
Height from floor to centre of tapping, when furnished with legs, 4 $\frac{1}{2}$  inches.

Base is made by uniting with screw thread nipples the necessary number of three and six loop sections to build size of radiator required.

## BUNDY STATE ROOM RADIATOR.



HORIZONTAL



VERTICAL

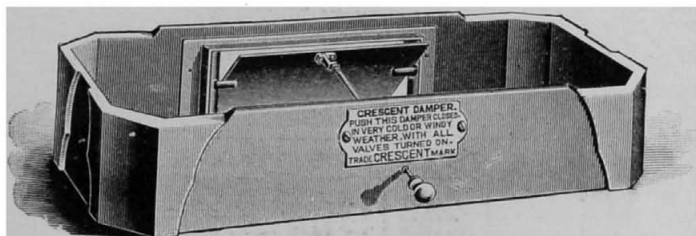
## LIST OF SIZES.

Size of Section.	Heating Surface.	List Price.
11 $\frac{3}{4}$ in. long, 20 $\frac{1}{4}$ in. high, 3 in. wide.	7 sq. ft. per section.	\$0.42 per sq. ft.
7 $\frac{3}{4}$ " " " 20 $\frac{1}{4}$ " " " 3 " "	5 " " " "	.49 " " "

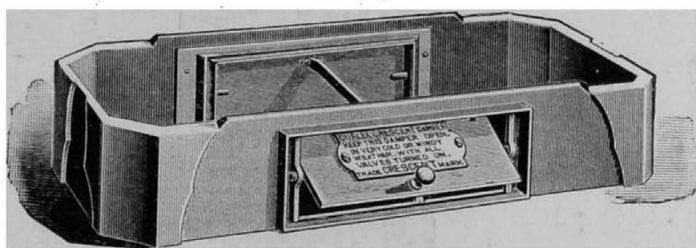
Above length has reference to length of Radiator when sections set vertically, or height of Radiator when sections set horizontally.



## BUNDY DIRECT-INDIRECT RADIATOR ATTACHMENTS.



BOX BASE SHOWING BUNDY SINGLE CRESCENT DAMPER.



BOX BASE SHOWING BUNDY DUPLEX CRESCENT DAMPER.

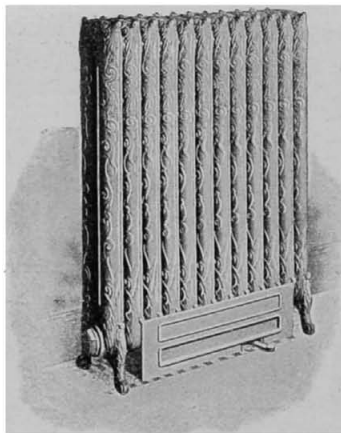
The Bundy Crescent Dampers are used exclusively on Bundy Standard and Elite Box Base, Direct-Indirect Radiators, to control the admission of air to the radiators. They are furnished in two styles, the single and double. The "single" consists simply of one damper placed in the rear panel of the box base and is operated by a hand rod that extends through the front panel, fitted with a nickel plated knob. This damper admits the air from the outside of the building, coming through the fresh air inlet.

The "double" has also a damper in the front panel for the admission of air to the radiator from the room in which it is placed. The connecting rod operates both dampers, simultaneously opening the one and closing the other.

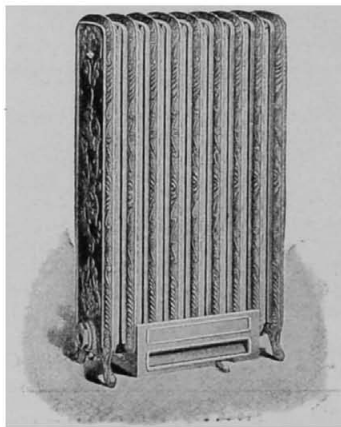
### LIST PRICES, DAMPERS ONLY.

Bundy Single Crescent .. .. .	per Radiator,	\$3.00
Bundy Double Crescent.....	" "	5.00

BUNDY COLUMBIA, EMPIRE AND PRINCESS  
DIRECT-INDIRECT RADIATORS.



COLUMBIA DIRECT-INDIRECT



PRINCESS DIRECT-INDIRECT.

## BUNDY COLUMBIA, EMPIRE AND PRINCESS DIRECT-INDIRECT RADIATORS.

These radiators for direct-indirect work are equipped with a box base, closing in the bottom of the radiator, and fitted with a foot damper for controlling the supply of fresh air with Single and Duplex Crescent Dampers in front, or rear, or both.

Size of Radiator Sections.	Size of opening at back of radiator for admission of air.		
	Columbia.	Empire.	Princess.
9	.....	.....	13 x 2½ inches.
10	.....	.....	.....
11	17 x 2½ inches.	17 x 2½ inches.	18 x 2½ "
12	19¾ x 2½ "	19¾ x 2½ "	18 x 2½ "
13	19¾ x 2½ "	19¾ x 2½ "	18 x 2½ "
14	19¾ x 2½ "	19¾ x 2½ "	18 x 2½ "
15	27 x 2½ "	27 x 2½ "	29 x 2½ "
16	30 x 2½ "	30 x 2½ "	30 x 2½ "
17	30 x 2½ "	30 x 2½ "	30 x 2½ "
18	30 x 2½ "	30 x 2½ "	30 x 2½ "
19	30 x 2½ "	30 x 2½ "	30 x 2½ "
20	30 x 2½ "	30 x 2½ "	30 x 2½ "
21	30 x 2½ "	30 x 2½ "	30 x 2½ "
22	30 x 2½ "	30 x 2½ "	30 x 2½ "
23	30 x 2½ "	30 x 2½ "	30 x 2½ "
24	30 x 2½ "	30 x 2½ "	30 x 2½ "
25	30 x 2½ "	30 x 2½ "	30 x 2½ "

BUNDY ELITE DIRECT-INDIRECT  
RADIATOR.



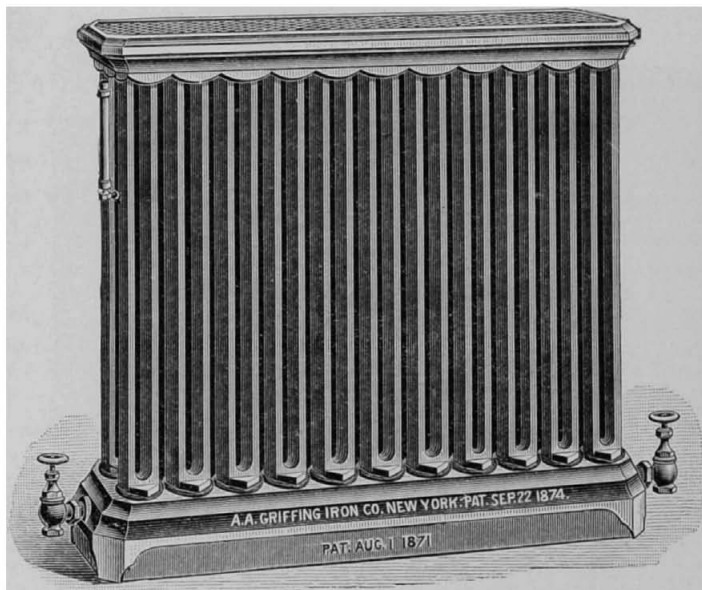
.. FITTED WITH THE DUPLEX CRESCENT DAMPER.

## BUNDY ELITE DIRECT-INDIRECT RADIATOR.

The direct-indirect attachment on Elite Radiators is made to fit the contour of the legs, with or without vertical panels to form flues for the passage of air. The supply of air is regulated by Single or Duplex Crescent Dampers, set in the direct-indirect attachment, either in front or back, or both.

Size of Radiator, Sections.	Size of opening at back of radiator for admission of air.	Size of Radiator, Sections.	Size of opening at back of radiator for admission of air.
4	5 x 3 $\frac{1}{4}$ inches.	15	21 x 3 $\frac{1}{4}$ inches.
5	8 x 3 $\frac{1}{4}$ "	16	24 x 3 $\frac{1}{4}$ "
6	8 x 3 $\frac{1}{4}$ "	17	24 x 3 $\frac{1}{4}$ "
7	11 x 3 $\frac{1}{4}$ "	18	24 x 3 $\frac{1}{4}$ "
8	17 x 3 $\frac{1}{4}$ "	19	24 x 3 $\frac{1}{4}$ "
9	20 x 3 $\frac{1}{4}$ "	20	24 x 3 $\frac{1}{4}$ "
10	24 x 3 $\frac{1}{4}$ "	21	24 x 3 $\frac{1}{4}$ "
11	24 x 3 $\frac{1}{4}$ "	22	24 x 3 $\frac{1}{4}$ "
12	24 x 3 $\frac{1}{4}$ "	23	24 x 3 $\frac{1}{4}$ "
13	24 x 3 $\frac{1}{4}$ "	24	24 x 3 $\frac{1}{4}$ "
14	24 x 3 $\frac{1}{4}$ "	25	24 x 3 $\frac{1}{4}$ "

BUNDY STANDARD DIRECT-INDIRECT  
RADIATOR.



BUNDY STANDARD DIRECT-INDIRECT (BOX BASE) RADIATOR.

These box bases can be closed in all the way down to the floor and the fresh air admitted through the floor, or they can be fitted with Crescent dampers as explained on a previous page. Bundy Standard Radiators are made Direct-Indirect from two-row up, all sizes.

List prices per loop for box base attachment only to be added to regular price of radiator.

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Rectangular Pattern.....	Per Loop, \$0.25
Circular, Column and Corner.....	“ 50

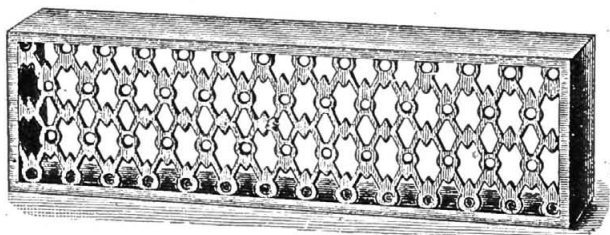
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## BUNDY STANDARD DIRECT-INDIRECT RADIATORS.

List giving dimensions of fresh air inlet in back panel of two, three and four row Bundy Standard Radiators

Size of Radiator.	Size of Opening.	Size of Radiator.	Size of Opening.
2 x 4	$5\frac{3}{4}$ x 3 inches	2 x 13	$15\frac{3}{4}$ x 3 inches
2 x 5	$5\frac{3}{4}$ x 3 "	2 x 14	$15\frac{3}{4}$ x 3 "
2 x 6	$5\frac{3}{4}$ x 3 "	2 x 15	$15\frac{3}{4}$ x 3 "
2 x 7	$10\frac{3}{4}$ x 3 "	2 x 16	$20\frac{3}{4}$ x 3 "
2 x 8	$10\frac{3}{4}$ x 3 "	2 x 18	$20\frac{3}{4}$ x 3 "
2 x 9	$10\frac{3}{4}$ x 3 "	2 x 20	$20\frac{3}{4}$ x 3 "
2 x 10	$10\frac{3}{4}$ x 3 "	2 x 22	$20\frac{3}{4}$ x 3 "
2 x 11	$15\frac{3}{4}$ x 3 "	2 x 24	$25\frac{3}{4}$ x 3 "
2 x 12	$15\frac{3}{4}$ x 3 "	2 x 26	$25\frac{3}{4}$ x 3 "

## RADIATOR ATTACHMENTS, TOOLS, ETC.



REGISTER FACE FOR FRESH AIR DUCT OF DIRECT-INDIRECT RADIATORS.

## LIST OF SIZES.

---

No. 1.	11¼ inches long,	5 inches high,	2½ inches deep.....	Each,	\$1.50
“ 2.	17¼ “ “	5 “ “	2½ “ “ .....	“	2.00

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ELITE MARBLE AND IRON TOP SUPPORT.

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List Price.....Per Pair, \$0.75

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COLUMBIA AND EMPIRE MARBLE TOP SUPPORT.

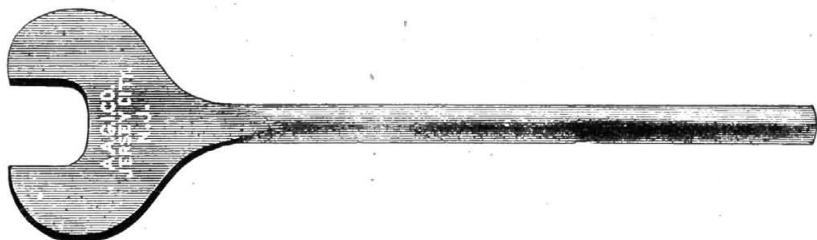
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List Price.....Per Pair, \$0.75

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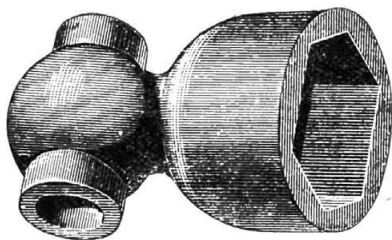


RADIATOR ATTACHMENTS, TOOLS, ETC.



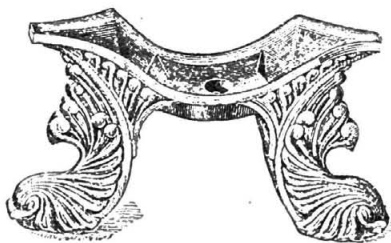
WRENCH FOR BUILDING INDIRECT RADIATOR SECTIONS INTO STACKS.

List Price..... Each, \$1.25



BUNDY LOOP WRENCH FOR SCREWING INTO THE BASE ALL STYLES OF BUNDY LOOPS.

List Price..... Each, \$3.00



ELITE DETACHABLE LEGS.

Made in five heights with which Radiator can be made higher or lower than regular.

Price..... Each, \$0.53



TAPPINGS AND MEASUREMENTS  
BUNDY SECTIONAL RADIATORS.

CENTER OF TAPPING is distant from floor when tapped for feed at top of radiator:—

ELITE.

---

45 inches high.....		41 $\frac{7}{8}$ inches.
38 " " .....		35 $\frac{1}{4}$ "
30 " " .....		27 "
24 " " .....		21 "
20 " " .....		16 $\frac{3}{4}$ "

---

COLUMBIA AND EMPIRE.

---

45 inches high.....		43 $\frac{1}{8}$ inches.
38 " " .....		36 $\frac{3}{8}$ "
32 " " .....		30 $\frac{1}{4}$ "
26 " " .....		24 $\frac{1}{8}$ "
23 " " .....		21 $\frac{1}{4}$ "
20 " " .....		18 $\frac{3}{8}$ "

---

PRINCESS.

---

45 inches high. ....		43 inches.
38 " " .....		36 "
31 " " .....		29 $\frac{1}{4}$ "
25 " " .....		23 $\frac{1}{8}$ "
20 " " .....		18 $\frac{1}{4}$ "

---

## TAPPINGS AND MEASUREMENTS

## BUNDY STANDARD RADIATORS.

**STEAM.** Tapped regular 1 x  $\frac{3}{4}$  inches, R. II. opposite ends, but any size tapping may be had up to 2 inches right or left hand, opposite or same end, single or double pipe, excepting on renaissance radiators, on which  $1\frac{1}{2}$  inches is the largest tapping.

**HOT WATER.** Tapped regular  $1\frac{1}{4}$  x  $1\frac{1}{4}$  inches R. H., opposite ends, but any size tapping may be had up to 2 inches, right or left hand, opposite or same end, or in upper circulating chamber, excepting on renaissance radiators, on which  $1\frac{1}{2}$  inches is the largest tapping possible.

**CENTERS OF TAPPING** are distant from floor as follows:—

Regular height legs.....	$3\frac{1}{8}$ inches.
“ <i>high</i> “ .....	$4\frac{1}{2}$ “
Extra “ “ .....	5 to 7 “
Renaissance.....	$4\frac{1}{2}$ “
Semi-Renaissance.....	$3\frac{1}{8}$ “
Hot Closet.....	$4\frac{1}{2}$ “
Direct-Indirect (Box Base).....	$4\frac{1}{2}$ “
Duplex Base....	5 “
Semi-Duplex.....	$3\frac{1}{8}$ “
25 and 28 Loop Corner.....	$4\frac{1}{2}$ “
72 Loop Circular.....	$4\frac{1}{2}$ “
142 “ “ and Column.....	7 “

## TAPPING LIST.

Unless otherwise ordered, all styles of Bundy sectional radiators, shown in this catalogue, will be tapped or bushed as follows :

## STEAM

## ONE-PIPE WORK.

---

Radiators containing 24 square feet and under .....	1 in.
Above 24, but not exceeding 60 feet .....	1 $\frac{1}{4}$ "
Above 60, but not exceeding 100 feet ... ..	1 $\frac{1}{2}$ "
Above 100 square feet.....	2 "

---

## TWO-PIPE WORK.

---

Radiators containing 48 square feet and under .....	1 x $\frac{3}{4}$ in.
Above 48, but not exceeding 96 feet.....	1 $\frac{1}{4}$ x 1 "
Above 96 square feet .....	1 $\frac{1}{2}$ x 1 $\frac{1}{4}$ "

---

## WATER

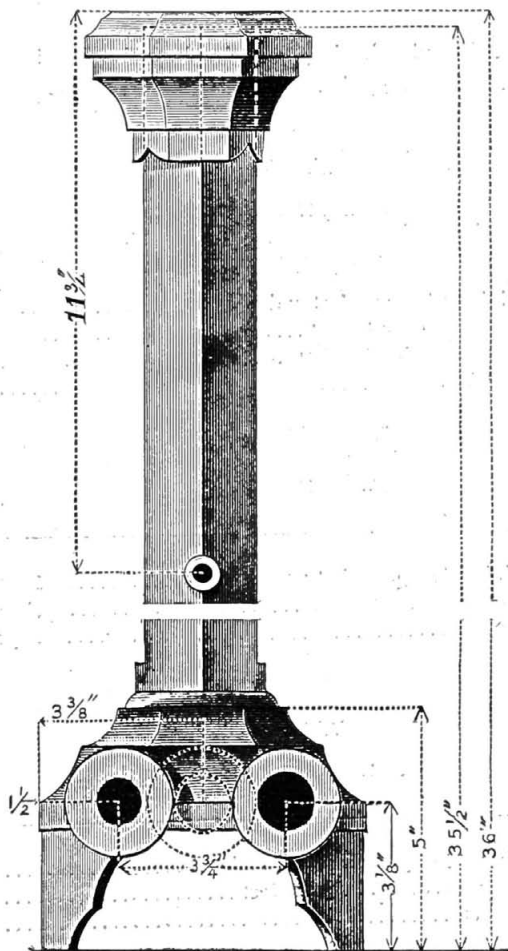
## TAPPED FOR SUPPLY AND RETURN.

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Radiators containing 40 square feet and under .....	1 in.
Above 40, but not exceeding 72 square feet .....	1 $\frac{1}{4}$ "
Above 72 square feet .....	1 $\frac{1}{2}$ "

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## TAPPINGS AND MEASUREMENTS.

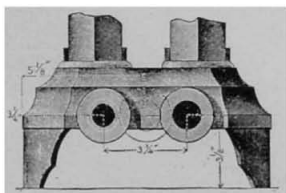


When one row Bundy Radiators are tapped for feed and return at the same end, the bosses project, making the radiator  $6\frac{1}{4}$  inches wide at that point and the distance from side to center of tapping is  $1\frac{1}{4}$  inches.

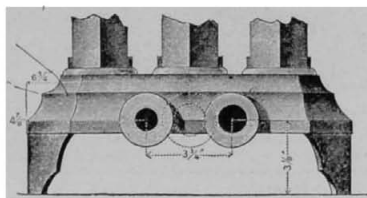
BUNDY STANDARD RADIATOR, ONE ROW.

## TAPPINGS AND MEASUREMENTS.

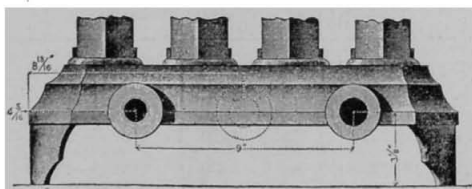
## BUNDY STANDARD RADIATORS.



TWO ROW.

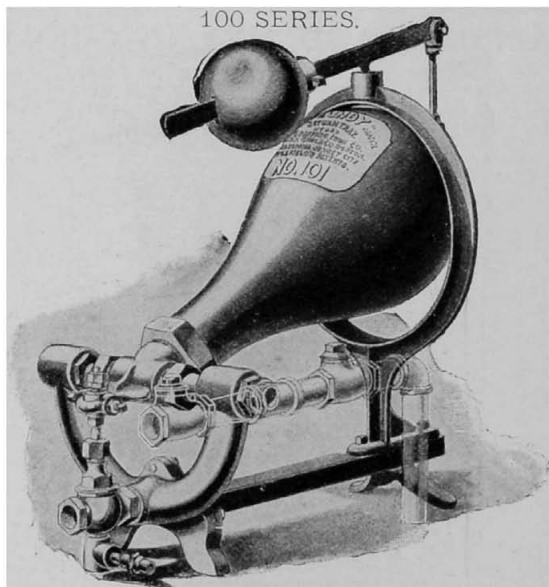


THREE ROW.



FOUR ROW.

## BUNDY GRAVITY RETURN STEAM TRAPS.



100 SERIES, No. 101.

Steam Traps of the 100 series are guaranteed to work under any steam pressure up to 100 pounds to the square inch,

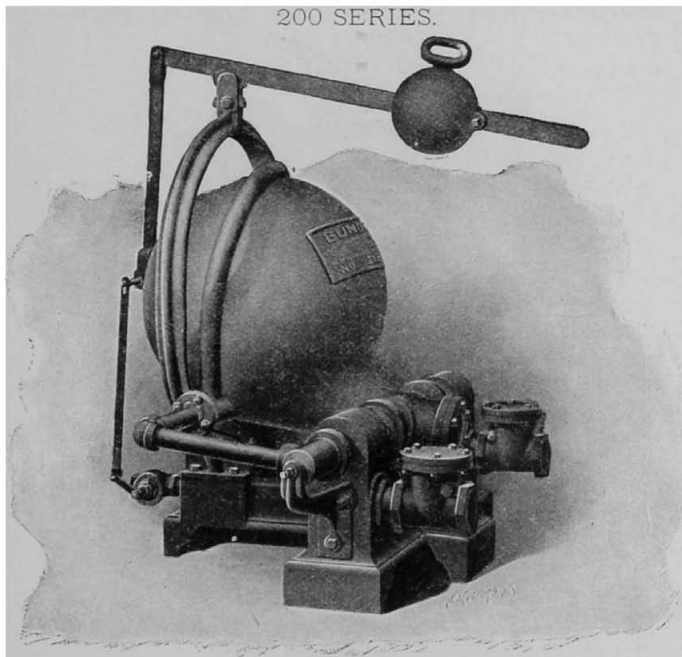
No.	Dimensions.			Shipping Weight, Pounds.	Pipe Connections.		Capacity in water delivered to boiler per hour.		Drainage Capacity in feet of 1-inch pipe.	Capacity in H. P.	Price, including Check Valves.
	Width, Inches.	Length, Inches.	Height, Inches.		Water Inlet and Outlet, Inches.	Stream Inlet, Inches.	Pounds.	Gallons.			
101	24	31	33	175	1	1	1,250	150	6,000	Up to 40	\$100
102	25	34	35	250	1¼	1¼	2,000	240	10,000	40-65	150
103	26	37	39	300	1½	1½	4,000	480	20,000	65-125	200
104	29	44	42	500	2	1½	6,000	720	40,000	125-200	300

Code: No. 101—Tackling. No. 102—Tadpole. No. 103—Tag. No. 104—Taint.



## BUNDY GRAVITY RETURN STEAM TRAP.

200 SERIES.



200 SERIES, No. 211.

Steam Traps of the 200 series are guaranteed to work under any steam pressure up to 250 pounds to the square inch.

No.	Dimensions.			Shipping Weight, Pounds.	Pipe Connections.		Capacity in water delivered to boiler per hour.		Drainage Capacity in 1-inch pipe, Lin. ft.	Capacity in H. P.	Price including Check Valve.
	Width Inches.	Length, Inches.	Height, Inches.		Water Inlet and Outlet, Inches.	Steam Inlet, Inches.	Pounds.	Gallons.			
205	36	30	40	390	1	1	1,250	150	6,000	Up to 40	\$120
206	37	31	41	460	1½	1	2,000	240	10,000	40- 65	170
207	42	32	44	530	1½	1¼	4,000	480	20,000	65- 125	220
208	43	33	51	600	2	1¼	6,000	720	40,000	125- 200	320
209	53	48	65	1,250	2½	1½	12,000	1,440	56,000	200- 400	400
210	54	49	67	1,500	3	1½	18,000	2,160	75,000	400- 600	500
211	55	50	69	1,750	4	1½	24,000	2,880	100,000	600- 800	800

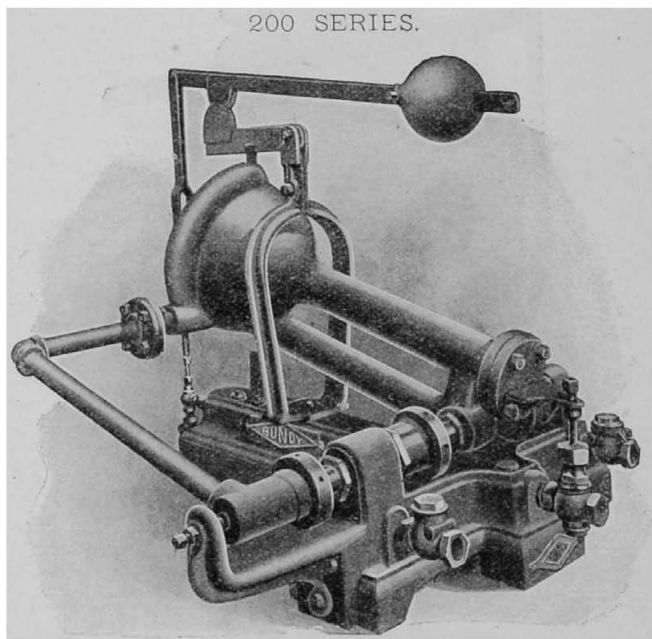
Code: No. 205—Grace.  
206—Gradine.

No. 207—Graceless.  
208—Gracious.

No. 209—Grade.  
210—Gradual.

No. 211 Grad.

## BUNDY GRAVITY RETURN STEAM TRAP.



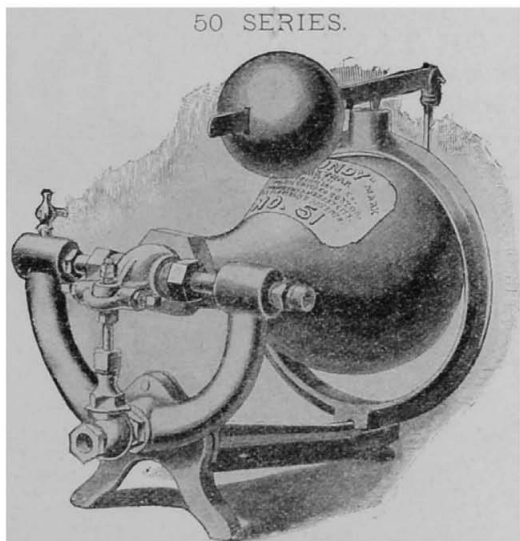
200 SERIES, NO. 205.

The above cut illustrates the Bundy Gravity Return Steam Traps Nos. 205, 206, 207 and 208, while the cut on the preceding page illustrates the traps of the same series Nos. 209, 210 and 211.

All traps of the 200 series are guaranteed to work up to 250 pounds pressure to the square inch. They will return all condensation to the boiler and are extensively employed to feed water to the boiler from the feed water heater in place of a pump. They do this at practically no expense for running and soon save their cost as compared with the expense of running a pump.

For full list of sizes and prices see preceding page.

## BUNDY SEPARATING OR TANK STEAM TRAP.



50 SERIES, No. 51.

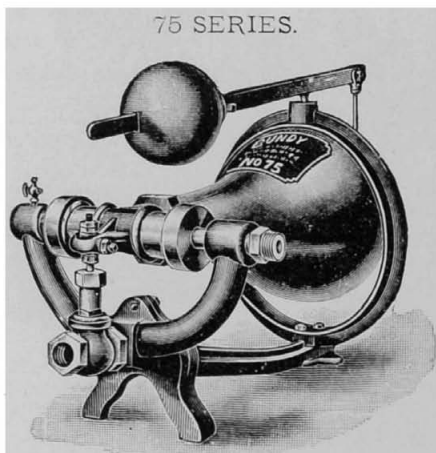
Steam Traps of the 50 series are guaranteed to work under any steam pressure up to 80 pounds to the square inch.

No.	Dimensions.				Shipping Weight, Pounds.	Pipe Connections.		Capacity.		1-inch pipe, drained.	Price.
	Width, inches.	Length, inches.	Height, inches.	Inlet, inches.		Outlet, inches.	Water discharged per hour.				
							Pounds.	Gallons.	Lineal Feet.		
50	9	21	15	40	$\frac{1}{4}$	$\frac{1}{4}$	300	36	1,800	\$15	
51	13	24	21	100	$\frac{3}{8}$	$\frac{3}{8}$	500	60	3,500	25	
52	14	26	22	125	$\frac{1}{2}$	$\frac{1}{2}$	1,000	120	7,500	35	
53	17	30	26	175	$\frac{3}{4}$	$\frac{3}{4}$	2,000	240	15,000	55	
54	17	34	27	200	1	1	3,333	400	25,000	85	
55	18	36	28	275	$1\frac{1}{4}$	$1\frac{1}{4}$	4,166	500	32,000	115	
56	20	38	30	325	$1\frac{1}{2}$	$1\frac{1}{2}$	5,000	600	40,000	150	
57	24	42	35	500	2	2	6,000	720	60,000	240	
58	30	48	40	800	$2\frac{1}{2}$	$2\frac{1}{2}$	7,500	900	90,000	300	
59	35	54	45	1100	3	3	10,000	1,200	120,000	425	

The above capacities are figured on a basis of 50 pounds pressure per square inch.

Code: No. 50—Talker. No. 52—Talmud. No. 55—Tangential. No. 58—Tangibly.  
 51—Tallness. 53—Tamborine. 56—Tanghine. 59—Tankabic.  
 54—Tamper. 57—Tanghic.

## BUNDY HIGH PRESSURE SEPARATING OR TANK STEAM TRAP.



75 SERIES, No. 75.

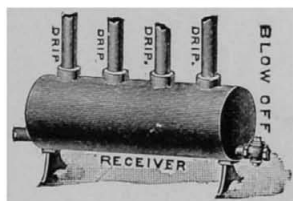
Steam Traps of the 75 series are guaranteed to work under any steam pressure up to 250 pounds to the square inch.

No.	Dimensions.			Shipping Weight, Pounds.	Pipe Connections.		Capacity in water discharged per hour.		Drainage Capacity in 1-inch Pipe, lineal feet.	Price.
	Width, Inches.	Length, Inches.	Height, Inches.		Inlet, Inches.	Outlet, Inches.	Pounds.	Gallons.		
75	13	32	25	120	$\frac{3}{8}$	$\frac{3}{8}$	850	102	6,000	\$50
76	14	33	26	110	$\frac{1}{2}$	$\frac{1}{2}$	3,700	111	25,000	70
77	17	38	30	200	$\frac{3}{4}$	$\frac{3}{4}$	8,150	978	50,000	100
78	17	40	32	240	1	1	14,575	1,749	100,000	130
79	18	44	33	280	$1\frac{1}{4}$	$1\frac{1}{4}$	23,738	2,849	150,000	160
80	18	46	34	320	$1\frac{1}{2}$	$1\frac{1}{2}$	32,900	3,948	200,000	225
81	24	52	36	520	2	2	70,500	8,460	423,000	300
82					$2\frac{1}{2}$	$2\frac{1}{2}$	133,000	15,960	798,000	450

The above capacities are figured on a basis of 150 pounds pressure per square inch.  
 Code: No. 75—Tankard.      No. 77—Tannery.      No. 79—Tannin.      No. 81—Tantry.  
        76—Tanner.                78—Tanneck.            80—Tansy.            82—Tanvex.

## BUNDY STEAM TRAP SUPPLIES.

## BUNDY TRAP RECEIVERS.



Bundy Trap Receivers afford storage capacity for the excessive amount of condensation that at times comes to the trap, for example, when starting up in the morning when everything is cold.

No.	Length.	Height.	Diam.	No. of Inlets.	Size of Inlets.	Size of Outlets.	Size of Blow-off.	Price.
1	33 in.	10 in.	7 $\frac{1}{2}$ in.	4	1 in.	1 in.	1 in.	\$12
2	33 "	11 "	8 $\frac{1}{2}$ "	4	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 "	14
3	33 "	12 "	9 $\frac{1}{2}$ "	4	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 "	16
4	33 "	13 "	10 $\frac{1}{2}$ "	4	2 "	2 "	1 "	18
5	41 "	15 "	12 $\frac{1}{2}$ "	4	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	1 "	28
6	.....	.....	.....	4	3 "	3 "	1 "	....
7	.....	.....	.....	4	4 "	4 "	1 "	....

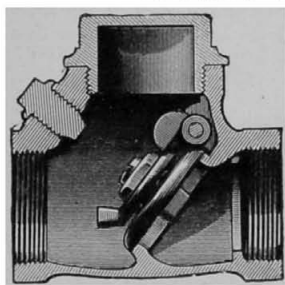
Code: No. 1—Tanhome.  
2—Tanshoe.

No. 3—Tankheel.  
4—Tanbug.

No. 5—Tart.  
6—Tartan.

No. 7—Tartdum.

## BUNDY TRAP CHECK VALVES.



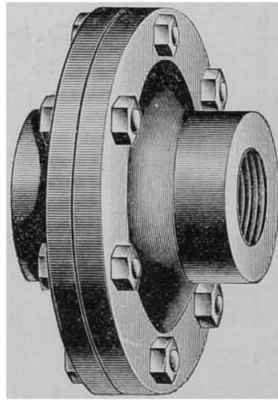
Bundy Trap Check Valves and none other should be used. The seat is set at an angle of 45° and has full opening. May be reground without disconnecting pipes.

Size.	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Brass.....	\$1.75	\$2.25	\$3.25	\$4.25	\$6.25	\$12.00	\$20.00	.....	.....
Iron Body.....					6.25	10.00	12.00	\$16.00	\$18.00

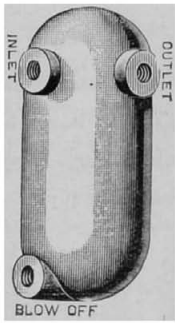
Code:  $\frac{3}{4}$  inch—Tansoot. 1 $\frac{1}{4}$  inch—Tantamount. 2 inch—Taper. 3 inch—Tapioca.  
1 " —Tantalism. 1 $\frac{1}{2}$  " —Tanyard. 2 $\frac{1}{2}$  " —Tapestry. 4 " —Tapster.

BUNDY STEAM TRAP SUPPLIES.

BUNDY TRAP STRAINERS.



Tapped for 1 inch, 1¼ inch or 2 inch pipe.....Each, \$4.00  
 Tapped for 2½ inch, 3 inch, 3½ inch or 4 inch pipe ... .. " 6.00

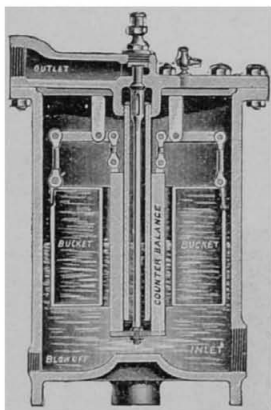


BUNDY DIRT SEPARATORS.

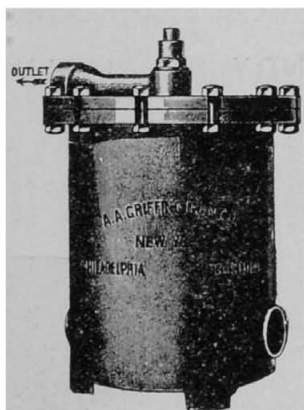
The Bundy Dirt Separator is used for removing foreign substances such as rust, scale, etc., from the condensation before entering the trap. A good safeguard against injury to trap and especially the valve disc and seat. Works on the principle of precipitation and change in direction of flow.

Tapped for ½ inch, ¾ inch, or 1 inch pipe.....Each, \$5.00  
 Tapped for 1¼ inch, 1½ inch, or 2 inch pipe..... " 7.00

## HYDROX TANK STEAM TRAP.



INTERIOR VIEW.

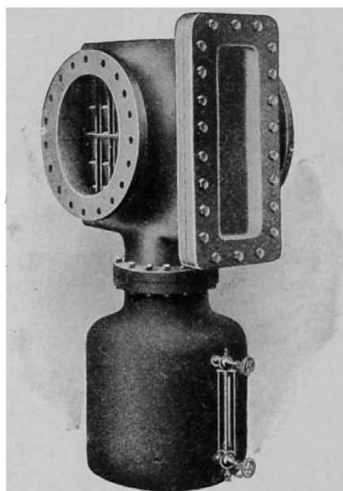


EXTERIOR VIEW.

To meet the demand for a pot trap, and furnish of this class a steam trap that is equalled by none other on the market, we offer the Hydrox. Excelled only by the Bundy, it is designed for use where the steam pressure is not higher than 50 pounds, at which pressure and less it will work very well.

No.	Pipe Connections.		Capacity in water discharged per hour.		1-inch pipe drainage.	Price.
	Inlet.	Outlet.	Pounds.	Gallons.	Lineal feet.	
	Inches.	Inches.				
10	$\frac{3}{8}$	$\frac{1}{4}$	200	24	1,200	\$12.00
11	$\frac{3}{4}$	$\frac{3}{8}$	333	40	2,000	15.00
25	1	$\frac{3}{4}$	500	60	3,500	20.00
26	$1\frac{1}{4}$	$\frac{3}{4}$	1,000	120	7,500	25.00
27	$1\frac{1}{2}$	$\frac{3}{4}$	2,000	240	15,000	40.00
28	$1\frac{1}{2}$	1	4,000	480	30,000	60.00

## BUNDY STEAM AND OIL SEPARATOR.



EXTERIOR VIEW, WITH SIDE FLANGE

Made also with Top Flange.



## BUNDY STEAM SEPARATOR.

## 100 SERIES.

Size.		Code.	Dimensions in Inches.				Drip Pipe, Inches.	Approximate Weight, Lbs.	Price.
No.	Inches.		Total Height	Height from bottom of receiver to centre of opening.	Length from Face to Face of Pipe Flanges.	Diameter of Pipe Flange.			
101½	1½	Stab	28	20	13½	Tapped	¾	200	\$40
102	2	Stabber	28	20	13½	Tapped	¾	204	40
102½	2½	Stability	28	20	13½	Tapped	1	206	45
103	3	Stable	28	20	13½	Tapped	1	208	50
103½	3½	Stableboy	33¼	25	16½	8½	1¼	350	60
104	4	Stableman	33¼	25	16½	9	1¼	400	70
104½	4½	Stabling	33¼	25	16½	9¼	1½	420	85
105	5	Stack	35½	26	16½	10	1½	460	100
106	6	Stacking	35½	26	16½	11	1½	480	120
107	7	Stackyard	44¼	32	19¼	12½	2	910	140
108	8	Staff	44¼	32	19¼	13½	2	945	160
109	9	Staffmer	50¼	36½	20½	15	2	1200	180
110	10	Stafftree	50¼	36½	20½	16	2	1250	210
112	12	Stag	52	39	22½	19	2	1600	240
114	14	Stage	63½	50	24½	21	2	2100	280
116	16	Stagebox	65¾	51½	26½	23½	2	2400	360
118	18	Stagedoor	68¼	53¼	26½	25	2	2550	440
120	20	Stageplay	75	56½	26½	27½	2	3800	520
122	22	Stagemug	75	56½	26½	29½	2	3900	600
124	24	Stagery	75	56½	26½	31½	2	4000	680
126	26	Stagler	95	69	26½	33	2		780
128	28	Stagmug	95	69	26½	35	2		900
130	30	Stagnell	95	69	26½	37	2		1100

All Steam and Oil Separators are provided with heavy polished brass gauge fittings, and are guaranteed to stand a working pressure of 150 lbs. For pressures greater than this up to 250 lbs., a special Separator will be made with reinforcements, for which extra work 25 per cent. will be added to list prices. For all work exceeding 250 lbs. net prices will be quoted on application.

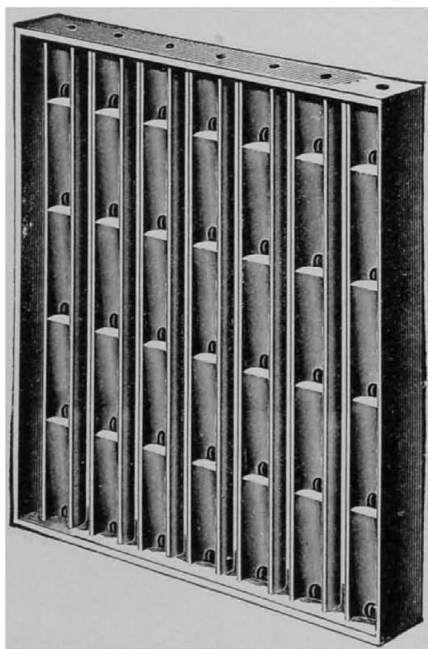
## BUNDY OIL SEPARATOR.

## 200 SERIES.

Size.		Code.	Dimensions in Inches.				Drip Pipe, Inches.	Approximate Weight, Lbs.	Price.
No.	Inches.		Total Height	Height from bottom of receiver to centre of opening.	Length from Face to Face of Pipe Flanges.	Diameter of Pipe Flange.			
201½	1½	Stock	28	20	13½	Tapped	¾	200	\$40
202	2	Stockade	28	20	13½	Tapped	¾	204	40
202½	2½	Stocking	28	20	13½	Tapped	1	206	45
203	3	Stoic	28	20	13½	Tapped	1	208	50
203½	3½	Stoical	30¾	22½	16½	8½	¾	340	60
204	4	Stoicism	30¾	22½	16½	9	¾	352	70
204½	4½	Stoke	30¾	22½	16½	9¼	¾	370	85
205	5	Stoker	33	23½	16½	10	¾	400	100
206	6	Stolen	33	23½	16½	11	¾	420	120
207	7	Stolid	38¼	26	19¼	12½	¾	710	140
208	8	Stomach	38¼	26	19¼	13½	¾	740	160
209	9	Stone	44¼	30½	20½	15	¾	990	180
210	10	Stoncfly	44¼	30½	20½	16	¾	1040	210
212	12	Stoner	46	33	22½	19	¾	1250	240
214	14	Stonewall	48½	35	24½	21	¾	1450	280
216	16	Stoneware	50¾	36½	26½	23½	¾	1900	360
218	18	Stonework	53¼	38¼	26½	25	¾	2000	440
220	20	Stoniness	60	41½	26½	27½	¾	3000	520
222	22	Stonigum	60	41½	26½	29½	¾	3100	600
224	24	Stony	60	41½	26½	31½	¾	3200	680
226	26	Stonybed	80	54	26½	33	¾		780
228	28	Stonycat	80	54	26½	35	¾		900
230	30	Stonydog	80	54	26½	37	¾		1100

All sizes of Steam and Oil Separators, up to and including 3 inches, are tapped for direct thread connection to iron pipe. All above 3 inches to and including 12 inches are fitted with companion flanges, while on all other sizes larger than 12 inches the regular flange is left blank, but will be drilled to any templet or standard furnished, and fitted with companions for a small extra charge.

## BUNDY SEPARATOR.



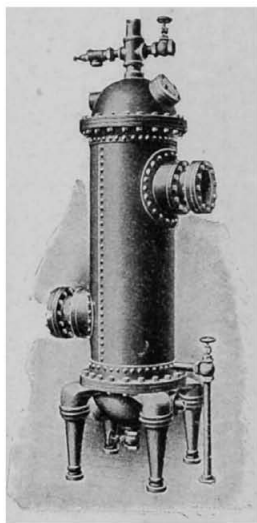
SEPARATING PLATE

## EXTRA SETS OF SEPARATING PLATES.

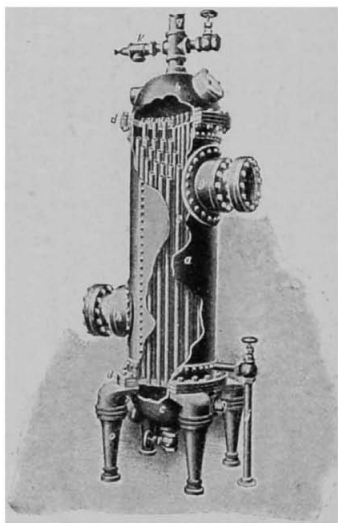
Size of Separator.	Number of Plates.	Price.	Size of Separator.	Number of Plates.	Price.
2- 3 in.	6	\$7.50	18 inches	12	\$96.00
3½-4½ in.	6	12.50	20 "	12	120.00
5- 6 in.	6	16.00	22 "	12	130.00
7- 8 in.	6	22.50	24 "	12	140.00
9-10 in.	6	30.00	26 "	12	
12 in.	12	56.00	28 "	12	
14 in.	12	66.00	30 "	12	
16 in.	12	80.00			

## BUNDY FEED WATER HEATERS.

## . VERTICAL.



EXTERIOR VIEW



INTERIOR VIEW.

## HORIZONTAL.

The Bundy Horizontal Feed Water Heater is similar in construction to the vertical type. It is recommended for use where the space the heater is to occupy will not accommodate one of the vertical type. It may also prove the more convenient form for heating water for laundry and other purposes, also acids and other liquids in manufacturing processes. It is extensively used in hotels, where hot water is required and there is exhaust steam available for use.

## BUNDY FEED WATER HEATERS.

### VERTICAL AND HORIZONTAL.

Size.		Code.	Diameter, inches.	Height of Vertical, inches.	Length of Horizontal, inches.	Exhaust Pipe, inches.	Water Supply Pipe, inches.	1/4 inch Tubes.		Price.
No.	H. P.							Number.	Length Inches.	
21	40	Fabler	12	50	38	4	1 1/2	21	24	\$220
22	50	Fabric	12	56	44	4	1 1/2	21	30	240
23	60	Facade	12	62	50	5	1 1/2	21	36	260
24	70	Face	12	68	56	5	1 1/2	21	42	280
25	80	Facet	12	74	62	6	1 1/2	21	48	300
26	90	Facial	12	80	68	6	1 1/2	21	54	320
27	100	Facile	12	86	74	6	1 1/2	21	60	340
31	125	Fear	16	73	61	7	2	37	41	460
32	150	Feast	16	81	69	7	2	37	48	500
33	175	Feed	16	89	77	7	2	37	56	510
34	200	Feel	16	97	85	7	2	37	64	550
35	250	Feet	16	113	101	8	2	37	80	660
36	300	Fill	16	129	117	9	2 1/2	37	96	740
41	350	Fiber	24	110	98	10	2 1/2	76	72	900
42	400	Fickle	24	120	108	10	2 1/2	76	82	975
43	450	Fiddle	24	130	118	10	3	76	92	1,050
44	500	Fidget	24	140	128	12	3	76	102	1,125
51	600	Flag	30	104	92	12	4	121	60	1,300
52	700	Flake	30	114	102	12	4	121	70	1,450
53	800	Flame	30	124	112	16	4	121	80	1,600
54	900	Flank	30	134	122	16	4	121	90	1,750
55	1000	Flap	30	144	132	16	4	121	100	1,900
56	1100	Flare	30	154	142	16	4	121	110	2,050
57	1200	Flash	30	164	152	16	4	121	120	2,200
61	1400	Foam	39	130	118	18	5	221	78	
62	1600	Focus	39	141	129	18	5	221	89	
63	1800	Foggy	39	152	140	18	5	221	100	
64	2000	Folio	39	163	151	20	5	221	111	
71	2500	Frail	48	159	147	22	6	333	93	
72	3000	Frame	48	174	162	24	6	333	108	
73	3500	Frank	48	189	177	24	6	333	123	
74	4000	Fraud	48	204	192	24	6	333	138	
81	5000	Fuel	60	195	183	30	8	532	119	
82	6000	Fume	60	219	207	30	8	532	143	
83	7000	Fund	60	243	231	30	8	532	167	

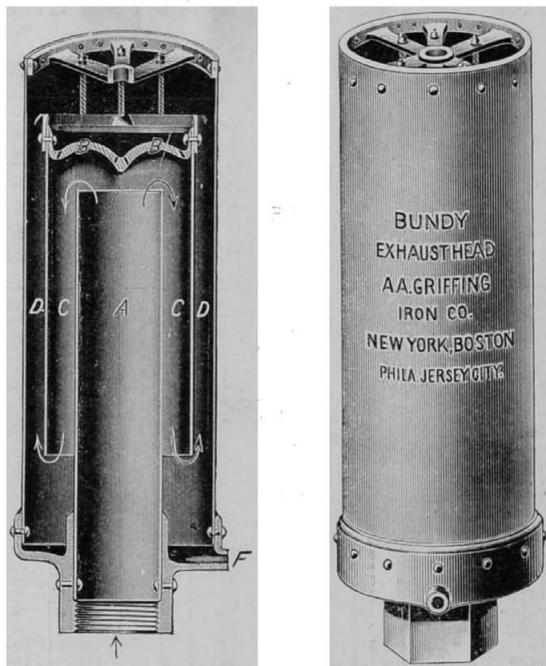
Special net prices quoted on application.

All Bundy Feed Water Heaters up to and including 12 inch exhaust pipe have companion flanges which are threaded for standard iron pipe; larger sizes are furnished without flanges.

One relief and three blow-off valves are furnished with each heater.

The size and location of opening for exhaust pipe connection may be at buyer's convenience, but in the absence of written instructions on orders they will be of sizes as above and located opposite sides, top and bottom.

## BUNDY EXHAUST HEAD.

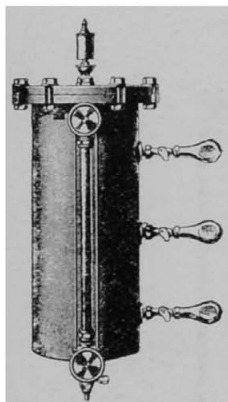


## LIST OF SIZES.

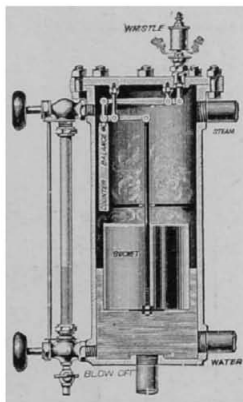
Size, Inches.	Drain Pipe, Inches.	Approximate Weight.	Price.	Size, Inches.	Drain Pipe, Inches.	Approximate Weight.	Price.
1½	¾	30	\$25.00	12	2	400	\$150.00
2	¾	30	25.00	13	2	425	175.00
2½	1	30	25.00	14	2	450	200.00
3	1	80	30.00	15	2	750	235.00
3½	1	80	30.00	16	2	950	250.00
4	1	130	40.00	17	2	1050	270.00
4½	1¼	130	40.00	18	2	1250	300.00
5	1¼	145	50.00	20	2		375.00
6	1¼	160	60.00	24	2		450.00
7	1½	215	75.00	26	2		500.00
8	1½	230	90.00	30	2		550.00
9	2	300	105.00	36	2		650.00
10	2	325	125.00	42	2		900.00

All sizes up to and including 4 inches are threaded for direct pipe connection; all other sizes are furnished with companion flanges,

## BUNDY LOW WATER ALARM.



EXTERIOR VIEW.



INTERIOR VIEW.

## OPERATION.

When the boiler to which the Bundy Low Water Alarm is attached contains sufficient water, the bucket *D* is completely immersed, and the counterbalance *E*, being relatively the heavier, keeps closed the whistle valve *I*, but when the water in the boiler drops down below the point recommended as good practice, which condition the above cuts illustrate, the bucket *D* is only partially immersed and becomes relatively heavier than the counterbalance *E*, and opens the whistle valve *I*, whereupon the escaping steam blows the whistle *G*, and gives timely warning before the danger point has been reached.

## PRICE.

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With Glass Gauge and Tri-cocks..... Each, \$60.00

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## BUNDY BOILER COVERING.

READY FOR SHIPMENT.



For covering Steam Boilers carrying High or Low Pressure, Hot Water Heaters, Hot Air Pipes, Smoke Pipes, or any medium used for the transmission of heat where it is desirable to retain the heat and prevent radiation of the same.

Also for filling in floors, walls, ceilings, in fire-proof constructions or elsewhere. Is absolutely unchanged by heat, easily applied as a plaster, light in weight, and takes a smooth finish. Is perfectly sanitary and insect proof, and successfully deadens the sound between apartments.

Put up in bags holding 100 lbs. each.

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Price per bag ..... \$3.00

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**PIPE, FITTINGS,  
TOOLS AND SUPPLIES.**

# WROUGHT IRON WELDED STEAM, GAS AND WATER PIPE.

1 inch and below, proved to 300 pounds per square inch, hydraulic pressure.  
 1½ inch and above, proved to 500 pounds per square inch, hydraulic pressure.

TABLE OF STANDARD SIZES AND DIMENSIONS.

Nom- inal Inside Diam.	Actual Inside Diam.	Actual Outside Diam.	Thick- ness.	Circum- ference.	Ex- ternal Circum- ference.	Length of Pipe per sq. Foot of Outside Surface.	Length of Pipe per sq. Foot of Inside Surface.	Length of Pipe per sq. Foot of Outside Surface.	Internal Area.	Ex- ternal Area.	Length of Pipe contain- ing One Cubic Foot	Non- nal Weight per foot of Length	No. of Threads per inch of Screw.	Con- tent of One foot in Length	MEASUREMENTS of SOCKETS on PIPE.	
															Inches.	Actual Outside Diam.
1/8	27	40	07	84	1 27	14 15	9 44	06	12	12	2560	34	27	002	60	81
1/4	36	54	08	1 14	1 69	10 50	7 07	10	22	19	1985	40	18	002	78	1 00
3/8	49	67	09	1 55	2 12	7 67	5 65	19	38	35	751 5	56	18	003	91	1 10
1/2	62	84	10	1 95	2 65	6 13	4 50	30	55	53	472 4	84	14	010	1 10	1 31
5/8	82	1 05	11	2 58	3 29	4 63	3 63	53	86	1 35	270	112	14	023	1 34	1 66
1	1 04	1 31	13	3 29	4 13	5 67	2 90	86	1 49	1 35	166 9	1 67	11 1/2	040	1 66	1 75
1 1/4	1 38	1 66	14	4 33	5 21	2 76	2 30	2 03	2 83	2 83	96 25	2 24	11 1/2	053	2 00	1 94
1 1/2	1 61	1 9	14	5 06	5 96	2 37	2 01	2 03	2 83	2 83	70 65	2 68	11 1/2	091	2 00	2 10
2	2 06	2 37	15	6 49	7 46	1 84	1 61	3 35	4 43	4 43	42 36	3 61	11 1/2	091	2 81	2 31
2 1/2	2 46	2 87	20	7 75	9 03	1 84	1 32	4 78	6 43	6 43	30 11	5 74	8	255	3 28	2 70
3	3 06	3 5	21	9 03	10 96	1 24	09	7 38	9 62	9 62	19 49	4 54	8	367	4 02	3 00
3 1/2	3 56	4	22	11 14	12 56	1 07	05	9 83	12 56	12 56	14 56	9 00	8	500	4 50	3 12
4	4 02	4 5	23	12 64	14 13	94	84	12 73	15 90	15 90	11 31	10 66	8	652	5 10	3 12
4 1/2	4 50	5	24	14 15	15 70	84	76	15 93	19 03	19 03	9 03	12 34	8	826	5 53	3 12
5	5 04	5 56	25	15 84	17 47	75	62	19 99	24 29	24 29	7 20	14 50	8	1 02	6 25	3 70
6	6 06	6 62	28	19 05	20 81	63	57	28 88	34 47	34 47	4 98	18 76	8	1 46	7 34	3 70
7	7 02	7 62	30	22 06	23 95	54	50	38 73	46 08	46 08	3 72	23 27	8	2 00	8 34	4 31
8	7 98	8 62	32	25 07	27 09	47	44	50 03	58 42	58 42	2 88	28 18	8	2 61	9 44	4 56
9	9 00	9 69	34	28 27	30 43	42	30	63 63	73 71	73 71	2 26	33 70	8	3 30	10 47	5 75
10	10 01	10 75	36	31 47	33 77	38	35	78 93	90 79	90 79	1 80	40 06	8	4 03	11 50	6 25
11	11 01	11 75	37	34 65	36 91	34	32	95 03	108 43	108 43	1 60	45	8	4 93	13 78	6 25
12	12 02	12 75	37	37 70	40 05	32	30	113 09	127 67	127 67	1 27	49	8	5 87	13 78	6 25
13	13 25	14	37	41 02	43 98	29	27	137 68	153 94	153 94	1	54	8	6 89	.....	.....
14	14 45	15	37	44 76	47 12	27	25	159 48	176 71	176 71	77	62	8	8 00	.....	.....
15	15 40	16	38	48 48	50 20	25	24	187 04	202 06	202 06	68	52	8	9 38	.....	.....
16	16 40	17	30	51 52	53 41	23	23	211 24	226 98	226 98	52	41	8	10 44	.....	.....
17	17 30	18	34	54 41	56 55	22	21	235 61	254 47	254 47	61	64	8	11 79	.....	.....

## EXTRA STRONG—WROUGHT IRON WELDED PIPE.

TABLE OF STANDARD SIZES AND DIMENSIONS.

DIMENSIONS NOT GIVEN BELOW MADE TO ORDER.

Nominal Inside Diameter.	Actual Inside Diameter.	Actual Outside Diameter	Thickness.	Internal Circumference.	External Circumference.	Length of Pipe per Square Foot of Outside Surface.	Length of Pipe per Square Foot of Inside Surface.	Internal Area.	External Area	Nominal Weight per Foot of Length.
Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Feet.	Feet.	Sq. Inches.	Sq. Inches.	Pounds
1/8	.20	.40	.10	.64	1.27	18.63	9.43	.03	12	29
1/4	.29	.51	.12	.92	1.69	12.98	7.07	.06	.22	.51
3/8	.42	.67	.12	1.32	2.12	9.07	5.65	.13	.35	.74
1/2	.54	.81	.14	1.70	2.63	7.04	4.54	.23	.55	1.09
3/4	.73	1.05	.15	2.31	3.29	5.10	3.63	.45	.86	1.53
1	.95	1.31	.18	2.98	4.13	4.01	2.90	.71	1.35	2.17
1 1/4	1.27	1.66	.19	3.99	5.21	3.00	2.30	1.27	2.16	3.00
1 1/2	1.49	1.90	.20	4.69	5.96	2.55	2.01	1.75	2.83	3.63
2	1.93	2.37	.22	6.07	7.46	1.97	1.60	2.93	4.43	5.02
2 1/2	2.31	2.87	.28	7.27	9.03	1.64	1.32	4.20	6.49	7.67
3	2.69	3.50	.30	9.03	10.99	1.32	1.00	6.56	9.62	10.25
3 1/2	3.35	4.00	.32	10.51	12.56	1.13	.95	8.85	12.56	12.47
4	3.81	4.50	.34	11.99	14.13	1.00	.84	11.44	15.90	14.97
4 1/2	4.25	5.00	.35	13.35	15.71	.90	.76	14.18	19.63	17.60
5	4.81	5.56	.37	15.12	17.47	.79	.68	18.19	24.30	20.54
6	5.75	6.62	.43	18.06	20.81	.66	.57	25.93	34.47	28.98
7	6.62	7.62	.50	20.81	23.95	.58	.50	31.47	45.66	37.60
8	7.50	8.62	.56	23.56	27.10	.51	.44	44.18	59.42	47.65

## LIST OF STANDARD SIZES OF CAST-IRON FITTINGS.

Sizes differing from Standard Sizes, if furnished, are to be charged at Special Prices.

## ELBOWS.

SIZE	SIZE	SIZE
$\frac{1}{8} \times \frac{1}{8}$	$1\frac{1}{2} \times 1$	4 x 3
$\frac{3}{8} \times \frac{3}{8}$	$1\frac{1}{2} \times \frac{3}{4}$	4 x $2\frac{1}{2}$
$\frac{1}{2} \times \frac{1}{2}$	2 x 2	$4\frac{1}{2} \times 4\frac{1}{2}$
$\frac{1}{2} \times \frac{3}{8}$	2 x $1\frac{1}{2}$	$4\frac{1}{2} \times 4$
$\frac{3}{4} \times \frac{3}{4}$	2 x $1\frac{1}{4}$	5 x 5
$\frac{3}{4} \times \frac{1}{2}$	2 x 1	5 x 4
1 x 1	$2\frac{1}{2} \times 2\frac{1}{2}$	6 x 6
1 x $\frac{3}{4}$	$2\frac{1}{2} \times 2$	6 x 5
1 x $\frac{1}{2}$	$2\frac{1}{2} \times 1\frac{1}{2}$	7 x 7
$1\frac{1}{4} \times 1\frac{1}{4}$	3 x 3	8 x 8
$1\frac{1}{4} \times 1$	3 x $2\frac{1}{2}$	8 x 6
$1\frac{1}{4} \times \frac{3}{4}$	3 x 2	9 x 9
$1\frac{1}{4} \times \frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2}$	10 x 10
$1\frac{1}{2} \times 1\frac{1}{2}$	$3\frac{1}{2} \times 3$	12 x 12
$1\frac{1}{2} \times 1\frac{1}{4}$	4 x 4	14 x 14
	4 x $3\frac{1}{2}$	

## 45° ELBOWS.

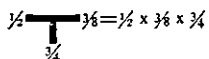
Size,	-	-	$\frac{3}{8}$ ,	$\frac{1}{2}$ ,	$\frac{3}{4}$ ,	1,	$1\frac{1}{4}$ ,	$1\frac{1}{2}$ ,	2,	$2\frac{1}{2}$ ,	3,	$3\frac{1}{2}$ inch.
"	.	.	4,	$4\frac{1}{2}$ ,	5,	6,	7,	8,	9,	10,	12,	14 "

## RIGHT AND LEFT ELBOWS.

Size,	-	$\frac{1}{4}$ ,	$\frac{3}{8}$ ,	$\frac{1}{2}$ ,	$\frac{3}{4}$ ,	1,	$1\frac{1}{4}$ ,	$1\frac{1}{2}$ ,	2,	$2\frac{1}{2}$ ,	3,	$3\frac{1}{2}$ ,	4,	$4\frac{1}{2}$ ,	5,	6 inch.
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# CAST IRON TEES.

In describing Tees the Run is first named, then the Outlet, thus:



SIZE.	SIZE.	SIZE.
$\frac{1}{4}$ x $\frac{1}{4}$ x $\frac{1}{4}$	1 x 1 x 2	$1\frac{1}{2}$ x $\frac{3}{4}$ x $1\frac{1}{2}$
$\frac{3}{8}$ x $\frac{3}{8}$ x $\frac{3}{8}$	1 x $\frac{3}{4}$ x 2	$1\frac{1}{2}$ x $\frac{3}{4}$ x $1\frac{1}{4}$
$\frac{3}{8}$ x $\frac{3}{8}$ x $\frac{1}{2}$	$1\frac{1}{4}$ x $1\frac{1}{4}$ x $1\frac{1}{4}$	$1\frac{1}{2}$ x $\frac{1}{2}$ x $1\frac{1}{4}$
$\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{2}$	$1\frac{1}{4}$ x $1\frac{1}{4}$ x 1	$1\frac{1}{2}$ x $1\frac{1}{4}$ x 2
$\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{3}{8}$	$1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{3}{4}$	$1\frac{1}{2}$ x 1 x 2
$\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{3}{4}$	$1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{1}{2}$	$1\frac{1}{2}$ x $\frac{3}{4}$ x 2
$\frac{1}{2}$ x $\frac{3}{8}$ x $\frac{3}{8}$	$1\frac{1}{4}$ x 1 x $1\frac{1}{4}$	$1\frac{1}{2}$ x $\frac{1}{2}$ x $1\frac{1}{2}$
$\frac{1}{2}$ x $\frac{3}{8}$ x $\frac{1}{2}$	$1\frac{1}{4}$ x 1 x 1	2 x 2 x 2
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	$1\frac{1}{4}$ x 1 x $\frac{3}{4}$	2 x 2 x $1\frac{1}{2}$
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{1}{2}$	$1\frac{1}{4}$ x 1 x $\frac{1}{2}$	2 x 2 x $1\frac{1}{4}$
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{8}$	$1\frac{1}{4}$ x $\frac{3}{4}$ x $1\frac{1}{4}$	2 x 2 x 1
$\frac{3}{4}$ x $\frac{1}{2}$ x $\frac{3}{4}$	$1\frac{1}{4}$ x $\frac{3}{4}$ x 1	2 x 2 x $\frac{3}{4}$
$\frac{3}{4}$ x $\frac{1}{2}$ x $\frac{1}{2}$	$1\frac{1}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	2 x 2 x $\frac{1}{2}$
$\frac{3}{4}$ x $\frac{3}{8}$ x $\frac{3}{4}$	$1\frac{1}{4}$ x $\frac{1}{2}$ x $1\frac{1}{4}$	2 x $1\frac{1}{2}$ x 2
$\frac{3}{4}$ x $\frac{3}{4}$ x 1	$1\frac{1}{4}$ x $1\frac{1}{4}$ x $1\frac{1}{2}$	2 x $1\frac{1}{2}$ x $1\frac{1}{2}$
$\frac{3}{4}$ x $\frac{1}{2}$ x 1	$1\frac{1}{4}$ x 1 x $1\frac{1}{2}$	2 x $1\frac{1}{2}$ x $1\frac{1}{4}$
$\frac{3}{4}$ x $\frac{3}{4}$ x $1\frac{1}{4}$	$1\frac{1}{4}$ x $\frac{3}{4}$ x $1\frac{1}{2}$	2 x $1\frac{1}{2}$ x 1
$\frac{3}{4}$ x $\frac{3}{4}$ x $1\frac{1}{2}$	$1\frac{1}{4}$ x $1\frac{1}{4}$ x 2	2 x $1\frac{1}{2}$ x $\frac{3}{4}$
$\frac{3}{4}$ x $\frac{3}{4}$ x 2	$1\frac{1}{2}$ x $1\frac{1}{2}$ x $1\frac{1}{2}$	2 x $1\frac{1}{4}$ x 2
1 x 1 x 1	$1\frac{1}{2}$ x $1\frac{1}{2}$ x $1\frac{1}{4}$	2 x $1\frac{1}{4}$ x $1\frac{1}{2}$
1 x 1 x $\frac{3}{4}$	$1\frac{1}{2}$ x $1\frac{1}{2}$ x 1	2 x $1\frac{1}{4}$ x $1\frac{1}{4}$
1 x 1 x $\frac{1}{2}$	$1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{3}{4}$	2 x $1\frac{1}{4}$ x 1
1 x 1 x $\frac{3}{8}$	$1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{1}{2}$	2 x $1\frac{1}{4}$ x $\frac{3}{4}$
1 x $\frac{3}{4}$ x 1	$1\frac{1}{2}$ x $1\frac{1}{4}$ x $1\frac{1}{2}$	2 x 1 x 2
1 x $\frac{3}{4}$ x $\frac{3}{4}$	$1\frac{1}{2}$ x $1\frac{1}{4}$ x $1\frac{1}{4}$	2 x 1 x $1\frac{1}{2}$
1 x $\frac{3}{4}$ x $\frac{1}{2}$	$1\frac{1}{2}$ x $1\frac{1}{4}$ x 1	2 x 1 x 1
1 x $\frac{1}{2}$ x 1	$1\frac{1}{2}$ x $1\frac{1}{4}$ x $1\frac{1}{2}$	2 x $\frac{3}{4}$ x 2
1 x $\frac{1}{2}$ x $\frac{3}{4}$	$1\frac{1}{2}$ x $1\frac{1}{4}$ x $\frac{3}{4}$	2 x $\frac{3}{4}$ x $1\frac{1}{2}$
1 x $\frac{1}{2}$ x $\frac{1}{2}$	$1\frac{1}{2}$ x $1\frac{1}{4}$ x $\frac{1}{2}$	2 x $\frac{1}{2}$ x 2
1 x $\frac{3}{8}$ x 1	$1\frac{1}{2}$ x 1 x $1\frac{1}{2}$	2 x 2 x $2\frac{1}{2}$
1 x 1 x $1\frac{1}{4}$	$1\frac{1}{2}$ x 1 x $1\frac{1}{4}$	2 x 2 x 3
1 x $\frac{3}{4}$ x $1\frac{1}{4}$	$1\frac{1}{2}$ x 1 x 1	$2\frac{1}{2}$ x $2\frac{1}{2}$ x $2\frac{1}{2}$
1 x 1 x $1\frac{1}{2}$	$1\frac{1}{4}$ x 1 x $\frac{1}{2}$	$2\frac{1}{2}$ x $2\frac{1}{2}$ x 2

## CAST IRON TEES.

SIZE.	SIZE.	SIZE.
$2\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{2}$	3 x $1\frac{1}{4}$ x 3	4 x 3 x 2
$2\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{4}$	3 x 1 x 3	4 x 3 x $1\frac{1}{2}$
$2\frac{1}{2} \times 2\frac{1}{2} \times 1$	3 x 3 x 4	4 x 3 x $1\frac{1}{4}$
$2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{4}$	3 x 3 x $3\frac{1}{2}$	4 x $2\frac{1}{2}$ x 4
$2\frac{1}{2} \times 2 \times 2\frac{1}{2}$		4 x $2\frac{1}{2}$ x 3
$2\frac{1}{2} \times 2 \times 2$	$3\frac{1}{2} \times 3\frac{1}{2} \times 3\frac{1}{2}$	4 x $2\frac{1}{2}$ x $2\frac{1}{2}$
$2\frac{1}{2} \times 2 \times 1\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 4$	4 x $2\frac{1}{2}$ x 2
$2\frac{1}{2} \times 2 \times 1\frac{1}{4}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 3$	4 x $2\frac{1}{2}$ x 1
$2\frac{1}{2} \times 2 \times 1$	$3\frac{1}{2} \times 3\frac{1}{2} \times 2\frac{1}{2}$	4 x 2 x 4
$2\frac{1}{2} \times 1\frac{1}{2} \times 2\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 2$	4 x 2 x 3
$2\frac{1}{2} \times 1\frac{1}{2} \times 2$	$3\frac{1}{2} \times 3\frac{1}{2} \times 1\frac{1}{2}$	4 x 2 x $2\frac{1}{2}$
$2\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 1\frac{1}{4}$	4 x 2 x 2
$2\frac{1}{2} \times 1\frac{1}{2} \times 2\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 1$	4 x $1\frac{1}{2}$ x 4
$2\frac{1}{2} \times 1\frac{1}{4} \times 2\frac{1}{2}$	$3\frac{1}{2} \times 3 \times 3$	4 x $1\frac{1}{4}$ x 4
$2\frac{1}{2} \times 1\frac{1}{4} \times 2$	$3\frac{1}{2} \times 3 \times 2\frac{1}{2}$	4 x 1 x 4
$2\frac{1}{2} \times 1 \times 2\frac{1}{2}$	$3\frac{1}{2} \times 3 \times 2$	4 x 4 x 5
$2\frac{1}{2} \times 2\frac{1}{2} \times 3$	$3\frac{1}{2} \times 2\frac{1}{2} \times 3$	4 x 4 x 6
$2\frac{1}{2} \times 2 \times 3$	$3\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$	
	$3\frac{1}{2} \times 2\frac{1}{2} \times 2$	$4\frac{1}{2} \times 4\frac{1}{2} \times 4\frac{1}{2}$
3 x 3 x 3	$3\frac{1}{2} \times 2 \times 3\frac{1}{2}$	$4\frac{1}{2} \times 4\frac{1}{2} \times 4$
3 x 3 x $2\frac{1}{2}$	$3\frac{1}{2} \times 1\frac{1}{2} \times 3\frac{1}{2}$	$4\frac{1}{2} \times 4\frac{1}{2} \times 3\frac{1}{2}$
3 x 3 x 2	$3\frac{1}{2} \times 1\frac{1}{4} \times 3\frac{1}{2}$	$4\frac{1}{2} \times 4\frac{1}{2} \times 3$
3 x 3 x $1\frac{1}{2}$	$3\frac{1}{2} \times 1 \times 3\frac{1}{2}$	$4\frac{1}{2} \times 4\frac{1}{2} \times 2\frac{1}{2}$
3 x 3 x $1\frac{1}{4}$		$4\frac{1}{2} \times 4\frac{1}{2} \times 2$
3 x 3 x 1	4 x 4 x 4	
	4 x 4 x $3\frac{1}{2}$	5 x 5 x 5
3 x 3 x $\frac{3}{4}$	4 x 4 x 3	5 x 5 x 4
3 x $2\frac{1}{2}$ x 3	4 x 4 x $2\frac{1}{2}$	5 x 5 x $3\frac{1}{2}$
3 x $2\frac{1}{2}$ x $2\frac{1}{2}$	4 x 4 x 2	5 x 5 x 3
3 x $2\frac{1}{2}$ x 2	4 x 4 x $1\frac{1}{2}$	5 x 5 x $2\frac{1}{2}$
3 x $2\frac{1}{2}$ x $1\frac{1}{2}$	4 x 4 x $1\frac{1}{4}$	5 x 5 x 2
3 x $2\frac{1}{2}$ x $1\frac{1}{4}$	4 x 4 x 1	5 x 5 x $1\frac{1}{2}$
3 x $2\frac{1}{2}$ x 1	4 x 4 x $\frac{3}{4}$	5 x 5 x $1\frac{1}{4}$
3 x 2 x 3	4 x $3\frac{1}{2}$ x $3\frac{1}{2}$	5 x 4 x 5
3 x 2 x $2\frac{1}{2}$	4 x $3\frac{1}{2}$ x 3	5 x 4 x 4
3 x 2 x 2	4 x $3\frac{1}{2}$ x $2\frac{1}{2}$	5 x 4 x 3
3 x 2 x $1\frac{1}{2}$	4 x 3 x 4	5 x 4 x $2\frac{1}{4}$
3 x $1\frac{1}{2}$ x 3	4 x 3 x $3\frac{1}{2}$	5 x 4 x 2
3 x $1\frac{1}{2}$ x $2\frac{1}{2}$	4 x 3 x 3	5 x 3 x 5
3 x $1\frac{1}{2}$ x 2	4 x 3 x $2\frac{1}{2}$	5 x 3 x 4

## CAST IRON TEES.

SIZE	SIZE	SIZE
5 x 3 x 3	7 x 6 x 5	10 x 10 x 10
5 x 3 x 2½	7 x 5 x 6	10 x 10 x 8
5 x 3 x 2	7 x 5 x 5	10 x 10 x 6
5 x 2½ x 5	7 x 7 x 7	10 x 10 x 5
5 x 2½ x 4	7 x 7 x 6	10 x 10 x 4
5 x 2½ x 3	7 x 7 x 5	10 x 8 x 8
5 x 2 x 5	7 x 7 x 4	
5 x 5 x 6	7 x 7 x 3	
		12 x 12 x 12
6 x 6 x 6	8 x 8 x 8	12 x 12 x 10
6 x 6 x 5	8 x 8 x 6	12 x 12 x 8
6 x 6 x 4	8 x 8 x 5	12 x 12 x 6
6 x 6 x 3½	8 x 8 x 4	12 x 12 x 4
6 x 6 x 3	8 x 8 x 3	12 x 8 x 10
6 x 6 x 2½	8 x 8 x 2½	12 x 8 x 8
6 x 6 x 2	8 x 8 x 2	
6 x 5 x 6	8 x 7 x 6	14 x 14 x 14
6 x 5 x 5	8 x 6 x 8	14 x 14 x 8
6 x 4 x 6	8 x 6 x 7	14 x 14 x 6
6 x 3 x 6	8 x 6 x 6	
6 x 6 x 7	8 x 5 x 8	
6 x 6 x 8	8 x 4 x 8	
	8 x 5 x 5	
7 x 6 x 7	9 x 9 x 9	
7 x 6 x 6	9 x 9 x 5	

## CAST IRON CROSSES.

SIZE	SIZE	SIZE
½ x ½ x ½ x ½	2½ x 2½ x 1½ x 1½	5 x 5 x 5 x 5
¾ x ¾ x ¾ x ¾	2½ x 2½ x 1½ x 1½	5 x 5 x 4 x 4
¾ x ¾ x ½ x ½	2½ x 2½ x 1 x 1	5 x 5 x 3 x 3
1 x 1 x 1 x 1	2½ x 2½ x ¾ x ¾	5 x 5 x 2½ x 2½
1 x 1 x ¾ x ¾	2½ x 2 x 1½ x 1½	5 x 5 x 2 x 2
1 x 1 x ½ x ½		
1½ x 1½ x 1½ x 1½	3 x 3 x 3 x 3	6 x 6 x 6 x 6
1½ x 1½ x 1 x 1	3 x 3 x 2½ x 2½	6 x 6 x 5 x 5
1½ x 1½ x ¾ x ¾	3 x 3 x 2 x 2	6 x 6 x 4 x 4
1½ x 1½ x ½ x ½	3 x 3 x 1½ x 1½	6 x 6 x 3 x 3
1½ x 1½ x 1½ x 1½	3 x 3 x 1½ x 1½	6 x 6 x 2½ x 2½
1½ x 1½ x 1½ x 1½	3 x 3 x 1 x 1	6 x 6 x 2 x 2
1½ x 1½ x 1 x 1	3 x 3 x ¾ x ¾	
1½ x 1½ x ¾ x ¾	3½ x 3½ x 3½ x 3½	7 x 7 x 7 x 7
1½ x 1½ x ½ x ½	3½ x 3½ x 3 x 3	
1½ x 1½ x 1 x 1	3½ x 3½ x 2½ x 2½	8 x 8 x 8 x 8
2 x 2 x 2 x 2		
2 x 2 x 1½ x 1½	4 x 4 x 4 x 4	9 x 9 x 9 x 9
2 x 2 x 1½ x 1½	4 x 4 x 3½ x 3½	
2 x 2 x 1 x 1	4 x 4 x 3 x 3	10 x 10 x 10 x 10
2 x 2 x ¾ x ¾	4 x 4 x 2½ x 2½	
2½ x 2½ x 2½ x 2½	4 x 4 x 2 x 2	
2½ x 2½ x 2 x 2	4½ x 4½ x 4½ x 4½	12 x 12 x 12 x 12

## CAST IRON OFFSETS.

TO OFFSET 4, 6 AND 8 INCHES.

Size, . . .  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2,  $2\frac{1}{2}$ , 3,  $3\frac{1}{2}$ , 4, 6, 6 inch.

## CAST IRON REDUCING COUPLINGS.

SIZE	SIZE	SIZE
$2\frac{1}{2}$ x $1\frac{1}{2}$	4 x 3	6 x 4
$2\frac{1}{2}$ x 2	4 x $2\frac{1}{2}$	6 x 3
3 x $2\frac{1}{2}$	4 x 2	7 x 6
3 x 2	$4\frac{1}{2}$ x 4	8 x 6
$3\frac{1}{2}$ x 3	5 x 4	10 x 8
$3\frac{1}{2}$ x $2\frac{1}{2}$	5 x 3	12 x 8
4 x $3\frac{1}{2}$	6 x 5	

## CAST IRON CAPS.

Size, . . .  $2\frac{1}{2}$ , 3,  $3\frac{1}{2}$ , 4,  $4\frac{1}{2}$ , 5, 6, 7, 8, 9, 10, 12 inch

## CAST IRON PLUGS.

Size, . . .  $\frac{1}{4}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2,  $2\frac{1}{2}$ , 3 inch.  
" . . .  $3\frac{1}{2}$ , 4,  $4\frac{1}{2}$ , 5, 6, 7, 8, 9, 10, 12 "

## CAST IRON LOCKNUTS.

Size, . . .  $2\frac{1}{2}$ , 3,  $3\frac{1}{2}$ , 4,  $4\frac{1}{2}$ , 5, 6, 7, 8, 9, 10, 12 inch.

## CAST IRON Y's.

Size, . . .  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2,  $2\frac{1}{2}$ , 3,  $3\frac{1}{2}$ , 4, 5, 6, 7, 8, 9, 10 inch.

## CAST IRON RETURN BENDS—CLOSE AND OPEN.

Size, . . .  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2,  $2\frac{1}{2}$ , 3,  $3\frac{1}{2}$ , 4 inch.

## BUSHINGS.

Reducing one size only are Malleable up to  $2\frac{1}{2}$  inch inclusive.

SIZE	SIZE	SIZE	SIZE
$\frac{1}{4}$ x $\frac{3}{8}$ Brass.	2 x $1\frac{1}{4}$	4 x $2\frac{1}{2}$	7 x 6
$\frac{3}{8}$ x $\frac{1}{2}$ "	2 x 1	4 x 2	7 x 5
$\frac{3}{8}$ x $\frac{1}{4}$ Malleable.	2 x $\frac{3}{4}$	4 x $1\frac{1}{2}$	7 x $4\frac{1}{2}$
$\frac{1}{2}$ x $\frac{3}{8}$ "	2 x $\frac{1}{2}$	4 x $1\frac{1}{4}$	7 x 4
$\frac{1}{2}$ x $\frac{1}{4}$	$2\frac{1}{2}$ x 2 Malleable.	4 x 1	7 x $3\frac{1}{2}$
$\frac{3}{4}$ x $\frac{1}{2}$ Malleable.	$2\frac{1}{2}$ x $1\frac{1}{2}$	$4\frac{1}{2}$ x 4	7 x 3
$\frac{3}{4}$ x $\frac{3}{8}$	$2\frac{1}{2}$ x $1\frac{1}{4}$	$4\frac{1}{2}$ x $3\frac{1}{2}$	7 x $2\frac{1}{2}$
$\frac{3}{4}$ x $\frac{1}{4}$	$2\frac{1}{2}$ x 1	$4\frac{1}{2}$ x 3	7 x 2
1 x $\frac{3}{4}$ Malleable.	$2\frac{1}{2}$ x $\frac{3}{4}$	$4\frac{1}{2}$ x $2\frac{1}{2}$	8 x 7
1 x $\frac{1}{2}$	3 x $2\frac{1}{2}$	5 x $4\frac{1}{2}$	8 x 6
1 x $\frac{3}{8}$	3 x 2	6 x 4	8 x 5
1 x $\frac{1}{4}$	3 x $1\frac{1}{2}$	5 x $3\frac{1}{2}$	8 x 4
$1\frac{1}{4}$ x 1 Malleable.	3 x $1\frac{1}{4}$	5 x 3	8 x 3
$1\frac{1}{4}$ x $\frac{3}{4}$	3 x 1	5 x $2\frac{1}{2}$	9 x 8
$1\frac{1}{4}$ x $\frac{1}{2}$	$3\frac{1}{2}$ x 3	5 x 2	9 x 7
$1\frac{1}{4}$ x $\frac{3}{8}$	$3\frac{1}{2}$ x $2\frac{1}{2}$	6 x 5	9 x 6
$1\frac{1}{4}$ x $\frac{1}{4}$	$3\frac{1}{2}$ x 2	6 x $4\frac{1}{2}$	10 x 8
$1\frac{1}{2}$ x $1\frac{1}{4}$ Malleable.	$3\frac{1}{2}$ x $1\frac{1}{2}$	6 x 4	10 x 6
$1\frac{1}{2}$ x 1	$3\frac{1}{2}$ x $1\frac{1}{4}$	6 x $3\frac{1}{2}$	12 x 10
$1\frac{1}{2}$ x $\frac{3}{4}$	$3\frac{1}{2}$ x 1	6 x 3	12 x 8
$1\frac{1}{2}$ x $\frac{1}{2}$	4 x $3\frac{1}{4}$	6 x $2\frac{1}{2}$	12 x 6
2 x $1\frac{1}{2}$ Malleable	4 x 3	6 x 2	

## FACED BUSHINGS.

SIZE	SIZE	SIZE
$\frac{3}{4}$ x $\frac{1}{2}$	$1\frac{1}{4}$ x $\frac{3}{4}$	2 x $1\frac{1}{4}$
1 x $\frac{3}{4}$	$1\frac{1}{2}$ x $1\frac{1}{4}$	2 x 1
1 x $\frac{1}{2}$	$1\frac{1}{2}$ x 1	$2\frac{1}{2}$ x 2
$1\frac{1}{4}$ x 1	2 x $1\frac{1}{2}$	3 x $2\frac{1}{2}$



We have on the premises complete facilities for getting out sketches of all sizes of Pipe.

SPECIAL  
PIPE CUT TO ORDER.

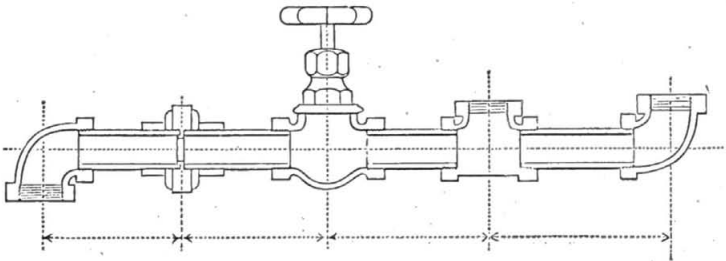


Diagram showing Screwed Valve and Fittings.

In laying out work of this kind great care should be taken in making sketches. All measurements should be given center to center as shown in above diagram. It is also necessary to know for what purpose the pipe is to be used and pressure required to stand.

PRICE FOR CUTTING AND THREADING PIPE.

Inch.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price.....Per Thread	.06	.06	.06	.06	.06	.06	.08	.10	.14	.20	.30
Inch.....	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12	
Price.....Per Thread	.40	.40	.50	.60	.80	1.00	1.20	2.00	2.50	3.50	

PRICE PER CUT—NO THREAD.

Inch ...	$\frac{1}{4}$ -1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Per Cut	.04	.06	.08	.10	.14	.20	.27	.27	.34	.40	.54	.67	.80	1.34	1.67	2.34

STANDARD  
STEAM, GAS AND WATER PIPE.  
BLACK AND GALVANIZED.

Nominal Inside Diameter.	Price per Foot.	Thickness.	Nominal Weight per Foot.	Number of Threads per Inch of Screw.
1/8.....	\$0.05 1/2	.068	.24	27
1/4.....	.05 1/2	.088	.42	18
3/8.....	.05 1/2	.091	.56	18
1/2.....	.08 1/2	.109	.84	14
3/4.....	.11 1/2	.113	1.12	14
1.....	.16 1/2	.134	1.67	11 1/2
1 1/4.....	.22 1/2	.140	2.24	11 1/2
1 1/2.....	.27	.145	2.68	11 1/2
2.....	.36	.154	3.61	11 1/2
2 1/2.....	.57 1/2	.204	5.74	8
3.....	.75 1/2	.217	7.54	8
3 1/2.....	.95	.226	9.00	8
4.....	1.08	.237	10.66	8
4 1/2.....	1.30	.246	12.40	8
5.....	1.45	.259	14.50	8
6.....	1.88	.280	18.76	8
7.....	2.35	.301	23.27	8
8.....	2.82	.322	28.18	8
9.....	3.40	.344	33.70	8
10.....	4.25	.366	40.00	8
11.....	4.75	.375	45.00	8
12.....	5.20	.375	49.00	8

Unless otherwise ordered, black pipe, random lengths, with threads and couplings, will be shipped.

For cut lengths, an extra charge will be made above random lengths.

For pipe smoothed on the inside, and known as plugged and reamed, an extra charge will be made above regular pipe.

For galvanized pipe, an extra charge will be made above black.

For asphalted pipe, an extra charge will be made above black.

EXTRA STRONG  
STEAM, GAS AND WATER PIPE.

Size, Inches.	Price per Foot.	Actual Outside Diameter	Nominal Inside Diameter.	Thickness.	Nominal Weight per Foot.
1/8.....	\$0.11	.405	.205	.100	.20
1/4.....	.11	.540	.294	.123	.54
3/8. . . .	.11	.675	.421	.127	.74
1/2.....	.13	.810	.542	.149	1.09
3/4.....	.15	1.05	.736	.157	1.39
1 .....	.23	1.315	.951	.182	2.17
1 1/4.....	.50	1.66	1.272	.194	3.00
1 1/2.....	.36	1.90	1.494	.203	3.63
2 .....	.50	2.375	1.933	.221	5.02
2 1/2. . . .	.81	2.875	2.315	.280	7.67
3 .....	1.05	3.500	2.892	.304	10.25
3 1/2.....	1.33	4.000	3.358	.321	12.47
4 .....	1.50	4.500	3.818	.341	14.97
4 1/2.....	1.95	5.000	4.280	.360	18.22
5 .....	2.16	5.563	4.813	.375	20.54
6 .....	2.90	6.625	5.750	.437	28.58
7 .....	3.80	7.625	6.625	.500	37.67
8 .....	4.30	8.625	7.625	.500	43.00

Extra Strong and Double Extra Strong will be shipped in random lengths and plain ends, unless otherwise ordered.

For pipe fitted with threads and couplings, an extra charge will be made above regular.

For cut lengths, an extra charge will be made above random.

For galvanized or asphalted, an extra charge will be made above black.

DOUBLE EXTRA STRONG STEAM, GAS  
AND WATER PIPE.

Size Inches.	Price per Foot.	Actual Outside Diameter.	Nominal Inside Diameter.	Thickness.	Nominal Weight per Foot.
1/2.....	\$0.25	.84	.244	.298	1.70
3/4.....	.30	1.05	.422	.314	2.44
1 .....	.37	1.315	.587	.364	3.65
1 1/4.....	.52	1.66	.885	.388	5.20
1 1/2.....	.65	1.90	1.088	.406	6.40
2 .....	.95	2.375	1.491	.442	9.02
2 1/2.....	1.37	2.875	1.755	.560	13.68
3 .....	1.92	3.50	2.284	.608	18.56
3 1/2.....	2.45	4.00	2.716	.642	22.75
4 .....	2.85	4.50	3.136	.682	27.48
4 1/2.....	3.30	5.00	3.564	.718	32.53
5 .....	3.80	5.563	4.063	.75	38.12
6 .....	5.30	6.625	4.875	.875	53.11
7 .....	6.25	7.625	5.875	.875	62.38
8 .....	7.20	8.625	6.875	.875	71.62

Extra Strong and Double Extra Strong will be shipped in random lengths and plain ends, unless otherwise ordered.

If ordered with threads and couplings, an extra charge will be made above regular.

For cut lengths, an extra charge will be made above random.

For galvanized or asphalted, an extra charge will be made above black.

EXTRA HEAVY OR HYDRAULIC TUBES.

AWAY FROM STANDARD.

Special prices given on application.

## LARGE O. D. PIPE.

## PLAIN ENDS.

Size O. D.	$\frac{1}{4}$ Inch Thick.	5-16 Inch Thick.	$\frac{3}{8}$ Inch Thick.	7-16 Inch Thick.	$\frac{1}{2}$ Inch Thick.
14.....	\$3.65	\$4.50	\$5.40	\$6.25	\$7.15
15.....	3.90	4.85	5.75	6.75	7.65
16.....	4.15	5.15	6.15	7.20	8.20
17.....	4.40	5.50	6.60	7.65	8.75
18.....	4.70	5.80	7.00	8.10	9.25
20.....	....	6.50	7.75	9.00	10.30
21.....	....	6.80	8.15	9.50	10.85
22.....	....	7.15	8.55	9.95	11.35
24.....	....	....	9.35	10.90	12.40
26.....	....	....	10.25	11.80	13.50
28.....	...	....	11.00	12.75	14.50
30.....	....	....	....	13.65	15.60

This pipe will be shipped in random lengths, plain ends, unless otherwise ordered.

For cut lengths an extra charge above random will be made.

For threaded pipe an extra charge above plain end will be made.

## STANDARD LAP-WELDED BOILER TUBES.

Outside Diameter Inches	Price per Foot.	Thickness Inches.	Thickness Nearest B. W. G.	Nominal Weight per Foot.
1 .....	\$0.30	.095	13	.90
1 $\frac{1}{4}$ .....	.28	.095	13	1.15
1 $\frac{1}{2}$ .....	.27	.095	13	1.40
1 $\frac{3}{4}$ .....	.22	.095	13	1.66
2 .....	.20	.095	13	1.91
2 $\frac{1}{4}$ .....	.24	.095	13	2.16
2 $\frac{1}{2}$ .....	.28	.109	12	2.75
2 $\frac{3}{4}$ .....	.34	.109	12	3.04
3 .....	.35	.109	12	3.33
3 $\frac{1}{4}$ .....	.40	.120	11	3.96
3 $\frac{1}{2}$ .....	.44	.120	11	4.28
3 $\frac{3}{4}$ .....	.50	.120	11	4.60
4 .....	.55	.134	10	5.47
4 $\frac{1}{2}$ .....	.62	.134	10	6.17
5 .....	.75	.148	9	7.58
6 .....	1.00	.165	8	10.16
7 .....	1.20	.165	8	11.90
8 .....	1.50	.165	8	13.65
9 .....	1.70	.180	7	16.76
10 .....	2.10	.203	6	21.00
11 .....	2.50	.220	5	25.00
12 .....	2.90	.229	4 $\frac{1}{2}$	28.50
13 .....	3.20	.238	4	32.06
14 .....	3.65	.248	3 $\frac{1}{2}$	36.00
15 .....	4.10	.259	3	40.60
16 .....	4.60	.270	2 $\frac{1}{2}$	45.20

### . EXTRA WIRE GAUGE BOILER TUBES.

For extra wire gauge boiler tubes, away from standard not exceeding four wire gauges, one cent for each inch in diameter of tube for each additional gauge will be charged and added to net of invoice.

Tubes more than four wire gauges heavier than standard will be charged by the pound, the same as plain end stay tubes, arch pipes, dry pipes and water grates.

## LAP-WELDED CASING

FOR ARTESIAN, OIL, SALT AND GAS WELLS.

Nominal Inside Diameter. Inches.	Actual Outside Diameter. Inches.	Price Per Foot.	Nominal Weight Per Foot. Pounds.	Number of Threads Per Inch of Screw.
2¾	3	.35	3.45	14
3	3¼	.41	4.10	14
3¼	3½	.45	4.45	14
3½	3¾	.48	4.78	14
3¾	4	.56	5.56	14
4	4¼	.60	6.00	14
4¼	4½	.64	6.36	14
4½	4¾	.68	6.73	14
4¾	5	.78	7.80	14
5	5¼	.82	8.20	14
5 3-16	5½	.87	8.62	14
5½	6	1.05	10.46	14
6¼	6½	1.16	11.58	14
6½	7	1.24	12.34	14
7¼	7½	1.36	13.55	14
7½	8	1.55	15.41	11½
8¼	8½	1.61	16.07	11½
8½	9	1.76	17.60	11½
9½	10	2.20	21.90	11½

Random lengths with threads and couplings will be shipped unless otherwise ordered.

For cut lengths an extra charge will be made above random.

For galvanized or asphalted an extra charge will be made above black.

## CASING COUPLINGS.

WITH PATENT PROTECTING SLEEVE.

Inside Diameter Casing.

Size..	1½	2	2¼	2½	2¾	3	3¼	3½	3¾	4	4¼	4½
Price	.12	.16	.20	.25	.30	.35	.40	.46	.52	.60	.68	.80
Size..	4¾	5	5½	5¾	6¼	6½	7¼	7½	8¼	8½	9½	11½
Price	.85	.90	1.00	1.20	1.35	1.50	1.65	1.75	2.25	2.85	3.95	6.00

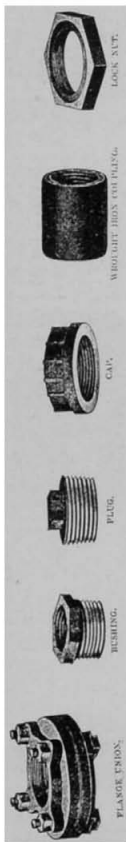
## PATENT COUPLINGS.

Size.....	½	¾	1	1¼	1½	2	2¼	3	3½
Price .....	.10	.12	.15	.25	.30	.40	.60	.80	1.30
Size.....	4	4½	5	6	7	8	9	10	12
Price.....	1.50	2.00	2.40	2.80	3.85	4.00	5.00	6.00	8.00





CAST IRON FITTINGS.



Size of Pipe.....inch	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/4	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Flange Unions.....	..40	.46	..52	.64	.78	1.00	1.25	1.50	1.80	2.10	2.70	3.15	3.05	3.15	3.05	5.50	7.00	10.00	11.50	16.00
"    with Washers.....	..04	.04	.05	.06	.07	.09	.14	.21	.30	.40	.50	.63	1.25	1.87	2.75	3.25	3.75	5.00		
Bushings.....	..02	.02	.03	.04	.05	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	3.75	5.00	
Plugs.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Caps.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wrought Iron Couplings..	.05	.06	.07	.10	.13	.17	.21	.28	.40	.60	.80	1.00	1.50	1.65	2.40	3.25	4.25	5.50	7.50	10.00
Reducing    "    .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Right and Left    "    .....	..07	.08	.11	.15	.20	.25	.30	.50	.85	1.20	1.60	2.00	.....	.....	.....	.....	.....	.....	.....	.....
Locknuts.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Longscrews.....	.30	.35	.40	.55	.75	1.00	1.30	1.70	2.70	3.70	5.40	6.60	.....	.....	.....	.....	.....	.....	.....	.....
Y Branches.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Y Branches Reducing.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wrought Iron Bends.....	.40	.50	.60	.80	1.10	1.80	2.50	5.75	7.50	9.00	10.00	.....	.....	.....	.....	.....	.....	.....	.....	.....

GALVANIZED FITTINGS AT DOUBLE LIST PRICE.

EXCEPT UNIONS AND COUPLINGS.

## EXTRA HEAVY CAST IRON FITTINGS.



ELBOW.

45° ELBOW.

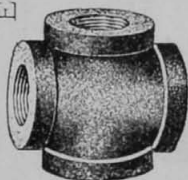
TEE.

Size.....Inches	1/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Elbows.....Each	.30	.35	.45	.60	.75	1.25	2.00	2.75
“ Reducing.....“	.40	.45	.55	.75	.95	1.55	2.50	3.40
“ 45°.....“	.40	.45	.55	.70	.90	1.50	2.50	3.50
Tees.....“	.50	.55	.70	.90	1.15	1.80	3.00	4.25
“ Reducing.....“	.65	.70	.90	1.15	1.40	2.25	3.75	5.30

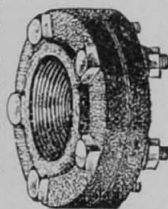
  

Size.....Inches	4	4 1/2	5	6	7	8	10	12
Elbows.....Each	3.50	4.25	5.50	8.00	12.00	17.00	28.00	40.00
“ Reducing.....“	4.40	5.30	6.80	10.00	15.00	21.00	35.00	50.00
“ 45°.....“	4.50	5.50	6.75	9.75	14.50	21.00	34.00	48.00
Tees.....“	5.50	6.75	8.25	12.00	18.00	25.00	42.00	60.00
“ Reducing.....“	6.85	8.50	10.25	15.00	22.50	31.00	52.00	75.00

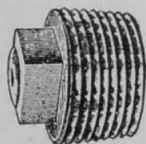
EXTRA HEAVY CAST IRON FITTINGS.



CROSS.



FLANGE UNION.



SOLID PLUG.

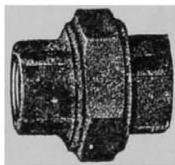
Size.....Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Crosses.....Each	.65	.70	.90	1.20	1.50	2.50	4.00	5.50
" Reducing....."	.85	.90	1.15	1.50	1.85	3.15	5.00	6.85
Flange Unions....."	....	....	2.30	3.20	3.50	4.40	6.20	7.60
Plugs....."	.15	.15	.15	.20	.25	.40	.55	.80

Size.....Inches	4	$4\frac{1}{2}$	5	6	7	8	10	12
Crosses.....Each	7.00	8.50	11.00	16.00	24.00	34.00	56.00	80.00
" Reducing....."	8.75	10.00	13.75	20.00	30.00	42.00	70.00	100.00
Flange Unions....."	8.80	....	9.90	11.60	21.00	28.00	35.00	....
Plugs....."	.90	1.50	1.70	2.50	....	....	....	....

## WROUGHT IRON COUPLINGS.

Size.....Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Black.....Each	.05	.05	.06	.07	.10	.13	.17	.21	.28	.40	.60
Galvanized....."	.06	.06	.08	.10	.13	.18	.25	.32	.40	.55	.80
Size.....Inches	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12	14
Black.....Each	.80	1.00	1.50	1.65	2.40	3.25	4.25	5.50	7.50	10.00	13.00
Galvanized....."	1.05	1.40	2.00	2.25	3.25	.....	.....	.....	.....	.....	.....



## MALLEABLE UNIONS.

WITH LIP.

Size.....Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price, Black.....Each	.18	.18	.20	.22	.27	.33	.46	.58	.75	1.55	2.10	3.65	4.85
" Galvanized....."	.27	.27	.30	.33	.40	.50	.70	.90	1.15	2.35	3.15	5.50	6.50

CAST IRON FLANGES.



**Flange.**

**Blank Flange.**

Size.....In.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12	14
Diameter Flanges..3	.10																			
Diameter Flanges..3 $\frac{1}{2}$	.15			.16																
Diameter Flanges..4	.22	.22		.17																
Diameter Flanges..4 $\frac{1}{2}$	.25	.25		.20																
Diameter Flanges..5	.35	.30		.30			.35													
Diameter Flanges..5 $\frac{1}{2}$	.45	.45		.40	.40		.35	.40												
Diameter Flanges..6	.50	.50		.42	.40	.42	.42	.50												
Diameter Flanges..6 $\frac{1}{2}$	.65	.60		.60	.55	.50	.50	.65												
Diameter Flanges..7	.75	.75		.70	.62	.62	.62	.75												
Diameter Flanges..7 $\frac{1}{2}$	.90	.90		.85	.85	.80	.80	.85	.90											
Diameter Flanges..8	1.00	1.00		.95	.95	.90	.90	.90	.90											
Diameter Flanges..8 $\frac{1}{2}$	1.25	1.25		1.15	1.15	1.10	1.10	1.00	1.00											
Diameter Flanges..9	1.35	1.35		1.30	1.25	1.25	1.15	1.15	1.15	1.15	1.40									
Diameter Flanges..9 $\frac{1}{2}$	1.50	1.50		1.40	1.40	1.35	1.30	1.25	1.25	1.25	1.50	1.50								
Diameter Flanges..10	1.75	1.75		1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.50	1.50						
Diameter Flanges..10 $\frac{1}{2}$	2.00	2.00		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.75	1.75	1.75	2.20				
Diameter Flanges..11	2.25	2.25		2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.00	2.00	2.00	2.20	2.80			
Diameter Flanges..12	2.50	2.50		2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.20	2.20	2.20	2.80	3.50			
Diameter Flanges..13	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.80	2.80	2.80	3.50	4.50			
Diameter Flanges..14	3.50	3.50		3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.25	3.25	3.25	3.75	4.50			
Diameter Flanges..15	4.00	4.00		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.75	3.75	3.75	4.50	5.50			
Diameter Flanges..16	4.50	4.50		4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.00	4.00	4.00	4.50	5.50			
Diameter Flanges..17	5.00	5.00		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	4.50	4.50	4.50	5.00	6.00			
Diameter Flanges..18	5.50	5.50		5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.00	5.00	5.00	5.50	6.50			
Diameter Flanges..19	6.00	6.00		6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.50	5.50	5.50	6.00	7.00			
Diameter Flanges..20	6.50	6.50		6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.00	6.00	6.00	6.50	7.50			
Diameter Flanges..21	7.00	7.00		7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	7.00	8.00			
Diameter Flanges..22	7.50	7.50		7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.00	7.00	7.00	7.50	8.50			
Diameter Flanges..23	8.00	8.00		8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	7.50	7.50	7.50	8.00	9.00			
Diameter Flanges..24	8.50	8.50		8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.00	8.00	8.00	8.50	9.50			

## BRANCH TEES.

	Number of Branches.												
	2	3	4	5	6	7	8	9	10	11	12	13	
1 in. Branch Tees, 1 in. or 1 1/4 in. run.....	83	1 05	1 15	1 35	1 60	1 90	2 20	2 65	3 15	3 75	4 40	5 00	
1 in. Branch Tees, 1 1/4 in. run.....	1 00	1 15	1 30	1 45	1 75	2 20	2 45	2 90	3 30	4 50	4 75	5 80	
1 in. Branch Tees, 2 in. run.....	1 15	1 35	1 60	1 85	2 10	2 45	2 75	3 40	4 00	4 80	5 10	6 00	
1 in. Branch Tees, 2 1/2 in. run.....	1 75	2 05	2 40	2 75	3 10	3 50	3 75	4 30	5 00	5 50	5 85	6 30	
1 1/4 in. Branch Tees, 1 1/4 in. or 1 1/2 in. run.....	1 30	1 65	2 00	2 40	2 80	3 20	3 60	4 30	4 81	5 00	5 25	6 00	
1 1/4 in. Branch Tees, 2 in. run.....	1 60	1 90	2 40	2 90	3 30	3 90	4 60	5 25	5 85	6 25	6 50	7 00	
1 1/4 in. Branch Tees, 2 1/2 in. run.....	1 95	2 40	2 85	3 55	3 95	4 20	4 95	5 15	6 85	7 25	7 65	8 25	
1 1/2 in. Branch Tees, 1 1/4 or 2 in. run.....	2 10	2 70	3 35	4 00	4 65	5 25	5 85	6 50	7 00	8 00	8 50	9 60	
1 1/2 in. Branch Tees, 2 1/2 in. run.....	2 85	3 45	4 15	5 00	5 75	6 60	7 00	8 25	9 25	9 75	10 50	11 51	
1 1/2 in. Branch Tees, 3 in. run.....	3 15	3 80	4 60	5 50	6 25	7 25	7 75	9 00	10 00	10 75	11 50	12 75	
2 in. Branch Tees, 1 in. run.....	4 10	5 25	6 40	7 65	8 80	10 60	11 50	12 25	13 50	14 25	15 00	16 00	
2 in. Branch Tees, 1 1/4 in. run.....	4 50	5 75	7 00	8 50	9 75	11 75	12 75	13 50	14 25	15 75	16 50	17 50	
2 in. Branch Tees, 2 in. run.....	4 60	5 75	7 00	8 60	9 75	11 75	12 75	13 50	15 00	15 75	16 50	17 50	
2 in. Branch Tees, 3 in. run.....	5 00	6 25	7 75	9 25	10 75	13 00	14 00	15 00	16 60	.....	.....	.....	

Back or Side Outlets charged as additional Front Outlets.

In ordering, be particular to STATE size of RUN required. When not ordered otherwise, all openings will be tapped right hand

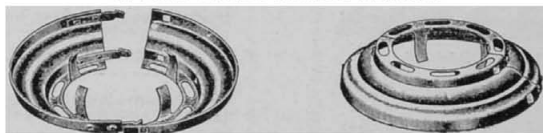
## HOOK PLATES, COIL STANDS, ETC.

	Number of Branches.												
	1	2	3	4	5	6	7	8	9	10	11	12	
2 inch Hook Plates.....	08	16	21	24	28	34	40	45	50	56	68	72	
2 1/2 inch Hook Plates.....	09	18	23	26	32	38	48	50	65	70	85	1 00	
3 inch Hook Plates.....	10	21	27	32	41	52	68	80	90	1 20	1 35	1 40	
3 1/2 inch Hook Plates.....	15	28	43	58	72	88	1 10	1 25	1 40	1 55	1 65	1 50	
4 inch Hook Plates.....	22	43	65	90	1 15	1 35	.....	.....	.....	.....	.....	.....	
5 inch Expansion Hook Plates.....	12	23	34	45	65	77	90	1 05	1 05	1 25	1 45	1 65	
6 inch Expansion Hook Plates.....	15	25	35	50	60	70	80	95	1 10	1 35	1 55	1 70	
7 inch Expansion Hook Plates.....	17	27	40	60	70	80	90	1 15	1 30	1 50	1 70	2 00	
8 inch Expansion Hook Plates.....	25	40	60	75	90	1 00	.....	.....	.....	.....	.....	.....	
1 inch Ring Plates.....	16	28	41	60	62	72	96	1 00	1 20	1 30	.....	.....	
1 1/4 inch Ring Plates.....	21	35	50	62	75	1 10	1 25	1 40	.....	.....	.....	.....	



## RUSSELL'S ADJUSTABLE FLOOR AND CEILING PLATES.

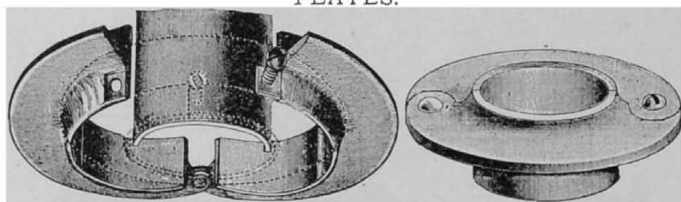
SPRING BRASS NICKEL PLATED.



Easily adjusted to the pipe and will stay in position. Will hold the nickel finish and always look well. Handsome in design and heavy in weight and finish. The Best and Cheapest plate on the market. Finished in any color.

Size.....Inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Nickel Brass .....	.25	.25	.25	.28	.32	.35	.38	.52	.75

## BEATON'S ADJUSTABLE FLOOR AND CEILING PLATES.



NO. 1 CEILING PLATE.

NO. 2 FLOOR PLATE.

### FLOOR AND CEILING PLATES.

Size.....Inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Price, Plain .....	.14	.14	.18	.20	.24	.28	.43	.60	.90	1.25	1.60	2.00
" Nickeled. ....	.25	.25	.28	.32	.35	.38	.52	.75	1.10	1.50	2.00	2.50

The Nickel Plated are packed one dozen in a box, each wrapped in paper and box labeled.

## NEW PATTERN.



NO. 3 CEILING PLATE.

NO. 4 FLOOR PLATE.

This Plate is the same in construction as No. 1 (and the same in price), except that it has no sleeve like No. 1. Also the flange is wider, and can be used where there is no protection needed for ceiling or floor.

This Plate is the same in construction as No. 2 (and the same in price), except that it has no sleeve like No. 2. Also the flange is wider, and can be used where there is no protection needed for ceiling or floor.



CLASSIFICATION AND PRICE LIST OF MALLEABLE IRON, GAS, WATER AND STEAM FITTINGS.

<p><b>Class A—Price, 30 cts. per pound.</b>                      R. &amp; L. Couplings, <math>\frac{1}{2}</math> in.                      Couplings R. II., <math>\frac{1}{2}</math> in.</p>		<p>Elbs, R. and L., <math>\frac{1}{4}</math> &amp; <math>\frac{3}{8}</math> in.                      R. and L. Return bends, <math>\frac{3}{8}</math> &amp; <math>\frac{1}{2}</math> in.</p>
<p><b>Class B—Price, 20 cts. per pound.</b>                      Caps, <math>\frac{1}{2}</math> and <math>\frac{3}{4}</math> inch.                      Lock Nuts, <math>\frac{1}{2}</math> and <math>\frac{3}{4}</math> inch.                      Reducing Couplings, <math>\frac{1}{2}</math> to <math>\frac{3}{4}</math> inclusive.                      Extension Pieces, <math>\frac{1}{2}</math> and <math>\frac{3}{4}</math> inch.                      R. and L. Couplings, <math>\frac{1}{2}</math> and <math>\frac{3}{4}</math> inch.                      R. Hand Couplings, <math>\frac{1}{2}</math> and <math>\frac{3}{4}</math> inch.                      R. and L. Elbows, <math>\frac{1}{2}</math> inch,</p>		<p>Waste Nuts, <math>\frac{1}{2}</math> and smaller.                      Chandelier Hooks, all sizes.                      Return Bends, <math>\frac{1}{2}</math> and <math>\frac{3}{4}</math> inch.                      Return Bends, R. and L., <math>\frac{1}{2}</math>, 1 inch.                      Wall Plates, all sizes.                      45° Ells, <math>\frac{1}{2}</math> inch and smaller.                      Y's, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math> inch.</p>
<p><b>Class C—Price, 16 cts. per pound.</b>                      Drop Ells, <math>\frac{1}{2}</math> and larger.                      Drop Tees, <math>\frac{1}{2}</math> and larger.                      Caps, <math>\frac{1}{2}</math> and 1 in.                      Lock Nuts, <math>\frac{1}{2}</math>, 1, <math>1\frac{1}{2}</math> in.                      Reduc'g Couplings, <math>\frac{1}{2}</math> to 1 in., inclusive.                      R. and L. Couplings, <math>\frac{1}{2}</math> &amp; <math>\frac{3}{4}</math> in.                      R. H. Couplings, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math> in.</p>		<p>Extension Pieces <math>\frac{1}{2}</math> inch and larger.                      Waste Nuts, <math>\frac{1}{2}</math> in. and larger.                      Return Bends, <math>\frac{1}{2}</math>, 1 in.                      45° Ells, <math>\frac{1}{2}</math> to <math>\frac{3}{4}</math> inch, inclusive.                      Y's, <math>\frac{1}{2}</math> in. and larger.                      Return Bends, R. and L., <math>\frac{1}{2}</math> in. larger.</p>
<p><b>Class D—Price, 13 cts. per pound.</b>                      Lock Nuts, <math>1\frac{1}{2}</math> in. and larger.                      Reducing Couplings, <math>1\frac{1}{2}</math> in. and larger.                      R. H. Couplings, 1 in. and <math>1\frac{1}{2}</math> in.                      Such Fittings as have smaller outlets than <math>\frac{1}{2}</math> in. will be classed "C."</p>		<p>Return Bends, <math>1\frac{1}{2}</math> in. and larger.                      R. and L. Couplings, 1 in. and larger.                      45° Elbow, <math>2\frac{1}{2}</math> in. and larger.</p>
<p><b>Class E—Price, 11 cts. per pound.</b>                      Right Hand Couplings, <math>1\frac{1}{2}</math>, 2 in. Such Fittings in this class that have outlets smaller than 1 inch to be classed "D."</p>		<p>Return Bends, <math>1\frac{1}{2}</math> in. and larger.                      R. and L. Couplings, <math>2\frac{1}{2}</math> in. and larger.</p>
<p>The run of Tees, (Endheads), gives the size for the purpose of classification, and the outlet being larger does not change it.</p>		
<p>Return Bends reduced, Return Bends spread, Elbows Tapped on Pitch</p>		
<p><b>CLASS,</b></p>		
<p>Price, per pound, Black,</p>		
<p>Price, per pound, Galvanized,</p>		
A	B	C
39 cents.	20 cents.	16 cents.
40 cents.	27 cents.	23 cents.
- - - 15 per cent. added.		
		D
		11 cents.
		18 cents.

## MALLEABLE IRON FITTINGS.

## PIECE PRICE.

Size,	1/4	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Elbows,	01	04	06	10	15	22	28	36	44	52	60	68	76	84
"    45°			10	12	18	26	36	44	52	60	68	76	84	92
"    Side Outlet,			08	10	18	30	45	60						
Street Elbows,		08	10	12	20	25	40	55	90	1 50				
Tees,	07	07	08	11	15	23	30	45	60	1 05	1 70	2 50	3 40	5 25
"    Side Outlet,			12	14	23	35	50	80						
Crosses,		08	10	12	20	30	40	60	1 00	1 75	3 00	3 25	5 25	
Drop Elbows, Female and M. & F		06	08	12	20	25								
"    Tees, " " "			10	14	22	30								
Caps,		03	04	05	08	12	16	24	32	45	85	1 50	2 00	
Plugs,	02	03	03	03	08	10	15	19	30					
Reducers,		03	03	05	10	16	20	28	45	70	1 00	1 50	1 85	
Extension Pieces,			04	06	10	13								
Couplings, R. and L.	04	04	05	08	12	16	25	28	52					
"    Right, Hexagon,				10	16	20	30	40	65					
"    Plain,		03	04	07	10	14	20	25	35					
Lock Nuts,	02	02	03	04	05	07	09	11	15	40	50			
Waste Nuts,		04	05	06	08	10								
Wall Plates,			05											
Chandelier Hooks,			10	12										
Return Bends, Open,			15	30	50	65	85	1 25	2 00	3 00	4 00	5 00		
"    Close,			13	25	35	50	75	1 00	1 75	2 50				
"    Medium,			13	25	35	50	75	1 00						
"    Extra Close,				25	35									
Y's,				25	40	60	80	1 00	1 70	2 00	3 00	3 50	4 00	

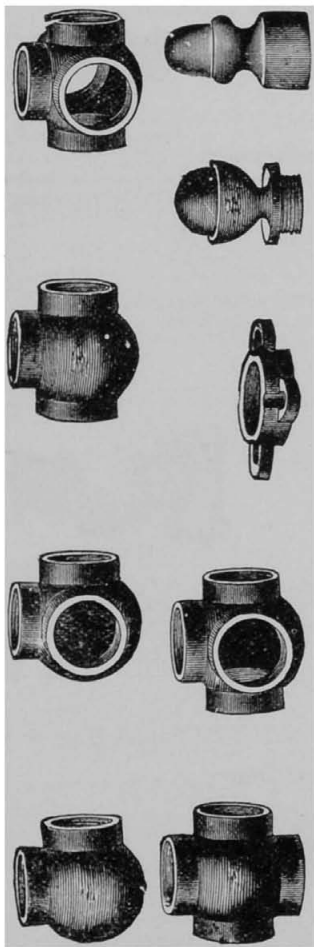
## GALVANIZED MALLEABLE IRON FITTINGS.

## PIECE PRICE.

Size,	1/4	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Elbows,	05	05	08	14	20	32	40	60	90	1 35	2 60	3 75	5 00	7 50
"    45°			15	20	25	40	50	85	1 35					
"    Side Outlet,			10	15	24	45	70	1 10						
Street Elbows,		10	12	15	28	35	55	80	1 30					
Tees,	09	09	10	16	20	38	50	70	1 00	1 90	3 00	4 25	5 75	8 75
"    Side Outlet,			18	21	30	55	75	1 20						
Crosses,			15	17	25	45	60	90	1 50	2 75	4 25	5 00	8 00	
Drop Elbows, Female and M & F		10	12	20	35	40								
"    Tees, " " "			15	25	40	55								
Caps,		04	05	08	12	17	24	38	62	70	1 30	2 25	3 00	
Plugs,	05	05	05	07	11	15	25	30	45					
Reducers,			05	08	15	25	35	45	75	1 05	1 65	2 40	3 05	
Extension Pieces,			06	10	15	20								
Couplings, R. and L.	06	06	08	10	17	25	35	55	75					
"    Right, Hexagon,			13	20	30	40	55	80						
"    Plain,		05	07	10	17	25	30	40	55					
Lock Nuts,	03	03	04	05	07	10	14	20	30	65	70			
Waste Nuts,		06	08	10	15	20								
Return Bends, Open,			27	45	70	90	1 25	2 00	3 50	5 00	6 00	7 50		
"    Close,			25	35	55	75	1 15	1 65	3 00	4 00				
"    Medium,			25	35	55	75	1 15	1 65						
"    Extra Close,				35	55									
Y's,				38	60	90	1 25	1 60	2 50	3 00	4 50	5 25	8 00	

MALLEABLE IRON RAILING FITTINGS.

FOR FENCES, ENCLOSING ENGINES AND MACHINERY, EXHIBITION SPACES, ETC.



Size.....	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Elbow.....	.15	.18	.20	.35	.45	.72	1.00	1.50
“ Side Outlet.....	.20	.23	.25	.40	.50	.80	1.15	1.70
Tee.....	.20	.23	.25	.40	.50	.75	1.20	1.90
“ Side Outlet.....	.30	.33	.35	.45	.55	.90	1.40	2.15
Cross.....	.30	.33	.35	.45	.58	1.00	1.50	2.25
“ Side Outlet.....	.35	.38	.40	.50	.65	1.35	1.75	2.60
Floor Flange.....	.14	.15	.15	.20	.28	.30	.50	.75
Acorn Ornament.....	.16	.18	.20	.25	.35	.90	1.00	1.50
Rushings, reduced one and two sizes.....	.....	.06	.07	.10	.12	.18	.28	.40

## CROSS-OVERS AND CROSS-OVER TEES.

MALLEABLE IRON GALVANIZED.



CROSS-OVER



CROSS-OVER WITH OUTLET.

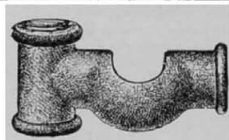
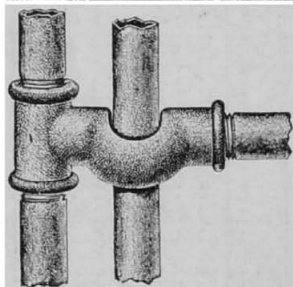
## CROSS-OVERS.

Tapped $\frac{1}{8}$ inch to cross $\frac{1}{2}$ inch Pipe, Each, .22	Tapped $\frac{3}{4}$ inch to cross 1 inch Pipe, Each, .50
" $\frac{1}{2}$ " " " $\frac{3}{4}$ " " " .35	" $1\frac{1}{4}$ " " " $1\frac{1}{4}$ " " " .62
" $\frac{3}{4}$ " " " 1 " " " .45	" 1 " " " 1 " " " .49
" 1 " " " $1\frac{1}{4}$ " " " .60	" 1 " " " $1\frac{1}{4}$ " " " .68
" $1\frac{1}{4}$ " " " $1\frac{1}{4}$ " " " .32	

## CROSS-OVERS WITH OUTLET.

Back Outlet same size as Run.

Tapped $\frac{1}{8}$ inch to cross $\frac{1}{2}$ inch Pipe,..... Each, .26
" $\frac{3}{4}$ " " " $\frac{3}{4}$ " " " ..... " .39
" 1 " " " 1 " " " ..... " .60



CROSS-OVER TEE.

Size, $\frac{1}{2}$ inch to cross $\frac{1}{2}$ inch Pipe,..... Each, .38
" $\frac{3}{4}$ " " " $\frac{3}{4}$ " " " ..... " .56
" 1 " " " 1 " " " ..... " .86

## FLOOR FLANGES, DRILLED.

CAST IRON.



Size . . . . Inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	2	2
Diameter .Inches	3	3	$3\frac{1}{2}$	$3\frac{1}{2}$	4	4	4	5	5	5	6
Black . . . . Each	.14	.15	.17	.18	.21	.22	.25	.35	.36	.45	.55

Oval Floor Flanges to order.

ADOPTED OCTOBER 7TH, 1899.  
WROUGHT IRON NIPPLES—THREADED RIGHT HAND.

LENGTH IN INCHES		PRICES		LENGTH AND PRICES, EXTRA LONG NIPPLES									
Close	Short	Short	Long	4	5	6	7	8	9	10	11	12	
Size Pipe	Long	Close or Short	Long										
1	2 1/2	\$0.04	\$0.06	\$0.07	\$0.08	\$0.10	\$0.12	\$0.14	\$0.15	\$0.17	\$0.18	\$0.19	
1	3	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19	
1	3 1/2	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19	
1	4	.05	.07	.08	.10	.12	.14	.16	.18	.20	.22	.23	
1	4 1/2	.06	.09	.11	.13	.15	.17	.18	.20	.22	.24	.26	
1	5	.08	.13	.15	.18	.21	.23	.25	.28	.31	.34	.36	
1	5 1/2	.11	.17	.20	.24	.29	.33	.36	.40	.44	.48	.52	
1	6	.13	.20	.25	.30	.36	.40	.45	.50	.54	.59	.64	
2	6 1/2	.18	.27	.33	.40	.48	.54	.60	.65	.72	.77	.84	
2	7	.39	.59	.68	.80	.90	.97	1.06	1.06	1.17	1.26	1.35	
2	7 1/2	.48	.72	.85	1.08	1.20	1.30	1.45	1.33	1.45	1.58	1.70	
2	8	.75	1.05	.85	1.30	1.45	1.60	1.75	1.60	1.75	1.90	2.05	
3	8 1/2	.85	1.20	1.25	1.52	1.69	1.87	2.05	1.87	2.05	2.22	2.40	
3	9	1.25	1.70	1.85	2.25	2.50	2.75	3.00	2.75	3.00	3.17	3.40	
3	9 1/2	1.55	2.45	2.55	2.88	3.10	3.35	3.60	3.35	3.60	3.85	4.05	
3	10	1.85	2.90	3.05	3.05	3.70	4.00	4.30	3.70	4.00	4.30	4.65	
4	10 1/2	3.20	3.60	4.05	4.05	4.45	4.55	5.05	4.45	4.90	5.30	5.75	
4	11	3.55	4.05	4.55	4.55	5.05	5.50	6.00	5.50	6.00	6.50	7.00	
5	11 1/2	5.25	6.50	8.25	8.25	8.90	9.70	10.40	8.90	9.70	10.40	11.15	
5	12	8.00	10.00	10.80	10.80	11.75	12.70	13.65	11.75	12.70	13.65	14.60	

## A. A. GRIFFING IRON COMPANY.

## WROUGHT IRON NIPPLES—THREADED RIGHT AND LEFT.

LENGTH IN INCHES		SIZE PIPE	PRICES		LENGTH AND PRICES, EXTRA LONG NIPPLES									
Close	Short		Close or Short	Long	4	5	6	7	8	9	10	11	12	
3	1½	2, 2½, 3, 3½	\$0.05	\$0.08	\$0.09	\$0.11	\$0.13	\$0.16	\$0.18	\$0.20	\$0.23	\$0.25	\$0.27	
3	1½	2, 2½, 3, 3½	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27	
1	1½	2, 2½, 3, 3½	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27	
1½	1½	2, 2½, 3, 3½	.07	.10	.11	.13	.16	.18	.21	.24	.27	.29	.31	
1½	2	2½, 3, 3½, 4	.08	.12		.15	.17	.23	.25	.27	.29	.32	.35	
1½	2	2½, 3, 3½, 4	.11	.18		.20	.24	.31	.33	.37	.41	.45	.48	
1½	2½	3, 3½, 4, 4½	.15	.23		.27	.32	.39	.45	.50	.55	.60	.65	
1½	2½	3, 3½, 4, 4½	.18	.27		.31	.39	.48	.52	.60	.67	.72	.80	
2	2½	3, 3½, 4, 4½	.24	.36		.43	.51	.67	.72	.80	.87	.96	1.03	
2½	3	3½, 4, 4½, 5	.52	.79		.91	.91	1.20	1.30	1.40	1.55	1.68	1.80	
2½	3	3½, 4, 4½, 5	.65	.96		1.13	1.13	1.44	1.60	1.77	1.93	2.10	2.27	
2½	4	4½, 5, 5½, 6	1.00	1.40				1.75	1.95	2.15	2.35	2.55	2.75	
3	4	4½, 5, 5½, 6	1.15	1.60				2.00	2.25	2.50	2.75	3.00	3.25	

Add 60 per cent. to above prices for galvanized nipples threaded right and left.

A. A. GRIFFING IRON COMPANY.

WROUGHT IRON GALVANIZED NIPPLES—THREADED RIGHT HAND.

LENGTH IN INCHES			PRICES		LENGTH AND PRICES, EXTRA LONG NIPPLES									
Close	Short	Long	Close 2	Long	4	5	6	7	8	9	10	11	12	
			Size Type											
3	1½	2, 2½, 3, 3½	1	\$0.11	\$0.12	\$0.15	\$0.17	\$0.21	\$0.24	\$0.26	\$0.29	\$0.31	\$0.34	
4	1½	2, 2½, 3, 3½	1	.06	.12	.15	.17	.21	.24	.26	.29	.31	.34	
1	1½	2, 2½, 3, 3½	1	.06	.12	.15	.17	.21	.24	.26	.29	.31	.34	
1	1½	2, 2½, 3, 3½	1	.06	.13	.16	.18	.23	.26	.28	.31	.33	.36	
1	2	2½, 3, 3½, 4	1	.08	.14	.18	.21	.26	.29	.32	.35	.38	.41	
1	2	2½, 3, 3½, 4	1	.11	.19	.24	.28	.34	.38	.42	.47	.51	.55	
1	2½	3, 3½, 4, 4½	1½	.17	.29	.32	.38	.45	.51	.57	.63	.69	.75	
1	2½	3, 3½, 4, 4½	1½	.21	.35	.39	.46	.55	.63	.70	.77	.84	.91	
2	2½	3, 3½, 4, 4½	2	.27	.47	.52	.61	.74	.83	.93	1.08	1.13	1.23	
2½	3	3½, 4, 4½, 5	2½	.56	.86	1.00	1.00	1.26	1.41	1.56	1.71	1.86	2.01	
2½	3	3½, 4, 4½, 5	3	.70	1.10	1.30	1.30	1.60	1.80	2.00	2.20	2.40	2.60	
2½	4	4½, 5, 5½, 6	3½	1.20	1.70	2.10	2.10	2.10	2.35	2.60	2.85	3.15	3.40	
3	4	4½, 5, 5½, 6	4	1.35	1.87	2.30	2.30	2.30	2.60	2.90	3.20	3.50	3.80	
3	4	4½, 5, 5½, 6	4½	1.55	2.60	3.30	3.30	3.30	3.65	4.05	4.45	4.85	5.25	
3½	4½	5, 5½, 6, 6½	5	2.30	3.15	3.75	3.75	4.50	5.00	5.55	6.05	6.60	7.15	
3½	4½	5, 5½, 6, 6½	6	2.80	4.25	4.50	4.50	5.00	5.00	5.55	6.05	6.60	7.15	
4	5	6	7	4.25	4.95	6.65	6.65	7.05	7.05	7.05	7.75	8.45	9.20	
4	5	6	8	5.00	5.80	7.50	7.50	8.35	8.35	8.35	9.25	10.10	10.95	



SOCKET.



FOLLOWER.



LONG SCREW WITH SOCKET AND FOLLOWER.

Size, Inches.	Price.		Extra Long Black Long Screws, Inches.											
	Black.	Galv.	4	5	6	7	8	9	10	11	12			
$\frac{1}{4}$	.30	.35	.55	.84	.86	.88	.40	.42	.44	.46	.48			
$\frac{3}{8}$	.35	.40	....	.37	.40	.42	.44	.46	.48	.50	.52			
$1\frac{1}{2}$	.40	.50	....	.42	.44	.46	.48	.50	.52	.54	.56			
$2\frac{1}{2}$	.55	.66	....	....	.61	.68	.72	.76	.80	.84	.88			
1	.75	1.00	....	....	.79	.83	.87	.91	.95	.99	1.03			
$1\frac{1}{4}$	1.00	1.25	....	....	....	1.04	1.08	1.12	1.16	1.20	1.24			
$1\frac{1}{2}$	1.30	1.60	....	....	....	1.34	1.38	1.42	1.46	1.50	1.54			
2	1.70	2.10	....	....	....	....	1.80	1.90	2.00	2.10	2.20			
$2\frac{1}{2}$	2.70	3.10	....	....	....	....	2.80	3.00	3.20	3.40	3.60			
3	3.70	4.70	....	....	....	....	3.90	4.10	4.30	4.50	4.70			
$3\frac{1}{2}$	5.40	5.50	....	....	....	....	....	5.63	5.87	6.11	6.35			
4	6.60	6.75	....	....	....	....	....	....	7.00	7.40	7.80			

Size.....	Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Long Screw Sockets...per 100 pcs.	6.00	8.00	9.40	10.80	13.80	21.00	25.40	33.60	68.00	100.00	140.00	190.00	190.00
" " Followers, " "	4.40	5.60	6.20	7.20	9.40	14.00	17.00	22.40	55.00	85.00	120.00	140.00	140.00
" " Stock, Gal., " "	7.80	10.60	13.00	15.00	20.40	31.40	36.60	49.20	102.00	150.00	210.00	285.00	285.00
" " Coll., " "	5.10	7.00	8.00	10.40	13.40	21.00	24.40	32.80	82.50	127.50	180.00	210.00	210.00

Long Screws, longer than Standard, made to order and charged as Cut Pipe.  
Threads, Couplings and Lock Nuts extra.

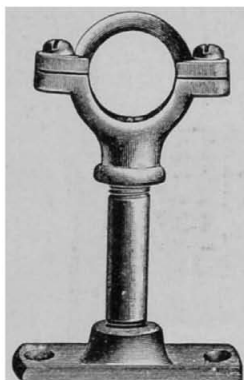




Solid Ring Hanger.

SOLID RING HANGER.

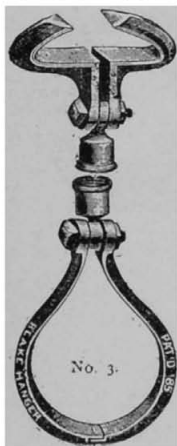
Size.....Inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Plain Iron....Per 100	5.00	5.00	5.80	4.75
Galv. "...."	6.50	6.50	7.00	8.00
Size.....Inches	$1\frac{1}{4}$	$1\frac{1}{2}$	2	
Plain Iron... Per 100	7.50	10.00	14.00	
Galv. "...."	9.00	12.00	16.00	



Extension Pipe Hanger.

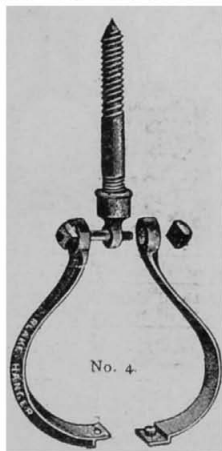
EXTENSION PIPE HANGER

Size....Inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4
Plain Iron...Each	.22	.22	.27	.32	.35	.40	.50	.70	.90	1.10
Galv. "...."	.25	.25	.30	.35	.40	.50	.60	.80	1.00	1.25
Without Nipples "	.20	.20	.25	.30	.35	.45	.55	.70	.90	1.15

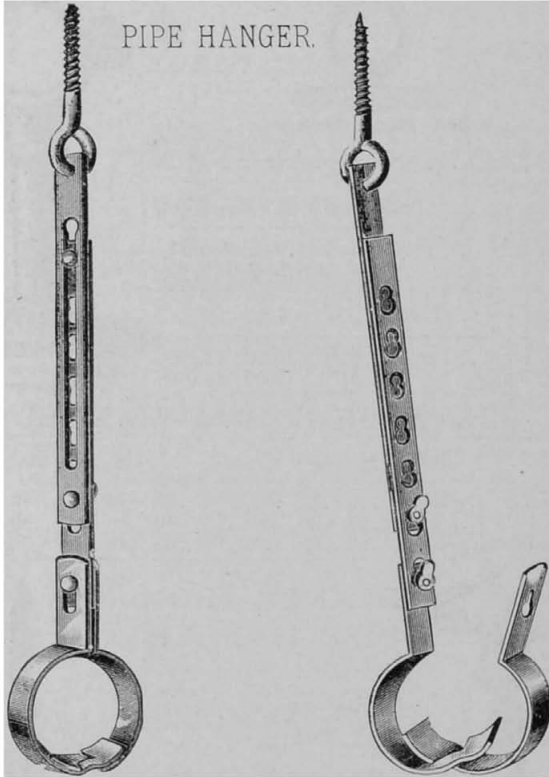


BLAKE'S IRON PIPE HANGER.

Size Inches.	Price No. 4.	Price No. 3.
$\frac{1}{2}$ ..	.15	.55
$\frac{3}{4}$ ...	.18	.58
1 ...	.18	.58
$1\frac{1}{4}$ ...	.20	.60
$1\frac{1}{2}$ ...	.22	.62
2 ....	.25	.65
$2\frac{1}{2}$ ..	.30	.70
3 ...	.35	.75
$3\frac{1}{2}$ ...	.50	.90
4 ....	.60	1.00
5 ...	.70	1.10
6 ...	.90	1.30



PERFECT COLD ROLLED STEEL ADJUSTABLE



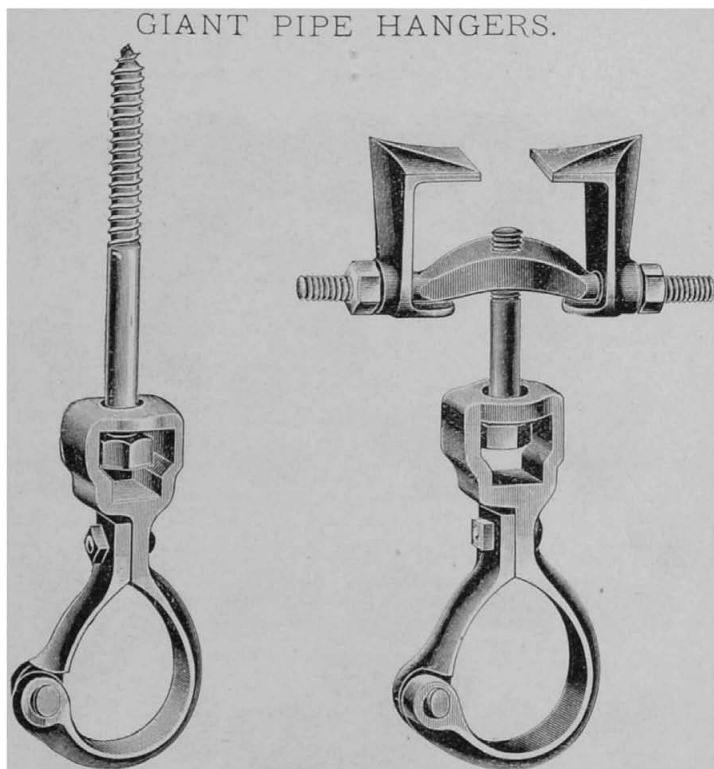
PIPE HANGER.

POLISHED STEEL.

Size of Pipe.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Length of Shank, 1 to 6—6 to 10 in..	.18	.18	.20	.22	.25	.30
Length of Shank, 10 to 14 in.....	.19	.19	.21	.23	.24	.31

NICKEL PLATED.

Size of Pipe.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Length of Shank, 1 to 6—6 to 10 in..	.41	.41	.47	.52	.53	.66
Length of Shank, 10 to 14 in.....	.43	.43	.49	.54	.60	.68



No. 1. FOR WOODEN BEAMS.

No. 2. FOR IRON BEAMS.

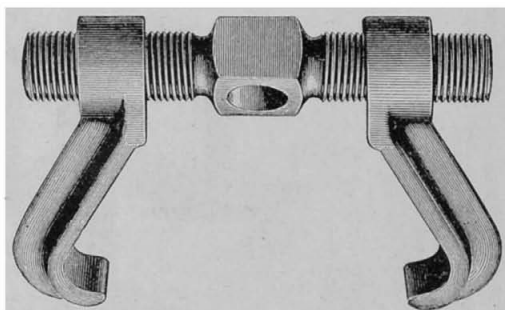
Sizes.....Inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
No. 1.....	.15	.15	.18	.18	.20	.22	.25	.30	.35	.50
No. 2.....	.55	.55	.58	.58	.60	.62	.65	.70	.75	.90

Sizes.....Inches	4	5	6	7	8	9	10	11	12	14
No. 1.....	.60	.70	.90	1.20	1.40	1.60	1.80	2.00	2.25	2.50
No. 2.....	1.00	1.10	1.30	1.60	1.80	2.00	2.20	2.25	2.60	2.90

In ordering No. 2 Hangers state size of Iron Beam.

## BEAM CLAMP.

Right and Left Threaded. Easily Adjusted.

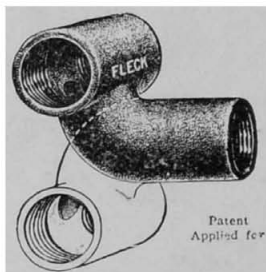


Fits Beams 2 to 6 inches.

Price . . . . . each, 50 cents

## FLECK WASH TRAY SUPPLY FITTING.

GALVANIZED MALLEABLE IRON.



No.	Outlets.....	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2} \times \frac{3}{4}$
1	Standard length.....Each	.20	.30	.30
2	Extra long.....Each	.25	.35	.35

DRAINAGE FITTINGS.



See List on Pages 168 and 169.

## DRAINAGE FITTINGS.

Size.....	1	1 1/4	1 1/2	2	3	4	5	6	7	8	10
Elbows, 1/4, 1/2, 3/4, 1, 1 1/2, 1 3/4 and 2" Bend.....			50	60	1 10	1 70	2 60	3 50	6 00	7 00	9.00
Long Turn Elbows 90°			60	70	1 30	2 00	3 00	5 20	8 50	10 00	12.00
" " " 45°					1 45	2 25	4 00	5 75	9 50	11 00	15.00
T. Y. Branches 90°			1 15	1 35	2 25	3 50	5 50	7 00	11 50	14 50	20 00
Y Branches 45°			80	1 00	1 70	2 60	3 50	5 50	12 00	15 00	21 00
" " " 45° D'ble.				1 30	2 20	3 10	4 25	6 50	15 00	18 00	25 00
Air Caps.....				1 20	1 30	1 50	2 00				
Roof Connections.....				50	80	1 00	1 20	2 00			
Brass Sold'g Nipples.....	42	63	84	1 17	2 34	4 00					
Running Traps.....				2 40	3 50	5 00	8 00	15 00	20 00	25 00	
S Traps.....				3 50	4 00	6 50	10 00	20 00	25 00		
Half S Traps.....				2 25	3 00	4 50	7 50	14 00	18 00	22 00	

Size.....	1 1/2	2	2x1 1/2	3	3x2	4	4x2	4x3	5	5x2
Plain Tee.....	75	90	90	1 40	1 40	2 30	2 30	2 30	4 00	4 00
Reducer.....					1 00		1 50	1 50		2 00
Size.....	5x3	5x4	6	6x4	6x5	7	8	8x6	10	
Plain Tee.....	4 00		6 00	6 00		9 00	12 00		18 00	
Reducer.....	2 00	2 00		3 00	3 00			5 00		

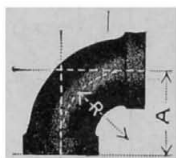
Galvanized Fittings at double List prices.

Size.....								3	4	5x4	6x4
Closet T, with 2" Right Hand Inlet on side, and 2" Top Inlet, .....											
" " 2" Left " " 2" " .....									5 50	7 00	9 00
" " 2" Inlets on Both Sides, " " 2" " .....									5 50	7 00	9 00
" " 2" Right Hand Inlet on Side, .....									6 00	7 50	10 00
" " 2" Left " " .....								3 00	3 50	6 50	8 00
" " 2" Inlets on Both Sides, .....								3 00	3 50	6 50	8 00
								3 50	4 00	7 00	10 00
Size.....	2x1 1/2	3x2	4x2	4x3	5x2	5x3	5x4	6x2	6x4	6x5	8x4
Y Branches, 45° Reducing..	1 00	1 70	2 00	2 60	3 50	3 50	3 50	5 50	5 50	5 50	15 00
Y " 45° Dble " " .....	1 30	2 20	3 10	4 25							
Y " 60° " " .....	1 00	1 70	2 00	2 60	4 50	4 50	4 50	7 00	7 00	7 00	15 00
Size.....	3x2	4x2	4x3	5x2	5x3	5x4	6x2	6x4	6x5		
TY Branch 90° Reducing.....	2 25	3 50	3 50	5 50	5 50	5 50	7 00	7 00	7 00		
Size.....			2	3	4	5	Outlet, Inlet 4x4	6	Outlet, Inlet 6x5		
3 Way Elbow, .....	1 30	2 20	3 10	4 25				6 50	6 50		
Cross, .....	1 95	3 00	4 00	6 50	8 50			8 50	8 50		
Size.....			4	4x5							
Closet Elbow, with Flange, 10 inch diameter..	2 50										
Closet Elbow, .....											
Closet Flange, Iron, 10 inch diameter, .....											
Closet Flange, Brass, 7 1/2 inch diameter, .....											

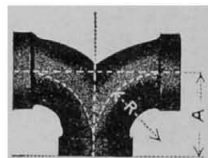
Galvanized Fittings at double List prices.

## LONG TURN FITTINGS.

SCREWED FOR WROUGHT IRON PIPE.



NO. 1



NO. 2

SIZE, Inches.	A inches.	R Inches.	Price, Each.	SIZE, Inches.	A Inches.	R Inches.	Price, Each.
1	2 $\frac{3}{8}$	1 $\frac{3}{4}$	.32	1	2 $\frac{3}{8}$	1 $\frac{3}{4}$	.64
1 $\frac{1}{4}$	2 $\frac{3}{4}$	2	.40	1 $\frac{1}{4}$	2 $\frac{3}{4}$	2	.80
1 $\frac{1}{2}$	3	2 $\frac{3}{8}$	.55	1 $\frac{1}{2}$	3	2 $\frac{1}{8}$	1.10
2	3 $\frac{5}{8}$	2 $\frac{1}{2}$	.80	2	3 $\frac{5}{8}$	2 $\frac{1}{2}$	1.60
2 $\frac{1}{2}$	4 $\frac{3}{8}$	3 $\frac{1}{8}$	1.20	2 $\frac{1}{2}$	4 $\frac{3}{8}$	3 $\frac{1}{8}$	2.40
3	5	4 $\frac{1}{8}$	2.25	3	5	4 $\frac{1}{8}$	4.50
3 $\frac{1}{2}$	5 $\frac{5}{8}$	4 $\frac{3}{4}$	3.25	3 $\frac{1}{2}$	5 $\frac{5}{8}$	4 $\frac{3}{4}$	6.50
4	6 $\frac{1}{8}$	5 $\frac{3}{8}$	3.50	4	6 $\frac{1}{8}$	5 $\frac{3}{8}$	7.00
4 $\frac{1}{2}$	7	5 $\frac{1}{2}$	5.50	4 $\frac{1}{2}$	7	5 $\frac{1}{2}$	11.00
5	7 $\frac{3}{4}$	6 $\frac{1}{2}$	6.50	5	7 $\frac{3}{4}$	6 $\frac{1}{2}$	13.00
6	9	7 $\frac{3}{4}$	8.75	6	9	7 $\frac{3}{4}$	17.50
7	10 $\frac{1}{4}$	8 $\frac{7}{8}$	13.00	7	10 $\frac{1}{4}$	8 $\frac{7}{8}$	26.00
8	11 $\frac{5}{8}$	10	17.00	8	11 $\frac{5}{8}$	10	31.00
9	12 $\frac{3}{4}$	11	25.50	9	12 $\frac{3}{4}$	11	51.00
10	14	13	30.00	10	14	13	60.00
12	15 $\frac{1}{2}$	13 $\frac{1}{2}$	40.00	12	15 $\frac{1}{2}$	13 $\frac{1}{2}$	80.00
14	17 $\frac{1}{2}$	15 $\frac{1}{2}$	60.00	14	17 $\frac{1}{2}$	15 $\frac{1}{2}$	120.00
15	19	16 $\frac{5}{8}$	85.00	15	19	16 $\frac{5}{8}$	170.00

These Fittings are made in reducing sizes by filling up ends, thus avoiding the use of screwed bushings. Dimensions remain same as above. For price, add 50 per cent. to above list.

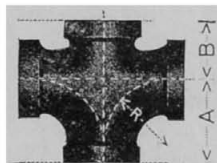


## LONG TURN FITTINGS.

SCREWED FOR WROUGHT IRON PIPE.



NO. 3



NO. 4

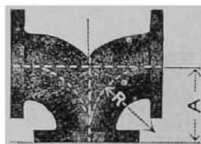
SIZE. Inches.	A Inches.	B Inches.	R Inches.	Price, Each.	SIZE. Inches.	A Inches.	B Inches.	R Inches.	Price, Each.
1	2 3/8	1 1/8	1 3/4	.48	1	2 3/8	1 1/8	1 3/4	.85
1 1/4	2 3/4	2	2	.60	1 1/4	2 3/4	2	2	1.10
1 1/2	3	2 3/8	2 3/8	.82	1 1/2	3	2 3/8	2 3/8	1.50
2	3 5/8	2 7/8	2 1/2	1.20	2	3 5/8	2 7/8	2 1/2	2.15
2 1/2	4 3/8	3	3 1/8	1.80	2 1/2	4 3/8	3	3 1/8	3.20
3	5	3 1/4	4 3/8	3.40	3	5	3 1/4	4 3/8	6.00
3 1/2	5 5/8	3 3/8	4 3/4	4.90	3 1/2	5 5/8	3 3/8	4 3/4	8.75
4	6 3/8	4 1/8	5 5/8	5.25	4	6 3/8	4 1/8	5 5/8	9.50
4 1/2	7	4 1/4	5 1/2	8.25	4 1/2	7	4 1/4	5 1/2	15.00
5	7 3/4	4 3/8	6 1/2	9.75	5	7 3/4	4 3/8	6 1/2	17.50
6	9	5 1/8	7 3/4	13.25	6	9	5 1/8	7 3/4	24.00
7	10 1/4	6 1/8	8 3/8	19.50	7	10 1/4	6 1/8	8 3/8	35.00
8	11 5/8	6 1/4	10	25.50	8	11 5/8	6 1/4	10	45.00
9	12 3/4	7 1/2	11	38.00	9	12 3/4	7 1/2	11	68.00
10	14	7 1/2	13	45.00	10	14	7 1/2	13	80.00
12	15 1/2	9 1/2	13 1/2	60.00	12	15 1/2	9 1/2	13 1/2	107.00
14	17 1/2	10 1/2	15 1/2	90.00	14	17 1/2	10 1/2	15 1/2	150.00
15	19	11 1/2	16 5/8	127.00	15	19	11 1/2	16 5/8	210.00

These Fittings are made in reducing sizes by filling up ends, thus avoiding the use of screwed bushings. Dimensions remain same as above. For price, add 50 per cent. to above list.

## LONG TURN FLANGED FITTINGS.



NO. 1

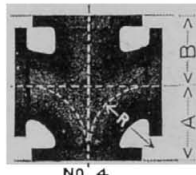
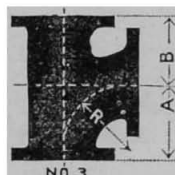


NO. 2

SIZE. Inches.	A Inches.	R Inches.	Faced.	Faced and Drilled.	SIZE. Inches.	A Inches.	R Inches.	Faced.	Faced and Drilled.	Reducing Faced.	Reducing Faced and Drilled.
2	4	2 <sup>5</sup> / <sub>8</sub>	5.25	6.25	2	4	2 <sup>5</sup> / <sub>8</sub>	8.00	9.50	9.25	10.75
2½	4½	3 <sup>7</sup> / <sub>8</sub>	5.50	6.75	2½	4½	3 <sup>7</sup> / <sub>8</sub>	8.25	10.00	9.50	11.25
3	5	4 <sup>1</sup> / <sub>8</sub>	6.50	7.75	3	5	4 <sup>1</sup> / <sub>8</sub>	9.50	11.25	11.00	12.75
3½	5½	4¾	7.50	8.75	3½	5½	4¾	11.00	12.75	12.50	14.25
4	6 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>8</sub>	8.00	10.00	4	6 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>8</sub>	12.00	15.00	13.75	16.75
4½	6½	5 <sup>1</sup> / <sub>2</sub>	10.00	12.00	4½	6½	5 <sup>1</sup> / <sub>2</sub>	15.00	18.00	17.25	20.25
5	7 <sup>1</sup> / <sub>8</sub>	6½	11.00	13.00	5	7 <sup>1</sup> / <sub>8</sub>	6½	16.25	19.25	18.75	21.75
6	8 <sup>5</sup> / <sub>8</sub>	7¾	13.25	15.50	6	8 <sup>5</sup> / <sub>8</sub>	7¾	20.00	23.00	23.00	26.00
7	9 <sup>7</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	17.50	21.00	7	9 <sup>7</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	26.50	32.00	30.00	35.50
8	11 <sup>1</sup> / <sub>8</sub>	10	22.00	26.00	8	11 <sup>1</sup> / <sub>8</sub>	10	33.50	39.00	38.50	44.00
9	12 <sup>3</sup> / <sub>8</sub>	11	29.00	33.00	9	12 <sup>3</sup> / <sub>8</sub>	11	43.50	50.00	50.00	56.50
10	13 <sup>7</sup> / <sub>8</sub>	13	36.00	40.00	10	13 <sup>7</sup> / <sub>8</sub>	13	53.50	60.00	61.50	68.00
12	15 <sup>1</sup> / <sub>8</sub>	13½	49.00	55.00	12	15 <sup>1</sup> / <sub>8</sub>	13½	74.00	83.00	85.00	94.00
14	16¾	15½	64.00	71.00	14	16¾	15½	96.00	107.00	110.00	121.00
15	17¾	16¾	80.00	88.00	15	17¾	16¾	120.00	132.00	138.00	150.00
16	18½	17	94.00	103.00	16	18½	17	140.00	153.00	160.00	173.00
18	20½	19	120.00	130.00	18	20½	19	178.00	193.00	205.00	220.00
20	22¾	21	150.00	164.00	20	22¾	21	225.00	245.00	258.00	278.00
22	24¾	23	180.00	200.00	22	24¾	23	265.00	295.00	305.00	335.00
24	26½	24½	225.00	245.00	24	26½	24½	335.00	365.00	385.00	415.00

Dimensions of flanges, bolt circle, number and size of bolts, same as for standard flanged fittings.

## LONG TURN FLANGED FITTINGS.



SIZE. Inches	A Inches	B Inches	R Inches	Faced.	Faced and Drilled.	Reducing Faced.	Reducing Faced and Drilled.	SIZE. Inches	Dimen- sions.	Faced.	Faced and Drilled.	Reducing Faced.	Reducing Faced and Drilled.
2	4	4	2 $\frac{5}{8}$	8.00	9.50	9.25	10.75	2	Dimensions, A, B and R, same as given for No. 3.	11.00	13.00	12.75	14.75
2 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	3 $\frac{1}{8}$	8.25	10.00	9.50	11.25	2 $\frac{1}{2}$		12.50	15.00	14.50	17.00
3	5	5	4 $\frac{1}{8}$	9.50	11.25	11.00	12.75	3		15.00	17.50	17.00	19.50
3 $\frac{1}{2}$	5 $\frac{1}{8}$	5 $\frac{1}{8}$	4 $\frac{3}{8}$	11.00	12.75	12.50	14.25	3 $\frac{1}{2}$		17.50	20.00	19.75	22.50
4	6 $\frac{1}{8}$	6 $\frac{1}{8}$	5 $\frac{3}{8}$	12.00	15.00	13.75	16.75	4		20.00	24.00	23.00	27.00
4 $\frac{1}{2}$	6 $\frac{3}{4}$	6 $\frac{1}{8}$	5 $\frac{1}{2}$	15.00	18.00	17.25	20.25	4 $\frac{1}{2}$		24.00	28.00	27.00	31.00
5	7 $\frac{1}{8}$	6 $\frac{3}{8}$	6 $\frac{3}{8}$	16.25	19.25	18.75	21.75	5		27.00	31.00	30.00	34.00
6	8 $\frac{3}{8}$	7 $\frac{3}{8}$	7 $\frac{3}{8}$	20.00	23.00	23.00	26.00	6		35.00	39.00	38.00	42.00
7	9 $\frac{3}{8}$	6 $\frac{3}{4}$	8 $\frac{3}{8}$	26.50	32.00	30.00	35.50	7		45.00	52.00	50.00	57.00
8	11 $\frac{1}{8}$	7 $\frac{1}{2}$	10	33.50	39.00	38.50	44.00	8		56.00	64.00	63.00	71.00
9	12 $\frac{1}{8}$	8 $\frac{1}{4}$	11	43.50	50.00	50.00	56.50	9		70.00	78.00	78.00	86.00
10	13 $\frac{1}{8}$	8 $\frac{3}{8}$	13	53.50	60.00	61.50	68.00	10		84.00	92.00	94.00	102.00
12	15 $\frac{1}{8}$	9 $\frac{1}{4}$	13 $\frac{3}{4}$	74.00	83.00	85.00	94.00	12		115.00	127.00	129.00	141.00
14	16 $\frac{3}{8}$	10 $\frac{1}{4}$	15 $\frac{3}{4}$	96.00	107.00	110.00	121.00	14		150.00	164.00	167.00	181.00
15	17 $\frac{3}{8}$	11 $\frac{3}{4}$	16 $\frac{3}{8}$	120.00	132.00	138.00	150.00	15		190.00	205.00	212.00	227.00
16	18 $\frac{1}{2}$	13 $\frac{1}{2}$	17	140.00	153.00	160.00	173.00	16		220.00	237.00	245.00	262.00
18	20 $\frac{1}{2}$	14 $\frac{1}{4}$	19	178.00	193.00	205.00	220.00	18		275.00	295.00	305.00	325.00
20	22 $\frac{3}{4}$	15 $\frac{3}{4}$	21	225.00	245.00	258.00	278.00	20		350.00	375.00	388.00	413.00
22	24 $\frac{3}{4}$	16 $\frac{3}{4}$	23	265.00	295.00	305.00	335.00	22		420.00	460.00	475.00	515.00
24	26 $\frac{1}{2}$	18 $\frac{1}{4}$	24 $\frac{1}{2}$	335.00	365.00	385.00	415.00	24		520.00	560.00	580.00	620.00

Dimensions of flanges, bolt circle, number and size of bolt, same as for standard flanged fittings.  
See page 184.

## STANDARD FLANGED FITTINGS.



ELBOW.



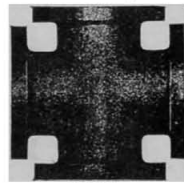
45° ELBOW.

SIZE. Inches.	Centre to Face. Inches.	With Flanges Faced.	With Flanges Faced and Drilled.	SIZE. Inches.	Centre to Face. Inches.	With Flanges Faced.	With Flanges Faced and Drilled.
2	4 $\frac{1}{8}$	4.75	5.75	2	2 $\frac{1}{2}$	5.25	6.25
2 $\frac{1}{2}$	4 $\frac{1}{4}$	5.00	6.25	2 $\frac{1}{2}$	2 $\frac{3}{4}$	5.50	6.75
3	4 $\frac{3}{4}$	5.75	7.00	3	2 $\frac{7}{8}$	6.25	7.50
3 $\frac{1}{2}$	5 $\frac{1}{8}$	6.50	7.75	3 $\frac{1}{2}$	3 $\frac{1}{4}$	7.25	8.50
4	5 $\frac{1}{4}$	7.25	9.25	4	3 $\frac{3}{8}$	8.00	10.00
4 $\frac{1}{2}$	5 $\frac{1}{2}$	9.00	11.00	4 $\frac{1}{2}$	3 $\frac{1}{2}$	10.00	12.00
5	6 $\frac{1}{8}$	9.75	11.75	5	3 $\frac{1}{2}$	10.75	12.75
6	6 $\frac{3}{8}$	12.00	14.00	6	4	13.00	15.00
7	7 $\frac{1}{4}$	16.00	19.75	7	4 $\frac{1}{2}$	16.00	19.75
8	8 $\frac{1}{4}$	20.00	23.75	8	4 $\frac{3}{4}$	20.00	23.75
9	9	26.00	30.00	9	5	26.00	30.00
10	9 $\frac{1}{8}$	32.00	36.00	10	5 $\frac{1}{2}$	32.00	36.00
12	11 $\frac{1}{4}$	44.00	50.00	12	6 $\frac{3}{8}$	44.00	50.00
14	12 $\frac{3}{8}$	58.00	65.00	14	7	58.00	65.00
15	13	72.00	80.00	15	7 $\frac{1}{2}$	72.00	80.00
16	13 $\frac{1}{4}$	84.00	93.00	16	7 $\frac{3}{4}$	84.00	93.00
18	14 $\frac{1}{8}$	108.00	118.00	18	8 $\frac{1}{4}$	108.00	118.00
20	15 $\frac{1}{8}$	135.00	148.00	20	8 $\frac{1}{8}$	135.00	148.00
22	17 $\frac{1}{8}$	160.00	180.00	22	9 $\frac{1}{8}$	160.00	180.00
24	18 $\frac{3}{8}$	200.00	220.00	24	9 $\frac{3}{8}$	200.00	220.00

## STANDARD FLANGED FITTINGS.



TEE

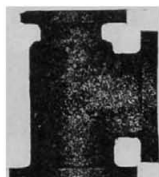


CROSS.

SIZE. Inches.	Face to Face. Inches	Centre to to Face of Outlet. Inches.	With Flanges Faced.	With Flanges Faced and Drilled.	SIZE. Inches.	Face to Face. Inches	With Flanges Faced.	With Flanges Faced and Drilled.	REDUCING CROSSES.	
									With Flanges Faced.	With Flanges Faced and Drilled.
2	8 $\frac{1}{4}$	4 $\frac{1}{2}$	7.00	8.50	2	8 $\frac{1}{4}$	9.50	11.50	11.00	13.00
2 $\frac{1}{2}$	8 $\frac{3}{8}$	4 $\frac{1}{8}$	7.25	9.00	2 $\frac{1}{2}$	8 $\frac{3}{8}$	10.00	12.50	11.50	14.00
3	9 $\frac{1}{2}$	4 $\frac{3}{4}$	8.25	10.00	3	9 $\frac{1}{2}$	11.50	14.00	13.25	15.75
3 $\frac{1}{2}$	10 $\frac{1}{8}$	5 $\frac{1}{8}$	9.50	11.25	3 $\frac{1}{2}$	10 $\frac{1}{8}$	13.00	15.50	15.00	17.50
4	11 $\frac{3}{8}$	5 $\frac{1}{2}$	10.50	13.50	4	11 $\frac{3}{8}$	14.50	18.50	16.75	20.75
4 $\frac{1}{2}$	11 $\frac{5}{8}$	5 $\frac{3}{8}$	13.00	16.00	4 $\frac{1}{2}$	11 $\frac{5}{8}$	18.00	22.00	20.75	25.00
5	12 $\frac{3}{8}$	6 $\frac{3}{8}$	14.25	17.25	5	12 $\frac{3}{8}$	19.50	23.50	22.50	26.50
6	13 $\frac{3}{4}$	6 $\frac{3}{4}$	17.50	20.50	6	13 $\frac{3}{4}$	24.00	28.00	27.50	31.50
7	15 $\frac{3}{8}$	7 $\frac{1}{2}$	23.00	28.75	7	15 $\frac{3}{8}$	32.00	39.50	37.00	45.00
8	16 $\frac{1}{2}$	8 $\frac{1}{4}$	29.00	34.75	8	16 $\frac{1}{2}$	40.00	47.50	46.00	53.50
9	18	9	38.00	44.00	9	18	52.00	60.00	60.00	68.00
10	19 $\frac{1}{8}$	9 $\frac{3}{8}$	46.50	52.50	10	19 $\frac{1}{8}$	64.00	72.00	74.00	82.00
12	22 $\frac{1}{2}$	11 $\frac{1}{4}$	64.00	73.00	12	22 $\frac{1}{2}$	88.00	100.00	100.00	112.00
14	24 $\frac{3}{4}$	12 $\frac{3}{8}$	84.00	95.00	14	24 $\frac{3}{4}$	116.00	130.00	132.00	146.00
15	26	13	105.00	117.00	15	26	144.00	160.00	165.00	180.00
16	27 $\frac{3}{8}$	13 $\frac{1}{2}$	122.00	135.00	16	27 $\frac{3}{8}$	168.00	186.00	193.00	210.00
18	29 $\frac{1}{8}$	14 $\frac{3}{8}$	155.00	170.00	18	29 $\frac{1}{8}$	216.00	236.00	248.00	268.00
20	31 $\frac{3}{8}$	15 $\frac{1}{4}$	195.00	215.00	20	31 $\frac{3}{8}$	270.00	296.00	310.00	335.00
22	34 $\frac{1}{8}$	17 $\frac{1}{8}$	230.00	260.00	22	34 $\frac{1}{8}$	320.00	360.00	370.00	410.00
24	36 $\frac{1}{4}$	18 $\frac{3}{8}$	290.00	320.00	24	36 $\frac{1}{4}$	400.00	440.00	460.00	500.00

Dimensions for reducing Crosses can be obtained from tables of reducing Tees on page 176.

## STANDARD FLANGED FITTINGS.



TEE REDUCED ON END.



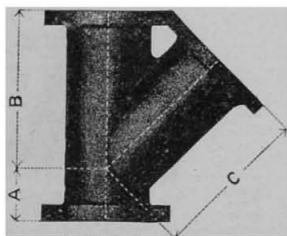
TEE REDUCED ON SIDE.

SIZE, Inches	Face to Face, Inches.	Centre to Face of Outlet Inches.	With Flanges Faced.	With Flanges Faced and Drilled.	SIZE, Inches	Face to Face, Inches.	Centre to Face of Outlet, Inches.	With Flanges Faced.	With Flanges Faced and Drilled.
2	8 1/4	4 1/8	8.00	9.50	2	4 1/8	8.00	9.50	
2 1/2	8 3/8	4 7/16	8.25	10.00	2 1/2	4 7/16	8.25	10.00	
3	9 1/2	4 1/4	9.50	11.25	3	4 3/4	9.50	11.25	
3 1/2	10 5/8	5 1/8	11.00	12.75	3 1/2	5 1/8	11.00	12.75	
4	11 3/8	5 1/2	12.00	15.00	4	5 1/2	12.00	15.00	
4 1/2	11 5/8	5 3/4	15.00	18.00	4 1/2	5 3/4	15.00	18.00	
5	12 3/8	6 1/8	16.25	19.25	5	6 1/8	16.25	19.25	
6	13 3/4	6 7/8	20.00	23.00	6	6 7/8	20.00	23.00	
7	15 3/8	7 1/2	26.50	32.00	7	7 1/2	26.50	32.00	
8	16 1/4	8 1/4	33.50	39.00	8	8 1/4	33.00	39.00	
9	18	9	43.50	50.00	9	9	43.50	50.00	
10	19 3/8	9 7/8	53.50	60.00	10	9 7/8	53.50	60.00	
12	22 1/2	11 1/4	74.00	83.00	12	11 1/4	74.00	83.00	
14	24 1/4	12 3/8	96.00	107.00	14	12 3/8	96.00	107.00	
15	26	13	120.00	132.00	15	13	120.00	132.00	
16	27 3/8	13 1/2	140.00	153.00	16	13 1/2	140.00	153.00	
18	29 1/8	14 7/16	178.00	193.00	18	14 7/16	178.00	193.00	
20	31 8	15 1/2	225.00	245.00	20	15 1/2	225.00	245.00	
22	34 1/4	17 1/8	265.00	295.00	22	17 1/8	265.00	295.00	
24	36 1/4	18 3/8	335.00	365.00	24	18 3/8	335.00	365.00	

Add together the diameter of flange on outlet, and the thickness of the two flanges on run plus the following: On sizes 2 1/2" to 5" inclusive, 1/2 inch. 6" to 10" inclusive, 3/4 inch. 12" and larger, 1 inch. For diameter and thickness of flanges, see page 184.

Dimensions for reducing Crosses can be obtained from above tables by adding for the branch.

## STANDARD FLANGED FITTINGS.



Y BRANCH.



COMPANION FLANGE.

SIZE Inches	A Inches	B or C Inches	With Flanges Faced.	With Flanges Faced and Drilled.	REDUCING "Ys."		Size. Inches.	A Inches	Faced.	Faced and Drilled.	Faced, Drilled and Bolted On.
					With Flanges Faced.	With Flanges Faced and Drilled.					
2	1 1/8	7 1/8	9.50	11.50	11.00	13.00	2 x 6	1 1/8	1.20	1.50	1.90
2 1/2	1 1/2	8 1/2	10.00	12.50	11.50	14.00	2 1/2 x 7	1	1.40	2.00	2.50
3	2 1/4	9 1/8	11.50	14.00	13.25	15.75	3 x 7 1/2	1 1/2	1.60	2.25	2.75
3 1/2	2 3/8	10 1/4	13.00	15.50	15.00	17.50	3 1/2 x 8 1/2	1 7/8	1.80	2.50	3.00
4	2 9/16	11	14.50	18.50	16.75	20.75	4 x 9	1 1/2	2.15	3.00	3.65
4 1/2	2 1/2	11 1/4	18.00	22.00	20.75	25.00	4 1/2 x 9 1/4	1 3/4	2.50	3.35	4.60
5	2 3/4	12 1/4	19.50	23.50	22.50	26.50	5 x 10	1 3/4	2.80	3.65	4.90
6	3 1/8	13 1/8	24.00	28.00	27.50	31.50	6 x 11	1 7/8	3.20	4.00	5.25
7	3 1/2	15 1/8	32.00	39.50	37.00	45.00	7 x 12 1/2	1 7/8	4.35	5.75	7.00
8	3 3/8	16 1/8	40.00	47.50	46.00	53.50	8 x 13 1/2	1 7/8	5.00	6.50	7.80
9	4 1/8	18	52.00	60.00	60.00	68.00	9 x 15	1 3/4	6.75	8.25	10.00
10	4 1/2	19 1/4	64.00	72.00	74.00	82.00	10 x 16	1 1/2	7.75	9.25	12.00
12	5 1/8	22 3/8	88.00	100.00	100.00	112.00	12 x 19	1 1/2	10.50	12.50	15.25
14	5 3/8	25 3/8	116.00	130.00	132.00	146.00	14 x 21	1 3/4	13.75	16.00	20.00
15	6	26 3/8	144.00	160.00	165.00	180.00	15 x 22 1/4	2 1/8	18.00	21.00	26.00
16	6 1/8	28 3/8	168.00	186.00	193.00	210.00	16 x 23 1/4	2 1/4	22.50	26.00	31.00
18	6 3/8	30 1/4	216.00	236.00	243.00	268.00	18 x 25	2 3/8	27.50	31.00	38.00
20	7 1/8	33 1/4	270.00	296.00	310.00	335.00	20 x 27 1/2	2 3/8	30.00	34.00	43.00
22	7 3/8	35 1/4	320.00	360.00	370.00	410.00	22 x 29 1/2	2 1/2	33.75	39.00	49.00
24	8 1/2	38 3/8	400.00	410.00	460.00	500.00	24 x 32	3	41.00	46.00	56.00

For diameter of bolt circle, number and size of bolts, thickness of flanges, etc., see page 181.

## EXTRA HEAVY FLANGED FITTINGS.



ELBOW.

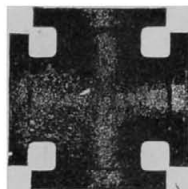


45° ELBOW.

SIZE. Inches.	Centre to Face. Inches.	With Flanges Faced.	With Flanges Faced and Drilled.	SIZE. Inches.	Centre to Face. Inches.	With Flanges Faced.	With Flanges Faced and Drilled.
2	5¼	7.00	8.50	2	3	7.75	9.00
2½	5¾	7.75	9.25	2½	3¼	8.50	10.00
3	6¼	8.75	10.50	3	3¾	9.50	11.00
3½	6¾	9.75	11.50	3½	4	10.75	12.50
4	7	10.75	13.50	4	4¼	12.00	15.00
4½	7½	13.50	16.50	4½	4½	15.00	18.00
5	8	15.00	17.75	5	4¾	16.50	19.50
6	8½	18.00	21.00	6	5¼	19.50	22.50
7	9½	24.00	28.00	7	5¾	24.00	28.00
8	10	30.00	35.00	8	6	30.00	35.00
9	10¾	39.00	45.00	9	6¼	39.00	45.00
10	11½	48.00	54.00	10	6½	48.00	54.00
12	12¾	66.00	75.00	12	7¼	66.00	75.00
14	14½	87.00	97.00	14	8¼	87.00	97.00
15	15	108.00	120.00	15	8¾	108.00	120.00
16	15½	125.00	140.00	16	9	125.00	140.00
18	17	160.00	175.00	18	9½	160.00	175.00
20	18	200.00	220.00	20	10¼	200.00	220.00
22	19½	240.00	270.00	22	11	240.00	270.00
24	21	300.00	330.00	24	11½	300.00	330.00



## EXTRA HEAVY FLANGED FITTINGS.

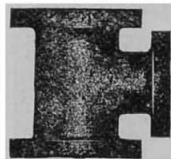


TEE.					CROSS.					
SIZE. Inches.	Face to Face, Inches.	Centre to Face of Outlet, Inches.	With Flanges Faced.	With Flanges Faced and Drilled.	SIZE. Inches.	Face to Face, Inches.	With Flanges Faced.	With Flanges Faced and Drilled.	REDUCING CROSSES.	
									With Flanges Faced.	With Flanges Faced and Drilled.
2	10 1/4	5 1/4	10.50	12.50	2	10 1/4	14.00	17.00	16.50	19.50
2 1/2	11 1/4	5 3/4	11.50	13.50	2 1/2	11 1/4	15.50	18.50	18.00	20.50
3	12 1/4	6 1/4	12.50	15.00	3	12 1/4	17.50	21.00	20.50	23.50
3 1/2	13 1/4	6 3/4	14.50	17.00	3 1/2	13 1/4	19.50	23.00	22.50	26.00
4	14	7	16.00	20.00	4	14	21.50	27.00	25.50	31.00
4 1/2	15	7 1/2	19.50	24.00	4 1/2	15	27.00	33.00	31.00	37.00
5	16	8	21.00	26.00	5	16	30.00	36.00	34.00	40.00
6	17	8 1/2	26.00	31.00	6	17	36.00	42.00	41.00	47.00
7	19	9 1/2	34.00	42.00	7	19	48.00	59.00	55.00	66.00
8	20	10	43.00	51.00	8	20	60.00	70.00	70.00	80.00
9	21 1/2	10 3/4	57.00	66.00	9	21 1/2	78.00	90.00	90.00	102.00
10	23	11 1/4	70.00	78.00	10	23	96.00	108.00	110.00	122.00
12	25 1/2	12 3/4	96.00	110.00	12	25 1/2	132.00	150.00	150.00	168.00
14	29	14 1/4	125.00	140.00	14	29	174.00	194.00	198.00	218.00
15	30	15	157.00	172.00	15	30	215.00	240.00	245.00	270.00
16	31	15 1/2	185.00	200.00	16	31	250.00	280.00	285.00	315.00
18	34	17	230.00	250.00	18	34	320.00	350.00	372.00	402.00
20	36	18	290.00	320.00	20	36	400.00	440.00	465.00	505.00
22	39	19 1/2	345.00	375.00	22	39	480.00	540.00	555.00	615.00
24	42	21	435.00	475.00	24	42	600.00	660.00	690.00	750.00

## EXTRA HEAVY FLANGED FITTINGS.



TEE REDUCED ON END.



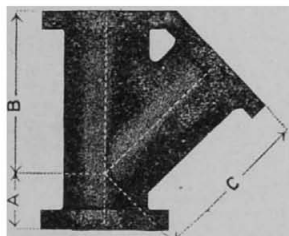
TEE REDUCED ON SIDE.

SIZE. Inches	Face to Face. Inches.	Centre to Face of Outlet. Inches.	With Flanges Faced.	With Flanges Faced and Drilled.	SIZE. Inches	Face to Face. Inches.	Center to Face of Outlet. Inches.	With Flanges Faced.	With Flanges Faced and Drilled.
2	10 1/4	5 1/4	12.00	14.00	2	5 1/4	12.00	14.00	
2 1/2	11 1/4	5 3/4	13.00	15.00	2 1/2	5 3/4	13.00	15.00	
3	12 1/4	6 1/4	14.50	17.00	3	6 1/4	14.50	17.00	
3 1/2	13 1/4	6 3/4	16.50	19.00	3 1/2	6 3/4	16.50	19.00	
4	14	7	18.00	22.00	4	7	18.00	22.00	
4 1/2	15	7 1/2	22.50	27.00	4 1/2	7 1/2	22.50	27.00	
5	16	8	24.50	30.00	5	8	24.50	30.00	
6	17	8 1/2	30.00	35.00	6	8 1/2	30.00	35.00	
7	19	9 1/2	40.00	48.00	7	9 1/2	40.00	48.00	
8	20	10	50.00	58.00	8	10	50.00	58.00	
9	21 1/4	10 3/4	65.00	74.00	9	10 3/4	65.00	74.00	
10	23	11 1/2	80.00	88.00	10	11 1/2	80.00	88.00	
12	25 1/4	12 3/4	110.00	124.00	12	12 3/4	110.00	124.00	
14	29	14 1/2	145.00	160.00	14	14 1/2	145.00	160.00	
15	30	15	180.00	195.00	15	15	180.00	195.00	
16	31	15 1/2	210.00	225.00	16	15 1/2	210.00	225.00	
18	34	17	265.00	285.00	18	17	265.00	285.00	
20	36	18	340.00	370.00	20	18	340.00	370.00	
22	39	19 1/2	400.00	430.00	22	19 1/2	400.00	430.00	
24	42	21	500.00	540.00	24	21	500.00	540.00	

NOTE.—All fittings 8" and larger with branch less than 8", have same dimensions face to face and centre to face as fittings with 8" branch. All fittings 7" and smaller, having reducing branch, have same dimensions face to face and centre to face as the straight fitting.

For dimensions of large reducing fittings see table on page 183. Write for discounts.

## EXTRA HEAVY FLANGED FITTINGS.

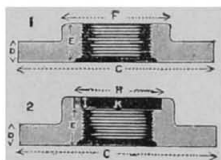


Y BRANCH.

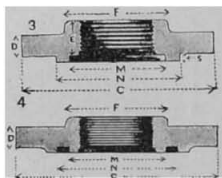
SIZE. Inches.	A Inches.	B or C Inches.	With Flanges Faced.	With Flanges Faced and Drilled.	REDUCING "Ys."	
					With Flanges Faced.	With Flanges Faced and Drilled.
2	2¼	8½	14.00	17.00	16.50	19.50
2½	2½	9	15.50	18.50	18.00	20.50
3	3	10½	17.50	21.00	20.50	23.50
3½	3¼	11	19.50	23.00	22.50	26.00
4	3½	12	21.50	27.00	25.50	31.00
4½	3¾	12¼	27.00	33.00	31.00	37.00
5	4	13¼	30.00	36.00	34.00	40.00
6	4¼	15¼	36.00	42.00	41.00	47.00
7	4½	17	48.00	59.00	55.00	66.00
8	4¾	18¼	60.00	70.00	70.00	80.00
9	5¼	19¾	78.00	90.00	90.00	102.00
10	5½	21	96.00	108.00	110.00	122.00
12	6¼	24	132.00	150.00	150.00	168.00
14	6½	27¼	174.00	194.00	198.00	218.00
15	7	28¾	215.00	240.00	245.00	270.00
16	7¾	30½	250.00	280.00	285.00	315.00
18	8¼	32¼	320.00	350.00	372.00	402.00
20	8½	35	400.00	440.00	465.00	505.00
22	9¼	38	480.00	540.00	555.00	615.00
24	10	41	600.00	660.00	690.00	750.00

Reducing Ys have same dimensions "A," "B" and "C" as straight sizes.

## EXTRA HEAVY FLANGED FITTINGS.



COMPANION FLANGES.



COMPANION FLANGES.

SIZES. Inches.	NUMBERS 1 AND 2.			NUMBERS 3 AND 4.		
	Faced.	Faced and Drilled.	Faced, Drilled and Bolted On.	Faced.	Faced and Drilled.	Faced, Drilled and Bolted On.
2 x 6½	1.50	2.00	2.50	2.00	2.50	3.00
2½ x 7½	2.00	2.50	3.00	2.50	3.00	3.50
3 x 9	2.25	3.00	3.50	3.00	3.75	4.25
3½ x 9	2.50	3.50	4.25	3.50	4.50	5.25
4 x 10	3.00	4.00	5.00	4.00	5.00	6.00
4½ x 10½	3.50	4.50	6.00	4.50	5.50	7.00
5 x 11	3.75	5.00	6.75	5.00	6.25	8.00
6 x 13	4.25	5.75	7.75	5.75	7.25	9.25
7 x 14	5.75	7.25	9.50	7.25	8.75	11.00
8 x 15	6.50	8.25	10.75	8.25	10.00	12.50
9 x 16	8.25	10.00	14.00	10.00	12.00	16.00
10 x 17½	9.25	11.50	17.00	11.50	13.50	19.00
12 x 20	12.50	15.00	21.00	15.00	17.50	24.00
14 x 23	16.00	18.50	28.00	18.50	21.00	31.00
15 x 23½	20.00	23.00	33.00	23.00	26.00	36.00
16 x 25	25.00	28.50	39.00	28.50	32.00	42.50
18 x 27½	32.00	36.00	48.00	36.00	40.00	52.00
20 x 29	36.00	40.00	56.00	40.00	44.00	60.00
22 x 31	40.00	45.00	62.00	45.00	50.00	68.00
24 x 34	50.00	56.00	75.00	56.00	62.00	81.00

For thickness of flanges, diameter of bolt circle, etc., see table

DIMENSIONS OF FLANGES AND REDUCING FLANGED FITTINGS.

For dimensions of smaller reducing fittings, see note page "

FACE TO FACE "A."	42	39	36	34	31	30	29	25½	23	21½	20	Center to Face B.
24x10	24x10	24x10	24x10	24x10	24x10	24x10	24x10	24x10	24x10	24x10	24x10	21
24x18	24x18	24x18	24x18	24x18	24x18	24x18	24x18	24x18	24x18	24x18	24x18	19½
20	20	20	20	20	20	20	20	20	20	20	20	18
18x12	18x12	18x12	18x12	18x12	18x12	18x12	18x12	18x12	18x12	18x12	18x12	17
16x8	16x8	16x8	16x8	16x8	16x8	16x8	16x8	16x8	16x8	16x8	16x8	15½
15x8	15x8	15x8	15x8	15x8	15x8	15x8	15x8	15x8	15x8	15x8	15x8	15
14x8	14x8	14x8	14x8	14x8	14x8	14x8	14x8	14x8	14x8	14x8	14x8	14½
13x8	13x8	13x8	13x8	13x8	13x8	13x8	13x8	13x8	13x8	13x8	13x8	13½
10x8	10x8	10x8	10x8	10x8	10x8	10x8	10x8	10x8	10x8	10x8	10x8	11½
10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½
8	8	8	8	8	8	8	8	8	8	8	8	8

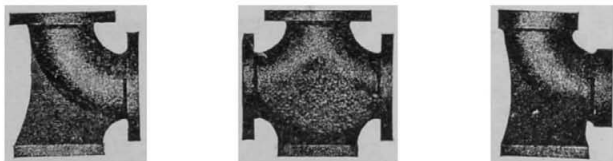
2	2½	3	3½	4	4½	5	6	7	8	9	10	12	14	15	16	18	20	22	24
6½	7½	9	10	10½	11	11	13	14	15	16	17½	20	21	23½	25	27½	29	31	34
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾	6-¾
5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾	5-¾
2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

## STANDARD SIZES OF FLANGES.

Adopted July 18, 1894.

Type size, inches	Type thickness	$\frac{P \times 100}{4t} = \frac{333}{t} - 1$ S. 1500 lbs	Thickness, inches	Stress on pipe per square inch at 200 lbs	Radius of fillet, inches	Flange diameter, inches	Flange thickness, inches	Flange thickness, inches	Width flange face, inches	Bolt circle diameter, inches	Number of bolts	Bolt size diameters, inches	Bolt length, inches	Stress on each bolt, at bottom of thread, per square inch, at 200 lbs.
2	409	21	2	496	3/4	6	3/4	2	4 1/2	4	4	3/8	2	525
2 1/2	429	21	2 1/2	550	3/4	7	3/4	2 1/2	2 1/2	5 1/2	4	3/8	2 1/2	1,050
3	448	21	3	609	3/4	7 3/4	3/4	2 3/4	2 3/4	6	4	3/8	2 3/4	1,575
3 1/2	466	21	3 1/2	702	3/4	8 1/4	3/4	2 3/4	2 3/4	7	4	3/8	2 3/4	2,350
4	486	21	4	800	3/4	9	3/4	2 3/4	2 3/4	7 1/2	4	3/8	2 3/4	2,100
4 1/2	495	21	4 1/2	900	3/4	9 1/4	3/4	2 3/4	2 3/4	7 1/2	8	3/8	3	1,430
5	515	21	5	1,000	3/4	10	3/4	2 3/4	2 3/4	8 1/2	8	3/8	3	1,630
5 1/2	533	21	5 1/2	1,090	3/4	11	3/4	2 1/2	2 1/2	9 1/2	8	3/8	3 1/2	2,360
6	560	21	6	1,120	3/4	12 1/2	3/4	2 1/2	2 1/2	10 1/2	8	3/8	3 1/2	3,200
7	619	21	7	1,250	3/4	13 3/4	3/4	2 1/2	2 1/2	11 1/2	8	3/8	3 1/2	3,490
8	678	21	8	1,310	3/4	15	3/4	3	3	13 1/4	12	3/8	3 1/2	3,610
9	713	21	9	1,370	3/4	16	3/4	3	3	14 1/4	12	3/8	3 1/2	2,970
10	750	21	10	1,470	3/4	19	3/4	3 1/2	3 1/2	17	12	1/2	3 1/2	4,250
12	79	21	12	1,600	3/4	21	3/4	3 1/2	3 1/2	15 1/2	12	7/8	4 1/2	4,250
14	864	21	14	1,600	3/4	22 1/2	3/4	3 1/2	3 1/2	20	16	3/4	4 1/2	3,660
15	904	21	15	1,600	3/4	23 1/2	3/4	3 1/2	3 1/2	21 1/2	16	3/4	4 1/2	4,210
18	1,016	21	18	1,600	3/4	25	3/4	3 1/2	3 1/2	22 1/2	16	1 1/8	4 1/2	4,540
20	1,09	21	20	1,750	3/4	27 1/2	3/4	3 1/2	3 1/2	25	20	1 1/8	5	4,490
22	1,18	21	22	1,850	3/4	29 1/2	3/4	3 1/2	3 1/2	27 1/2	20	1 1/8	5 1/2	4,320
24	1,25	21	24	1,920	3/4	31 3/4	3/4	3 1/2	3 1/2	29 1/2	20	1 1/8	5 1/2	5,130
26	1,30	21	26	1,940	3/4	33 1/2	3/4	2	2	31 1/2	24	1 1/8	5 1/2	5,030
28	1,38	21	28	2,040	3/4	36	3/4	1 3/4	1 3/4	33 1/2	28	1 1/8	6	5,000
30	1,47	21	30	2,000	3/4	38	3/4	1 1/2	1 1/2	35 1/2	28	1 1/8	6 1/2	4,590
36	1,71	21	36	1,920	3/4	44 1/2	3/4	1 1/2	1 1/2	42	32	1 1/8	7 1/2	5,290
42	1,87	21	42	2,100	3/4	51	3/4	2	2	48 1/2	36	1 1/8	7 1/2	5,700
48	2,17	21	48	2,100	1	57 1/2	3/4	2 1/2	2 1/2	54 1/2	44	1 1/8	7 1/2	6,090

## BASE FITTINGS.



We make the above style of Fittings in all sizes, both screwed and flanged. They will be found very convenient where it is necessary to support a long vertical line of pipe on a pier of masonry or other foundation.

*PRICES ON APPLICATION.*

## SPECIAL FLANGES

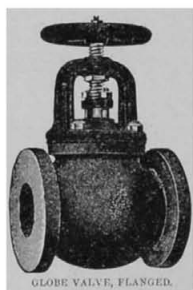
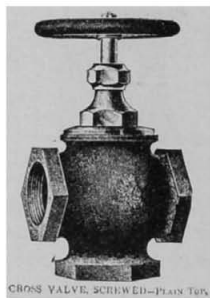
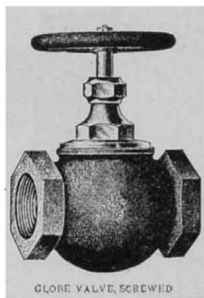
FOR LARGE PIPE AND HIGH PRESSURE.



The above is an illustration of a method we sometimes employ for flanging pipe of 12 inches diameter and larger. The flanges are not threaded, but are bored to fit the pipe with the inside corner of the flange face chamfered off. The end of the pipe is then inserted in the flange and expanded, with the end peened down into the recess in flange. No rivets are used

*PRICES ON APPLICATION.*

## STANDARD IRON BODY VALVES.





## STANDARD IRON BODY, BRASS MOUNTED VALVES.

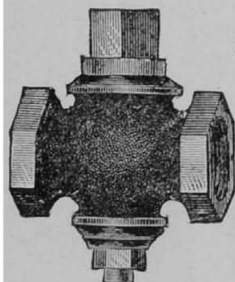
Size	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	10	12	14	16
Yoke Globe and Angle Valves, Sc	7 00	9 00	12 50	15 25	19 30	21 00	27 00	37 50	53 00	72 114	170	350	475				
Yoke Globe and Angle Valves, Fl	8 40	10 15	15 00	18 50	22 50	27 50	31 00	42 00	58 00	77 123	187	350	475				
Globe and Angle Valves, Screwed	3 25	3 75	5 50	7 50	9 50	11 50	14 50	18 50	22 50	27 50	31 00	42 00	58 00	77 123	187	350	475
Globe and Angle Valves, Flanged	3 25	3 83	4 80	6 10	7 10	8 10	9 10	10 10	11 10	12 10	13 10	14 10	15 10	16 10	17 10	18 10	19 10
Yoke Cross Valves, Screwed	3 50	4 11	5 16	6 20	7 25	8 30	9 35	10 40	11 45	12 50	13 55	14 60	15 65	16 70	17 75	18 80	19 85
Yoke Cross Valves, Flanged	3 50	4 11	5 16	6 20	7 25	8 30	9 35	10 40	11 45	12 50	13 55	14 60	15 65	16 70	17 75	18 80	19 85
Cross Valves, Screwed	3 50	4 11	5 16	6 20	7 25	8 30	9 35	10 40	11 45	12 50	13 55	14 60	15 65	16 70	17 75	18 80	19 85
Cross Valves, Flanged	3 50	4 11	5 16	6 20	7 25	8 30	9 35	10 40	11 45	12 50	13 55	14 60	15 65	16 70	17 75	18 80	19 85
Horizontal Check Valves, Screwed	1 60	2 20	2 65	3 50	4 50	5 25	6 50	8 00	9 25	10 50	12 00	13 25	14 50	15 75	17 00	18 25	19 50
Horizontal Check Valves, Flanged	2 50	3 25	4 00	5 25	6 50	8 00	9 25	10 50	12 00	13 25	14 50	15 75	17 00	18 25	19 50	20 75	22 00
Vertical Check Valves, Screwed	1 60	2 20	2 65	3 50	4 50	5 25	6 50	8 00	9 25	10 50	12 00	13 25	14 50	15 75	17 00	18 25	19 50
Vertical Check Valves, Flanged	2 50	3 25	4 00	5 25	6 50	8 00	9 25	10 50	12 00	13 25	14 50	15 75	17 00	18 25	19 50	20 75	22 00
Angle Check Valves, Screwed	1 50	2 20	2 65	3 50	4 50	5 25	6 50	8 00	9 25	10 50	12 00	13 25	14 50	15 75	17 00	18 25	19 50
Angle Check Valves, Flanged	2 50	3 25	4 00	5 25	6 50	8 00	9 25	10 50	12 00	13 25	14 50	15 75	17 00	18 25	19 50	20 75	22 00
Safety Valves, Screwed	3 50	4 00	5 50	7 50	9 50	11 50	13 50	15 50	17 50	19 50	21 50	23 50	25 50	27 50	29 50	31 50	33 50
Safety Valves, Flanged	5 50	6 25	7 50	9 50	11 50	13 50	15 50	17 50	19 50	21 50	23 50	25 50	27 50	29 50	31 50	33 50	35 50
Angle Safety Valves, Screwed	3 50	4 00	5 50	7 50	9 50	11 50	13 50	15 50	17 50	19 50	21 50	23 50	25 50	27 50	29 50	31 50	33 50
Angle Safety Valves, Flanged	5 50	6 25	7 50	9 50	11 50	13 50	15 50	17 50	19 50	21 50	23 50	25 50	27 50	29 50	31 50	33 50	35 50
Back Pressure Valves, Screwed	9 00	11 00	13 00	15 00	17 00	19 00	21 00	23 00	25 00	27 00	29 00	31 00	33 00	35 00	37 00	39 00	41 00
Back Pressure Valves, Flanged	10 50	12 50	15 00	17 50	20 00	22 50	25 00	27 50	30 00	32 50	35 00	37 50	40 00	42 50	45 00	47 50	50 00
Butterfly Valves, Screwed	6 35	7 00	8 00	9 50	11 00	12 50	14 50	16 50	18 50	20 50	22 50	24 50	26 50	28 50	30 50	32 50	34 50
Butterfly Valves, Flanged	7 50	8 50	9 50	11 50	13 00	14 50	16 50	18 50	20 50	22 50	24 50	26 50	28 50	30 50	32 50	34 50	36 50

## IRON STOP COCKS.

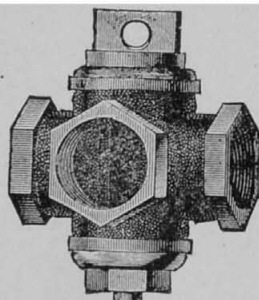
Size	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
All Iron Cocks, Screwed	90	1 05	1 30	1 60	1 95	2 70	4 40	6 75	12 00	15 50	32 00	45 00
Iron Cocks, with Brass Washer, Screwed	1 00	1 20	1 55	1 95	2 35	3 30	5 15	7 75	14 00	19 00	38 00	53 00
Iron Cocks, with Brass Plug, Screwed	1 30	1 60	1 90	2 65	3 75	5 25	8 75	13 00	27 50	36 50	67 00	94 00



IRON  
STOP COCKS.



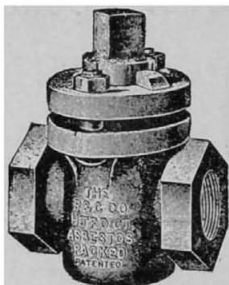
SCREWED ENDS.



THREE-WAY COCK.

Size, Inches,.....	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
All Iron Cocks, Screwed	85	90	1 05	1 30	1 60	1 95	2 70	4 40	6 75	12 00	15 50	32 00	45 00
Iron Cocks, with Brass Washer, Screwed...		1 00	1 20	1 55	1 95	2 35	3 20	5 15	7 75	14 00	19 00	38 00	53 00
Iron Cocks, with Brass Plug, Screwed .....	1 25	1 30	1 60	1 90	2 65	3 75	5 25	8 75	13 00	27 50	36 50	67 00	94 00
Iron Cocks, Brass Plug and Washer, Screwed.	....	1 40	1 75	2 15	3 00	4 15	5 75	9 50	14 00	29 50	40 00	73 00	102 00
All Iron 3-Way Cocks, Screwed. ....	..	..	1 65	1 80	2 05	2 65	3 65	5 35	7 50	14 00	19 00	36 50	52 00
Iron 3-Way Cocks, Brass Washer, Screwed.....	....	..	..	1 80	2 05	2 40	3 05	4 15	6 10	8 50	16 00	22 50	42 50
Iron 3-Way Cocks, Brass Plug, Screwed.....	....	..	..	2 20	2 40	3 10	4 50	6 25	9 75	13 75	30 00	40 00	71 50
Iron 3-Way Cocks, Brass Plug and Washer, Sc..	....	..	..	2 35	2 65	3 45	4 90	6 75	10 50	14 75	32 00	43 50	77 50
All Iron Cocks, Flanged	....	..	..	2 25	2 75	3 25	4 25	6 25	9 50	15 00	19 00	36 00	50 00
Iron Cocks, with Brass Washer, Flanged ....	..	..	..	2 50	3 10	3 65	4 75	7 00	10 50	17 00	22 50	42 00	58 00
Iron Cocks, with Brass Plug, Flanged. ....	....	..	..	3 00	3 75	5 00	7 00	10 50	15 75	30 00	40 00	70 00	100 00
Iron Cocks, Brass Plug and Washer, Flanged.	..	..	..	3 25	4 10	5 40	7 50	11 25	16 75	32 00	43 50	76 00	108 00
All Iron 3 Way Cocks, Flanged. ....	..	..	..	3 75	4 25	5 25	7 00	9 00	12 75	20 00	26 00	44 00	60 00
3-Way Iron Cocks, Brass Washer, Flanged. . .	..	..	..	4 00	4 60	5 65	7 50	9 75	13 75	22 00	29 50	50 00	68 00
3 Way Iron Cocks, Brass Plug, Flanged.....	..	..	..	4 50	5 25	7 00	9 50	13 25	19 00	36 00	47 00	80 00	108 00
3-Way Iron Cocks, Brass Plug and Washer, Fl..	..	..	..	4 75	5 60	7 40	10 00	14 00	20 00	38 00	50 50	86 00	116 00
Extra Heavy All Iron Cocks, Screwed.....	..	1 15	1 25	1 75	2 10	2 80	3 65	6 50	9 00	16 75	22 50	45 00	62 00
Extra Heavy Iron Cocks, Brass Washer.....	..	1 25	1 40	2 00	2 45	3 20	4 15	7 25	10 00	18 75	26 00	51 00	70 00
Extra Heavy Iron Cocks, Brass Plug, Screwed..	..	1 70	2 25	2 80	3 85	5 60	7 00	13 25	19 00	42 00	56 00	98 00	133 00
Extra Heavy Iron Cocks, Brass Plug and Washer	..	1 80	2 40	3 05	4 20	6 00	7 50	14 00	20 00	44 00	59 50	104 00	141 00
Extra Heavy All Iron 3-Way Cocks, Screwed..	..	..	1 80	2 50	2 80	3 90	5 60	8 40	12 00	21 00	28 00	56 00	77 00
Extra Heavy Iron 3-Way Cocks, Brass Washer.	....	..	1 95	2 75	3 15	4 30	6 10	9 15	13 00	23 00	31 50	62 00	85 00
Extra Heavy Iron 3-Way Cocks, Brass Plug, Sc.	..	..	2 80	3 50	4 50	6 75	9 25	15 50	22 00	46 00	62 00	107 00	146 00
Extra Heavy Iron 3-Way Cocks, Br. Plug, W'hr	....	..	2 95	3 75	4 85	7 15	9 75	16 25	23 00	48 00	65 50	113 00	154 00

IRON COCKS.  
VULCANIZED ASBESTOS PACKED.



SCREW ENDS.

Size.....Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Price, Screw Ends.	1.30	1.30	1.45	1.60	2.10	2.50	3.50	4.75

Size.....Inches	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Price, Screw Ends.....	7.00	12.00	18.00	27.00	30.00	45.00	60.00

Size.....Inches	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Price, Flange Ends.....	2.50	3.50	4.75	7.00	12.00	18.00	27.00	30.00	45.00	60.00

## EXTRA HEAVY.

Size.....Inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price, Screw Ends.....	2.40	3.00	3.50	5.00	6.75	10.00	17.00	26.00	38.00	42.00
" Flange Ends.....			3.50	5.00	6.75	10.00	17.00	26.00	38.00	42.00

## BRASS COCKS.

## VULCANIZED ASBESTOS PACKED.

Size... ..Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price, Screw Ends	3.35	3.35	3.35	4.20	5.60	8.00	10.35	16.00	26.50	37.50	50.50	64.00
" Flange "					10.50	12.50	14.50	26.00	36.00	49.00	69.50	90.00

## EXTRA HEAVY.

Size.....Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price, Screw Ends	3.75	3.75	3.75	4.75	6.30	9.00	11.60	18.00	30.00	42.00	66.00	82.50
" Flange "					12.00	15.00	17.00	29.00	42.00	60.00	76.50	93.00

## WEDGE GATE VALVES.

IRON BODY.



## SCREWED.

SIZE.....Inches	2	2½	3	3½	4	4½	5
Price.....Each	10.00	12.00	15.00	18.00	20.00	23.00	25.00
Distance end to end.....Inches	5½	5¾	6	6½	6¾	7	7¼
SIZE.....Inches	6	7	8	9	10	12	.....
Price.....Each	30.00	45.00	55.00	80.00	90.00	125.00	.....
Distance end to end.....Inches	7¾	8	8½	9½	11¼	11¼	.....

## FLANGED

SIZE.....Inches	2	2½	3	3½	4	4½	5	6	7
Price.....Each	10.00	12.00	15.00	18.00	20.00	23.00	25.00	30.00	45.00
Diam. of Flanges.....Inches	6	7	7½	8½	9	9¾	10	11	12½
Face to Face of Flanges Inches	6½	6¾	6¾	7¼	7½	8	8¼	9	9½
SIZE.....Inches	8	9	10	12	14	16	18	20	24
Price.....Each	55.00	80.00	90.00	125.00	190.00	275.00	375.00	425.00	600.00
Diam. of Flanges.....Inches	13½	15	16	19	21	23½	25	27½	32
Face to Face of Flanges Inches	10½	10¾	11¼	12½	13¼	14¼	15¼	16½	20

These valves have stationary stems and open to the left.

## IRON BODY GATE VALVES.

Size .....	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
.....Inches													
<b>KENNEDY.</b>													
Screw Ends.....	10.00	12.00	15.00	18.00	20.00	23.00	25.00	30.00	43.00	53.00	60.00	70.00	95.00
Flange " .....	10.00	12.50	15.50	19.00	21.00	24.00	27.00	32.00	43.00	53.00	60.00	70.00	95.00
Sliding Stem and Lever, Screw Ends.....	16.00	20.00	22.00	25.00	25.00	28.00	30.00	35.00	48.00	58.00	65.00	75.00	100.00
" " " Flange Ends.....	16.00	20.00	22.50	25.00	25.00	28.50	32.00	37.00	48.00	58.00	65.00	75.00	100.00
<b>JENKINS.</b>													
Gate Valves, Screwed.....	8.00	12.00	15.00	18.00	21.00	23.00	30.00	36.00	50.00	62.00	.....	85.00	120.00
" " Flanged.....	9.00	13.00	16.00	19.00	22.50	31.00	32.00	38.00	50.00	62.00	.....	85.00	120.00
Hub or Spigot Gate Valves.....	9.00	12.00	15.00	18.00	21.00	23.00	30.00	36.00	50.00	62.00	.....	85.00	120.00
<b>EDDY.</b>													
Screwed.....	10.50	13.00	16.50	18.00	22.00	23.00	25.00	31.00	37.00	45.00	.....	60.00	80.00
Flanged.....	10.50	13.00	16.50	18.00	22.00	22.00	45.00	31.00	37.00	45.00	.....	60.00	80.00
<b>CHAPMAN.</b>													
Screwed.....	9.00	11.25	14.50	17.00	23.50	23.50	23.50	23.50	37.00	45.00	57.00	73.00	101.00
Flanged.....	9.25	11.75	15.00	17.50	23.50	23.50	23.50	28.25	34.50	42.50	53.50	67.00	89.00
Sliding Stem and Lever, Extra.....	2.10	2.50	3.25	3.25	3.75	3.75	3.75	5.00	5.00	8.75	8.75	10.25	11.00
<b>LUDLOW.</b>													
Screwed Ends .....	7.00	10.25	12.25	16.50	18.00	23.00	25.00	30.50	38.00	45.00	.....	64.00	82.50
Flanged " .....	7.50	10.75	13.25	17.50	18.50	23.50	25.50	31.00	38.00	45.00	.....	64.50	80.00
Hub or Bell Ends.....	7.00	10.00	14.50	16.00	17.00	23.00	24.00	28.00	37.00	42.00	.....	60.00	70.00
Spigot Ends.....	7.25	10.25	15.00	16.50	17.50	23.50	24.50	28.75	38.00	43.25	.....	62.50	79.50
For Slide Stem and Lever, Extra.....	1.25	1.75	2.00	2.00	2.00	2.25	2.25	2.25	2.25	2.25	.....	3.25	4.00

STEAM PRESSURE REGULATING VALVES.

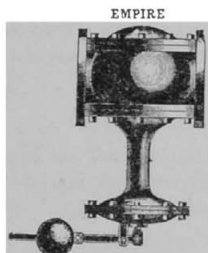


Fig. 925

CURTIS

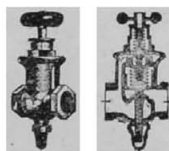


Fig. 926

Fig. 927

EMPIRE PRESSURE REGULATING VALVES

Size of Valve.....	1	1¼	1½	2	2½	3	4
Price.....	22.00	28.00	35.00	44.00	57.00	72.00	100.00
Size of Valve.....	5	6	7	8	9	10	12
Price.....	135.00	180.00	225.00	275.00	350.00	470.00	

CURTIS PRESSURE REGULATORS, FOR STEAM AND WATER

SIZE.....Inches	1	1¼	1½	2	2½	3	4	5	6
Each.....	22.00	28.00	35.00	44.00	57.00	72.00	100.00	135.00	180.00

CHRONOMETER GOVERNOR VALVES

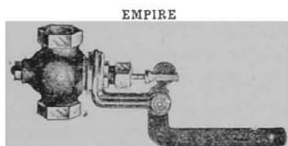


Fig. 923



Fig. 924

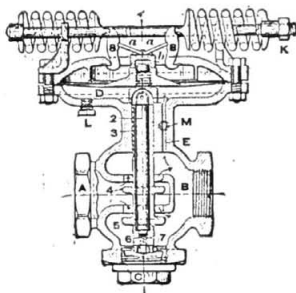
EMPIRE CHRONOMETER GOVERNOR VALVES

SIZE.....Inches	1	1¼	1½	2	2½	3	4	6
Brass.....Each	8.00	11.00	15.00	20.00	.....	.....	.....	.....
Iron Body, Screwed or Flanged....."	.....	.....	.....	.....	25.00	35.00	60.00	120.00

FITTS CHRONOMETER GOVERNOR VALVES

SIZE.....Inches	¾	1	1¼	1½	2	2½	3	4	6
Iron Body.....Each	5.50	8.00	11.00	15.00	20.00	25.00	35.00	60.00	120.00
Bronze....."	7.00	10.00	14.00	20.00	28.00	37.00	55.00	.....	.....
Iron Body, with Yoke....."	.....	.....	15.00	20.00	25.00	33.00	45.00	75.00	150.00
Bronze, with Yoke....."	10.00	13.00	18.00	25.00	33.00	45.00	65.00	.....	.....

## FOSTER VALVES.

FOSTER "CLASS W."  $\frac{1}{2}$  in. to 3 in.

FOR REDUCING AND REGULATING ALL  
PRESSURES OF STEAM, WATER,  
GAS OR AIR.

IN WORLD-WIDE USE

IN ALL THE GENERAL INDUSTRIES, FOR STEAM  
HEATING, HOT WATER HEATING, ELECTRIC  
LIGHT, POWER AND TRACTION,  
MINES AND MILLS,

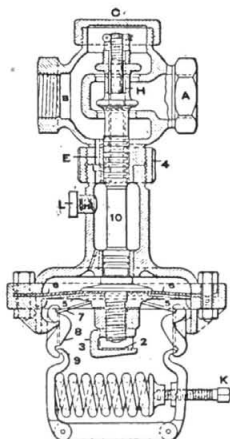
Wherever Higher Boiler Pressures must be reduced  
and maintained at Lower Delivery Pressures.

## PRICE LIST OF "CLASS W."\*

Size.....Inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Screwed.....	18.00	20.00	22.00	28.00	35.00	44.00	57.00	72.00	90.00
Flanged.....	22.00	24.00	24.00	30.00	37.00	46.00	60.00	75.00	95.00

Size.....Inches	4	$4\frac{1}{2}$	5	6	7	8	10	12
Screwed.....	100.00	120.00	135.00	180.00	.....	.....	.....	.....
Flanged.....	105.00	125.00	140.00	185.00	220.00	260.00	350.00	450.00

\* List is for Iron Body Valves with composition trimmings. All Gun Metal Valves, extra, based on current price of metal. In ordering, state pressures and service.



## FOSTER "CLASS Q."

DESIGNED FOR LOW PRESSURES, NOT EXCEEDING  
15 LBS. DELIVERY, AS IN STEAM HEATING, ETC.

Same high standard as FOSTER "Class W," but limited in range of delivery. An ideal valve for Low Pressure service. The pressure can be held, by this valve, at a constant point in a large piping system by a comparatively small valve. The cut shows sizes 2 inch and under, with spanner nut. Sizes,  $2\frac{1}{2}$  inches and up are provided with Flanges.

## PRICE LIST OF "CLASS Q."\*

Size..Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed....	18.50	20.00	24.00	28.00	35.00	40.00	48.00
Flanged....	.....	.....	.....	.....	38.00	43.00	52.00

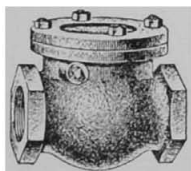
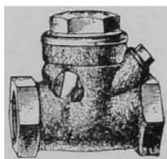
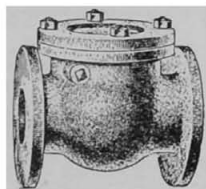
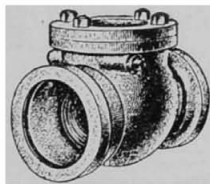
  

Size..Inches	$3\frac{1}{2}$	4	5	6	8	10	12
Screwed ...	55.00	70.00	85.00	120.00	.....	.....	.....
Flanged ...	60.00	75.00	90.00	125.00	200.00	300.00	350.00

\* A Strainer (small extra price) should always be applied.



## SWINGING CHECK VALVES.

**I. B. Screwed.****Brass.****I. B. Flanged.****I. B. Hub Ends.**

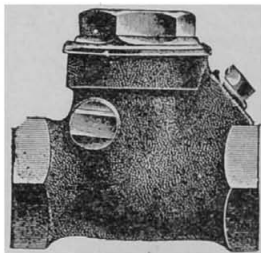
## BRASS.

Sizes.....	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Each.....	1.25	1.25	1.30	1.75	2.25	3.25	4.25	6.25	11.50	16.00

## IRON BODY.

Sizes.....	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	7	8
Screwed.... Each	6.25	10.00	12.00	16.00	20.50	25.50	32.00	41.50	50.00
Flanged.....	....	12.00	14.50	19.00	21.50	29.00	37.00	46.00	55.00
Hub Ends.....	....	.....	12.00	.....	18.00	25.00	32.00	.....	50.00

## SWINGING CHECK VALVES.

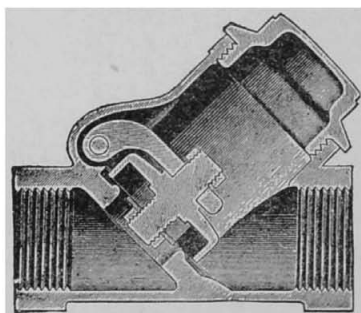


Size.... Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price .....	1.25	1.30	1.50	1.75	2.25	3.25	4.25	6.25	12.00	20.00

## IRON BODY.

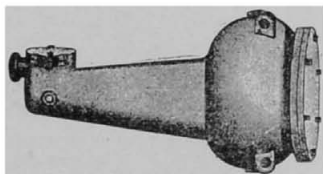
Size.....Inches	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
Iron Body.....	6.25	10.00	12.00	16.00	18.00	21.50	25.00
Size.....Inches	6	7	8	10	12	14	
Iron Body.....	32.00	41.00	50.00	104.00	152.00	....	

## THE IMPROVED SELF-ADJUSTING SWING CHECK VALVE.



Size	Brass, screwed.	Brass, flanged.	Iron Body, screwed.	Iron Body, flanged.
$\frac{1}{2}$	1.30	....	....	....
$\frac{3}{4}$	1.90	....	....	....
1	2.60	5.50	....	....
$1\frac{1}{4}$	3.60	7.80	....	....
$1\frac{1}{2}$	5.00	9.80	....	....
2	7.50	15.00	....	....
$2\frac{1}{2}$	13.50	22.80	12.00	13.90
3	20.50	32.40	15.50	17.75
$3\frac{1}{2}$	....	....	18.50	20.60
4	....	....	22.75	25.45

## LOW PRESSURE WATER FEEDER.

FOR AUTOMATICALLY CONTROLLING THE WATER LEVEL OF LOW  
PRESSURE HEATING BOILERS.

Each.....20.00



## LAWLER'S WATER FEEDER.

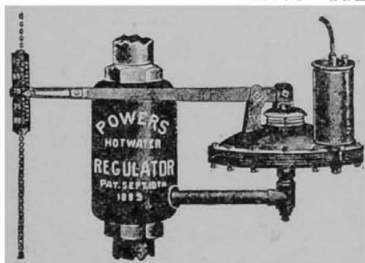
FOR EXPANSION TANKS AND LOW PRESSURE  
STEAM BOILERS.

---

No. 1.	For ordinary work.....	20.00
" 2.	" large supply of water.....	25.00
" 3.	" high pressure water supply.....	25.00

---

## THE POWERS' HEAT REGULATOR.

AUTOMATICALLY CONTROLLING  
HOUSE HEATING BOILERS.Maintains a uniform temperature in the  
house and saves fuel.

## PRICE LIST.

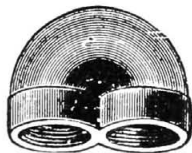
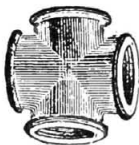
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No. 2.	For Hot Air Furnace.....	40.00
" 3.	" Low Pressure Steam... ..	45.00
" 4.	" Hot Water Boiler.....	50.00

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BRASS FITTINGS FOR WROUGHT IRON OR BRASS PIPE.



ADOPTED JANUARY 1ST, 1899.

BRASS ELBOWS.

Size . . . . . in.	½	¾	1	1¼	1½	2	2½	3	3½	4			
Elbows, Rough . . . . .	.12	.17	.21	.28	.35	.50	.85	1.10	1.50	3.50	4.50	7.00	10.00
“ “ “ Tinned . . . . .	.22	.27	.35	.43	.55	.70	1.05	1.35	1.90	4.00	5.10	8.00	11.50
“ “ “ Fin. . . . .	.24	.34	.42	.56	.70	1.00	1.70	2.20	3.00	7.00	9.00	14.00	20.00
“ “ “ N. P. . . . .	.32	.44	.56	.72	.86	1.20	1.90	2.40	3.20	7.25	9.30	14.50	20.75
Elbows, Side Outlet, Rgh. . . . .			.48	.62	.88	1.10	1.55	2.00	2.75				
“ “ “ Tinned. . . . .			.65	.82	1.13	1.35	1.80	2.35	3.25				
“ “ “ Fin. . . . .			.96	1.24	1.76	2.20	3.10	4.00	5.50				
“ “ “ N. P. . . . .			1.16	1.44	1.96	2.45	3.35	4.25	5.75				
Elbows, Reducing, Rgh. . . . .	.22	.26	.35	.45	.62	1.10	1.40	1.90	4.40	5.65	8.75	12.50	
“ “ “ Tinned . . . . .	.32	.40	.50	.65	.82	1.30	1.65	2.30	4.90	6.25	9.75	14.00	
“ “ “ Fin. . . . .	.44	.52	.70	.90	1.25	2.20	2.80	3.80	8.80	11.30	17.50	25.00	
“ “ “ N. P. . . . .	.54	.66	.86	1.06	1.45	2.40	3.00	4.00	9.05	11.60	18.00	25.75	

Size . . . . . in.	½	¾	1	1¼	1½	2	2½	3			
45° Elbows, Rgh. . . . .	.18	.20	.25	.35	.50	.70	1.05	1.40	1.80	3.75	6.00
“ “ “ Tinned . . . . .	.28	.30	.39	.50	.70	.90	1.25	1.63	2.15	4.18	6.50
“ “ “ Fin. . . . .	.36	.40	.50	.70	1.00	1.40	2.10	2.80	3.60	7.50	12.00
“ “ “ N. P. . . . .	.44	.50	.64	.86	1.16	1.60	2.30	3.00	3.80	7.75	12.30
Street Elbows, Rgh. . . . .			.40	.55	.75	1.00	1.80				
“ “ “ Tinned. . . . .				.73	.98	1.25	2.10				
“ “ “ Fin. . . . .				.83	1.10	1.50	2.65				
“ “ “ N. P. . . . .				1.00	1.30	1.75	2.90				
Drop Elbows, Rgh. . . . .			.60	.80	1.05	1.80	1.75				
“ “ “ Tinned . . . . .			.75	.95	1.25	1.50	2.00				
“ “ “ Fin. . . . .			1.05	1.25	1.65	2.10	2.60				
“ “ “ N. P. . . . .			1.25	1.45	1.95	2.35	3.00				

BRASS TEES.

Size . . . . . in.	½	¾	1	1¼	1½	2	2½	3	3½	4			
Tees, Rgh. . . . .	.15	.20	.30	.40	.50	.75	1.00	1.30	1.75	4.00	5.50	9.00	13.00
“ “ “ Tinned . . . . .	.25	.31	.45	.58	.73	1.00	1.25	1.70	2.30	4.75	6.50	10.50	15.00
“ “ “ Fin. . . . .	.30	.40	.60	.80	1.00	1.50	2.00	2.60	3.50	8.00	11.00	18.00	26.00
“ “ “ N. P. . . . .	.40	.52	.76	.98	1.18	1.73	2.25	2.85	3.75	8.30	11.35	18.60	26.00
Tees, Reducing, Rgh. . . . .	.25	.38	.50	.63	.95	1.25	1.65	2.20	5.00	6.90	11.25	16.25	
“ “ “ Tinned. . . . .	.36	.53	.68	.86	1.20	1.50	2.05	2.75	5.75	7.90	12.75	18.25	
“ “ “ Fin. . . . .	.50	.76	1.00	1.25	1.90	2.50	3.30	4.40	10.00	13.80	22.50	32.50	
“ “ “ N. P. . . . .	.62	.92	1.18	1.43	2.13	2.75	3.55	4.65	10.30	14.15	23.10	33.30	

## A. A. GRIFFING IRON COMPANY.

## BRASS TEES—DROP TEES—UNIONS.

Size . . . . . in.	½	¾	1	1 ¼	1 ½	2	2 ½	3	3 ½	4		
Tees, Bullhead, Rgh. . . . .	.25	.38	.50	.63	.95	1.25	1.65	2.20	5.00	6.90	11.25	16.25
“ “ “ Tinned . . . . .	.36	.53	.68	.86	1.20	1.50	2.05	2.75	5.75	7.90	12.75	18.25
“ “ “ Fin. . . . .	.50	.76	1.00	1.25	1.90	2.50	3.30	4.40	10.00	13.80	22.50	32.50
“ “ “ N. P. . . . .	.62	.92	1.18	1.43	2.13	2.75	3.55	4.65	10.30	14.15	23.10	33.30
Drop Tees, Rgh. . . . .	.90	1.05	1.30	1.65	2.25							
“ “ “ Tinned . . . . .	1.10	1.30	1.60	2.00	2.70							
“ “ “ Fin. . . . .	1.45	1.70	2.10	2.50	3.25							
“ “ “ N. P. . . . .	1.65	1.90	2.35	2.75	3.55							
Unions, Ground Joint, Rgh. . . . .	.35	.46	.59	.87	1.22	1.72	2.50	3.40	4.78	7.50	9.80	
“ “ “ “ Tin'd . . . . .	.45	.50	.78	1.10	1.55	2.12	3.00	4.00	5.48	8.40	10.85	
“ “ “ “ Fin. . . . .	.45	.56	.69	.98	1.31	1.83	2.62	3.54	5.07	7.85	10.25	
“ “ “ “ N. P. . . . .	.60	.71	.84	1.18	1.51	2.08	2.87	3.79	5.35	8.20	10.70	

## BRASS CROSSES.

Size . . . . . in.	½	¾	1	1 ¼	1 ½	2	2 ½	3	3 ½	4			
Crosses, Rgh. . . . .	.25	.30	.40	.50	.60	.80	1.50	2.00	3.50	5.00	7.00	10.00	14.50
“ “ “ Tinned . . . . .	.38	.43	.58	.71	.89	1.15	1.95	2.80	4.65	6.45	8.80	12.50	17.50
“ “ “ Fin. . . . .	.53	.60	.80	1.00	1.20	1.60	3.00	4.00	7.00	10.00	14.00	20.00	29.00
“ “ “ N. P. . . . .	.65	.76	1.00	1.22	1.42	1.88	3.30	4.35	7.40	10.45	14.55	20.80	30.00
Crosses, Reducing, Rgh. . . . .	.38	.50	.65	.75	1.00	1.90	2.50	4.40	6.25	8.75	12.50	18.00	
“ “ “ “ Tinned . . . . .	.51	.68	.86	1.04	1.35	2.35	3.00	5.55	7.70	10.55	15.00	21.00	
“ “ “ “ Fin. . . . .	.75	1.00	1.30	1.50	2.00	3.80	5.00	8.80	12.50	17.50	25.00	36.00	
“ “ “ “ N. P. . . . .	.91	1.20	1.52	1.72	2.28	4.10	5.35	9.20	12.95	18.05	25.80	37.00	

## BRASS CAPS, PLUGS AND LOCKNUTS.

Size . . . . . in.	½	¾	1	1 ¼	1 ½	2	2 ½	3	3 ½	4			
Caps, Rgh. . . . .	.15	.15	.20	.25	.35	.45	.60	.80	1.10	2.00	3.00		
“ “ “ Tinned . . . . .	.25	.25	.30	.35	.45	.55	.73	.95	1.27	2.25	3.35		
“ “ “ “ Fin. . . . .	.30	.30	.40	.50	.70	.90	1.20	1.60	2.20	4.00	6.00		
“ “ “ “ N. P. . . . .	.37	.37	.50	.62	.82	1.02	1.32	1.77	2.38	4.20	6.25		
Plugs, Rgh. . . . .	.09	.10	.12	.15	.20	.28	.40	.50	.90	1.25	2.00	3.00	4.00
“ “ “ Tinned . . . . .	.17	.18	.20	.25	.30	.38	.52	.62	1.05	1.45	2.25	3.30	4.50
“ “ “ “ Fin. . . . .	.18	.20	.24	.30	.40	.56	.80	1.00	1.80	2.50	4.00	6.00	8.00
“ “ “ “ N. P. . . . .	.25	.27	.32	.40	.50	.66	.90	1.12	1.95	2.65	4.20	6.25	8.30
Locknuts, Rgh. . . . .	.10	.12	.15	.20	.30	.45	.70	.95	1.50	2.75			
“ “ “ “ Tinned . . . . .	.18	.20	.25	.30	.40	.57	.85	1.10	1.70	3.00			
“ “ “ “ Fin. . . . .	.20	.24	.30	.40	.60	.90	1.40	1.90	3.00	5.50			
“ “ “ “ N. P. . . . .	.27	.31	.38	.50	.70	1.00	1.52	2.05	3.20	5.75			

## BRASS RETURN BENDS.

Size . . . . . in.	½	¾	1	1 ¼	1 ½	2	2 ½	3	
Return Bends, Open, Rgh. . . . .	.32	.48	.94	1.35	2.28	2.90	5.30	8.20	11.00
“ “ “ “ “ Tin'd. . . . .	.52	.72	1.25	1.70	2.85	3.90	6.60	10.20	13.80
“ “ “ “ “ Fin. . . . .	2.15	2.56	3.20	4.00	5.25	6.45	9.10	13.45	17.80
“ “ “ “ “ N. P. . . . .	2.35	2.76	3.40	4.25	5.50	6.75	9.50	14.00	18.40
Return Bends, Close, Rgh. . . . .	.30	.45	.78	1.15	1.80	2.50	3.90	6.00	8.00
“ “ “ “ “ Tin'd. . . . .	.50	.68	1.06	1.46	2.30	3.42	5.00	7.60	9.80
“ “ “ “ “ Fin. . . . .	2.10	2.50	3.10	3.75	4.70	5.85	7.50	11.00	14.45
“ “ “ “ “ N. P. . . . .	2.30	2.70	3.30	4.00	4.95	6.15	7.90	11.50	15.00

## BRASS COUPLINGS—REDUCERS.

Size . . . . . in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Couplings, Rgh. . . . .	.10	.14	.16	.25	.37	.50	.60	.90	1.35	2.40	3.50	5.00	6.00
"    "    Tinned . . . . .	.20	.24	.28	.40	.52	.70	.80	1.10	1.65	2.75	4.10	5.70	7.00
"    "    Fin. . . . .	.20	.28	.32	.50	.75	1.00	1.20	1.80	2.70	4.80	7.00	10.00	12.00
"    "    "    N. P. . . . .	.28	.38	.45	.63	.89	1.15	1.40	2.00	2.90	5.05	7.30	10.40	12.50
"    "    R. & L., Rgh. . . . .	.17	.20	.30	.45	.60	.75	1.12	1.75	3.00				
"    "    "    Tinned . . . . .	.27	.32	.45	.60	.80	.95	1.32	2.05	3.35				
"    "    "    Fin. . . . .	.31	.36	.55	.82	1.10	1.35	2.00	3.10					
"    "    "    "    N. P. . . . .	.41	.49	.68	.96	1.25	1.55	2.20	3.30					
Reducers, Rgh. . . . .	.16	.22	.32	.45	.65	.90	1.12	1.85	3.00	4.50	6.50		
"    "    "    Tinned . . . . .	.26	.34	.37	.60	.85	1.10	1.32	2.15	3.35	5.10			
"    "    "    Fin. . . . .	.32	.44	.64	.90	1.30	1.80	2.25	3.70	6.00	9.00			
"    "    "    "    N. P. . . . .	.42	.57	.77	1.04	1.45	2.00	2.43	3.90	6.25	9.30			

## BRASS BUSHINGS.

Size, . . . . . in.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Rgh. . . . .	.10	.12	.14	.21	.38	.50	.67	1.00	1.50	2.50
"    "    "    Tinned . . . . .	.18	.20	.24	.31	.48	.62	.79	1.15	1.70	2.75
"    "    "    Fin. . . . .	.20	.24	.28	.42	.76	1.00	1.35	2.00	3.00	5.00
"    "    "    "    N. P. . . . .	.27	.31	.36	.52	.86	1.10	1.47	2.15	3.20	5.25

## BRASS PIPE NIPPLES.

Size.	Each	Length, Inches.										
		Close	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	5 $\frac{1}{2}$	6
$\frac{1}{8}$	Each	.16	.16	.19	.22	.25	.28	.31	.34	.37	.40	.43
$\frac{1}{4}$	"	.20	.20	.24	.28	.32	.36	.40	.44	.48	.52	.56
$\frac{3}{8}$	"	.23	.23	.28	.33	.38	.43	.48	.53	.58	.63	.68
$\frac{1}{2}$	"	.30	.30	.36	.42	.48	.54	.60	.66	.72	.78	.84
$\frac{3}{4}$	"	.32	.39	.46	.53	.60	.67	.74	.81	.88	.95	
1	"	.40	.49	.58	.67	.76	.85	.94	1.03	1.12	1.21	
1 $\frac{1}{4}$	"	.63	.75	.87	.99	1.11	1.23	1.35	1.47	1.59		
1 $\frac{1}{2}$	"	.74	.88	1.02	1.16	1.30	1.44	1.58	1.72	1.86		
2	"	1.00	1.10	1.38	1.57	1.76	1.95	2.14	2.33	2.52		
2 $\frac{1}{2}$	"	1.80	2.04	2.32	2.60	2.88	3.16	3.44	3.72			
3	"	2.50	2.80	3.20	3.60	4.00	4.40	4.80	5.20			
3 $\frac{1}{2}$	"	4.00	4.50	5.10	5.60	6.20	6.80	7.40	8.00			
4	"	4.75	5.30	5.86	6.53	7.20	7.87	8.54				
4 $\frac{1}{2}$	"	6.00	6.70	7.40	8.10	8.82	9.63	10.44				
5	"	8.50	9.40	10.30	11.35	12.40	13.45					
6	"	11.50	12.65	13.85	15.05	16.45	17.85					

## FINISHED BRASS RAILING FITTINGS.

## Iron Pipe Threads.



Elbow.



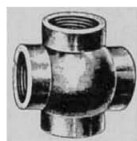
Elbow-Side Outlet.



Tee.



Tee-Side Outlet.



Cross.



Cross-Side Outlet.

Acorn  
Ornament.

Floor Flange.

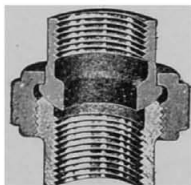
Size.....	Inches	1/2	3/4	1	1 1/4	1 1/2	2
Elbows.....	Each	.50	.60	.80	1.05	1.30	2.00
" Side Outlet.....	"	.60	.70	.90	1.20	1.45	2.25
Tees.....	"	.60	.70	.90	1.25	1.60	2.40
" Side Outlet.....	"	.75	.85	1.15	1.50	1.90	2.70
Crosses.....	"	.75	.85	1.05	1.45	2.00	2.90
" Side Outlet.....	"	.90	1.00	1.30	1.70	2.30	3.20
Acorn Ornaments.....	"	.50	.60	.75	1.00	1.30	1.60
Floor Flanges.....	"	.55	.75	.90	1.10	1.45	1.80

When ordering Railing Fittings, be careful to state whether right or left threads are wanted. When required with right and left threads, fully describe which are wanted right, and which left.

For Right and Left or Left Hand Threads, add 25 per cent. to list.

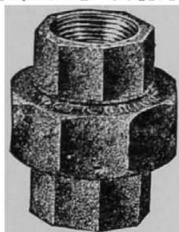


"THE KEWANEE"  
BRASS AND IRON BALL JOINT UNION.



Size.....Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Plain .....Each	.20	.24	.28	.35	.40	.56	.80	.95	2.00	2.75
Galvanized... "	.24	.28	.35	.46	.55	.78	1.12	1.35	2.90	3.75

THE OCTA BRASS UNION.  
GROUND JOINT.



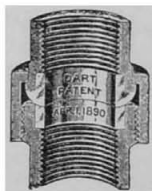
Size. .Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Rough... Each	.35	.40	.55	.75	1.00	1.40	1.90	2.75	4.00	6.50	8.50
Finished.. "	.50	.55	.75	1.00	1.50	2.00	2.50	3.00	4.50	.....	.....

AMERICAN UNION.

Size.....Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Plain .....Each	.20	.24	.28	.35	.40	.56	.80	.95	2.00	2.75
Galvanized... "	.24	.28	.35	.46	.55	.78	1.12	1.35	2.90	3.75

## DART'S PATENT UNION COUPLING.

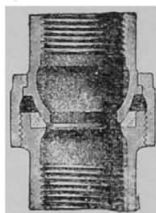
PLAIN AND GALVANIZED IRON.



Size.....Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Plain.....	.30	.40	.50	.60	.80	1.20	1.60	2.00	3.20	4.80
Galvanized.....	.45	.60	.75	.90	1.20	1.80	2.40	3.00	4.80	6.20

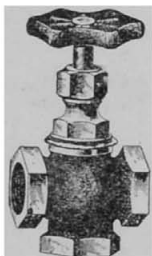
## KEYSTONE UNIONS.

NO WASHER REQUIRED.



Size..... Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Plain.....	.20	.20	.24	.28	.35	.40	.56	.80	.95
Galvanized.....	.24	.24	.28	.35	.46	.55	.78	1.12	1.35

STANDARD BRASS CROSS VALVES..



Size..... .. Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price, Screwed.....	1.25	1.25	1.50	2.00	3.50	3.50	5.00	8.00	16.00	24.00	45.00	60.00
" " Flanged.....	..	..	..	..	9.00	12.00	15.75	22.00	33.00	45.00	75.00	100.00

EXTRA HEAVY BRASS GLOBE, ANGLE AND CHECK VALVES



GLOBE VALVE.



ANGLE VALVE.

Size..... .. Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Globe and Angle Valves, Sc'd	1.25	1.45	1.85	2.50	3.50	5.25	7.00	10.50	20.00	27.00	50.00	65.00
" " " " Fl'd.....	..	..	6.50	7.75	10.00	13.50	17.00	27.00	37.00	50.00	78.00	115.00
Check Valves, Screwed .....	1.10	1.25	1.65	2.25	3.15	4.75	6.25	9.50	18.00	25.00	45.00	58.00

DOUBLE EXTRA HEAVY BRASS GLOBE AND ANGLE VALVES.

Size..... .. Inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Globe and Angle Valves	2.00	3.00	5.00	7.00	9.00	12.00	16.00
" " " " " Flanged .....	..	..	..	12.00	15.00	20.00	27.00

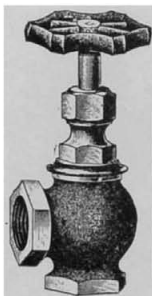
  

Size..... .. Inches	2 1/2	3	3 1/2	4	4 1/2	5	6
Price, Globe and Angle Valves	28.00	38.00	72.00	94.00	125.00	145.00	215.00
" " " " " Flanged .....	37.00	55.00	100.00	115.00	140.00	175.00	245.00

## STANDARD BRASS VALVES AND COCKS.



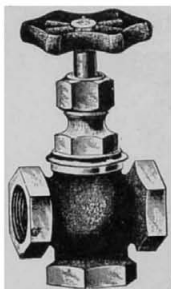
GLOBE VALVE, SCREWED.



ANGLE VALVE, SCREWED.



GLOBE VALVE, FLANGED.



CROSS VALVE, SCREWED.



ANGLE CHECK VALVE



VERTICAL, CAP ON SIDE.

## BRASS STEAM COCKS.



SQUARE HEAD.



THREE-WAY.



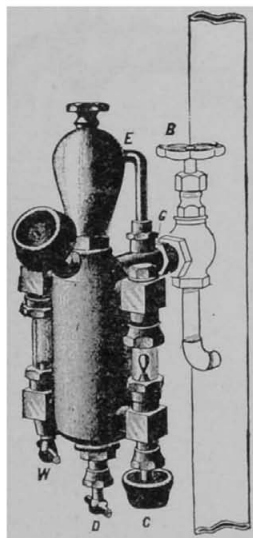
FLANGED.



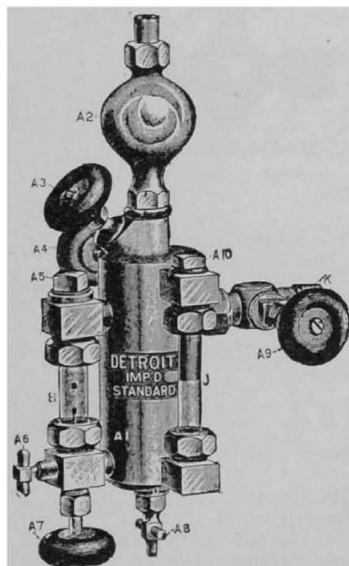
## BRASS GATE VALVES.

Size.	Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
<b>KENNEDY.</b>																
Screwed Ends.....						2.50	3.50	5.00	7.50	14.00	20.00					
Flanged ".....		1.40	2.75	3.50	4.50	5.50	7.50	12.00	18.00	23.00						
Sliding Stem and Lever, Screwed.....		2.50	3.00	4.00	5.00	7.00	9.50	14.50	20.00							
" " " Flanged.....		4.00	4.75	6.00	7.00	9.00	13.00	18.00	24.00							
Hose Gate Valves, no cap, plain.....						2.50	3.50	5.00	7.50	14.00	20.00					
Finished all over, with Brass Wheel.....						5.00	6.75	9.00	13.00	22.00	29.00					
" " " and Plated," ".....						5.75	7.50	9.75	13.75	23.00	30.00					
" " Cap and Chain.....						1.25	1.35	1.50	1.75	2.50	3.50					
<b>JENKINS</b>																
Screwed.....						3.25	4.25	5.25	7.50	14.00	20.00					
Flanged.....		2.00	3.50	4.50	6.00	7.50	10.00	14.00	21.00	28.00						
Hose Gate, no Cap.....						3.70	4.95	6.15	8.75	15.75	22.00					
" Caps, finished with chain.....						1.00	1.25	1.75	2.25	3.00	3.50					
" " " rough, no chain or swivel.....						.60	.75	1.15	1.50	2.00	2.50					
<b>EDDY.</b>																
Screwed.....						2.20	3.20	4.20	6.20	11.50	16.00	22.00	35.00			
Flanged.....		1.30	1.70						9.00	15.00	20.00	28.00	43.00			
<b>CHAPMAN.</b>																
Screwed.....		1.35	1.35	1.50	1.85	2.55	3.30	4.50	6.70	11.35	16.50	23.00	38.00			
Flanged.....		2.00	2.00	2.50	2.85	4.00	5.00	7.25	10.25	16.35	20.75	28.00	40.35			
Sliding Stem and Lever, extra.....		.70	.70	.70	.70	.70	.75	1.00	1.00	1.10	1.65	1.65	1.65			
<b>LUDLOW.</b>																
Screwed Ends.....			1.40	1.40	1.80	2.35	3.40	4.40	6.25	13.75	15.50	23.50	34.00	45.00	52.00	76.00
Flanged Ends.....		3.40	3.70	4.15	5.70	7.40	11.00	19.75	21.50	30.50	43.00	55.00	64.00	89.00		

SIGHT-FEED LUBRICATORS.



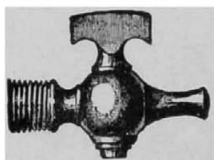
WIZARD.



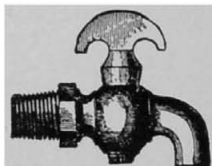
DETROIT.

	Finished Brass.					Nickel Plated.					
	1/2 Pt.	1/2 Pt.	3/4 Pt.	1 Pt.	1 Qt.	1/2 Pt.	1/2 Pt.	3/4 Pt.	1 Pt.	1 1/4 Pt.	1 Qt.
Detroit.....	17.00	22.00	.....	30.00	45.00	20.00	25.00	.....	35.00	.....	50.00
Wizard.....	10.00	12.00	15.00	.....	.....	16.00	20.00	24.00	30.00	36.00	44.00
Volunteer.....	10.00	12.00	15.00	.....	.....	.....	.....	.....	.....	.....	.....
Siebert.....	20.00	25.00	.....	35.00	.....	20.00	27.00	.....	38.00	.....	.....
Michigan.....	17.00	22.00	.....	30.00	.....	20.00	25.00	.....	35.00	.....	.....

## AIR COCKS.



Single Thread.



Bibb Nozzle.

Size.....Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Tee Handle, Single Thread.....	.40	.40	.50	.60	....
Lever Handle, Single Thread.....	.55	.55	.65	.75	....
Tee Handle, Double Thread, Male.....	.55	.55	.65	.90	....
Lever Handle, Double Thread, Male.....	.60	.70	.85	1.00	....
Tee Handle, Double Thread, Female.....	.70	.70	....	....	....
Lever Handle, Double Thread, Female..	.80	.80	....	....	....

## BIBB AIR COCKS.

Size.....Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	
Tee Handle.....	.70	.70	.80	.90	....
Lever Handle.....	.80	.80	.90	1.00	....
Tee Handle, Double Thread.....	.80	1.00	1.10	1.35	....
Lever Handle, Double Thread.....	.95	1.15	1.25	1.50	....

## BIBB CYLINDER COCKS.

Size.....Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Lever Handle, Single Thread.....	....	1.15	1.30	1.85	2.60
Lever Handle, Double Thread.....	..	1.25	1.50	2.10	2.70

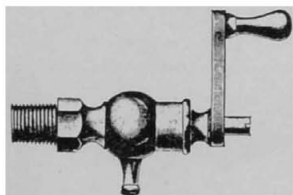
## CYLINDER COCKS.

Size.....Inches		$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Lever Handle Bibb, with Union....	....	1.75	2.00	2.50	3.75
Lever Handle, Straight, with Union.....	....	1.75	2.00	2.50	3.75



## GAUGE COCKS.

Steam Metal.



Crank Handle—Regrinding.

Number.....	1	2	3
Threaded for Iron Pipe.....Inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Per Dozen.....	15.00	23.00	26.00



Wood Handle—Regrinding.

Number.....	4	5	6
Threaded for Iron Pipe.....Inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Per Dozen.....	18.00	24.00	27.00



Wood Handle—Loose Disc.

Number.....	8	9
Threaded for Iron Pipe.....Inches	$\frac{3}{8}$	$\frac{3}{4}$
Per Dozen.....	29.00	32.00

## GAUGE COCKS.

Steam Metal.



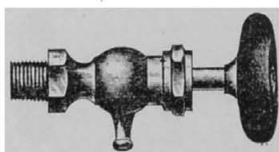
Wood Handle—Self Cleaning—Babbitt Metal Disc.

Number.....	10	11
Threaded for Iron Pipe.....Inches	$\frac{1}{2}$	$\frac{3}{4}$
Per Dozen.....	29.00	31.00



Wood Handle—Babbitt Metal Disc.

Number.....	12	13	14
Threaded for Iron Pipe.....Inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Per Dozen.....	13.20	14.40	16.20



Wood Handle, with Stuffing Box—Babbitt Metal Disc.

Number.....	17	18	19
Threaded for Iron Pipe.....Inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Per Dozen.....	16.20	18.00	20.40

HOSE PIPES.



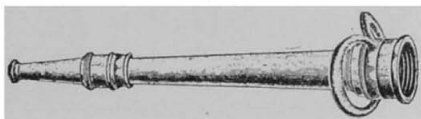
PLAIN.

Size .....	Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$2\frac{1}{2}$
Length .....	Inches	8	9	10	$10\frac{1}{2}$	11	12	20
Hose Thread .....	Per Dozen	7.00	9.00	15.00	18.00	30.00	48.00	78.00
Iron Pipe Thread .....	"	8.20	10.20	16.20	20.50	33.00	51.50	81.50



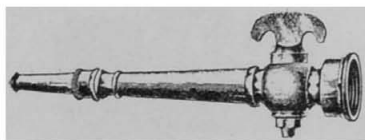
SCREW TIP.

Size .....	Inches	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$
Length .....	Inches	8	14	$9\frac{1}{2}$	16	11	19	12	22	$13\frac{1}{2}$	28	21	32
Hose Thread .....	Per Doz.	5.00	12.00	10.00	18.00	18.00	36.00	25.00	46.00	39.00	60.00	100.00	120.00
Iron Pipe Thread .....	"	9.20	13.20	11.20	19.20	19.20	37.20	27.50	48.50	42.00	63.00	103.50	126.00



SCREW TIP WITH HANDLE.

Size .....	Inches	$2\frac{1}{2}$
Length .....	Inches	32
Per Dozen .....		288.00



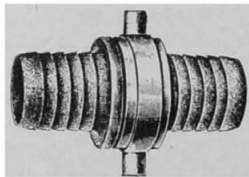
COCK ON LARGE END.

Size .....	Inches	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Length .....	Inches	8	12	16	9	18	11	22	12	24	30	36
Hose Thread .....	Per Doz.	13.00	18.00	24.00	20.00	34.00	40.00	55.00	55.00	84.00	136.00	250.00
Iron Pipe Thread .....	"	14.20	19.20	25.20	21.20	35.20	41.20	56.20	57.50	86.50	139.00	256.00

## HOSE COUPLINGS.

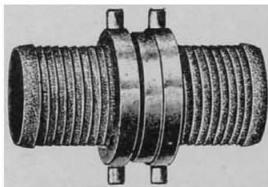


Size.....	Inches	$\frac{1}{2}$	$\frac{3}{4}$	1
Hose Thread.....	Per Dozen	2.40	2.40	4.40
Iron Pipe Thread.....	"	2.65	2.65	4.65



Size.....	Inches	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Hose Thread.....	Per Dozen	10.00	14.00	24.00	48.00
Iron Pipe Thread.....	"	10.50	15.00	26.00	50.00

## SUCTION HOSE COUPLING.



Size.....Inches	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6	7	8
Each.....	4.00	5.25	7.50	9.50	12.50	16.00	20.00	28.00	54.00	80.00

NOTE.—All Couplings will have our standard Hose Thread unless otherwise ordered.

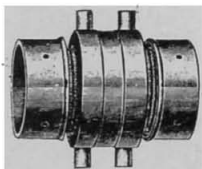
DOUBLE FEMALE COUPLING.

For Connecting Two Male Ends  
of Hose Couplings.



HOSE COUPLING AND BANDS.

For Linen Hose.



Size.....	Inches	1¼	1½	2	2½	3
Double Female Couplings.....	Each	2.75	3.30	4.40	6.40	15.00
Hose Couplings and Bands.....	"	2.00	2.50	3.50	4.25	8.00

HOSE CLAMPS.



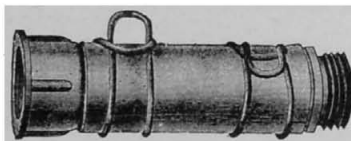
Rath's Patent.



Bolt and Nut.

Size.....	Inches	½	¾	1	1¼	1½	2	2½	3	3½	4
Rath's Clamps.....	Per Dozen	1.44	1.44	1.80	2.40	3.12	4.20	6.60			
Bolt and Nut Clamps.....	"	1.50	1.50	2.00	2.50	3.00	4.00	7.00	10.00	24.00	30.00

CALDWELL'S HOSE STRAPS.



Number..	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
Size.....	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8
Length...	3¼	3¾	4¼	4¾	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	
Per Dozen	.40	.40	.60	.60	.80	.80	1.00	1.00	1.20	1.20	1.40	1.40	1.60	1.60	1.80	1.80	2.00	2.00

Hose Strap Fasteners, No. 1, Each .50 No. 2, Each .75

HOSE NIPPLE.



HOSE REDUCER.



Hose Nipples.

Size.....Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Per Dozen.....	3.50	3.50	5.00	9.00	10.00	14.00	28.00	40.00	50.00	75.00

Hose Reducers.

Size.....Inches	1 x 3/4	1 1/4 x 3/4	1 1/4 x 1	1 1/2 x 1 1/4	2 x 1 1/2	2 1/2 x 1 1/4	2 1/2 x 1
Per Dozen.....	6.50	10.00	10.00	12.00	18.00	30.00	30.00

HOSE CAP—PLAIN.



HOSE CAP—WITH CHAIN.



Hose Caps—Plain.

Size.....Inches	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Finished.....Each	.35	.50	.70	.85	1.25	2.00	4.00	5.00	6.00
Rough....."	.25	.35	.55	.70	1.00	1.25	3.00	4.00	5.00

Hose Caps—with Chain.

Size.....Inches	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Finished.....Each	.60	.75	1.00	1.20	1.70	2.50	8.00	9.00	10.00
Rough....."	.50	.60	.85	1.05	1.45	1.75	7.00	8.00	9.00

HOSE SPRINKLERS.



HOSE MENDER.



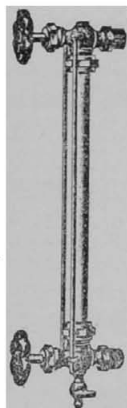
Hose Sprinklers.

For 3/4 inch and 1 inch Hose Pipes.....Diameter, Inches	1 1/2	2	2 1/2
Per Dozen.....	3.50	4.50	6.00.

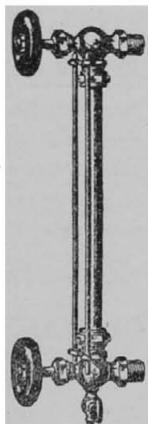
Hose Menders.

Size.....Inches	1/2	3/4	1
Coppered.....Per Dozen.	.40	.50	1.00.

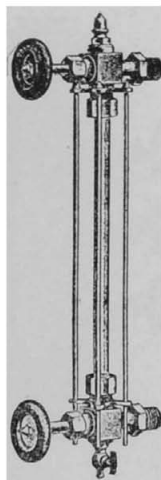
WATER GAUGES.



TWO GUARDS.  
IRON WHEEL.



TWO GUARDS.  
WOOD WHEEL.



FOUR GUARDS.  
WOOD WHEEL.

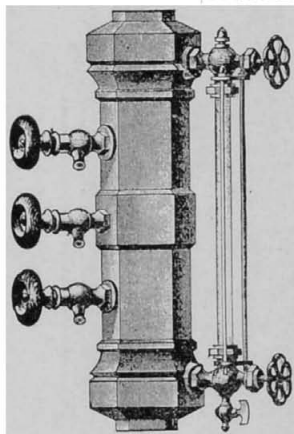
Rough, Round Body, two Guards, with $\frac{1}{2}$ x10 Glass, $\frac{3}{8}$ Pipe Thread, Iron Wheel.....	2.60
Finished, " " " " " $\frac{1}{2}$ x10 " $\frac{3}{8}$ " " " " " .....	3.00
Rough, " " " " " $\frac{5}{8}$ x12 " $\frac{1}{2}$ " " " " " .....	3.00
Finished, " " " " " $\frac{5}{8}$ x12 " $\frac{1}{2}$ " " " " " .....	3.50
" " " " " $\frac{5}{8}$ x12 " $\frac{1}{2}$ " " " " " .....	4.25
" " " " " $\frac{5}{8}$ x12 " $\frac{1}{2}$ " " " " " .....	5.75
" " " four " " $\frac{5}{8}$ x12 " $\frac{1}{2}$ " " " " " .....	6.00
" " " two " " $\frac{3}{4}$ x14 " $\frac{3}{4}$ " " " " " .....	9.00
" " " four " " $\frac{3}{4}$ x14 " $\frac{3}{4}$ " " " " " .....	10.00

EXPANSION TANK GAUGES.

Screwed for  $\frac{1}{2}$  inch Pipe with Glass  $\frac{5}{8}$  x 12 inch ..... Each, 2.60

Prices longer centres on application.

## WATER COLUMNS.



## COMBINATION COLUMNS.

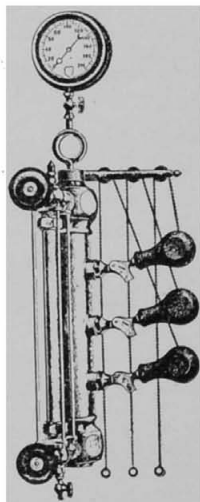
Number.....	1	2	3
Size of Water Gauge Openings, Inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$
Size of Gauge Cock Openings.. " "	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Size of Boiler Connection..... " "	$\frac{3}{4}$	1	$1\frac{1}{4}$
Length of Column,..... " "	15	18	24
Inside of Body..... " "	2	4	4
Price, without Trimmings.....	1.25	2.50	3.50

Brass Columns prices upon application

## WATER COLUMN BODIES.

## WITH TRIMMINGS.

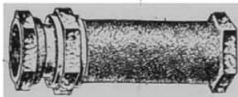
Number.....	1	2	3	4
Price.....	20.00	35.00	45.00	50.00
Length.....Inches	13	$15\frac{1}{2}$	17	$22\frac{1}{2}$
Water Gauges.....	469	470	474	475
Gauge Cocks.....	428	428	429	429
Iron Case Steam Gauge and Syphon, Dials.....	5	5	5	6
One Globe Valve and Nipple.....	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
Gauge Cocks fitted with Chain, add to above.....	5.00	5.00	5.00	5.00





BRASS EXPANSION JOINTS.

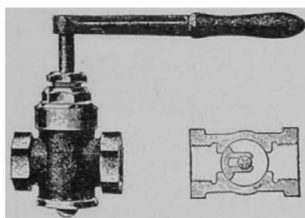
STANDARD TRAVERSE.



Size.....Inches	1½	¾	1	1¼	1½	2	2½	3
Price, Eastern Pattern.....	3.80	4.00	4.90	6.30	7.40	9.10	20.00	28.00
Traverse, " " .....Inches	4	4	4	4	4	4	5	5

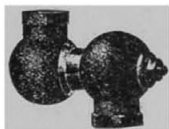
Special Traverse to order.

BRASS THROTTLE VALVES.



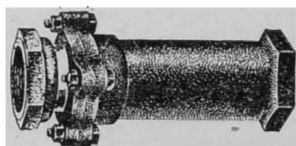
Size.....Inches	¾	1	1¼	1½	2	2½
Price, Screwed.....	10.00	11.60	14.00	20.00	25.00	35.00

BRASS SWING JOINTS.



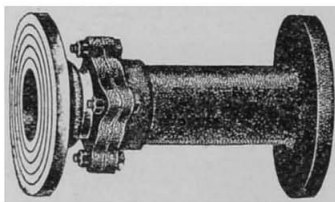
SIZE.....Inches	¼	⅜	½	¾	1	1¼	1½	2
Rough.....Each	1 00	1 25	1 75	2 40	3 50	4 50	6 25	9 00
Finished....."	1.25	1 50	2 00	2 75	4 00	5 00	7 00	10,00

## IRON BODY EXPANSION JOINTS—STANDARD TRAVERSE.



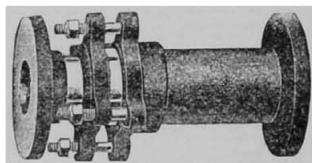
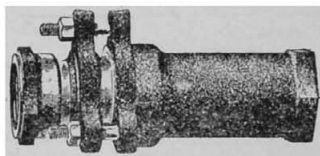
Iron Body—Steam Metal Sleeve.

Size.....Inches	3	2½	3	3½	4	5	6	7	8	10
Length of Traverse.....	2½	2½	2¼	3	3¼	4	5	6	7	7
Each.....	7.00	8.00	10.00	14.00	18.00	38.00	45.00	70.00	100.00	160.00



Iron Body—Steam Metal Sleeve—Flanged.

Size.....Inches	2	2½	3	3½	4	5	6	7	8	10
Length of Traverse.....	2½	2½	2¼	3	3¼	4	5	6	7	7
Diameter of Flanges.....	6	7	7½	8½	9	10	11	12½	13½	16
Each.....	15.00	16.00	18.50	25.00	30.00	48.00	55.00	80.00	110.00	175.00

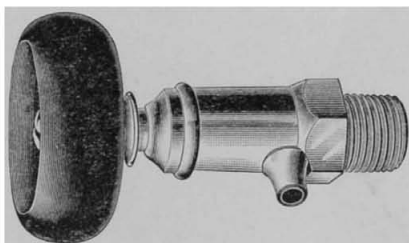


6-inch Traverse.

Size.....Inches	2	2½	3	3½	4	4½	5	6
Iron Body Expansion Joints, Screwed.....	11.00	13.00	17.50	25.00	30.00	40.00	45.00	55.00
Iron Body Expansion Joints, Flanged.....	18.00	20.00	25.00	35.00	40.00	50.00	55.00	65.00

BUNDY COMPRESSION AIR VALVES.

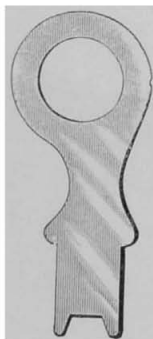
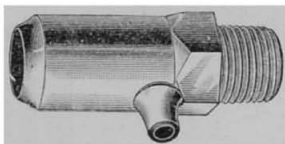
A NEAT AIR VALVE OF EXACT SIZE OF CUT, MADE FROM BRASS ROD.



No. 3, NICKEL PLATED.

Threaded for Iron Pipe, size  $\frac{1}{8}$  inch, price each.....\$0.70

No. 4



No. 4, NICKEL PLATED.

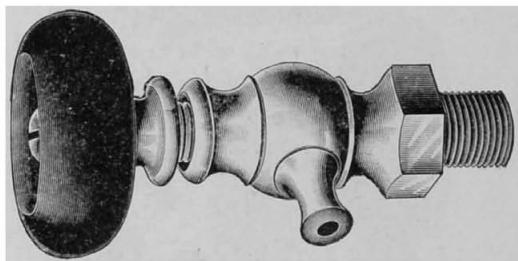
Threaded for Iron Pipe, size  $\frac{1}{8}$  inch, price each.....\$0.70

\*Extra Keys, each..... .05

\*Three Keys are furnished with each dozen Air Valves.

## BUNDY COMPRESSION AIR VALVES.

HANDSOME AND HEAVY.

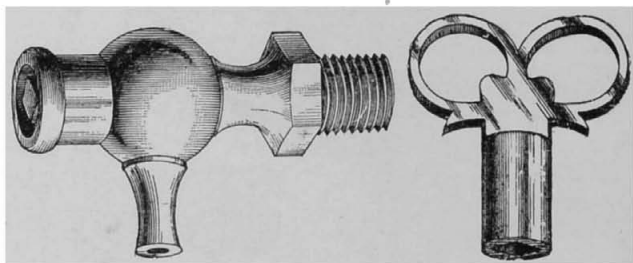


No. 1. WOODEN HANDLE, NICKEL PLATED.

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 Threaded for Iron Pipe, size  $\frac{1}{8}$  inch, price each.....\$0.70
 

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No. 2. KEY HANDLE, NICKLE PLATED.

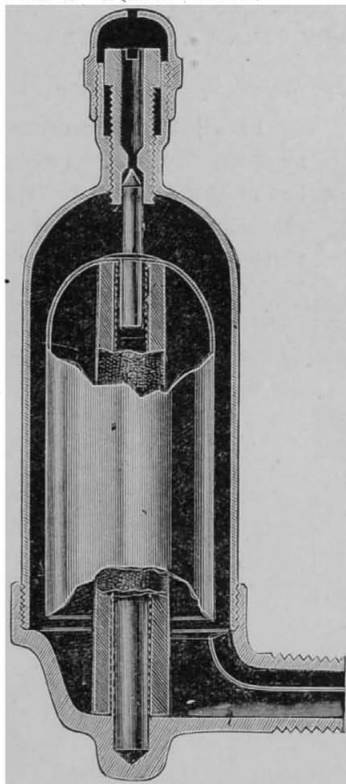
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 Threaded for Iron Pipe, size  $\frac{1}{8}$  inch, price each.....\$0.70  
 \*Extra Keys, each......08
 

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\*Three keys are furnished with each dozen Air Valves.

## BUNDY REX AIR VALVE.



SECTION VIEW, FULL SIZE.

This valve is constructed on both the expansion and float principle. Separate passages are provided which prevent throwing water, and will not waterlog. The greatest of care is taken in the manufacture, thereby insuring a perfect working valve. The expansion rod is made of our special composition which is indestructible and very sensitive and quick acting.

The construction is such that the float and valve are held in perfect alignment at all times, thereby insuring a valve which is very reliable and perfect in its operation.

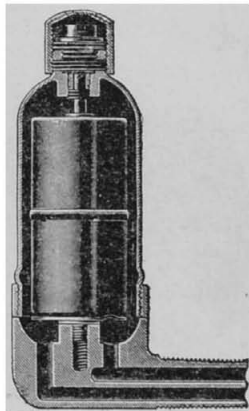
The design is neat and practical and the best material is used in its construction.

All valves are heavily nickel-plated and thoroughly tested before leaving the factory.

Price List, each.....\$1.00

## RUSSELL AUTOMATIC AIR VALVE.

FOR STEAM AND WATER.



SECTIONAL VIEW.

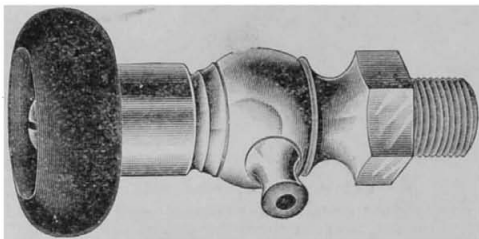
Principal of construction is such that all the air is expelled from the radiator, or coil without loss of steam or water. The float contains the expanding medium which does not consist of vegetable or other unreliable compositions. Nothing but metal used in its constructions. No core casting. All parts cast solid and finished on a lathe, which insures free waterways for steam and water. Guaranteed in every respect.

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 Price list, each.....\$1.15
 

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## RUSSELL SPRING SELF-CLOSING AIR VALVE.



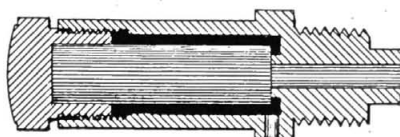
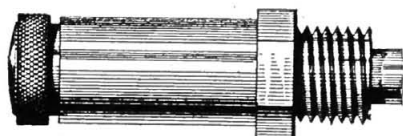
No escape of water or steam. Valve cannot be left open. Will remain tightly closed against 70 pounds pressure. Every valve guaranteed. Threaded for iron pipe, size  $\frac{1}{8}$  inch.

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 Price, per dozen.....\$3.00
 

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## BUNDY REX CARBON RADIATOR AIR VALVE.



FULL SIZE.

This Valve is Automatic or Positive, as desired. The expansion rod is made of our special composition.

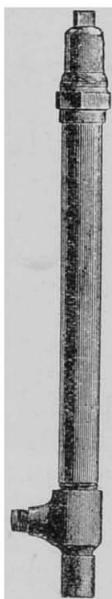
All valves are nickel-plated, neat in design and moderate in price.

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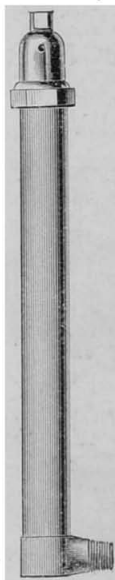
Price per Dozen .....	\$6.00
“ “ Gross .....	65.00

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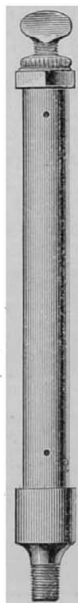
## BAKER AUTOMATIC AIR VALVES.



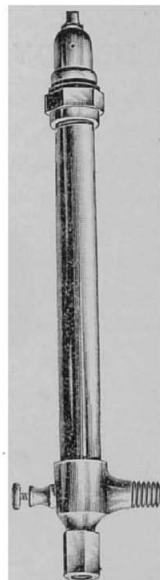
No. 1.



No. 2.



No. 3.



No. 5.

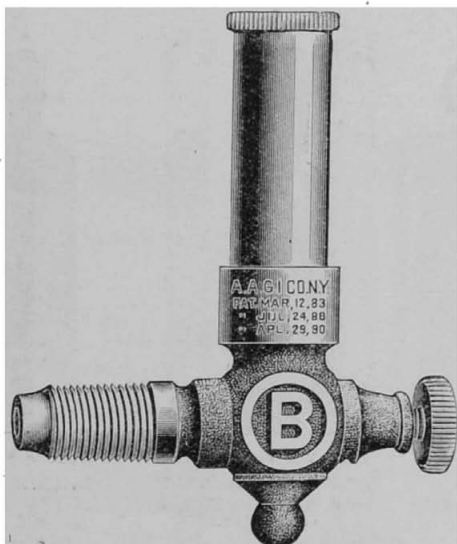
The Baker Automatic Air Valve is an all metal valve consisting of an outer casing of non-expanding metal that surrounds an inner tube of super-sensitive seamless bronze. Unlike many air valves on the market that require frequent adjusting the Baker rarely requires it, and this advantage, with that of durability and efficiency, makes it the cheapest air valve on the market.

## LIST PRICES.

Style.	Bronzed, each.	Nickel- ed, each.
No. 1 with Drip Pipe Connection.....	\$1.00	\$1.25
No. 2 without Drip Pipe Connection.....	1.00	1.25
No. 3 for Indirect Radiators.....	.75	1.00
No. 5 Combination with Nos. 1 or 2, extra.....	.25	.25
Nos. 1 or 2 with R. & L. Coupling, extra.....	.25	.25
No. 1 with Evaporation Cup.....	.25	.25



## BUNDY COMBINATION AIR VALVES.



STYLE A

Bundy Combination Automatic and Positive Air Valves combine all the advantages of the automatic air valve and positive pet cock. The expansion tube of the automatic is acted upon by the steam both interiorly and exteriorly until the valve has closed, after which steam is in contact only with the small surface of the interior, thus preventing straining of parts after valve is closed.

Handsomely nickel plated, neat and attractive, and by far the best low price air valve on the market.

## LIST PRICES.

No. A.	Without Drip Pipe Connection,.....	each,	\$1.25
No. B.	With Drip Pipe Connection. ....	"	1.50
No. C.	With Evaporation Cup.....	"	1.85
	Evaporation Cup only.....	"	.40

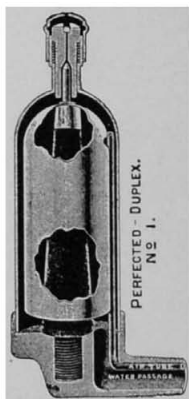
## AUTOMATIC STEAM AIR VALVES.



PERFECTO DUPLEX No. 6.  
LOCKED SHIELD.  
List.....Each, \$1.35



PERFECTO DUPLEX No. 2.  
List.....Each, \$1.15  
Heat Controller 15c. net  
each extra.



PERFECTO DUPLEX No. 1.  
List.....Each, \$1.15



PERFECTO DUPLEX No. 3.  
FOR RISERS.  
List.....Each, \$1.15



BADGE.  
List.....Each, \$1.00



ANCHOR.  
List.....Each, \$1.00

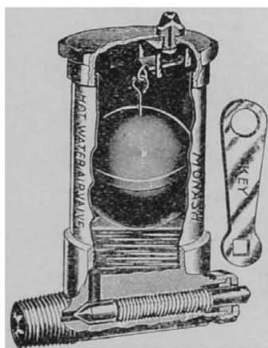
AUTOMATIC STEAM, AND HOT WATER  
AIR VALVES.



Monash No. 1

MONASH No. 1.

List.....Per Doz., \$7.50  
Drip Cups, \$2.00 per doz.



MONASH HOT WATER.

List.....Each, \$3.00

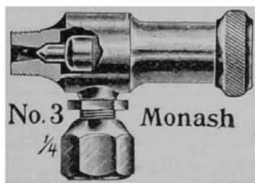


MONASH No. 2.

MONASH No. 2.

1/8 inch for air line.

List.....Per Doz., \$8.35

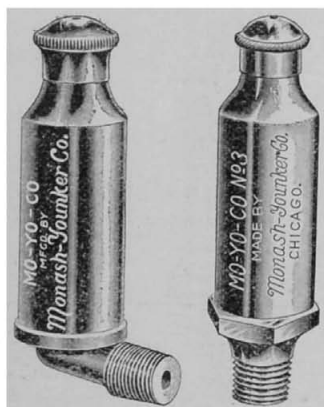


No. 3 Monash

MONASH No. 3.

1/4 inch for air line.

List .....Per Doz., \$10.00



MO-YO-CO No. 1.

MO-YO-CO No. 3.

1/4-inch Risers.

List, ... Each, \$1.00

List, ... Each, \$1.00





## JENKINS WOOD WHEEL GATE VALVES.

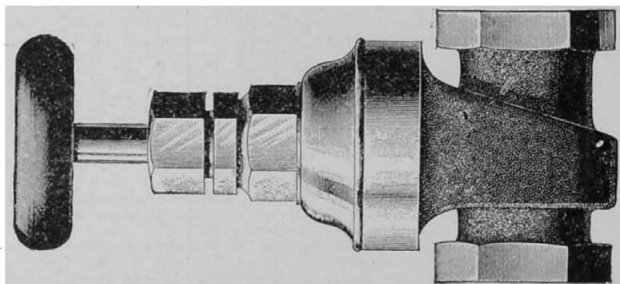
Screwed Ends, Right or Left Hand Threads, as ordered.

Size.....	1/2	3/4	1	1 1/4	1 1/2	2
No. 1, W. W., finished trimmings.....	2 25	2 75	3 65	4 95	6 00	9 25
" 2, " finished all over.....	3 75	4 25	5 25	6 55	7 60	12 90
" 3, " nickel plated trimmings.....	2 50	3 00	3 95	5 15	6 25	9 45
" 4, " rough body, nickel plated all over	2 55	3 05	4 00	5 20	6 35	9 60
" 5, " finished and nickel plated all over	4 00	4 55	5 65	6 85	8 00	13 55

With Male or Female Unions, as ordered.

Size.....	1/2	3/4	1	1 1/4	1 1/2	2
No. 6, W. W., finished trimmings.....	3 20	3 75	4 80	6 40	8 00	11 50
" 7, " finished all over.....	4 75	5 30	6 40	8 00	9 45	15 15
" 8, " nickel plated trimmings.....	3 30	3 95	5 10	6 60	8 10	11 70
" 9, " rough body, nickel plated all over	3 40	4 05	5 30	6 75	8 25	11 90
" 10, " finished and nickel plated all over	5 05	5 65	6 95	8 40	10 50	15 85

ALSO FURNISHED WITH LOCK SHIELDS.







WITH UNION.

## BUNDY "A" STEAM RADIATOR VALVES.

THREADS—R. H. on Union.  
R. H. on Bottom.

THREADS—L. H. on Side.  
R. H. on Bottom.



WITHOUT UNION.

ROUGH BODY, PLATED ALL OVER, JENKINS DISC.

Size.....Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
With Union .....	\$3.90	\$4.70	\$6.25	\$8.15	\$13.00
Without Union.....	2.90	3.60	4.90	6.65	10.90



WITH IRON HANDLE.

## BUNDY BRASS GLOBE VALVES.

THREADS—R. H. both  
Openings.



WITH WOOD HANDLE.

ROUGH BODY, WITH JENKINS DISC.

Size, Inches.	Plain, with Iron Handle.	Nickel Plated, with Wood Handle.
$\frac{1}{8}$	\$1.10	.....
$\frac{1}{4}$	1.10	\$1.90
$\frac{3}{8}$	1.25	2.25
$\frac{1}{2}$	1.60	2.40
$\frac{3}{4}$	2.20	2.90
1	2.80	3.60
$1\frac{1}{4}$	4.00	4.90
$1\frac{1}{2}$	5.50	6.65
2	8.00	10.90





BUNDY  
 QUICK-OPENING  
 BONNETLESS  
 TRADE MARK  
 HOT WATER  
 RADIATOR VALVES.



With Union.

Without Union.

THREADS—R. H. on Union.  
 R. H. on Bottom.

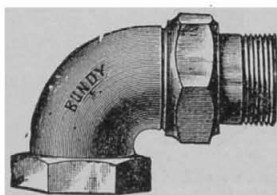
THREADS—L. H. on Side.  
 R. H. on Bottom.

Rough Body, Plated all over.

Size.....Inches	3/4	1	1 1/4	1 1/2	2
With Union.....	\$2.85	\$3.65	\$5.05	\$7.10	\$10.85
Without Union.....	1.95	2.65	3.70	5.00	7.75

BUNDY  
 UNION ELBOWS.

THREADS—Both Right-Hand.



Rough Body, Plated all over.

Size.....Inches	3/4	1	1 1/4	1 1/2	2
Brass.....	\$2.00	\$2.50	\$3.20	\$4.00	\$6.00

All Valves threaded as described unless otherwise ordered.

Radiator valves of all styles and sizes, can be furnished, with Lock and Shield at no extra charge.

Keys, extra, plain.....each, \$0.15  
 Keys, extra, plated ..... " .20



RIGHT-HAND VALVE.

## STEAM CORNER RADIATOR VALVES.

THREADS—R. H. on Union.  
L. H. on Bottom.



LEFT-HAND VALVE.



RIGHT-HAND VALVE

## STEAM CORNER RADIATOR VALVES.

THREADS—Left-Hand.  
Both Openings.

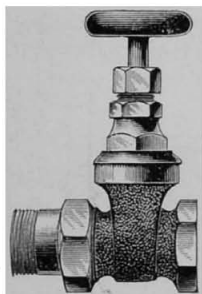


LEFT-HAND VALVE.

## CORNER VALVES.

ROUGH BODY, PLATED ALL OVER, JENKINS DISC.

Size.....Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
With Union.....	\$4.25	\$5.15	\$6.95	\$8.95	\$14.25
Without Union.....	3.15	3.90	5.40	7.40	11.95



With Union.

THREADS—Both R. H.



Without Union.

THREADS—Both R. H.

Brass, Rough Body, Screwed.

Size..... Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
With Union, plated all over	\$3.10	\$3.75	\$4.65	\$6.10	\$7.85	\$12.10	.....
Without Union, plain.....	1.30	1.75	2.50	3.50	5.00	7.50	\$15.00



GATE OR  
STRAIGHTWAY  
VALVES.

Iron Body, Brass Mounted, Screwed or Flanged Ends.

Size..... Inches	2	2 1/2	3	3 1/2	4	4 1/2
Screwed or Flanged.....	\$10.00	\$12.00	\$15.00	\$18.00	\$20.00	\$23.00

Size..... Inches	5	6	7	8	10	12
Screwed or Flanged.....	\$25.00	\$30.00	\$40.00	\$50.00	\$65.00	\$90.00

When ordering, state whether screwed or flanged are wanted.

## SOLID STOCKS AND DIES.



No.



No. AA.

Nos.....		A	AA
No. A, Threads $\frac{1}{8}$ to $\frac{1}{2}$ -inch Pipe.....	Each	7.00	.....
No. AA, " $\frac{1}{8}$ to 1 " .....	"	.....	10.00
Extra Die Plates, for No. A.....	Each	5.00	.....
" " " " " AA, cutting $\frac{1}{8}$ , $\frac{1}{4}$ and $\frac{3}{8}$ .....	"	.....	3.50
" " " " " " $\frac{1}{2}$ , $\frac{3}{4}$ and 1.....	"	.....	4.00

COMBINATION SCREWING STOCK,  
WITH LOOSE DIES.

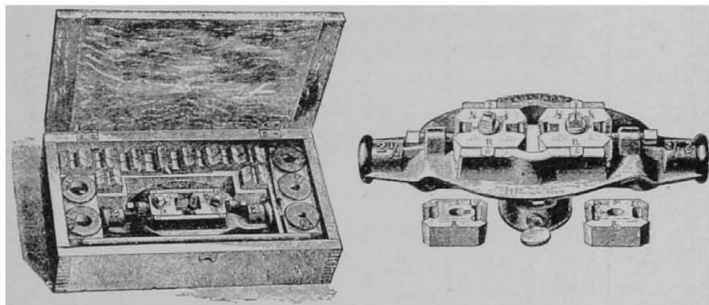
No. O.



No. OO.

No. O Threads, $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ and $\frac{1}{2}$ inch.....	Each	8 00
" OO " $\frac{1}{2}$ , $\frac{3}{4}$ and 1 inch.....	"	9 00
" O Extra Dies, Right or Left .....	"	1 00
" OO .....	"	1 50

## ARMSTRONG'S ADJUSTABLE STOCK AND DIES.



Style of Nos. 1 and 2.

Style of No. 2 1/2.

NUMBER.	Threads Pipe.	Complete Each.	Stock only Each.	Extra Dies. Each.	Extra Bushings. Each.	Extra Wrenches. Each.
No. 1, 4 Dies, Single End.....	$\frac{1}{8}$ to $\frac{1}{2}$	9.00	3.25	1.25	.20	.25
" 2, 5 " " " .....	$\frac{1}{4}$ to 1	12.00	4.00	1.50	.25	.25
" 2 1/2, 4 " " Double " .....	$\frac{1}{2}$ to 1 1/4	12.00	4.50	3.25	.40	.25
" 3, 3 " " Single " .....	1 1/4 to 2	20.00	7.00	4.00	.50	.50
" 4, 3 Square Dies.....	1 1/4 to 2	18.00	7.00	3.00	.50	
" 6, 2 Dies, Double End.....	2 1/2 and 3	40.00	25.00	15.00	1.00	.50
" 7, 3 " " " " .....	2 1/2 to 4	60.00	30.00	16.00	1.50	.75

## NOTE.

Numbers 1 and 2 Stocks are packed in cases

" 2 1/2, 6 and 7 Stocks are fitted with Double-ended Dies.

" 4 is a Sectional Stock.

" 6 and 7 have Four-arm Handles.

## MALLEABLE STOCKS WITH SOLID DIES.

Number.....	0	1	1½	2	3	3½
Sizes of Pipe taken.....Inches	½ to ½	¾ to 1	¾ to 1¼	1¼ to 2	2½ & 3	2½ & 3
Dimensions of Dies... ..Inches	2 x 2½	2½ x ¾	3 x ¾	4 x 1	5 x 1¼	5 x 1¼
Complete with Right Hand Dies, Each	9.50	15.00	13.50	20.00	43.00	51.00
Stocks only.....Each	3.50	5.00	6.00	9.50	25.00	33.00
Extra Dies, Right or Left Hand, Each	1.50	2.00	2.50	3.50	9.00	9.00
Extra Guides.....Each	.25	.35	.45	.60	1.00	1.00
Die Frames.....Each	....	.30	.40	.50	.60	.60

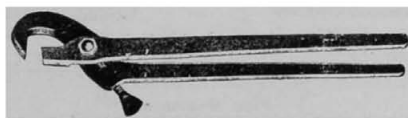
No. 1¾ size, 1, 1¼, 1½ in. Pipe, same price as No. 1½.

" A, Solid Die Plate, ½ to ½ in. Pipe, \$7.00

" AA, " " " ½ to 1 " " 10.00

No. 3½ Stock has Four Handles.

## BROWN'S ADJUSTABLE PIPE TONGS.



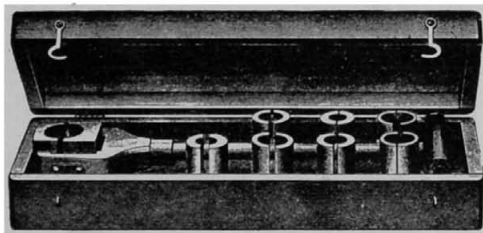
Number.....	1	1½	2	3	4	5	6	7
Grips Pipe.....Inches	¼ to ¾	¾ to 1	1½ to 1¾	1 to 2	1½ to 3	2½ to 4	3 to 5	4 to 7
Each.....	.60	.75	.85	1.20	2.70	6.00	10.00	11.00

## COMMON PIPE TONGS.



Size.....Inches	¼	½	¾	1	1½	2	2½	3	3½	4			
Each.....	.60	.65	.70	.75	.90	1.10	1.30	1.50	1.90	2.50	3.50	4.50	6.00

## HALL'S BRASS PIPE WRENCH.



Number.....	1	2
Grips.....	¾, 1, 1½, 2 inch Iron size Pipe ¾, 1, 1½, 2 inch Plumber's Pipe	1, 1½, 2, 3 inch Iron Size Pipe 1½, 2, 3 inch Plumber's Pipe
Each.....	7.50	12.00
Extra Bushings.....Each	.50	1.00

## A. A. GRIFFING IRON COMPANY.

## PIPE TAP.



## PIPE REAMER



## Pipe Taps.

Size .....	Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Each .....		1.12	1.25	1.50	1.87	2.50	3.12	3.75	4.62	6.25	10.50	15.00	42.00	50.00

## Pipe Reamers.

Size .....	Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Each .....		1.25	1.50	1.87	2.50	3.12	3.75	4.62	6.25	10.50	15.00	42.00	50.00

## COMBINED DRILL, REAMER AND TAP.



## PIPE DRILL.



## Combined Drill, Reamer and Tap.

Size .....		$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Each .....		2.50	2.50	3.00	4.50	6.00	7.25	8.50	10.75

## Pipe Drill.

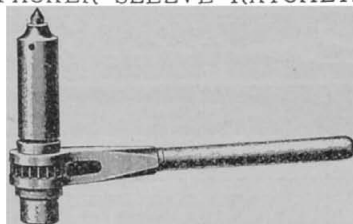
Size .....		$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	
Each .....		.75	.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.75	4.75

## PACKER BOILER RATCHET.



Number .....		1	2
Length, Handle .....	Inches	10	12
Each .....		9.00	10.50

## PACKER SLEEVE RATCHET.



Number .....		1	2	3	4	5
Length, Handle .....	Inches	10	12	15	17	20
Each .....		10.50	13.50	16.00	19.00	23.00



## BARNES THREE-WHEEL PIPE CUTTERS.



Numbers 1 and 2.



Numbers 3 to 7.

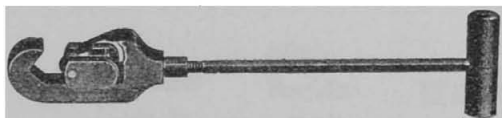
Number.....	1	2	3	4	5	6	7
Cuts Pipe.....	$\frac{1}{2}$ to 1	$\frac{1}{2}$ to 2	$1\frac{1}{2}$ to 3	$2\frac{1}{2}$ to 4	4 to 6	6 to 8	9 to 12
Price.....Each	4.50	6.00	10.00	20.00	30.00	40.00	50.00
Extra Wheels.....	.25	.30	.40	.50	.75	.75	.75
" Pins.....Per Doztn	1.00	1.00	1.00	2.00	2.00	2.00	2.00

## SAUNDERS' ONE-WHEEL AND ROLLER PIPE CUTTER



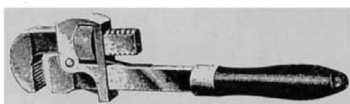
Number.....	1	2	3	4
Cuts Pipe.....	$\frac{1}{4}$ to 1	1 to 2	2 to 3	$2\frac{1}{2}$ to 4
Price.....Each	3.00	4.50	11.00	18.00
Extra Wheels.....	.24	.32	.60	.60
" Blocks and Wheels.....	1.25	1.75	2.75	3.50
" Rollers.....	.24	.32	.60	.50
" Pins.....	.10	.10	.15	.15

## STANWOOD PIPE CUTTER.



Number.....	1	2	3
Cuts Pipe.....	$\frac{1}{2}$ to 1	$\frac{3}{4}$ to 2	2 to 3
Price.....Each	1.50	2.25	7.00
Extra Wheels.....	.12	.18	.25
" Blocks and Wheels.....	.45	.60	1.25
" Pins.....	.05	.05	.08

## STILLSON WRENCH.



With Wood Handle, 6 to 18 Inches.

Length when open.....Inches	6	8	10	14	18
Grips.....	$\frac{1}{2}$ Wire to $\frac{1}{2}$ Pipe	$\frac{1}{2}$ Wire to $\frac{3}{4}$ Pipe	$\frac{1}{2}$ Wire to 1 Pipe	$\frac{1}{2}$ Wire to $1\frac{1}{2}$ Pipe	$\frac{1}{2}$ Wire to 2 Pipe
Each.....	2.00	2.00	2.25	3.00	4.00

Six-inch Wrench with Screw-Driver attachment, Finished.....Each, \$2.37; Nickel Plated, \$3.75.

## STILLSON WRENCH.



With Steel Handle, 18 to 48 Inches.

Length when open.....Inches	18	24	36	48
Grips.....	$\frac{1}{2}$ Wire to 2 Pipe	$\frac{1}{2}$ Wire to $2\frac{1}{2}$ Pipe	$\frac{1}{2}$ Pipe to $3\frac{1}{2}$ Pipe	1 Pipe to 5 Pipe
Each.....	4.00	6.00	12.00	18.00

## REPAIRS FOR STILLSON WRENCHES.



Jaw.



Frame.



Handle.



Nut.

Size.....Inches	6	8	10	14	18	24	36	48
Jaws.....Each	.67	.67	.75	1.00	1.33	2.00	4.00	6.00
Frames....."	.25	.25	.33	.45	.55	.65	.75	1.00
Wood Handles....."	.15	.15	.20	.25	.30			
Steel Handles....."	.66	.66	.78	1.00	1.33	2.00	4.00	6.00
Nuts....."	.20	.20	.27	.35	.42	.50	.65	.80

## TRIMO WRENCH.



Length When Open....Inches	6	8	10	14	18	24	36	48
Grips .....	$\frac{1}{4}$ Wire to $\frac{1}{2}$ Pipe	$\frac{1}{4}$ Wire to $\frac{3}{4}$ Pipe	$\frac{1}{4}$ Wire to 1 Pipe	$\frac{1}{4}$ Wire to 1 $\frac{1}{2}$ Pipe	$\frac{1}{4}$ Wire to 2 Pipe	$\frac{1}{4}$ Wire to 2 $\frac{1}{2}$ Pipe	$\frac{1}{2}$ Pipe to 3 $\frac{1}{2}$ Pipe	1 Pipe to 5 Pipe
Each.....	2.00	2.00	2.35	3.00	4.00	6.00	12.00	18.00
Extra Jaws.....Each	.67	.67	.75	1.00	1.33	2.00	4.00	6.00
" Nuts....."	.20	.20	.27	.35	.43	.50	.65	.80
" Inserted Jaws....."	.25	.25	.33	.50	.55	.65	1.00	1.25
" Frames....."	.25	.25	.33	.45	.55	.65	.75	1.00

## ALLIGATOR WRENCH.



Number .....	1	2	3	4	5
Grips Pipe.....	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{3}{4}$ to 1 $\frac{1}{4}$	$\frac{1}{2}$ to 1 $\frac{1}{4}$	1 $\frac{1}{4}$ to 2	2 to 3
Per Dozen.....	4.00	12.00	24.00	36.00	54.00

## COE'S WRENCH.



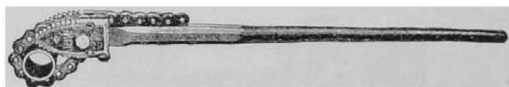
Size.....Inches	6	8	10	12	15	18	21
Black...Per Dozen	9.00	10.00	12.00	14.00	24.00	30.00	36.00
Bright..."	10.00	11.00	14.00	16.00	26.00	32.00	38.00

## ENGINEERS' WRENCH.



Size.....Inches	6	8	10	12	15	18	21
Black...Per Dozen	9.00	10.00	12.00	14.00	24.00	30.00	36.00
Bright..."	10.00	11.00	14.00	16.00	26.00	32.00	38.00

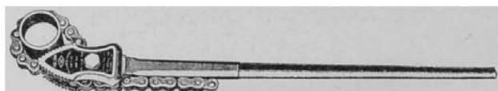
## BROCK'S PATENT CHAIN PIPE WRENCH.



Number.....	0	1	2	3	3½	4	5
Capacity, Size Pipe..... Inches	½ to ¾	¾ to 1½	¾ to 2½	¾ to 4	1 to 6	1½ to 8	2 to 12
Each.....	2.50	3.50	5.50	7.50	9.00	11.00	18.00
Extra Chain..... Each	.75	1.00	1.50	2.50	3.25	4.00	6.00
" Jaws..... Pair	1.00	1.75	2.75	4.00	4.75	5.50	7.50

## VULCAN CHAIN PIPE WRENCH.

With Flat Link Chain.



Number.....	10	11	12	13	13½	14	15
Capacity, Size Pipe..... Inches	¾ to ¾	¾ to 1½	¾ to 2½	¾ to 4	1 to 6	1½ to 8	2 to 12
Each.....	2.50	3.50	5.00	7.00	9.00	11.00	18.00
Extra Chain..... Each	.75	1.00	1.50	2.50	3.25	4.00	6.00
" Jaws..... Pair	1.00	1.75	2.75	4.00	4.75	5.50	7.50

## VULCAN CHAIN PIPE WRENCH.

With Cable Chain.



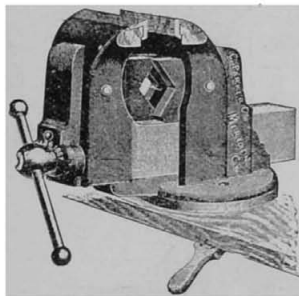
Number.....	10	11	12	13	13½	14	15
Capacity, Size Pipe..... Inches	¾ to ¾	¾ to 1½	¾ to 2½	¾ to 4	1 to 6	1½ to 8	2 to 12
Each.....	2.25	3.25	4.50	6.25	7.75	9.50	16.00
Extra Chain..... Each	.60	.75	1.00	1.75	2.00	2.50	4.00
" Jaws..... Pair	1.00	1.75	2.75	4.00	4.75	5.50	7.50

## ROBBIN'S PATENT CHAIN PIPE WRENCH.



Number.....	2	3	4	5	6
Capacity, Size Pipe..... Inches	1 to 2	1½ to 4	2 to 6	2½ to 8	4 to 10
Length of Lever.....	27 in	3 ft.	4 ft.	5 ft.	6 ft.
Each.....	5.50	6.95	9.00	12.50	16.00

PARKER'S PATENT COMBINATION PIPE VISES.



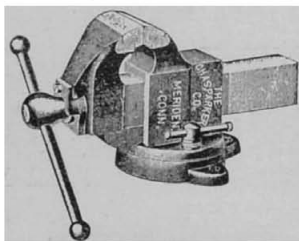
- 
- No. 87. 2 inch pipe and under;  
Jaws,  $3\frac{5}{8}$  inches . . . . . 16.00
  - No. 88. 3 inch pipe and under;  
Jaws,  $4\frac{1}{8}$  inches . . . . . 20.00
- 

The Steel Faces of these Vises are Milled and fitted to the Jaws, and are renewable at a trifling cost.

PARKER'S PATENT PARALLEL SWIVEL VISES.

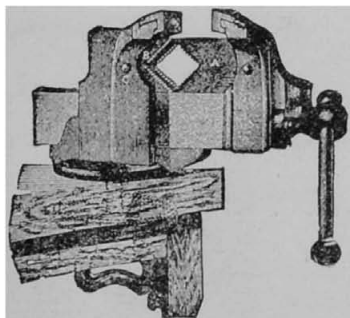
These Swivel Vises do not have Parker's Patent Cast Steel Anvil.

No. 23.	Jaws, $4\frac{1}{8}$ inches....	11.00
" 24.	" $4\frac{3}{4}$ " ....	14.50
" 25.	" $5\frac{3}{8}$ " ....	20.50
" 26.	" $6\frac{1}{8}$ " ....	30.00

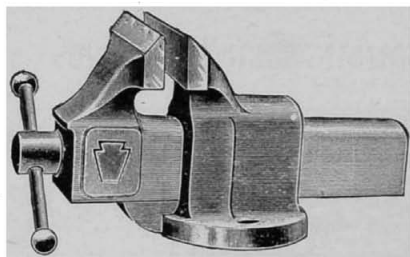


The Steel Faces of these Vises are Milled and fitted to the Jaws, and are renewable at a trifling cost.

SMITH COMBINATION PIPE VISES.



- 
- No. 1. Takes  $\frac{1}{8}$  to 2 inch, 16.00
  - " 2. "  $\frac{1}{2}$  to 3 " 20.00
  - " 3. "  $\frac{1}{4}$  to 4 " 28.00
-

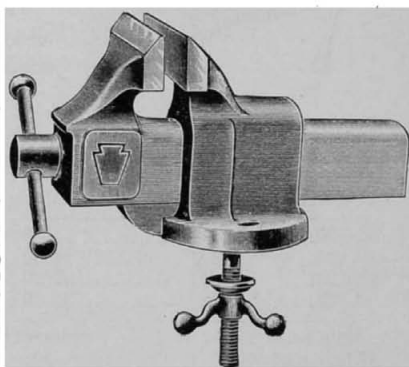


KEYSTONE  
MECHANICS' VISE.  
STATIONARY BASE.

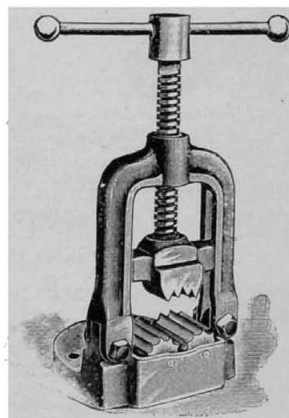
No.	Width Jaw.	Opens.	Weight.	List Price
B	2¼ in.	3 ins.	5 lbs.	\$3.40
D	3 "	4 "	13 "	6.00
F	3½ "	5 "	21 "	7.60
G	4 "	6 "	31 "	10.00
H	4½ "	7 "	46 "	14.00
L	8 "	12½ "	255 "	75.00

KEYSTONE  
MECHANICS' VISE.

SWIVEL BASE.

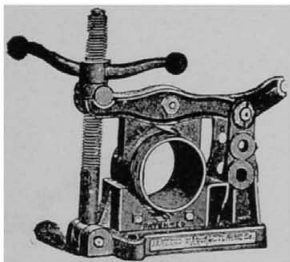


No.	Width Jaw.	Opens.	Weight.	List Price
B B	2¼ in.	3 in.	5½ lbs.	\$3.90
D D	3 "	4 "	14 "	6.60
F F	3½ "	5 "	23 "	8.35
G G	4 "	6 "	33 "	10.75
H H	4½ "	7 "	50 "	14.75



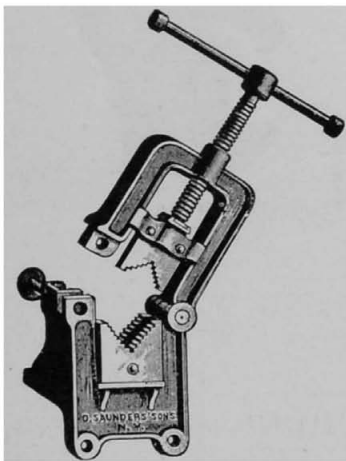
KEYSTONE MALLEABLE  
PIPE VISE.

No. R,	holding Pipe	¼ to 2 ins.	.....	\$4.00
No. S,	"	2 " 4 "	.....	10.00
No. T,	"	1 " 6 "	.....	16.00
No. U,	"	6 " 12 "	.....	50.00



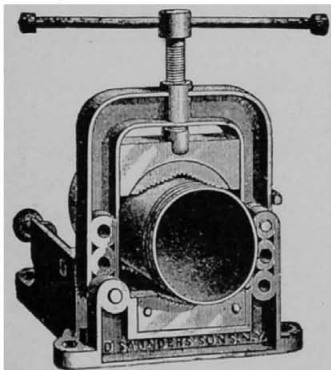
JARECKI'S MALLEABLE IRON  
HINGE PIPE VISES.

Number...	1A	2A	3A	4A
Takes ....	1/8 to 2 in	1/8 to 4 in.	2 to 6 in.	6 to 12 in.
Each. ...	12.00	16.00	24.00	60.00



SAUNDERS' MALLEABLE IRON  
HINGE PIPE VISES.

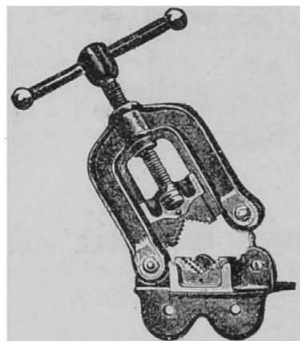
Number.....	1	2
Takes... ..	1/8 to 2 in.	1/4 to 3 in.
Each .....	\$10.00	\$13.00



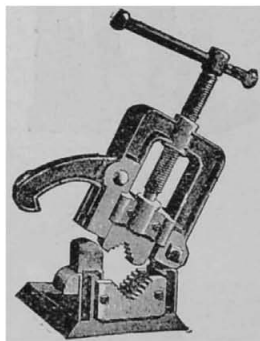
SAUNDERS' MALLEABLE IRON  
HINGE PIPE VISES.

Number. ....	3	4	5
Takes... . .	1/2 to 4 in.	2 to 6 in.	2 1/2 to 8 in.
Each.....	\$24.00	\$30.00	\$45.00

## PIPE VISES.



Malleable Iron Vise.



Armstrong Vise.

## MALLEABLE IRON PIPE VISES.

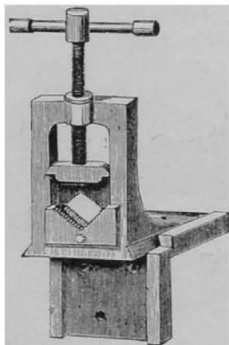
Number .....	1	2
Takes.....	$\frac{1}{8}$ to $2\frac{1}{2}$ in.	$\frac{1}{4}$ to $3\frac{1}{2}$ in.
Price .....	\$10.00	\$14.00

## ARMSTRONG VISES

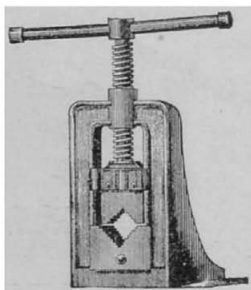
No. 10, takes from $\frac{1}{8}$ to $2\frac{1}{2}$ inch pipe ; weight, 17 lbs.....	\$10.00
“ 20, “ “ $\frac{1}{2}$ to 4 “ “ “ 38 “ .....	20.00
“ 25, “ “ $\frac{1}{2}$ to 5 “ “ “ 42 “ .....	25.00
“ 30, “ “ $\frac{1}{2}$ to 6 “ “ “ 52 “ .....	30.00



PIPE VISES.



Common.



Malleable Iron—Light.

Common Pipe Vises.

Number.....	1	2	3
Holds Pipe.....Inches	$\frac{1}{2}$ to 2	$\frac{1}{2}$ to 3	$\frac{1}{2}$ to 4
Each.....	9.00	15.00	25.00

Light Malleable Iron Pipe Vises.

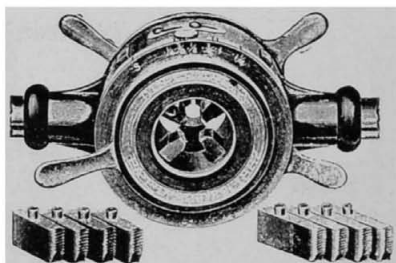
Number.....	0
Holds Pipe.....Inches	$\frac{1}{4}$ to 2
Each.....	8.00

JACK SCREWS.



Diameter of Screw.	Height of Stand.	Lifting Capacity.	Each.	Diameter of Screw.	Height of Stand.	Lifting Capacity.	Each.
1 $\frac{1}{8}$ inches	10 inches	8 tons	3.60	2 inches	24 inches	20 tons	13.50
1 $\frac{1}{4}$ "	6 "	10 "	3.10	2 $\frac{1}{2}$ "	6 "	28 "	7.75
1 $\frac{3}{8}$ "	10 "	10 "	3.80	2 $\frac{3}{4}$ "	8 "	28 "	8.75
1 $\frac{1}{2}$ "	14 "	10 "	4.60	2 $\frac{1}{2}$ "	12 "	28 "	10.75
1 $\frac{3}{4}$ "	6 "	12 "	3.75	2 $\frac{3}{4}$ "	16 "	28 "	13.25
1 $\frac{1}{2}$ "	10 "	13 "	4.75	2 $\frac{3}{4}$ "	20 "	28 "	15.75
1 $\frac{3}{4}$ "	14 "	12 "	6.00	2 $\frac{1}{2}$ "	24 "	28 "	18.25
2 "	6 "	20 "	5.25	3 "	14 "	36 "	19.50
2 "	10 "	20 "	6.75	3 "	18 "	36 "	22.00
2 "	16 "	20 "	9.25	3 "	24 "	36 "	25.75

## DUPLEX ADJUSTABLE STOCK AND DIES.



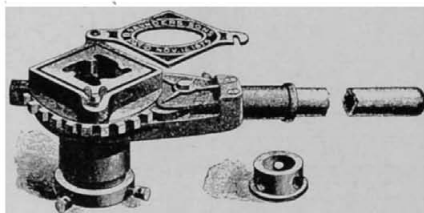
		WITHOUT CUT-OFF	WITH CUT-OFF
Number 1, for threading	$\frac{1}{8}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ Inch Pipe	13.00	16.00
" 2,	" $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1, 1 $\frac{1}{4}$ "	17.00	20.00
" 3,	" 1, 1 $\frac{1}{4}$ , 1 $\frac{1}{2}$ , 2 "	22.00	25.00
" 3 $\frac{1}{2}$ ,	" $\frac{1}{2}$ , $\frac{3}{4}$ , 1, 1 $\frac{1}{4}$ , 1 $\frac{1}{2}$ , 2 "	25.00	28.00
" 4,	" 1 $\frac{1}{2}$ , 2, 2 $\frac{1}{2}$ , 3 "	40.00	45.00
" 5,	" 2 $\frac{1}{2}$ , 3, 3 $\frac{1}{2}$ , 4 "	55.00	60.00

### Extra Dies for Duplex Stock.

Number...		1	2	3	3 $\frac{1}{2}$	4	5
Single Set (4 pieces)—Right or Left	Each	1.50	1.75	2.00	2.00	3.50	4.00

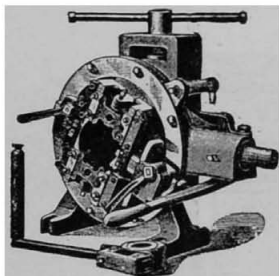
## SAUNDERS' RATCHET STOCK.

With Leader Screw.



Number.....		1	2
With Dies for Threading Pipe.....	Inches	$\frac{1}{2}$ , $\frac{3}{4}$ , 1, 1 $\frac{1}{4}$ , 1 $\frac{1}{2}$	1, 1 $\frac{1}{4}$ , 1 $\frac{1}{2}$ , 2
Each.....		24.00	30.00

ARMSTRONG PIPE CUTTING MACHINE.



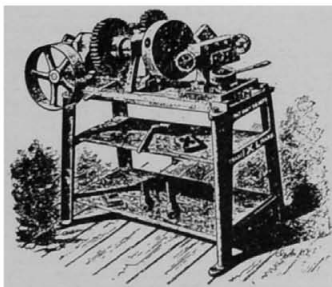
Hand Machine, without Dies, without Stand, \$165.00; with Stand.....	125.00
Hand Machine, with Pipe Dies 1 to 4 inches, R. H., without Stand, \$125.00; with Stand.....	145.00
Machine, without Dies, Power Attachment, no Countershaft.....	130.00
Power Attachment and Countershaft.....	175.00
Machine, with Pipe Dies, 1 to 4 inches, R. H., Power Attachment, no Countershaft.....	150.00
Power Attachment and Countershaft.....	195.00
Machine, Pipe Dies, 1 to 4 inches, R. H., with Stand, Power Attachment, no Countershaft.....	170.00
Power Attachment and Countershaft.....	215.00

Extra Dies are the same as used in No. 3 and No. 6 Stocks, viz., 1 to 2 inches No. 3, and 2½ to 3 inches No. 6, listed on page 14. 3½ and 4 inch Dies, for Machine use only, at same list as No. 6 Dies. Left Hand same price as R. H. Dies. Conduit Dies furnished for No. 0 and 00 Machines same list as regular No. 2, No. 3 and No. 6 Dies.

Machine Power Attachment, no Countershaft .....	25.00
" Countershaft.....	45.00
" Stand.....	20.00

Unless specified, Machine is shipped without Stand, and for hand use.

IXL NEW IMPROVED  
PIPE CUTTING  
AND  
THREADING MACHINE.



HAND MACHINE No. 1.

With set of Right Hand Solid Dies.....	Inches	¼ to 2
Fly Wheel and set of Sockets for making nipples.....	"	¼ to 2
Each.....		90.00

POWER AND HAND MACHINE, No. 2.

With Set of Right Hand Solid Dies.....	Inches	¼ to 2
Fly Wheel, Pulleys, Countershaft and set of Sockets for making nipples.....	"	¼ to 2
Each.....		110.00

Speed of Countershaft, 150 revolutions per minute; Pulleys, 11 inches in diameter; weight of Hand Machine, 400 pounds; Power and Hand Machine, 600 pounds. Attachments fitted to these machines, when ordered, for threading Bolts and tapping Nuts. 1¼ inches and smaller sizes, at an additional cost.

-Prices for other sizes on application.

FILES AND RASPS.



INCH.	MILL AND ROUND.			FLAT.			SQUARE.			HAND AND PILLAR.			INCH. HALF RD. & THREE SQ.			WARDING.				
	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth		
4	3.00	3.50	3.90				4	3.80	4.60	4.90	3.70	4.30	4.80	4	4.50	5.60	6.10	4.00	4.60	5.40
5	3.20	3.80	4.10	3.90	4.60	4.90	5	4.10	4.80	5.30	3.90	4.70	5.30	5	5.40	6.10	6.40	4.60	5.30	5.80
6	3.50	4.00	4.60	4.30	4.80	5.30	6	4.50	5.10	5.60	4.30	5.10	5.60	6	6.10	6.70	7.10	4.90	5.90	6.40
7	3.90	4.60	4.90	4.80	5.50	6.10	7	5.10	5.80	6.30	4.90	5.80	6.30	7	7.00	7.70	8.20	5.90	6.90	7.50
8	4.30	4.90	5.40	5.30	6.10	6.60	8	5.50	6.30	7.00	5.40	6.30	6.70	8	7.50	8.30	8.90	6.40	7.50	8.20
9	4.90	5.60	6.30	6.30	7.20	7.90	9	6.60	7.70	8.30	6.70	7.80	8.30	9	8.50	9.40	9.90	7.80	9.00	9.90
10	5.60	6.40	7.00	7.00	8.10	8.70	10	7.40	8.50	9.10	7.50	8.70	9.40	10	9.10	10.10	10.70	8.70	10.10	11.00
11	6.70	7.80	8.50	8.50	9.80	10.70	11	9.10	10.40	11.30	9.40	10.90	11.80	11	10.70	11.80	12.70	10.90	12.70	13.70
12	7.50	8.60	9.40	9.70	11.00	12.10	12	10.20	11.60	12.80	10.70	12.30	13.50	12	11.80	13.00	13.90	12.30	14.30	15.40
13	9.40	10.70	11.70	11.80	13.60	14.70	13	13.90	15.40	16.40	13.30	15.20	16.20	13	14.10	15.40	16.30	16.20	17.40	18.70
14	10.70	12.20	13.10	13.30	15.30	16.70	14	15.90	16.10	17.00	15.00	17.00	18.20	14	15.50	17.00	18.30	17.00	19.40	21.00
15	13.10	15.00	16.10	16.00	18.30	20.00	15	18.90	19.20	20.90	17.90	20.60	21.70	15	18.60	20.40	21.70			
16	14.70	16.80	17.90	17.80	20.10	22.30	16	17.10	21.20	23.30	20.10	22.80	24.20	16	20.60	22.60	24.20			
17	18.20	20.20	21.70	21.50	24.20	26.50	17	22.50	25.40	27.50	24.20	27.10	28.60	17	24.70	27.00	28.90			
20	20.20	22.70	24.30	23.90	26.80	29.20	20	25.10	28.20	30.40	26.80	29.90	31.50	20	27.50	29.90	32.00			
19	24.60	27.50	29.40	28.40	31.60	34.60	19	29.70	33.20	35.70	31.90	35.40	37.60	19	32.80	35.70	38.10			
20	27.40	30.70	32.90	31.60	35.30	38.30	20	32.80	36.70	39.30	35.10	39.20	41.60	20	36.20	39.40	42.30			

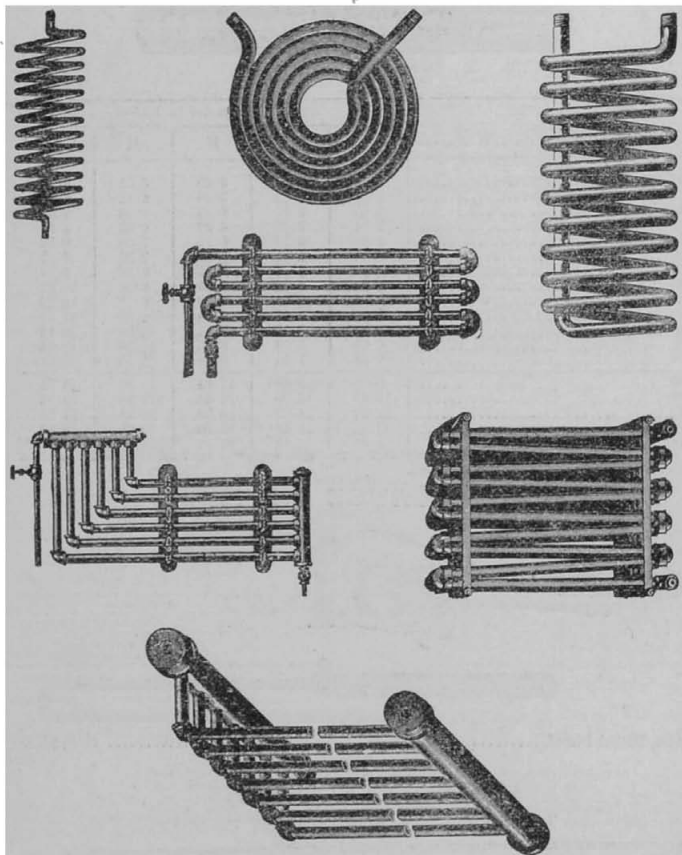
MILL BLIND, Dbl. Cut, adv. 5 in. Mill Dbl. Cut, adv. 1 in. Mill Narrow Point. Cast (Blind) Dbl. Cut, advance 3 in. Square Blind, advance 1 in. Slitting (Bl.) adv. 5 in. Cutter Blind or Tappr. advance 2 in. Glass, Cransing, Tumbler, Fish Edge (Blind), Half Round, 1/2 inch.

INCH.	MILL ONE ROUND EDGE.			MILL TWO ROUND EDGES.			INCH.	TAPERS.		SLIM TAPERS.		BANDSAW. Blunt & Taper.		INCH.	FIT SAW.		CANT SAW.		CROSS CUT.		HOOK TOOTH.		Planer Knife.		Inserts Tooth of Chisel Tooth.	
	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth		Single Cut	Double Cut	Single Cut	Double Cut	Regul'	Slim		Single Cut	Double Cut	Single Cut	Double Cut	Single Cut	Double Cut	Single Cut	Double Cut	Single Cut	Double Cut	Single Cut	Double Cut
4	3.40	3.90	4.40	3.80	4.40	4.90	3	2.10	2.50	2.10	2.50	2.60	2.60	4	4.80	4.80	4.80									
5	3.60	4.30	4.60	4.00	4.80	5.10	3 1/2	2.10	2.50	2.10	2.50	2.60	2.60	5	5.40	4.70	5.40									
6	3.90	4.50	5.10	4.40	5.00	5.60	4	2.30	2.90	2.30	2.90	2.90	2.90	6	6.10	5.40	6.10									
7	4.40	5.20	5.60	4.90	5.80	6.10	4 1/2	2.40	3.10	2.30	3.00	3.10	3.00	7	7.00	6.10	7.00									
8	4.80	5.60	6.10	5.40	6.10	6.80	5	2.60	3.60	2.50	3.20	3.50	3.20	8	7.50	6.40	7.50									
9	5.50	6.50	7.10	6.10	7.30	7.90	5 1/2	3.00	4.00	2.90	3.60	4.00	3.50	9	8.50	7.80	8.50									
10	6.30	7.20	7.90	7.00	8.00	8.60	6	3.40	4.70	3.10	3.90	4.70	3.90	10	9.10	8.70	9.10									
11	7.50	8.80	9.60	8.40	9.80	10.80	7	4.30	5.60	3.80	4.50	5.60	4.50	11	10.10	10.40	10.70									
12	8.40	9.70	10.60	9.40	10.80	11.80	8	5.40	6.70	4.50	5.30	6.70	5.30	12	11.80	11.40	11.80									
13	10.60	12.00	13.20	11.80	13.40	14.60	9	6.60	8.10	5.40	6.30	8.10	6.30		Climax adv 5 in. on Bl. Band Saw Round Outlets, take Pitaw price.											
14	12.00	13.70	14.70	13.40	15.30	16.40	10	8.10	9.70	6.40	7.50	9.70	7.50		DOUBLE-ENDED TAPER.											
15	14.70	16.90	18.10	16.40	18.80	20.10	10 1/2	10.70	12.10	8.30	9.10	12.10	9.10	6	7.50	8.50	9.30	4	4.10	10						
16	16.50	18.90	20.10	18.40	21.00	22.40	12	12.50	14.70	9.60	11.00	14.70	11.00	7	8.60	8.70	9.20	4	4.40	10						
17	20.20	22.70	24.40	22.80	25.30	27.10	13	15.90	17.50	12.10	13.10	17.50	13.10	8	9.60	9.60	10.00	4	4.10	10						
18	22.70	25.60	27.30	25.30	28.40	30.40	14	18.20	20.60	13.80	15.40	20.60	15.40	9	10.60	10.60	11.00	4	4.10	10						

INCH.	HORSE RASPS.			FILE RASPS.			INCH.	WOOD FILES.			WOOD RASPS.			INCH.	SHOE RASPS.			INCH.	KNIFE.						
	Plain	Revised & 1/2 Rasp	Target	Flat	Hl. Rod.			Flat	Hl. Rod.	Cabinet	Flat	Hl. Rod.	Cabinet		Flat	Hl. Rod.	Oval		Bastard	2d Cut	Smooth				
6	...	...	...	7.40	8.10		6	4.30	6.10	8.10	7.40	8.10	10.10	6	7.10	8.10	9.30	4	5.40	6.10	6.40				
7	...	...	...	8.60	9.30		7	4.90	7.00	9.30	8.60	9.30	11.70	7	8.10	9.30	10.10	5	6.10	7.10	7.10				
8	...	...	...	9.40	10.10		8	6.30	7.50	10.10	9.40	10.10	12.80	8	10.10	10.10	12.20	6	6.90	7.50	7.90				
9	...	...	...	11.40	12.20		9	6.30	8.50	12.20	11.40	12.20	15.80	9	12.20	12.20	13.70	7	7.80	8.60	8.90				
10	9.40	10.70	12.80	12.80	13.70		10	7.90	9.10	13.70	12.80	13.70	17.50	10	13.70	13.70	16.80	8	8.50	9.10	9.60				
11	11.40	12.90	15.20	15.60	16.50		11	8.60	10.70	16.50	15.60	16.50	20.70	11	16.80	16.80	18.70	9	9.40	10.60	11.30				
12	12.90	14.40	16.90	17.50	18.70		12	9.70	11.80	18.70	17.50	18.70	22.80	12	18.70	18.70	22.40	10	10.10	11.50	12.30				
13	15.20	17.00	19.60	20.90	22.40		13	11.80	14.10	22.40	20.90	22.40	26.80	13	22.40	22.40	...	11	12.20	13.70	14.60				
14	17.80	20.10	23.10	23.20	24.80		14	13.30	15.50	24.80	23.20	24.80	29.60	14	24.80	24.80	...	12	13.70	16.20	17.10				
15	20.90	23.60	27.30	27.60	29.70		15	16.00	18.50	29.70	27.60	29.70	33.90					13	16.30	17.90	19.20				
16	24.40	27.50	32.20	30.80	32.90		16	17.80	20.60	32.90	30.80	32.90	36.90					14	18.20	19.90	21.20				
17	28.90	31.50	...	36.20	38.30		17	21.50	24.70	38.30	36.20	38.30	42.40												
18	32.90	36.20	...	40.90	43.60		18	23.50	27.50	43.60	40.90	43.60	46.90												

Files below 4 inches, not extended, take 4 inch price. Blunt Files not specified, advance one inch on respective blade and cut. Single or Double Cut not specified, take next higher full inch price. Equalizing (Beveled), advance two inches on respective blade and cut. One Round Edge, advance 1/2 per cent. Files varying from standard sizes, subject to special price. All lengths above those listed, advance 20 per cent. on next lower inch price. Last Makers' Rasps. One inch adv. on Cabinet Rasp.

## PIPE COILS AND BENDS.



Accurate dimensions, number of pipes, etc., should accompany all orders.

Prices on application.

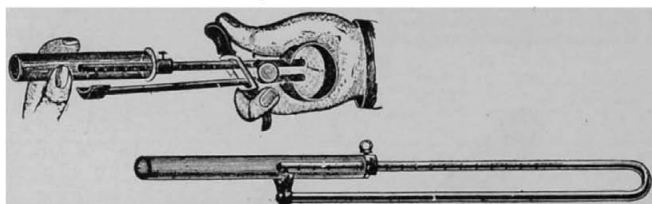
SCOTCH GAUGE GLASSES.  
FOR WATER GAUGES.



Length, Inches .....	External Diameter in Inches.				
	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1 inch.
10.....	3 00	3 00	3 60	5 04	6 12
11.....	3 24	3 24	3 96	5 64	6 72
12.....	3 60	3 60	4 32	6 12	7 32
13.....	3 84	3 84	4 80	6 60	7 92
14.....	4 20	4 20	5 16	7 08	8 52
15.....	4 44	4 44	5 52	7 56	9 12
16.....	4 80	4 80	5 88	8 16	9 72
17.....	5 04	5 04	6 24	8 64	10 32
18.....	5 40	5 40	6 60	9 12	10 92
19.....	5 64	5 64	7 08	9 60	11 52
20.....	6 00	6 00	7 44	10 20	12 12
22.....	6 60	6 60	8 16	11 16	13 44
24.....	7 20	7 20	8 88	12 12	14 64
30.....	9 00	9 00	11 16	15 24	18 24
36.....	10 80	10 80	13 44	18 24	21 96
48.....	14 52	14 52	18 00	24 36	29 16
60.....	18 12	18 12	22 56	30 48	36 48
72.....	21 84	21 84	27 12	36 48	43 80

Sizes over 24 inches, Special Discount.

GLASS GAUGE CUTTERS.

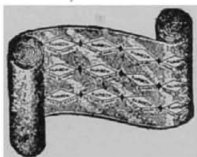


Price, Nickel Plated..... each, \$2.00

RUBBER WASHERS.  
TO FIT TUBES FOR WATER GAUGES.

Size.....Inch	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Price.....per dozen	.20	.25	.30	.40	.60

RAINBOW PACKING.



Made in Rolls about 200 lbs. each,  $\frac{1}{8}$  in.,  $\frac{1}{4}$  in.,  $\frac{3}{8}$  in.,  $\frac{1}{2}$  in.,  $\frac{5}{8}$  in.,  $\frac{3}{4}$  in.,  $\frac{7}{8}$  in.,  $\frac{1}{2}$  inch.  
Price, per lb., 80 cents.

JENKINS STANDARD '96 PACKING.

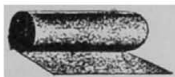


Jenkins '96 Packing is made one yard wide and  $\frac{1}{8}$  in.,  $\frac{1}{4}$  in.,  $\frac{3}{8}$  in.,  $\frac{1}{2}$  in.,  $\frac{5}{8}$  in. and  $\frac{3}{4}$  in. thick. The  $\frac{1}{8}$  in. weighs about  $2\frac{3}{4}$  lbs. per square yard,  $\frac{1}{4}$  in.  $5\frac{1}{2}$  lbs.,  $\frac{3}{8}$  in.  $8\frac{1}{4}$  lbs.,  $\frac{1}{2}$  in. 11 lbs.,  $\frac{5}{8}$  in.  $16\frac{1}{2}$  lbs.,  $\frac{3}{4}$  in.  $22\frac{1}{2}$  lbs.

Price, per lb., 80 cents.

SHEET RUBBER PACKING.

EITHER CLOTH INSERTION, CLOTH ON ONE OR BOTH SIDES.



Size, Thickness.....	Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
One-ply.....	Per Pound	70	.05	.60	.60	..	.....
Two-ply.....	"	.....	.....	.63	.58	.55	.....
Three-ply.....	"	.....	.....	.06	.61	.53	.55
Four-ply.....	"	.....	.....	.....	.....	.61	.58 .55

There is one ply of cloth to every  $\frac{1}{8}$  in. thickness. Each cloth, whether insertion or on the outside, to count as one ply.

Pure Gum Sheet Packing.....Per Pound, 1.40

MISCELLANEOUS PACKINGS.

Peerless Piston Compressed Core Packing.....	Per Pound,	.80
Phoenix Hemp Packing.....	"	.60
" Gum.....	"	.80
Eagle Flat Gum Core Packing.....	"	.60
Soapstone.....	"	.20
Italian Flax Packing.....	"	.30
Hemp.....	"	.17
American Hemp Packing.....	"	.20
Mineral Wool.....	"	.05
Usudurian Sheet Packing.....	"	.80

## A. A. GRIFFING IRON COMPANY.

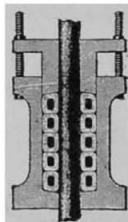
## SELDEN'S PATENT PACKING.



Round with "Rubber Core," $\frac{1}{4}$ inch to 2 inch diameter.....	Per Pound, .80
" " "Canvas Core," $\frac{1}{4}$ " " $1\frac{1}{2}$ " " .....	" .60
Square " either "Rubber Core" or "Canvas Core".....	" 1.00

The "Square" is not made in sizes smaller than  $\frac{1}{2}$  inch.

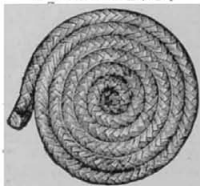
## EUREKA PACKING.



## HOW TO USE "EUREKA."

Use exact size, measuring flat-way. Break Joints. Screw gland up moderately tight. Let engine make a few revolutions, then loosen gland until steam escapes, then screw up slowly until steam ceases. The rubber center then expands and keeps rod tight. Do not screw up like with common packing. Let expansion of rubber do all the work.

Price.....Per Pound, .60

SQUARE FLAX  
PACKING.

Price..... Per Pound, .85

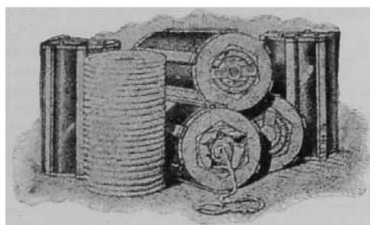
MANHATTAN  
PACKING.

Round and Square.....Per Pound, 1.00



ASBESTOS STEAM PACKING.

PATENTED.



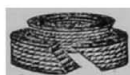
PISTON ROD PACKING.

On reels of 10, 15, 25 and 50 lbs. each. All sizes from 1/4 to 2 inches.

Asbestos Braided Packing.....	Per Pound,	.45
Standard Asbestos Twist Packing.....	"	.45
X X " " ".....	"	.45
Canadax " " ".....	"	.45

Special forms of Asbestos Packings made to order.

GARLOCK PACKINGS.



SECTIONAL RING PACKING.



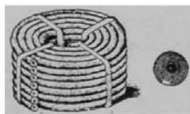
SPIRAL PACKING.



ELASTIC RING PACKING.

Ring, Elastic or Sectional... Per Pound,	1.20	Extra Ring Elastic or Sectional, Per Pound,	2.00
Spiral..... " "	1.20	Special Hydraulic, " "	2.25
High Pressure..... " "	2.00	Water Proof " "	1.25

TUCK'S PISTON PACKINGS.



Round and Square, 1/4 to 1 1/2 inch, 24 feet in a coil.....	Per Pound,	.85
Rubber Back, Square, 1/4 " 1 1/2 " 20 " " ".....	"	1.00
Piston Pump Packing, 1/4 " 1 1/4 " 24 " " ".....	"	1.75

## ECLIPSE GASKET PACKING.



Is made of the same compound as the Rainbow Sheet Packing. It will not harden under any degree of heat or blow out under the highest pressure, and can be taken out and repeatedly replaced. Three sizes,  $\frac{3}{8}$ ,  $\frac{1}{2}$  and  $\frac{5}{8}$  inch will fit any hand or manhole in use. Made in sections six feet, 24 feet in a box, including tubes and tape. Will fit any hand or manhole.

Price.....Per Pound, 1.00



Gaskets made from Kearsarge Sheet Packing are unexcelled for all classes of high pressure work. They withstand heat and moisture without injury, and are very flexible and strong. These Gaskets are also compressible, so that they conform to irregular surfaces without injury.

Regular shapes and sizes.....Per Pound, 1.50

## ASBESTOS MILL-BOARD GASKETS.



Regular sizes not exceeding 42 inches outside diameter, from  $\frac{1}{4}$  to  $\frac{1}{2}$  inch thick, cut to order from Asbestos Mill-Board; sizes in excess of 42 inches, specially built up to order. These Gaskets weigh less than one-half as much as India Rubber.

Regular shapes, round or square.....Per Pound, .75  
Irregular shaped Gaskets or Rings and Washers, 3 inches or less in diameter.....Per Pound, 1.25

Special prices for special sizes.

## ASBESTOS IMPERMEABLE GASKETS.

Made from Impermeable Sheet Packing.

Regular shapes.....Per Pound, .80  
Irregular shaped Gaskets, Rings and Washers..... " 1.40

CORRUGATED COPPER GASKETS.



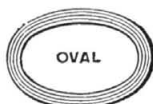
Size.	For Malleable Lip Unions.			For Standard Flanged Fittings.			Size.	For Standard Flanged Fittings.		
	Outside Diam.	Inside Diam.	Price.	Outside Diam.	Inside Diam.	Price.		Outside Diam.	Inside Diam.	Price.
1/4	3/4	1/8	.02				6	6 1/2	.58	
3/8	1	3/8	.02				7	7 1/2	.69	
1/2	1 1/4	5/4	.02				8	8 1/2	.77	
3/4	1 1/2	1	.02				9	9 1/2	.94	
1	1 3/4	1 1/4	.03	2 1/4	1 1/4	.04	10	10 1/2	1.18 1/2	
1 1/4	2 1/8	1 1/2	.04	2 3/8	1 3/4	.06	12	12 1/2	1.38 1/2	
1 1/2	2 1/2	1 3/4	.05	2 3/4	1 3/4	.07	14	14 1/2	1.65	
2	3	2 1/4	.07	4 1/4	2 1/4	.20	15	15 1/2	1.90	
2 1/2	3 1/2	2 3/4	.07	4 3/4	2 3/4	.23	16	16 1/2	1.79	
3	4 1/2	3 1/4	.08	5 1/2	3 1/4	.31	18	18 1/2	1.88	
3 1/2	5	4	.14	6	3 3/4	.35	20	20 3/4	2.10	
4	5 1/2	4 1/2	.17	6 1/2	4 1/4	.38	22	22 1/2	2.36	
4 1/2				7	4 3/4	.42	24	24 1/2	2.55	
5				7 3/4	5 1/2	.46				



SQUARE

THREE RIDGE METAL MANHOLE GASKETS.

MADE IN ALL SIZES TO FIT ANY FLAT MANHOLE PLATE.

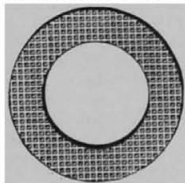


OVAL

10x14.....	Each,	1.50	11x15.....	Each,	1.50
10x15.....	"	1.50	12x16.....	"	1.50
10x16.....	"	1.50	10x18.....	"	1.50

"COMMON SENSE" CORRUGATED GASKETS.

FOR ROUGH FACED JOINTS.



Price, Per Pound, \$1.10

METALLIC VALVE DISCS



Size.....Inch	1/4	3/8	1/2	3/4	1	1 1/4
Price.....	.10	.12	.15	.18	.20	.30
Size.....Inch	1 1/2	2	2 1/2	3	3 1/2	4
Price.....	.40	.60	.80	1.00	1.25	1.50
Size.....Inch	5	6	8	10	12	14
Price.....	2.00	2.50	3.50	4.50	5.50	6.50

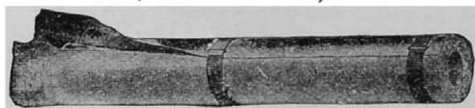
METAL UNION GASKETS.

1/4 Inch.....	Per Dozen,	.15	1 1/4 Inch.....	Per Dozen,	.35
1/2 ".....	"	.20	1 1/2 ".....	"	.40
3/4 ".....	"	.25	2 ".....	"	.45
1 ".....	"	.30	2 1/2 ".....	"	.50

## ASBESTOS FIRE-FELT SECTIONAL PIPE COVERING

(PATENTED.)

FOR STEAM PIPES, ETC.



Asbestos in its fibrous or finely divided state contains innumerable air cells, holding in suspension "still" air, thus forming a non-heat-conductor of the highest order.

Asbestos Fire-Felt is a fabric of fibrous Asbestos, and is made in cylindrical sections for Pipes, sheets for Boilers and rolls for Heaters.

In Asbestos Fire Felt we have the most successful application of the air-space principle yet devised, and a material at once fire-proof, flexible, light in weight, pleasing in color, and susceptible of any desired mechanical arrangement.

Asbestos Fire-Felt is not affected by expansion or contraction of pipes, or moisture, and will not disintegrate.

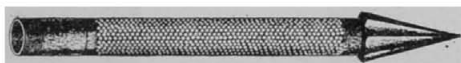
## PRICE LIST—1900.

Inside Diameter of Pipe.	Covering, Per Foot.	Elbows, Each.	Tees, Each.	Valves. Each.
1/2 inch.....	.22	.27	.35	.27
3/4 ".....	.23	.27	.35	.27
1 ".....	.24	.27	.35	.27
1 1/4 ".....	.26	.27	.35	.27
1 1/2 ".....	.27	.27	.35	.27
2 ".....	.32	.32	.40	.30
2 1/2 ".....	.36	.36	.45	.45
3 ".....	.41	.41	.55	.55
3 1/2 ".....	.43	.45	.60	.60
4 ".....	.48	.50	.65	.65
4 1/2 ".....	.52	.60	.74	.74
5 ".....	.54	.69	.80	.80
6 ".....	.63	.82	.92	.92
7 ".....	.70	.95	1.05	1.05
8 ".....	.77	1.13	1.25	1.25
9 ".....	.83	1.25	1.50	1.50
10 ".....	.90	1.40	1.75	1.75
12 ".....	1.08	1.75	2.10	2.10
14 ".....	1.20			
15 ".....	1.28			
16 ".....	1.35			

Use Asbestos Cement Felting  
for fittings larger than 12 inches.

## BRASS JACKET POINTS.

MADE OF WROUGHT IRON PIPE, GALVANIZED.



Trade No.	Size in Diameter Inches.	Length of Point. Inches.	Length of Jackf. Inches.	Number of Holes.	No. of Gauze 60, Price per Dozen.	No. of Gauze 70, Price per Dozen.	No. of Gauze 80, Price per Dozen.	No. of Gauze 90, Price per Dozen.	No. of Gauze 100, Price per Dozen.
78.....	1	36	30	120	51.00	59.00	66.00	78.00	94.00
80.....	1	42	36	144	60.00	68.00	76.00	88.00	120.00
82.....	1	48	42	168	69.00	78.00	86.00	100.00	136.00
84.....	1	54	48	197	78.00	87.00	96.00	112.00	152.00
86.....	1 1/4	20	14	80	30.00	36.00	42.00	50.00	64.00
90.....	1 1/4	24	18	100	36.00	44.00	52.00	60.00	80.00
94.....	1 1/4	30	24	130	46.00	55.00	64.00	75.00	100.00
98.....	1 1/4	36	30	165	56.00	66.00	76.00	90.00	120.00
100.....	1 1/4	42	36	200	66.00	77.00	88.00	105.00	140.00
102.....	1 1/4	48	42	270	76.00	88.00	100.00	120.00	160.00
106.....	1 1/4	54	48	260	86.00	99.00	112.00	135.00	180.00
110.....	1 1/4	60	54	290	96.00	110.00	124.00	150.00	200.00
112.....	1 1/4	66	60	320	106.00	121.00	136.00	165.00	220.00
114.....	1 1/4	72	66	350	116.00	132.00	148.00	180.00	240.00
138.....	1 1/2	24	18	120	48.00	57.00	65.00	78.00	94.00
150.....	1 1/2	54	48	312	108.00	124.00	140.00	168.00	204.00
152.....	1 1/2	60	54	348	120.00	138.00	155.00	186.00	228.00
154.....	1 1/2	66	60	384	132.00	151.00	170.00	204.00	252.00
156.....	1 1/2	72	66	420	144.00	165.00	185.00	222.00	276.00
160.....	2	24	18	144	75.00	85.00	94.00	110.00	130.00
164.....	2	30	24	208	90.00	101.00	112.00	132.00	160.00
174.....	2	54	48	384	150.00	167.00	184.00	220.00	280.00
176.....	2	60	54	432	165.00	184.00	202.00	242.00	310.00
178.....	2	66	60	480	180.00	200.00	220.00	264.00	340.00
180.....	2	72	66	528	195.00	217.00	238.00	288.00	370.00
184.....	2 1/4	36	30	300	180.00	205.00	230.00	260.00	300.00
188.....	2 1/4	48	42	360	230.00	265.00	300.00	340.00	400.00
192.....	2 1/4	60	54	420	280.00	325.00	370.00	420.00	500.00
196.....	2 1/2	72	66	480	330.00	385.00	440.00	500.00	600.00
200.....	3	36	30	300	240.00	275.00	310.00	340.00	410.00

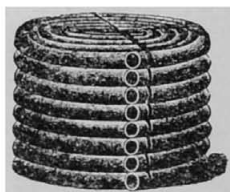
Please order by Trade Number;

## MALLEABLE IRON DRIVE CAPS.



1 1/4 inch Pipe	.....	Each	20
1 1/2 " "	.....	"	24
2 " "	.....	"	44
2 1/2 " "	.....	"	1.00
3 " "	.....	"	1.50

## HOSE.



Inside Diameter.....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Rubber Hose, 2 ply Conducting....	\$0.20	\$0.25	\$0.33	\$0.42	\$0.50
"    "    3 ply Hydrant.....	.25	.30	.40	.50	.60
"    "    4 ply Engine.....	.30	.37	.50	.62	.75
Steam Hose, 3-ply.....	.43	.51	.67	.85	1.02
"    "    4 ply.....	.51	.67	.83	1.04	1.25
"    "    5-ply.....	.63	.83	1.03	1.30	1.56
"    "    6 ply.....	.76	1.00	1.24	1.56	1.87
Suction Hose, on Brass Wire.....	....	.77	1.00	1.25	1.65
Linen "    "    ".....	....	....	....	.22	.25
"    "    Rubber Lined.....	....	....	....	.50	.55
Cotton "    "    ".....	....	....	....	.55	.60
"    "    Garden.....	.20	.25	.25	....	....

Inside Diameter.....	$1\frac{3}{4}$	2	$2\frac{1}{4}$	3
Rubber Hose, 2-ply Conducting.....	\$0.58	\$0.66	\$0.83	\$1.00
"    "    3-ply Hydrant.....	.70	.80	1.00	1.20
"    "    4-ply Engine.....	.87	1.00	1.25	1.50
Steam "    "    3 ply.....	1.18	1.34	1.66	2.00
"    "    4 ply.....	1.45	1.66	2.08	2.80
"    "    5-ply.....	1.81	2.07	2.60	3.50
"    "    6 ply.....	2.17	2.49	3.12	4.20
Suction Hose, on Brass Wire.....	2.10	2.50	3.10	4.40
Linen "    "    ".....	.28	.30	.35	.50
"    "    Rubber Lined.....	....	.65	.75	....
Cotton "    "    ".....	....	.70	.85	....

## RUBBER TUBING.

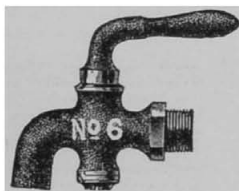
IN LENGTHS OF TWELVE AND FIFTY FEET.

Size.....Inch	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Pure Tubing.....per foot	\$0.08	\$0.12	\$0.16	\$0.18	\$0.20
With Cloth Insertion....."    "	.10	.14	.18	.20	.23

Size.....Inch	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Pure Tubing.....per foot	\$0.25	\$0.30	\$0.35	\$0.40	\$0.45
With Cloth Insertion....."    "	.28	.33	.38	.45	.50

PLAIN BIBBS FOR IRON PIPE.

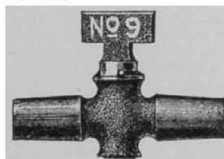


	¼-in.	⅜-in.	½-in.	¾-in.	⅞-in.	1-in.	1¼-in.	1½-in.	2-in.
No. 6. Rough, per doz.	\$11.00	\$13.00	\$16.00	\$18.00	\$23.00	\$35.00	\$56.00	\$78.00	\$160.00
No. 6. Finished, per doz.	12.00	14.00	17.00	20.00	26.00	39.00	64.00	90.00	180.00
No. 6. N. P., per doz.	14.00	16.00	19.50	22.50	28.50	42.00	.....	.....	.....
No. 7. Rough, per doz.	.....	.....	18.00	20.00	25.00	38.00	60.00	84.00	170.00
No. 7. Finished, per doz.	.....	.....	19.00	22.00	28.00	42.00	68.00	96.00	190.00
No. 7. N. P., per doz.	.....	.....	21.50	24.50	30.50	45.00	.....	.....	.....

ROUGH STOP.

ROUGH STOP AND WASTE.

T-HANDLE RIVET BOTTOM.

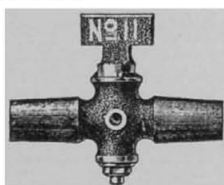
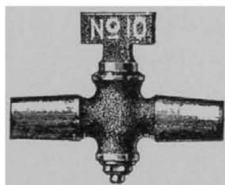


	¼-in.	⅜-in.	½-in.	¾-in.	1-in.
No. 8. Rough Stop, per doz.	\$10.50	\$12.50	\$14.50	\$18.50	\$27.00
No. 9. " " and Waste, per doz.	12.50	14.50	16.50	20.50	30.00

ROUGH STOP.

ROUGH STOP AND WASTE.

T-HANDLE, NUT AND WASHER.



	¼-in.	⅜-in.	½-in.	¾-in.	1-in.	1¼-in.	1½-in.	2-in.
No. 10. Rough Stop, per doz.	\$11.00	\$13.00	\$15.00	\$19.00	\$28.00	\$46.00	\$64.00	\$110.00
No. 11. " " and Waste, per doz.	13.00	15.00	17.00	24.00	31.00	50.00	70.00	120.00

## GAS FIXTURE FITTINGS.

BRACKETS.		Each.
Stiff Joint.....		\$0.65
One Swing.....		.85
Two ".....		1.30
Three ".....		1.55

BRACKET SWING COCKS.		Doz.,
$\frac{3}{8}$ to $\frac{1}{2}$ .....		\$8.15
$\frac{3}{8}$ to $\frac{1}{4}$ .....		8.45
$\frac{3}{8}$ to $\frac{3}{8}$ .....		9.10

UNIVERSAL BRACKET COCKS.		Doz.
$\frac{3}{8}$ to $\frac{1}{2}$ .....		\$12.05
$\frac{3}{8}$ to $\frac{1}{4}$ .....		12.35
$\frac{3}{8}$ to $\frac{3}{8}$ .....		13.00
$\frac{1}{2}$ to $\frac{1}{2}$ .....		13.00

CHANDELIER COCKS.		
$\frac{1}{8}$ to $\frac{1}{8}$ .....		\$3.90
$\frac{1}{8}$ to $\frac{1}{8}$ .....		3.90
$\frac{1}{4}$ to $\frac{1}{8}$ .....		4.25
$\frac{1}{4}$ to $\frac{1}{4}$ .....		4.55
$\frac{3}{8}$ to $\frac{1}{8}$ .....		4.55
$\frac{3}{8}$ to $\frac{1}{4}$ .....		4.55
$\frac{3}{8}$ to $\frac{3}{8}$ .....		4.90

L BURNER COCKS.		
$\frac{1}{8}$ to Burner.....		\$4.25
$\frac{1}{4}$ to ".....		4.55
$\frac{3}{8}$ to ".....		5.20
$\frac{1}{2}$ to ".....		6.20

INDEPENDENT COCKS.		
$\frac{3}{8}$ to $\frac{3}{8}$ .....		\$6.50
$\frac{1}{4}$ to $\frac{1}{4}$ .....		6.50

L PENDANT COCKS.		
$\frac{1}{8}$ to $\frac{1}{8}$ .....		\$4.90
$\frac{1}{4}$ to $\frac{3}{8}$ .....		4.90
$\frac{1}{4}$ to $\frac{1}{4}$ .....		5.20
$\frac{3}{8}$ to $\frac{1}{8}$ .....		5.20
$\frac{3}{8}$ to $\frac{1}{4}$ .....		5.20

REVOLVING PENDANT COCKS.		
$\frac{1}{4}$ to $\frac{1}{8}$ .....		\$7.15
$\frac{1}{4}$ to $\frac{1}{4}$ .....		7.50
$\frac{3}{8}$ to $\frac{1}{8}$ .....		7.80
$\frac{3}{8}$ to $\frac{1}{4}$ .....		8.15

TWO LIGHT PENDANT COCKS.		
$\frac{1}{8}$ to $\frac{1}{8}$ .....		\$8.45
$\frac{1}{4}$ to $\frac{1}{8}$ .....		8.45
$\frac{1}{4}$ to $\frac{3}{8}$ .....		9.10
$\frac{3}{8}$ to $\frac{1}{8}$ .....		9.10
$\frac{3}{8}$ to $\frac{1}{4}$ .....		9.10

## UNIVERSAL PENDANT COCKS. Per Doz.

$\frac{1}{4}$ to $\frac{1}{8}$ .....		\$8.80
$\frac{1}{4}$ to $\frac{1}{4}$ .....		9.10
$\frac{3}{8}$ to $\frac{1}{8}$ .....		9.45
$\frac{3}{8}$ to $\frac{1}{4}$ .....		9.75

PILLAR COCKS—FEMALE.		
$\frac{1}{8}$ to Burner.....		\$3.90
$\frac{1}{4}$ to ".....		4.25
$\frac{3}{8}$ to ".....		4.55
$\frac{1}{2}$ to ".....		5.20
$\frac{3}{4}$ to ".....		6.50

PILLAR COCKS—MALE.		
$\frac{1}{8}$ to Burner.....		\$4.90
$\frac{1}{4}$ to ".....		5.20
$\frac{3}{8}$ to ".....		5.50

TOP SWINGS.		
$\frac{3}{8}$ to $\frac{1}{8}$ .....		\$5.20
$\frac{3}{8}$ to $\frac{1}{4}$ .....		5.55
$\frac{3}{8}$ to $\frac{3}{8}$ .....		6.20

MIDDLE SWINGS.		
$\frac{1}{8}$ to $\frac{1}{8}$ .....		\$4.25
$\frac{1}{4}$ to $\frac{1}{8}$ .....		4.55
$\frac{1}{4}$ to $\frac{1}{4}$ .....		4.90

UNIVERSAL SWINGS.		
$\frac{1}{8}$ to $\frac{1}{8}$ .....		\$7.80
$\frac{1}{4}$ to $\frac{1}{8}$ .....		8.15
$\frac{1}{4}$ to $\frac{1}{4}$ .....		8.45
$\frac{3}{8}$ to $\frac{1}{8}$ .....		8.80
$\frac{3}{8}$ to $\frac{1}{4}$ .....		8.80
$\frac{3}{8}$ to $\frac{3}{8}$ .....		9.10

MALE HOSE COCKS.		
$\frac{1}{8}$ .....		\$4.55
$\frac{1}{4}$ .....		4.90
$\frac{3}{8}$ .....		5.20

HOSE COCKS.		
$\frac{1}{8}$ .....		\$4.25
$\frac{1}{4}$ .....		4.55
$\frac{3}{8}$ .....		4.90

HOSE ENDS.		
$\frac{1}{8}$ .....		\$2.60
$\frac{1}{4}$ .....		2.95
$\frac{3}{8}$ .....		3.25

SIDE NOZZLES.		
$\frac{5}{16}$ .....		\$1.00
$\frac{1}{8}$ .....		1.00
$\frac{1}{4}$ .....		1.65
$\frac{3}{8}$ .....		2.30



## GAS FIXTURE FITTINGS—EXTRA HEAVY.

TWO LIGHT PENDANT COCKS. Per Doz.		PILLAR COCKS. Per Doz.	
$\frac{1}{2} \times \frac{3}{8}$ .....	\$15.60	$\frac{3}{8}$ .....	\$6.50
$\frac{3}{8} \times \frac{3}{8}$ .....	13.65	$\frac{1}{4}$ .....	6.20
$\frac{3}{8} \times \frac{1}{4}$ .....	13.65	STRAIGHT COCKS.	
$\frac{1}{4} \times \frac{1}{8}$ .....	13.35	$\frac{1}{2} \times \frac{1}{2}$ .....	\$7.80
L PENDANT COCKS.		$\frac{1}{2} \times \frac{3}{8}$ .....	7.50
$\frac{3}{8} \times \frac{3}{8}$ .....	\$7.80	$\frac{3}{8} \times \frac{3}{8}$ .....	7.15
$\frac{3}{8} \times \frac{1}{4}$ .....	7.80	$\frac{3}{8} \times \frac{1}{4}$ .....	7.15
$\frac{3}{8} \times \frac{1}{8}$ .....	7.80	$\frac{1}{4} \times \frac{1}{4}$ .....	6.85
$\frac{1}{4} \times \frac{1}{8}$ .....	7.50	$\frac{1}{4} \times \frac{1}{8}$ .....	6.85
REVOLVING COCKS.		BRACKET COCKS.	
$\frac{3}{8} \times \frac{3}{8}$ .....	\$10.40	$\frac{3}{8} \times \frac{3}{8}$ .....	\$11.70
$\frac{3}{8} \times \frac{1}{4}$ .....	10.40	$\frac{3}{8} \times \frac{1}{4}$ .....	11.70
$\frac{3}{8} \times \frac{1}{8}$ .....	10.40	$\frac{3}{8} \times \frac{1}{8}$ .....	11.70
END NOZZLES.		UNIVERSAL SWINGS.	
$\frac{3}{8}$ .....	\$2.20	$\frac{3}{8} \times \frac{3}{8}$ .....	\$14.00
$\frac{1}{4}$ .....	1.95	$\frac{3}{8} \times \frac{1}{4}$ .....	13.00
$\frac{1}{8}$ .....	1.65	$\frac{3}{8} \times \frac{1}{8}$ .....	13.00
SIDE NOZZLES.		$\frac{1}{4} \times \frac{1}{4}$ .....	12.35
$\frac{3}{8}$ .....	\$3.60	$\frac{1}{4} \times \frac{1}{8}$ .....	12.35
$\frac{1}{4}$ .....	2.20	$\frac{1}{8} \times \frac{1}{8}$ .....	12.05
$\frac{1}{8}$ .....	1.95	MIDDLE OR TOP SWINGS.	
L BURNER COCKS.		$\frac{1}{2} \times \frac{1}{2}$ .....	\$10.40
$\frac{3}{8}$ .....	\$7.80	$\frac{3}{8} \times \frac{3}{8}$ .....	9.45
$\frac{1}{4}$ .....	7.15	$\frac{3}{8} \times \frac{1}{4}$ .....	8.45
		$\frac{1}{4} \times \frac{1}{4}$ .....	6.50
		$\frac{1}{4} \times \frac{1}{8}$ .....	6.50

Brass Lava Tip Burners..... per dozen, \$0.35  
 Gas Fitters' Cement..... per pound, .12



## BUNDY BRONZE POWDER.

Pale Gold.	Dark Blue.	Flesh.
Aluminum.	Crimson.	Orange.
Rich Gold.	Copper.	Green.
Green Gold.	Silver.	Fire.
Light Blue.	Lemon.	

## LIST PRICES.

Pale and Rich Gold XL.....	per lb.,	\$1.20
“ “ “ Star.....	“	1.50
“ “ “ Star, A.....	“	2.00
Colors other than Gold.....	“	2.50
Aluminum.....	“	3.00



## BUNDY BRONZING LIQUID.

## LIST PRICES.

	Gallon.	Half Gallon.
A.....	\$2.00	\$1.20
AA.....	2.50	1.50



## BUNDY ENAMELS.

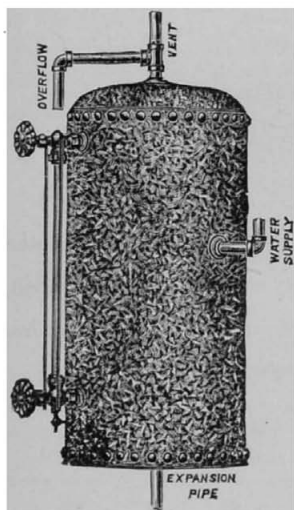
White.	Fawn.	Green.
Blue.	Maroon.	Sage.
Black.	Terra Cotta.	Other Colors.
Flesh.	Chocolate.	

## LIST PRICES.

Gallon.....	each,	\$3.00
Half-Gallon.....	“	1.80
Quarter-Gallon.....	“	1.20

## BUNDY EXPANSION TANKS.

GALVANIZED STEEL.



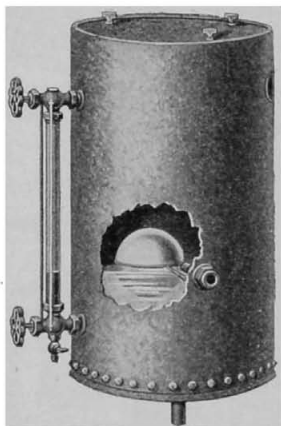
Tested at two hundred pounds pressure. Made of best quality refined steel, double riveted and calked.

Tapping:—Unless otherwise ordered these tanks will be furnished tapped 1 inch at top and bottom ; and 1 inch at side for water supply.

Capacity.		Dimensions in inches.		Price.	
Gallons.	Sq. ft. Radiation.	Diameter.	Height.	Tank.	Gauge.
8	250	10	20	\$7.00	\$1.50
10	300	12	20	8.00	1.50
12	400	12	24	8.50	1.75
15	500	12	30	9.00	1.75
18	600	12	36	9.50	1.75
20	700	14	30	12.50	1.75
24	850	14	36	13.00	1.75
26	950	16	30	14.00	1.75
32	1300	16	36	15.00	2.00
42	2000	16	48	16.50	2.00
66	3000	18	60	31.00	2.00
85	5000	20	60	37.00	2.00
100	6000	22	60	51.00	2.00
120	7500	24	60	58.00	2.00

## BUNDY AUTOMATIC EXPANSION TANKS.

GALVANIZED STEEL.

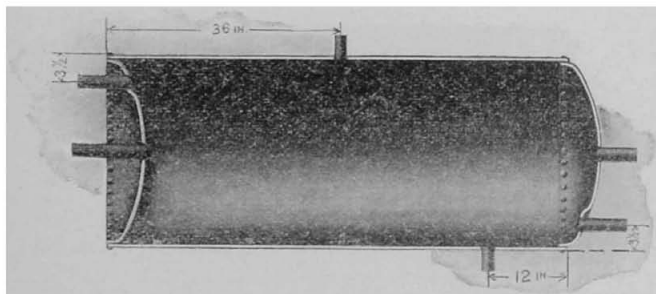


The Expansion Tank here illustrated is absolutely automatic in its operation, *always insuring that the heating system will be full of water.*

Capacity.		Dimensions, Inches.		Price.	
Gallons.	Sq. ft. Radiation.	Diameter.	Height.	Tank.	Gauge.
10	300	12	22	\$11.00	\$1.50
15	500	12	34	12.00	1.75
20	700	14	34	16.00	1.75
25	900	16	28	17.00	1.75
30	1200	16	34	18.00	2.00
40	1800	16	46	19.00	2.00
60	2400	18	58	33.00	2.00
80	4800	20	58	40.00	2.00
100	6000	22	58	54.00	2.00
120	7500	24	58	61.00	2.00
150	10000	27	60	74.00	2.00

## BUNDY STORAGE TANKS.

GALVANIZED STEEL. WITHOUT COIL INSIDE.



SHOWING LOCATIONS OF TAPPINGS OF HORIZONTAL TANKS.

LIST OF SIZES, VERTICAL AND HORIZONTAL.

Capacity, Gallons.	Diameter, Inches.	Length, Feet.	Weight, Pounds.	List Prices.
66	18	5	200	\$58.00
85	20	5	230	62.00
100	22	5	260	69.00
120	24	5	300	75.00
145	24	6	325	83.00
170	24	7	370	92.00
185	30	5	450	105.00
225	30	6	500	115.00
250	30	7	550	125.00
300	30	8	600	135.00

Manholes in head, extra, \$30.00 each, list price.

Manholes in shell, extra, \$35.00 each, list price.

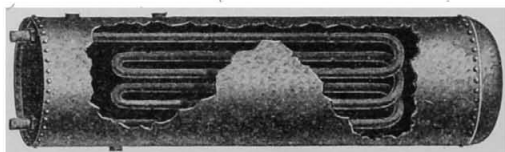
Handholes, extra, \$10.00 each, list price.

In ordering, state whether vertical or horizontal tanks are wanted, and if special tappings are required, give sizes and locations.

Unless otherwise ordered, all openings will be tapped for 2-inch pipe, and located in black and galvanized tanks as shown by dotted lines above.

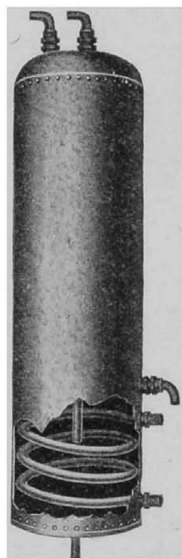
## BUNDY STORAGE TANKS.

GALVANIZED STEEL. WITH STEAM COIL INSIDE.



WITH TINNED COPPER TUBE COIL INSIDE.

## LIST OF SIZES--VERTICAL AND HORIZONTAL.



VERTICAL.

Capacity, Gallons.	Diameter, Inches.	Length, Feet.	List Prices.
18	12	3	\$28.00
24	12	4	30.00
30	12	5	32.00
35	13	5	34.00
40	14	5	36.00
52	16	5	44.00
66	18	5	60.00
85	20	5	68.00
100	22	5	88.00
120	24	5	96.00
145	24	6	124.00
170	24	7	144.00
195	24	8	164.00
140	30	4	\$136.00
185	30	5	164.00
205	30	5½	172.00
225	30	6	192.00
215	36	4	180.00
265	36	5	212.00
290	36	5½	228.00
325	36	6	244.00
375	36	7	276.00
425	36	8	312.00

Other sizes may be made to order.

## BUNDY STORAGE TANKS.

BLACK. WITHOUT COIL INSIDE.

Capacity, Gallons.	Diameter, Inches.	Length, Feet.	Weight, Pounds.	List Prices.
66	18	5	220	\$40.00
85	20	5	250	42.00
100	22	5	280	45.00
120	24	5	425	50.00
145	24	6	480	58.00
170	24	7	500	60.00
195	24	8	560	66.00
185	30	5	500	60.00
225	30	6	520	64.00
250	30	7	630	74.00
300	30	8	690	80.00
370	30	9	740	88.00
410	30	10	820	98.00
265	36	5	600	72.00
325	36	6	670	80.00
375	36	7	800	94.00
425	36	8	885	105.00
480	36	9	925	115.00
530	36	10	980	120.00
360	42	5	1000	120.00
435	42	6	1100	130.00
510	42	7	1210	145.00
580	42	8	1330	160.00
650	42	9	1440	175.00
725	42	10	1550	200.00

Manholes in head, extra, \$25 00 each, list price.

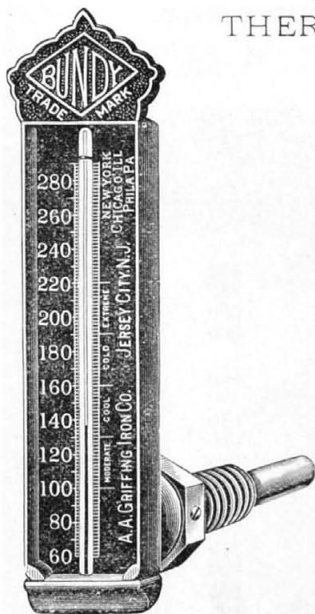
Manholes in shell, extra, \$25.00 each, list price.

Handholes, extra, \$7.50 each, list price.

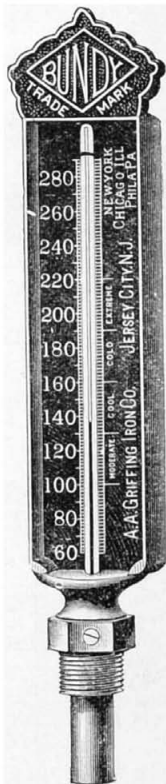
Legs on tanks, extra, \$5.00 list price.

Pair of hangers, extra, \$7.50 list price.

May be had with coil inside, of galvanized iron or copper pipe, return bend or spiral, for which an extra charge will be made according to the number of feet, and size and kind of pipe in coil furnished.

BUNDY MERCURY BATH HYDRO  
THERMOMETERS.

For indicating the temperature of the water at boiler in hot water heating systems. Very accurate and thoroughly reliable.



## LIST PRICE.

Hot Water Thermometer, straight.....each,	\$5.00
Hot Water Thermometer, angle (suitable for use on risers or circulating pipe).....	“ 6.00

## BUNDY ALTITUDE GAUGE.

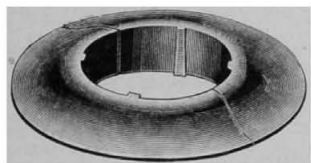


For indicating the height of the water in a hot water heating system.

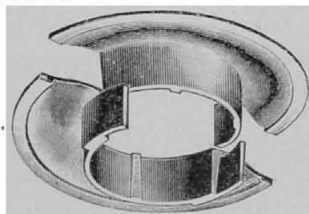
Size: 5 inch iron case, with brass or nickel plated rim, \$8.00 each.



BUNDY INTERLOCKING PLATES



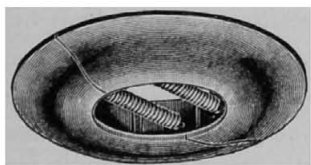
CLOSED.



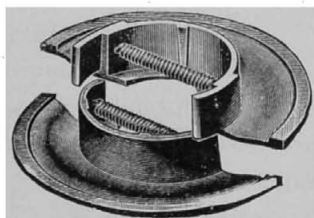
OPEN.

BUNDY INTERLOCKING FLOOR PLATES.

Size .....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Plain .....	.14	.18	.20	.24	.28	.43
Nickel .....	.25	.28	.32	.35	.38	.52



CLOSED.



OPEN.

BUNDY INTERLOCKING CEILING PLATES.

Size .....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Plain .....	.20	.25	.29	.32	.40	.50
Nickel .....	.40	.45	.49	.52	.60	.75

WE GIVE on the following pages a special telegraph code covering the bulk of the goods that we manufacture.

On other pages in this catalogue, code words are printed on the same page listing the article, particularly that of traps, pages 114 to 118, and other steam specialties.

By means of this code orders can be telegraphed for large quantities of goods, for instance as follows :

Ship via Texas steamer five 6 section Elite steam 38" high tapped 1 x  $\frac{3}{4}$ " R. H. The code for this would be "Hyphen aaronic backward dog elder."

In addition to our own code we also print the standard code on pipe and supplies used generally by manufacturers and dealers.

Our cable address is "Bundy Jersey City" and we use the Anglo-American, Western Union, Liebers and A B C codes.

Immediately following the code we print a number of pages of valuable technical information, consisting of standard weights, measures, formulas, rules, etc., for making calculations in all branches of steam and hot water work and general mechanical engineering. Also tables which give the net results of calculations figured on the basis of known formulas. This information will be found of great value to the steam fitter, heating and ventilating and mechanical engineers. The matter has been compiled and arranged as nearly as possible in alphabetical order, in addition to which it is indexed in the regular index of this catalogue.

TELEGRAPH CODE.

Elite Steam Radiator..... Aaronic  
 Elite Hot Water Radiator..... Aaronical  
 Columbia Steam Radiator..... Abaca  
 Columbia Hot Water Radiator.. Abacast  
 Empire Steam Radiator..... Abdication  
 Empire Hot Water Radiator.. Abdicative  
 Bundy State Room Radiator..... Abduce  
 Defiance Steam Radiator..... Abducent  
 Defiance Hot Water Radiator..... Abduct  
 Defiance Bay Window Steam Radiator..... Abduction  
 Defiance Bay Window Hot Water Radiator..... Abductor  
 Pyro Steam Radiator..... Abearance  
 Pyro Hot Water Radiator..... Abberation  
 Pyro Wall Steam Radiator..... Abettor  
 Pyro Wall Hot Water Radiator, Abhorrence  
 Renaissance Steam Radiator with Pillars..... Abhorrent  
 Renaissance Steam Radiator without Pillars..... Abhorrer  
 Renaissance Hot Water Radiator with Pillars..... Abhorrible  
 Renaissance Hot Water Radiator without Pillars..... Abhorring  
 Climax Steam Indirect Radiator.. Abider  
 Climax Hot Water Indirect Radiator, Abidingly  
 Perfect Steam Indirect Radiator.. Abigail  
 Duplex Partition Base Radiator... Abject  
 Bundy N. P. R. B. Jenkins disc Union Radiator Valve..... Abjection  
 Bundy N. P. R. B. Metal disc Union Radiator Valve..... Abjectly  
 Bundy N. P. R. B. Jenkins disc Radiator Valve (no Union)..... Abjectness  
 Bundy N. P. R. B. Metal disc Radiator Valve (no Union)..... Abjudicate  
 Baker N. P. Automatic Air Valve with drip connection..... Abjure  
 Baker N. P. Automatic Air Valve without drip connection..... Abjurer  
 Bundy Plain Floor Plate..... Ablation  
 Bundy Plain Ceiling Plate..... Ablative  
 Bundy N. P. Floor Plate..... Ablaze  
 Bundy N. P. Ceiling Plate..... Able  
 Bundy Positive Pet Cock..... Abler  
 Bundy Rex Air Valve..... Ablest  
 Bundy Pipe Hangers..... Ablocate  
 Bundy Bronze..... Ablocation  
 Bundy Star Bronze..... Abloom  
 Bundy Bronzing Liquid..... Abluent  
 Bundy Enamel..... Ablution  
 Marble Top..... Ablu  
 Bundy Base Only..... Abnegate  
 Bundy Top Only..... Abnegation  
 Bundy Binder Only..... Abnegator  
 Bundy Top and Binder..... Abnet

Princess Steam Radiator..... Abnodate  
 Princess Hot Water Radiator Abnodation  
 Climax School Indirect Radiator, Abodement  
 Climax Vertical Steam Direct Radiator..... Abolute  
 Newport Steam Indirect Radiator. Aboma  
 Newport Hot Water Indirect Radiator..... Abomasum  
 Perfect Steam Indirect Radiator 29 inches long..... Abollo  
 Perfect Steam Indirect Radiator 23 inches long..... Abomasus  
 Perfect Steam Indirect Radiator 19 inches long..... Abominally  
 Bundy Pin Steam Indirect Radiator Nipple connected..... Aboon  
 Bundy Pin Hot Water Indirect Radiator Nipple connected..... Aborigines  
 Bundy Pin Steam Indirect Radiator Gasket connected..... Aborsement  
 Bundy Pin Hot Water Indirect Radiator Gasket connected..... Aborsive

We will quote you on Radiators, standard height, a special price of cents per foot f. o. b. Jersey City. } Abstinent

With an allowance equal to the carload rate of freight on Radiators to your city. } Abstracted

With an allowance equal to the freight on Radiators to your city. } Abstringe

Can ship immediately if order is regular as to tapping, etc., otherwise a day or two may be necessary to prepare goods, but can ship promptly. } Abuser

Not having had previous dealings with you, kindly send references, or will you pay cash on this order, for which we will allow an extra.....per cent. } Abutment

..... has written us for prices. Go and see him [or them] at once. } Abuttal

..... has telegraphed us for prices. Go and see him [or them] at once. } Abutter

## NUMBER OR QUANTITY

Abaft . . . . .	21	Accordant..	84	Affable....	335	Allot . . . . .	2600	Appear . . . . .	9100
Abandon . . . . .	22	Accordion..	85	Affair . . . . .	340	Allow . . . . .	2900	Appearance.	9200
Abandoned..	23	Accost.....	86	Affecting...	245	Alloy . . . . .	3000	Appease . . . . .	9300
Abatement... 24		Account....	87	Affidavit..	350	Allude . . . . .	3100	Appellant..	9400
Abbey..... 25		Accroach... 88	Affinity....	355	Allure . . . . .	3200	Append . . . . .	9500	
Abbot..... 26		Accrue..... 89	Affix . . . . .	360	Allusion . . . . .	3300	Appendage.	9600	
Abbreviate.. 27		Accurate... 90	Affixing...	365	Almanac..	3400	Appendant.	9700	
Abdicate... 28		Accuse . . . . .	91	Afflict....	370	Almond . . . . .	3500	Appendix . . . . .	9800
Abdomen... 29		Accusing... 92	Affliction..	375	Aloft . . . . .	3600	Appertain . . . . .	9900	
Abdominal.. 30		Accustom.. 93	Affluent....	380	Alphabet..	3700	Appetite . . . . .	10000	
Abeyance... 31		Achieve . . . . .	94	Afford . . . . .	385	Altar . . . . .	3800	Appetition..	11000
Abhor..... 32		Achieving.. 95	Affording...	390	Alternate..	3900	Appetitive..	12000	
Abide..... 33		Aconite.... 96	Affray . . . . .	395	Alum . . . . .	4000	Appetize . . . . .	13000	
Abiding... 34		Acorns.... 97	Affright...	400	Aluminate	4100	Appetizing..	14000	
Ability..... 35		Acquaint... 98	Affront....	405	Amalgam..	4200	Appetizer... 15000		
Abnormal... 36		Acquire . . . . .	99	Afire . . . . .	410	Amass . . . . .	4300	Appian . . . . .	16000
Aboard . . . . .	37	Acquit..... 100	Afraid....	415	Amateur..	4400	Applauding..	17000	
Abodance... 38		Acrid . . . . .	105	Africa . . . . .	420	Amative . . . . .	4500	Applauder..	18000
Aboding... 39		Acrimony... 110	Afterclap..	425	Amazement	4600	Applanna... 19000		
Abolish . . . . .	40	Action . . . . .	115	Afternoon..	430	Amazon . . . . .	4700	Applaud . . . . .	20000
Abolisher... 41		Actively... 120	Afterward	435	Amber.... 4800	Applicable..	21000		
Abolition... 42		Actor . . . . .	125	Against... 440	Amend . . . . .	4900	Applicably..	22000	
Abominable.. 43		Actual . . . . .	130	Agency... 445	American..	5000	Applicancy	23000	
Abominate.. 44		Actuary... 135	Aggressor	450	Amuck . . . . .	5100	Applicance..	24000	
Aboriginal.. 45		Actuate . . . . .	140	Aggrieve.. 475	Amulet . . . . .	5200	Applicate... 25000		
Abrasion... 46		Acute . . . . .	145	Aghast . . . . .	500	Analyst . . . . .	5300	Applicator..	26000
Abrupt . . . . .	47	Acutely... 150	Agile . . . . .	525	Anchor . . . . .	5400	Applier . . . . .	27000	
Abruptly... 48		Acuteness.. 155	Agility . . . . .	550	Andiron..	5500	Appliment..	28000	
Abcess . . . . .	49	Adage . . . . .	160	Agitate . . . . .	575	Anecdote . . . . .	5600	Applique . . . . .	29000
Abscend... 50		Adament... 165	Agitating...	600	Animate . . . . .	5700	Apple . . . . .	30000	
Absence... 51		Adapt . . . . .	170	Agitative.. 625	Annoit . . . . .	5800	Applum . . . . .	31000	
Absent . . . . .	52	Adapting.. 175	Agitator . . . . .	650	Antidate..	5900	Applumb... 32000		
Absentee... 53		Addict... 180	Agonize . . . . .	675	Anthem . . . . .	6000	Applumbo... 33000		
Absentee... 54		Addition.. 185	Agonizing...	700	Antic . . . . .	6100	Applumblie..	34000	
Absolute . . . . .	55	Address . . . . .	190	Agony . . . . .	725	Antipathy..	6200	Appljack . . . . .	35000
Absolutely.. 56		Adhere . . . . .	195	Agree . . . . .	750	Antiphone	6300	Appointer..	36000
Absorb . . . . .	57	Adherent . . . . .	200	Agreeable	775	Antiphony	6400	Apporter... 37000	
Absorbing.. 58		Adhesion . . . . .	205	Agreeing... 800	Antipode..	6500	Apportion... 38000		
Absorbent.. 59		Adhesive... 210	Aidance... 825	Antipope..	6600	Appose . . . . .	39000		
Abstain . . . . .	60	Adjacent... 215	Aidless... 850	Antiquary	6700	Applejohn . . . . .	40000		
Abstainer... 61		Adjective.. 220	Aimless... 875	Antiquate	6800	Apposer . . . . .	41000		
Abstaining.. 62		Adjoin . . . . .	225	Antique . . . . .	6900	Apposite... 42000			
Abstinece.. 63		Adjure . . . . .	230	Antiquity..	7000	Appositely..	43000		
Abstract . . . . .	64	Adjust . . . . .	235	Antirrole . . . . .	950	Apposition..	44000		
Absurd . . . . .	65	Admirable.. 240	Airtight... 975	Antihler . . . . .	7200	Applepie . . . . .	45000		
Absurdity.. 66		Admiral... 245	Alabaster.. 1000	Anvil . . . . .	7300	Appositive..	46000		
Absurdly... 67		Admire . . . . .	250	Anxiety... 7400	Appraisal..	47000			
Abundance.. 68		Admiring.. 255	Alack . . . . .	1100	Anxious... 7500	Appraise... 48000			
Abundant... 69		Admit . . . . .	260	Alarabell.. 1300	Aorta . . . . .	7600	Appreciate..	49000	
Abuse . . . . .	70	Admitted.. 265	Alarmed . . . . .	1400	Apartment	7700	Appletree . . . . .	50000	
Abused . . . . .	71	Admitting.. 270	Alarming... 1500	Alarmpy . . . . .	7800	Appliance... 55000			
Abusing . . . . .	72	Admonish.. 275	Albatross.. 1600	Aperture . . . . .	7900	Applicable..	60000		
Abusive... 73		Adopted... 280	Albeit . . . . .	1700	Apex . . . . .	8000	Applicant... 65000		
Abys . . . . .	74	Adre . . . . .	285	Albin . . . . .	1800	Aphelion . . . . .	8100	Apply . . . . .	70000
Academic . . . . .	75	Adoring... 290	Albion . . . . .	1900	Apollo . . . . .	8200	Appoint... 75000		
Academy . . . . .	76	Adroit . . . . .	295	Album . . . . .	2000	Apologize . . . . .	8300	Appointee . . . . .	80000
Accelerate.. 77		Adroitly... 300	Albumen.. 2100	Apology . . . . .	8400	Apology . . . . .	8400	Appraise... 85000	
Accession... 78		Adult . . . . .	305	Apostle . . . . .	8500	Appreciate..	90000		
Accent..... 79		Advent . . . . .	310	Alcohol... 2300	Apparatus	8600	Apprehend..	95000	
Accident... 80		Adventure.. 315	Alderman.. 2400	Alert . . . . .	2500	Apparel . . . . .	8700	Apprentice..	100000
Acclaim . . . . .	81	Advert . . . . .	320	Alien . . . . .	2600	Apparent . . . . .	8800	Apprentle..	150000
Acclimate . . . . .	82	Advartise.. 325	Alignment	2700	Appeal . . . . .	9000	Apprentled.	200000	
Accord . . . . .	83	Advocate . . . . .	330				Apprentler..	250000	

## STYLES OF RADIATORS.

No. of Sections	Columbia	Pyro	Pyro Wall	Princess	Newport
1	Apprise	Apsid	Aqueduct	Arachnoid	Arboreal
2	Apprizal	Apsidal	Aqueity	Aragonese	Arborod
3	Apprizing	Apsis	Aqueous	Aragonite	Arboreous
4	Apprizer	Apsides	Aquiferous	Araignee	Arborct
5	Approach	Apt	Aquiform	Araigna	Arborical
6	Approacher	Aptable	Aquila	Araise	Arbonst
7	Approaching	Aptable	Aquiline	Aramatic	Arborized
8	Approbate	Aptera	Aquilon	Aramean	Arborous
9	Apprompt	Apterals	Aquitaman	Arameanism	Arbuscle
10	Approof	Apteral	Aquose	Araeidans	Arbuscular
11	Apprope	Apternal	Aquosity	Araeidces	Arbustive
12	Appropra	Apteran	Ara	Araeidform	Arbustum
13	Approval	Apteros	Arab	Araeidous	Arbut
14	Approvance	Apteryx	Arabesque	Arango	Arbutus
15	Approve	Aptitude	Arabian	Aration	Arbutean
16	Approver	Aptly	Arabic	Aratory	Arceyle
17	Appul	Aptness	Arabical	Arbalist	Arcaide
18	Appulse	Aptote	Arabically	Arbalister	Arcaide
19	Appulsion	Apyretic	Arabme	Arbiter	Arcaidan
20	Appulsive	Apyrex	Arabism	Arbitrable	Arcaide
21	Applicate	Apyrous	Arabest	Arbitrary	Arcaide
22	Appricity	Aqua	Arabic	Arbitrate	Arcanum
23	Appricot	Aquarian	Aracnese	Arbitration	Arceboutant
24	April	Aquarium	Arace	Arbitrator	Arch
25	Apriori	Aquarius	Araceous	Arbitress	Archaeal
26	Apron	Aquatie	Araches	Arblast	Archaism
27	Aproned	Aquatical	Arachiz	Arbor	Arched
28	Aprondry	Aquatile	Arachyz	Arborary	Archeology
29	Aproning	Aquatint	Arachyz	Arborator	Archer
30	Aprupos	Aquatinta	Arachnida	Arbory	Archery

No. of Sections	Elite	Empire	Climax	Perfect	Sections... Radiators
1	Baby	Beal	Blackbird	Boy	50 Bracket
2	Bachelor	Beam	Blackmail	Boylke	75 Bradawl
3	Backbiter	Beauty	Blamable	Boyhood	100 Brazen
4	Backboard	Beautiful	Blamful	Boyish	200 Breakfast
5	Background	Beaful	Blanket	Boysibly	300 Brewery
6	Backward	Become	Bleak	Boynishness	400 Bricklayer
7	Backpipe	Bedding	Blend	Boysplay	500 Brickwork
8	Balance	Bedeck	Bliss	Brace	600 Brightly
9	Balkony	Bedmaker	Blockade	Bracer	700 Brimstone
10	Baldpate	Bedline	Blockhouse	Bracing	800 Buckhorn
11	Bale	Bedwork	Blockhead	Bracket	900 Buckhorn
12	Ballast	Befall	Blockhead	Bracketing	1000 Bulletin
13	Ballot	Befool	Bloom	Brackish	1100 Bullock
14	Bandage	Befriend	Blossom	Brad	1200 Bullseye
15	Bandana	Beguide	Bluebell	Bray	1300 Bulrush
16	Bandbox	Behave	Bluebook	Braggad	1400 Bulwark
17	Banner	Behead	Board	Braggang	1500 Bumblebee
18	Banquet	Behavior	Boarding	Braggart	1600 Bundle
19	Baptism	Bellows	Boastful	Brainless	1700 Bungler
20	Barfoot	Beloved	Boatman	Braid	1800 Bunton
21	Bargain	Bereave	Bobtail	Brading	1900 Bunting
22	Barley	Bestow	Boldface	Bran	2000 Burden
23	Barleycorn	Ektray	Bombard	Braned	3000 Burdensome
24	Baronet	Betide	Bookful	Branless	4000 Burch
25	Barrack	Betroth	Bookjack	Brake	5000 Burcher
26	Barrier	Betwixt	Bouquet	Brakeman	6000 Burchique
27	Barrister	Betwail	Botany	Bramble	7000 Bushel
28	Basement	Beware	Bonedust	Brambling	8000 Butterfly
29	Bayonet	Bewilder	Bondless	Bran	9000 Bylaw
30	Baytree	Bewitch	Boxwood	Branch	10000 Byword

## STYLES OF RADIATORS.

One Row.	Two Row.	Three Row.	Four Row.	Five and Six Row.
Cabbage...1 X	Camera...2 X	Carving...3 X	Cavern...4 X	Cider...5 X
Cabin...1 X	Campaign...2 X	Cascade...1 X	Cavity...4 X	Cinnamon...5 X
Cable...1 X	Camphor...2 X	Casino...3 X	Cedar...4 X	Citizen...5 X
Cafoose...1 X	Canary...2 X	Casket...3 X	Century...4 X	Civil...5 X
Cackle...1 X	Candle...2 X	Castor...1 X	Chaining...4 X	Clatter...5 X
Cactus...1 X	Canker...2 X	Castle...3 X	Charity...4 X	Clergy...5 X
Cadaver...1 X	Cannibal...2 X	Catacomb...3 X	Chattel...4 X	Clinch...5 X
Cadence...1 X	Canopy...2 X	Cataract...3 X	Checkmate...4 X	Clinker...5 X
Cadet...1 X	Canvas...2 X	Catnip...3 X	Cherry...4 X	Cloak...5 X
Cage...1 X	Capital...2 X	Cattle...3 X	Chief...4 X	Cloud...5 X
Calamity...1 X	Capstan...2 X	Caucus...3 X	Child...4 X	Clover...5 X
Calcium...1 X	Caravan...2 X	Cavalry...3 X	Chimney...4 X	Cobbler...5 X
Caldron...1 X	Carboy...2 X		Chinese...4 X	Cockney...5 X
Calendar...1 X	Carcase...2 X		Church...4 X	Codicil...5 X
Calico...1 X	Cardinal...2 X			Coffin...5 X
Callous...1 X	Cargo...2 X			Collusion...5 X
Calinness...1 X	Carpet...2 X			
Calomet...1 X	Carriage...2 X			
Camel...1 X	Cartoon...2 X			

Circulars.	Corners and Columns.	Miscellaneous.	Miscellaneous.
Combustion...10 Circular	Compose...10 Corner	Cottage..Dining Room	Crumble.....Extended
Comedian...15 Circular	Concert...15 Corner	Hot Closet.	Surface.
Comfort...20 Circular	Confiscate...20 Corner	Courtsip..Window.	Crystal..Enlarged Sur-
Comical...25 Circular	Confit...25 Corner	Courage...Horizontal	face.
Companion...30 Circular	Confitent...30 Corner	Crave...Indirect	Culprit..Hot Water.
Comparison...35 Circular	Conquest...26 Column	Crape...Single Indirect	Cupid..Marble Binder.
Compass...72 Circular	Convulsion...34 Column	Cravat..Angle Pin In-	Cupola..Iron Tops
Complexion...142 Circular	Corlage...50 Column	direct.	Curate..Brass Screen.
	Corlate...58 Column	Cribbage...Golds Pin	Curfew...Bronzed.
	Corlated...142 Column	Indirect.	Current..Renaissance
		Cricket....Direct Indi-	with Pillars.
		rect.	Cushion..Renaissance
		Crush...Box Base.	without Pillars.
		Crumb.....Baker Air	
		Valve.	

18 Loop Ring Column.....	Cushionet	Elite Steam Radiator with Crescent Dam-
22 Loop Ring Column.....	Cushiony	per.....Cutis
28 Loop Ring Column.....	Cusk	Elite Hot Water Radiator with Crescent
32 Loop Ring Column.....	Cuskin	Damper.....Cutlass
Elite Corner Steam Radiator.....	Cusp	Elite Steam Radiator with Duplex Cres-
Elite Corner Hot Water Radiator.....	Cusped	cent Damper.....Cutler
Elite Curved Steam Radiator.....	Cusped	Elite Hot Water Radiator with Duplex
Elite Curved Hot Water Radiator.....	Cuspidal	Crescent Damper.....Cutlery
Elite Direct-Indirect Radiator....	Cuspidate	Bundy Standard Steam Radiator with
Columbia Corner Steam Radiator.....	Cuspidated	Crescent Damper.....Cutlet
Columbia Corner Hot Water Radiator.....	Cuspid	Bundy Standard Hot Water Radiator
Columbia Curved Steam Radiator....	Custard	with Crescent Damper.....Cutling
Columbia Curved Hot Water Radiator.	Custode	Bundy Standard Steam Radiator with
	Custodian	Duplex Crescent Damper.....Cutter
Columbia Direct-Indirect Radiator	Custodian	with Duplex Crescent Damper.....Cutting
Princess Corner Steam Radiator.....	Custodian	Bundy Standard Steam Radiator with
Princess Corner Hot Water Radiator.	Custodier	Duplex Base.....Cuttle
	Custody	Bundy Standard Hot Water Radiator
Princess Curved Steam Radiator.....	Custody	with Duplex Base.....Cutlery
Princess Curved Hot Water Radiator	Custom	Bundy Standard Steam Radiator with
	Custom	Semi-Duplex Base.....Cutty
Princess Direct-Indirect Radiator.	Customable	Bundy Standard Hot Water Radiator
	Customably	with Semi-Duplex Base.....Cutwal
Pyro Corner Steam Radiator.....	Customary	Elite Semi-Duplex Steam Radiator..Cuvette
Pyro Corner Hot Water Radiator.....	Customer	Columbia Semi-Duplex Steam Radiator..Cuz
Pyro Curved Steam Radiator.....	Custos	Princess Semi-Duplex Steam Radiator.
Pyro Curved Hot Water Radiator...Custos	Custel	
Pyro Direct-Indirect Radiator.....	Custel	Pyro Semi-Duplex Steam Radiator..Cyanati
Defiance Corner Steam Radiator.....	Cutch	Pyro-Wall Semi-Duplex Steam Radiator.
Defiance Corner Hot Water Radiator.	Cutchery	
	Cute	Defiance Semi-Duplex Steam Radiator.
Defiance Curved Steam Radiator....	Cute	
Defiance Curved Hot Water Radiator	Cuteness	
	Cuticle	
Defiance Bay Window Steam Radiator.	Cuticle	
	Cuticlar	
Defiance Bay Window Hot Water Radi-		Climax Vertical Semi-Duplex Steam
ator.....		Radiator.....Cyanoger

## Height from Floor to Top.

Dagger.....10"	Deafen.....21"	Destroy.....32"
Daisy.....11"	Debate.....22"	Dexter.....33"
Damage.....12"	Declare.....23"	Digest.....34"
Damper.....13"	Decoy.....24"	Dirk.....25"
Damsel.....14"	Default.....25"	Dish.....36"
Darken.....15"	Defend.....26"	Dock.....37"
Darling.....16"	Degrade.....27"	Dog.....38"
Date.....17"	Demolish.....28"	Dolphin.....39"
Daylight.....18"	Dental.....29"	Domain.....40"
Dazzle.....19"	Depart.....30"	Dotage.....42"
Deacon.....20"	Deprive.....31"	Dovetail.....45"

## Tapping.

RIGHT HAND.	RIGHT HAND	LEFT HAND.	LEFT HAND.
Egotist .. $\frac{3}{4}$ " x $\frac{3}{4}$ "	Empire...1 $\frac{1}{4}$ " x $\frac{3}{4}$ "	Fable ... $\frac{3}{4}$ " x $\frac{3}{4}$ "	Forgery...1 $\frac{1}{4}$ " x $\frac{3}{4}$ "
Elastic .. $\frac{3}{4}$ " x $\frac{1}{4}$ "	Empty.. 1 $\frac{1}{4}$ " x 1"	Faculty .. $\frac{3}{4}$ " x $\frac{1}{4}$ "	Frantic. 1 $\frac{1}{4}$ " x 1"
Elder .. 1" x $\frac{3}{4}$ "	Engine...1 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ "	Falry 1" x $\frac{3}{4}$ "	Furnace. 1 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ "
Elegant .. 1"	Engrave...1 $\frac{1}{4}$ "	Fashion. 1"	Furniture 1 $\frac{1}{4}$ "
Elope.....1" x 1	Engross 1 $\frac{1}{4}$ " x 1"	Fetlock. 1" x 1"	Furrow.. 1 $\frac{1}{4}$ " x 1"
Embark 1 $\frac{1}{4}$ "	Enigma ... 2"	Flower 1 $\frac{1}{4}$ "	Furtive... 2"
Fury .. Same End.	Future .. Opposite End.	Futile .. Feed in Top.	Futurity.....Feed in Base.

## Orders and Shipments.

Habit.... Answer how soon can ship....	Handcuff...Advices in regard to order.... too late, it was shipped....
Hackney.. Can ship at once if tapping is 1" x $\frac{3}{4}$ " R. H.	Handsome..When will Order No. be shipped
Haddock...Ship immediately.	Hangman..If you have shipped our order of ..please send tracer as we need it badly.
Haggard...Send shipping directions.	Hanker....Omit ...from our order of. ..
Halibut....Will send directions by mail.	Happy.....Omit....from our order No....
Hallow.... Have you shipped our order of..f	Hatchet....Substitute on our order of..... in place of....
Halter..... Your order was shipped...	Hatchway.Add to our order No...
Hamlet .... Your order will be shipped...	Hateful....Duplicate order No....
Hammer... Add to our order of....	
Hammock..If you have not shipped order of ...hold for further advices.	

## Can Ship order in.....Days from Receipt.

1 Hatred	8 Hazel	15 Hebrew
2 Haughty	9 Headless	16 Hellish
3 Haunted	10 Headway	17 Hemlock
4 Havock	11 Headlong	18 Herald
5 Hawk	12 Heap	19 Heresy
6 Hawthorn	13 Hearse	20 Hero
7 Hazard	14 Heathen	21 Herring

## SHIPPING LINE.

SHIP VIA.....	SHIP VIA.....
Hexagon..... Anchor Line.	Honest..... Hoosac Tunnel.
Hiderus..... A. T. & S. Pe R. R.	Foodwink..... Hull.
Higgle..... Antwerp.	Hopful..... Havre
Highland..... Boat.	Hopper..... Hamburg.
Highway..... Rail. & O R R.	Hornet..... Kenawha Desp.
Hilarity..... Blue Line.	Horizon..... Lackawanna Line.
Hillock..... Bristol.	Horrid..... Lehigh Valley R. R.
Hinder..... Bordeaux.	Hospital..... Liverpool.
Hint..... Continental Line.	Hothouse..... London.
Hireling..... Ches. & Ohio R. R.	Hound..... Metropolitan Line.
Hissing..... Chi & N W. R. R.	Hose..... Mer. Desp.
History..... Chi. Bur & Quincy R. R.	Howling..... Mallory Line.
Hive..... Chi Ml & St. Paul R. R.	Huckster..... Morgan Line.
Hoard..... Clyde Line	Humanity..... N. Y. C. & H. R. R.
Hobart..... Charleston Steamer	Humble..... N. Y., N H & H. R. R.
Hobby..... Chi R I & Pac R R.	Humbug..... Norwich Line.
Hobble..... Canada southern	Humorist..... N Y, S. & West'n. R. R.
Hobson..... Del., Lack. & Western	Hungry..... N J C. R. R.
Hock..... Empire Line.	Huntsman..... Old Dominion Line.
Hogfish..... Erie Desp.	Hurdle..... Penna. R. R.
Holiday..... Erie R. R.	Husband..... Phila & Reading R. R.
Holliness..... Express.	Husky..... Red Line.
Holland..... Past Freight.	Hyena..... Star Union Line.
Homage..... First Steamer.	Hypocrite..... Traders' Desp.
Homeless..... Globe Line	Hyphen..... Texas Steamer.
Homesick..... Gt West Desp.	Hysterics..... Union Pacific.
Homicide..... Glasgow	Hyson..... West Shore R. R.

## PRICES AND QUOTATIONS.

Ideal..... Quote lowest price on.....	Imbibe..... Less than car load lots.
Idiot..... Quote lowest price f. o. b. .... on	Imitate..... With freight allowance to .....
Ignoble..... This price for immediate acceptance.	Immerge..... With .. . freight allowance
Illegal..... Our offer of .. . withdrawn.	Immodest..... If .. . writes for prices quote....
Infusion..... Carload lots.	Immoral..... What price shall we quote.....
Infucile..... All prices withdrawn as previously	Immortal..... Less C. L. freight allowance to
quoted.	your city.

## QUOTE LOWEST PRICE ON .....LOOPS.

WILL QUOTE	Discount per cent.	Equiva-	Net	WILL QUOTE	Discount per cent.	Equiva-	Net.
F. O. B. ....		lent.		F. O. B. ....		lent.	
Jabber.....25		.05	.75	Jockey.....25	10 and 5	.15875	.64125
Jackal.....25	and 2½	.26875	.73125	Joiner.....25	10 and 7½	.3750	.6244
Jackdaw.....25	2½ and 2½	.28750	.71250	Joke.....25	10 and 10	.3925	.6075
Jacket.....25	2½ and 5	.3053	.6947	Journal.....27½		.725	.725
Jacobite.....25	2½ and 7½	.3256	.6764	Journey.....27½	and 2½	.7931	.7069
Jalap.....25	2½ and 10	.3419	.6581	Oval.....27½	2½ and 2½	.3103	.6897
Janitor.....25	and 5	.2875	.7125	Oy.....27½	2½ and 5	.3285	.6715
Japan.....25	5 and 2½	.3053	.6947	Ubilent.....27½	2½ and 7½	.3461	.6539
Asper.....25	5 and 5	.3231	.6769	Judgment.....27½	2½ and 10	.3633	.6367
Audance.....25	5 and 7½	.3409	.6591	Jug.....27½	and 5	.31125	.68875
Jealous.....25	5 and 10	.35875	.64125	Juice.....27½	5 and 2½	.3285	.6715
Jelly.....25	and 7½	.30625	.69375	Jumble.....27½	5 and 5	.3457	.6543
Jeopard.....25	2½ and 2½	.3236	.6764	Jump.....27½	5 and 7½	.3629	.6371
Jerk.....25	2½ and 5	.3409	.6591	Junction.....27½	5 and 10	.3801	.6199
Jesuit.....25	7½ and 7½	.3581	.6417	Jumor.....27½	and 7½	.3204	.6796
Jewell.....25	7½ and 10	.3756	.6244	Uniper.....27½	7½ and 2½	.3161	.6839
Jig.....25	and 10	.3450	.6750	Urist.....27½	7½ and 5	.3629	.6371
Jingle.....25	10 and 2½	.3419	.6581	Justice.....27½	7½ and 7½	.3797	.6203



## PRICES AND QUOTATIONS—Continued.

WILL QUOTE		Discount per cent.	Equiv- alent.	Net.	WILL QUOTE		Discount per cent.	Equiv- alent.	Net.
F. O. B.					F. O. B.				
Justify.....	27½	7½ and 10	3564	6636	Learned.....	35	and 10	415	585
Juvenile.....	27½	and 10	3475	6525	Lease.....	35	10 and 2½	4706	5704
Kangaroo.....	27½	10 and 2½	3688	6362	Leather.....	35	10 and 5	44425	55575
Keel.....	27½	10 and 5	3801	6199	Leaven.....	35	10 and 7½	4589	5411
Keeper.....	27½	10 and 7½	3965	6035	Lecture.....	35	10 and 10	4735	5265
Keg.....	27½	10 and 10	41275	38725	Legacy.....	37½		375	625
Kennel.....	30		30	70	Legal.....	37½ and 2½	and 2½	3906	6094
Kettle.....	30	and 2½	3175	6825	Legation.....	37½	7½ and 2½	4059	5941
Keyhole.....	30	2½ and 2½	3346	6654	Legion.....	37½	2½ and 5	4211	5789
Keystone.....	30	2½ and 5	3516	6484	Legislate ..	37½	2½ and 7½	4363	5637
Kick.....	30	2½ and 7½	3687	6313	Leisure.....	37½	2½ and 10	4516	5484
Kidnap.....	30	2½ and 10	38575	61425	Lemon.....	37½ and 5		46625	59375
Kidney.....	30	and 5	335	665	Leprosy.....	37½	5 and 2½	4211	5789
Kindle.....	30	5 and 2½	3516	6484	Lethargy.....	37½	5 and 5	4379	5047
Kindness.....	30	5 and 5	3685	63175	Lettuce.....	37½	5 and 7½	4508	5474
King.....	30	5 and 7½	3849	6151	Levity.....	37½	5 and 10	4656	5344
Kiss.....	30	5 and 10	4015	5985	Lewdness.....	37½ and 7½		4219	5781
Kit.....	30	and 7½	3525	6475	Lexicon.....	37½	7½ and 2½	4351	6037
Kitchen.....	30	7½ and 2½	3687	6313	Libel .....	37½	7½ and 5	4508	5496
Kite.....	30	7½ and 5	3849	6151	Liberal .....	37½	7½ and 7½	4652	5348
Knapsack.....	30	7½ and 7½	4009	5991	Library.....	37½	7½ and 10	4797	5293
Knave.....	30	7½ and 10	41725	58275	Lifeless.....	37½ and 10		4375	5625
Knee.....	30	and 10	37	63	Ligament.....	37½	10 and 2½	4516	5484
Knell.....	30	10 and 2½	38575	61425	Lightning.....	37½	10 and 5	4656	5344
Knife.....	30	10 and 5	4016	5994	Limber.....	37½	10 and 7½	4797	5293
Knock.....	30	10 and 7½	41725	58275	Limpid.....	37½	10 and 10	49375	50625
Label.....	30	10 and 10	433	567	Linguish.....	40		40	60
Lackey.....	32½		325	675	Lion.....	40 and 2½	and 2½	446	585
Ladder.....	32½ and 2½		3419	6581	Liquor.....	40	2½ and 2½	4426	5704
Ladle.....	32½	2½ and 2½	3583	6417	Litany.....	40	2½ and 5	4445	55575
Lag.....	32½	2½ and 5	3748	6252	Litigate.....	40	2½ and 7½	4589	5411
Lake.....	32½	2½ and 7½	3912	6088	Litter.....	40	2½ and 10	4735	5265
Lamb.....	32½	2½ and 10	4077	5923	Lively.....	40 and 5		443	57
Lament.....	32½ and 5		35875	64125	Livery.....	40	5 and 2½	44425	55575
Lampblack.....	32½	5 and 2½	3748	6252	Lizard.....	40	5 and 5	4585	5415
Lancet.....	32½	5 and 5	3908	6092	Loadstone.....	40	5 and 7½	4775	52275
Landing.....	32½	5 and 7½	4068	5932	Lobby.....	40	5 and 10	487	513
Landmark.....	32½	5 and 10	4229	5771	Lobster.....	40 and 7½		445	555
Lane.....	32½ and 7½		3756	6244	Locker.....	40	7½ and 2½	4589	5411
Language.....	32½	7½ and 2½	3912	6088	Lockust.....	40	7½ and 5	47275	52725
Lantern.....	32½	7½ and 5	4068	5932	Lofty.....	40	7½ and 7½	4866	5134
Lap.....	32½	7½ and 7½	4226	5775	Logic.....	40	7½ and 10	5095	4995
Larboard.....	32½	7½ and 10	4381	5619	Longitude.....	40 and 10		46	54
Larder.....	32½ and 10		3925	6075	Lordship.....	40	10 and 2½	4735	5265
Larkspur.....	32½	10 and 2½	4077	5923	Lottery.....	40	10 and 5	487	513
Lash.....	32½	10 and 5	4229	5771	Lovely.....	40	10 and 7½	5095	4995
Latch.....	32½	10 and 7½	4381	5619	Lowland ..	40	10 and 10	514	486
Lateral.....	32½	10 and 10	45325	54675	Loyal.....	42½		425	575
Latin.....	35		35	65	Lubber.....	42½ and 2½	and 2½	4994	5666
Latitude.....	35 and 2½		36625	53375	Lumbago.....	42½	2½ and 2½	4534	5466
Lattice.....	35	2½ and 2½	3821	6179	Lunacy.....	42½	2½ and 5	4674	5326
Laudanum.....	35	2½ and 5	3979	6021	Lurid.....	42½	2½ and 7½	4814	5186
Launch.....	35	2½ and 7½	4138	5862	Lutheran ..	42½	2½ and 10	4954	5046
Laundry.....	35	2½ and 10	4296	5704	Luxury.....	42½ and 5		45375	54625
Laurel.....	35 and 5		3825	6175	Mackerel.....	42½	5 and 2½	4674	5326
Lavatory.....	35	5 and 2½	3979	6021	Madcap.....	42½	5 and 5	4814	5186
Lawful.....	35	5 and 5	4134	5866	Madhouse.....	42½	5 and 7½	4947	5053
Lawless.....	35	5 and 7½	4288	5712	Magazine.....	42½	5 and 10	5084	5016
Laxative.....	35	5 and 10	44425	55575	Magenta.....	42½ and 7½		4681	5319
Layman.....	35 and 7½		39875	61125	Magic.....	42½	7½ and 2½	4814	5186
Leader.....	35	7½ and 2½	4138	5862	Magnetic.....	42½	7½ and 5	4947	5053
League.....	35	7½ and 5	4288	5712	Magnolia.....	42½	7½ and 7½	508	492
Leakage.....	35	7½ and 7½	4438	5562	Mandrake.....	42½	7½ and 10	5213	4787
Leap.....	35	7½ and 10	4589	5411	Mankind.....	42½ and 10		4825	5175

## PRICES AND QUOTATIONS—Continued.

WILL QUOTE F. O. B. ....	Discount per cent.	Equip- ment.	Net	WILL QUOTE F. O. B. ....	Discount per cent.	Equip- ment.	Net
Maple.....42½	10 and 2½	4954	5046	Obedient.....50	10 and 5	5775	4275
Marine.....42½	10 and 5	5084	4916	Obelisk.....50	10 and 7½	58175	41625
Market.....42½	10 and 7½	5213	4787	Obituary... 50	10 and 10	595	405
Mastiff.... 42½	10 and 10	53245	46575	Obstacle.....52½		525	475
Matron.....45		45	55	Octagon.....52½ and 2½		5360	4631
Meadow.....45	and 2½	46375	53625	Odius..... 52½	2½ and 2½	5485	4515
Mechanic... 45	2½ and 2½	4772	5228	Offensive... 52½	2½ and 5	56	44
Melody... 45	2½ and 5	4906	5094	Offspring... 52½	2½ and 7½	5716	4284
Membrane... 45	2½ and 7½	504	496	Ointment... 52½	2½ and 10	582	4168
Memorial... 45	2½ and 10	5174	4826	Opposum... 52½ and 5		54875	45125
Methodist... 45	and 5	4775	5275	Optic..... 52½	5 and 2½	56	44
Midwife..... 45	5 and 2½	4906	5094	Orchard..... 52½	5 and 5	5713	4287
Migrate..... 45	5 and 5	5036	4964	Orchestra... 52½	5 and 7½	5826	4174
Milestone... 45	5 and 7½	5167	4833	Organic..... 52½	5 and 10	5919	4061
Military..... 45	5 and 10	52975	47923	Oriental... 52½ and 7½		5909	4394
Milk..... 45	and 7½	49125	50875	Orphan..... 52½	7½ and 2½	5716	4284
Mineral..... 45	7½ and 2½	504	496	Ostrich..... 52½	7½ and 5	5826	4174
Minister... 45	7½ and 5	5167	4833	Outcast... 52½	7½ and 7½	5936	4064
Mischief... 45	7½ and 7½	5294	4706	Ovation... 52½	7½ and 10	6026	3954
Miracle..... 45	7½ and 10	5421	4579	Overflow... 52½ and 10		5725	4275
Misplace... 45	and 10	505	495	Pacific..... 52½	10 and 2½	5832	4163
Mistress... 45	10 and 2½	5174	4826	Package..... 52½	10 and 5	5939	4061
Mock..... 45	10 and 5	52975	47925	Padlock... 52½	10 and 7½	6026	3954
Monitor.... 45	10 and 7½	5421	4579	Painter..... 52½	10 and 10	61525	38175
Monkey..... 45	10 and 10	5545	4455	Pailsade... 55		55	45
Monument... 47½		475	525	Palmetto... 55 and 2½		58125	43875
Moonshine... 47½ and 2½		4881	5119	Palsy..... 55	2½ and 2½	5722	4278
Morbid..... 47½	2½ and 2½	5009	4691	Pansy..... 55	2½ and 5	5832	4168
Mortgage... 47½	2½ and 5	5137	4863	Panic..... 55	2½ and 7½	5922	4058
Mountain... 47½	2½ and 7½	5265	4735	Panther... 55	2½ and 10	6051	3946
Mouse..... 47½	2½ and 10	5393	4607	Pantry..... 55 and 5		5725	4271
Muddy..... 47½ and 5		50125	49875	Paradise... 55	5 and 2½	5832	4168
Mule..... 47½	5 and 2½	5137	4861	Paradox... 55	5 and 5	5939	4061
Multitude... 47½	5 and 5	5262	4738	Parcel..... 55	5 and 7½	6026	3954
Museum... 47½	5 and 7½	5386	4614	Parchment... 55	5 and 10	61525	38475
Musket.... 47½	5 and 10	5511	4489	Parody..... 55 and 7½		58375	41625
Muslin..... 47½ and 7½		5144	4856	Parrot... 55	7½ and 2½	5922	4058
Mustard... 47½	7½ and 2½	5265	4735	Parsley... 55	7½ and 5	6026	3954
Mutton... 47½	7½ and 5	5387	463	Partisan... 55	7½ and 7½	615	385
Mutton... 47½	7½ and 7½	5508	4492	Passport... 55	7½ and 10	6254	3746
Myrtle... 47½	7½ and 10	5629	4371	Passor... 55 and 10		595	495
Mystic.... 47½ and 10		5275	4725	Paternal... 55	10 and 2½	6052	3949
Napkin... 47½	10 and 2½	5393	4607	Pathetic... 55	10 and 5	61525	38475
Nation... 47½	10 and 5	5521	4489	Patriarch... 55	10 and 7½	6254	3746
Nativity... 47½	10 and 7½	5649	4371	Patrimony... 55	10 and 10	6355	3645
Nature..... 47½	10 and 10	5775	4525	Patrol..... 55		575	425
Navigate... 50		50	50	Pauper..... 57½ and 2½		5856	4144
Needle... 50 and 2½		5125	4875	Pavement... 57½	2½ and 2½	596	404
Neck..... 50	2½ and 2½	5247	4753	Peaceful... 57½	2½ and 5	6063	3937
Nephew... 50	2½ and 5	5369	4631	Peacock... 57½	2½ and 7½	6167	3833
Nest..... 50	2½ and 7½	5491	4509	Peak... 57½	2½ and 10	6271	3729
Nibble... 50	2½ and 10	5615	43875	Peasant... 57½ and 5		59625	4037
Nipple... 50 and 5		525	475	Pebble..... 57½	5 and 2½	6063	3927
Noble..... 50	5 and 2½	5369	4631	Pectoral... 57½	5 and 5	6164	3836
Normal... 50	5 and 5	54875	45125	Pedagogue... 57½	5 and 7½	6265	3715
Nosegay... 50	5 and 7½	5606	4394	Pedestrian... 57½	5 and 10	6366	3634
Nostril... 50	5 and 10	5725	4275	Pedigree... 57½ and 7½		6069	3911
Notary... 50 and 7½		5375	4625	Peggy... 57½	7½ and 2½	6167	3833
Nourish... 50	7½ and 2½	5491	4509	Pelican... 57½	7½ and 5	6265	3733
Numeral... 50	7½ and 5	5606	4394	Penalty... 57½	7½ and 7½	6364	3636
Nuptial... 50	7½ and 7½	5722	4278	Pendulum... 57½	7½ and 10	6462	3538
Nursery... 50	7½ and 10	58375	41625	Penetrate... 57½ and 10		6175	3825
Nutmeg... 50 and 10		55	45	Penitent... 57½	10 and 2½	6271	3729
Dakum... 50	10 and 2½	56125	43875	Pension... 57½	10 and 5	6366	3634

## PRICES AND QUOTATIONS—Continued.

WILL QUOTE F. O. B.....	Discount per cent.	Equiva- lent.	Net ....	WILL QUOTE F. O. B.....	Discount per cent.	Equiva- lent.	Net ....		
Pentagon.....	37 1/2	10 and 7 1/2	.6169	.3538	Polish.....	65	10 and 10	.7365	.2835
Penurious.....	37 1/2	10 and 10	.6575	.34425	Pollute.....	67 1/2		.6925	.3075
Pepper.....	60		.60	.40	Polygamy.....	67 1/2 and 2 1/2		.6631	.3369
Percolate.....	60 and 1/2		.61	.39	Polygon.....	67 1/2	2 1/2 and 3 1/2	.6691	.3309
Perdition.....	60	2 1/2 and 2 1/2	.61975	.38025	Pomatum.....	67 1/2	2 1/2 and 5	.669	.331
Perennial.....	60	2 1/2 and 5	.6295	.3705	Pommel.....	67 1/2	2 1/2 and 7 1/2	.7069	.2931
Perforate.....	60	2 1/2 and 7 1/2	.63925	.36075	Ponder.....	67 1/2	2 1/2 and 10	.7148	.2852
Perfume.....	60	2 1/2 and 10	.649	.351	Pontoon.....	67 1/2 and 5		.69125	.30875
Perjury.....	60 and 5		.62	.38	Poplin.....	67 1/2	5 and 2 1/2	.699	.301
Perpetual.....	60	5 and 2 1/2	.6295	.3705	Popular.....	67 1/2	5 and 5	.7067	.2933
Persecute.....	60	5 and 5	.630	.361	Porcupine.....	67 1/2	5 and 7 1/2	.7144	.2856
Persian.....	60	5 and 7 1/2	.648 1/2	.3515	Porpoise.....	67 1/2	5 and 10	.7221	.2779
Personate.....	60	5 and 10	.658	.342	Portico.....	67 1/2 and 7 1/2		.6994	.3006
Perspire.....	60 and 7 1/2		.61	.37	Positive.....	67 1/2	7 1/2 and 2 1/2	.7069	.2931
Pervade.....	60	7 1/2 and 2 1/2	.61975	.38075	Postage.....	67 1/2	7 1/2 and 5	.7144	.2856
Perusal.....	60	7 1/2 and 5	.6485	.3515	Potash.....	67 1/2	7 1/2 and 7 1/2	.7219	.2781
Pestilence.....	60	7 1/2 and 7 1/2	.65775	.34225	Potato.....	67 1/2	7 1/2 and 10	.7294	.2706
Petition.....	60	7 1/2 and 10	.667	.331	Pothook.....	67 1/2 and 10		.7075	.2925
Petrify.....	60 and 10		.64	.36	Poultry.....	67 1/2	10 and 2 1/2	.7148	.2852
Petticoat.....	60	10 and 2 1/2	.649	.351	Poverty.....	67 1/2	10 and 5	.7221	.2779
Petulant.....	60	10 and 5	.658	.342	Powder.....	67 1/2	10 and 7 1/2	.7294	.2706
Pewter.....	60	10 and 7 1/2	.667	.331	Powerful.....	67 1/2	10 and 10	.73675	.26325
Phantom.....	60	10 and 10	.676	.324	Practical.....	70		.70	.30
Pharmacy.....	62 1/2		.625	.375	Prattle.....	70 and 2 1/2		.7075	.2925
Physical.....	62 1/2 and 2 1/2		.6344	.3656	Preacher.....	70	2 1/2 and 2 1/2	.7148	.2852
Piano.....	62 1/2	2 1/2 and 2 1/2	.6435	.3565	Precinct.....	70	2 1/2 and 5	.7221	.2779
Plaster.....	62 1/2	2 1/2 and 5	.6527	.3473	Precious.....	70	2 1/2 and 7 1/2	.7294	.2706
Picket.....	62 1/2	2 1/2 and 7 1/2	.6618	.3382	Precipice.....	70	2 1/2 and 10	.73675	.26325
Piety.....	62 1/2	2 1/2 and 10	.6709	.3291	Preclude.....	70	and 5	.715	.285
Pigeon.....	62 1/2 and 5		.64375	.35625	Predestine.....	70	5 and 2 1/2	.7221	.2779
Pigmy.....	62 1/2	5 and 2 1/2	.6527	.3473	Prediction.....	70	5 and 5	.72925	.27075
Pillar.....	62 1/2	5 and 5	.6618	.3382	Predispose.....	70	5 and 7 1/2	.7364	.2636
Pilgrim.....	62 1/2	5 and 7 1/2	.6709	.3291	Preface.....	70	5 and 10	.7435	.2565
Pillow.....	62 1/2	5 and 10	.6794	.3206	Pregnant.....	70 and 7 1/2		.7223	.2777
Pilot.....	62 1/2 and 7 1/2		.6531	.3469	Prejudice.....	70	7 1/2 and 2 1/2	.7294	.2706
Pimple.....	62 1/2	7 1/2 and 2 1/2	.6618	.3382	Prelate.....	70	7 1/2 and 5	.7364	.2636
Pipkin.....	62 1/2	7 1/2 and 5	.6709	.3291	Premium.....	70	7 1/2 and 7 1/2	.7435	.2565
Piracy.....	62 1/2	7 1/2 and 7 1/2	.6791	.3209	Prepare.....	70	7 1/2 and 10	.75025	.24975
Pistol.....	62 1/2	7 1/2 and 10	.6878	.3122	Presbyter.....	70 and 10		.73	.27
Pitcher.....	62 1/2 and 10		.6625	.3375	Prescribe.....	70	10 and 2 1/2	.73675	.26325
Piteous.....	62 1/2	10 and 2 1/2	.6709	.3291	Preserve.....	70	10 and 5	.7435	.2565
Pivot.....	62 1/2	10 and 5	.6794	.3206	President.....	70	10 and 7 1/2	.75025	.24975
Plague.....	62 1/2	10 and 7 1/2	.6878	.3122	Pretend.....	70	10 and 10	.757	.243
Plaintive.....	62 1/2	10 and 10	.69625	.30375	Pretext.....	72 1/2		.725	.275
Planet.....	65		.65	.35	Pretty.....	72 1/2 and 2 1/2		.7319	.2681
Plantation.....	65 and 2 1/2		.65875	.34125	Prevail.....	72 1/2	2 1/2 and 2 1/2	.7386	.2614
Planter.....	65	2 1/2 and 2 1/2	.6673	.3327	Prevalent.....	72 1/2	2 1/2 and 5	.7452	.2548
Platoon.....	65	2 1/2 and 5	.6758	.3242	Prievent.....	72 1/2	2 1/2 and 7 1/2	.752	.248
Playful.....	65	2 1/2 and 7 1/2	.6843	.3157	Priest.....	72 1/2	2 1/2 and 10	.7587	.2413
Pleasant.....	65	2 1/2 and 10	.6929	.3071	Prime.....	72 1/2 and 5		.75875	.24125
Plebian.....	65 and 5		.6675	.3325	Primitive.....	72 1/2	5 and 2 1/2	.7452	.2548
Plethful.....	65	5 and 2 1/2	.6758	.3242	Primrose.....	72 1/2	5 and 5	.752	.248
Plight.....	65	5 and 5	.6843	.3159	Princess.....	72 1/2	5 and 7 1/2	.7583	.2417
Ploughman.....	65	5 and 7 1/2	.6924	.3076	Principle.....	72 1/2	5 and 10	.7649	.2351
Pluck.....	65	5 and 10	.70075	.29925	Printer.....	72 1/2 and 7 1/2		.7456	.2544
Pump.....	65 and 7 1/2		.67625	.32375	Prismatic.....	72 1/2	7 1/2 and 2 1/2	.752	.248
Puncher.....	65	7 1/2 and 2 1/2	.6843	.3157	Prisoner.....	72 1/2	7 1/2 and 5	.7583	.2417
Puander.....	65	7 1/2 and 5	.6924	.3076	Privacy.....	72 1/2	7 1/2 and 7 1/2	.7647	.2353
Pocket.....	65	7 1/2 and 2 1/2	.7005	.2995	Privilege.....	72 1/2	7 1/2 and 10	.7711	.2289
Pointer.....	65	7 1/2 and 10	.7086	.2914	Probation.....	72 1/2 and 10		.7525	.2475
Poison.....	65 and 10		.685	.315	Problem.....	72 1/2	10 and 2 1/2	.7587	.2413
Poker.....	65	10 and 2 1/2	.6929	.3071	Procession.....	72 1/2	10 and 5	.7649	.2351
Polecat.....	65	10 and 5	.70075	.29925	Proclaim.....	72 1/2	10 and 7 1/2	.7711	.2289
Polley.....	65	10 and 7 1/2	.7086	.2914	Prodigal.....	72 1/2	10 and 10	.77725	.22275



## TELEGRAPH CODE.

## FOR ORDERING.

Abate ..... Ship via Rail.	Amass ..... Ship the whole order in one lot.
Abbey ..... Ship via Fast Freight.	Anchor ..... Have sent particulars by mail.
Abject ..... Ship via Express.	Ancient ..... Ship at once any portion of order
Abridge ..... Ship via Steamer.	Angel ..... Have semi-shipping directions by mail.
Abuse ..... Ship via Canal.	Ankle ..... If you cannot ship by the time specified advise by telegraph
Accent ..... Ship via Boat.	Appraise ..... Hasten shipment of.....
Achieve ..... Ship via Rail and Boat.	Apricot ..... We are entirely out of .....
Advance ..... Ship via cheapest route.	Array ..... We must have.....
Ad cat ..... Ship via quickest route.	Arrest ..... order of the.....
Advice ..... Ship immediately.	Arrow ..... Please alter our order to.....
Affix ..... Ship to-day sure.	Artful ..... If not already executed, cancel.....
Alraid ..... As soon as possible.	Artist ..... Cancel balance of order.....
Again ..... Urgently needed, for repairs.	Assay ..... Cancel order unless shipped by.....
Aghast ..... Wanted at once When will you ship? Answer by telegraph.	Assign ..... Send tracer for shipment order..... Urgently needed
Allege ..... We are entirely out and urgently in want of..	Atic ..... Specifications to follow.
Allotting ..... In addition to previous order.	Augur ..... Telegraph number of cars and route shipped.
Alloy ..... Enter our order for.....	Awkward ..... Ship what you have ready and balance as soon as possible.
Almanac ..... Duplicate order.....	
Alum ..... Duplicate order, if at.....	

## WROUGHT IRON PIPE.

## GENERAL TERMS:

Babe ..... Butt Welded Black Pipe (1 1/4-inch and smaller).	Bagnat ..... Lap Welded Galvanized Pipe (1 1/2-inch and larger)
Bachelor ..... Lap Welded Black Pipe (1 1/4-inch and larger)	Barre ..... Asphalted Pipe.
Baggage ..... Butt Welded Galvanized Pipe (1 1/2-inch and smaller)	Baldpate ..... Extra Heavy Pipe.
	Ballad ..... Double Extra Heavy Pipe.

## QUANTITIES IN FEET.

25..... Balloon	800..... Barren	6,000..... Bedroom
50..... Balm	900..... Base	7,000..... Before
75..... Balsam	1,000..... Basket	8,000..... Began
100..... Band	1,500..... Bath	9,000..... Believe
200..... Bangle	2,000..... Battle	10,000..... Bell
300..... Banner	2,500..... Beacon	15,000..... Bench
400..... Bannock	3,000..... Beam	20,000..... Bend
500..... Barber	3,500..... Beating	25,000..... Beneath
600..... Bargain	4,000..... Beauty	50,000..... Bereave
700..... Bark	4,500..... Beckon	100,000..... Bestow
	3,000..... Bedash	

## SIZES OF PIPE.

BLACK	BLACK.	BLACK.	BLACK.
3/8 inch..... Cab	1 1/4 inch..... Calcine	5 inch..... Caution	12 inch..... Carnal
1/2 "..... Cabbage	2 "..... Caldron	6 "..... Canter	14 "..... Carpet
3/4 "..... Cabin	2 1/2 "..... Calico	7 "..... Canvas	15 "..... Cartoon
1 "..... Caboose	3 "..... Camel	8 "..... Capon	16 "..... Cascade
1 1/4 "..... Cackle	3 1/2 "..... Canary	9 "..... Capture	17 "..... Casino
1 1/2 "..... Cadence	4 "..... Cannibal	10 "..... Carbine	18 "..... Casual
1 3/4 "..... Cage	4 1/2 "..... Candid	11 "..... Carcase	
GALVANIZED.	GALVANIZED.	GALVANIZED.	GALVANIZED.
3/8 inch..... Dabble	1 1/4 inch..... Dapple	4 inch..... Decoy	8 inch..... Demizen
1/2 "..... Dagger	1 1/2 "..... Dark	4 1/2 "..... Defend	9 "..... Deprave
3/4 "..... Dairy	2 "..... Dairy	5 "..... Deform	10 "..... Desire
1 "..... Damask	2 1/2 "..... Deacon	6 "..... Degrade	11 "..... Despair
1 1/4 "..... Damson	3 "..... Debate	7 "..... Delude	12 "..... Destiny
"..... Dance	3 1/2 "..... Deceit		

## TELEGRAPH CODE—CONTINUED.

## NUMBER OF PIECES, OR ORDER NUMBERS.

1.....Eager	30 .. Emboss	60... ..Enrage	90 ... ..Ewe
2 .....Ear	31 .. Embrace	61. . . .Enrapt	91. . . .Exalt
3. ....Earaché	32. . . .Emerge	62. . . .Enrich	92. . . .Exceed
4.....Earlock	33. . . .Emery	63.....Enroll	93.....Exclaim
5... ..Earmark	34. . . .Emetic	64. . . .Enshroud	94. . . .Exclude
6... ..Earnest	35. . . .Eminent	65. . . .Ensign	95. . . .Excuse
7... ..Earring	36. . . .Emotion	66. . . .Ensnare	96.....Exempt
8.....Ease	37.....Empale	67. . . .Entail	97.....Exhale
9 .....Eater	38.....Employ	68. . . .Enthroned	98.....Exhibit
10 .....Eaves	39. . . .Empty	69. . . .Entice	99. . . .Exhort
11 .....Echo	40 .. Enable	70.....Entomb	100.....Exhume
12 .....Eclipse	41 .. Enact	71.....Eoltrap	200.....Exist
13. ....Eddy	42 .. Encamp	72. . . .Entrance	300.....Expect
14. ....Edge	43. . . .Enchant	73. . . .Entwine	400.....Expend
15. ....Editor	44. . . .Enclose	74. . . .Envy	500.....Expert
16. ....Efface	45. . . .Encore	75. . . .Envelope	600.....Expire
17. ....Elate	46. . . .Encounter	76. . . .Erect	700.....Explain
18.....Elbow	47 .. Encroach	77.....Ermine	800.....Explore
19 .....Elder	48. ....Endear	78.....Errand	900.....Expose
20 .....Elect	49. ....Endorse	79.....Escape	1,000.....Expound
21. ....Elfish	50.....Endless	80.....Essay	2,000.....Expulse
22 .....Elicit	51. ....Endow	81. ....Essence	3,000.....Extend
23. ....Elk	52. .. Enemy	82.....Estate	4,000.....Exterior
24.....Elope	53. ....Energy	83.....Esterm	5,000.....Extinct
25.....Elude	54 ....Engage	84. ....Estrange	6,000.....Extort
26.....Embalm	55 ....Engulf	85.....Evade	7,000.....Extract
27 .....Embark	56 ....Enjoin	86. ....Event	8,000.....Extreme
28.....Emblaze	57 .....Enlarge	87.....Eviol	9,000.....Eyall
29. ....Emblem	58. ....Enlist	88.....Evince	10,000.....Eyelid
.....	59. ....Enough	89.....Evoke	.....

## SIZES OF BOILER TUBES.

## GENERAL TERMS.

Faith.....Iron Boiler Tubes.  
Fabric.....Special Steel Boiler Tubes.

Outside Diameter.	Outside Diameter	Outside Diameter.	Outside Diameter.
1 inch.....Fable	3 inch. . . . Ferry	8 Inch . . . . Flag	14 Inch.....Forge
1 1/4 " . . . . Face	3 1/4 " . . . . Fetlock	8 1/2 " . . . . Flesh	15 " . . . . Forlorn
1 1/2 " . . . . Fair	3 1/2 " . . . . Fever	9 " . . . . Flirt	16 " . . . . Formless
1 3/4 " . . . . Falcon	3 3/4 " . . . . Field	9 1/2 " . . . . Flood	17 " . . . . Fortune
2 " . . . . Fame	4 " . . . . Filter	10 " . . . . Flowed	18 " . . . . Fossil
2 1/4 " . . . . Fan	4 1/4 " . . . . Finch	11 " . . . . Fly	19 " . . . . Fought
2 1/2 " . . . . Feast	4 1/2 " . . . . Fire	12 " . . . . Food	20 " . . . . Founder
2 3/4 " . . . . Feather	5 " . . . . Fist	13 " . . . . Fop	.....

## LENGTH OF BOILER TUBES IN FEET.

1 foot.....Gable	8 feet.....Glen	16 feet . . . . Grant	24 feet.....Grudge
2 feet.....Gag	9 " . . . . Gnaw	17 " . . . . Greek.	25 " . . . . Guano
3 " . . . . Gale	10 " . . . . Goal	18 " . . . . Grin	20 " . . . . Guest
4 " . . . . Gem	11 " . . . . Cobbles	19 " . . . . Grinder	27 " . . . . Guild
5 " . . . . Gentle	12 " . . . . Gold	20 " . . . . Gripe	28 " . . . . Guitar
6 " . . . . Ginger	13 " . . . . Gore	21 " . . . . Groom	29 " . . . . Gunner
7 " . . . . Glad	14 " . . . . Grab	22 " . . . . Ground	30 " . . . . Gussat
.....	15 " . . . . Grain	23 " . . . . Grow	.....

## TELEGRAPH CODE—CONTINUED.

## LENGTH OF BOILER TUBES IN INCHES.

1 inch.....Habit	4 inch.....Hair	7 inch.....Hammer	10 inch.....Harrow
2 " .....Hack	5 " .....Hall	8 " .....Hand	11 " .....Hatch
3 " .....Hag	6 " .....Hamlet	9 " .....Harm	.....

## LENGTH IN FRACTIONS OF AN INCH.

$\frac{1}{4}$ inch.....Iceboat	$\frac{3}{4}$ inch.....Image	$\frac{3}{4}$ inch.....Impair	$\frac{3}{4}$ inch.....Income
$\frac{1}{2}$ " .....Ill	$\frac{1}{2}$ " .....Imbibe	$\frac{1}{4}$ " .....Imprint	.....

## ARTESIAN SALT, OIL AND GAS WELL CASING.

## GENERAL TERMS.

Madame.....Well Casing, Screw and Socket Joint.  
Maguet.....Well Casing, Inserted Joint.

Nominal Inside Diameter. 2 inch.....Maid	Nominal Inside Diameter. 3 $\frac{1}{4}$ inch.....Mantle	Nominal Inside Diameter. 4 $\frac{1}{2}$ inch.....Melon	Nominal Inside Diameter. 6 $\frac{1}{4}$ inch.....Miscer
2 $\frac{1}{2}$ " .....Major	3 $\frac{1}{2}$ " .....Marmot	4 $\frac{3}{4}$ " .....Mesh	7 $\frac{1}{4}$ " .....Mitre
2 $\frac{3}{4}$ " .....Malice	3 $\frac{3}{4}$ " .....Mask	5 " .....Midway	7 $\frac{3}{4}$ " .....Mix
2 $\frac{1}{2}$ " .....Malt	4 " .....Match	5 $\frac{1}{2}$ " .....Mild	8 $\frac{1}{4}$ " .....Model
3 " .....Mare	4 $\frac{1}{4}$ " .....Mean	5 $\frac{3}{4}$ " .....Mine	8 $\frac{3}{4}$ " .....Money
.....	.....	6 $\frac{1}{4}$ " .....Minor	.....

## ARTESIAN SALT, OIL AND GAS WELL TUBING.

## GENERAL TERM: NAIL.

Nominal Inside Diameter. 1 inch.....Name	Nominal Inside Diameter. 2 $\frac{1}{2}$ inch.....Neck	Nominal Inside Diameter. 4 $\frac{1}{2}$ inch.....Noble	Nominal Inside Diameter. 8 inch.....Novel
1 $\frac{1}{2}$ " .....Nation	3 " .....Need	5 " .....Nonage	9 " .....Numb
1 $\frac{3}{4}$ " .....Navy	3 $\frac{1}{2}$ " .....Nerve	6 " .....Nook	10 " .....Nurse
2 " .....Neat	4 " .....Night	7 " .....Notch	12 " .....Nut

## LINE PIPE.

## GENERAL TERM: OAK.

Nominal Inside Diameter. 2 inch.....Object	Nominal Inside Diameter. 4 inch.....Ocular	Nominal Inside Diameter. 7 inch.....Oil	Nominal Inside Diameter. 12 inch.....Oppose
2 $\frac{1}{2}$ " .....Observe	4 $\frac{1}{2}$ " .....Odd	8 " .....Onset	14 " .....Orange
3 " .....Occur	5 " .....Odor	9 " .....Open	15 " .....Ordain
3 $\frac{1}{2}$ " .....Octave	6 " .....Ofal	10 " .....Opium	16 " .....Organ

## LIGHT WROUGHT IRON PIPE.

WITH CAST IRON FLANGES SHRUNK ON.

## GENERAL TERM: ORIENT.

Actual Outside Diameter. 3 inch.....Origin	Actual Outside Diameter. 5 inch.....Orphan	Actual Outside Diameter. 9 inch.....Outbid	Actual Outside Diameter. 13 inch.....Outrage
3 $\frac{1}{2}$ " .....Orlop	6 " .....Osseous	10 " .....Outcast	14 " .....Overflow
4 " .....Ornate	7 " .....Ostrich	11 " .....Outcrop	15 " .....Owlsh
4 $\frac{1}{2}$ " .....Ornlowy	8 " .....Ottoman	12 " .....Outlaw	16 " .....Oxford

## TELEGRAPH CODE—CONTINUED.

## CAST IRON WATER PIPE.

GENERAL TERM: OX.

Internal Diameter.	Internal Diameter.	Internal Diameter.	Internal Diameter.
2 inch.....Oxalic	8 inch.....Oxpaw	14 inch.....Oxtown	20 inch.....Oyer
3 ".....Oxburg	10 ".....Oxport	16 ".....Oxville	24 ".....Oyster
4 ".....Oxen	12 ".....Oxtail	18 ".....Oxygen	30 ".....Ozone.
6 ".....Oxide	.....	.....	.....

## RELATING TO SPECIAL GOODS.

Pace.....Blasting Tubes.	Pamper.....Drive Pipe Caps.
Packet.....Black Couplings.	Pane.....Dry Pipes (Plain).
Paddle.....Galvanized Coupling.	Panie.....Dry Pipes (Galvanized).
Page.....Casing Couplings.	Paper.....Water Grates.
Pail.....Patent Couplings.	Pardon.....Sand Pipes.
Paint.....Taper Couplings.	Parley.....Tuyere Pipe.
Palace.....Drive Pipe.	Parted.....Ice Machine Pipe.
Paling.....Drive Pipe Couplings.	Passion.....Sucker Rods.
Palld.....Drive Pipe Shoes, threaded	Pastor.....Safe Ends.
Palm.....Drive Pipe Shoe, shrunk on	Patch.....Hydraulic Tubes

## PHRASES DESCRIPTIVE OF SPECIAL GOODS.

Peak.....Plain Ends.	Pervert.....Length excluding Socket.
Pebble.....With Threads and Couplings.	Pet.....Lap-Welded.
Peddler.....Threaded both ends, no Couplings.	Plaster.....Butt-Welded.
Peer.....Threaded one end only.	Pig.....Inside Diameter.
Peg.....With Standard Threads.	Pigeon.....Outside Diameter.
Pen.....With Steam Pipe Threads.	Pile.....Weight per foot.
Pencil.....With Casing Threads.	Pilgrim.....To Weigh per foot.
Pennant.....With Cast-Iron Flanges shrunk on.	Pilot.....Dipped in Asphaltum.
Pension.....With Bolts, Nuts and Gaskets complete.	Pimple.....Must be guaranteed.
Pepsin.....With Extra Flanges Bolted on.	Pinch.....To Stand.....pounds pressure per square inch.
Pepper.....Insetted Joint.	Pink.....stencilled, tested.....pounds.
Perfume.....Flush Joint	Pin.....Eight Threads per inch
Perish.....Extra Wire Gauge	Pirate.....Ten Threads per inch.
Perjure.....Random Lengths.	Ply.....Eleven and one-half Threads per inch.
Person.....Cut to exact lengths.	Pivot.....Fourteen Threads per inch.
Pert.....Cut to Specifications.	Quack.....Wrought-Iron Pipe.
Perturb.....Cut from your longest stock.	Quad.....Steel Pipe.
Perusal.....In one piece.	Quail.....Wrought-Iron or Steel Pipe.
Peruvian.....Can be made up in two or more pieces.	Quiver.....Any make of Pipe.
Pervade.....Length including Socket.	

## FOR INQUIRING AND PURCHASING.—QUESTIONS.

Rabid.....At what price can you furnish.....?	Rascal.....Will send particulars by mail.
Raccoon.....At what price, and how soon can you furnish.....?	Raven.....See letter.
Race.....How soon can you furnish?	Ray.....Particulars go by mail.
Racket.....Can you furnish from stock? If not, how long will it take to make?	Rebate.....If not satisfactory, telegraph at once.
Raft.....Have you in stock? If not all, how many? (or much?)	Recite.....Please reply immediately by telegraph
Rage.....How long will it take you to make and ship?	Recline.....Must have an answer by.....
Rail.....When will you ship per order?	Record.....Please answer our letter of the.....
Raiment.....Can you ship by.....?	Redeem.....Please answer our telegram of the.....
Rain.....Can you furnish us promptly?	Reduce.....Why don't you answer?
Ram.....If so, enter order.	Reft.....May we accept order for.....
Range.....At what discount will you sell us.....?.	Reform.....What is the lowest contract rate of freight you can obtain to.....
Rank.....What discount for spot cash?	Regard.....Get through rate of freight.
Rapid.....Delivered in our city	Relax.....What terms are required?
	Relent.....Are we justified in selling?



## TELEGRAPH CODE—CONTINUED.

### FOR INQUIRING AND PURCHASING.—ANSWERS.

Sable.....	We can ship	Senate.....	We hereby withdraw all quotations.
Sack.....	We can ship to-day.	Sense.....	We do not make.
Sacred.....	We can ship to-morrow.	Serene.....	We cannot make.
Saddle.....	We have in stock, and can furnish you at ....	Serge.....	We will commence making.
Safe.....	We have all in stock, and can ship at once.	Sermon.....	We cannot hold offer open.
Sage.....	We cannot ship	Serpent.....	We are not fitted up to make.
Sail.....	We cannot ship before	Servant.....	If necessary to take order.
Saint.....	We have no....., but will ship the other sizes promptly.	Sewer.....	We can make length wanted by joining pieces together.
Sake.....	We have none in stock	Shaft.....	In less than.....
Salad.....	We can ship.....from stock and the balance.....	Shake.....	Not less than.....
Sally.....	We can furnish.	Sham.....	Please specify quantity wanted.
Salmon.....	We can furnish promptly.	Shark.....	Please specify sizes and quantity wanted.
Saloon.....	We can furnish immediately	Shawl.....	Specifications undesirable.
Salt.....	We have none in stock, but can make and ship	Shear.....	Specifications very well assorted
Salute.....	None of the goods you order are in stock	Sheep.....	What kind of a joint is wanted?
Salve.....	We shipped.	Shell.....	Send particulars by telegraph immediately.
Sambo.....	We cannot furnish	Shift.....	Send particulars by mail.
Sand.....	Impossible for us to fill your order in the time specified	Shoal.....	Telegraph to-morrow early.
Sauce.....	If ordered by telegraph promptly, we could ship in.....	Shoek.....	Your telegram is unintelligible. Please repeat.
Savage.....	If ordered immediately.	Shoot.....	Telegraph in plain language.
Savant.....	If ordered immediately by wire	Shrew.....	Referring to your letter of.....
Savor.....	Immediately on receipt of order.	Shrill.....	Referring to your telegram of.....
Scale.....	On receipt of order.	Shrub.....	In reply to your favor of.....
Scandal.....	After receipt of order	Shuttle.....	Freight by rail, in carloads, per 100 lbs, is ..
Sear.....	Will ship earlier if possible.	Sigh.....	Freight by rail, in less than carloads, is.....
Scatter.....	We cannot promise definitely.	Signal.....	We are justified in selling.
Scene.....	We quote you.....discount on.....	Silk.....	We cannot obtain through rate of freight to.....
Scripture.....	We quote.	Sumper.....	We are not justified in selling
Scheme.....	We cannot change present discount.	Sin.....	Freight by water, in carloads, per 100 lbs, is ..
School.....	Per cent discount specifications named.	Sip.....	Freight by water, in less than carloads, per 100 lbs, is.....
Scoff.....	F. O. B. Cars, our works.	Siphon.....	To dispose of accumulated stock.
Scold.....	For immediate acceptance.	Sister.....	To hold trade.
Scoop.....	F. O. B. Cars, your city (or town).	Skate.....	Advise selling
Scorch.....	F O B here.	Skeptic.....	Advise not selling
Scorn.....	For acceptance is thin.....	Skin.....	Ascertain and advise full particulars.
Scout.....	.....cents per foot, net.	Skirmish.....	Might be able to reduce figures.
Scrap.....	.....cents per foot, less.	Skittish.....	To enable you to secure order.
Scratch.....	.....cents per pound, net.	Sloth.....	Keep us fully advised.
Screen.....	.....pounds per foot	Sodom.....	Ascertain prices talked of
Serew.....	Delivery in your city	Sofa.....	See our letter of.....
Seribe.....	I see on board at.....	Sojourn.....	See our telegram of.....
Serub.....	Less a freight allowance per 100 lbs of ..	Solar.....	We have telegraphed.
Scud.....	We have entered your order for.....	Solemn.....	We will telegraph.
Scuffle.....	We will accept order.	Solution.....	Your letter was not received in time
Seam.....	We can not accept order.	Sonorous.....	Your telegram was not received in time
Sear.....	We will accept offer	Soot.....	Prices on brass goods have advanced
Search.....	We cannot accept offer.	Sophy.....	Prices on iron goods have advanced
Season.....	We cannot accept your order.....	Sordid.....	Prices on brass and iron goods have advanced
Seat.....	We cannot duplicate order at less than ..	Soup.....	Prices on cast iron fittings have advanced
Secede.....	We cannot do better.	South.....	Prices on malleable iron fittings have advanced
Seckel.....	Use.....if best judgment	Spank.....	New prices on brass valves.
Seclude.....	Use your best judgment and take order.	Sp ar.....	New prices on iron body valves.
Secret.....	The price of boiler tubes is to-day advanced to.....	Sphinx.....	New prices on cast iron fittings
Seclude.....	The price of pipe is to-day advanced to.....	Spike.....	New prices on malleable iron fittings
Selfish.....	We will hold offer open	Sponge.....	New prices on nipples
		Spoon.....	New prices on brass pipe

## TELEGRAPH CODE—CONTINUED.

## RELATING TO ORDERS AND SHIPMENTS.—QUESTIONS.

Tabby..... When can you ship.....?  
 Tack..... When will you ship?  
 Tag..... If not, when will you ship?  
 Tail..... Have you shipped order.....?  
 Taint..... Have you shipped us any.....?

Tame!..... Shall we ship what we have ready?  
 Tansy..... Shall we enter order?  
 Tar..... Please send shipping instructions  
 Tartar..... Shall we furnish?

## RELATING TO ORDERS AND SHIPMENTS.—ANSWERS.

Task..... We will ship.  
 Taste..... We will ship from here.  
 Tatter..... We will ship you immediately.  
 Taunt..... We will ship from Mill.  
 Tavern..... We will ship on.....  
 Tawny..... We can ship from Factory  
 Tea..... We will try to ship.  
 Temple..... We have shipped.  
 Tenant..... We have shipped per.....  
 Terror..... We expect to ship on the.....  
 Text..... We have not shipped.  
 Thaw..... We have ready for shipment.  
 Thing..... We will complete.  
 Thrash..... We have no order.  
 Threat..... We have suspended work on your order.....  
 Thrill..... We have suspended shipment of your order  
 of.....  
 Throat..... We are waiting for.....  
 Thunder..... We are holding the order for..... Shall we  
 ship balance without them?

Ticket..... Your telegram came too late to stop ship-  
 ment.  
 Tidy..... We have been disappointed in delivery of....  
 Timber..... In process of manufacture and cannot be can-  
 celed without loss.  
 Tinker..... Order is being executed and cannot be can-  
 celed.  
 Tint..... We shipped your order on.....  
 Tissue..... Too late to make any alterations in order now  
 Toast..... The alterations in order have been (or will be)  
 made  
 Token..... Have changed order referred to and will ship.  
 Toll..... We will trace through.  
 Top..... We are tracing  
 Topaz..... We cannot get iron.  
 Torment..... Will make immediately on receipt of iron  
 Torhado..... We cannot obtain through rate of freight to  
 .....  
 Torpid..... Not sooner than.....  
 Totter..... Not later than.....

## DISCOUNTS AND TERMS.

¼ of 1 per cent.....Ulcer	9 per cent.....Union	47½ per cent.....Upoar
¼ of 1 ".....Umbra	10 ".....Unit	60 ".....Upset
¼ of 1 ".....Umpire	12½ ".....Unjust	62½ ".....Upshot
¼ of 1 ".....Unarm	15 ".....Unkind	55 ".....Upside
1 ".....Uncloud	17½ ".....Uman	57½ ".....Upstart
1½ ".....Uncouth	20 ".....Unripe	60 ".....Upturn
2 ".....Unconcern	22½ ".....Unroll	62½ ".....Upward
2½ ".....Uncrown	25 ".....Uncast	65 ".....Urbane
3 ".....Undone	27½ ".....Unheave	67½ ".....Urchin
4 ".....Under	30 ".....Unhold	70 ".....Urger
5 ".....Unband	32½ ".....Upbraid	72½ ".....Urn
5 and 2½ ".....Undress	35 ".....Upland	75 ".....Usage
6 ".....Unbed	37½ ".....Upmost	77½ ".....Useful
7 ".....Unhook	40 ".....Upper	80 ".....Uselers
7½ ".....Unburt	42½ ".....Upright	85 ".....Usef
8 ".....Unicorn	45 ".....Uprise	90 ".....Usex

## TERMS:

Ten days..... Usion	Four months..... Utredil
Thirty days..... Usber	Interest added after..... Utillze
Sixty days..... Usurer	Discount for spot cash..... Utmost
Ninety days..... Usurp	Discount for cash ten days..... Utopian

## TELEGRAPH CODE—CONTINUED.

## DATES AND TIMES.

	Ultimo	Instant	Proximo
1st .....	Vacant .....	Wabble.....	Weary
2d .....	Vacation .....	Wad.....	Weasel
3d .....	Vade .....	Wadded.....	Web
4th .....	Vail .....	Wag .....	Weed
5th .....	Valid .....	Wager.....	Weigh
6th .....	Valise .....	Wagon.....	Wend
7th .....	Valley .....	Wail.....	Whack
8th .....	Valor .....	Wain.....	Whale
9th .....	Vamp .....	Wave.....	Whaog
10th .....	Van .....	Wake.....	Wharf
11th .....	Vandal .....	Walk.....	Wheat
12th .....	Vanish .....	Wall.....	Wheel
13th .....	Vapor .....	Walnut.....	Whelp
14th .....	Varlet .....	Wampum.....	Whiff
16th .....	Varnish .....	Warder.....	Whig
16th .....	Vary .....	Ware.....	Whim
17th .....	Vase .....	Wanton.....	Whime
18th .....	Vat .....	Warble.....	Whip
19th .....	Vault .....	Warfare.....	Whisk
20th .....	Vein .....	Warm.....	Whit
21st .....	Velvet .....	Wary.....	Whoop
22d .....	Vender .....	Wash.....	Wicked
23d .....	Venom .....	Waste.....	Widow
24th .....	Vent .....	Welch .....	Wife
25th .....	Venture .....	Water.....	Wig
26th .....	Verbal .....	Wattle.....	Wild
27th .....	Verdant .....	Wavering.....	Win
28th .....	Verdure .....	Wax.....	Wintch
29th .....	Verge .....	Weak .....	Wind
30th .....	Verge .....	Wealth .....	Wise
31st .....	Vesper .....	Wean .....	Window

Winsome.....During this week.  
 Winter.....Last of this week  
 Wire.....During next week.  
 Wisard.....Early next week  
 Wisdom.....Last of next week.  
 Wisp.....First week in.....  
 Wit.....Second week in.....  
 Witch.....About the middle of next week,  
 Wither.....Within a few days.  
 Witty.....Within the next.....

Wizen.....Within three days.  
 Woe.....Within four days.  
 Woman.....Within five days.  
 Wouder.....Within one week.  
 Wool.....Within ten days.  
 Worm.....Within two weeks  
 Worship.....Within three weeks.  
 Worsted.....Within four weeks.  
 Worthless.....Within a reasonable time.

## AIR.

The quantity of air required for combustion of coal depends practically upon the intensity of the fire. With a rate of combustion of from 4 to 8 lbs. of coal per sq. foot of grate per hour, from 20 to 23 lbs. of air (265 to 300 cubic feet) per lb. of coal is needed.

The pressure of the atmosphere at sea level is 14.7 lb. per square inch.

Table to Show the Velocity of Air in Lineal Feet per Minute—Calculated from Montgolfier's Formula, the Expansion of Air Being Taken as 0.002 for Each Degree Fahrenheit, and One-Fourth Being Deducted for Friction. (Round Numbers Have Been Taken.)

Height of column, in feet.	Difference between Internal and External Temperature, stated in degrees Fahr., 3 to 30 degrees.																							
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	30
10	88	102	114	125	135	144	153	161	169	176	183	190	197	204	210	216	222	228	233	239	244	249	251	279
12	96	111	125	136	147	158	167	176	185	193	201	209	216	223	230	237	243	249	255	261	267	273	279	305
14	101	120	135	147	159	170	181	190	200	209	217	225	233	241	248	255	262	269	276	282	289	295	301	330
16	111	129	144	158	170	182	193	204	213	223	232	241	249	257	265	273	281	288	295	302	309	315	322	353
18	118	136	153	167	181	193	205	216	225	235	245	254	264	273	282	290	298	305	313	320	327	335	342	374
20	131	151	169	185	200	214	226	239	250	261	272	282	292	302	311	320	329	338	346	354	362	370	378	414
22	136	158	176	193	209	223	237	249	261	273	284	296	307	318	328	338	348	358	367	376	385	394	402	440
24	142	164	183	201	217	232	246	259	272	284	296	307	319	330	341	351	361	371	381	390	399	408	417	456
26	147	170	190	207	225	241	255	269	282	295	307	319	330	341	351	361	371	381	391	401	411	423	432	471
28	153	176	197	216	233	249	264	279	292	305	318	330	341	353	363	374	384	394	404	414	427	436	445	484
30	163	187	207	226	243	260	275	289	302	315	328	341	353	364	375	386	397	407	417	427	437	446	455	494
32	168	192	211	230	247	265	280	294	307	320	333	345	357	368	379	389	399	409	419	429	439	449	459	500
34	162	189	210	230	248	267	282	297	311	325	338	351	363	375	387	398	410	421	432	442	453	463	473	514
36	167	193	216	236	255	273	290	307	320	334	348	361	374	386	398	410	421	432	442	453	464	475	485	526
38	172	198	222	243	262	281	298	314	329	344	358	371	384	397	409	421	432	443	454	465	476	488	499	540
40	176	204	228	249	269	288	305	322	338	353	367	381	394	407	420	432	444	455	467	477	488	499	509	550
50	197	228	254	279	301	322	341	360	377	394	401	426	441	455	469	483	496	509	522	534	546	558	569	623
Degrees Fahr.	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	30

## AREA OF CIRCLES.

Size.	Area.	Size.	Area.	Size.	Area.	Size.	Area.
$\frac{1}{8}$	0.0123	10	78.54	30	706.86	65	3318.3
$\frac{1}{4}$	0.0491	$\frac{1}{2}$	86.59	31	754.76	66	3421.2
$\frac{3}{8}$	0.1104	11	95.03	32	804.24	67	3526.6
$\frac{1}{2}$	0.1963	$\frac{1}{2}$	103.86	33	855.30	68	3631.6
$\frac{3}{4}$	0.3067	12	113.09	34	907.92	69	3739.2
$\frac{7}{8}$	0.4417	$\frac{1}{2}$	122.71	35	962.11	70	3848.4
	0.6013	13	132.73	36	1017.8	71	3959.2
1	0.7854	$\frac{1}{2}$	143.13	37	1075.2	72	4071.5
$\frac{1}{8}$	0.9040	14	153.93	38	1134.1	73	4185.3
$\frac{1}{4}$	1.227	$\frac{1}{2}$	165.13	39	1194.5	74	4300.8
$\frac{3}{8}$	1.484	15	176.71	40	1256.6	75	4417.8
$\frac{1}{2}$	1.767	$\frac{1}{2}$	188.69	41	1320.2	76	4536.4
$\frac{3}{4}$	2.073	16	201.06	42	1385.4	77	4656.0
$\frac{7}{8}$	2.405	$\frac{1}{2}$	213.82	43	1452.2	78	4778.3
	2.761	17	226.98	44	1520.5	79	4901.6
2	3.141	$\frac{1}{2}$	240.52	45	1590.4	80	5026.5
$\frac{1}{4}$	3.976	18	254.46	46	1661.9	81	5153.0
$\frac{1}{2}$	4.908	$\frac{1}{2}$	268.80	47	1734.9	82	5281.0
$\frac{3}{4}$	5.939	19	283.52	48	1809.5	83	5410.6
3	7.068	$\frac{1}{2}$	298.64	49	1885.7	84	5541.7
$\frac{1}{4}$	8.295	20	314.16	50	1963.5	85	5674.5
	9.621	$\frac{1}{2}$	330.06	51	2042.8	86	5808.8
$\frac{1}{4}$	11.044	21	346.36	52	2123.7	87	5944.6
4	12.566	$\frac{1}{2}$	363.05	53	2206.1	88	6082.1
$\frac{1}{2}$	15.904	22	380.13	54	2290.2	89	6221.1
5	19.635	$\frac{1}{2}$	397.60	55	2375.8	90	6361.7
$\frac{1}{2}$	23.758	23	415.47	56	2463.0	91	6503.8
6	28.274	$\frac{1}{2}$	433.73	57	2551.7	92	6647.6
	33.183	24	452.39	58	2642.0	93	6792.9
7	38.484	$\frac{1}{2}$	471.43	59	2733.9	94	6939.7
$\frac{1}{2}$	44.178	25	490.87	60	2827.4	95	7088.2
8	50.265	26	530.93	61	2922.4	96	7238.2
$\frac{1}{2}$	56.745	27	572.55	62	3019.0	97	7389.8
9	63.617	28	615.75	63	3117.2	98	7542.9
$\frac{1}{2}$	70.882	29	660.52	64	3216.9	99	7697.7

## BOILING POINTS OF VARIOUS FLUIDS.

Alcohol.....	173 degrees Fahr.
Linseed Oil.....	600 " "
Refined Petroleum.....	316 " "
Turpentine. . . . .	304 " "
Sul. Acid .....	240 " "
Sulphur.....	824 " "
Water at atmos. pressure . . . . .	212 " "
Water in Vacuum.....	98 " "

## CHIMNEYS AND FLUES.

Chimney flues in private dwellings where natural draft is used should always be of generous dimensions, should be straight, and extend in height above the highest roof point, even including an adjacent building.

A round flue is better than a square one, and a smooth inside surface adds to the efficiency.

The smoke pipe connecting from the boiler should have an area equal to or a little larger than that of the chimney.

Size of flues may be approximated from the following table :

Total Cubical Contents of Building.	Average Direct Steam Radiation in square feet.	Tile Flues, standard sizes, square or rectangular, outside dimensions.	Tile Flues, standard sizes, round, inside dimensions.	Brick Flues, inside dimensions.
10,000 to 20,000	200 to 400	8½ x 8½ ins.	8 inches.	8 x 8 inches.
25,000 to 50,000	400 to 900	8½ x 13 "	10 "	8 x 12 "
60,000 to 100,000	1000 to 1600	13 " x 13 "	12 "	12 x 12 "
100,000 to 150,000	1600 to 3000	18 " x 18 "	16 "	16 x 16 "

## DRAFT.

Draft, as the term is commonly applied, in a chimney is due to the difference in weight between the column of hot air in the chimney and that of the external atmosphere, which forces its way through the grates and fire of the boiler into the flue, thus creating a circulation.

## EXPANSION OF WROUGHT IRON PIPE.

Temperature of the air when the pipe is fitted.	Length of pipe when fitted.	Length of pipes when heated to							
		215 dgs.		265 dgs.		297 dgs.		338 dgs.	
Deg. Fabr. Zero.	Ft.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
	100	100	1.72	100	2.12	100	2 31	100	2 70
32	100	100	1.47	100	1.78	100	2.12	100	2.45
64	100	100	1.21	100	1.61	100	1.87	100	2.19

## EVAPORATION.

Theoretically, a pound of good coal should contain about 14,000 B. T. U. (British Thermal Heat Units) and if all this heat was transferred to the water, should evaporate about 14 lbs. Practically, about 10,000 units are made available and 8 lbs. of water per lb. of coal is considered good results.

## FRICTION.

In pipes or flues conveying either water, steam, or air, varies: 1.—Directly as the length of the pipe or flue. 2.—Inversely as the diameter or (if square) the length of a side. 3.—Directly as the square of the velocity. Is less on long than short turn fittings. Is increased by enlargements or pockets in pipes.

## GRAVITY.

The force of gravity on a freely falling body is equivalent to a velocity of 32.16 feet per second. Time occupied by a falling body is calculated by the formula:

$$t = \sqrt{\frac{2h}{g}}$$

## FEED WATER HEATERS.

TABLE SHOWING THE YEARLY SAVING EFFECTED BY THE  
USE OF THE FEED-WATER HEATER FOR VARIOUS  
HORSE POWERS AND AT DIFFERENT  
PRICES OF COAL.

Horse Power of Engine.	Coal Consumption, at 4 lbs. per H. P. per hour.		Saving of 13½ Per Cent.	Price of Coal Per Ton of 2240 Lbs.		
	Daily.	Yearly.		\$1.50	\$2.00	\$2.50
	Lbs.	Tons.		Tons.		
50	2000	268	36.18	\$ 54	\$ 72	\$ 90
60	2400	321	43.33	65	87	108
70	2800	375	50.62	76	101	126
80	3200	429	57.91	87	116	145
100	4000	536	72.36	108	145	187
120	4800	643	86.80	130	174	217
160	6400	857	115.09	173	231	289
200	8000	1072	141.72	217	289	362
250	10000	1340	185.90	279	372	465
300	12000	1608	226.08	339	452	565
350	14000	1876	253.26	380	506	633
400	16000	2144	289.44	434	579	723
500	20000	2680	361.80	543	724	904
600	24000	3216	433.30	650	867	1083
700	28000	3752	506.20	759	1012	1265
800	32000	4288	579.10	868	1158	1448
900	36000	4824	651.24	977	1302	1628
1000	40000	5360	723.60	1085	1447	1809

It pays dividends of from 50 to 400 per cent.



## FEED WATER HEATERS.

Suppose water to enter the feed pump at 32° F. add to be heated to 160° F., there will be 13 per cent. gained in power and fuel. When water enters the feed pump at 60° F. and is heated to 150° F., there will be 10 per cent. gained.

Suppose the water in the heater to be 180° F., which when passing through a long pipe to the boiler, is reduced to 150° F., the loss will be 3 per cent. The sign + for gain and — for loss :

PERCENTAGE OF POWER OR FUEL GAINED BY HEATING THE  
FEED-WATER.—NYSTROM.

Temperature Entering Boiler.	TEMPERATURE FROM WHICH THE FEED-WATER IS HEATED OR COOLED.											
	32	40	50	60	70	80	100	120	140	160	180	200
32	0.0	- 1.	- 1.5	- 2.	- 3.4	- 4.4	- 6.5	- 9.	- 11.	- 13.	- 16.	- 19.
40	+ 1.	0.0	- 0.5	- 1.	- 2.4	- 3.4	- 5.5	- 8.	- 10.	- 12.	- 15.	- 18.
50	+ 1.5	+ 0.5	0.0	- 0.5	- 2.	- 3.	- 4.	- 7.	- 9.	- 11.	- 14.	- 17.
60	+ 2.	+ 1.	+ 0.5	0.0	- 1.4	- 2.4	- 3.5	- 6.	- 8.	- 10.	- 14.	- 16.
70	+ 3.4	+ 2.4	+ 2.	+ 1.4	0.0	- 1.	- 3.	- 5.	- 7.	- 9.	- 13.	- 15.
80	+ 4.4	+ 3.4	+ 3.	+ 2.4	+ 1.	0.0	- 2.	- 4.	- 6.	- 8.	- 12.	- 14.
90	+ 5.4	+ 4.4	+ 4.	+ 3.4	+ 2.	+ 1.	- 1.	- 3.	- 5.	- 7.	- 11.	- 13.
100	+ 6.5	+ 5.5	+ 5.	+ 4.4	+ 3.	+ 2.	0.0	- 2.	- 4.	- 6.	- 9.5	- 12.
110	+ 7.6	+ 6.6	+ 6.	+ 5.6	+ 4.2	+ 3.2	+ 1.	- 1.	- 3.	- 5.	- 8.	- 11.
120	+ 8.7	+ 7.7	+ 7.	+ 6.7	+ 5.3	+ 4.3	+ 2.2	0.0	- 2.	- 4.	- 7.	- 10.
130	+ 9.8	+ 8.8	+ 8.3	+ 7.8	+ 6.4	+ 5.4	+ 3.3	+ 1.	- 1.	- 3.	- 6.	- 9.
140	+ 11.	+ 10.	+ 9.	+ 9.	+ 8.	+ 7.	+ 4.5	+ 2.	0.0	- 2.	- 5.	- 8.
150	+ 12.	+ 11.	+ 10.	+ 10.	+ 9.	+ 8.	+ 5.5	+ 3.	+ 1.	- 1.	- 3.	- 7.
160	+ 13.	+ 12.	+ 11.	+ 11.	+ 10.	+ 9.	+ 6.5	+ 4.	+ 2.	0.0	- 2.	- 6.
170	+ 15.	+ 14.	+ 12.	+ 12.	+ 12.	+ 11.	+ 8.	+ 6.	+ 4.	+ 2.	- 1.	- 4.
180	+ 16.	+ 15.	+ 14.	+ 14.	+ 13.	+ 12.	+ 9.	+ 7.	+ 5.	+ 3.	0.0	- 3.
190	+ 17.	+ 16.	+ 15.	+ 15.	+ 14.	+ 13.	+ 10.	+ 8.	+ 6.	+ 4.	+ 1.	- 2.
200	+ 19.	+ 18.	+ 17.	+ 17.	+ 16.	+ 15.	+ 12.	+ 10.	+ 8.	+ 6.	+ 3.	0.0
212	+ 20.	+ 19.	+ 18.	+ 18.	+ 17.	+ 16.	+ 14.	+ 11.	+ 9.	+ 7.	+ 4.	+ 1.

## TABLE OF SP. GR.

To find the weight of a body that cannot conveniently be weighed, calculate its cubical contents, and multiply its Sp. Gr. by the weight of a like volume of water.

SUBSTANCE.	Specific Gravity.	Weight per cu. ft. in pounds.
Water.....	1.000	62.5
Aluminum.....	2.50	156.3
Tin (cast).....	7.29	455.6
Steel.....	7.84	490.0
Cast Iron.....	7.21	450.0
Wrought Iron..	7.68	480.0
Brass.....	8.38	523.8
Copper.....	8.79	549.4
Lead (cast).....	11.35	709.4
Mercury.....	13.60	850.0
Platinum.....	21.50	1,343.8

## HEAT UNIT.

A British Thermal Unit (B. T. U.) represents the amount of heat necessary to raise the temperature of a pound of water one degree, or from 52° to 53°.

To find the heat necessary to raise the temperature of any body a certain number of degrees, multiply the Sp. H. of the body by its weight in lbs. and by the number of degrees through which it is to be raised.

## TABLE OF SP. H.

Cast Iron.....	.1298	Alcohol.....	.7000
Wrought Iron.....	.1138	Mercury.....	.0333
Steel.....	.1175	Air.....	.23751
Brass.....	.0939	Water.....	1.000
Glass.....	.1937		
Copper.....	.0951		

## HYDRAULICS.

The pressure of a column of water is transmitted in every direction with the same intensity. To find the pressure per square inch at the base of the column multiply the height in feet by .434. To find the pressure per square inch necessary to raise a column of water a certain height, divide the height in feet by 2.32 and allow for friction.

The quantity of water that will pass through an opening is equal to the area in square feet of the opening multiplied by the velocity of the water. The velocity, due to head, with which water will leave a vessel, assuming that the opening is in the bottom of the vessel, is found by the following formula:

$$v = \sqrt{2gh}$$

in which  $v$  = velocity in feet per second.

$g$  = gravity (32.16) feet.

$h$  = head in feet.

This is called the velocity of efflux. Water will flow with less velocity through a cylindrical pipe, than from efflux, due to the friction. The formula covering the flow of water in pipes is as follows:

$$v = 2.315 \sqrt{\frac{hd}{fl + \frac{1}{8}d}}$$

in which  $h$  = head in feet.

$d$  = diameter of pipe in inches.

$f$  = coefficient of friction (usually), .025.

$l$  = length of pipe in feet.

Quantity of water discharged from pipes: let  $d$  = the diameter of the pipe in inches, then the discharge  $Q$  in gallons per second is:

$Q = .0408 d^2 vm$ , in which  $vm$  = mean velocity of discharge in feet per second.

To calculate the diameter of a pipe to deliver a certain quantity of water, use following formula:

$$d = 1.229 \sqrt[5]{\frac{lQ^2}{h}}$$

in which  $l$  = length of pipe in feet.

$h$  = total head in feet.

$Q$  = gallons per second.

## HORSE-POWER OF BELTING.

A simple rule for ascertaining the transmitting power of belting, without first computing speed per minute that it travels, is as follows: Multiply diameter of pulley in inches by its number of revolutions per minute, and this product by width of the belt in inches; divide this product by 3,300 for single belting, and by 2,100 for double belting, and the quotient will be the amount of horse-power that can be safely transmitted.

## TABLE

For Single Leather, Four-Ply Rubber and Four-Ply Cotton Belting.

## BELTS NOT OVERLOADED.

One inch wide, 800 feet per minute = one horse-power.

SPEED IN FEET PER MINUTE.	WIDTH OF BELTS IN INCHES.											
	2	3	4	5	6	8	10	12	14	16	18	20
	H. P.	H. P.	H. P.	H. P.	H. P.	H. P.	H. P.	H. P.	H. P.	H. P.	H. P.	H. P.
400.....	1	1½	2	2½	3	4	5	6	7	8	9	10
600.....	1½	2¼	3	3¾	4½	6	7½	9	10½	12	13½	15
800.....	2	3	4	5	6	8	10	12	14	16	18	20
1,000.....	2½	3¾	5	6¼	7½	10	12½	15	17½	20	22½	25
1,200.....	3	4½	6	7½	9	12	15	18	21	24	27	30
1,500.....	3¾	5¼	7½	9½	11½	15	18¾	22½	26½	30	33¾	37½
1,800.....	4½	6¾	9	11¼	13½	18	22½	27	31½	36	40½	45
2,000.....	5	7½	10	12½	15	20	25	30	35	40	45	50
2,400.....	6	9	12	15	18	24	30	36	42	48	54	60
2,800.....	7	10½	14	17½	21	28	35	42	49	56	63	70
3,000.....	7½	11¼	15	18¾	22½	30	37½	45	52½	60	67½	75
3,500.....	8¾	13	17½	22	26	35	44	52½	61	70	79	88
4,000.....	10	15	20	25	30	40	50	60	70	80	90	100
4,500.....	11¼	17	22½	28	34	45	57	69	78	90	102	114
5,000.....	12½	19	25	31	37½	50	62½	75	87½	100	112	125

Double Leather, Six-Ply Rubber or Six-Ply Cotton Belting will transmit 50 to 75 per cent. more power than is shown in this table. One inch wide, 550 feet per minute = one horse-power.

## HORSE POWER.

A horse power represents the force necessary to raise 33,000 pounds one foot in one minute, and the accepted standard in evaporation is  $34\frac{1}{2}$  lbs. of water per hour from and at  $212^{\circ}$  temperature; in grate surface,  $\frac{1}{2}$  square foot; in boiler heating surface on fire tube boilers, 15 square feet.

To find the horse power necessary to elevate water to a given height, multiply the weight of the water elevated per minute in pounds by the height in feet, and divide the product by 33,000 (an allowance should be added for water friction, and a further allowance for loss in steam cylinder, say from 20 to 30 per cent).

## MENSURATION.

## THE CIRCLE.

To find the circumference, multiply the diameter by 3.1416.

To find the area, square the diameter and multiply by .7854.

## THE ELLIPSE.

To find the area, multiply the product of the diameters by .7854.

To find the perimeter, multiply the major axis by 1.82, and the minor axis by 1.315. Add the results.

## THE TRIANGLE.

The area of any triangle equals one-half the product of the base and the altitude.

## THE CYLINDER.

The volume of any right prism or cylinder equals the area of the base multiplied by the altitude.

## THE PYRAMID AND CONE.

The volume of a right pyramid or cone, equals the area of the base multiplied by one third the altitude.

## THE SPHERE.

The area of the surface of a sphere equals the square of the diameter multiplied by 3.1416.

The volume of a sphere equals the cube of the diameter multiplied by .5236.

## METRIC SYSTEM.

### METRIC MEASURES OF LENGTHS.

		Equivalents in English Standard Measures.					
		Inches.	Feet.	Yards.	Rods.	Furlongs.	Miles.
Millimètre.....	$\frac{1}{1000}$ of a mètre..	0.0394	.....	.....	.....	.....	.....
Centimètre.....	$\frac{1}{100}$ of a mètre..	0.397	.....	.....	.....	.....	.....
Decimètre.....	$\frac{1}{10}$ of a mètre..	3.937	.....	.....	.....	.....	.....
Mètre.....	Unit of measure	39.37	3.28	1.09	.....	.....	.....
Decamètre.....	10 mètre.....	393.7	32.80	10.94	1.99	.....	.....
Hectomètre.....	100 mètre.....	.....	328.	109.37	19.9	.407	.....
Kilomètre.....	1,000 mètre.....	.....	3280.	1093.63	199	.....	.62
Myriamètre.....	10,000 mètre.....	.....	.....	.....	.....	.....	6.21

### METRIC MEASURES OF SURFACE.

		Equivalents in English Standard Measures.					
		Sq. Inches.	Sq. Feet.	Sq. Yds	Sq. Poles	Roods.	Acres.
Square Centimètre.....	.....	.153	.....	.....	.....	.....	.....
Square Decimètre.....	.....	15.50	1.07	.....	.....	.....	.....
Square Mètre.....	.....	1,550.06	10.76	1.20	.....	.....	.....
Square Decimètre, or Ar	.....	.....	.....	119.60	3.95	0.009	0.247
Hectare.....	.....	.....	.....	11,950.33	395.38	9 88	2.47

### METRIC MEASURES OF CAPACITY.

		Dry Measure.		Liquid Measure.			
		Pecks.	Bushels.	Gills.	Pints.	Qrts.	Gals.
Centilitre.....	$\frac{1}{100}$ of a litre.....	.....	.....	.07	.....	.....	.....
Decilitre.....	$\frac{1}{10}$ of a litre.....	.....	.....	.70	.176	.....	.....
Litre.....	Unit of capacity..	.....	.....	.....	1.76	0.88	0.22
Decalitre.....	10 litres.....	1.1	.....	.....	.....	.....	2.20
Hectolitre.....	100 litres.....	.....	2.75	.....	.....	.....	22.01

### METRIC WEIGHTS.

		Weight or quantity of water at maximum density.	Equiv. in Standard English Weights.		
			Troy, Grains.	Avoir- du-pois, Ounces	Pounds.
Milligramme.....	of a gramme	1 millimètre.....	.0154	.....	.....
Centigramme.....	of a gramme	10 millimètres.....	.1543	.....	.....
Decigramme.....	of a gramme	cubic centimètre	1.543	.....	.....
Gramme.....	Unit of Weight..	1 cubic decimètre..	15.43	.....	.....
Decagramme.....	10 grammes	10 cubic decimètres.	.....	35.7	.....
Hectogramme.....	100 grammes	100 decimètres.....	.....	3.527	.....
Kilogramme.....	1,000 grammes	1 litre.....	.....	.....	2.2046
Myriagramme.....	10,000 grammes	10 litres.....	.....	.....	22.046
Quintal.....	100,000 grammes	1 hectolitre.....	.....	.....	220.46
Millier or Tombeau..	1,000,000 grammes	1 cubic mètre.....	.....	.....	2204.6

## PIPE, WEIGHT OF, ETC.

Size of Pipe in inches.	Weight of One Foot of Pipe.	Weight of Pipe on Hanger if placed 10 Feet Centers.	Weight of Water in One Foot of Pipe.	Weight of Water on Hanger if placed 10 Feet Centers.	Weight of Pipe and Water for One Foot of Pipe.	Weight of Pipe and Water on Hanger if placed 10 Feet Centers.	Breaking load of Hanger in lbs.	Safe Load $\frac{1}{4}$ of Breaking Load.
1	1.67	16.70	.33	3.33	2.00	20.00	819	201
1 $\frac{1}{4}$	2.25	22.50	.57	5.70	2.82	28.20	804	201
1 $\frac{1}{2}$	2.69	26.90	.86	8.60	3.55	35.50	699	177
2	3.66	36.60	1.25	12.50	4.91	49.10	1941	485
2 $\frac{1}{2}$	5.77	57.70	1.98	19.80	7.75	77.50	1534	383
3	7.54	75.54	3.00	30.00	10.54	105.40	1308	327
3 $\frac{1}{2}$	9.05	90.05	4.25	42.50	13.30	133.00	1274	318
4	10.72	107.20	5.50	55.00	16.22	162.20	2820	705
5	14.56	145.60	8.50	85.00	23.06	230.60	4418	1104
6	18.76	187.60	12.25	122.50	31.01	310.10	3189	797
7	23.41	234.10	16.75	167.50	40.16	401.60	....	....
8	28.34	283.40	21.75	217.50	50.09	500.90	....	....
9	34.67	346.70	27.50	275.00	62.17	621.70	....	....
10	40.64	406.40	34.00	340.00	74.64	746.40	....	....

## PIPE.

Doubling the size of a pipe increases its capacity four times.

LENGTH OF STANDARD WROUGHT IRON PIPE, PER  
SQUARE FOOT OF RADIATION.

Inside Diameter.	Length per sq. ft. of radiation.	Inside Diameter.	Length per sq. ft. of radiation.
1 Inch.	2.90 Feet.	2 $\frac{1}{2}$ Inch.	1.32 Feet.
1 $\frac{1}{4}$ "	2.30 "	3 "	1.09 "
1 $\frac{1}{2}$ "	2.01 "	3 $\frac{1}{2}$ "	.95 "
2 "	1.61 "	4 "	.84 "

## RADIATORS.

A good type of cast iron radiator, direct, should condense about .25 of a pound of steam per square foot of surface, per hour, with steam at two lb. pressure and a difference of 150° between the temperature of the steam and that of the surrounding atmosphere.

Under ordinary conditions, one square foot of direct steam radiating surface will heat approximately in :

Bath room, living room, with two or three exposures, and large amount of glass .....	40	cubic	feet.
Living room, one or two exposures, with large amount of glass ... ..	50	"	"
Living room, one exposure, amount of glass.....	60	"	"
Sleeping rooms. ....	55 to 70	"	"
Halls .....	50 to 70	"	"
School rooms.....	60 to 80	"	"
Churches and Auditoriums of large cubic contents and high ceilings.....	65 to 100	"	"
Lofts, work shops and factories.....	75 to 150	"	"

If indirect radiators are used, allow not less than 50 per cent. more surface than for direct, and for direct indirect 25 per cent. more. For hot water heating add from 25 to 33 $\frac{1}{2}$  per cent.

In estimating the radiating surface make due allowance for exposure of building, material of construction, location, length and size of main location and capacity of boiler, also loose construction of doors and windows.

## MAINS FOR STEAM AND WATER.

A good general rule for figuring the size of steam mains for single pipe work is to divide the total amount of radiation in square feet by 100, the quotient by .7854 and extract square root. For two-pipe work, reduce the pipe one size.

On a total circuit of 100 lineal feet or less, hot water will be supplied to first and second floor about as follows :

1 $\frac{1}{2}$ inch pipe.....	50 to	75	sq. feet.
2 " .....	100 to	150	" "
2 $\frac{1}{2}$ " .....	200 to	250	" "
3 " .....	300 to	375	" "
3 $\frac{1}{2}$ " .....	400 to	550	" "
4 " .....	600 to	800	" "
4 $\frac{1}{2}$ " .....	900 to	1,000	" "



## REGISTERS.

## FLUE SIZES FOR INDIRECT STEAM RADIATORS.

Feet of Heating Surface. Square Feet.	Area Cold Air Supply. Square Inches.	Area Hot Air Flue. Square Inches.	Size of Register. Inches.
13	36	48	8 x 12
26	54	72	9 x 12
39	72	96	10 x 14
52	90	120	12 x 15
65	108	144	12 x 19
78	126	168	14 x 22
91	144	192	14 x 24
104	162	216	16 x 20
117	180	240	16 x 24
130	198	264	20 x 20
143	216	288	20 x 24
156	234	312	20 x 24

## FOR INDIRECT HOT WATER.

Feet of Heating Surface. Sq. Feet Water.	Area Cold Air Supply. Square Inches.	Area Hot Air Flue. Square Inches.	Size of Register. Inches.
26	36	48	8 x 12
52	54	72	9 x 12
78	72	96	10 x 14
104	90	120	12 x 15
130	108	144	12 x 19
156	126	168	14 x 22
182	144	192	14 x 24
208	162	216	16 x 20
234	180	240	16 x 24
260	198	264	20 x 20
286	216	288	20 x 24
312	234	312	20 x 24

The above table applies to floor registers.

For side wall add 25 per cent.

The velocity of the hot air leaving the register should not exceed 10 feet per second.

## REGISTERS—CONTINUED.

TABLE XXIX.—DIMENSIONS OF REGISTERS FOR WARM-AIR AND VENTILATING DUCTS.

Size of opening. Inches.	Nominal area of opening. Square inches.	Effective area of opening. Square Inches.	Opening to admit body of register. Inches.	Extreme dimensions of register face. Inches.
6 x 10	60	40	6 $\frac{1}{8}$ x 10	7 $\frac{7}{8}$ x 12
8 x 10	80	53	8 x 10	9 $\frac{5}{8}$ x 11 $\frac{5}{8}$
8 x 12	96	64	8 x 12	9 $\frac{3}{4}$ x 13 $\frac{5}{8}$
8 x 15	120	80	8 x 15	9 $\frac{3}{4}$ x 16 $\frac{3}{8}$
9 x 12	108	72	9 x 12 $\frac{1}{8}$	10 $\frac{3}{4}$ x 13 $\frac{1}{4}$
9 x 14	126	84	9 x 14	11 x 16
10 x 12	120	80	10 x 12	11 $\frac{3}{4}$ x 13 $\frac{7}{8}$
10 x 14	140	93	10 $\frac{1}{8}$ x 14 $\frac{1}{8}$	12 $\frac{1}{4}$ x 16 $\frac{5}{8}$
10 x 16	160	107	10 x 16	12 x 18
12 x 15	180	120	12 $\frac{1}{8}$ x 15 $\frac{1}{4}$	13 $\frac{1}{2}$ x 16 $\frac{3}{4}$
12 x 19	228	152	12 $\frac{1}{8}$ x 19 $\frac{1}{4}$	14 $\frac{3}{8}$ x 21
14 x 22	308	205	14 $\frac{1}{4}$ x 22	16 $\frac{1}{2}$ x 24 $\frac{5}{8}$
15 x 25	375	250	15 $\frac{5}{8}$ x 25 $\frac{1}{2}$	17 $\frac{7}{8}$ x 27 $\frac{3}{4}$
16 x 20	320	213	16 $\frac{1}{8}$ x 20 $\frac{1}{2}$	17 $\frac{5}{8}$ x 22 $\frac{5}{8}$
16 x 24	384	256	16 $\frac{3}{8}$ x 24 $\frac{1}{2}$	18 $\frac{3}{8}$ x 27
20 x 20	400	267	20 $\frac{1}{4}$ x 20 $\frac{1}{4}$	22 $\frac{1}{4}$ x 22 $\frac{1}{4}$
20 x 24	480	320	20 x 24	22 $\frac{1}{4}$ x 26
20 x 26	520	347	20 $\frac{1}{4}$ x 26 $\frac{1}{4}$	22 $\frac{5}{8}$ x 28 $\frac{7}{8}$
21 x 29	609	403	20 $\frac{3}{4}$ x 29	23 $\frac{5}{8}$ x 31 $\frac{1}{2}$
27 x 27	729	486	27 x 27	29 $\frac{5}{8}$ x 29 $\frac{5}{8}$
27 x 38	1026	684	27 x 38	29 $\frac{1}{4}$ x 40 $\frac{1}{4}$
30 x 30	900	600	30 $\frac{1}{4}$ x 30 $\frac{1}{4}$	32 $\frac{3}{4}$ x 32 $\frac{3}{4}$

## TABLE OF PROPERTIES OF SATURATED STEAM.

Pressure per square inch by gauge.	Temperature in Fahrenheit degrees.	Latent heat in heat units.	Total heat in heat units from water at 32° F.	Relative volume, or cubic feet of steam from one cubic foot of water
5	227.9	954.4	1151.4	1220.3
10	240.0	945.8	1155.1	984.8
15	250.2	938.0	1158.2	826.8
20	259.17	932.15	1160.0	713.4
25	267.12	926.4	1163.4	628.2
30	274.29	921.3	1165.6	561.8
35	280.8	916.6	1167.6	508.5
40	286.8	912.2	1169.4	464.7
45	292.5	908.2	1171.1	428.5
50	297.7	904.4	1172.7	397.7
55	302.7	900.8	1174.2	371.2
60	307.3	897.5	1175.6	348.3
65	311.8	894.3	1177.0	328.3
70	316.02	891.2	1178.3	310.5
75	320.03	888.3	1179.5	294.7
80	323.8	885.5	1180.7	280.6
85	327.5	883.0	1181.8	267.9
90	331.11	880.3	1182.9	255.5
95	334.5	877.8	1183.9	244.0
100	337.8	875.4	1184.9	233.3
105	340.9	873.1	1185.9	227.6
110	344.07	870.9	1186.8	219.7
115	347.05	868.7	1187.7	212.3
125	352.7	864.5	1189.5	199.0
135	358.16	860.6	1191.1	187.5
145	363.2	856.8	1192.7	177.3
155	368.15	853.2	1194.2	168.4
165	372.8	849.8	1195.6	160.4
175	377.2	846.5	1197.0	153.4
185	381.5	843.4	1198.3	147.1
225	401.07	831.2	1203.7	114
265	418.2	819.6	1208.7	96
345	431.9	810.0	1212.5	83
385	444.0	800.1	1217.0	73

Steam is water vaporized. Its chief property is its elasticity and large amount of latent heat. Steam in contact with water from which it is formed, is called *saturated steam*, in which case its temperature must correspond to the pressure, according to known figures. Steam not in contact with water may be superheated which will add to its temperature but will not increase the pressure. Steam to give up its heat must be condensed, and a handy approximation of the heat emitted by a pound of steam is 1000 B. T. U.

## STANDARD PIPE FLANGES.

Size of Flange Pipe Size X Diam.	Diameter of Bolt Circle.	Number of Bolts.	Size of Bolts, Pressure under 80 lbs.	Size of Bolts, Pressure 80 lbs. and over.	Flange Thickness at Hub for Iron Pipe.	Flange Thickness at Edge.	Width of Flange Face.
2 x 6	4 3/4	4	1/2 x 2	5/8 x 2	1 in.	5/8	2
2 1/2 x 7	5 1/2	4	1/2 x 2 1/4	5/8 x 2 1/4	1 1/8	11/16	2 1/4
3 x 7 1/2	6	4	1/2 x 2 1/2	5/8 x 2 1/2	1 1/4	3/4	2 1/4
3 1/2 x 8 1/2	7	4	1/2 x 2 1/2	5/8 x 2 1/2	1 1/4	13/16	2 1/2
4 x 9	7 1/2	4	5/8 x 2 3/4	3/4 x 2 3/4	1 3/8	16/16	2 1/2
4 1/2 x 9 1/4	7 3/4	8	5/8 x 3	3/4 x 3	1 3/8	16/16	2 3/8
5 x 10	8 1/2	8	5/8 x 3	3/4 x 3	1 1/2	15/16	2 1/2
6 x 11	9 1/2	8	5/8 x 3	3/4 x 3	1 1/2	1	2 1/2
7 x 12 1/2	10 3/4	8	5/8 x 3 1/4	3/4 x 3 1/4	1 1/2	1 1/16	2 3/4
8 x 13 1/2	11 3/4	8	5/8 x 3 1/2	3/4 x 3 1/2	1 3/4	1 1/8	2 3/4
9 x 15	13 1/4	12	5/8 x 3 1/2	3/4 x 3 1/2	1 3/4	1 1/8	3
10 x 16	14 1/4	12	3/4 x 3 5/8	7/8 x 3 5/8	2	1 3/16	3
12 x 19	17	12	3/4 x 3 3/4	7/8 x 3 3/4	2	1 1/4	3 1/2
14 x 21	18 3/4	12	7/8 x 4 1/4	x 4 1/4	2	1 3/8	3 1/2
15 x 22 1/4	20	16	7/8 x 4 1/4	x 4 1/4	2	1 3/8	3 5/8
16 x 23 1/2	21 1/4	16	7/8 x 4 1/4	x 4 1/4	2 1/4	1 1/16	3 3/4
18 x 25	22 3/4	16	1 x 4 3/4	1 1/8 x 4 3/4		1 9/16	3 1/2
20 x 27 1/2	25	20	1 x 5	1 1/8 x 5		1 11/16	3 3/4

*Do not drill bolt holes on centre line but symmetrically each side.*

TEMPERATURE.  
 MINIMUM AND MEAN TEMPERATURE OF EIGHT MONTHS FOR CITIES OF  
 THE UNITED STATES AND CANADA.  
 Compiled from Observations of the Signal Service, U. S. A.

Stations.	Minimum and Mean Temperature of each Month.																Mean Temperature of Winter Months.	Number of Months Fire is required.	Maximum Number Degrees Temperature to be raised.	Relative Demand for Radiators.
	Sept.		Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		April.					
	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.				
Albany, N. Y.....	33	61	23	19	10	39	17	28	16	24	18	25	4	35	13	47	7	87	100	
Baltimore, Md.....	40	67	30	55	16	44	1	34	2	31	3	32	9	39	23	52	9	32	72	90
Boston, Mass.....	35	62	26	51	2	19	11	30	3	27	5	28	2	36	11	46	7	28	81	100
Buffalo, N. Y.....	21	65	25	48	2	31	6	30	5	28	13	28	3	30	13	34	8	29	63	100
Burlington, Vt.....	32	60	22	48	10	36	18	24	16	20	20	20	1	31	10	42	7	21	90	110
Chicago, Ill.....	37	60	25	48	0	38	11	29	20	24	13	25	5	32	17	46	7	25	90	110
Charleston, S. C.....	57	76	39	64	28	55	23	51	26	52	28	52	28	60	39	68	3	52	17	60
Cincinnati, Ohio.....	41	63	27	53	6	42	6	34	7	33	1	34	13	43	18	51	7	34	17	100
Cleveland, Ohio.....	38	67	26	51	8	37	5	37	13	33	11	33	0	37	15	39	7	34	63	100
Detroit, Mich.....	35	60	22	48	4	38	9	27	15	27	20	27	2	35	8	46	7	27	90	110
Duluth, Minn.....	34	50	21	43	29	24	30	20	18	13	31	16	26	21	3	33	3	16	108	130
Indianapolis, Ind.....	35	70	25	51	2	37	15	37	18	36	8	36	9	42	19	46	7	26	88	100
Leavenworth, Kan.....	37	67	19	57	3	42	4	32	20	28	9	29	2	40	20	49	6	30	90	100
Louisville, Ky.....	42	72	28	51	10	41	5	30	10	37	0	39	16	46	21	49	6	38	80	110
Memphis, Tenn.....	41	73	30	56	25	49	3	44	2	45	13	45	18	53	35	55	5	45	68	70

TEMPERATURE—CONTINUED.  
 MINIMUM AND MEAN TEMPERATURE OF EIGHT MONTHS FOR CITIES OF  
 THE UNITED STATES AND CANADA.  
 Compiled from Observations of the Signal Service, U. S. A.

Stations.	Minimum and Mean Temperature of each Month.																Number of Months Fire is required.	Mean Temperature of Winter Months.	Maximum Number Degrees Temperature to be raised.	Relative Demand for Radiators.
	Sept.		Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		April.					
	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.	Minimum.	Mean.				
Milwaukee, Wis.....	32	61	23	51	14	38	19	23	25	25	22	29	3	35	12	41	26	95	110	
New York, N. Y.....	42	66	31	54	7	43	2	33	6	30	1	30	8	38	20	40	7	76	100	
Philadelphia, Pa.....	45	64	31	51	8	41	4	33	5	32	1	33	9	42	21	51	7	75	100	
Pittsburgh, Pa.....	36	64	28	51	8	40	6	31	12	29	10	31	2	39	14	50	7	82	100	
Portland, Me.....	37	57	28	46	6	35	12	24	7	20	7	21	1	30	14	40	8	82	110	
Portland, Or.....	39	61	32	50	27	47	17	37	3	43	24	44	31	45	28	54	6	67	80	
San Francisco, Cal.....	50	61	49	59	44	57	39	51	36	49	41	51	41	51	40	55	4	34	60	
St. Louis, Mo.....	40	69	25	55	11	41	5	34	16	33	3	35	8	44	22	58	5	86	100	
St. Paul, Minn.....	30	61	21	41	24	26	27	19	30	14	32	14	15	24	7	37	7	102	130	
Washington, D. C.....	40	68	26	38	16	45	3	37	3	34	2	37	12	45	22	56	5	73	90	
Wilmington, Del.....	50	74	32	61	23	52	15	40	17	50	15	48	22	57	28	63	4	55	70	
Halifax, N. S.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	25	100	
Montreal, P. Q.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	21	110	
Toronto, Ont.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	27	110	
Chatham, N. B.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	15	130	

## USEFUL NUMBERS IN CALCULATING WEIGHTS AND MEASURES, ETC.

Feet.....	Multiplied by	.00019	equals	miles.
Yards.....	"	.0006	"	miles.
Links.....	"	.22	"	yards.
Links.....	"	.66	"	feet.
Feet.....	"	1.5	"	links.
Square Inches.....	"	.007	"	square feet.
Circular Inches.....	"	.00546	"	square feet
Square Feet.....	"	.111	"	square yards.
Acres.....	"	.4840	"	square yards.
Square Yards.....	"	.0002066	"	acres.
Width in Chains.....	"	.8	"	acres per m.
Cube Feet.....	"	.04	"	cube yards.
Cube Inches.....	"	.00058	"	cube feet.
U. S. Bushels.....	"	.0495	"	cube yards.
U. S. Bushels.....	"	1.2446	"	cube feet.
U. S. Bushels.....	"	2150.42	"	cube inches.
Cube Feet.....	"	.8036	"	U. S. bushels.
Cube Inches.....	"	.000466	"	U. S. bushels.
U. S. Gallons.....	"	.13367	"	cube feet.
U. S. Gallons.....	"	.231	"	cube inches.
Cube Feet.....	"	7.48	"	U. S. gallons.
Cylindrical Feet.....	"	5.874	"	U. S. gallons.
Cube Inches.....	"	.004329	"	U. S. gallons.
Cylindrical Inches.....	"	.0034	"	U. S. gallons.
Pounds.....	"	.009	"	cwt.
Pounds.....	"	.00045	"	tons.
Cubic Foot of Water.....	"	62.5	"	lbs. avoird.
Cubic Inch of Water.....	"	.03617	"	lbs. avoird.
Cylindrical Foot of Water.....	"	49.1	"	lbs. avoird.
Cylindrical Inch of Water.....	"	.02842	"	lbs avoird.
U. S. Gallons of Water....	"	13.44	"	1 cwt.
U. S. Gallons of Water....	"	268.8	"	1 ton.
Cubic Feet of Water.....	"	1.8	"	1 cwt.
Cubic Feet of Water.....	"	35.88	"	1 ton.
Cylindrical Foot of Water.....	"	6.	"	U. S. gallons.
Column of Water, 12 in. high, 1 in. diameter.....	"		"	341 lbs.
183.346 Circular Inches.....	"		"	1 square foot.
2200 Cylindrical Inches.....	"		"	1 cubic foot.
French Metres.....	Multiplied by	3.291	"	feet.
Kilogrammes.....	"	2.205	"	lbs. avoird.
Grammes.....	"	.002205	"	lbs. avoird.

## VENTILATION.

The quantity of fresh air required in a properly ventilated building would be not less than 3,000 cubic feet per hour per person in clear cold weather. Damp weather requires more. The burning of gas in a room, not only vitiates the air very materially by the large amounts of carbonic acid which it produces, but also adds to the humidity of the atmosphere. The ventilating arrangement of a building should be adequate to properly dilute this acid and render it uninjurious to health.

## WEIGHTS, ETC.

One Cubic Inch of Cast Iron weighs.....	0.26 pounds.
One Cubic Inch of Wrought Iron weighs.....	0.28 pounds.
One Cubic Inch of Water weighs.....	0.36 pounds.
One United States Gallon weighs.....	8.33 pounds.
One Imperial Gallon weighs.....	10. pounds.
One United States Gallon equals.....	231. cubic inches.
One Imperial Gallon equals.....	277.274 cubic inches.
One Cubic Foot of Water equals.....	7.48 U. S. gallons.
One Pound of Steam equals.....	27.222 cubic feet.
One Pound of Air equals .....	13.817 cubic feet.

## AVOIRDUPOIS WEIGHT.

16 drams.....	1 ounce.
16 ounces.....	1 pound.
28 pounds. ...	1 quarter.
4 quar.....	1 hund. wt. (cwt.)
20 cwts.....	1 ton (gross).
2240 pounds.....	1 ton (gross).

## MEASURE OF SURFACE.

144 sq. inches... ..	1 sq. foot.
9 sq. feet .....	1 sq. yard.
30¼ sq. yards.....	1 sq. rod.
40 sq. rods .....	1 rood.
4 roods.....	1 acre.
10 sq. chains .....	1 acre.
640 acres.....	1 sq. mile.

## MEASURE OF LENGTH.

12 inches.....	1 foot.
3 feet.....	1 yard.
5½ yards.....	1 rod or pole.
40 rods.....	1 furlong.
8 furlongs.....	1 mile.
69 1-16 miles .....	1 degree.

## MEASURE OF SOLIDITY.

1728 cubic inches.....	1 cubic foot.
27 cubic feet....	1 cubic yard.

## LIQUID MEASURE.

4 gills.....	make 1 pint.
2 pints.....	" 1 quart.
4 quarts.....	" 1 gallon.
31½ gallons.....	" 1 barrel.



## WEIGHT OF IRON, COPPER AND LEAD.

WEIGHT OF A SQUARE FOOT OF CAST AND WROUGHT IRON, COPPER AND LEAD, FROM 1-16 TO 2 INCHES THICK.

Thickness.	Cast Iron.	Wrought Iron, Hard Rolled.	Copper, Hard Rolled.	Lead.
	Pounds.	Pounds.	Pounds.	Pounds.
1 <sup>16</sup> inch.....	2.346	2.517	2.890	3.691
1 <sup>8</sup> ".....	4.693	5.035	5.781	7.382
1 <sup>4</sup> ".....	7.039	7.552	8.672	11.074
1 <sup>2</sup> ".....	9.386	10.070	11.562	14.765
1 <sup>1</sup> ".....	11.733	12.598	14.453	18.456
3 <sup>8</sup> ".....	14.079	15.106	17.344	22.148
1 <sup>1</sup> ".....	16.426	17.623	20.234	25.839
1 <sup>1</sup> ".....	18.773	20.141	23.125	29.530
1 <sup>1</sup> ".....	21.119	22.659	26.016	33.222
1 <sup>1</sup> ".....	23.466	25.176	28.906	36.913
1 <sup>1</sup> ".....	25.812	27.694	31.797	40.604
1 <sup>1</sup> ".....	28.159	30.211	34.688	44.296
1 <sup>1</sup> ".....	30.505	32.729	37.578	47.987
1 <sup>1</sup> ".....	32.852	35.247	40.469	51.678
1 <sup>1</sup> ".....	35.199	37.764	43.359	55.370
1 <sup>1</sup> ".....	37.545	40.282	46.250	59.061
1 <sup>1</sup> ".....	42.288	45.317	52.031	66.444
1 <sup>1</sup> ".....	46.931	50.352	57.813	73.826
1 <sup>1</sup> ".....	51.625	55.387	63.594	81.210
1 <sup>1</sup> ".....	56.317	60.422	69.375	88.592
1 <sup>1</sup> ".....	61.011	65.458	75.156	95.975
1 <sup>1</sup> ".....	65.704	70.493	80.938	103.358
1 <sup>1</sup> ".....	70.397	75.528	86.719	110.740
1 <sup>1</sup> ".....	75.090	80.563	92.500	118.123

WEIGHTS OF FLAT BAR IRON.  
PER LINEAL FOOT.

Width in Inches.	THICKNESS IN INCHES.										
	1-16	3-16	1/4	5-16	3/8	7-16	1/2	5/8	3/4	7/8	1
1	Lbs. .21	Lbs. .42	Lbs. .84	Lbs. 1.05	Lbs. 1.26	Lbs. 1.47	Lbs. 1.68	Lbs. 2.11	Lbs. 2.53	Lbs. 2.95	Lbs. 3.37
1 1/8	.24	.47	.95	1.18	1.42	1.66	1.90	2.37	2.84	3.32	3.79
1 1/4	.26	.53	1.05	1.32	1.58	1.84	2.11	2.63	3.16	3.68	4.21
1 1/2	.29	.58	1.16	1.45	1.74	2.03	2.32	2.89	3.47	4.05	4.63
1 3/4	.32	.63	1.26	1.58	1.90	2.21	2.53	3.16	3.79	4.42	5.05
1 7/8	.34	.68	1.37	1.71	2.05	2.39	2.74	3.42	4.11	4.79	5.47
1 1/2	.37	.74	1.47	1.84	2.21	2.58	2.95	3.68	4.42	5.16	5.89
2	.40	.79	1.58	1.97	2.37	2.76	3.16	3.95	4.74	5.63	6.32
2 1/8	.42	.84	1.68	2.11	2.53	2.95	3.37	4.21	5.05	5.89	6.74
2 1/4	.45	.90	1.79	2.24	2.68	3.13	3.58	4.47	5.37	6.26	7.16
2 1/2	.47	.95	1.84	2.37	2.84	3.32	3.79	4.74	5.68	6.63	7.58
2 3/4	.50	1.00	1.90	2.50	3.00	3.50	4.00	5.00	6.00	7.00	8.00
2 7/8	.53	1.05	2.11	2.63	3.16	3.68	4.21	5.26	6.32	7.37	8.42
2 1/2	.55	1.11	2.21	2.76	3.32	3.87	4.42	5.53	6.63	7.74	8.84
2 3/4	.58	1.16	2.32	2.89	3.47	4.05	4.63	5.79	6.95	8.10	9.26
3	.63	1.26	2.5	3.16	3.79	4.42	5.05	6.32	7.58	8.84	10.10
3 1/8	.68	1.37	2.74	3.42	4.11	4.79	5.47	6.84	8.21	9.58	10.95
3 1/4	.74	1.47	2.95	3.68	4.42	5.16	5.89	7.37	8.84	10.32	11.79
3 1/2	.84	1.68	3.37	4.21	5.05	5.89	6.74	8.42	10.10	11.79	13.47
3 3/4	.95	1.90	3.79	4.74	5.68	6.63	7.58	9.47	11.38	13.26	15.16
4	1.0	2.11	3.16	5.26	6.32	7.37	8.42	10.53	12.63	14.74	16.84
4 1/8	1.16	2.32	3.47	5.79	6.95	8.10	9.26	11.58	13.89	16.21	18.52
4 1/4	1.26	2.53	3.79	6.32	7.58	8.84	10.10	12.63	15.16	17.68	20.21
4 1/2	1.36	2.73	4.10	6.84	8.21	9.58	10.94	13.68	16.42	19.16	21.88
4 3/4	1.47	2.94	4.42	7.36	8.84	10.32	11.79	14.74	17.68	20.04	23.58
5	1.58	3.16	4.74	7.90	9.48	11.06	12.64	15.78	18.94	21.11	25.50
5 1/8	1.68	3.36	5.05	8.42	10.10	11.78	13.48	16.84	20.20	23.58	26.34
5 1/4	1.79	3.58	5.36	8.94	10.71	12.52	14.32	17.90	21.48	25.06	28.53
5 1/2	1.90	3.79	5.68	9.48	11.36	13.26	15.16	18.95	22.75	26.52	30.32



## EVAPORATION OF WATER.

BOILER PRESSURES IN POUNDS PER SQUARE INCH  
ABOVE THE ATMOSPHERE.

Temper- ature of Feed- Water.	BOILER PRESSURES IN POUNDS PER SQUARE INCH ABOVE THE ATMOSPHERE.									
	0	5	10	15	20	25	30	35	40	45.
°FAHR.										
32	1.187	1.192	1.195	1.199	1.201	1.204	1.206	1.209	1.211	1.212
35	1.184	1.189	1.192	1.196	1.198	1.201	1.203	1.206	1.208	1.209
40	1.179	1.184	1.187	1.191	1.193	1.196	1.198	1.201	1.203	1.204
45	1.173	1.178	1.181	1.185	1.187	1.190	1.192	1.195	1.197	1.198
50	1.168	1.173	1.177	1.180	1.182	1.185	1.187	1.190	1.192	1.193
55	1.163	1.168	1.171	1.175	1.177	1.180	1.182	1.185	1.187	1.188
60	1.158	1.163	1.166	1.170	1.172	1.175	1.177	1.180	1.182	1.183
65	1.153	1.158	1.161	1.165	1.167	1.170	1.172	1.175	1.177	1.178
70	1.148	1.153	1.156	1.160	1.162	1.165	1.167	1.170	1.172	1.173
75	1.143	1.148	1.151	1.155	1.157	1.160	1.162	1.165	1.167	1.168
80	1.137	1.143	1.146	1.149	1.151	1.154	1.156	1.159	1.161	1.162
85	1.132	1.137	1.140	1.144	1.146	1.149	1.151	1.154	1.156	1.157
90	1.127	1.132	1.135	1.139	1.141	1.144	1.146	1.149	1.151	1.152
95	1.122	1.127	1.130	1.134	1.136	1.139	1.141	1.144	1.146	1.147
100	1.117	1.122	1.125	1.129	1.131	1.134	1.136	1.139	1.141	1.142
105	1.111	1.117	1.120	1.123	1.125	1.128	1.130	1.133	1.135	1.136
110	1.106	1.111	1.114	1.118	1.120	1.123	1.125	1.128	1.130	1.131
115	1.101	1.106	1.109	1.113	1.115	1.118	1.120	1.123	1.125	1.126
120	1.096	1.101	1.104	1.108	1.110	1.113	1.115	1.118	1.120	1.121
125	1.091	1.096	1.099	1.103	1.105	1.108	1.110	1.113	1.115	1.116
130	1.085	1.091	1.094	1.097	1.099	1.102	1.104	1.107	1.109	1.110
135	1.080	1.085	1.088	1.092	1.094	1.097	1.099	1.102	1.104	1.105
140	1.075	1.080	1.083	1.087	1.089	1.092	1.094	1.097	1.099	1.100
145	1.070	1.075	1.078	1.082	1.084	1.087	1.089	1.092	1.094	1.095
150	1.065	1.070	1.073	1.077	1.079	1.082	1.084	1.087	1.089	1.090
155	1.059	1.065	1.068	1.071	1.073	1.076	1.078	1.081	1.083	1.084
160	1.054	1.059	1.062	1.066	1.068	1.071	1.073	1.076	1.078	1.079
165	1.049	1.054	1.057	1.061	1.063	1.066	1.068	1.071	1.073	1.074
170	1.044	1.049	1.052	1.056	1.058	1.061	1.063	1.066	1.068	1.069
175	1.039	1.044	1.047	1.051	1.053	1.056	1.058	1.061	1.063	1.064
180	1.033	1.039	1.042	1.045	1.047	1.050	1.052	1.055	1.057	1.058
185	1.028	1.033	1.036	1.040	1.042	1.045	1.047	1.050	1.052	1.053
190	1.023	1.028	1.031	1.035	1.037	1.040	1.042	1.045	1.047	1.048
195	1.018	1.023	1.025	1.030	1.032	1.035	1.037	1.040	1.042	1.043
200	1.013	1.018	1.021	1.025	1.027	1.030	1.032	1.035	1.037	1.038
205	1.008	1.013	1.015	1.020	1.022	1.025	1.027	1.030	1.032	1.033
210	1.003	1.008	1.011	1.015	1.017	1.020	1.022	1.025	1.027	1.028
212	1.002	1.002	.....	.....	.....	.....	.....	.....	.....	.....

Multiply number of pounds of water being evaporated at less than 212° by above multiplier corresponding to temperature and pressure of steam, which will give evaporation at 212°.



*Heat Units in Water, between 32° and 212° F., and Weight of Water per cubic foot.*

Temperature.	Heat Units.	Weight lbs. per cub. foot.	Temperature.	Heat Units.	Weight lbs. per cub. foot.	Temperature.	Heat Units.	Weight lbs. per cub. foot.
32° F	0	62.42	123° F	91.16	61.68	168° F	136.44	60.81
35	3	62.42	124	92.17	61.67	169	137.45	60.79
40	8	62.42	125	93.17	61.65	170	138.45	60.77
45	13.	62.42	126	94.17	61.63	171	139.46	60.75
50	18.	62.41	127	95.18	61.61	172	140.47	60.73
52	20.	62.40	128	96.18	61.60	173	141.48	60.70
54	22.01	62.40	129	97.19	61.58	174	142.49	60.68
56	24.01	62.39	130	98.19	61.56	175	143.50	60.66
58	26.01	62.38	131	99.20	61.54	176	144.51	60.64
60	28.01	62.37	132	100.20	61.52	177	145.52	60.62
62	30.01	62.36	133	101.21	61.51	178	146.52	60.59
64	32.01	62.35	134	102.21	61.49	179	147.53	60.57
66	34.02	62.34	135	103.22	61.47	180	148.54	60.55
68	36.02	62.33	136	104.22	61.45	181	149.55	60.53
70	38.02	62.31	137	105.23	61.43	182	150.55	60.50
72	40.02	62.30	138	106.23	61.41	183	151.57	60.48
74	42.03	62.28	139	107.24	61.39	184	152.58	60.46
76	44.03	62.27	140	108.25	61.37	185	153.59	60.44
78	46.03	62.25	141	109.25	61.36	186	154.60	60.41
80	48.04	62.23	142	110.26	61.34	187	155.61	60.39
82	50.04	62.21	143	111.26	61.32	188	156.62	60.37
84	52.04	62.19	144	112.27	61.30	189	157.63	60.34
86	54.05	62.17	145	113.28	61.28	190	158.64	60.32
88	56.05	62.15	146	114.28	61.26	191	159.65	60.29
90	58.06	62.13	147	115.29	61.24	192	160.67	60.27
92	60.06	62.11	148	116.29	61.22	193	161.68	60.25
94	62.06	62.09	149	117.30	61.20	194	162.69	60.22
96	64.07	62.07	150	118.31	61.18	195	163.70	60.20
98	66.07	62.05	151	119.31	61.16	196	164.71	60.17
100	68.08	62.02	152	120.32	61.14	197	165.72	60.15
102	70.09	62.00	153	121.33	61.12	198	166.73	60.12
104	72.09	61.97	154	122.33	61.10	199	167.74	60.10
106	74.10	61.95	155	123.34	61.08	200	168.75	60.07
108	76.10	61.92	156	124.35	61.06	201	169.77	60.05
110	78.11	61.89	157	125.35	61.04	202	170.78	60.02
112	80.12	61.86	158	126.36	61.02	203	171.79	60.00
114	82.13	61.83	159	127.37	61.00	204	172.80	59.97
115	83.13	61.82	160	128.37	60.98	205	173.81	59.95
116	84.13	61.80	161	129.38	60.96	206	174.83	59.92
117	85.14	61.78	162	130.39	60.94	207	175.84	59.89
118	86.14	61.77	163	131.40	60.92	208	176.85	59.87
119	87.15	61.75	164	132.41	60.90	209	177.86	59.84
120	88.15	61.74	165	133.41	60.87	210	178.87	59.82
121	89.15	61.72	166	134.42	60.85	211	179.89	59.79
122	90.16	61.70	167	135.43	60.83	212	180.90	59.76

(From *Practical Hints on Lightning Calculating*,  
Industrial Pub. Co.)

## USEFUL MULTIPLIERS, CONSTANTS AND RECIPROCALLS.

Acres x 0.4046782	= hectares.
Acres x 0.0015625	= square miles.
Acres x 43,560	= square feet.
Acres x 4,840	= square yards.
Acres x 4,046.782	= square metres.
Atmospheres x 14.706	= lbs. per square inch.
Atmospheres x 2 105.664	= lbs. per square foot.
Atmospheres x 8,503	= tons per square yard.
Atmospheres x 29.922	= inches of mercury.
Atmospheres x 33.96	= feet of water at 52° 3 F.
Bushels, U. S. x 0.9699	= imperial bushels (British).
Bushels, imperial x 1.03085	= U. S. bushels.
Bushels, U. S. x 2,150.42	= cubic inches.
Bushels, U. S. x 1.2444	= cubic feet.
Bushels, U. S. x 0.04608	= cubic yards.
Centimetres . . . x 0.3937018	= inches.
Centimetres of mercury x 0.193	= lbs. per square inch.
Centimetres, cubic x 0.061027054	= cubic inches.
Centimetres, cubic x 0.033803769	= apothecaries' fluid ounces.
Circle, Diameter x 3.1416	= the circumference.
Circumference x 0.318309	= the diameter.
Radius . . . x 6.2831853	= circumference.
Square of diameter x 0.7853981633	= area.
Square of circumference x 0.0795774715	= area.
Circumference x one-fourth the diameter	= area.
Diameter x 0.886228925	= side of equal square.
Circumference x 0.2881	= side of equal square.
Dollars x 0.2057	= pounds sterling.

- Dollars x 4.114 = shillings sterling.  
 Dollars x 5.233 = francs.  
 Dollars per yard x 0.2057 pounds per yard ; and so of similar units.  
 Dollars per yard x 4.785 = francs per metre (lineal).  
 Force-de-cheval (French, horse-power) x 0.9866 = horse-power (Eng.)  
 Francs x 0.193 = dollars.  
 Francs per metre x 0.1764 = dollars per yard.  
 Francs per square metre x 0.1613 = dollars per square yard.  
 Francs per cubic metre x 0.1476 = dollars per cubic yard.  
 Feet x 0.00189396 = miles.  
 Feet x 0.30479721 = metres.  
 Feet x 3047921 = millimetres.  
 Feet x 1.51515 = links.  
 Feet per second x 0.682 = miles per hour.  
 Feet per second x 20 = yards per minute.  
 Feet per second x 0.592 = knots.  
 Feet per minute x 0.01136 = miles per hour.  
 Feet, square x 0.0929013 = square metres.  
 Feet, per H. P. x 0.0916 = square metres per force-de-cheval.  
 Feet, cubic per H. P. x 0.0279 = cubic metres per force-de-cheval.  
 Feet, cubic x 7.4762 = gallons.  
 Feet, cubic x .800212 = bushels (struck or even).  
 Feet, cubic x .62889 = bushels (heaped).  
 Feet, cubic x 0.03704 = cubic yards.  
 Feet, cubic x 0.0283161 = cubic metres.  
 Feet, cubic x 62.425 = pounds of water.  
 Feet, cubic per cwt. x 0.557 = cubic metres per tonne.  
 Feet, cubic per ton x 0.0279 = cubic metres per tonne.  
 Feet, cubic per square feet 3.048 = cubic metres per square metre.  
 Feet, cubic per second x 2.222 = cubic yds. per minute.  
 Feet, cubic per second x 133.333 = cubic yards per hour.  
 Feet, cubic per minute x 2.222 = cubic yards per hour.  
 Feet of water at 52.3 F. x 0.8823 = inches of mercury at 32° F.  
 Feet deep of water at 52.3 F. x 62.4 = lbs. pressure per square foot.  
 Feet deep of water at 52.3 F. x 0.4333 = lbs. pressure per square inch.  
 Gallons . . . x 3.785235 = litres.  
 Gallons . . . x 0.833565 = imperial gallons.  
 Gallons . . . x 0.13368 = cubic feet.



Gallons . . . . .	x 8.33505	= pounds of water.
Gallons, imperial	x 10.	= pounds of water.
Gallons, imperial	x 1.199666	= U. S. gallons.
Gallons, imperial	x 4.54102	= litres.
Gallons, imperial	x 0.160372	= cubic feet.
Gallons per acre	x 0.011226	= cubic metres per hectare.
Gallons per square foot . . .	x 48.905	= equals litres per square metre
Gallons per second . . . . .	x 474.08	= cubic foot per hour.
Gallons per minute . . . . .	x 7.9	= cubic feet per hour.
Gallons, imperial per minute	x 9.485	= cubic feet per hour.
Gallons, imperial per second	x 569.124	= cubic feet per hour.
Grains . . . . .	x 0.064799	= grammes.
Grains per gallon	x 0.017	= grammes per litre.
Grains per cubic inch	x 3.95	= ounces per cubic foot.
Grains per cubic inch	x 0.247	= pounds per cubic foot.
Hands	x 0.1015981	= metres.
Horse-power	= 33,000 lbs. raised 1 foot per minute.	
Horse-power	= 550 lbs. raised 1 foot per second.	
Horse-power, British	x 1.0139	= force-de-cheval.
Hundredweights (112 lbs.) per cubic yard	x 4.148	= lbs. per cubic foot.
Hundredweights (112 lbs.)	x 50.8	= kilogrammes.
Inches	x 0.0254	= metres.
Inches	x 25.399772	= millimetres.
Inches	x 0.000015783	= miles.
Inches, square	x 0.006944	= square feet.
Inches, square	x 0.0007715	= square yards.
Inches, square	x 645.148	= sq. millimetres.
Inches, cubic	x 16387	= cubic millimetres.
Inches, cubic	x 0.000579	= cubic feet.
Inches, cubic per second	x 15.581	= gallons per hour.
Inches, cubic per second	x 12.984	= imperial gallons per hour.
Inches, cubic per minute	x 0.2598	= gallons per hour.
Inches of mercury at 32° F.	x .491	= lbs. per square inch.
Inches of mercury at 32° F.	x 1.333	= feet of water at 52.3° F.
Kilogrammetres	x 7.23308	= foot-pounds.
Knots	x 1.688	= feet per second.
Knots	x 1.528	= miles.
Links	x 0.66	= feet.

Mechanical equivalent (Joules) = 772	foot pounds.
Square feet x .09291	= square metre.
Mechanical equivalent, French = 423.55	kilogrammetres.
Miles (mean geographical) x 1.855	= kilometres.
Miles (mean geographical) x 1.1527	= statute miles.
Miles per hour . . . x 1.467	= feet per second.
Miles per hour . . . x 88.03	= feet per minute.
Miles per hour . . . x 20.34	= yards per minute.
Miles, square . . . x 2.589941	= sq. kilometres.
Miles, nautical, per hour x 1.638	= feet per second.
Miles, nautical, per hour x 101.275	= feet per minute.
Miles, nautical, per hour x 6076.5	= feet per hour.
Ounces, troy . . . x 1.097	= ounces avoirdupois.
Ounces, avoirdupois x 0.9115	= ounces troy.
Ounces (avoir.) per cubic inch x 108	= lbs per cubic foot.
Pounds, avoirdupois x 0.00893	= cwts. (112 lbs.)
Pounds, avoirdupois x 0.000464	= tons.
Pounds, avoirdupois x 0.8238571	= pounds troy.
Pounds, troy . . . x 0.37286	= kilogrammes.
Pounds, troy . . . x 1.21527	= pounds avoir.
Pounds per lineal foot x 1.48818	= kilogrammes per lineal metre.
Pounds per lineal yard x 0.496	= kilogrammes per lineal metre.
Pounds per square inch x 0.5786	= tons per square yard.
Pounds per square inch x 0.678	= atmospheres.
Pounds per square inch x 2.037	= inches of mercury.
Pounds per square inch x 51.73	= millimetres of mercury.
Pounds per square inch x 2.308	= feet water at 52.8 F.
Pounds per square inch x 0.000703083	= kilog. to square millimeters.
Pounds per square foot x 0.00694	= lbs. per square inch.
Pounds per square foot x 0.1111	= ounces per square inch.
Pounds per square foot x 0.0204	= cwt. per square yard.
Pounds per square foot x 4.88252	= kilog. per square metre.
Pounds per cubic foot x 16 019	= kilog. per cubic metre.
Pounds per horse-power x 0.447	= kilog. per force-de-cheval
Pounds, sterling x 4.86	= dollars.
Shillings, sterling x 0.243	= dollars.
Shillings per imperial bushel x 0.2357	= dollars per U. S. bushel.
Tons, avoirdupois x 1.01605	= tonnes.

- Tons per cubic yard x 82.963 = pounds per cubic foot.  
Tons per cubic yard x 1.329 = tonnes per cubic metre.  
Tons per cubic metre x 1.016 = tons per cubic metre.  
Tons per mile x 661.0 = kilog. per kilometre  
Tons per yard x 1111.111 = kilog. per metre.  
Tons per foot x 3333.333 = kilog. per metre.  
Tons per cubic metre x 0.984 = tons per cubic metre.  
Tons per cubic metre x 0.752 = tons per cubic yard.  
Water, pounds of, at 82 F. x 0.016037 = cubic feet.  
Water, pounds of, x 0.1199 = gallons.  
Water, pounds of, x .1 = imperial gallons.  
Water, kilogrammes, at 39.1 F. x .0353 = cubic feet.  
Yards, x 0.91439180 = metres.  
Yards, square x 0.836112 = square metres.  
Yards, square x 0.060.07 = acres.  
Yards, cubic x 0.764534 = cubic metres.  
Yards, cubic, per hour x 0.45 = cubic feet per minute.  
Yards, cubic, per ton x 0.752 = cubic metres per tonne.  
Yards, cubic per lineal yard x 0.833 = cubic metres per lineal metre.  
Yards, cubic, per acre x 1.902 = cubic metre per hectare.  
Yards per minute x 0.034099 = miles per hour.  
Yards per minute x 0.05 = feet per second.  
Yards x 86164.69 = seconds.

## FORMULA FOR ARRIVING AT THE CAPACITY OF BOILERS.

As an aid to steamfitters in calculating the entire heating surface in a plant, in order to arrive at the size of boiler required, we offer the following suggestion:—

Assuming a steam plant with radiation as follows:—

600	square feet of direct radiation.
250	“ “ indirect radiation.
300	“ “ direct-indirect radiation.
150	lin. feet of 1 inch pipe coil.
50	“ “ 3 inch main.
100	“ “ 1¼ inch risers.
150	“ “ 1 inch risers.

The equivalent in direct radiation would be

600	square feet of direct radiation equals	600	feet.
250	“ “ indirect “ “	375	“
300	“ “ direct-indirect “ “	375	“
150	lin. feet of 1 inch pipe coil “	75	“
50	“ “ 3 inch mains “	45	“
100	“ “ 1¼ inch risers “	43	“
150	“ “ 1 inch risers “	50	“
Total, - - - - -			1578

The above would require a 1600 foot boiler, gross rating.

## RETURN TRAPS.

The capacities of Bundy Return Traps, 100 and 200 Series, as printed in this catalogue, are based on ordinary radiating conditions. When applied to extraordinary work, the following factors should be used:

For lumber kilns and moist goods, divide printed capacity in pipe surface, by two.

For laundries, brick driers and wet goods, divide by three.

For fan stacks and blowers, divide by five.

The quotient in each case will be the amount of piping that the Trap will handle under above mentioned conditions.

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