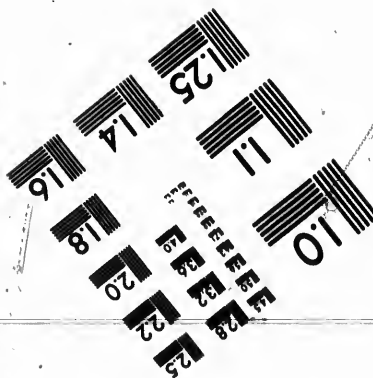
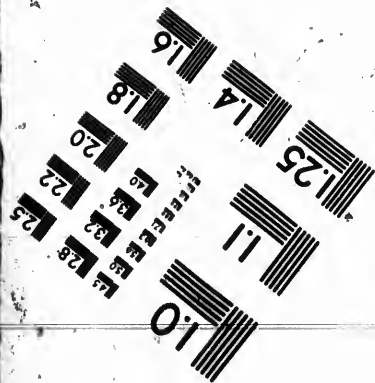
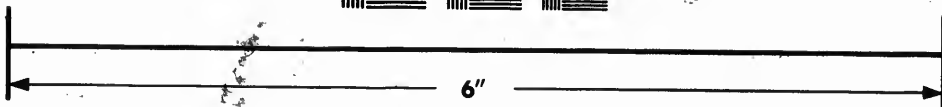
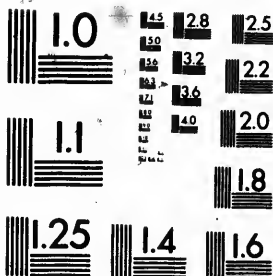


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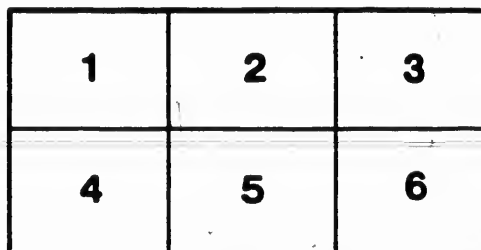
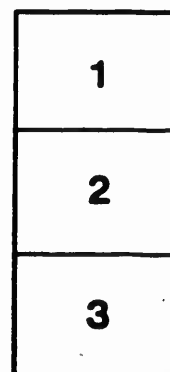
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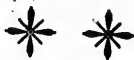
MACHINERY

—AND—

CATALOGUE

OF

SUPPLIES



A. R. WILLIAMS,

MANUFACTURER AND DEALER IN

Machinery and Mill Supplies

OF EVERY DESCRIPTION.

SOHO MACHINE WORKS,

*Esplanade, near Union Station,*

TORONTO, ONT.

JAMES MURRAY & Co., PRINTERS, TORONTO.

## PLEASE NOTE.



**In writing me** be particular to give your post-office address, and write your name plainly.

**To save unnecessary correspondence** please give as full particulars as possible of the machinery you require.

**In ordering** be particular to give all measurements so that I can fully understand what you desire me to send you, and full plain shipping directions.

**All claims for errors** must be made on receipt of goods.

**Discount Sheets** furnished on application.

**Prices are subject to change** without notice.

**All orders for machinery** to be taken upon, or subject to the conditions, of my usual lien order forms.

**All quotations** for machinery are on a Cash Basis; and for **Supplies**, monthly settlements. If under \$30 per month, net cash. If over \$30 per month, three months, or 3 per cent. off for prompt cash.

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## INTRODUCTORY.

I N presenting this catalogue to the Trade and users of machinery, I desire to thank my customers for the patronage bestowed upon me. and to assure them that I will endeavor, by prompt and careful attention to their needs, by sending them the very best goods, and by giving early and full replies to their inquiries for information, to merit a continuance of their trade.

I intend this catalogue to be, as per the title page, a

### “Price List of Machinery,”

AND A

### “Price List and Illustrated Catalogue of MACHINERY & SUPPLIES.”

I will furnish full particulars of any of the machines herein on application.

This catalogue only covers prices for new machinery and goods. I always have in stock a large supply of second-hand machinery and goods, which, when refitted and put in first-class order, I can sell at quite a discount from prices of new machinery. I will send list of second-hand machinery on application.

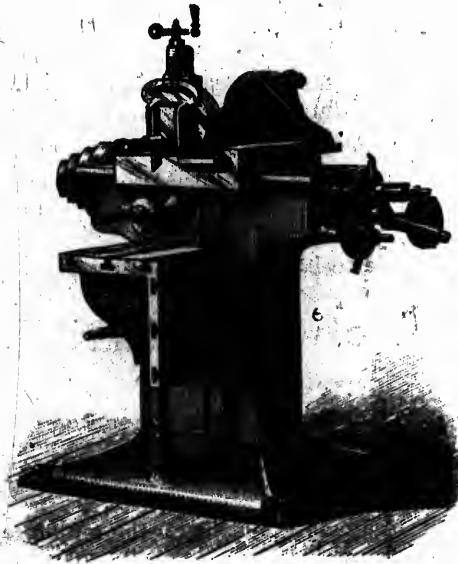
**A. R. WILLIAMS,**  
SOHO MACHINE WORKS,

Sept. 1, 1887.

Toronto, Ont.

# PRICE LIST

## Iron Working Machinery.



10 x 18 PEDESTAL SHAPER.

### Shaping Machines.

10 x 18 Pedestal,  
with Automatic Cross  
and Circular Feeds,  
\$375.00.

16 x 20 Gould &  
Eberhart Pattern,  
with Automatic Cross  
and Down Feeds,  
\$375.00.

### Iron Planers.

WILL PLANE			UNIVERSAL FEED.	DOWN FEED OF MIDDLE HEAD.	WEIGHT. (About)	PRICE.
WIDTH.	HEIGHT.	LENGTH.				
18 in.	18 in.	4½ in.		8 in.	2,250	\$400
24 "	24 "	6½ "		10 "	4,200	525
24 "	24 "	7 "		10 "	4,500	555
26 "	24 "	8 "		10 "	5,000	650
30 "	30 "	10 "	Hand	12 "	10,000	990
36 "	30 "	10 "	"	12 "	11,000	950
36 "	33 "	12 "	Power	14 "	16,000	1,075
42 "	42 "	14 "	"	14 "	18,000	1,500
48 "	48 "	16 "	"	15 "	20,000	1,900



**Engine Lathes.**

(Send for Circulars giving all details.)

No.	SWING OVER SHEARS.	LENGTH OF BED.	LENGTH WILL TURN.	SWING OVER CAR'GE.	STYLE OF TOOL REST.	STYLE OF FEED.	FACE OF CONE.	PRICE.	EXTRA PER FT. OF BED.
1	15 in.	6 ft.	3 ft. 5 in.	7 1/2 in.	Gibbed.	Rod and Screw	4 steps	\$270 00	\$12 00
2	15 "	6 "	3 " 5 "	6 "	Elevating.	" "	4 "	285 00	12 00
3	15 "	6 "	3 " 5 "	6 "	Compound.	Rod, Screw and Cross	4 " 2	320 00	12 00
4	15 "	6 "	3 " 5 "	7 1/2 "	Gibbed.	Screw	4 " 2 1/2	240 00	11 00
5	16 "	6 "	3 " 0 "	8 1/2 "	"	"	4 " 2 1/2	300 00	12 00
6	16 "	6 "	3 " 0 "	8 1/2 "	"	Rod, Screw and Cross	4 " 2 1/2	330 00	12 00
7	18 "	6 1/2 "	3 " 2 "	10 "	Elevating.	Rod and Screw	4 " 2 1/2	375 00	15 00
8	18 "	6 1/2 "	3 " 2 "	10 "	"	"	4 " 2 1/2	385 00	15 00
9	18 "	6 1/2 "	3 " 2 "	10 "	Gibbed.	Rod and Screw	4 " 2	425 00	15 00
10	20 "	8 "	4 " 5 "	10 "	"	Cross Feed and Hollow Spindle	4 " 3	450 00	18 00
11	22 "	8 "	4 " 5 "	10 "	"	Rod and Screw	4 " 3	480 00	18 00
12	24 "	10 "	6 " 4 "	12 "	To suit.	"	4 " 3 1/2	550 00	24 00
13	26 "	10 "	6 " 4 "	12 "	"	"	4 " 3 1/2	600 00	24 00
14	28 "	10 "	6 " 0 "	12 "	"	"	4 " 4	675 00	24 00
15	32 "	10 "	5 " 8 "	14 "	"	"	4 " 4	800 00	30 00
16	44 "	16 "	10 " 0 "	24 "	Compound.	"	5 " 5	1,350 00	50 00

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8 Pedestal,  
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Pattern,  
omatic Cross  
own Feeds,

PRICE.

\$400  
525  
555  
650  
990  
950  
1,075  
1,500  
1,900

### Engine Gap Lathes.

SWING OVER SHEARS.	SWING IN GAP.	LENGTH OF BED.	PRICE.	EXTRA PER FOOT OF BED.
22 in.	36 in.	10 ft.	\$475 00	\$15 00
26 "	42 "	10 "	550 00	20 00
Special—				
26 in.	42 "	20 " 8 in.	700 00	20 00
30 "	50 "	12 "	700 00	25 00

### Turret Lathes.

14 in. Swing Plain Turret .....	\$400 00
16 " " " " .....	450 00
16 " Swing with Back Gear and Power Feed. ....	525 00
16 " Swing with Back Gear, Power Feed, Wire Feed and Chuck Motion in the Head.....	650 00

### Milling Machines.

No. 1 Plain Milling Machine (Brainerd Pattern).....	\$350 00
No. 1 Back Geared Milling Machine (Brainerd Pattern).....	400 00
No. 2 Plain Milling Machine (Brainerd Pattern).....	450 00
No. 2 Back Geared Milling Machine (Brainerd Pattern).....	550 00

All the above have vises.

### Drilling Machines.

(Send for Circular.)

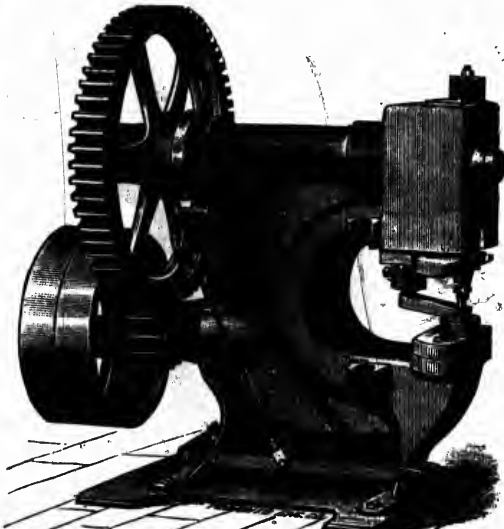
No.	DRILL TO CENTRE.	PRICE PLAIN.	PRICE WITH BACK GEAR.	STYLE OF FEED.
1	16 in.	\$125 00	.....	Hand & power.
2	20 "	175 00	\$225 00	" "
3	26 "	.....	275 00	" "
4	32 "	.....	350 00	" "
5	40 "	.....	400 00	" "
6	48 "	.....	500 00	" "

Suspension Drill, plain.....	\$140 00
" " back geared .....	190 00
Radial Drilling Machine .....	1,200 00

See page 9 for particulars of Blacksmiths' Drills.

Punch  
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Seaton  
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Index C

**Sundry Iron-Working Machinery.**

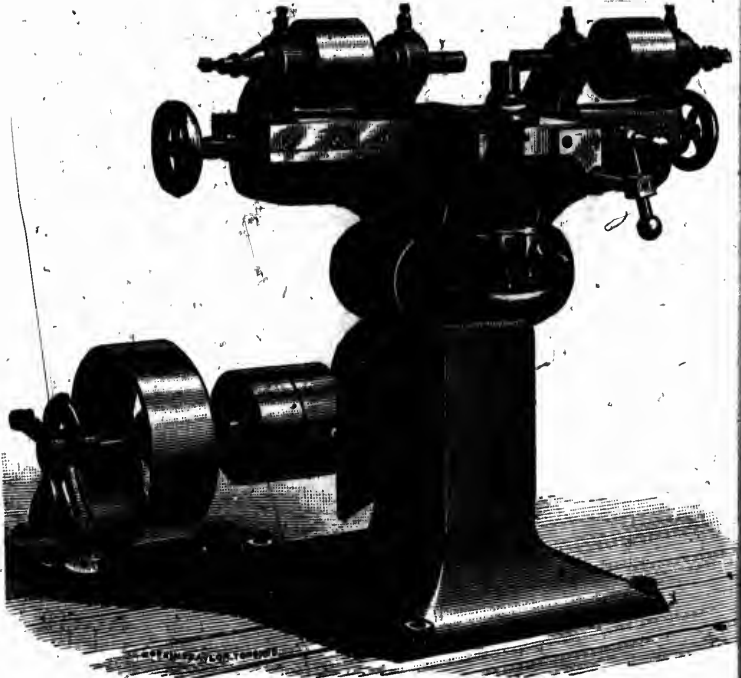


I will mail, on application, circulars giving full description of any of the following machines. Where I have no circulars I can generally send photos and a letter-press description.

EXTRA PER FOOT OF BED.	
\$15 00	
20 00	
20 00	
25 00	
	\$400 00
	450 00
	525 00
and	
	650 00
	\$350 00
	400 00
	450 00
	550 00

E OF FERD.	
& power.	
	\$140 00
	190 00
	1,200 00

Punch and Shears, 6 in. gap, "Single"	\$200 00
" " 12 " " " "	320 00
" " 24 " " " "	450 00
" " 12 " " " "Double"	500 00
" " 24 " " " " "	725 00
Bradley Hammer, 40 lb.	400 00
Drop Hammer, 500 " Moline Pattern	500 00
" " 800 " P. and W. "	800 00
Drop Press, No. 19, Bliss "	225 00
" " Heavy " "	350 00
Bolt Cutter, Stationary Die, Cuts from 3/8 to 1 1/2 inches, with Taps, Dies and Collets	350 00
Bolt Cutter A. and P. revolving head, Cuts from 3/8 to 1 1/2 inches	380 00
" Schlencker " "	425 00
Seaton Bolt Headers, No. 1 Machine	800 00
" " " 2 " "	1,000 00
" " " 3 " "	1,400 00
Forge Furnace, 26x34 inside, lined with fire brick	75 00
Key Seat Slotters, 3/8, 1/2 and 3/4-inch cutters	125 00
Heavy Slotting Machine	1,100 00
Index Centres for Milling Machine	140 00

**Brass Workers' Machinery.***(Send for Circulars.)*

2-Spindle Valve Milling Machine .....	\$325 00
Fox Lathe, complete.....	360 00
Fox Monitor Lathe, complete.....	450 00
Cock Grinding Lathe, " .....	140 00
Plain Lathe, with set over tail stock.....	200 00
8-in. Bench Lathe and C shaft .....	75 00
12 " Plain " " " (on legs) .....	110 00
14 " " " " " .....	135 00
12 and 14-in. Lathes, with compound tool rest, extra.....	35 00
Globe Valve Chuck, to 1 inch.....	60 00
" " " " 2 " .....	70 00

*(For Brass Monitors see Turret Lathes.)*

No. 4.  
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No 1.  
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**Barnes' Foot-Power Machinery.**

**Iron Tools.**

(Send for Special Catalogue.)

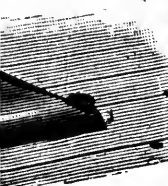
No. 4.	Lathe, complete, for foot power.....	\$46 00
44.	" " " " " " .....	89 50
5.	" " " " " " .....	115 00
6.	" " " " " " .....	167 50
6.	" " " " with C shaft, for power .....	175 00
7.	" 15 x 7, complete, with C shaft, for power .....	275 00
1. (20 in.)	Drilling Machine, round base.....	100 00
1. (20 in.)	" " square base.....	110 00
2. (25 in.)	" " back geared, square base .....	225 00

**Wood Tools.**

No 1.	Amateur Scroll Saw.....	\$14 00
2.	Velocipede " .....	24 00
2.	" " with Boring Attachment.....	28 00
6.	Amateur " .....	15 00
7.	Large Size " .....	18 00
	Foot Power Former.....	24 00
	Circular Rip Sawing Machine.....	60 00
	Combined Circular and Scroll Saw and Boring Attachment, including 2 Circular Saws, 12 assorted Scroll Saws, the Boring Attachment, with an "Old, Reliable" Self-centring Drill-Chuck, all combined in one machine .....	60 00
	Combined Circular and Scroll Saw, including 2 Circular Saws and 12 assorted Scroll Saws.....	48 00
	Circular Saw alone, including 2 Circular Saws, 1 Rip and 1 Cross-cut.....	42 00
	Scroll Saw alone, including 12 assorted Scroll Saws.....	38 00

When either the Circular Saw, Scroll Saw or Boring Machine has been ordered separate, the other parts can be furnished, if the number of the machine is given, at the following prices :

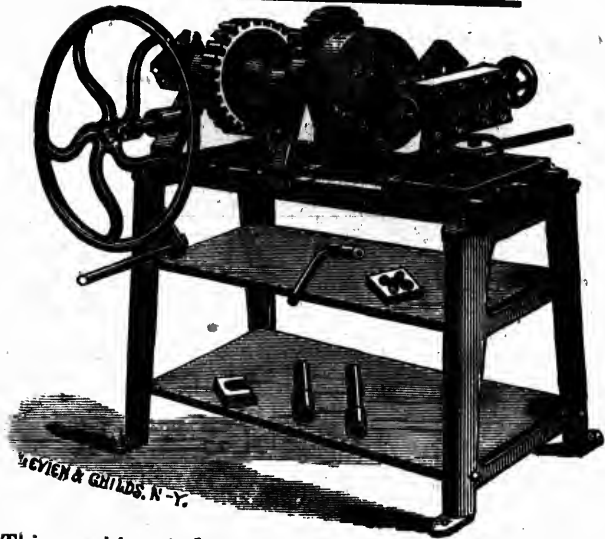
Circular Saw Attachment, Mandrel and Boxes, with 2 6-inch Circular Saws, 1 Rip and 1 Cross-cut.....	\$15 00
Scroll Saw Attachment, including 12 assorted Scroll Saws.....	9 00
Boring Attachment, including an "Old Reliable" Self-centring Drill-Chuck.....	14 00
Counter Shaft for steam power.....	14 00



- ..... \$325 00
- ..... 360 00
- ..... 450 00
- ..... 140 00
- ..... 200 00
- ..... 75 00
- ..... 110 00
- ..... 135 00
- ..... 35 00
- ..... 60 00
- ..... 70 00

(hes.)

## I. X. L. Pipe Machine.



EVYEN & CHILDS, N. Y.

This machine is [simple in construction, easy to work, not liable to get out of order, and requires no skilled labor. The arrangement of the gearing permits of the machine being adjusted to the work to be done, enabling one man to screw two-inch pipe with ease.

**CROOKED THREADS CANNOT BE CUT,** as the pipe revolves, and the die stands still. There are no loose guides to be changed or lost. The machine can be easily arranged to operate by belt power when desirable.

It is also an excellent machine for machine and jobbing shops, for *cutting off round iron and steel*, and with the Bolt-Threading and Nut-Tapping Attachment it makes a very good Bolt-Threader and Nut-Tapper.

### **HAND MACHINE,**

with set of Dies  $\frac{1}{4}$  to 2 inches inclusive, Fly-Wheel, and set of Sockets for making Nipples  $\frac{1}{4}$  to 2 inches—complete.....\$100 00

### **POWER AND HAND MACHINE,**

with set of Dies  $\frac{1}{4}$  to 2 inches inclusive, Fly-Wheel, Pulleys, Countershaft, and set of Sockets for making Nipples  $\frac{1}{4}$  to 2 inches—complete, .....\$115 00

Speed of Countershaft, 200 revolutions per minute ;  
Pulleys 11 inches in diameter.

No.

24 in  
26  
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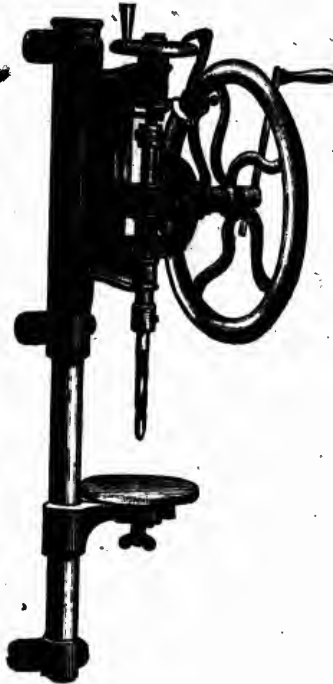


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..... \$100 00  
NE,  
ulley, Counter-  
o 2 inches—com-  
..... \$115 00  
per minute;

## Blacksmiths' Machinery.



No. 1 DRILLING MACHINE.

- No. 1. Hand Drilling Machine.....\$23 00
- 2. Hand Drilling Machine..... 30 00
- 3. Hand Drilling Machine, double geared..... 35 00
- 0. Bolt Clipper, cuts to three-eighths .... 4 00
- 1. Bolt Clipper, cuts to seven-sixteenths.. 5 00
- 2. Bolt Clipper, cuts to one-half..... 7 00
- 3. Bolt Clipper, cuts to five-eighths..... 9 00
- 1. Bolt - Threading and Nut-Tapping Machine; Taps, Dies and Collets,  $\frac{1}{4}$  to  $\frac{3}{4}$  inch..... 65 00
- 2. Bolt - Threading and Nut-Tapping Machine, Taps, Dies and Collets,  $\frac{1}{4}$  to 1 inch..... 85 00
- 1. Tire Bender..... 10 00
- 2. "..... 12 00
- 3. "..... 30 00
- 1. Tire Upsetter, to 2 in. wide. Weight 100 lbs..... 14 00
- 2. Tire Upsetter, to 4 in. wide. Weight 150 lbs ..... 18 50

### Bellows.

#### DOMINION.

24 inch	.....	\$15 00
26 "	.....	16 00
28 "	.....	17 00
30 "	.....	18 00
32 "	.....	22 00
34 "	.....	24 00
36 "	.....	28 00
38 "	.....	32 00
40 "	.....	36 00

#### COMMON.

24 inch	.....	\$12 00
26 "	.....	13 00
28 "	.....	14 00
30 "	.....	15 00
32 "	.....	16 00
34 "	.....	17 00
36 "	.....	18 00
38 "	.....	22 00
40 "	.....	26 00

Coopers' Testing Bellows.....\$5.00.  
Moulders' Bellows.....\$18.00 per doz.  
Portable Forge.....No. 1, \$22.00; No. 2, \$32.00; No. 3, \$42.00.

## Wood Working Machinery.

I can furnish circulars with wood cuts or photos of any of the machines enumerated herein by return mail. These machines are manufactured to order specially for my trade.

<b>LIGHTNING PLANING AND MATCHING MACHINE,</b>	
S. A. Woods' No. 2½ double surfacer, six pairs of 8½-in. feed rollers; weight, 6,500 lbs.; 14 in. wide, 4 in. thick....	
No. 1. PLANER AND MATCHER, three pair 8-in. feed rolls, 24 in. wide, 5 in. thick.....	\$1,400 00
With Double Cylinder and Beading Attachment.....	800 00
No. 2. Three pair 7-in. feed rolls, 24 in. wide, 5 in. thick.....	1,100 00
No. 3. Two pair 6-in. feed rolls, 24 in. wide, 5 in. thick, with improved cone feed.....	700 00
Side Gear and Index for do., extra.....	580 00
Beading Attachment.....	25 00
No. 4. Two pair 5-in. feed rolls, 24 in. wide, 4 in. thick.....	50 00
Beading Attachment.....	450 00
No. 5. PLANING, MATCHING AND MOULDING MACHINE, single surface, 24 in. wide, 5 in. thick, two pairs 5-in. feed rollers, slotted cylinder heads and Shimer matcher heads.....	50 00
Do., double surfacer, three sets feed rollers.....	450 00
Do., single surfacer, pony machine, 24 in. x 5 in.....	550 00
Do., double " " " ".....	325 00
Do., double " " " ".....	400 00
<b>ECLIPSE PONY PLANER, MATCHER AND MOULDER,</b> 24 in. wide, 6 in. thick, slotted cylinder heads, Shimer matcher heads.....	325 00
Whitney Planer, 24 in. wide.....	400 00
" " 28 ".....	425 00
" " 30 ".....	500 00
Counter Shaft for do.....	35 00
Diagonal Door Planer and Polisher.....	700 00
No. 1. Double Surface Revolving Bed Planer, improved delivery rolls in front of under cylinder, planes 26 in. wide, 10 in. thick, with counter shaft, self-contained.....	725 00
No. 2. Revolving Bed Planer, patented, geared on both sides, planes 26 in. wide and from 1-16 to 10 in. thick.....	375 00
Counter Shaft and Pulleys for do.....	35 00
No. 3. Revolving Bed Planer, patented, double geared, planes 24 in. wide and from 1-16 to 10 in. thick.....	285 00
Counter Shaft and Pulleys for do.....	35 00



**Wood Working Machinery—Continued.**

New and Improved Surface Planer, planes 24 in. wide and 8 in. thick, top and bottom rollers driven by gear, complete, with counter shaft.....	\$165 00
Do., 20 in. wide, 8 in. thick.....	75 00
BUZZ PLANERS, with counter shaft and either straight or diagonal knife.....	145 00
No. 1. 12 in. wide.....	75 00
“ 2. 16 “.....	100 00
“ 3. 20 “.....	125 00
“ 4. 24 “.....	150 00
No. 1. Patent Revolving Bed Moulding Machine, planes 12 in. wide, matches 10 in., table drops 12, to work four sides....	650 00
No. 1. Do., to work three sides.....	550 00
No. 2. Patent Revolving Bed Moulding Machine, planes 10 in. wide, matches 10 in., table drops 12 in. to work four sides....	550 00
No. 2. Do., to work three sides.....	450 00
No. 3. Moulding Machine, ordinary style, planes 8 in., table drops 12 in. to work four sides.....	400 00
No. 3. Moulding Machine, ordinary style, to work three sides.....	350 00
No. 4. Moulding Machine, to work three sides, planes 7½ in. wide, drops 14 in., ordinary style.....	250 00
No. 4. Do., one side.....	200 00
No. 5. Do., for sash, one side, planes 5 in., table drops 14 in..	175 00
No. 6. Do., wood frame.....	125 00
WOOD LATHES, 18-in. swing, with all parts, which includes head and tail stock, counter shaft, two rest sockets, one double and two single T rests, bell chuck and face plate ..	45 00
Do., 24-in. swing, with all parts.....	60 00
SCROLL SAW, with iron frame and circular iron top, and having a first-class, simple and easily-regulated top tension	75 00
BAND SAW, the “New Era,” with 30-in. wheels, and all latest improvements, made to bolt to a post, warranted... ..	100 00
Do., 34-in. wheels, heavy iron frame with all improvements... ..	175 00
SAW TABLE, iron frame rip saw table, with adjustable mandrel, adjustable fence and counter shaft, with wood top... ..	90 00
Do., iron top.....	115 00
CUT-OFF FENCE AND BORING ATTACHMENT, for either of the above.....	10 00
COMBINED SAW TABLE, rip and and cross cut, Carey & Harris' pattern, with rip and cut-off fences and counter shaft, complete.....	150 00

**Machinery.**

or photos of any  
 mail. These  
 ally for my trade.

MACHINE, rs of 8½-in. n. thick....	\$1,400 00
8-in. feed .....	800 00
.....	1,100 00
thick.....	700 00
thick, with .....	580 00
.....	25 00
.....	50 00
ck.....	450 00
.....	50 00
NG MA- two pairs Shimer .....	450 00
.....	550 00
.....	325 00
.....	400 00
LDER, Shimer .....	325 00
.....	400 00
.....	425 00
.....	500 00
.....	35 00
.....	700 00
proved a. wide, .....	725 00
h sides, .....	375 00
.....	35 00
planes .....	285 00
.....	35 00

**Wood Working Machinery—Continued.**

CUT-OFF SAW TABLE, iron frame, with counter-shaft attached.....	\$125 00
SAND PAPERING MACHINE, ordinary door elbow sander with usual parts.....	45 00
SAND PAPERING OR POLISHING MACHINE, 24-in. machine with two drums and eight geared feed rolls.....	400 00
Do., 30-in. machine.....	475 00
PERFECTION WOOD POLISHER, full combination, with cutter head, sand cylinder and sand pad, 24-in., \$700.00; 30-in., \$800.00; 40-in., \$900 00.....	.....
Do., treble sander, with two sand cylinders and sand pad, 24-in., \$650.00; 30-in., \$750.00; 40-in., \$850 00.....	.....
Do., double sander, with one sand cylinder and sand pad, 24-in., \$575.00; 30-in., \$625.00; 40-in.....	700 00
BLIND MACHINERY.—Ellis' Blind Slat Tenoning Machine	70 00
Do., Improved Blind Slat Tenoning Machine.....	75 00
Do., New and Improved Blind Stile Boring and Morticing Machine.....	130 00
Do., Blind Slat Wiring Machine, foot.....	25 00
Do., " " " " hand.....	15 00
Mitreing Machine, foot.....	25 00
" " hand.....	14 00
GAUGE LATHES.—No. 1. Bailey broom handle lathe.....	130 00
Do., No. 2. Bailey broom handle lathe, turns to 4 ft. 6 in. long	200 00
Do., No. 3. " " " " " " 7 " 6 "	230 00
Do., No. 1. Waymouth lathe, works stock up to 2 in.....	225 00
Do., No. 2. " " " " " " 2½ in.....	250 00
Do., No. 3. " " " " " " 3 in.....	275 00
PERFECTION GAUGE LATHES.—No. 1. broom handle lathe.....	130 00
Do., No. 2. Turns to 3 ft. 8 in. long.....	160 00
Do., No. 3. " 4 " 8 ".....	210 00
Do., No. 4. " 7 " 8 ".....	240 00
SPOKE LATHE, for turning irregular forms, such as handles for axes, picks, hammers, spokes, etc.....	235 00
IMPROVED SCOURING MACHINE, with belt.....	40 00
AUTOMATIC HANDLE SAWING MACHINE, for sawing square sticks or handles up to 8 ft. long.....	650 00
CARVING MACHINE, Buss' improved carver.....	95 00
DOVE-TAILING MACHINE, Boulst's pattern.....	325 00

y—Continued.

counter shaft	\$125 00
r elbow sander	45 00
HINE, 24-in.	400 00
eed rolls	475 00
ibration, with	
4-in., \$700.00;	
nd sand pad,	
00.	
nd pad, 24-in.	700 00
oning Machine	70 00
nd Morticing	75 00
	130 00
	25 00
	15 00
	25 00
	14 00
le lathe	130 00
ft. 6 in. long	200 00
" 6 "	230 00
2 in	225 00
2½ in.	250 00
3 in.	275 00
room handle	
	130 00
	160 00
	210 00
	240 00
ch as handles	235 00
elt.	40 00
NE, for saw-	650 00
	95 00
	325 00

Wood Working Machinery—Continued.

TENONING MACHINE, with double copes and 5½-in. heads, iron frame machine, complete	\$160 00
Do., with single cope	150 00
Do., without copes	135 00
Do., heavy machine with double copes and 8-in. heads	240 00
SHAPING MACHINE, No. 1. Iron frame with wood top, three sets of collars and guide	100 00
Do., No. 1. Same as above with iron top	115 00
Do., Pedestal frame machine with all parts and iron top	135 00
No. 1. Morticing Machine, foot	16 00
No. 2. " " "	18 00
Improved " " " power	140 00
" " " " with Boring Attachment	160 00
Improved Horizontal Boring Machine, with one spindle	90 00
" " " " two spindles, adjustable	125 00
Post Boring Machine, driven by gears	25 00
" " " " belt	30 00
Stroke Jointer, 4-ft. stroke	250 00
" " 5 "	275 00
" " 6 "	325 00
" " 7 "	390 00
RELISHING MACHINE, combined, for both sash and doors	500 00
DOOR CLAMP, Abercrombie's patent, wood frame, iron mounted	75 00
SASH CLAMP, Abercrombie's patent, wood frame, iron mounted	50 00
RIM AND SPOKE ROUNDER, iron frame, with two heads	60 00
RE-TENONING MACHINE, iron frame, Pettingell pattern	75 00
HUB MORTISING MACHINE, iron frame	350 00
RIM BORING MACHINE, " "	150 00
BOSS SPOKE LATHE, " "	300 00

Separators.

I. C. AGITATOR, No. 1—36-in. cylinder, 48-in. separator, for steam, end shake	\$420 00
Do., No. 2.—32-in. cylinder, 44-in. Separator, for horse power, end shake	375 00
No. 1.—McCLOSKEY SEPARATOR, 36-in. cylinder and 48-in. separator	425 00
No. 2.—Do., 32-in. cylinder and 48-in. separator	410 00
No. 3.—Do., 32 " " 44 "	400 00
No. 4.—Do., 30 " " 44 "	390 00

## Saw Mill Machinery.

### Lane's Lever-Set Circular Saw-Mills.

WITHOUT SAWS.

(See Saw List for Prices of Saws.)

	No. 1.	No. 2.
Iron Frame, with Carriage to cut 20 feet.....	\$355 00	\$425 00
“ “ “ “ “ 25 “ .....	385 00	460 00
“ “ “ “ “ 30 “ .....	430 00	510 00
“ “ “ “ “ 35 “ .....	460 00	545 00
“ “ “ “ “ 40 “ .....	520 00	635 00
“ “ “ “ “ 45 “ .....	580 00	700 00
“ “ “ “ “ 50 “ .....	620 00	760 00
“ “ “ “ “ 55 “ .....	670 00	800 00

*Above prices include Fairbank's Gauge Roll, Frost Dogs, Upright Indicator, Lane-Pattee Foot Rig.*

### “Eclipse” Saw Mill.

This is a heavy iron-frame mill with heavy steel mandrel, patent curved teeth (Thompson dogs), paper friction feed and gig back, taper attachment for sawing taper timber, receding movement which operates head blocks either at rest or in motion, with carriage wooded, rope feed. A first-class, heavy, substantial iron-frame saw mill, capable of cutting from 15,000 to 50,000 feet lumber per day, according to the material and power used.

Two-block mill, complete with 60-in. saw .....	\$700 00
Three “ “ “ “ “ .....	825 00
Four “ “ “ “ “ .....	950 00

### The Esplin Band Mill.

This mill has been pronounced by competent mill men to be the best band mill in the market. I can furnish for prompt delivery. Send for circulars and quotations.

**Saw Mill Machinery—Continued.**

(Send for Circulars, and in writing give Particulars of Requirements.)

Saw Mill Dogs (D. W. Thompson's Patent) per pair.....	\$ 75 00
No. 1 Canter (Iron Work) .....	100 00
“ 2 “ “ .....	125 00
“ 3 “ “ .....	150 00
<b>SINGLE EDGER, Iron Work, complete, including mandrel, 18-in. saw, counter shaft, wheels, shafts, boxes and track .....</b>	<b>55 00</b>
<b>DOUBLE EDGER, Iron Frame, two 16-in. saws, one with lever to move and one stationary with dials and pointer...</b>	<b>300 00</b>
<b>DOUBLE EDGER, Iron Frame, with three 18-in. saws, two movable .....</b>	<b>350 00</b>
<b>GANG EDGER, Iron Frame, complete, with five 18-in. saws, a heavy first-class machine .....</b>	<b>500 00</b>
<b>No. 1. BULL WHEEL, Iron Work, 100 ft. 7-16 chain, with friction feed, lever and eccentric box, and barrel for chain.....</b>	<b>85 00</b>
<b>No. 2. BULL WHEEL, Iron Work, heavier, 100 ft. 1/2-in. chain, with friction feed, lever and eccentric box, and barrel for chain.....</b>	<b>100 00</b>
<b>No. 1. TWO-SAW TRIMMER; complete machine, heavy wood frame, iron mounted, with two 18-in. saws .....</b>	<b>125 00</b>
<b>GANG TRIMMER, to cut 10 to 18 feet, six saws.....</b>	<b>450 00</b>
<b>SLAB SAW RIG .....</b>	<b>75 00</b>
<b>No. 1. SWING SAW, Iron Work, 18 in. saw.....</b>	<b>30 00</b>
“ 2. “ “ “ 24 “ “ .....	42 00
“ 3. “ “ “ 28 “ “ .....	50 00
<b>SLASH TABLE with Ewart chain and six saws. (Send particulars for prices.)</b>	
<b>PONY SAW MILL, with heavy wood frame, iron mounted, paper friction feed and gig back, and having head blocks wooded, with all necessary rack and track, capable of carrying up to a 60-in. saw, and cutting from 6,000 to 15,000 per day, according to the power used. With two head blocks and 48-in. saw .....</b>	<b>350 00</b>
<b>Same as above, with three head blocks and 48-in. saw.....</b>	<b>400 00</b>
Extra size of saw at extra price.	

inery.

r Saw-Mills.

f Saws.)

	No. 1.	No. 2.
.....	\$355 00	\$425 00
.....	385 00	460 00
.....	430 00	510 00
.....	460 00	545 00
.....	520 00	635 00
.....	580 00	700 00
.....	620 00	760 00
.....	670 00	800 00

ge Roll, Frost Dogs,  
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mill.

with heavy steel man-  
gogs), paper friction  
for sawing taper  
erates head blocks  
e wooded, rope feed.  
e saw mill, capable  
t lumber per day,  
d.  
..... \$700 00  
..... 825 00  
..... 950 00

mill.

ompetent mill men  
I can furnish for  
quotations.

## Shingle Mill Machinery.

(Send for Circulars.)

"Boss" Shingle Machine with Saw.....	\$300 00
" Drag Sawing Machine with Saw.....	125 00
" Shingle Block Bolter, 44 Saw.....	125 00
" Shingle Jointer, 38-5 Knife .....	50 00
" " Packer (all iron frame).....	25 00
Drag Saw Iron Work and Saw.....	95 00
36-in. 4-knife Jointer (all iron frame).....	35 00
42-in. 6-knife " " " .....	50 00
Upright Swing Shingle Machine, with Saw .....	150 00

## Lath Machinery.

"Boss" Lath Bolter.....	\$110 00
" " Machine.....	125 00
Lath Equalizer.....	55 00
Lath Yarn at Market Price.....	

## Veneer Machinery.

I control the patterns, and manufacture to order heavy, substantial Veneer machines, suitable for cutting cheese-box material and veneer from  $\frac{1}{32}$  to  $\frac{3}{8}$  of an inch thick. Can arrange the capacity of the machine to suit the work required, cutting from 3 ft. to 6 ft. long. The machine is built on a heavy oak timber frame, solidly tenoned and bolted together. Iron work fitted on, complete, and making one of the most substantial Veneer machines manufactured on the continent. I have quite a number in use, and can furnish good references as to the ability of the machine.

Price for the 6-ft. Machine, complete, free on board cars at Toronto..... \$650 00

**Horizontal Stationary Tubular Steam Boilers.**  
(Made of Dalzell Steel.)

DIMENSIONS AND PRICE LIST.

Horse Power.....	10	15	20	25	35	40	50	60	70	85
Diameter.....in.	30	34	36	44	48	48	54	60	60	66
3-in. Tubes.....	20	22	30	40	52	52	64	76	76	100
Length of Tubes...ft.	8	9	10	10	11	12	12	12	14	14
Shipping Weight...	4200	4800	6600	8000	9700	10500	12500	15500	16500	19700
Price with Fixtures..	\$250	\$300	\$350	\$450	\$575	\$600	\$800	\$900	\$1000	\$1200

FIXTURES.—Cast Iron Front ; Grate Bars (coal or wood) ; Safety Valve ; Steam Gauge, Gauge Cocks ; Glass Water Gauge ; Blow-off Cock ; Ash Pit Door and Frame.

SMOKE STACKS.

Diameter.....inches.	12	15	16	20	22	26	28	30	34
Weight per foot.....pounds.	10	12	13	17	19	23	26	29	40
Price per foot.....	\$0 75	\$0 90	\$1 00	\$1 10	\$1 25	\$1 50	\$1 75	\$2 00	\$2 50

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..... \$300 00  
..... 125 00  
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..... 50 00  
..... 25 00  
..... 95 00  
..... 35 00  
..... 50 00  
..... 150 00

..... \$110 00  
..... 125 00  
..... 55 00

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The machine is  
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..... \$650 00

**Portable Boilers on Skids.**

	0	1	2	3	4	5	6	7	8
Number of Size.....	6	8	10	12	15	20	25	30	35
Horse Power, as usually rated.....									
Diameter of Boiler.....in inches	26	28	30	32	32	34	36	40	40
Length of Furnace....."	34	36	38	38	44	52	52	60	60
Width of Furnace....."	21	22	24	26	26	28	30	34	34
Height of Furnace....."	29	33	35	35	35	37	40	43	43
Number of Tubes.....	17	20	22	26	26	30	34	40	42
Diameter of Tubes.....in inches	3	3	3	3	3	3	3	3	3
Length of Tubes....."	60	72	78	72	78	90	96	102	120
Diameter of Stack....."	12	14	14	15	16	16	18	20	20
Length of Stack.....in feet	18	20	20	20	20	24	24	30	35
Length of Boiler over all....."	9	11	11½	11	11½	13	13½	14½	16½
Weight of Boiler and Fittings, about.....	2350	2950	3200	3550	3800	4600	5450	6300	7200
Weight of Boiler Fixtures, about.....	450	450	500	600	800	1050	1150	1500	1500
Weight of Boiler and Fixtures complete, about..	2800	3400	3700	4150	4600	5650	6600	7800	8700
Price complete.....	\$390	\$480	\$530	\$580	\$640	\$700	\$800	\$900	\$1000

Fixtures comprise Grates, Steam Gauge, Water Gauge fitted with Stand Pipe, Gauge Cocks, Safety Valve, Blow-off Valve, Wheels and Axles extra.



**Skids.**

Price complete.....	\$390	\$480	\$530	\$580	\$640	\$700	\$800	\$900	\$1000
2800	3400	3700	4150	4600	5650	6600	7800	8700	

Fixtures comprise Grates, Steam Gauge, Water Gauge fitted with Stand Pipe, Gauge Cocks, Safety Valve, Blow-off Valve, Wheels and Axles extra.

FINISHED IN FIRST-CLASS STYLE THROUGHOUT.

(Send for Engine Catalogue.)

These Slide Valve Stationary Engines I have built, specially to order, for my trade, with square, heavy, substantial frame.

**Stationary Engines.**

DIMENSIONS AND PRICES.

	15	20	25	30	40	50	55	65	75	90
Horse Power	15	20	25	30	40	50	55	65	75	90
Diameter of Cylinder.....inches	8	9	10	11	12	13	14	15	16	17
Length of Stroke....."	12	12	14	16	20	20	20	24	24	30
Number of Revolutions.....	150	150	150	140	130	115	110	100	90	80
Diameter of Fly Wheel.....inches	60	62	72	84	96	108	110	120	120	132
Diameter of Band Wheel....."	24	30	36	36	48	48	60	72	72	72
Width of Belt....."	9	10	12	12	14	14	16	16	18	20
Price, including Judson governor, pump, heater, and brass fittings complete.....	\$300	\$350	\$450	\$550	\$650	\$700	\$900	\$900	\$1100	\$1300
Shipping Weights.....cwt.	26	31	35	47	68	100	150	160	170	180

Large Band Wheels can be furnished when desired, instead of Fly Wheel and Pulley. The speed above given is not fixed; it can be regulated by means of a Spring Speeder on Governor.

A. R. WILLIAMS,

### Automatic Engines.

35 horse (9½x12) high speed, Armington & Sims' pattern.....	\$600 00
40 " (11x14) " " " " " " " .....	750 00

I carry in stock and can sell at lowest market prices, New Corliss and Wheelock Engines. Prices and description on application.

### Marine Engines and Boilers.

These I have manufactured, specially for my customers, to order, in sizes from 4x4 to 20x22, and can furnish for prompt delivery. I append prices for a few of the smaller sizes, but prefer to have specifications of boat for larger sizes.

4x4 with Steel Boiler, and having suitable wheel and shaft and all connections.....	\$300 00
6x4 with Steel Boiler, and having suitable wheel and shaft and all connections.....	400 00
6x6 with Steel Boiler, and having suitable wheel and shaft and all connections.....	575 00

### Portable Engines and Boilers.

Engines mounted on Boilers and complete with all fittings and connections, including necessary boiler feed and smoke stack. Boiler on skids.

25 Horse Power.....	\$950 00
30 " " .....	1,125 00
35 " " .....	1,300 00
40 " " .....	1,450 00
50 " " .....	1,750 00

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**Western Empire Portable and Traction Engines and Boilers.**

tern..... \$600 00  
 "..... 750 00

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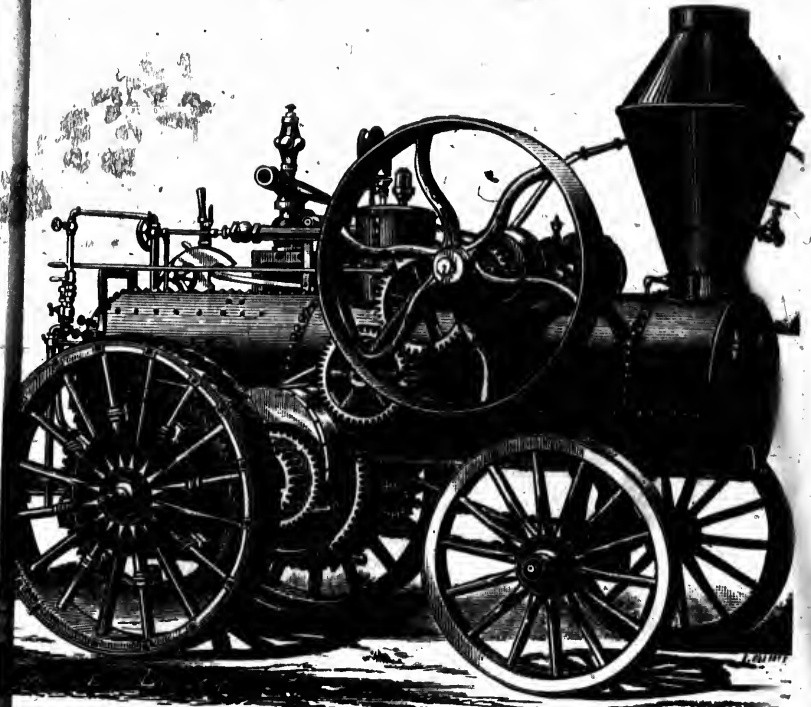
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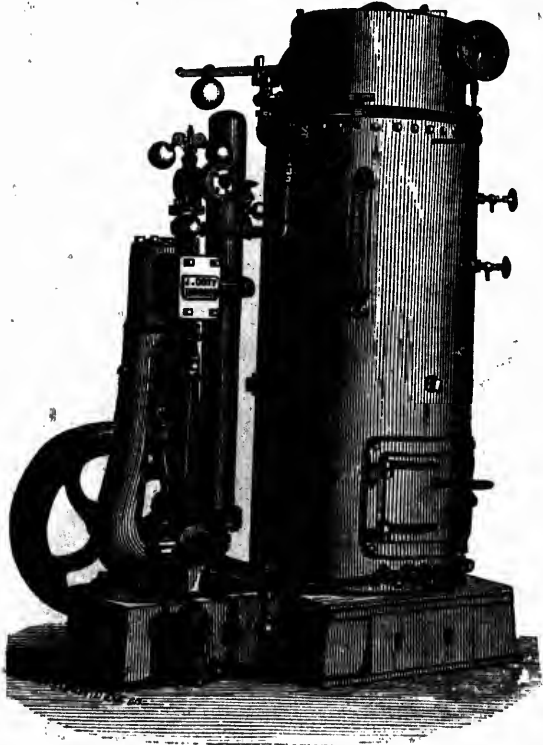
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 ..... 1,125 00  
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 ..... 1,450 00  
 ..... 1,750 00



**LOCOMOTIVE PATTERN—WATER BOTTOM.**

PORTABLE, 12 horse power, on trucks, with patent spark arrester and smoke stack, 7½x12-in. cylinder.....	\$750 00
Do., 16 horse power, on trucks, with patent spark arrester and smoke stack, 8½x12-in. cylinder.....	900 00
Do., 20 horse power, on trucks, square bottom fire box, 10x14-in. cylinder.....	1,200 00
Do., 25 horse power, on trucks, square bottom fire box, 12x14-in. cylinder.....	1,500 00
SINGLE TRACTION, 12 horse power, on trucks.....	1,050 00
Do., 16 horse power, on trucks.....	1,250 00
DOUBLE TRACTION, 12 horse power, on trucks.....	1,150 00
Do., 16 horse power, on trucks.....	1,300 00

## Vertical Engines and Boilers.



PRICE LIST.

No.	Complete Rigs.	Boiler with Fittings.	Engine with Fittings.
1	\$278 00	\$145 00	\$122 00
2	345 00	165 00	148 00
3	395 00	180 00	172 00
4	445 00	200 00	195 00
5	545 00	225 00	225 00
6	610 00	265 00	300 00
7	710 00	325 00	350 00
8	875 00	400 00	400 00

**Doty Vertical Engines and Boilers.**

TABLE OF DIMENSIONS, WEIGHTS, ETC.

No.	Engine.				Boiler.						Combined Engine and Boiler.					
	Horse Power.	Diameter of Cylinder.	Stroke.	Diameter of Band Wheel.	Width of Face.	Revolutions per minute.	Diameter of Shell.	Length of Shell.	Length of Tubes.	Number of Tubes.	Size of Tubes.	Length of Tubes.	Square Feet of Heating Surface.	Floor Space Occupied.	Height over all.	Weight.
1	3	4	4	20	3½	200	24	48	24	2	2	31	51	26 x 48	65	1200
2	4	4	6	24	4½	180	26	60	26	2	2	40	72	30 x 50	80	1600
3	5	5	6	26	5½	180	30	60	30	2	2	36	80	34 x 60	80	2000
4	6	5½	7	28	6½	160	30	66	30	2	2	41	95	34 x 60	87	2700
5	8	6½	8	32	7½	160	34	72	34	2	2	46	125	36 x 70	93	3300
6	10	7	9	36	8½	150	37	72	37	2	2	46	162	40 x 72	96	4000
7	13	8	8	40	9½	150	40	84	40	2	2	52	207	44 x 84	106	4800
8	15	9	9	48	12	140	44	84	44	2	2	.....	.....	48 x 90	106	5500

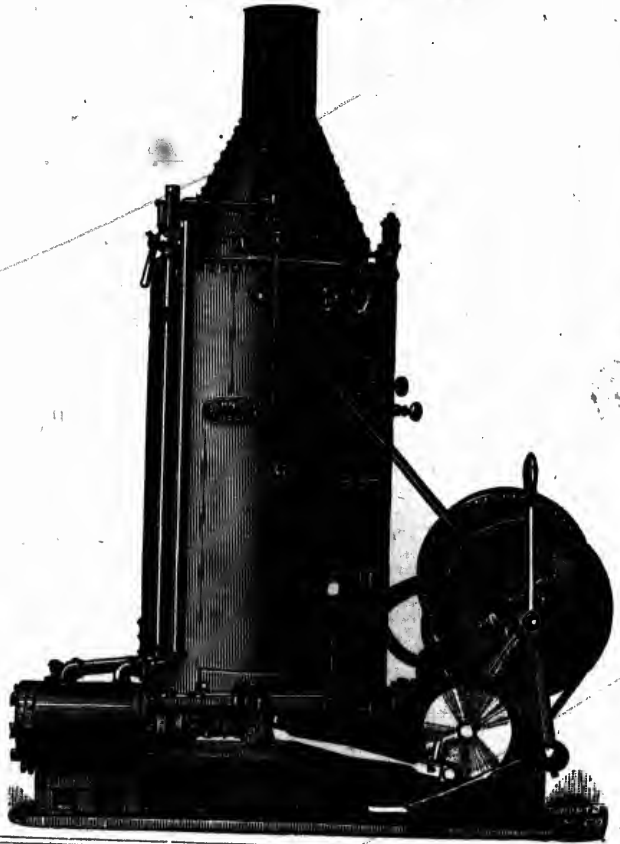
Boilers.



Engine with Fittings.

- \$122 00
- 148 00
- 172 00
- 195 00
- 225 00
- 300 00
- 350 00
- 400 00

## Portable Hoisting Engines.



No.	Single Cylinder.	Double Cylinder.	Price, One Drum.	Price, Two Drums.	Wheels, Extra.	Foot Brake, Extra.
1	6 x 12		\$700	\$750	\$75	\$25
2	7 x 12	.....	750	875	75	25
3	.....	6½ x 8	.....	850	75	25
4	.....	6 x 12	875	1,000	100	25
4	.....	7 x 12	950	1,075	100	25

S,

Engines.



## Brick and Tile Machinery.

### Baird's Patent.

Brick and Tile combined .....	\$425 00
Brick, single .....	375 00
Tile, single .....	375 00
Clay Crusher .....	225 00

### The Baillie Patent Combined Brick and Tile Machine.

Steam Power Double Acting Machine .....	\$400 00
Horse " " " " .....	325 00
Dies for double 2½-in. Tile .....	7 00
" " 3-in. Tile .....	7 00
" " single 4 " " .....	5 00
" " 5 " " .....	5 50
" " 6 " " .....	6 00
" " 7 " " .....	6 50
" " 8 " " .....	7 00
1 Set Brick Dies, wood lined .....	3 00
2 Brick Tables .....	16 00
2 Tile Tables .....	16 00

### The Henry Martin Brick Machine.

No. 1, for steam power .....	\$500 00
No. 1, for horse power .....	425 00
Tile Attachment, extra .....	200 00

N.B.—I can always supply either new or second-hand Engines and Boilers, suitable to run a brick yard with one or more machines, and any style that customers may prefer—portable, upright or stationary, and with necessary shafting, belting and fittings, for prompt delivery.

Wheels, Extra.	Foot Brake, Extra.
\$75	\$25
75	25
75	25
100	25
100	25

### Duplex Steam Pumps.

(Send for Circulars.)

Diameter Steam Cylinder.	Diameter Water Cylinder.	Stroke.	Strokes per minute.	Gallons per minute, both Plungers.	Price.	Sizes of Pipes for short lengths, to be increased as length increases.			
						Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.
5½	3½	5	75 to 150	30 to 60	\$160	¾	1½	2½	1½
6	4	7	75 " 125	50 " 90	200	1	1½	2½	2
7½	4½	10	75 " 100	70 " 140	275	1½	2	4	2½
9	5¼	10	75 " 100	90 " 185	340	1½	2	4	3
10	6	10	50 " 100	125 " 245	400	2	2½	4	3

These Pumps are manufactured to order specially for my trade. I can also furnish larger sizes, and including Mining Pumps and Pumps for special service, for prompt delivery. Write for prices.

### The New "Otto" Silent Gas Engine.

SAFETY! CONVENIENCE! ECONOMY!

Started instantly with a match. Always ready to give out its full power at once. Expense ceases when Engine stops. No boiler, no gauges, no coal, no fires, no steam, no pumps, no explosions, no danger, no ashes, no engineer, no extra insurance, no unpleasant heat, almost no attendance. Where power is required at intervals it is the cheapest motor known. Over 10,000 in use.

2 Horse Power, complete	Price.
4 " " "	\$400 00
7 " " "	575 00
10 " " "	765 00
	965 00



mps.

)

Sizes of Pipes for short lengths, to be increased as length increases.

Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.
1 1/4	1 1/4	2 1/4	1 1/4
1 1/2	1 1/2	2 1/2	2 1/4
1 3/4	2	4	2 3/4
2	2 1/2	4	3

der specially for my  
d including Mining  
r prompt delivery.

**Gas Engine.**

...NOMY!  
...ways ready to give  
...ases when Engine  
...fires, no steam, no  
...s, no engineer, no  
...st no attendance.  
...he cheapest motor

Price.	
.....	\$400 00
.....	575 00
.....	765 00
.....	965 00

**Duplex Pumps with Boilers.**

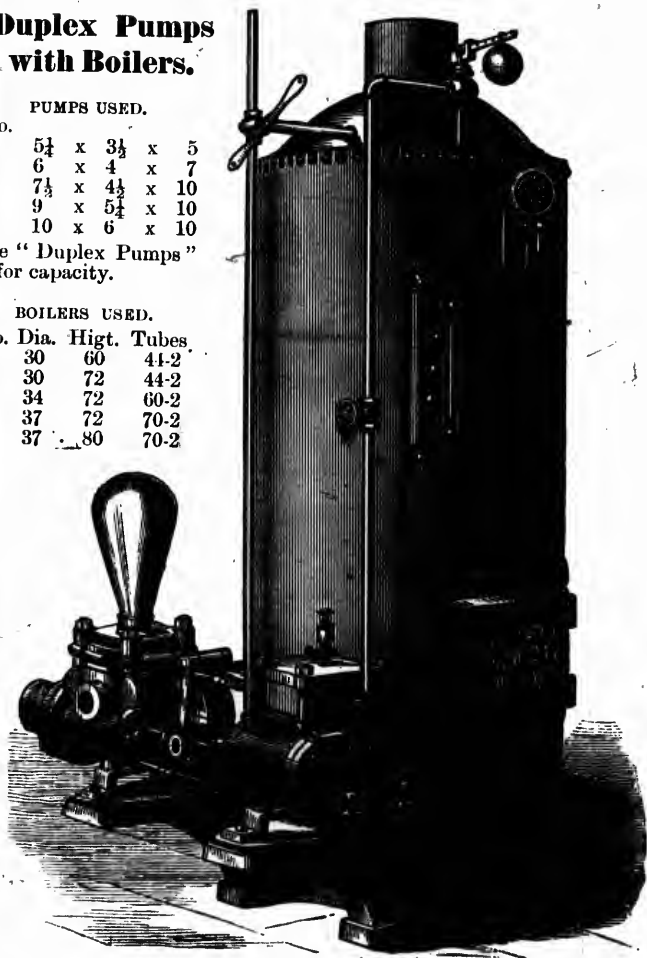
**PUMPS USED.**

No.				
1	5 1/4	x	3 1/2	x 5
2	6	x	4	x 7
3	7 1/2	x	4 1/2	x 10
4	9	x	5 1/4	x 10
5	10	x	6	x 10

See "Duplex Pumps" for capacity.

**BOILERS USED.**

No.	Dia.	Higt.	Tubes.
1	30	60	41-2
2	30	72	44-2
3	34	72	60-2
4	37	72	70-2
5	37	80	70-2



PRICE (on frame as shown in cut).

No. 1, complete.....	\$375 00
" 2, " .....	450 00
" 3, " .....	550 00
" 4, " .....	650 00
" 5, " .....	750 00

A. R. WILLIAMS,

Smith Exhaust Fan.

SMITH EXHAUST FAN—DOUBLE.

No. of Fan.	Price.	No. of Squire In. Inlet.	No. of Squire In. Outlet.	Diameter of Blast Wheels	<sup>MIN</sup> Diameter of Pulley.	Face of Pulley.	No. of Revolutions per Minute.	Weight.
2	\$60 00	100	114	11½ inch.	4 inch.	3¼ inch.	3,500 to 4,000	135
3	80 00	150	170	12½ "	4 "	4 "	2,800 to 3,200	200
4	100 00	200	234	15½ "	5 "	4½ "	2,500 to 3,000	300
5	125 00	250	286	16½ "	6 "	5 "	2,300 to 2,800	400
6	150 00	300	338	18½ "	6½ "	5½ "	2,000 to 2,400	500
7	175 00	350	389	20½ "	7 "	5½ "	1,900 to 2,300	600
8	200 00	400	440	22 "	8 "	6 "	1,800 to 2,200	700
9	250 00	450	493	23½ "	8½ "	6½ "	1,600 to 1,900	825
10	300 00	500	546	25 "	9 "	6½ "	1,550 to 1,700	950
11	350 00	550	600	26½ "	10 "	6½ "	1,450 to 1,650	1,100
12	400 00	600	654	27½ "	12 "	6½ "	1,400 to 1,600	1,350

SMITH EXHAUST FAN—SINGLE.

1	\$40 00	50	60	11 inch.	4 inch.	2½ inch.	3,500 to 4,000	80
2	50 00	75	85	12½ "	4 "	3 "	2,800 to 3,200	100
3	75 00	125	143	16½ "	5 "	3½ "	2,300 to 2,800	200
4	100 00	175	195	20½ "	6½ "	4 "	1,900 to 2,300	325
5	125 00	225	245	23½ "	7½ "	5½ "	1,600 to 1,900	450
6	175 00	275	300	26½ "	8½ "	5½ "	1,450 to 1,650	550

Larger sizes built to order. In ordering, be particular to state if the Pulley is wanted on the right or left side, as you stand behind the fan looking in the direction the shavings are to be discharged. They are built both right and left hand.

## The Smith Cupola, Forge and Pressure Blowers.

2	50 00	75	85	123	4	24	3,500 to 4,000
3	75 00	125	143	164	5	31	2,800 to 3,200
4	100 00	175	195	204	6	37	2,300 to 2,800
5	125 00	225	245	237	7	44	1,900 to 2,300
6	175 00	275	300	264	8	51	1,600 to 1,900
					9	58	1,450 to 1,650

Larger sizes built to order. In ordering, be particular to state if the Pulley is wanted on the right or left side, as you stand behind the fan looking in the direction the shavings are to be discharged. They are built both right and left hand.

	Sizes.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
Prices, without Counter Shaft.....	\$15 00	\$30 00	\$45 00	\$75 00	\$120 00	\$180 00	
Counter Shafts extra.....	10 00	12 00	15 00	20 00	30 00	36 00	
Speed for 3 oz. Blast.....	6000	4000	3000	2500	1750	1400	
Speed for 6-oz. Blast.....	7000	5000	4000	3000	2300	1750	
Speed for 9-oz. Blast.....		6000	4700	3500	2750	2150	
Speed for 12-oz. Blast.....			5600	4000	3300	2550	
H.P., at 3-oz. Blast.....	0.1	0.3	0.5	0.8	1.7	2.	
H.P., at 6-oz. Blast.....	0.3	0.5	0.7	1.1	2.1	3.	
H.P., at 9-oz. Blast.....		0.7	1.1	1.7	2.5	4.	
H.P., at 12-oz. Blast.....			1.5	2.5	3.5	5.	
Area of Outlets, sq. in.....	15	30	50	75	125	175	
Sizes of Pulleys.....	2x1	3x1½	4x2½	5x3½	6x4½	7x5½	
Height to centre of Shaft.....	7½	10½	13½	17½	22	27	
Extreme widths.....	10½	14½	20½	27½	32½	38½	
Centre to centre of Pulleys.....			18	24	28½	33½	
Diameter of round outlet pipe.....	4½	6½	8½	10½	13½	16	
Weight complete, in pounds.....	20	50	80	150	250	375	

## Fans and Blowers.

### Wing's Disc Fans or Exhausters.

One of the most successful machines of the age. Thousands in use. Sales constantly increasing. This light running power Fan will move fully six times as much air as the centrifugal or usual exhaust fans and blowers, and is invaluable for drying, removing steam, dust, smoke, gases, heat, etc., and for general ventilation and cooling.

*(Send for Special Catalogue.)*

No.	Dia.	Wide.	Pulley.	
1.	12 inches,	8 inches,	2 x 1½	\$30 00
"	2. 18 "	10 "	3 x 1½	40 00
"	3. 24 "	12 "	4 x 2	50 00
"	4. 30 "	13 "	5 x 3	65 00
"	5. 36 "	14 "	6 x 3	85 00
"	6. 42 "	15 "	7 x 4	105 00
"	7. 48 "	16 "	8 x 4	125 00
"	8. 54 "	17 "	9 x 5	160 00
"	9. 60 "	18 "	10 x 6	200 00

#### SKELETON FANS.

No.	Dia.	Pulley.	
10.	72 inches,	12 x 7	\$175 00
"	11. 84 "	14 x 8	200 00
"	12. 96 "	16 x 10	240 00
"	13. 108 "	20 x 12	280 00
"	14. 120 "	24 x 12	325 00

Prices for extra sizes given on application.

Fans fitted to run horizontally from \$6.00 to \$15.00.

AMS,

**BLOWERS.**

**Exhausters.**

nes of the age. Thou  
easing. This light run  
times as much air a  
ns and blowers, and i  
am, dust, smoke, gases  
n and cooling.

(catalogue.)

.....	\$30 00
.....	40 00
.....	50 00
.....	65 00
.....	85 00
.....	105 00
.....	125 00
.....	160 00
.....	200 00
.....	\$175 00
.....	200 00
.....	240 00
.....	280 00
.....	325 00

to \$15.00.

**The Smith Special Exhaust Fan.**

FOR REMOVING DUST FROM EMERY WHEELS, GRINDSTONES, FOUNDRY RATTLES, OR ANY MATERIAL OF THE SAME NATURE.

Number.	Square Inches. Area to Inlet.	Pulley. Dia. of Face.	Speed.	Price.	Weight.
0	12	In. 2 x 1 $\frac{1}{2}$	4,000 to 5,000	\$15 00	30
1	22	3 x 1 $\frac{1}{2}$	3,000 to 4,000	25 00	50
2	40	4 x 2 $\frac{1}{2}$	2,500 to 3,500	40 00	80
3	70	6 x 3 $\frac{1}{2}$	2,000 to 3,000	60 00	180

For Boston Blower Co.'s Dry Kilns, Fans, Blowers and Exhausters, send for special catalogue, giving as full particulars of your requirements as possible, so as to save correspondence and delay in giving a full quotation.

## The Pickering Governor.

This Governor, by its accurate regulation and good workmanship, will commend itself wherever used.

We guarantee to regulate accurately any style or size of engine, and under all circumstances.

For durability in all its parts, simplicity of construction, and economy in fuel, it cannot be equalled.

Having no joints, its action is direct, thereby insuring greater sensitivity than can be secured with any other Governor.

*In ordering Governors be particular to specify the style wanted.*

If no special dimensions are given, Governors will be sent according with the table below :



Size of Valve or Steam Pipe.	Portable.	Plain.	Finished.	Speeder, Extra.	Stop Motion and Speeder Extra.	Dia. of Cylinder suitable for.	Extreme Height.	Dia. of Base Flange.	Dia. of Pulley advisable.	Rev. per Minute for Fig. 1.
In.						In.	In.	In.	In.	
1	\$15	\$16	\$17	\$1 50	2	2 to 3	14	3 1/2	1	500
1 1/4	16	18	19	1 50	3	3 to 4	14 1/2	4	1	500
1 1/2	18	20	22	2 00	4	4 to 5	18	4 1/2	2	400
1 3/4	20	22	23	2 50	4	5 to 6	19	5	2	400
2	23	26	28	2 50	4	6 to 8	25	5 1/2	2	380
2 1/4	27	30	32	3 00	6	8 to 10	26	6	2 1/2	380
2 1/2	36	41	43	3 50	7	10 to 12	30	7 1/2	3	360
3	.....	45	52	4 25	8	12 to 15	35	7 3/4	3 1/2	300
3 1/4	.....	54	62	4 50	9	14 to 17	36	10	4	300
4	.....	64	73	5 00	11	16 to 20	42	11	5	300
4 1/4	.....	74	84	5 50	12	18 to 22	42	11 1/2	5	300
5	.....	84	95	6 00	14	20 to 25	48	12	5	300
6	.....	115	130	7 00	16	24 to 30	52	13	6	250
7	.....	140	155	8 00	18	28 to 35	54	14	6	250
8	.....	170	188	9 00	20	32 to 40	56	16	7	250
10	.....	205	235	12 00	25	40 to 50	66	18	8	225

Fig. 1. Double Spindle  
lb. balance pulley  
Heavy Wood Extra.

Two  
Hoo  
Hco  
Dou  
Hoo

**The Pickering Governor.**

This Governor, by its accurate regulation and good workmanship, will command itself wherever used. We guarantee to regulate accurately any style of engine, and under all circumstances. For durability in all parts, simplicity in construction, and economy in operation, it cannot be equalled. Having no joints, its motion is direct, thereby requiring greater sensitive action than can be secured in any other Governor. In ordering Governors, particular to specify the one wanted. If no special dimensions are given, Governors will be sent according with the following:

suitable for.	Extreme Height.	Dia. of Base Flange.	Dia. of Pulley advisable.	Rev. per Minute for Fig. 1.
3	14	3 1/2	1	500
4	14 1/2	4	1	500
5	18	4 1/2	2	400
6	19	5	2	400
8	25	5 1/2	2 1/2	380
10	26	6	2 1/2	380
12	30	7 1/2	3	360
15	35	8	3 1/2	300
17	36	10	4	300
20	42	11	5	300
22	42	11	5	300
25	48	12	5	300
30	52	13	6	250
35	54	14	6	250
40	56	16	7	250
50	66	18	8	225

2250 00  
75 00  
No. 12, Double Cradle.  
lb. balance pulley  
Heavy Wood Frame, saw table with swinging cradle, 28-in. saw  
These are net cash prices.  
12-Horse Portable Engines and Boilers, suitable to drive these, second hand, but thoroughly refitted, at from \$350.00 to 450.00 each.

**Wood Yard Machinery.**  
(Send for Circular with Testimonials.)  
**HILDRETH'S PATENT**



**Winnie Hoop Machinery.**  
(Send for Special Catalogue.)

Two-Saw Hoop Bolter.....	\$110 00
Hoop Re-Sawing Machine.....	95 00
Hoop Pointing and Scarfing Machine.....	60 00
Double Hoop Planer.....	130 00
Hoop Coiling Machine.....	90 00

## "Duplex" Die Stocks,

For Gas, Water and Steam Pipes.



BOTH GUIDES AND DIES INSTANTLY  
ADJUSTABLE.

LIGHT, STRONG, COMPACT, SIMPLE AND VERY EASILY OPERATED.

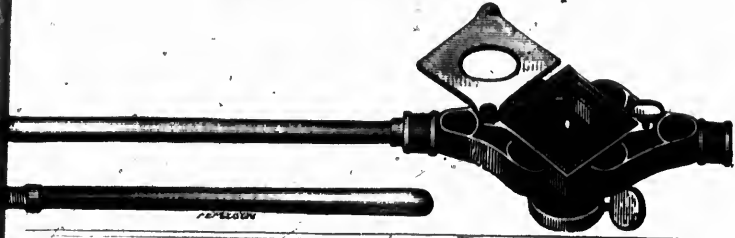
No.	FOR THREADING.						Pipe...	WITHOUT CUT-OFF.	WITH CUT-OFF.	EXTRA DIES.
	1	1 1/2	2	2 1/2	3	3 1/2				
1	1/2	1/2	3/4	1/2	3/4	1 1/4	\$13 00	\$16 00	\$1 50	
2	3/4	1	1 1/4	1 1/4	1 1/2	1 1/2	17 00	20 00	1 75	
3	1	1 1/4	1 1/2	2	2 1/4	2 1/4	22 00	25 00	2 00	
3 1/2	1 1/4	1 3/4	2 1/4	2 1/4	2 1/2	2 1/2	25 00	28 00	2 00	
4	1 1/2	2	2 1/2	3	3	3	40 00	45 00	3 50	
5	2 1/4	3	3 1/2	4	4	4	55 00	60 00	4 00	



## Solid Die Plates.

35

For cutting Steam, Gas and Water Pipes.



Numbers.	0	1	1½	1¾	2 With Leader Screws.
Dies furnished with each plate .....	¼ to ½	½ to 1	¾, 1 & 1¼	1, 1½ & 1¾	1¾, 1½ & 2
Dimensions of Dies—in.	2 x ½	2½ x ¾	3 x ¾	3 x ¾	4 x ¾
Die Plates with R. H. Dies complete .....	\$9 50	\$15 00	\$13 50	\$13 50	\$20 00
Die Plates without Dies. Extra Dies, R. or L. Hand .....	1 50	2 00	2 50	2 50	3 50
Extra Bushings, each...	25	35	45	45	60
Die Frames, each.....		30	40	40	50

## Pipe Taps and Reamers.



Pipe Taps with Right or Left Hand Threads and Reamers. are made of the following sizes and kept in stock. Pipe-hobs, ½ to 6-inch diameter, are furnished to order at special prices.

Diameter.	Price.	Diameter.	Price.	Diameter.	Price.
½ inch	\$1 12	1 inch	\$3 12	2½ inch	\$10 50
"	1 25	1½ "	3 75	3 "	15 00
"	1 50	1¾ "	4 62	3½ "	22 00
"	1 87	2 "	6 25		33 00
"	2 50				

ocks,

m Pipes.



INSTANTLY

EASILY OPERATED.

OUT FF.	WITH CUT-OFF.	EXTRA DIES.
00	\$16 00	\$1 50
00	20 00	1 75
00	25 00	2 00
00	28 00	2 00
00	45 00	3 50
00	60 00	4 00

**Reece's New Screw Plates.**



Cut showing Size C, Complete in Box.

Size A, same style.	Cuts $\frac{1}{8}$ , $\frac{1}{16}$ , $\frac{3}{16}$ , $\frac{1}{8}$ and $\frac{1}{2}$ inch.....	Price Complete. \$13 00
Size B, same style.	Cuts $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ and 1 inch.....	21 00
Size C, same style.	Cuts $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ and $\frac{1}{2}$ inch.....	20 00
Size D, same style.	Cuts $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ and 1 inch.....	25 00
Size E, same style.	Cuts $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ and 1 inch..	29 00
Size F, stock 53 inches long.	Cuts $1\frac{1}{2}$ , $1\frac{1}{4}$ , $1\frac{1}{2}$ and $1\frac{1}{2}$ inch...	45 00

**Prices of Taps, Dies, etc., for Reece's New Screw Plate.**

Diam. Inch.	No of Threads to Inch.	Price of Tap.	Price of Die.	Tap, Die and Collet.
$\frac{1}{8}$	18 and 20	\$0 45	\$1 25	\$2 30
$\frac{1}{16}$	16 and 18	50	1 25	2 35
$\frac{3}{16}$	14 and 16	55	1 50	2 65
$\frac{1}{4}$	14	60	1 50	2 80
$\frac{5}{16}$	12 and 13	70	1 75	3 05
$\frac{3}{8}$	12	80	1 75	3 15
$\frac{7}{16}$	10 and 11	90	1 75	3 25
$\frac{1}{2}$	11	1 05	1 75	3 40
$\frac{5}{8}$	10	1 20	2 00	3 80
$\frac{3}{4}$	10	1 40	2 00	4 00
$\frac{7}{8}$	9	1 60	3 00	5 20
1	9	1 80	3 00	5 40
$1\frac{1}{8}$	8	2 00	3 00	5 60
$1\frac{1}{4}$	7	2 25	4 50	8 75
$1\frac{3}{8}$	7	2 60	4 50	9 10
$1\frac{1}{2}$	6	3 00	6 00	11 00
$1\frac{3}{4}$	6	3 50	6 00	11 50

**Plates.**



in Box.	Price Complete.
inch.....	\$13 00
1.....	21 00
d 1/2 inch.....	20 00
1 inch.....	25 00
1/2 and 1 inch..	29 00
and 1 1/2 inch...	45 00

**Reece's New**

Price of Die.	Tap, Die and Collet.
25	\$2 30
25	2 35
50	2 65
50	2 80
75	3 05
75	3 15
75	3 25
75	3 40
00	3 80
00	4 00
00	5 20
00	5 40
00	5 60
50	8 75
50	9 10
00	11 00
00	11 50

**Machinists' Stocks and Dies.**



- No. 1, with 5 prs. Dies, cutting 1/2, 20; 5/8, 18; 3/4, 16; 7/8, 14; 1, 12; \$7.00.
- No. 2, with 4 prs. Dies, cutting 7/8, 14; 1, 12; 5/8, 11; 3/4, 10; \$8.00.
- No. 3, with 4 prs. Dies, cutting 5/8, 11; 3/4, 10; 7/8, 9; 1, 8; \$10.00.
- No. 4, with 4 prs. Dies, cutting 3/4, 10; 7/8, 9; 1, 8; 1 1/2, 7; \$13.00.
- No. 5, with 4 prs. Dies, cutting 1 1/8, 7; 1 1/2, 7; 1 3/4, 6; 1 7/8, 6; \$25.00.
- No. 6, with 5 prs. Dies, cutting 1 1/2, 6; 1 5/8, 5; 1 3/4, 5; 1 7/8, 4 1/2, 2, 4 1/2; \$33.00.

The above prices do not include Taps.  
In ordering, state whether Plug or Taper Taps are required.

For price of Taps see page 43.

Extra Dies for No. 1 Plate.....	Price
" " 2 " .....	\$1 25
" " 3 " .....	1 75
" " 4 " .....	2 00
" " 5 " .....	3 50
" " 6 " .....	4 00

**Tap Wrenches.**



These Wrenches are well finished in every respect, have Steel Dies, and are strong and durable.

No. 1, 8 inches long, fitting Taps 1/2 to 3/4 inch.....	\$1 50
" 2, 12 " " " " " 1/2 to 1 " .....	2 00
" 3, 14 " " " " " 1/2 to 1 1/4 " .....	2 00
" 4, 17 " " " " " 1/2 to 1 1/2 " .....	4 00
" 5, 24 " " " " " 1/2 to 1 3/4 " .....	6 25

# Blacksmiths' Stocks and Dies.

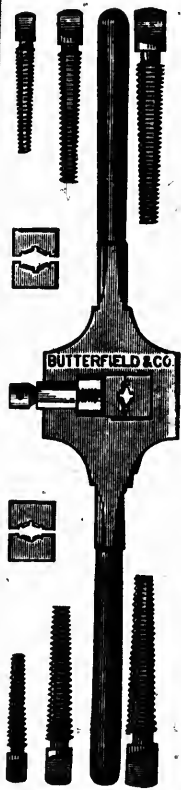
Price.



- |   |         |
|---|---------|
| No. 6.—Cuts $1\frac{1}{2}$ in to 1 in. Right Hand, 8 threads to inch; cuts $1\frac{1}{2}$ in. to 1 in. Left Hand, 8 threads to in.; 4 Taps and 2 sets of Dies.  | \$20 00 |
| No. 11.—Cuts $1\frac{1}{2}$ in. to $\frac{5}{8}$ in. Right Hand, 8 and 10 threads to in.; cuts $1\frac{1}{2}$ in. to $\frac{7}{8}$ in. Left Hand, 8 threads to in.; 4 Taps and 3 sets of Dies.        | 10 00   |
| No. 15.—Cuts $1\frac{1}{2}$ in. to $\frac{1}{2}$ in. Right Hand, 8, 10 and 12 threads to in.; 5 Taps and 3 sets of Dies.  | 10 00   |
| No. 21.—Cuts 1 in. to $\frac{1}{2}$ in. Right Hand, 9 and 12 threads to in.; cuts 1 in. to $\frac{3}{4}$ in. Left Hand, 9 threads to in.; 4 Taps and 3 sets of Dies.                                  | 6 00    |
| No. 23.—Cuts 1 in. to $\frac{3}{8}$ in. Right Hand, 9, 10 and 14 threads to in.; 3 Taps and 3 sets of Dies.   | 5 00    |
| No. 32.—Cuts $\frac{3}{4}$ in. to $\frac{5}{8}$ in. Right Hand, 10 and 14 threads to in.; cuts $\frac{3}{4}$ in. to $\frac{5}{8}$ in. Left Hand, 10 and 14 threads to in.; 4 Taps and 4 sets of Dies. | 5 00    |
| No. 33.—Cuts $\frac{3}{4}$ in. to $\frac{1}{2}$ in. Right Hand, 10 threads to in.; cuts $\frac{3}{4}$ in. to $\frac{1}{2}$ in. Left Hand, 10 threads to in.; 2 Taps and 2 sets of Dies.               | 4 00    |
| No. 34.—Cuts $\frac{3}{4}$ in. to $\frac{1}{8}$ in. Right Hand, 10, 12 and 16 threads to in.; 3 Taps and 3 sets of Dies.  | 4 50    |
| No. 34A.—Cuts $\frac{3}{4}$ of an in. to $\frac{1}{8}$ in. Right Hand, 10, 12 and 14 threads to in.; 3 Taps and 3 sets of Dies.   | 4 50    |
| No. 34B.—Cuts $\frac{3}{4}$ in. to $\frac{1}{8}$ in. Right Hand, 12, 14 and 16 threads to in.; 3 Taps and 3 sets of Dies.   | 4 50    |
| No. 35.—Cuts $\frac{3}{4}$ in. to $\frac{5}{8}$ in. Right Hand, 10 and 14 threads to in.; 2 Taps and 2 sets of Dies.  | 4 00    |
| No. 37.—Cuts $\frac{5}{8}$ in. to $\frac{1}{8}$ in. Right Hand, 14, 18 and 22 threads to in.; 6 Taps and 3 sets of Dies.  | 4 25    |
| No. 37A.—Cuts $\frac{5}{8}$ in. to $\frac{1}{8}$ in. Right Hand, 12, 14 and 16 threads to in.; 6 Taps and 3 sets of Dies.   | 4 25    |
| No. 37B.—Cuts $\frac{5}{8}$ in. to $\frac{1}{8}$ in. Right Hand, 14, 16 and 18 threads to in.; 6 Taps and 3 sets of Dies.   | 4 25    |
| No. 38.—Cuts $\frac{5}{8}$ in. to $\frac{1}{8}$ in. Right Hand, 12 and 18 threads to in.; cuts $\frac{5}{8}$ in. to $\frac{1}{8}$ in. Left Hand, 12 threads to in.; 6 Taps and 3 sets of Dies.        | 4 50    |
| No. 41.—Cuts $\frac{1}{2}$ in. to $\frac{1}{8}$ in. Right Hand, 16, 20 and 26 threads to in.; 6 Taps and 3 sets of Dies.  | 3 25    |
| No. 41A.—Cuts $\frac{1}{2}$ in. to $\frac{1}{8}$ in. Right Hand, 14, 16 and 18 threads to in.; 6 Taps and 3 sets of Dies.   | 3 25    |
| No. 41B.—Cuts $\frac{1}{2}$ in. to $\frac{1}{8}$ in. Right Hand, 16, 18 and 20 threads to in.; 6 Taps and 3 sets of Dies.   | 3 25    |
| No. 42.—Cuts $\frac{1}{2}$ in. to $\frac{1}{8}$ in. Right Hand, 14 and 20 threads to in.; cuts $\frac{1}{2}$ in. to $\frac{1}{8}$ in. Left Hand, 14 threads to in.; 6 Taps and 3 sets of Dies.        | 3 50    |
| No. 53.—Cuts $\frac{1}{4}$ in. to $\frac{1}{8}$ in. Right Hand, 16, 20, 24 and 32 threads to in.; 4 Taps and 4 sets of Dies.  | 2 75    |

# Stocks and Dies.

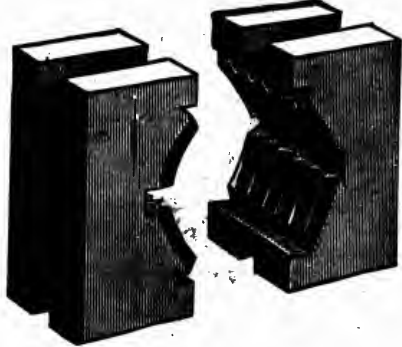
	Price.
Right Hand, 8 threads to in.; 2 sets of Dies.	\$20 00
Left Hand, 8, and 2 sets of Dies.	10 00
Right Hand, 8, and 1 1/2 in. to 7/8 in.; 4 Taps and 3 sets of Dies.	10 00
Left Hand, 8, 10 Taps and 3 sets of Dies.	10 00
Right Hand, 9 and 1/2 in.; Left Taps and 3 sets of Dies.	6 00
Left Hand, 9, 10 Taps and 3 sets of Dies.	5 00
Right Hand, 10 and 1/2 in.; Left Taps and 3 sets of Dies.	5 00
Left Hand, 10 to 1/2 in. Left 2 Taps and 2 sets of Dies.	4 00
Right Hand, 10, 12 Taps and 3 sets of Dies.	4 50
Left Hand, 10, 12 Taps and 3 sets of Dies.	4 50
Right Hand, 12, 14 and 16 threads to in.; 6 Taps and 3 pairs of Dies.	4 50
Left Hand, 12, 14 and 16 threads to in.; 6 Taps and 3 pairs of Dies.	4 00
Right Hand, 14, 16 and 18 threads to in.; 6 Taps and 3 pairs of Dies.	4 25
Left Hand, 14, 16 and 18 threads to in.; 6 Taps and 3 pairs of Dies.	4 25
Right Hand, 18 threads to in.; 6 Taps and 3 pairs of Dies.	4 25
Left Hand, 18 threads to in.; 6 Taps and 3 pairs of Dies.	4 50
Right Hand, 24, 16 and 18 threads to in.; 6 Taps and 3 pairs of Dies.	3 25
Left Hand, 24, 16 and 18 threads to in.; 6 Taps and 3 pairs of Dies.	3 25
Right Hand, 20 threads to in.; 6 Taps and 3 pairs of Dies.	3 25
Left Hand, 20 threads to in.; 6 Taps and 3 pairs of Dies.	3 50
Right Hand, 24 and 32 threads to in.; 6 Taps and 3 pairs of Dies.	2 75



# Blacksmiths' Stocks and Dies.

	Price.
No. 1.—Cuts 2 in. to 1 in. Right Hand, 4 1/2 and 7 threads to in.; cuts 2 in. to 1 in. Left Hand, 4 1/2 and 7 threads to in.; 8 Taps and 4 pairs of Dies.	\$60 00
No. 2.—Cuts 2 in. to 7/8 in. Right Hand, 4 1/2, 6, 7 and 8 threads to in.; 8 Taps and 4 pairs of Dies.	60 00
No. 3.—Cuts 1 1/2 in. to 7/8 in. Right Hand, 6 and 8 threads to in.; cuts 1 1/2 in. to 7/8 in. Left Hand, 6 and 8 threads to in.; 8 Taps and 4 pairs of Dies.	45 00
No. 4.—Cuts 1 1/2 in. to 3/4 in. Right Hand, 6, 7, 8 and 9 threads to in.; 8 Taps and 4 pairs of Dies.	45 00
No. 5.—Cuts 1 1/2 in. to 3/4 in. Right Hand, 8 and 9 threads to in.; cuts 1 1/2 in. to 3/4 in. Left Hand, 8 and 9 threads to in.; 8 Taps and 4 pairs of Dies.	35 00
No. 5 1/2.—Cuts 1 1/2 in. to 3/4 in. Right Hand, 6, 7, 8 and 9 threads to in.; 8 Taps and 4 pairs of Dies.	35 00
No. 7.—Cuts 1 1/2 in. to 5/8 in. Right Hand, 8 and 10 threads to in.; cuts 1 1/2 in. to 5/8 in. Left Hand, 8 threads to in.; 6 Taps and 3 pairs of Dies.	12 00
No. 9.—Cut 1 1/2 in. to 1/2 in. Right Hand, 8, 10 and 12 threads to in.; 6 Taps and 3 pairs of Dies.	12 00
No. 17.—Cuts 1 in. to 1/2 in. Right Hand, 9 and 12 threads to in.; cuts 1 in. to 1/2 in. Left Hand, 9 threads to in.; 6 Taps and 3 pairs of Dies.	9 00
No. 19.—Cuts 1 in. to 3/8 in. Right Hand, 9, 12 and 14 threads to in.; 6 Taps and 3 pairs of Dies.	9 00
No. 25.—Cuts 3/4 in. to 3/8 in. Right Hand, 10 and 16 threads to in.; cuts 3/4 in. to 1/2 in. Left Hand, 10 threads to in.; 6 Taps and 3 pairs of Dies.	6 50
No. 27.—Cuts 3/4 in. to 3/8 in. Right Hand, 10, 12 and 16 threads to in.; 6 Taps and 3 pairs of Dies.	6 50
No. 45.—Cuts 5/8 in. to 1/2 in. Right Hand, 12 and 16 threads to in.; cuts 5/8 in. to 1/2 in. Left Hand, 12 threads to in.; 6 Taps and 3 pairs of Dies.	5 50
No. 47.—Cuts 5/8 in. to 1/2 in. Right Hand, 12, 14 and 18 threads to in.; 6 Taps and 3 pairs of Dies.	5 50
No. 49.—Cuts 1/2 in. to 1/4 in. Right Hand, 14 and 18 threads to in.; cuts 1/2 in. to 1/4 in. Left Hand, 14 threads to in.; 6 Taps and 3 pairs of Dies.	4 50
No. 51.—Cuts 1/2 in. to 1/4 in. Right Hand, 14, 18 and 22 threads to in.; 6 Taps and 3 pairs of Dies.	4 50
No. 60.—Cuts 3/4 in. to 1/2 in. Right Hand, 10, 12, 14 and 18 threads to in.; 6 Taps and 4 pairs of Dies.	6 50

**Prices of Extra Dies.**



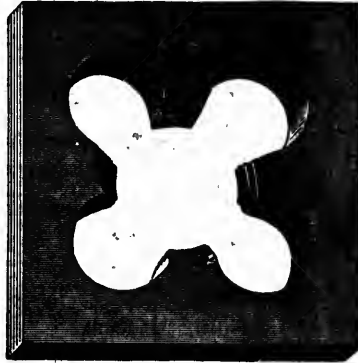
For No. 1 or 2	Stock..	\$12 00	For No. 33	Stock, \$1 50
" 3 " 4	" "	10 00	" 34, 34A, 34B,	" 2 00
" 5 " 5½	" "	8 00	" 35, 37, 38, 41, 42, 41A,	" 1 50
" 6 " 9	" "	6 00	" 41B, 37A, 37B, Stock	2 25
" 7 " 15	" "	3 50	" 45 or 47 Stock. ....	2 25
" 11 " 19	" "	3 00	" 49 " 51 " .....	2 00
" 17 " 23	" "	2 50	" 53 " .....	1 50
" 21 " 23	" "	2 00	" 60 " .....	3 00
" 25, 27 or 32	" "	2 25		

**Blacksmiths' Extra Taper and Plug Taps.**

SIZE.	NUMBER OF THREADS TO INCH,				PRICE EACH.
	Right.	Taps in each box	Left.	Taps in each box	
½ inch.	30 and 32	6	.....	.....	\$0 30
⅝ "	24 and 26	6	.....	.....	0 30.
⅞ "	18, 20, 22, 24 and 26	6	.....	.....	0 30
1 "	16, 18, 20 and 22	6	.....	.....	0 30
1 ⅛ "	12, 14, 16 and 18	6	.....	.....	0 35
1 ¼ "	12, 14, 16 and 18	6	14	6	0 40
1 ⅜ "	12, 14 and 16	6	12 and 14	4	0 40
1 ½ "	12 and 14	6	12	4	0 50
1 ⅝ "	10, 11, 12 and 14	6	10 and 12	4	0 50
1 ¾ "	8, 9, 10 and 12	6	10 and 12	4	0 65
2 "	9 and 10	4	9	4	0 90
1 1/8 "	7, 8 and 9	2	8 and 9	2	1 25
1 1/4 "	6, 7, 8 and 9	2	8 and 9	2	1 75
1 1/2 "	6, 7 and 8	2	6, 7 and 8	2	3 00

## Machine or Solid Bolt Dies.

41



DIAMETER.	NO. THREADS TO INCH.	SIZE.	THICKNESS.	PRICE.	DIAMETER.	NO. THREADS TO INCH.	SIZE.	THICKNESS.	PRICE.
1	20	2½ x 2½	½ in.	\$1 80	1½	7	2½ x 2½	1 in.	\$3 00
	18	"	"	1 80	1¼	7	"	1	3 30
	16	"	"	1 80	1⅜	6	"	1	3 60
	14	"	"	1 80	1½	6	3 x 3	1	3 90
	12	"	"	1 80	1⅝	5½	"	1	4 20
	11	"	"	2 00	1¾	5	"	1½	5 40
	10	"	"	2 25	1⅞	5	3½ x 3½	1½	6 50
	9	"	"	2 40	2	4½	3¾ x 3¾	2	7 50
	8	"	1	2 70					

## Brown's Adjustable Pipe Tong.



Numbers	1	1½	2	3	4	5	6
Takes Pipe from.	¼ to ¾	¾ to 1	1 to 1½	1 to 2	1½ to 3	2½ to 4	3 to 5
Price, each.....	\$1 50	\$1 75	\$2 00	\$2 75	\$4 50	\$9 00	\$18 00

Stock, \$1 50  
 34B, " 2 00  
 41, 42, 41A, ..  
 37B, Stock 1 50  
 Stock. .... 2 25  
 " ..... 2 00  
 " ..... 1 50  
 " ..... 3 00

### ug Taps.

Taps in box	PRICE EACH.
.....	\$0 30
.....	0 30
.....	0 30
.....	0 30
.....	0 35
6	0 40
4	0 40
4	0 50
4	0 50
4	0 65
4	0 90
2	1 25
2	1 75
2	3 00

A. R. WILLIAMS,

## Machine or Nut Taps.

V AND FRANKLIN INSTITUTE SHAPE OF THREAD.

## LONG SHANK.--RELIEVED.

Unless advised to the contrary, we fill orders with V Threads.

Diameter.	No. Threads to inch.	Price Each.	Diameter.	No. Threads to inch.	Price Each.
$\frac{1}{4}$	16, 18 and 20	\$0 60	$1\frac{1}{8}$	$4\frac{1}{2}$ and 5	\$6 80
$\frac{1}{8}$	16 and 18	70	2	$4\frac{1}{2}$	7 70
$\frac{3}{16}$	14 and 16	80	$2\frac{1}{2}$	$4\frac{1}{2}$	9 00
$\frac{1}{4}$	12, 14 and 16	90	$2\frac{3}{4}$	$4\frac{1}{2}$	10 20
$\frac{5}{16}$	12, 13 and 14	1 00	$2\frac{7}{8}$	$4\frac{1}{2}$	11 50
$\frac{3}{8}$	12 and 14	1 15	$2\frac{15}{16}$	4	12 50
$\frac{7}{16}$	10, 11 and 12	1 30	$2\frac{3}{4}$	4	14 00
$\frac{1}{2}$	11 and 12	1 45	$2\frac{7}{8}$	4	15 00
$\frac{9}{16}$	10	1 60	$2\frac{15}{16}$	4	16 50
$\frac{5}{8}$	10	1 80	3	$3\frac{1}{2}$	18 00
$\frac{11}{16}$	9 and 10	2 10	$3\frac{1}{8}$	..	19 75
$\frac{3}{4}$	9	2 40	$3\frac{1}{4}$	$3\frac{1}{2}$	21 50
$\frac{13}{16}$	8	2 80	$3\frac{3}{8}$	..	23 00
1	7 and 8	3 20	$3\frac{1}{2}$	$3\frac{1}{4}$	25 00
$1\frac{1}{8}$	7 and 8	3 70	$3\frac{5}{8}$	..	27 00
$1\frac{1}{4}$	6	4 20	$3\frac{7}{8}$	3	29 50
$1\frac{3}{8}$	6	4 70	$3\frac{7}{8}$	..	31 00
$1\frac{1}{2}$	5 and $5\frac{1}{2}$	5 30	4	3	33 50
$1\frac{3}{4}$	5	6 00			

We keep in stock the above, and  $\frac{1}{32}$  over size for rough iron.

In ordering always state exact diameter and thread wanted.

When exact duplicates are wanted, special orders should always be accompanied by a stub with a nut fitting same.



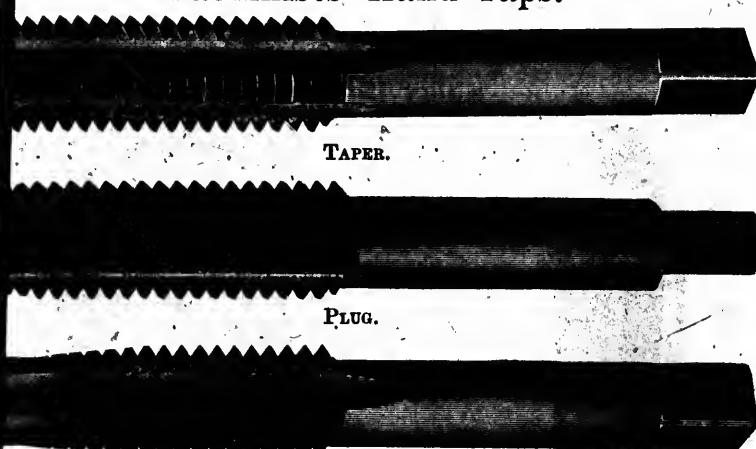
# Machinists' Hand Taps.

## t Taps.

SHAPE OF THREAD.

RELIEVED.

we fill orders with V



Diameter.	No. Threads to inch.	Price Each.
4½	and 5	\$6 80
4½		7 70
4½		9 00
4½		10 20
4½		11 50
4		12 50
4		14 00
4		15 00
4		16 50
3½		18 00
3½		19 75
3½		21 50
3½		23 00
3½		25 00
3		27 00
3		29 50
3		31 00
3		33 50

ve, and 1/8 over

et diameter and

wanted, special

nied by a stub

TAPER.

PLUG.

BOTTOMING.

## V and Franklin Institute Shape of Thread.

Unless advised to the contrary, we fill orders with the V Threads.

	Diameter.	No. Threads to Inch.	Price Each.	Price per
3 Taps to Set—Taper, Plug and Bottoming.	1/4	16, 18 and 20	\$0 45	\$1 35
	1/8	16 and 18	50	1 50
	3/8	14, 16 and 18	55	1 65
	1/2	14 and 16	60	1 80
	5/8	12, 13 and 14	70	2 10
	3/4	12 and 14	80	2 40
	7/8	10, 11 and 12	90	2 70
	1	11 and 12	1 05	3 15
	1 1/4	10 and 12	1 20	3 60
	1 1/2	10	1 40	4 20.
	1 3/4	9 and 10	1 60	4 80
	1 7/8	9	1 80	5 40
	2	8	2 00	6 00
	2 1/4	7 and 8	2 25	6 75
	2 1/2	7	2 60	7 80
	2 3/4	6	3 00	9 00
	2 7/8	6	3 50	10 50
	3	5 and 5½	4 20	12 60
	3 1/4	5	5 00	15 00
	3 1/2	4½ and 5	5 80	17 40
3 3/4	4½	6 70	20 10	

### Short Hob Taps.

(Add 25 per cent. for list of long Hob or Master Taps.)



DIAMETER.	NO. THREADS TO INCH.	PRICE EACH.
$\frac{1}{4}$	16, 18 and 20	\$0 60
$\frac{1}{8}$	16 and 18	70
$\frac{3}{8}$	14 and 16	80
$\frac{1}{2}$	12, 14 and 16	90
$\frac{5}{8}$	12, 13 and 14	1 00
$\frac{3}{4}$	12 and 14	1 15
$\frac{7}{8}$	10, 11 and 12	1 30
$1\frac{1}{8}$	11 and 12	1 45
$1\frac{1}{4}$	10	1 60
$1\frac{3}{8}$	10	1 80
$1\frac{1}{2}$	9 and 10	2 10
$1\frac{3}{4}$	9	2 40
$1\frac{7}{8}$	8	2 80
$1\frac{1}{2}$	7 and 8	3 20
$1\frac{3}{4}$	7 and 8	3 70
$1\frac{1}{2}$	6	4 20
$1\frac{5}{8}$	6	4 70
$1\frac{3}{4}$	5 and 5 $\frac{1}{2}$	5 30
$1\frac{7}{8}$	5	6 00
$1\frac{1}{2}$	4 $\frac{1}{2}$ and 5	6 80
2	4 $\frac{1}{2}$	7 70

All orders are filled with Hobs exact diameter of order, with sharp V thread unless otherwise stated.

If wanted for cutting Screw Plate Dies, we make them considerably over size, but call the Hobs by the size of the bolt to be cut, and designate them as "Screw Plate Die Hobs."

## Machine Screw Taps.

To avoid annoyances and misunderstandings which are constantly occurring, I wish to state here, that Standard Machine Screws are not made in fractional sizes, as regards diameter. They are made to the Standard Screw Gauge, which is as arbitrary as the Standard Wire Gauge. Thus, when  $\frac{1}{4}$  inch are ordered we send No. 14—20 threads to the inch—and when 5-16 we send No. 20—16 threads to the inch—neither of these Screws fit Standard Taps, as the No. 14 is a trifle smaller than  $\frac{1}{4}$  inch, and the No. 20 is not only larger than 5-16 but is 16 threads to the inch, while the regular standard is 18 threads. Those who use these Screws will find it a great deal cheaper in the end to buy Standard Machine Screw Taps, as they can always order Screws by the number marked on the Tap, and be sure of getting them the right diameter and thread, and get them *at once*. The odd sizes (those differing from the Standard) in this list, are used generally for repair work and special purposes.



Hob or Master Taps.)

NO.	PRICE EACH,
	\$0 60
	70
	80
	90
	1 00
	1 15
	1 30
	1 45
	1 60
	1 80
	2 10
	2 40
	2 80
	3 20
	3 70
	4 20
	4 70
	5 30
	6 00
	6 80
	7 70

No.	Diameter about	Standard threads to the inch.	Size of Drill to Drill for Tapping.	We also carry taps of the following threads.	Price per Dozen	Price Each.
2	$\frac{1}{8}$ S	56	No. 53	48, 64	\$4 00	\$0 35
3	$\frac{3}{16}$ S	48	" 48	40, 56	4 00	35
4	$\frac{1}{4}$ F	36	" 43	32, 40	4 00	35
5	$\frac{5}{16}$ F	36	" 42	30, 32, 40	4 00	35
6	$\frac{3}{8}$ S	32	" 33	30, 36, 40	4 00	35
7	$\frac{7}{16}$ S	32	" 31	28, 30	4 00	35
8	$\frac{1}{2}$ S	32	" 28	24, 3	4 00	35
9	$\frac{5}{8}$ S	30	" 26	24, 28, 32	4 00	35
10	$\frac{3}{4}$ F	24	" 24	28, 30, 32	4 00	35
11	$\frac{7}{8}$ S	24	" 21	28, 30	4 00	35
12	$\frac{1}{2}$ S	24	" 17	20, 22	4 00	35
13	$\frac{3}{4}$ S	22	" 12	20, 24	4 40	38
14	$\frac{1}{2}$ S	20	" 6	22, 24	4 40	38
15	$\frac{3}{8}$ F	20	" 5	18, 22, 24	4 40	38
16	$\frac{1}{4}$ S	18	" 3	16, 20, 24	4 40	38
17	$\frac{3}{8}$ S	18	" 2	16, 20	4 40	38
18	$\frac{1}{2}$ S	18	$\frac{15}{16}$ inch.	16, 20	4 40	38
19	$\frac{3}{8}$ S	18	$\frac{1}{2}$ "	16, 20	4 40	38
20	$\frac{1}{2}$ F	16	$\frac{1}{8}$ "	18, 20	5 30	45
22	$\frac{3}{8}$ S	16	$\frac{3}{8}$ "	18	5 30	45
24	$\frac{1}{4}$ S	16	$\frac{1}{2}$ "	14, 18	5 30	45
26	$\frac{3}{8}$ S	16	$\frac{1}{4}$ "	14	6 30	53
28	$\frac{1}{2}$ S	14	$\frac{1}{2}$ "	16	6 30	53
30	$\frac{3}{4}$ S	14	$\frac{3}{4}$ "	16	6 30	53

meter of order,

we make them  
the size of the  
Screw Plate Die

The price per dozen is for orders of not less than one-half dozen of a size. Special sizes and threads made to order at short notice, and subject to special prices.

## Machinists' Screw Plates.

	Price each.
No. 00.—6 inches long, 4 sets Dies and 4 Taps, cutting 1-16th, 64; 3-32nds, 56; 7-64ths, 48; $\frac{1}{8}$ , 40.....	\$3 50
No. 00A.—6 inches long, 3 sets Dies and 4 Taps, cutting 4, 36; 6, 32; 8, 32; 10, 24.....	3 50
No. 0.—7 $\frac{1}{2}$ inches long, 4 sets Dies and 4 Taps, cutting 7-64ths, 48; $\frac{1}{8}$ , 40; 3-16ths, 32; $\frac{1}{4}$ , 24.....	4 00
No. 0A.—7 $\frac{1}{2}$ inches long, 3 sets Dies and 4 Taps, cutting 10, 24; 12, 24; 14, 20; 16, 18.....	4 50
No. 1.—7 inches long, 3 sets Dies and 6 Taps, cutting 4, 40; 6, 40; 4, 36; 6, 36; 8, 32; 10, 32.....	6 25
No. 2.—8 inches long, 3 sets Dies and 6 Taps, cutting 6, 32; 8, 32; 10, 24; 12, 24; 14, 20; 16, 20.....	6 25
No. 1 $\frac{1}{2}$ .—9 inches long, 4 sets Dies and 4 Taps, cutting 6, 32; 8, 30; 10, 24; 14, 20.....	4 50
No. 1 $\frac{1}{2}$ A.—9 inches long, 3 sets Dies and 4 Taps, cutting 14, 20; 16, 18; 18, 18; 20, 16.....	4 75
Diamond A Plate, with Tap Wrench. Plate 5 in. long; Tap Wrench 5 in. long; 6 Taps and 6 Dies, cutting 4, 36; 6, 32; 8, 32; 10, 24; 12, 24; 14, 20.....	9 00
Diamond B Plate, with Tap Wrench. Plate 5 in. long; Tap Wrench 5 in. long; 5 Taps and 5 Dies, cutting 4, 36; 6, 32; 8, 32; 10, 24; 12, 24.....	8 00
Diamond C Plate, with Tap Wrench. Plate 5 in. long; Tap Wrench 5 in. long; 4 Taps and 4 Dies, cutting 6, 32; 8, 32; 10, 24; 12, 24.....	7 00

The Diamond Plates are put up in nice wood cases, and are well made in every respect. The Dies are made in one piece, from the best tool steel, and are cut open on one side, to allow for adjustment.

We make both Dies and Taps to American Screw Company's Standard Machine Screws.

**Taper Shank Drills.**

(List No. 106.)



Price each.  
 g 1-16th, 64; \$3 50  
 ing 4, 36; 6, 3 50  
 ing 7-64ths, 4 00  
 ing 10, 24; 4 50  
 g 4, 40; 6, 6 25  
 i, 32; 8, 32; 6 25  
 g 6, 32; 8, 4 50  
 ing 14, 20; 4 75  
 long; Tap 9 00  
 36; 6, 32; 8 00  
 long; Tap 7 00  
 32; 8, 32;  
 wood cases,  
 s are made in  
 open on one  
 Screw Com-

DIAM.	PRICE EACH.	LEN'H	SOCK'T	DIAM.	PRIC EACH	LEN'H	SOCKET
1 1/4	\$0 60	6 1/8	No. 1, \$1.20.	1 3/8	\$4 65	14 1/8	No. 4, \$4.00.
1 1/2	65	6 1/2		1 7/8	4 80	14 1/2	
1 3/4	70	6 3/4		1 1/2	5 00	14 3/4	
1 7/8	75	6 7/8		1 1/4	5 20	14 1/4	
2	80	6 7/4		1 1/2	5 40	14 1/2	
2 1/8	85	7		1 1/8	5 60	14 1/4	
2 1/4	90	7 1/4		1 1/2	5 80	14 1/2	
2 3/8	95	7 1/2		1 1/4	6 00	15	
2 1/2	1 00	7 3/4		1 1/2	6 30	15 1/4	
2 3/4	1 10	8		1 1/4	6 60	15 1/2	
3	1 20	8 1/4	No. 2, \$1.80.	1 3/4	6 90	15 3/4	No. 5, \$7.50.
3 1/8	1 30	8 1/2		1 3/8	7 20	15 1/2	
3 1/4	1 40	8 3/4		1 3/4	7 50	15 3/4	
3 3/8	1 50	9		1 3/4	7 80	15 3/4	
3 1/2	1 60	9 1/4		1 3/8	8 10	15 3/4	
3 3/4	1 70	9 1/2		1 3/4	8 40	16	
3 7/8	1 85	9 3/4		1 3/8	8 60	16 1/4	
4	2 00	9 1/2		1 3/8	8 80	16 1/2	
4 1/8	2 15	10		1 3/8	9 00	16 3/4	
4 1/4	2 30	10 1/4		1 3/8	9 20	16 3/4	
4 3/8	2 45	10 1/2	No. 3, \$2.50.	1 3/4	9 35	16 3/4	
4 1/2	2 60	10 3/4		1 3/4	9 55	16 3/4	
4 3/4	2 75	10 3/2		2	9 80	16 3/4	
4 7/8	2 90	10 7/8		2 1/8	10 20	16 3/4	
5	3 00	11		2 1/8	10 60	17	
5 1/8	3 20	11 1/8		1 3/8	11 20	17	
5 1/4	3 40	11 1/4		2 1/8	12 00	17	
5 3/8	3 60	11 1/2		2 1/8	12 80	17 1/2	
5 1/2	3 80	11 3/4		2 1/8	13 60	17 3/4	
5 3/4	4 00	11 7/8		2 3/8	14 40	18	
5 7/8	4 20	12	2 3/8	15 00	18 1/2		
6	4 40	12 1/8	2 3/8	15 60	19		
6 1/8	4 50	12 1/4					

Drills of any size or length, with Taper or Straight Shanks, made to order, and to fit any socket desired.

In ordering special Tapers give the length of Shank and diameter at each end of it.

Straight Shank Drills same length as Taper Shanks at Taper Shank prices.

## Straight Shank Drills.

(List No. 108.)



DIAMETER.	PRICE PER DOZEN.	PRICE EACH.	LENGTH IN INCHES.
$\frac{1}{16}$	\$1 00	\$0 09	2 $\frac{1}{2}$
$\frac{3}{32}$	1 10	10	2 $\frac{3}{4}$
$\frac{1}{8}$	1 20	11	2 $\frac{7}{8}$
$\frac{5}{32}$	1 30	12	2 $\frac{3}{4}$
$\frac{3}{16}$	1 45	13	3
$\frac{1}{4}$	1 60	15	3 $\frac{1}{8}$
$\frac{5}{16}$	1 80	16	3 $\frac{1}{4}$
$\frac{3}{8}$	2 00	18	3 $\frac{3}{8}$
$\frac{7}{16}$	2 20	20	3 $\frac{1}{2}$
$\frac{1}{2}$	2 40	21	3 $\frac{5}{8}$
$\frac{5}{8}$	2 65	23	3 $\frac{3}{4}$
$\frac{3}{4}$	2 90	26	3 $\frac{7}{8}$
$\frac{7}{8}$	3 15	28	4
1	3 40	30	4 $\frac{1}{8}$
$1 \frac{1}{8}$	3 65	32	4 $\frac{1}{4}$
$1 \frac{1}{4}$	3 90	35	4 $\frac{1}{2}$
$1 \frac{3}{8}$	4 20	37	4 $\frac{3}{8}$
$1 \frac{1}{2}$	4 50	40	4 $\frac{1}{2}$
$1 \frac{3}{4}$	4 80	42	4 $\frac{3}{4}$
2	5 10	45	4 $\frac{7}{8}$
$2 \frac{1}{8}$	5 40	48	5
$2 \frac{1}{4}$	5 70	50	5 $\frac{1}{8}$
$2 \frac{3}{8}$	6 00	53	5 $\frac{1}{4}$
$2 \frac{1}{2}$	6 40	55	5 $\frac{1}{2}$
$2 \frac{7}{8}$	6 80	59	5 $\frac{3}{8}$
3	7 20	63	5 $\frac{1}{2}$
$3 \frac{1}{8}$	7 50	65	5 $\frac{3}{4}$
$3 \frac{1}{4}$	7 75	67	5 $\frac{7}{8}$
$3 \frac{3}{8}$	8 00	70	6

### Straight Shanks. Taper Shank Length.

DIAMETER.	PRICE EACH.	LENGTH.	DIAMETER.	PRICE EACH.	LENGTH.
$\frac{1}{16}$	\$1 00	7 $\frac{1}{2}$	$\frac{3}{32}$	\$2 60	10 $\frac{1}{2}$
$\frac{3}{32}$	1 10	8	$\frac{1}{16}$	2 75	10 $\frac{3}{4}$
$\frac{1}{8}$	1 20	8 $\frac{1}{2}$	$\frac{3}{16}$	2 90	10 $\frac{7}{8}$
$\frac{5}{32}$	1 30	8 $\frac{3}{4}$	$\frac{1}{8}$	3 00	11
$\frac{3}{16}$	1 40	8 $\frac{7}{8}$	$1 \frac{1}{16}$	3 20	11 $\frac{1}{8}$
$\frac{1}{4}$	1 50	9	$1 \frac{1}{8}$	3 40	11 $\frac{1}{4}$
$\frac{5}{16}$	1 60	9 $\frac{1}{2}$	$1 \frac{1}{4}$	3 60	11 $\frac{1}{2}$
$\frac{3}{8}$	1 70	9 $\frac{3}{4}$	$1 \frac{3}{8}$	3 80	11 $\frac{3}{4}$
$\frac{7}{16}$	1 85	9 $\frac{7}{8}$	$1 \frac{1}{2}$	4 00	11 $\frac{7}{8}$
$\frac{1}{2}$	2 00	9 $\frac{7}{8}$	$1 \frac{5}{8}$	4 00	11 $\frac{7}{8}$
$\frac{5}{8}$	2 15	10	$1 \frac{3}{4}$	4 20	12
$\frac{3}{4}$	2 30	10 $\frac{1}{4}$	$1 \frac{7}{8}$	4 40	12 $\frac{1}{4}$
$\frac{7}{8}$	2 45	10 $\frac{1}{2}$	1 $\frac{7}{8}$	4 50	12 $\frac{1}{2}$
1		10 $\frac{3}{4}$			

**Drills.**

EACH.	LENGTH IN INCHES.
09	2½
10	2¾
11	2¾
12	2¾
13	3
15	3½
16	3½
18	3¾
20	3¾
21	3¾
23	3¾
26	3¾
28	4
30	4½
32	4½
35	4½
47	4½
50	4½
52	4½
55	5
60	5½
65	5½
70	5½
75	5½
80	5½
85	5½
90	5½
95	5½
100	6

**Bit Stock Drills for Metal or Wood.**

(List No. 114.)

Diameter.	Price per Dozen.	Price Each.	Diameter.	Price per Dozen.	Price Each.
¾	\$1 50	\$0 14	1¼	\$ 8 80	\$0 75
7/8	1 65	16	1½	9 60	82
1	2 10	20	1¾	10 30	8
1¼	2 60	24	1¾	11 00	92
1½	3 10	29	2	.....	1 20
1¾	3 60	33	2¼	.....	1 35
2	4 10	38	2½	.....	1 50
2¼	4 70	43	2¾	.....	1 65
2½	5 40	48	3	.....	1 80
2¾	6 30	54	3¼	.....	1 95
3	7 20	62	3½	.....	2 15
3¼	8 00	68	4	.....	2 35

These Drills are made of the finest Steel, and are tempered to drill steel, iron or wood. They will bore wood without splitting it.

**Straight Shank Machine Bits, for Wood.**

(List No. 122.)

**Shank Length.**

PRICE EACH.	LENGTH.
\$2 60	10½
2 75	10¾
2 90	10¾
3 00	11
3 20	11½
3 40	11½
3 60	11½
3 80	11½
4 00	11½
4 20	12
4 40	12½
4 50	12½

Diamet'r	Price Each.	Length.	Diamet'r	Price Each.	Length.
1/8	\$0 20	3 in.	1½	\$0 70	5½ in.
5/16	25	3½ "	1¾	75	5¾ "
3/8	30	3¾ "	2	80	6 "
7/16	35	4 "	2¼	85	6½ "
1/2	40	4½ "	2½	95	6¾ "
5/8	45	4¾ "	3	1 00	6¾ "
3/4	50	5 "	3½	1 15	7 "
7/8	55		4	1 35	7½ "
1	65		4½	1 65	

Price per set, with Bit Point, 1/8 in. to 1/2 in. mounted, varying by 32nds, \$7.00. 49

5

6



## Square Shank Ratchet Drills.

(List No. 111.)

Diamet'r	Price.	Length.	Diamet'r	Price.	Length.
$\frac{1}{4}$	\$1 00	5 in.	$\frac{1}{8}$	\$1 35	6 $\frac{1}{2}$ in.
$\frac{3}{8}$	1 05	5 "	$\frac{1}{4}$	1 40	6 $\frac{1}{2}$ "
$\frac{5}{16}$	1 10	5 "	$\frac{1}{2}$	1 45	6 $\frac{1}{2}$ "
$\frac{11}{16}$	1 15	5 "	$\frac{3}{4}$	1 55	6 $\frac{1}{2}$ "
$\frac{3}{4}$	1 20	6 "	$\frac{7}{8}$	1 75	7 "
$\frac{7}{8}$	1 25	6 $\frac{1}{2}$ "	$\frac{1}{2}$	2 05	7 $\frac{1}{2}$ "
$\frac{15}{16}$	1 25	6 $\frac{1}{2}$ "	$\frac{15}{16}$	2 30	8 "
$\frac{15}{16}$	1 30	6 $\frac{1}{2}$ "	1	2 55	8 $\frac{1}{2}$ "
$\frac{1}{2}$	1 30	6 $\frac{1}{2}$ "	$1\frac{1}{8}$	3 10	9 "



Shanks  $\frac{5}{8}$  in. by  $\frac{3}{8}$  in. by  $1\frac{1}{2}$  in. long, and  $\frac{3}{4}$  in. by  $\frac{1}{2}$  in. by  $1\frac{3}{4}$  in. long.

## Stubs' Steel Wire Gauge Drills.

Nos. by Gauge	Price per Doz.	Price each.	Length in ins.
1 to 5	\$2 35	\$0 22	4
6 to 10	2 25	21	3 $\frac{1}{8}$
11 to 15	2 10	20	3 $\frac{1}{4}$
16 to 20	1 95	19	3 $\frac{1}{2}$
21 to 25	1 75	17	3 $\frac{3}{4}$
26 to 30	1 55	15	2 $\frac{1}{2}$
31 to 35	1 40	14	2 $\frac{3}{4}$
36 to 40	1 25	12	2 $\frac{1}{2}$
41 to 45	1 10	10	2 $\frac{1}{4}$
46 to 50	95	09	2 $\frac{1}{8}$
51 to 65	95	09	1 $\frac{3}{4}$

Engineers' Brass Goods—(Best Steam Metal).

Drills.

Price.	Length.
\$1 35	6½ in.
1 40	6¾ "
1 45	6½ "
1 55	6¾ "
1 75	7 "
2 05	7½ "
2 30	8 "
2 55	8½ "
3 10	9 "

in. long, and ¼ in.

Large Drills.

each.	Length in ins.
4	31½
3½	31
3¼	30½
3	30
2½	29½
2¼	29
2	28½
1½	28

INCHES	¼		½		¾		1		1¼		1½		2		2½		3		3½		4			
	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.		
Globe Valves, screwed.....each	0	60	0	75	1	00	1	35	1	80	2	80	3	90	5	90	11	75	16	00	30	00	40	00
Angle Valves, flanged....."	0	50	0	60	0	85	1	15	1	55	2	30	3	25	5	20	10	00	14	00	20	00	26	00
Check Valves, horizontal, angle or vertical....."	0	70	0	90	1	15	1	90	2	35	3	60	4	80	7	25	14	50	12	00	14	00	22	00
Stop Cocks....."	0	70	0	90	1	55	2	00	2	85	5	00	7	00	12	00	23	00	14	00	23	00	28	00
Stop Cocks, extra heavy....."	1	30	1	65	2	70	3	00	4	45	5	95	9	50	14	00	23	00	20	00	23	00	36	40
Foot Valves....."	1	50	2	00	2	50	3	50	5	00	7	00	10	00	15	50	22	00	15	00	22	00	33	00
Cross Valves....."	1	25	1	80	2	40	3	75	4	75	5	50	8	00	10	00	15	50	20	00	27	75	33	75
Radiator Valves, with flanges....."	1	75	2	30	3	00	4	40	5	50	8	00	10	00	15	50	22	00	15	00	22	00	33	00
Radiator Valves, N.P. mountings....."	3	50	4	15	5	60	6	00	7	00	8	50	12	00	20	00	30	00	20	00	30	00	40	00
Combined Globe and Check Valves....."	2	75	3	50	5	00	7	00	8	50	12	00	20	00	30	00	40	00	11	80	15	50	22	00
Combined Cock and Check Valves....."	2	70	3	30	4	40	5	10	5	50	11	00	20	00	30	00	40	00	11	80	15	50	22	00
Safety Valves, cross or angle pattern....."	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00
Foot Valves, with strainer....."	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00
Whistle Valves....."	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00
Safety Valves, Crosby pop....."	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00
Hose Valves, with coupling....."	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00
Expansion Joints....."	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00
Hose Couplings....."	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00
Hose Branches, with cock....."	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00
Hose Clamps....."	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00	1	00
Hose Wire Fasteners.....per doz.	0	13	0	13	0	17	0	21	0	25	0	34	0	34	0	50	0	50	0	50	0	50	0	50
Hose Benders.....each	0	10	0	10	0	15	0	30	0	50	0	75	1	10	1	50	1	50	1	50	1	50	1	50

**Engineers' Brass Goods—Continued.****Roberts' Patent Double Seated Improved Register Gauge Cock.**

No. 1. Screwed, $\frac{1}{2}$ inch.....	Rough.	Finished.
" 2. " " $\frac{1}{2}$ " .....	\$0 80	\$0 90
" " " " $\frac{1}{2}$ " .....	0 90	1 00

**Cocks and Gauges.**

	INCH	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Cylinder Cocks, T handle, straight		\$0 65	\$0 65	\$ 0 80	\$ 1 40	.....
" " lever " " "		0 80	0 80	0 90	1 25	.....
" " " " bent nose		1 00	1 00	1 25	2 15	.....
Cylinder Cocks, lever handle, bent nose, screwed both ends .....		1 05	1 10	1 30	2 25	.....
Compression Gauge Cocks, wood handle, babbit seat .....				1 50	1 75	\$2 00
Compression Gauge Cocks, with stuffing box, wood handle, babbit seat .....				1 70	1 80	2 00
Water Gauge, glass and rubbers, 2 guards .....				3 20	3 20	.....
Water Gauge, complete, 3 guards .....				4 00	4 00	.....
" " " " 4 guards, complete, polished body .....				10 00	10 00	.....

Gauge Glasses,  $\frac{5}{8}$  inch, each, 30c.**Steam Whistles (with Valves).**

Dia. of Bell, $1\frac{1}{2}$ , $1\frac{3}{4}$ , 2, $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4, 5, 6.
For Pipe, $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1, 1, $1\frac{1}{2}$ , 2.
Price each, \$3.85, \$4.40, \$5.90, \$7.50, \$9.00, \$12.00, \$15.50, \$24.00, \$31.50

**Plain Oil Cups (Screwed Covers).**

Dia. Shell, $\frac{3}{4}$ , $\frac{7}{8}$ , 1, $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{1}{2}$ , $1\frac{3}{4}$ , 2, $2\frac{1}{4}$ , $2\frac{1}{2}$ , 3.
Screwed for Pipe, $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ .
Price ea., 35c., 40c., 45c., 50c., 60c., 90c., \$1.25, \$1.75, \$2.25, \$2.75, \$3.00.
Lightning Spring Top Oil Cups, same list.

**Glass Oil Cups (with Guards).**

Dia. and length of Glass, $1 \times 1\frac{1}{2}$ , $1\frac{1}{2} \times 1\frac{1}{2}$ , $1\frac{1}{2} \times 1\frac{3}{4}$ , $2 \times 2$ , $2 \times 2\frac{1}{2}$ , $2\frac{1}{2} \times 2\frac{1}{2}$ , $3 \times 3$ , $3\frac{1}{2} \times 3\frac{1}{2}$ .
Screwed for Pipe .....
Price each .....
\$1.85, \$2.10, \$2.20, \$3.30, \$3.60, \$5.50, \$6.60, \$7.75.

Continued.

proved Register

Rough. Finished.  
\$0 80 \$0 90  
0 90 1 00

	#	1/2	3/4
5	\$ 0 80	\$ 1 40	.....
0	0 90	1 25	.....
0	1 25	2 15	.....
0	1 30	2-25	.....
..	1 50	1 75	\$2 00
..	1 70	1 80	2 00
..	3 20	3 20	.....
..	4 00	4 00	.....
..	10 00	10 00	.....

alves).

4, 5, 6.  
1, 1 1/2, 2.  
\$15.50, \$24.00, \$31.50

Covers).

2 1/2, 2 3/4, 3.  
1/2, 1, 1 1/2.  
5, \$2.25, \$2.75, \$3.00.

ards).

2 1/2, 2 3/4 x 2 3/4, 3 x 3, 3 1/2 x 3 1/2.  
1/2, 1, 1 1/2, 2.  
60, \$5.50, \$6.60, \$7.75.

Engineers' Iron Body Goods.

BRASS MOUNTED.

	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Globe Valves (Screwed without Yoke.	2 50	3 50	4 50	7 50	10 50	14 00	18 00	24 00	28 00	38 00	60 00
and Flanged "	3 25	4 50	5 75	9 00	12 50	18 00	24 00	30 00	36 00	48 00	86 00
Angle Valves (Screwed with Yoke.	.....	.....	.....	10 00	14 50	16 00	20 00	28 00	32 00	44 00	65 00
Flanged "	.....	.....	.....	11 50	16 50	18 50	23 00	32 00	36 00	49 00	70 00
Check Valves (Horizontal } Screwed	.....	.....	8 75	6 25	8 75	11 50	15 00	20 00	24 00	33 00	55 00
angle and vertical } Flanged	.....	.....	5 00	7 75	10 75	14 00	18 00	24 00	28 00	38 00	60 00
Safety Valves, Cross and Angle, Screwed	.....	4 75	6 50	12 00	15 00	20 00	24 00	30 00	36 00	48 00	86 00
Back Pressure Valves, Screwed	.....	.....	9 00	10 50	13 50	15 00	18 00	22 20	30 00	40 00	104 00
Stop Cocks, Screwed	2 25	3 00	4 50	8 00	12 00	20 00	25 00	26 00	34 00	44 00	60 00
Three Way Cock, Screwed	2 40	3 85	5 10	8 75	13 00	22 00	28 00	.....	.....	.....	.....
Foot Valves, Screwed	3 55	4 85	7 10	11 00	16 00	25 75	32 50	.....	.....	.....	.....
Flanged	1 75	2 50	4 00	4 00	5 00	6 50	8 00	10 00	12 00	17 00	.....
Flanged	.....	.....	4 00	4 75	5 75	7 75	9 50	12 00	14 00	19 50	.....

**Detroit Cylinder Lubricators.**

AUTOMATIC SIGHT FEED.

Size  $\frac{1}{2}$  pint, brass, \$22; plated, \$25. Size 1 quart, brass, \$45; plated, \$50.  
 " 1 pint, " \$30; " \$35. " 2 " " \$60; " \$65.

**Bailey Cylinder Lubricators.**

No.	For Engine or Horse Power.	Price.		Size of Shank Threaded.
		Without Sight Feed.	With Sight Feed.	
1	4	\$2 75	\$5 00	$\frac{3}{8}$ in.
2	8	3 25	5 50	"
3	12	3 75	6 00	"
4	15	4 50	7 00	$\frac{1}{2}$ in.
5	25	5 50	8 00	"
6	40	6 50	9 00	"
7	70	8 50	11 00	"
8	100	10 50	13 00	$\frac{3}{4}$ in.

For nickel plating add 20 per cent. For finishing partly in the rough, deduct 15c. to 25c. each, according to size.

**Steam Gauges.**

Size of Dial..	5	5 $\frac{1}{2}$	6	6 $\frac{1}{2}$	8 $\frac{1}{2}$
Japanned Case-finished Ring.....	\$6 00	\$8 00	\$10 00	\$14 00	\$21 00
" " N. P. ".....	6 50	8 50	10 60	14 75	21 75
Bronzed " " ".....	8 25	10 25	12 75	16 75	25 00
Brass " and ring.....	9 00	11 00	14 00	18 00	27 00

**Malleable Iron Fittings.***(Classified and sold by weight as under.)***CLASS A.**

Price 30 cts. per pound.

Elbows  $\frac{1}{2}$ ,  $\frac{3}{4}$  x  $\frac{1}{2}$ ,  $\frac{1}{2}$  x  $\frac{1}{4}$ .  
 Tees,  $\frac{1}{2}$ ,  $\frac{3}{4}$  x  $\frac{1}{2}$ ,  $\frac{1}{2}$  x  $\frac{1}{4}$ ,  $\frac{3}{4}$  x  $\frac{1}{4}$ .  
 Reducing Couplings,  $\frac{1}{2}$  x  $\frac{1}{4}$ ,  $\frac{3}{4}$  x  $\frac{1}{4}$ .  
 Couplings, R. H.,  $\frac{1}{2}$

**CLASS B.**

Price 18 cts. per pound.

Elbows and Tees, from  $\frac{1}{2}$  to  $\frac{3}{4}$  inclusive.  
 Street Elbows, all sizes.  
 Elbows, side outlets, all sizes.  
 Crosses, all sizes.  
 Drop L's and Drop Tees, all sizes.  
 Caps, Plugs and Lock-nuts, all sizes.

**CLASS B.***(Continued.)*

Reducing Couplings, all sizes.  
 Extension Pieces.  
 Right and Left Fittings, all sizes.  
 Right Hand Couplings,  $\frac{1}{2}$  to 1.  
 Waste Nuts, Chandelier Hooks.  
 Return Bends, all sizes.  
 Straps, not tinned, all sizes.

**CLASS C.**

Price 16 cts. per pound.

Elbows and Tees 1 x  $\frac{3}{4}$  and larger.  
 Such Fittings, in this class, as have one or more outlets smaller than  $\frac{1}{2}$  will be charged in Class B. extra.

SCRE

Diamet  
Face to  
"

Diamet

Screw E  
Flange l  
Sliding  
and L  
extra.

**Weber's Patent Straightway Valves.**



**DOUBLE GATE.**

Solid Valves and Solid Seats

of Brass or Iron.

**Composition Steam and Water Valves.**

SCREW TOP. DOUBLE GATE. BEST STEAM METAL.

**CLASS A.**

Diameter of Opening....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Face to Face, Screw Ends	$2\frac{3}{8}$	$2\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{8}$	$6\frac{3}{8}$	$8\frac{3}{8}$	$8\frac{1}{2}$
"    Flange    "	$2\frac{1}{8}$	3	$3\frac{7}{8}$	$3\frac{1}{2}$	$4\frac{1}{8}$	$5\frac{1}{8}$	$5\frac{1}{2}$	7	$8\frac{1}{2}$	$8\frac{7}{8}$
Diameter of Flanges....	3	3	4	$4\frac{1}{2}$	5	6	7	7	$8\frac{1}{2}$	9

**PRICE LIST.**

	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.
Screw End..	1	30	1	75	2	25	3	25	4	25	6	25	11	50	16	00
Flange End..	2	50	3	00	4	00	5	00	7	50	10	00	16	00	20	00
Sliding Stem																
and Lever,																
extra.....	1	00	1	20	1	40	1	60	1	80	2	00	2	25	2	50
															2	75
															3	00

ators.

brass, \$45; plated, \$50.  
" \$60; " \$65.

ators.

	Size of Shank Threaded.
0	$\frac{3}{8}$ in.
0	"
0	"
0	$\frac{1}{2}$ in.
0	"
0	"
0	$\frac{3}{4}$ in.
0	"

ishing partly in the

6	$6\frac{3}{4}$	$8\frac{1}{2}$
\$10 00	\$14 00	\$21 00
10 60	14 75	21 75
12 75	16 75	25 00
14 00	18 00	27 00

gs.

under.)

ASS B.

ntinued.)

plings, all sizes.

es.

Fittings, all sizes.

couplings,  $\frac{1}{2}$  to 1.

handelier Hooks.

all sizes.

ned, all sizes.

ASS C.

ts. per pound.

es 1 x  $\frac{1}{2}$  and larger.

in this class, as

more outlets smaller

charged in Class B.

A. R. WILLIAMS,

**Weber's Straightway Valves.—Continued.**

IRON BODY. FLANGE TOP. BEST STEAM METAL.

**CLASS C.**

Diameter of Opening inches.....	2½	3	3½	4	5	6	7	8	10	12	14	16	18	20	24
Face to Face, Screw Ends .....	6½	7½	8½	9½	9½	10½	11½	12	..	..	..	..	..	..	..
Face to Face, Flange Ends .....	6½	7½	8½	9½	9½	10½	11½	12	13½	14½	15½	16½	18½	21	23½
Diameter of Flanges.	7	7	8½	9	10	11	12	13	16	18	21	23	25	27	31

**PRICE LIST.**

Screw Ends...	\$10 00	\$12 00	\$16 00	\$18 00	\$25 00	\$32 00	\$41 00	\$50 00
Flange Ends...	10 00	12 00	16 00	18 00	24 00	31 00	36 00	45 00
Sliding stem and Lever extra..	2 25	2 50	2 75	3 00	.....	.....	.....	.....

**Blow Off Valves.**

Best Steam Metal ... 1½ \$4 50    1½ \$5 75    2 \$8 25    2½ \$14 25    3 \$19 75

Iron Body, Brass Mounted... 2 \$8 36    2½ \$12 30    3 \$14 75    3½ \$20 00    4 \$22 50

Will quote prices for larger sizes on application.

N. B.—Send for special circular and quotations on Water Gates and Class B Screw Top Iron Body Valves from 2 in. to 4 in.



Standard List of Malleable Iron Fittings.

—Continued.

TEAM METAL.

12	14	16	18	20	24
14 <sup>1</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>8</sub>	16 <sup>3</sup> / <sub>8</sub>	18 <sup>1</sup> / <sub>2</sub>	21	23 <sup>1</sup> / <sub>2</sub>
18	21	23	25	27	31

0	\$32 00	\$41 00	\$50 00
0	31 00	36 00	45 00

	DIS.	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
Unions .....	\$0 15	\$0 18	\$0 20	\$0 28	\$0 34	\$0 46	\$0 60	\$0 80	\$1 50	\$2 10	\$3 00	\$4 00			
Bushings .....	0 05	0 05	0 06	0 07	0 09	0 13	0 17	0 27	0 42	0 60	0 80	1 00	\$1 85	\$2 50	
Plugs .....	0 03	0 03	0 04	0 05	0 06	0 10	0 13	0 20	0 35	0 50	0 75	0 85	1 75	2 40	
Nipples—Shoulder	0 05	0 06	0 07	0 09	0 10	0 14	0 17	0 25	0 56	0 75	1 00	1 25	2 00	2 75	
“ Long .....	0 07	0 08	0 10	0 12	0 15	0 22	0 28	0 39	0 77	1 05	1 40	2 00	3 20	5 00	
“ Close .....	0 07	0 08	0 10	0 12	0 15	0 20	0 25	0 35	0 70	0 90	1 25	1 50	2 50	3 50	
“ R. & L. ....	0 10	0 10	0 12	0 15	0 18	0 24	0 35	0 50	1 00	1 25	1 60	2 40	4 00	5 50	
Stop Coeks .....	.....	0 75	0 80	0 90	1 25	1 50	2 00	2 60	4 50	6 50	12 00	16 00	33 00	45 00	
Flanges .....	.....	.....	0 20	0 28	0 36	0 50	0 65	0 90	1 40	2 00	2 75	3 50	5 00	6 00	
Flanged Unions .....	.....	.....	0 75	0 80	1 00	1 25	1 50	1 75	2 00	2 75	3 50	4 20	6 00	7 50	





**Cast Iron Fittings.**

INCH	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Elbows and reducing elbows.....each			0 06	0 8	0 11	0 15	0 21	0 30
Elbows, right and left, " "			0 07 1/2	0 10	0 13 1/2	0 18 1/2	0 26 1/2	0 37 1/2
Elbows, 45°..... " "			0 10	0 15	0 20	0 26	0 35	0 50
Tees and reducing tees " "			0 08	0 12	0 16	0 22	0 31	0 45
Crosses and reducing crosses..... " "					0 28	0 38	0 54	0 76
Return bends, close... " "				0 13 1/2	0 18 1/2	0 28	0 40	0 55
"    open... " "				0 19	0 26	0 44	0 64	1 00
Caps..... " "								
Plugs..... " "	0 03	0 03	0 04	0 05	0 06	0 08	0 11	0 16
Reducing couplings... " "								
Flange unions..... " "			0 55	0 60	0 70	0 80	1 00	1 20
Bushings and reducing bushings..... " "		0 05	0 06	0 07	0 08	0 10	0 14	0 20

INCH	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Elbows and reducing elbows.....each	0 60	0 90	1 20	1 60	2 50	3 00	4 20	7 00	10 00
Elbows, right and left. " "									
Elbows, 45°..... " "	1 30	1 60	1 90	2 50	3 50	4 50	5 50	9 00	12 00
Tees and reducing tees " "	0 90	1 35	1 80	2 40	3 75	4 50	6 30	10 00	15 00
Crosses and reducing crosses..... " "	1 50	2 24	3 00	4 00	5 00	6 00	8 40	14 00	20 00
Return bends, close... " "	1 50	2 25	3 75	5 00					
"    open... " "	1 75	2 50	4 25	5 75	8 00				
Caps..... " "	0 50	0 60	0 85	1 15	1 45	1 75	2 30	3 10	4 35
Plugs..... " "	0 25	0 45	0 60	0 80	1 00	1 30	1 90	3 75	5 50
Reducing couplings... " "	0 70	1 00	1 50	2 00	2 50	3 00	4 00	8 00	11 00
Flange unions..... " "	1 50	1 90	2 30	2 80	3 50	5 00	6 50	8 00	10 00
Bushings and reducing bushings..... " "	0 30	0 45	0 60	0 80	1 00	1 30	1 90	3 75	5 50

**Branch Tees.**

Number of Outlets, 1 in. Outlets, 2 1/2 centre to centre.....	2	3	4	5	6	7	8
	\$0.75	\$0.90	\$1.05	\$1.20	\$1.50	\$2.20	\$2.50

**Hook Plates.**

Price.....	Number of Hooks,	1	2	3	4	5	6
		9c.	15c.	21c.	27c.	32c.	40c.

**Wrought Iron Pipe for Gas, Steam and Water.**

TABLE OF STANDARD DIMENSIONS AND SIZES.

	1½	1½	2
c. \$	c. \$	c. \$	c. \$
0 15	0 21	0 30	
0 18½	0 26½	0 37½	
0 26	0 35	0 50	
0 22	0 31	0 45	
0 38	0 54	0 76	
0 28	0 40	0 55	
0 44	0 64	1 00	
0 08	0 11	0 16	
0 80	1 00	1 20	
0 10	0 14	0 20	
5	6	7	8
c. \$	c. \$	c. \$	c. \$
00 4 20	7 00	10 00	
50 5 50	9 00	12 00	
50 6 30	10 00	15 00	
00 8 40	14 00	20 00	
75 2 30	3 10	4 35	
30 1 90	3 75	5 50	
00 4 00	8 00	11 00	
00 6 50	8 00	10 00	
30 1 90	3 75	5 50	
6	7	8	
1.50	\$2.20	\$2.50	
4	5	6	
27c.	32c.	40c.	

Nominal Inside Diameter in Inches.	Weight per Foot in lbs.	Actual Inside Diameter in Inches.	Actual Outside Diameter in Inches.	Number of threads to Inch of Screw.	Price per foot.
½	.24	.27	.405	27	\$0 06
¾	.42	.36	.54	18	0 06
¾	.56	.49	.675	18	0 07
1	.85	.62	.84	14	0 08½
1½	1.12	.82	1.05	14	0 12
1	1.67	1.04	1.315	11½	0 17
1½	2.25	1.38	1.66	11½	0 22
1½	2.69	1.61	1.90	11½	0 28
2	3.66	2.06	2.375	11½	0 41
2½	5.77	2.46	2.875	8	0 75
3	7.54	3.06	3.5	8	1 10
3½	9.05	3.54	4.0	8	1 38
4	10.72	4.02	4.5	8	1 75
4½	12.49	4.50	5.0	8	2 25
5	14.56	5.04	5.563	8	2 75
6	18.76	6.06	6.625	8	3 50
7	23.41	7.02	7.625	8	4 75
8	28.34	7.98	8.625	8	6 50

Pipe cut and screwed to specification.

# Ewart's Patent Drive Chain.

## Price List of Chain.

No.	Links per foot	Working strain.	Price per foot.	Equivalent in belting	No.	Links per foot	Working strain.	Price per foot.	Equivalent in belting.
25	13.3	75 lbs.	\$0 13	$\frac{1}{8}$ in.	67	5.16	700 lbs	\$0 30	8 in.
32	10.5	150 "	0 13	$1\frac{1}{2}$ "	73	3.7	800 "	0 40	9 "
33	8.6	150 "	0 12	2 "	75	4.5	800 "	0 35	9 "
34	8.6	175 "	0 13	2 "	77	5.16	800 "	0 35	8 "
35	7.4	200 "	0 14	2 "	78	4.5	1000 "	0 40	10 "
42	8.75	350 "	0 16	4 "	85	3.	1400 "	0 50	10 "
45	7.4	400 "	0 16	4 "	88	4.5	1400 "	0 50	10 "
48	6.	400 "	0 17	5 "	95	3.	1500 "	0 60	12 "
49	7.4	450 "	0 20	5 "	103	4.	1800 "	0 75	14 "
52	8.	600 "	0 25	6 "	105	2.	1700 "	0 70	12 "
53	8.	650 "	0 26	6 "	108	2.5	1800 "	0 80	14 "
55	7.4	650 "	0 22	6 "	114	3.66	2000 "	1 10	14 "
57	5.16	650 "	0 24	6 "	124	3.	2500 "	1 30	18 "
62	7.25	700 "	0 30	7 "	146	2.	2800 "	1 40	20 "
63	6.	700 "	0 30	7 "	600	2.	7000 "	1 00	24 "
64	6.	700 "	0 30	7 "	1050	1.2	12000 "	1 30	36 "
65	5.66	700 "	0 30	7 "	1075	1.2	16000 "	1 40	40 "
66	6.	700 "	0 30	8 "	1200	1.	7000 "	0 90	24 "

All chains are tested at two and one-half times the working strains given above.

Run chain with open side of coupling out, and back of coupling hook against driving side of wheel sprocket.

**Chain.**

**Ewart's Drive Chain.—Continued.**  
**ATTACHMENT PRICE LIST PER FOOT.**  
*(See above list for number of links per foot.)*

Working strain.	Price per foot.	Equivalent in belting.
00lbs	\$0 30	8 in.
00 "	0 40	9 "
00 "	0 35	9 "
00 "	0 35	8 "
00 "	0 40	10 "
00 "	0 50	10 "
00 "	0 50	10 "
00 "	0 60	12 "
00 "	0 75	14 "
00 "	0 70	12 "
00 "	0 80	14 "
00 "	1 10	14 "
00 "	1 30	18 "
00 "	1 40	20 "
00 "	1 00	24 "
00 "	1 30	36 "
00 "	1 40	40 "
00 "	0 90	24 "

the working strains  
 of coupling hook

No. Chain.	The only Attachments that are made on each size chain are given below.	Foot Price.
25	A2, A3, C1, E1, G1, K1, K5, K6, S1 .....	\$0 17
33	A1, D3, E1, I3, K1, K3, K5, K6, M1, S1.....	0 15
35	A1, A2, A10, C1, K1, S1 .....	0 18
42	A1, C1, D2, K3, K5, M2, S1.....	0 20
45	A1, 2, 3, 10, C1, D1, D3, D5, E1, G1 .....	0 20
	H1, I3, K1, K3, K5, M1, S1.....	0 31
52	A1, D2, E1, K5.....	0 32
55	A1, C1, K1, S1 .....	0 27
57	A1, D3, D5, E1, F2, H1, K1, S2 .....	0 30
67	A1, E1, FF, F2, H1, K1, S2.....	0 37
73	K1, K8, S2.....	0 50
75	E1, H1, K1 .....	0 44
77	E1, F2, G1, H1, K1, K8, R1, S2.....	0 44
78	A3, E1, F2, F4, G1, H1, K1, S2. ....	0 50
83	D5, E1, M3 .....	0 56
85	E2, F1, F2, FF, H1, K2, K4, K7, S2 and Hod link.	0 62
88	F2, G1, K1, S2.....	0 69
95	F2, H2, K2 .....	0 75
103	A1, F2, H1, K1, M2.....	0 94
105	F1, H1, K4, M3.....	0 87
109	F2, F3, FF, G1, K2, Hod link.....	1 00
146	E2, F1, F5, K4.....	1 85

**Wheels for Ewart's Drive Chain.**

No. of Chain.	4	6	8	10	12	14	16	18	20	24	30
25	\$0 90	\$1 40	\$1 50	\$1 75	\$2 50	\$3 00	\$3 50	\$5 00	\$5 00	\$5 00	.....
33	0 90	1 40	1 90	2 50	2 80	3 50	3 50	4 50	5 00	5 00	.....
35, 45, 49, 55	1 00	1 50	2 00	2 50	3 00	3 50	4 00	4 50	5 00	6 00	7 50
42	1 00	1 50	2 00	2 50	3 00	.....	.....	.....	.....	.....	.....
52	1 00	1 50	2 00	3 00	3 10	4 00	4 00	5 00	5 00	6 00	.....
67, 77	1 20	1 60	2 40	3 10	3 60	4 20	4 80	5 40	6 00	7 20	7 50
73	.....	.....	.....	3 75	3 75	4 50	5 00	5 75	6 00	7 20	9 00
78, 88	.....	1 90	2 40	3 00	3 75	4 30	4 90	5 50	6 25	7 50	10 75
85, 95	.....	2 00	2 50	2 90	3 70	4 30	4 90	5 50	6 25	7 50	9 50
103	.....	2 00	2 50	.....	4 00	.....	5 00	6 85	7 50	9 50	12 00
108	.....	2 00	2 50	3 00	3 50	3 75	4 00	5 50	6 50	8 00	10 00
1080, 1075	.....	.....	.....	6 00	.....	.....	7 00	8 00	9 00	11 00	13 00
600	.....	.....	4 50	.....	6 50	.....	9 50	11 00	18 00	10 22	Idler. 14 00

Wheels bored and key-seated or furnished with set screws at above prices.  
A reduction will be made on wheels not bored.

**MEMO.**

Nos. 35 and 45 work on same wheels as No. 55, but are cheaper and lighter in weight and strength.

Nos. 57 and 67 work on same wheels as No. 77, but are cheaper and lighter, and are not ribbed as No. 77 is, but are shaped like No. 55.

No. 75 is a fine size for light transfers, live rolls, tie and pole loaders, cord wood elevators, lumber trimmers, slash tables, shingle block tables. No. 78 and 88 are stronger chains working on same wheels as No. 75.

Order S1, attachments for light sawdust carriers.  
" S2, " heavy "

Inch.	Ha	Inch.
4		4
5		5
6		6
7		7
8		8
9		9
10		10
11		11
12		12
13		13
14		14
15		15
16		16
		Ha
		Inch.
		4
		5
		6
		7
		8
		9
		10
		11
		12
		13
		14
		15
		16

Mill Dow  
Mill Nar  
Cross Cu  
Gant Blu  
Ginsaw (

**Chain.**

not ribbed as No. 77 is, but are shaped like No. 55.  
 No. 75 is a fine size for light transfers, live rolls, tie and pole loaders, cord wood elevators, lumber trimmers, slash tables, shingle block tables. No. 78 and 88 are stronger chains working on same wheels as No. 75.  
 Order S1, attachments for light sawdust carriers.  
 " " " heavy " " S2,

**Files and Rasps.**



**Mill and Round.**

Inch.	Bastard	2d Cut.	Smooth.
4	\$1 80	\$2 15	\$2 40
5	2 00	2 40	2 65
6	2 25	2 65	2 95
7	2 55	3 00	3 30
8	2 90	3 40	3 70
9	3 30	3 85	4 20
10	3 80	4 40	4 80
11	4 50	5 20	5 65
12	5 40	6 20	6 75
13	6 50	7 45	8 05
14	7 80	8 90	9 65
15	9 30	10 60	11 45
16	11 00	12 50	13 40

**Flat and Square.**

Inch.	Bastard	2d Cut.	Smooth.
4	\$2 15	\$2 40	\$2 65
5	2 20	2 60	2 90
6	2 50	2 95	3 25
7	3 00	3 40	3 75
8	3 40	4 00	4 35
9	4 00	4 70	5 10
10	4 70	5 45	5 90
11	5 60	6 50	7 05
12	6 70	7 70	8 40
13	8 00	9 15	10 00
14	9 50	10 90	11 80
15	11 20	12 75	13 75
16	13 10	14 85	16 00

**Hand, Warding and Pillar.**

Inch.	Bastard	2d Cut.	Smooth.
4	\$2 25	\$2 70	\$3 00
5	2 50	3 00	3 30
6	2 80	3 30	3 65
7	3 20	3 75	4 15
8	3 70	4 35	4 75
9	4 35	5 10	5 55
10	5 20	6 00	6 55
11	6 30	7 30	7 95
12	7 50	8 60	9 40
13	8 90	10 20	11 00
14	10 50	12 00	13 00
15	12 30	14 00	15 10
16	14 30	16 20	17 50

**Half Rd. and Three Square.**

Inch.	Bastard	2d Cut.	Smooth.
4	\$2 50	3 00	\$3 30
5	2 80	3 35	3 70
6	3 20	3 80	4 15
7	3 70	4 35	4 75
8	4 30	5 00	5 60
9	5 00	5 85	6 40
10	5 80	6 75	7 30
11	6 70	7 75	8 45
12	7 80	9 00	9 75
13	9 10	10 40	11 25
14	10 60	12 10	13 10
15	12 40	14 15	15 25
16	14 50	16 50	17 70

**Extras.**

Mill Double Cut, advance 1 inch.
Mill Narrow Points, " 1 "
Cross Cut Blunt, " 1 "
Cant Blunt (Double Cut), ad. 2 "
Ginsaw (Single), take Bastard price

**Extras.**

Slotting (Blunt), advance 2 in.
Knife, " 1 "
High Back Hlf. Rd. (Bl't) " 2 "
Cross (Blunt), " 2 "
Feather Edge (Blunt) " 2 "



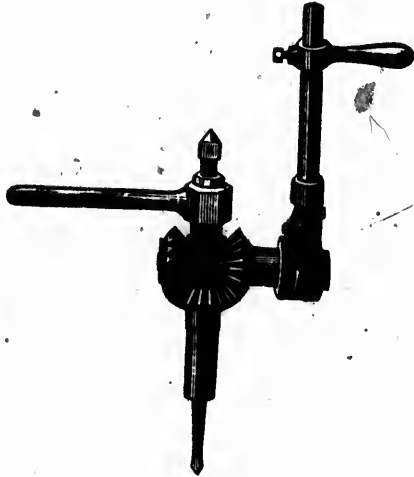
**Ratchet Drills.**

SANDIFORD'S.

- No. 1. 10-inch handle, each..... \$15 00
- No. 2. 12-inch handle, each..... 18 00

LOWELL REVERSIBLE.

- No. 1. 10-inch handle..\$6 00
- " 2. 12 " " .. 8 00
- " 3. 15 " " ..10 00



SANDIFORD'S CONTINUOUS MOTION.

**The "Cushman" Chuck.**

**Combination Lathe Chucks.**

	Three jaws.	Four jaws.		Three jaws.	Four jaws.
4-inch	\$26 00	\$32 00	18-inch	\$62 00	\$75 00
6 "	26 00	32 00	21 "	80 00	96 00
9 "	34 00	42 00	24 "	100 00	120 00
12 "	44 00	56 00	30 "	170 00	.....
15 "	52 00	64 00	36 "	230 00	.....

**Improved Two-jawed Chucks.**

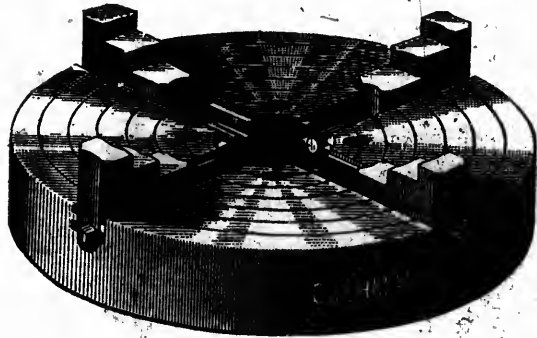
Diameter. Inches.	Diam. of Hole. Inches.	Diam. of Face Plate. Inches.	Height of Jaw. Inches.	Width of Jaw. Inches.	Price.
4 1/2	1	4 1/2	1	1 1/2	12 00
6	1 1/2	5 1/2	1 1/2	1 3/4	18 00



Candaw, Blunt, Single Cut, } take Pitsaw price.  
 Round Gulletting, " " }  
 Round Off, " " } take Hooktooth price.  
 Reversible Taper Saw, No. 7, \$2 55; No. 8, \$2 80; No. 9, \$3.15; No. 10, \$3.70 per doz.



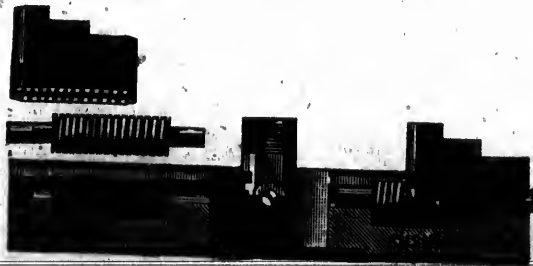
### The "Cushman" Chuck—Continued.



### Independent Four-Jaw Chuck.

WITH REVERSIBLE JAWS.

Diameter. Inches.	Weight. Pounds.	Diameter. of Hole. Inches.	Diameter of Face-Plate. Inches.	Price.
4 $\frac{3}{8}$	6	1	4 $\frac{8}{16}$	\$14 00
6	11	1 $\frac{1}{2}$	5 $\frac{11}{16}$	18 00
8	25	1 $\frac{7}{8}$	4 $\frac{1}{2}$	22 00
10	35	2	4 $\frac{1}{2}$	26 00
12	54	3	6 $\frac{11}{16}$	30 00
14	72	3	6 $\frac{11}{16}$	34 00
16	86	3	6 $\frac{11}{16}$	38 00
18	113	4	7 $\frac{11}{16}$	44 00
20	122	4	7 $\frac{11}{16}$	50 00
22	172	4 $\frac{1}{2}$	9 $\frac{1}{2}$	57 00
24	193	4 $\frac{1}{2}$	9 $\frac{1}{2}$	65 00



The "Cushman" Chuck—Continued.



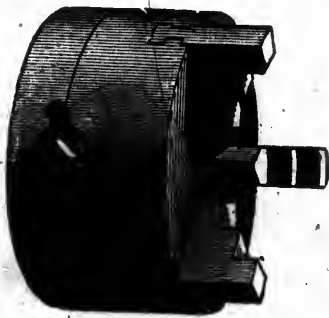
Two-jaw.

BOX BODY.

Size. Inches.	Jaws. Take. Inches.	Price. Round Body.	Price. Box Body.	Ex. Slip. Jaws. Iron. Per pair.	Ex. Slip. Jaws. Steel. Per pair.
6	2½	\$20 00	.....	\$1 00	\$2 00
7	3	24 00	\$24 00	1 00	2 00
9	4	30 00	30 00	1 25	2 50
12	6		36 00	1 25	2 50
15	8		42 00	1 50	3 00

Price.  
\$14 00  
18 00  
22 00  
26 00  
30 00  
34 00  
38 00  
44 00  
50 00  
57 00  
65 00

The Amateur Geared Chuck.

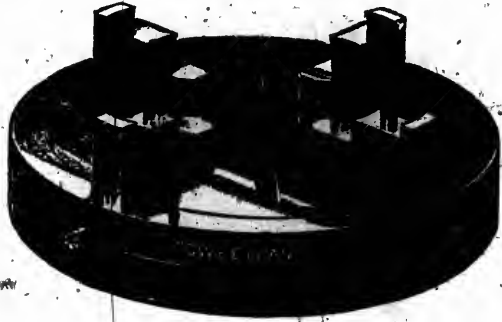


Price, with No. 1 or No.  
2 Jaws, \$6 00  
Price, with two sets of  
jaws, 7 50

Planer Chucks.

	Square Base.	Swivel Base.
10 x 7	30	35 00
12 x 8	35	40 00

## The "Sweetland" Chuck.



## Combination Chuck.

BOTH INDEPENDENT AND UNIVERSAL.

Diameter.	Three Jaws. Price.	Four Jaws. Price.
6-inch	\$26 00	\$32 00
9 "	34 00	42 00
12 "	44 00	56 00
15 "	52 00	64 00
18 "	62 00	75 00
21 "	80 00	95 00
24 "	100 00	120 00
30 "	170 00	200 00
36 "	220 00	.....
Car Wheels	250 00	.....

## Independent Chuck.

FOUR JAW.

Diameter.	Price.	Diameter.	Price.
6-inch	\$18 00	21-inch	\$55 00
9 "	24 00	24 "	65 00
12 "	30 00	30 "	120 00
15 "	35 00	36 "	150 00
18 "	44 00		

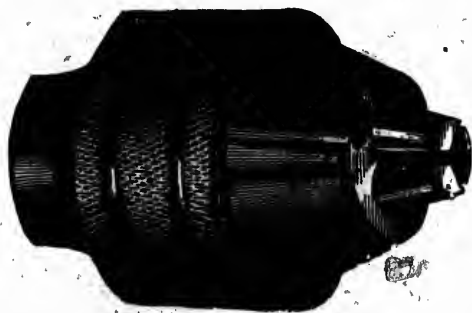
**Drill Chucks.**



No. 1 holds 0 to $\frac{1}{8}$ inch	\$7 00
" 2 " 0 to $\frac{3}{8}$ "	8 00

**The "Giant" Drill Chuck.**

HOLDS EITHER STRAIGHT OR TAPER SHANK.



No. 1 holds 0 to $\frac{1}{8}$ inch	\$5 50
" 2 " 0 to $\frac{3}{8}$ "	6 00
" 3 " $\frac{1}{2}$ to $\frac{3}{4}$ "	10 00

**The "Reid" Drill Chucks.**

No. 1 holds 0 to $\frac{1}{8}$ inch	\$10 00
" 2 " 0 to $\frac{3}{8}$ "	12 00

our Jaws.  
Price.

\$32 00  
42 00  
56 00  
64 00  
75 00  
95 00  
120 00  
200 00  
.....

Price.

.....\$55 00  
..... 65 00  
.....120 00  
.....150 00

**Emery Machinery**

	Price.
Single Emery Stand, with C Shaft, 15-16 mandrel	\$18 00
No. 1. Double Emery Stand, with Shaft, 13-16 mandrel	20 00
No. 2. " " " " " " " "	30 00
No. 1. Rodgers Saw Sharpener, complete	50 00
No. 2. Do., up to 48 in. circular	65 00
No. 3. Do., " 72 " " " " " " "	75 00
No. 3. Do., with Gang Attachment	85 00
Peerless Saw Sharpener, Automatic, up to 72-in. saw	200 00
Rush's Knife Sharpener, up to 30 in. long	175 00
Union Stone Knife Sharpener, up to 24 in.	125 00
" " " " " 36 "	145 00
" " " " " 50 "	165 00
" " " " " 60 "	180 00
" " " " " 80 "	200 00
" " " " " 100 "	250 00
" " " " " 120 "	300 00

In ord

**Stone and Ore Crushers (Farrel & Marsden Pattern).***(Send for Circulars.)*

No.	Size, or Receiving Capacity.	Approximate product per hour, in cubic yards, to two inches.	Weight of Heaviest Piece.	Total Weight.	Horse Power Req'd.	Cash Price delivered on board.
1	Inches 3x1 $\frac{1}{2}$		lbs. 40	lbs. 100		\$ 50 00
2	6x2	One.	560	1,200	4	180 00
3	10x4	Three.	1,800	4,900	4	350 00
4	15x7	Five.	3,800	7,800	7	500 00
5	15x9	Eight.	6,800	14,500	10	700 00
6	15x10	Nine.	7,300	15,000	12	775 00
7	20x6		4,800	11,000		780 00
8	20x10		7,700	17,000		1,300 00
9	18x24					
10						

**Emery Wheels.**

*In ordering, state the kind of work you wish to do, and give size of Mandrel.*

**PRICE LIST OF EMERY WHEELS.**

THICKNESS OF WHEELS IN INCHES.

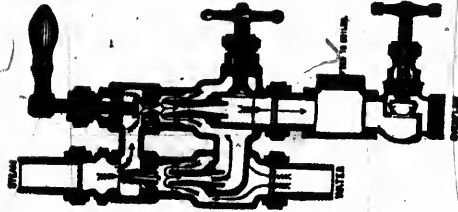
No. of Revolu- tions per minute.	Dia.	THICKNESS OF WHEELS IN INCHES.											
		1/2	3/4	1	1 1/4	1 1/2	1 3/4	1 7/8	2	2 1/4	3	3 1/2	
7,400	3	50	80	95	1 10	1 25	1 40	1 55	1 70	2 00	2 30	2 60	3 00
5,450	4	80	1 10	1 35	1 60	1 90	2 20	2 50	2 75	3 25	3 86	4 60	5 00
4,400	5	1 00	1 40	1 80	2 20	2 60	3 00	3 45	3 80	4 65	5 40	6 40	7 40
3,600	6	1 40	1 75	2 50	3 05	3 70	4 35	5 00	5 65	6 90	8 25	9 50	11 00
3,150	7	2 20	2 30	3 15	3 95	5 00	5 60	6 40	7 25	8 90	10 55	12 10	13 70
2,750	8	2 12	2 60	3 60	4 60	5 70	6 60	7 60	8 60	10 60	12 60	14 60	16 60
2,450	9	3 16	4 35	5 60	6 80	8 00	9 25	10 50	12 75	15 40	18 15	21 00	23 80
2,200	10	4 00	5 10	6 60	8 10	9 50	11 00	12 40	14 00	17 40	21 00	24 25	27 50
1,850	12	6 25	8 00	10 70	13 25	15 20	17 80	19 50	22 40	28 60	33 00	38 75	44 50
1,600	14	8 00	11 00	14 70	18 70	22 50	27 80	32 00	37 50	47 00	58 00	69 00	80 50
1,400	16	11 00	15 00	20 50	25 00	29 00	34 00	38 00	44 00	54 00	66 00	78 00	91 75
1,250	18	13 75	18 75	25 00	30 00	35 50	41 12	46 75	53 00	64 00	77 00	91 00	106 00
1,100	20	17 00	22 00	29 87	35 50	43 50	50 00	57 00	65 00	79 00	95 00	113 00	131 00
1,000	22	20 50	27 00	35 00	43 50	50 00	57 00	65 00	75 00	90 00	108 00	129 00	150 00
925	24	25 00	32 00	41 12	50 00	58 00	67 00	77 00	88 00	105 00	125 00	148 00	175 00
785	30	35 00	44 50	55 00	65 00	75 00	85 00	95 00	108 00	128 00	153 00	183 00	219 00
550	36	50 00	62 00	77 00	93 00	110 00	127 00	145 00	165 00	190 00	225 00	265 00	310 00

Price.  
\$18 00  
20 00  
30 00  
50 00  
65 00  
75 00  
85 00  
200 00  
175 00  
125 00  
145 00  
165 00  
180 00  
200 00  
250 00  
300 00

& Marsden

Horse power req'd.	Cash Price delivered on board.
4	50 00
4	180 00
7	250 00
10	400 00
12	500 00
	775 00
	780 00
	1,300 00

## Western Empire Boiler Feeders.



OVER 100,000 IN USE.

No.	Gallons per Hour.	Horse Power will Supply.	Suction and Feed.	Steam.	Price.
1	60	8	$\frac{3}{8}$	$\frac{3}{8}$	\$ 18 00
2	90	12	$\frac{1}{2}$	$\frac{3}{8}$	20 00
3	120	16	$\frac{1}{2}$	$\frac{3}{8}$	24 00
4	220	30	$\frac{3}{4}$	$\frac{1}{2}$	30 00
5	300	40	$\frac{3}{4}$	$\frac{1}{2}$	35 00
6	420	56	1	$\frac{3}{4}$	45 00
7	540	72	1	$\frac{3}{4}$	50 00
8	720	96	1 $\frac{1}{4}$	1	55 00
9	900	120	1 $\frac{1}{4}$	1	60 00
10	1,260	168	1 $\frac{1}{4}$	1 $\frac{1}{4}$	75 00
11	1,740	230	1 $\frac{1}{2}$	1 $\frac{1}{4}$	90 00
12	2,236	298	2	1 $\frac{1}{2}$	110 00
13	2,820	376	2	1 $\frac{1}{2}$	125 00
14	3,480	464	2 $\frac{1}{2}$	2	150 00
15	3,600	600	2 $\frac{1}{2}$	2	175 00

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No. OO.  
No. A..  
No. AA.  
No. B..  
No. BB.  
No. C..  
No. CC.  
No. D..  
No. DD.  
No. E..  
No. EE.  
No. F..  
No. FF.

A w

**The Penberthy Improved Automatic Injector.**



**OUR PROPOSITION.**

As every injector is tested before it leaves the factory, we know that if properly connected as in diagram furnished, and instructions are carried out, they cannot fail to work. We therefore offer to pay the expenses of any man to come to the factory, and \$10 per day while there, if the Injector does not work, providing it has not been misused.

As the body will last for years, it is only necessary to order working parts to make Injector good as new. Every purchaser can repair his own Injector without sending it to factory.

Size.	Price.	Gallons per hour 65 lbs. pressure.	Size of Pipe Connection.	Horse Power.
No. OO.....	\$ 16 00	60	1/2	4 to 8
No. A.....	18 00	85	3/4	8 " 12
No. AA.....	20 00	120	1	12 " 16
No. B.....	25 00	220	1 1/4	16 " 28
No. BB.....	30 00	300	1 1/2	28 " 40
No. C.....	40 00	430	1 3/4	40 " 57
No. CC.....	45 00	540	2	57 " 72
No. D.....	55 00	700	2 1/4	72 " 93
No. DD.....	60 00	900	2 1/2	93 " 120
No. E.....	75 00	1,260	3	120 " 160
No. EE.....	90 00	1,740	3 1/2	160 " 220
No. F.....	110 00	2,240	4	220 " 290
No. FF.....	125 00	2,870	5	290 " 308

A written guarantee with each Injector.

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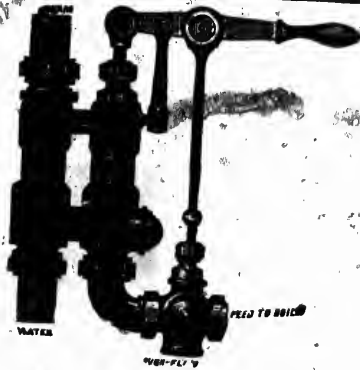


Price.

\$ 18 00  
 20 00  
 24 00  
 30 00  
 35 00  
 45 00  
 50 00  
 55 00  
 60 00  
 75 00  
 90 00  
 110 00  
 125 00  
 150 00  
 175 00



# The Improved Boiler Feeder.



NEW STYLE, WITH McAVITY'S PATENT IMPROVEMENT.

These are constructed in two parts, as shown, one side being designed for lifting and delivering, and the other for forcing against pressures. The lifting side only need be used to raise water to a moderate height, and for extreme height the forcing side.

Each Boiler Feeder carefully tested and proved before leaving the Factory.

## Price List of the Improved Boiler Feeder with McAVITY'S Patent Improvement.

Number.	Suction & Feed.	Steam	Galls. per hour 60 lbs. pressure	Suitable for Horse Power.	Price.
7½	1	1	60	2 to 8	\$18 00
8½			90	5 " 12	20 00
10			120	10 " 20	24 00
12½			200	15 " 30	30 00
15			300	20 " 40	35 00
17½	1	1	360	30 " 60	45 00
20	1	1	540	40 " 80	50 00
22½	1½	1	720	50 " 100	55 00
25	1½	1	900	70 " 120	60 00
30	1½	1½	1,260	110 " 160	75 00
35	1½	1½	1,740	150 " 225	90 00
40	2	1½	2,230	220 " 300	110 00
45	2	1½	2,820	300 " 400	125 00

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## Buffalo Forges and Hand Blowers.

I have the exclusive Canadian agency and keep in stock at all times a full assortment of these very excellent Forges and Blowers.



FORGE No. 1.

Power.	Price.
8	\$18 00
12	20 00
20	24 00
30	30 00
40	35 00
60	45 00
80	50 00
100	55 00
120	60 00
160	75 00
225	90 00
300	110 00
400	125 00

No.	Size of Hearth.	Diam. of Fan.	Wt. complete.	Price with open Hood.	Price with Dash.	Price with closed Hood.	Price arranged for Power
0	28 in. x 40 in.	12 in.	250lbs	\$45 00	\$44 00	\$48 00	\$50 00
1	21 in. x 27 in.	8 "	150 "	30 00	29 00	32 00	35 00
4	18 in. round..	6 "	85 "	26 00	25 00	28 00	30 00
6	14 n. round..	5 "	40 "	18 00	17 00	20 00	.....
						PRICE.	PRICE.
Blowers 12 in. Fan, iron frame.....						\$25 00	\$28 00
" 12 in. " wood " .....						22 00	25 00



### Jack Screws.

	No. 1.	No. 2.	No. 3.
Diam. of Screw...	2 in.	2½ in.	3 in.
Length of Screw..	13 "	15 "	17 "
Height over all when screwed down.....	19 "	21½ "	23 "
Weight.....	54 lbs.	72 lbs.	106 lbs.
Price.....	\$8 00	\$11 00	\$20 00

### Alligator Wrenches.



	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
Holds Pipe.....	½ to ¾	¾ to 1	1 to 1¼	1¼ to 2	2 to 3 in.
Holds Round Iron	¼ to ¾	½ to 1	¾ to 1½	1½ to 2½	2½ to 3½ "
Length.....	5½ in.	10 in.	16 in.	22 in.	27 in.
Price.....	\$4 00	\$12 00	\$24 00	\$36 00	\$54 00 per doz.

### Malleable Iron Pipe Vises.

No. 1, holds pipe ½ to 2 inches, weighs 15 lbs.....	\$10 00
No. 2, " ½ to 2 " " 30 lbs.....	15 00
No. 1, " ½ to 2 " " 22 lbs. open jaw.....	12 00
No. 2, " ½ to 2 " " 36 lbs. " ".....	16 00

**Brock's Patent Chain Tongs.**



	Size No. 1.	No. 2.	No. 3.	No. 4.
Capacity up to	1½	2½	4	8½
Price.....	\$4 50	\$7 00	\$9 50	\$14 00



**1 Wheel Pipe Cutter.**

No. 1, cuts pipe ½ to 1 inch.....	00
No. 2, " 1 to 2 " .....	6 00
No. 3, " 2 to 3 " .....	18 50

**3 Wheel Pipe Cutter.**

No. 1, cuts pipe ½ to ¾ inch.....	\$4 50
No. 2, " ¾ to 2 " .....	7 50
No. 3, " 1½ to 3 " .....	12 50

**Tube Cleaners.**



	Size, inches,	2	2½	3	3½	4
Price.....		\$2 00	\$2 50	\$3 00	\$3 50	\$4 00

VS.

No. 2. No. 3.  
 ½ in. 3 in.  
 " 17 "

" 23 "  
 lbs. 106 lbs.  
 00 \$20 00

No. 5.  
 2 to 3 in.  
 2½ to 3½ "  
 7 in.  
 4 00 per doz.

.... \$10 00  
 .... 15 00  
 .... 12 00  
 .... 16 00

**Standard Wrenches.**



Size, inches,	8	10	12	15	18
Price per doz.....	\$10 00	\$12 00	\$14 00	\$24 00	\$30 00

**The Diamond Wrench.**



Size, inches,	8	10	12	15	18
Price per doz.....	\$10 00	\$12 00	\$15 00	\$24 00	\$30 00

**The Engineer's Wrench.**



Size, inches,	10	12	15
Price per doz.....	\$25.25	\$28.50	\$40.50

we  
No.  
1.  
2.  
3.  
4.  
5.  
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7.  
8.  
9.  
10.  
11.  
12.  
One  
One  
set

sw

### Heavy Steel Lathe Dogs.

(With Steel Screws. U.S. Standard, and the Points Hardened.)



This Dog has a very heavy Boss, so that if the thread wears a heavier screw can be substituted.

No.	Inch.	Price.	No.	Inch.	Price.
1.	$\frac{3}{8}$	\$0 40	13.	$2\frac{1}{4}$	\$1 35
2.	$\frac{1}{2}$	50	14.	$2\frac{1}{2}$	1 45
3.	$\frac{5}{8}$	60	15.	3	1 60
4.	$\frac{3}{4}$	60	16.	$3\frac{1}{2}$	1 80
5.	$\frac{7}{8}$	70	17.	4	2 10
6.	1	70	18.	$4\frac{1}{2}$	2 75
7.	$1\frac{1}{8}$	80	19.	5	3 25
8.	$1\frac{1}{4}$	80	Full set of 19, \$23.60.		
9.	$1\frac{3}{8}$	95	20 (extra).	$5\frac{1}{2}$	4 00
10.	$1\frac{1}{2}$	95	21	6	5 00
11.	$1\frac{3}{4}$	1 10	22	7	6 00
12.	2	1 20	23	8	7 00

One small set of 8, by  $\frac{1}{4}$  in. to 2 in. . . . . 6 25  
 One set of 12, by  $\frac{1}{4}$  to 2 in. continued by  $\frac{1}{2}$  to 4 in. . . . . 13 00

When ordering, state as above, whether a full set, or a set of 12, or small set of 8 is wanted.

### Steel Dog Wrenches.



Fitting screw heads from  $\frac{3}{8}$  to  $\frac{1}{2}$  in. square. Will answer for both Dogs and Tool Post.  
 Price 75 cents each.

**Straight Tail Lathe Dogs (with Steel Screws).**

U.S. Standard, and the points hardened. To be driven from a stud in the face plate.

It is from the same pattern as the Heavy Steel Dog, and warranted, like that, not to break with any work.



This pattern will stand much more than a bent tail, and some prefer them on account of their direct action on the work.

No.	Inch.	Price.	No.	Inch.	Price.
1.	$\frac{3}{8}$	\$0 60	11.	$2\frac{1}{2}$	\$1 45
2.	$\frac{7}{8}$	70	12.	3	1 60
3.	1	70	13.	$3\frac{1}{2}$	1 80
4.	$1\frac{1}{8}$	80	14.	4	2 10
5.	$1\frac{1}{2}$	80	15.	$4\frac{1}{2}$	2 75
6.	$1\frac{3}{4}$	95	16.	5	3 25
7.	$1\frac{7}{8}$	95	17.	$5\frac{1}{2}$	4 00
8.	$1\frac{9}{8}$	1 10	18.	6	5 00
9.	2	1 20	19.	7	6 00
10.	$2\frac{1}{2}$	1 35	20.	8	7 00

One Set to 2 inch, \$7.80. Full Set, \$44.10.

**Plain Wrenches.**

No. 1,	$\frac{1}{4}$ and $\frac{5}{16}$ inch	\$0 25
" 2,	$\frac{3}{8}$ " "	40
" 3,	$\frac{1}{2}$ " "	50
" 4,	$\frac{3}{4}$ " "	60
" 5,	1 " "	90
" 6,	$1\frac{1}{4}$ " "	1 50
" 7,	$1\frac{3}{8}$ " "	2 50
Per Set		\$8 65

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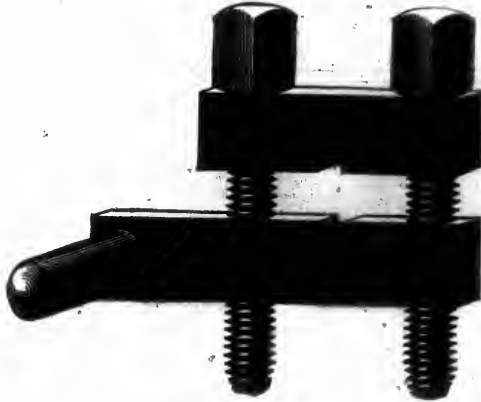
No. 1,  
" 2,  
" 3,  
" 4,  
" 5,  
" 6,

No. 1,  
" 2,  
" 3,  
" 4,  
" 5,

Screws).  
to be driven  
Steel Dog,  
work.

### Steel Clamp Dogs.

These are made from the Steel Bar. They will carry all that can be put into them.



PRICES.

No.	Opens.	Price
1	1 inch.	\$1 25
2	1½ "	1 50
3	2 "	1 75
4	3 "	2 00
		-----
Full Set.		\$6 50

t tail, and  
on on the

Price.
..... \$1 45
..... 1 60
..... 1 80
..... 2 10
..... 2 75
..... 3 25
..... 4 00
..... 5 00
..... 6 00
..... 7 00

### Vise Clamps.

WITH 2 SCREWS. STEEL CASTINGS.

No. 1, opening to 1½ inch	\$1 25
" 2, " 2¼ "	1 50
" 3, " 3¼ "	2 00
" 4, " 4¼ "	2 50
" 5, " 5¼ "	3 25
" 6, " 6¼ "	4 00

Full Set.....\$14 50

### Steel Chuck Drill Holders.

FOR LATHE WORK.

No. 1, taking Drills from ⅜ to 9/16 inch	\$0 50
" 2, " " " ⅝ " "	50
" 3, " " " ¾ " "	60
" 4, " " " 1½ " "	75
" 5, " " " 1½ " 2 "	90

Full Set.....\$3 25



## Vises.

### The "Fisher" Double Screw Parallel Leg Vise.



#### PRICE LIST.

No.	Weight.	Face of Jaws.	Opens.	Price Each.
1	25 lbs.	3½ in.	4½ in.	\$8 50
2	65 "	4½ "	5½ "	12 50
3	90 "	5½ "	6½ "	19 00
4	120 "	6½ "	7½ "	25 00
5	150 "	7 "	9 "	32 00
6	160 "	8 "	10 "	36 00

NOTE.—The No. 1 is too small to require a Leg, and is therefore made without it.

This vise requires very little more power to move than the ordinary single screw vise. It holds the work parallel always, at any opening up to the full measure of its capacity. The jaws are made of the best tool cast steel, welded on, file cut, properly hardened and of convenient shape; and for a strong, durable, convenient vise there is nothing to equal this "Fisher" vise in the market.

No.  
"  
"  
"

No.  
"  
"  
"

Vise

**The Simpson Vise.**



1 Leg Vise.

T.

Opens.	Price Each.
4½ in.	\$8 50
5½ " "	12 50
6½ " "	19 00
7½ " "	25 00
9 " "	32 00
10 " "	36 00

is too small  
is therefore

**Stationary Bench Vises.**

No.	Width of jaws.	Jaws open.	Weight.	Price.
No. 29	2½ inches.	3¼ inches.	15½ lbs.	\$4 75
" 30	3½ " "	4 " "	26 " "	6 50
" 31	4 " "	5 " "	37 " "	8 00
" 32	4½ " "	5¾ " "	49 " "	10 00
" 33	5 " "	6½ " "	64 " "	12 50

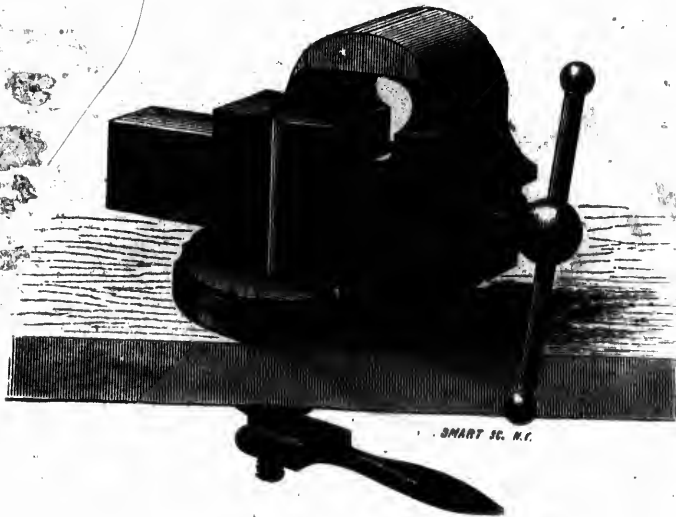
**Standard Vise.**

No.	Width of jaws.	Jaws open.	Weight.	Price.
No. 89	2½ inches.	3¼ inches.	16 lbs.	\$4 75
" 90	3½ " "	4 " "	26½ " "	6 50
" 91	4 " "	5 " "	38 " "	8 00
" 92	4½ " "	6 " "	50 " "	10 00
" 93	5 " "	7 " "	65 " "	12 50

move than  
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These Vises are the same, in all respects, as the Simpson Vise, with the exception of the QUICK ADJUSTMENT.

### The Simpson Vise—Continued.



### Swivel Bench Vises.

No.	Width of Jaws.	Jaws open.	Weight.	Price.
No. 11	2½ inches.	2¾ inches.	9½ lbs	\$4 00
" 12	2¾ "	3¼ "	17½ "	5 50
" 13	3½ "	4 "	28 "	7 50
" 14	4 "	5 "	44 "	10 00
" 15	4½ "	5¾ "	59 "	13 00

### Standard Pattern.

(Without quick adjustment.)

No.	Width of Jaws.	Jaws open.	Weight.	Price.
No. 79	2¾ inches.	3½ inches.	18 lbs.	\$5 50
" 80	3½ "	4 "	28½ "	7 50
" 81	4 "	5 "	45 "	10 00
" 82	4½ "	" "	60 "	13 00

No. 4  
" 4

No. 4

**The Simpson Vice—Continued.**



**Swivel Coachmakers' Vises.**

	Width of Jaws.	Jaws open.	Weight.	Price.
No. 42	4 inches.	8½ inches.	48 lbs.	\$11 50
" 43	4½ "	10½ "	58 "	13 00

**With Swivel Jaw.**

	Width of Jaws.	Jaws open.	Weight.	Price.
No. 46	4 inches.	8½ inches.	52 lbs.	\$13 00



## Double Chain Screw Hoisting Machines.

*(In ordering Chains, allow four feet of Chain to each foot of Lift.)*

This is the most complete chain block manufactured on the Continent. No factory can afford to be without it.

Weight of Machine.	Lift.	To Raise.	Price.	Extra Lift per ft.
35 lbs.	8 ft.	500 lbs.	\$27 00	\$1 20
52 "	8 "	1,000 "	30 00	1 44
65 "	8 "	2,000 "	36 00	1 80
76 "	8 "	3,000 "	48 00	2 00
140 "	9 "	4,000 "	66 00	2 40
226 "	10 "	6,000 "	90 00	2 60
258 "	10 "	8,000 "	115 00	2 90
625 "	12 "	10,000 "	170 00	3 60
750 "	12 "	12,000 "	215 00	4 50
875 "	12 "	16,000 "	315 00	5 70
925 "	12 "	20,000 "	400 00	7 20

2½-in. L  
3-in. B

WHEEL  
ing  
DRAG S  
Wooden  
Iron M

## Force Pumps.

On base. With Air Chamber. Two discharges and cock.



2½-in. Bore, capacity per stroke  $\frac{1}{8}$  gallon, for 1½ pipe, each... \$12 50  
 3-in. Bore, capacity per stroke  $\frac{1}{8}$  gallon, for 1½ or 1½ pipe.... 14 50

## Wheel Barrows and Scrapers.

WHEELED SCRAPER, or self-loading and dumping cart.....	{ No. 2, each	\$50 00
	{ No. 3, each	55 00
DRAG SCRAPER, all steel { No. 1, 7 cubic feet, each.....		13 00
	{ No. 2, 5 cubic feet, each.....	12 00
Wooden Railway Barrows, each.....		2 00
Iron Mining Barrows, No. 4A., each.....		13 50

v Hoisting

ow four feet  
of Lift.)

plete chain  
the Con-  
afford to be

Price.	Extra Lift per ft.
\$27 00	\$1 20
30 00	1 44
36 00	1 80
48 00	2 00
66 00	2 40
90 00	2 60
115 00	2 90
170 00	3 60
215 00	4 50
315 00	5 70
400 00	7 20

# Turbine Water Wheels.

**Leffel's Double Turbine. The Vulcan Double Turbine. The Peerless Single Turbine.**

Size in Inches	Vents.	Material.	Price of "Vulcan."	Price of "Leffel."	Globe Case.	Peerless.	
						Size Inches	Price.
	sq. in.						
6 $\frac{1}{2}$	4 $\frac{1}{10}$	Brass ...	\$80	\$70	\$50	6	sq. in.
7 $\frac{1}{2}$	6 $\frac{1}{2}$	"	90	80	55	8	3 $\frac{1}{2}$
8 $\frac{1}{2}$	8 $\frac{3}{5}$	"	100	85	60	10	6 $\frac{1}{2}$
10	11 $\frac{1}{4}$	"	110	90	65	12	9
11 $\frac{1}{2}$	14 $\frac{3}{8}$	"	120	100	70	14	16
13 $\frac{1}{2}$	19 $\frac{1}{2}$	Brass	80	75	75	16	21
15 $\frac{1}{2}$	26 $\frac{1}{2}$	Gates	90	80	80	18	30
17 $\frac{1}{2}$	34 $\frac{1}{2}$	"	100	90	90	21	36
20	45	Iron	110	90	100	24	45
23	59 $\frac{1}{2}$	"	125	100	115	27	64
26 $\frac{1}{2}$	79	"	150	118	130	30	80
30 $\frac{1}{2}$	104	"	175	135	175	36	100
35	137	"	210	173	.....	42	142
40	180	"	260	215	.....	48	203
44	217	"	300	255	.....	.....	263
48	259	"	340	285	.....	.....	.....
52	338	"	410	330	.....	.....	.....
56	441	"	500	435	.....	.....	.....
61	518	"	650	550	.....	.....	.....
66	624	"	750	600	.....	.....	.....
74	769	"	.....	900	.....	.....	.....
84	991	"	.....	1300	.....	.....	.....
96	1295	"	.....	1500	.....	.....	.....

PATENT M

Size.
4 in.
5 "
6 "
7 "
8 "
9 "
10 "
12 "
14 "
16 "
18 "
20 "
22 "
24 "
26 "
28 "
30 "
32 "
34 "

In ord  
ooth (spee

# Circular Saws.



PATENT MACHINE GROUND, OF EXTRA QUALITY AND SUPERIOR WORKMANSHIP

Size.	Gauge.	Price.	Each Gauge extra.	Size.	Gauge.	Price.	Each Gauge extra.
4 in.	18	\$0 70	\$0 06	36 in.	9	\$21 00	\$1 50
5 "	18	0 92	08	38 "	8	24 20	1 75
6 "	17	1 15	10	40 "	8	29 40	2 25
7 "	17	1 40	12	42 "	8	34 65	2 75
8 "	16	1 68	14	44 "	8	42 00	3 20
9 "	15	1 95	16	46 "	7	49 25	3 75
10 "	14	2 25	18	48 "	6	57 75	4 50
12 "	14	2 85	20	50 "	6	65 65	4 75
14 "	14	3 50	24	52 "	6	76 00	6 30
16 "	13	4 40	30	54 "	6	89 75	7 50
18 "	13	5 30	45	56 "	5	107 50	9 00
20 "	12	6 40	48	58 "	5	126 50	10 50
22 "	12	7 50	52	60 "	5	130 00	12 00
24 "	11	8 60	60	62 "	5	162 75	13 00
26 "	11	10 50	70	64 "	5	189 00	15 75
28 "	11	12 00	80	66 "	5	202 00	18 00
30 "	10	14 00	90	68 "	4	226 00	20 00
32 "	10	16 50	1 00	70 "	4	252 00	22 50
34 "	10	19 50	1 20	72 "	4	284 00	25 00

In ordering, be careful to give diameter, gauge, size of eye, style of tooth (speed of Mill Saws, and whether right or left hand).

n Double  
rbine.

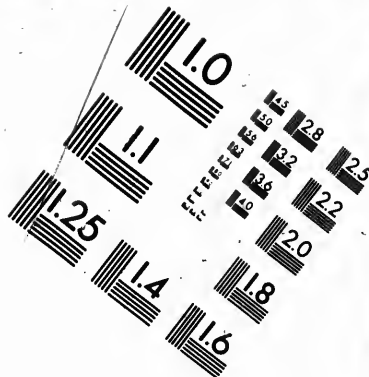
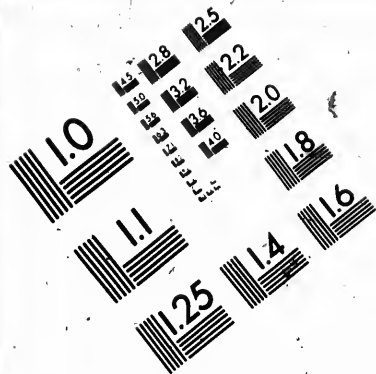
less.

	Price.
n.	\$60
3 1/2	75
4 1/2	90
5	100
6	110
7	130
8	150
9	180
10	225
11	250
12	290
13	340
14	400
15	500

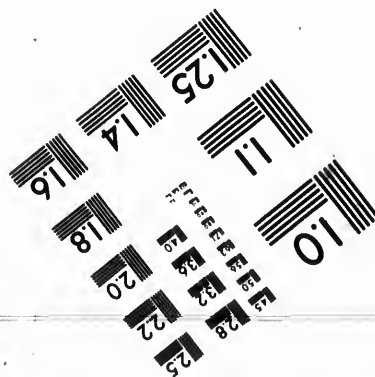
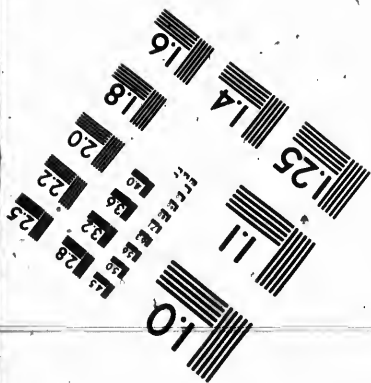
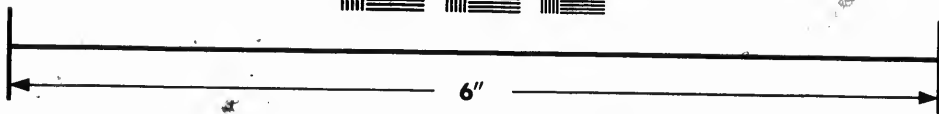
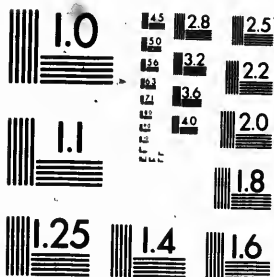








**IMAGE EVALUATION  
TEST TARGET (MT-3)**



**Photographic  
Sciences  
Corporation**

23 WEST MAIN STREET  
WEBSTER, N.Y. 14580  
(716) 872-4503

1.5 2.0 2.2 2.5  
1.8 2.0 2.2 2.5  
2.8 3.2 3.6 4.0

10  
01

**- French Band Saw Blades.**

I have the exclusive agency, and import direct from the makers, in France, these well-known Saws. I purchase in long lengths, and braze to order. Every saw is guaranteed to the satisfaction of the purchaser. Customers can do their own brazing, if they so choose. Prices are for unbrazed Saws. Brazing extra, as per List. Give extreme lengths in ordering, and be particular to say whether you want the Saws brazed or unbrazed.

Width.	Price Per Foot.	Width.	Price Per Foot.	Width.	Price Per Foot.
1/2 in.	10 cts.	1 in.	14 cts.	1 in.	22 cts.
3-16 " "	10 1/2 " "	" "	16 " "	1 1/8 " "	26 " "
1 " "	11 " "	" "	18 " "	1 1/4 " "	30 " "
1 1/4 " "	12 1/2 " "	" "	20 " "	1 3/8 " "	40 " "
Brazing above, 25 "		Brazing above, 40c.		Brazing above, 60 "	

**Band Saw Supplies.**

Silver Solder, per oz. ....	\$2 00	Brazing Tongs, each.....	\$1 50
5 in. 3-Square Files, per doz	2 75	Filing Clamps, ".....	4 00
6 " " " " "	3 00	Brazing Clamps, ".....	3 50
7 " " " " "	3 50	Band Saw Sets, ".....	12 00
		Wheels and Board, ".....	10 00

These Files are made specially for filing the French Band Saws, so as to preserve the round corner of the toothing.

**Drag Saws.**

Teething.	Width at butt.	Width at point.	Usual length.	Price per foot.
Champion .....	10 in.	8 in.	6 ft. 6 in.	\$1 75
Lance.....	10 "	8 "	6 " 6 "	1 75

Diamet  
Price

N<sup>o</sup>.

- 1
- 2
- 3
- 4
- 5

1 1/2  
\$14

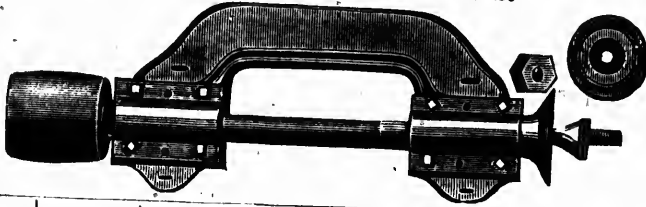
**Shingle Saws.**

(Taper Ground to 14 Gauge at Teeth.)

Diameter... 32 in. 34 in. 36 in. 38 in. 40 in. 42 in. 44 in. 46 in.  
 Price .....\$22.00 \$25.00 \$30.00 \$34.00 \$40.00 \$50.00 \$61.00 \$75.00

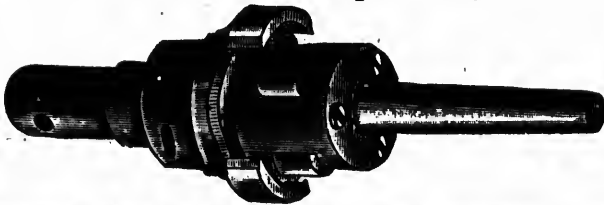
The above prices include drilling for the flange holes.  
 Send templet of flange.

**Improved Saw Mandrels.**



No.	Dist. between Pulley and Saw.	Diameter of Pulley.	Face of Pulley.	Diameter of Spindle.	Speed.	Price.
	Inches.	Inches.	Inches.	Inches.		
1	16	3 1/2	4	1	2,800	\$10 00
2	19 1/2	4 1/2	5 1/2	1 3-16	2,500	12 00
3	22	5 1/2	6	1 7-16	2,000	14 00
4	24	6	7	1 7-16	1,500	16 00
5	36	7	8	1 1/2	1,200	18 00

**Roller Tube Expanders.**



1 1/2 in. 1 3/4 in. 1 7/8 in. 2 in. 2 1/8 in. 2 1/4 in. 2 3/8 in. 2 1/2 in. 2 7/8 in. 3 in.  
 \$14 \$15 \$15 \$15 \$16 \$16 \$18 \$20 \$22.50 \$28

Expanders for Special Purposes made to order.

...t direct from  
 ...s. I purchase  
 ...aw is guaran-  
 ...Customers can  
 ...Prices are for  
 ...Give extreme  
 ...whether you

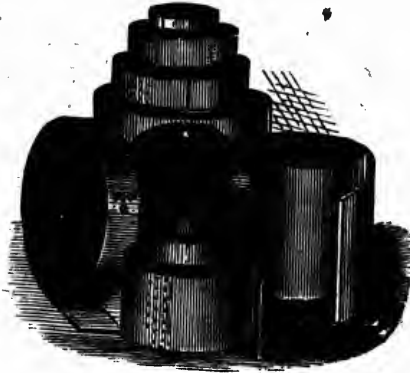
h. Price  
 Per Foot.  
 .. 22 cts.  
 .. 26 "  
 .. 30 "  
 .. 40 "  
 .. above, 60 "

each..... \$1 50  
 "..... 4 00  
 "..... 3 50  
 "..... 12 00  
 d, "..... 10 00

g the French  
 corner of the

al th.	Price per foot.
3 in.	\$1 75
3 "	1 75

# English Oak-Tanned Belting.



I carry a very large stock of GENUINE ENGLISH OAK-TANNED BELTING, imported direct from England. Customers pronounce this belt "the best belt ever brought into Canada." The leather is very even in thickness and of very best quality, being tanned exclusively by the oak

tanning process, and finished in very best style. Joints are all glued and sewed joints (sewed with raw-hide lace) up to 4 in., and glued and sewed and riveted above 4 in.

The widths  $4\frac{1}{2}$  ins. and under weigh 18 oz. to the square foot, and from 5 ins. and over run from 20 to 24 ozs. per square foot. — A number of my customers are using this single belt instead of double belt with very satisfactory results. I have all widths in stock up to 16 ins. in single, and also carry 3,  $3\frac{1}{2}$ , 4, 6, 8, 10, 12, 15 and 18 ins. double.

This belt is guaranteed to run true and straight. I sell by the low Canadian list and guarantee the belt equal or superior to any of the best American belt now imported into Canada and sold on the American price list, which is much higher.

I also carry in widths 4 ins. and under a lighter grade of this belt, weighing about 16 oz. to the square foot. Quality of leather, joints and finish are all similar to "Heavy," but the leather is a little lighter. This I call "No. 1."

	Per foot.		Per foot.		Per foot.
1 inch.....	\$0 07	5 $\frac{1}{2}$ inch.....	0 50	16 inch.....	1 70
1 $\frac{1}{2}$ ".....	0 09 $\frac{1}{2}$	6 ".....	0 55	17 ".....	1 82
1 $\frac{3}{4}$ ".....	0 12	7 ".....	0 65	18 ".....	1 95
2 ".....	0 14	8 ".....	0 75	19 ".....	2 07
2 $\frac{1}{2}$ ".....	0 15	9 ".....	0 85	20 ".....	2 26
3 ".....	0 20	10 ".....	0 95	22 ".....	2 45
3 $\frac{1}{2}$ ".....	0 25	11 ".....	1 07	24 ".....	2 75
4 ".....	0 30	12 ".....	1 20	27 ".....	3 13
4 $\frac{1}{2}$ ".....	0 35	13 ".....	1 32	30 ".....	3 50
5 ".....	0 40	14 ".....	1 44	39 ".....	4 25
	0 45	15 ".....	1 56	49 ".....	5 00

**DOUBLE BELT, DOUBLE PRICE.**

	Per lb.
Best Lace Leather in half hides, ranging from 3 to 7 lbs.....	\$0 80
Cut Laces, any width.....	1 00
Lace Cutters, each.....	0 75

Width.  
 2 inch, 1  
 2 $\frac{1}{2}$  "  
 3 "  
 3 $\frac{1}{2}$  "  
 4 "  
 4 $\frac{1}{2}$  "  
 5 "  
 6 "  
 7 "  
 8 "  
 9 "  
 10 "  
 11 "  
 12 "  
 13 "  
 14 "  
 15 "  
 16 "  
 18 "  
 20 "  
 22 "  
 24 "  
 26 "  
 28 "

(For A

Width.  
 1 inch, per f  
 1 $\frac{1}{2}$  "  
 1 $\frac{3}{4}$  "  
 2 "

Endless  
 that will b

ting.

carry a very  
stock of GEN-  
ENGLISH OAK-  
ED BELTING,  
ed direct from  
d. Customers  
nce this belt  
est belt ever  
into Can-  
The leather  
even in thick-  
d of very best  
being tanned  
ely by the oak  
Joints are  
lace) up to 4  
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to the square  
o 24 ozs. per  
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satisfactory  
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ins. double.  
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y imported  
ist, which is

ghter grade  
square foot.  
similar to  
This I call

Per foot	
.....	1 70
.....	1 82
.....	1 95
.....	2 07
.....	2 26
.....	2 45
.....	2 75
.....	3 13
.....	3 50
.....	4 25
.....	5 00

Per lb.	
.....	\$0 80
.....	1 00
.....	0 75

## Rubber Belting.

(Made from Best Cotton Duck.)

THREE-PLY.		Width.	FOUR-PLY.	
Width.	per foot.....		Width.	per foot.....
2	\$0 17	2	\$0 21	
2½	22	2½	26	
3	26	3	31	
3½	30	3½	37	
4	34	4	42	
4½	39	4½	47	
5	43	5	52	
5½	52	5½	62	
6	60	6	73	
6½	70	6½	84	
7	80	7	95	
7½	90	7½	1 07	
8	1 00	8	1 18	
8½	1 08	8½	1 30	
9	1 18	9	1 42	
9½	1 28	9½	1 54	
10	1 38	10	1 66	
10½	1 50	10½	1 78	
11	1 70	11	2 02	
11½	1 90	11½	2 26	
12	2 12	12	2 52	
12½	2 36	12½	2 80	
13	2 60	13	3 08	
13½	2 84	13½	3 36	
14		14	3 64	

For purposes where unusual strength is re-  
 quired—equivalent to double leather—we make 5 or  
 6-ply Belts to order, at one week's notice at an ad-  
 vance on Four-ply prices of 25 per cent. for each ad-  
 ditional ply.

Intermediate widths at proportionate prices.

## Two-Ply Machine Belting.

(For Agricultural Machines and other Light Work.)

Width.	per foot.....	Width.	per foot.....
1	\$0 07	2½	\$0 18
1½	09	3	22
2	11	3½	26
2½	15	4	30

Endless Belts made to order for which THREE EXTRA  
FEET will be charged for the SPLICE.



**Cotton Belting.**

2 PLY.		3 PLY.		4 PLY.	
Width.	Price.	Width.	Price.	Width.	Price.
1 inch.	\$ 04	1½ inch.	\$0 07	4 inch.	\$0 21
1½ "	05	2 "	09	4½ "	24
2 "	06	2½ "	11	5 "	26
2½ "	07	3 "	13	5½ "	28
3 "	08	3½ "	15	6 "	30
3½ "	09	4 "	16	7 "	34
4 "	10	4½ "	18	8 "	38
5 "	14	5 "	20	9 "	44
6 "	18	5½ "	22	10 "	50
.....		6 "	24	11 "	55
.....		7½ "	28	12 "	60
.....		8 "	32	13 "	67
.....		9 "	36	14 "	75
.....		10 "	40	15 "	83
.....		11 "	45	16 "	90
.....		12 "	50	17 "	95
.....		14 "	62	18 "	1 00
.....		16 "	75	19 "	1 08
.....		18 "	86	20 "	1 15
.....		20 "	96	22 "	1 35

Belting in stock in 3 ply up to 9 inch wide.  
 Any other ply or width not in stock can be procured in ten days  
 after receipt of order.  
 Belts of any width and ply not on this List can be made to order  
 at proportionate prices on short notice.

**Elevator Buckets.**



Across Belt.	Projection.	Capacity.	Price.
		Pints.	cts.
3	X 3	½	5½
3½	X 3	¾	6
4	X 3	1	7
4½	X 3½	1 ⅓	8
5	X 4	1½	10
5½	X 4	1¾	11
6	X 4	2	12
7	X 5	2½	14

Odd sizes, 20 per cent. additional.

M.

FOR NEW

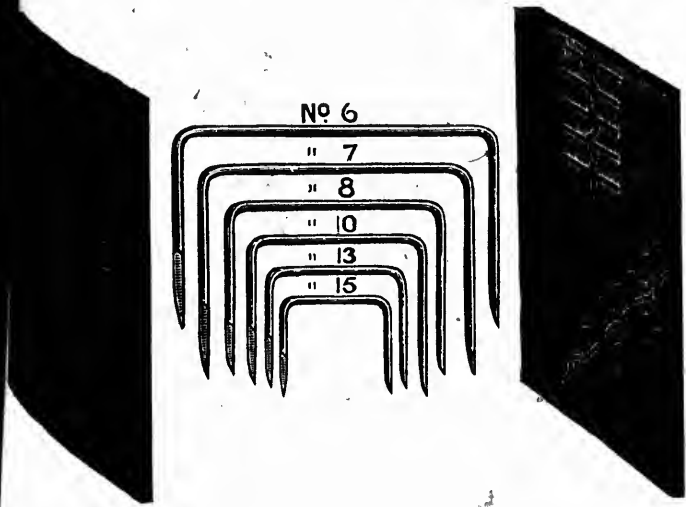
No. 15, 1  
 " 13,  
 " 10,  
 " 8,  
 " 7,  
 " 6,

Place  
 and drive  
 the edge  
 half inch  
 on a piece  
 of the pro  
 back into  
 Now drive  
 clinched  
 and you v

**"Buffalo" Belt Fastener.**

4 PLY.

Width.	Price.
inch.	\$0 21
"	24
"	26
"	28
"	30
"	34
"	38
"	44
"	50
"	55
"	60
"	67
"	75
"	83
"	90
"	95
"	1 00
"	1 08
"	1 15
"	1 35



FOR NEW BELTS.

FOR OLD BELTS.

No.	Quantity	Price.
No. 15,	1,000 in each box, per 1,000	\$1 50
" 13,	" " " " "	2 00
" 10,	" " " " "	2 50
" 8,	500 " " " "	3 50
" 7,	250 " " " "	4 00
" 6,	250 " " " "	5 00

Pliers for clinching, 35 cents per pair.

**DIRECTIONS.**

Place the ends of the belt to be fastened on a block of soft wood and drive the fasteners, beginning about one-fourth of an inch from the edge of the belt, and continue driving them at distances of one-half inch apart. Having done this, turn the belt over and place it on a piece of iron; if you have pincers use them to curve the points of the projecting fasteners, then use the hammer to drive the points *back into the belt*. (Always clinch them toward the end of the belt.) Now drive fasteners between those just clinched so that they may be *clinched on the side that the others were driven*. Clinch as before, and you will have the best, cheapest and most simple fastening in use.

Capacity.	Price.
nts.	cts.
5 1/2	5 1/2
6	6
7	7
8	8
10	10
11	11
12	12
14	14

tional.

Rubber Hose.

Internal Diam.	STANDARD.			STEAM.				SUCTION. 4 Ply Hard Rubber.
	2 Ply Con'g.	3 Ply Hyd.	4 Ply Eng.	3 Ply 20 lbs. Steam	4 Ply 35 lbs. Steam	5 Ply 50 lbs. Steam	6 Ply 75 lbs. Steam	
$\frac{1}{2}$ in.	\$0 20	\$0 25	\$0 30	\$0 43	\$0 51	\$0 64	\$0 76	.....
$\frac{3}{4}$	25	30	37	51	67	83	1 00	.....
1	33	40	50	67	83	1 04	1 25	\$0 75
1 $\frac{1}{2}$	42	50	62	85	1 04	1 30	1 56	93
1 $\frac{3}{4}$	50	60	75	1 02	1 25	1 56	1 87	1 13
2	66	80	1 00	1 34	1 66	2 07	2 49	1 50
2 $\frac{1}{2}$	83	1 00	1 25	1 66	2 08	2 60	3 12	1 88
3	99	1 20	1 50	.....	.....	.....	.....	.....

**Linen Hose.****Cotton Hose.**

Inches.	Unlined, Seamless.	Rubber Lined.
1	\$0 20	.....
1 $\frac{1}{2}$	24	.....
1 $\frac{3}{4}$	30	.....
2	36	\$0 65
2 $\frac{1}{2}$	45	75

For Hose Couplings, Branches, Fastners, Menders, &c., see page 51  
 For Steam Fire Engine Hose, write for prices and particulars.

TONGUE  
 THE SHIM  
 parts that  
 form their  
 No part c  
 cutting e  
 and easy run  
 other Heads  
 upwards ...  
 other Heads,  
 They are r  
 site for  
 all Shimer's  
 application  
 25,000 of  
 Each head  
 and number  
 and is kept  
 When you  
 heads, please  
 depend upon  
 tly. Be s  
 ing for it.

# The Shimer Matcher Heads.



TONGUE HEAD.



GROOVE HEAD.

THE SHIMER MATCHER HEADS represent a combination of parts that give to the Bits the best possible position to perform their work at once neatly and economically.

No part of the bit comes in contact with the lumber but the cutting edge; hence their widespread reputation for light and easy running.

Matcher Heads, per set, complete with Bits, 2½ circle and upwards ..... \$38 00  
 Matcher Heads, per set, complete with Bits, 2½ circle and under. 36 00

They are made to fit any Matcher in use. Write for special large Catalogue giving full particulars of all Shimer's productions. Measurement cards furnished on application.

25,000 of the Shimer Cutter Heads are now in use. Each head is stamped with a number agreeing with a record number in Mr. Shimer's Order Book. A careful record is kept of every head made and all its parts.

When you order Cutters or anything pertaining to these heads, please refer to the record number that you will find stamped upon each head, and I will understand your wants readily. Be sure to give the number; it will save time in finding for it.

SUCTION.	
6 Ply 75 lbs. Steam	4 Ply Hard Rubber.
\$0 76	.....
1 00	.....
1 25	\$0 75
1 56	93
1 87	1 13
2 49	1 50
3 12	1 88

Hose.

r Lined.

tc., see page 51  
 particulars.



# Eagle Anvils.



These anvils are fully warranted. The "Peter Wright" and all anvils, except the EAGLE, are made with a body and horn of fibrous wrought iron. This soft iron gradually settles, carrying the face with it, and the anvil becomes hollowed on the face. Shear steel for the face is used, but it can never be made to take good temper like cast steel. The EAGLE ANVIL body is made of gun metal—crystallized iron—which neither settles nor breaks, and not only the face, but the horn also, is of the best Tool Cast Steel, welded on so perfectly by the process of its original and only inventor, the late Mr. Mark Fisher, that it is warranted never to come off. The face, planed to a true surface, is made so hard that it always remains so. The steel horn is tough and unhardened and will not break or bend.

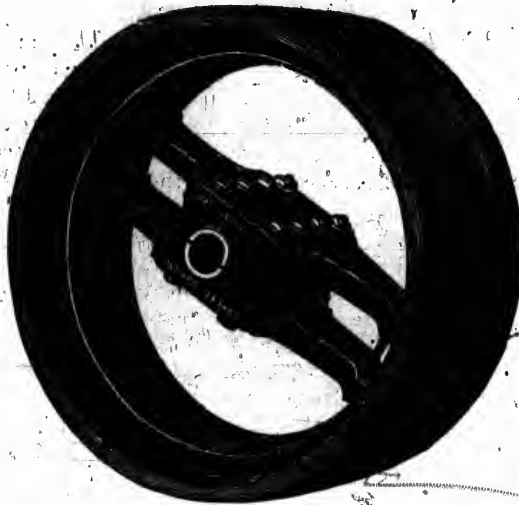
## STANDARD DIMENSIONS.

Weight.	FACE.			HORN.
	Length.	Width.	Cutter Hole Square.	Length.
Pounds.	Inches.	Inches.	Inches.	Inches.
100	12	3½	1	8½
110	12½	3½	1	8½
120	12½	3½	1	8½
130	13½	3½	1	9
140	14	4	1	9
155	14½	4	1	10
160	14½	4	1	10
170	15	4½	1	10
180	15	4½	1	10
200	16½	4½	1	10½
215	17	4½	1	10½
225	16½	4½	1	10½
250	17½	5	1	10½
275	17½	5	1	11
300	18	5½	1	11½
350	19½	6	1	12
400	21	6	1	12½
150	22	6½	1	14
500	23	6½	1	14½

Horns  
Faced  
(Special)

Price 11c. per lb.

# Dodge Wood Split Pulleys.



Give diameter, face and bore, and state whether straight or crowing face, when ordering.

		WIDTH OF FACE—INCHES										
		3	4	5	6	7	8	9	10	12	14	16
DIAMETER—INCHES	12	\$2 80	\$2 95	\$3 20	\$3 55	\$3 70	\$3 85	\$4 08	\$4 30	\$5 10		
	14	3 00	3 25	3 65	4 10	4 40	4 70	5 02	5 35	6 00	\$6 60	
	16	3 30	3 65	4 05	4 60	5 05	5 50	5 90	6 30	7 00	7 70	
	18	3 70	4 05	4 55	5 10	5 65	6 20	6 65	7 10	8 00	9 00	\$10 7
	20		4 45	5 20	6 00	6 60	7 15	7 60	8 00	9 50	11 00	12 60
	22		4 95	5 90	6 85	7 45	8 00	8 70	9 40	11 20	13 00	14 20
	24		5 40	6 35	7 30	8 05	8 80	9 65	10 45	12 70	15 10	17 50
	26		6 35	7 00	7 95	8 80	9 60	10 05	11 40	14 20	17 50	20 80

For odd inches of diameter and face, divide the difference between the even inches, lower and higher.

5
28 7 80
30 8 60
32 9 40
34 10 50
36 11 90
40 14 50
44 17 50
48 22 00
50
54
56
60
66
72
78
84
90
96

For the even

**Dodge Wood Split Pulleys.—Continued.**

WIDTH OF FACE—INCHES

DIAMETER—INCHES	WIDTH OF FACE—INCHES										
	5	6	8	10	12	14	16	18	20	22	24
28	7 80	8 60	10 30	12 10	15 25	19 00	23 00	26 90	33 00	37 00	41 50
30	8 60	9 40	11 50	13 25	16 50	21 00	25 40	30 00	34 50	38 25	42 25
32	9 40	10 30	12 90	15 00	17 90	22 75	27 75	32 25	36 25	40 25	44 25
34	10 50	11 50	14 50	17 00	20 00	24 50	30 00	34 50	38 75	42 75	46 75
36	11 90	13 00	16 00	19 10	22 50	26 50	32 40	37 00	41 50	45 50	49 50
40	14 50	16 00	19 00	22 50	26 75	31 00	36 25	41 50	48 00	52 50	58 00
44	17 50	19 50	23 75	27 50	31 50	36 00	40 75	46 00	54 00	59 00	67 00
48	22 00	24 50	28 00	32 50	36 00	41 00	45 00	50 00	62 00	71 50	80 00
50		27 25	31 50	35 50	39 00	44 00	50 00	56 00	65 00	74 50	85 50
54		33 50	37 50	41 00	45 00	49 50	55 50	64 50	73 50	83 00	92 50
56		37 00	40 50	44 50	48 50	53 50	60 00	69 50	84 00	93 25	102 50
60		42 50	47 00	51 50	56 00	62 00	68 50	78 00	91 00	101 00	111 00
66		47 00	51 50	57 00	63 50	71 50	80 00	89 00	103 00	115 00	130 00
72		51 50	57 00	64 00	71 50	80 00	90 00	100 00	115 00	131 00	145 00
78			79 00	87 00	95 00	104 00	114 00	124 00	134 00	146 00	168 00
84			95 00	102 00	110 00	119 00	129 00	139 00	154 00	170 00	193 00
90			110 00	117 00	125 00	134 00	144 00	154 00	174 00	192 00	217 00
96			124 00	131 00	140 00	150 00	160 00	170 00	192 00	212 00	237 00

For odd inches of diameter and face, divide the difference between the even inches, lower and higher.

on crow  
14 16  
36 60  
7 70  
9 00 \$10 7  
11 00 12 60  
13 00 14 20  
15 10 17 50  
17 50 20 80

e between



**Steel Set Screws.**



PRICE PER HUNDRED.

Length under head to point.	Diameter of Screw.								
	$\frac{1}{4}$	5-16	$\frac{3}{8}$	7-16	$\frac{1}{2}$	9-16	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$
$\frac{3}{4}$	\$4 80	\$5 30	\$6 00	\$6 95	\$8 15	\$9 60	\$12 00	.....	.....
1	5 15	5 65	6 35	7 45	8 65	10 20	12 00	\$16 80	.....
1 $\frac{1}{4}$	5 50	6 00	6 70	7 95	9 15	10 80	12 60	16 80	\$24 60
1 $\frac{1}{2}$	5 85	6 35	7 05	8 45	9 65	11 40	13 20	18 00	24 60
1 $\frac{3}{4}$	6 20	6 70	7 45	9 00	10 20	12 10	13 90	19 30	26 20
2	6 60	7 10	7 90	9 60	10 80	12 80	14 70	20 80	28 00
2 $\frac{1}{4}$	.....	7 55	8 40	10 20	11 50	13 60	15 50	22 40	30 00
2 $\frac{1}{2}$	.....	.....	9 00	11 00	12 20	14 50	16 40	24 10	32 30
2 $\frac{3}{4}$	.....	.....	.....	11 80	13 00	15 50	17 40	25 90	34 70
3	.....	.....	.....	.....	13 90	16 60	18 50	27 80	37 30
Threads	20	18	16	14	12	12	11	10	9
Add for each $\frac{1}{4}$ in	\$0 45	\$0 50	\$0 70	\$0 90	\$1 00	\$1 20	\$1 25	\$2 00	\$2 80

**Iron Set Screws (Case Hardened).**

Length under head to point.	Diameter of Screw.										
	$\frac{1}{4}$	5-16	$\frac{3}{8}$	7-16	$\frac{1}{2}$	9-16	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	
$\frac{3}{4}$	\$ c. 2 00	\$ c. 2 20	\$ c. 2 50	\$ c. 2 90	\$ c. 3 40	\$ c. 4 25	\$ c. 5 00	.....	.....	.....	.....
1	2 15	2 35	2 65	3 10	3 60	4 25	5 00	7 00	.....	.....	.....
1 $\frac{1}{4}$	2 30	2 50	3 00	3 30	3 80	4 50	5 25	7 00	11 30	.....	.....
1 $\frac{1}{2}$	2 45	2 65	2 95	3 50	4 00	4 75	5 50	7 50	11 30	14 90	.....
1 $\frac{3}{4}$	2 60	2 80	3 10	3 70	4 20	5 00	5 75	8 00	12 00	15 90	.....
2	2 80	3 00	3 30	3 95	4 45	5 30	6 05	8 60	12 90	17 00	.....
2 $\frac{1}{4}$	.....	3 25	3 55	4 25	4 75	5 65	6 40	9 30	13 80	18 40	.....
2 $\frac{1}{2}$	.....	.....	3 85	4 60	5 10	6 05	6 80	10 00	14 80	19 80	.....
2 $\frac{3}{4}$	.....	.....	.....	5 00	5 50	6 50	7 25	10 80	15 90	21 40	.....
3	.....	.....	.....	.....	5 95	7 00	7 75	11 70	17 10	23 00	.....
Threads	20	18	16	14	12	12	11	10	9	8	
Add for each $\frac{1}{4}$ in	0 25	0 30	0 35	0 45	0 50	0 55	0 60	1 00	1 30	1 70	

## Square Head Cap Screws.



PRICE PER HUNDRED.

Dia. of Head.....	$\frac{3}{8}$	7-16	$\frac{1}{2}$	9-16	$\frac{5}{8}$	$1\frac{1}{8}$	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	
Length of Head...	9-32	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	9-16	$\frac{5}{8}$	11-16	13-16	15-16	$1\frac{1}{8}$
Dia. of Screw.....	$\frac{1}{4}$	5-16	$\frac{3}{8}$	7-16	$\frac{1}{2}$	9-16	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Length under Head to Point.	$\frac{3}{4}$	2 40	2 75	3 20	3 80	4 40	5 75	.....	.....	.....
	1	2 60	2 95	3 40	4 00	4 70	5 75	7 70	.....	.....
	$1\frac{1}{4}$	2 75	3 10	3 65	4 20	4 95	6 05	7 70	10 50	.....
	$1\frac{1}{2}$	2 90	3 30	3 85	4 45	5 25	6 35	8 25	10 50	14 00
	$1\frac{3}{4}$	3 05	3 50	4 10	4 70	5 55	6 65	8 80	11 10	14 80
	2	3 25	3 70	4 35	4 95	5 90	7 05	9 40	11 80	15 70
	$2\frac{1}{4}$	.....	4 00	4 65	5 25	6 30	7 55	10 10	12 60	16 70
	$2\frac{1}{2}$	.....	.....	5 00	5 60	6 75	8 15	10 90	13 50	17 80
	$2\frac{3}{4}$	.....	.....	.....	6 00	7 25	8 85	11 80	14 60	19 10
	3	.....	.....	.....	.....	7 80	9 65	12 80	15 90	20 25
Threads to inch..	20	18	16	14	12	12	11	10	9	8
Add for each $\frac{1}{4}$ in..	25	35	45	55	65	90	1 20	1 50	1 80	2 30

## Hexagon Head Cap Screws.

Diameter of Head...	7-16	$\frac{1}{2}$	9-16	$\frac{5}{8}$	$\frac{3}{4}$	13-16	$\frac{7}{8}$	1	$1\frac{1}{2}$
Length of Head....	9-32	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	9-16	$\frac{5}{8}$	11-16	13-16	15-16
Diameter of Screw..	$\frac{1}{4}$	5-16	$\frac{3}{8}$	7-16	$\frac{1}{2}$	9-16	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$
Length under Head to Point.	$\frac{3}{4}$	3 00	3 25	3 75	4 40	5 50	7 00	.....	.....
	1	3 25	3 50	4 00	4 70	5 70	7 00	9 50	.....
	$1\frac{1}{4}$	3 50	3 75	4 25	5 00	6 00	7 50	9 50	12 20
	$1\frac{1}{2}$	3 75	4 00	4 50	5 30	6 30	8 00	10 00	12 20
	$1\frac{3}{4}$	4 00	4 25	4 75	5 60	6 60	8 50	10 60	12 80
	2	4 25	4 60	5 05	5 95	7 00	9 10	11 20	13 40
	$2\frac{1}{4}$	.....	5 00	5 40	6 35	7 50	9 70	11 90	14 10
	$2\frac{1}{2}$	.....	.....	5 80	6 80	8 00	10 40	12 70	14 90
	$2\frac{3}{4}$	.....	.....	.....	7 30	8 60	11 20	13 60	15 90
	3	.....	.....	.....	.....	9 30	12 10	14 70	17 60
Threads to inch.....	20	18	16	14	12	12	11	10	9
Add for each $\frac{1}{4}$ inch.	30	40	50	60	80	\$1 00	\$1 30	\$1 60	\$2 00



PRICE OF MATERIALS FOR AIR-CHAMBER COVERINGS, COMPLETE, INCLUDING CANVAS.

Single Air-Chamber Covering, per sq. foot, flat measure, 21 cts.  
 Double Air-Chamber Covering, " " " " " " 26 cts.

PRICE PER LINEAL FOOT ON REGULAR SIZES OF PIPE.

Sizes of Pipe.	$\frac{3}{8}$ in.	$\frac{1}{2}$ in.	1 in.	$1\frac{1}{2}$ in.	2 in.	$2\frac{1}{2}$ in.	3 in.	$3\frac{1}{2}$ in.	4 in.	5 in.	6 in.
Single Air-Chamber Covering...	18	20	23	27	32	36	41	45	50	60	69
Double Air-Chamber Covering....	27	33	36	42	48	54	60	66	72	87	102

Asbestos Piston Rod Packing,  $1\frac{1}{2}$  in. to 2 in. diameter..... 50c.  
 " Wick " in 1 lb. balls..... 50  
 " Millboard " 40 x 40..... 30  
 " Cement Felting, per bbl., (160 lbs)..... \$5.00

**Rubber Steam Packing.**

Cloth insertion—cloth on either or both sides—1-16 or thinner, 1, 2 or 3 ply..... per lb. 35c.  
 3-32 or thicker, 1, 2 or 3 ply..... " 30c.  
 Square piston and valve rod, 1, 2 or 3 ply..... " 80c.  
 Russia Hemp Packing..... per lb. 20c.  
 Italian " "..... " 30c.  
 Soapstone " "..... " 30c.  
 Kidders' Plumbago  $\frac{1}{2}$  in. and thicker..... " 60c.

Length.

$1\frac{1}{2}$  inch  
 2 "  
 2 $\frac{1}{2}$  "  
 3 "  
 3 $\frac{1}{2}$  "  
 4 "  
 4 $\frac{1}{2}$  "  
 5 "  
 5 $\frac{1}{2}$  "  
 6 "  
 6 $\frac{1}{2}$  "  
 7 "  
 7 $\frac{1}{2}$  "  
 8 "  
 9 "  
 10 "  
 11 "  
 12 "  
 13 "  
 14 "  
 15 "  
 16 "  
 17 "  
 18 "  
 19 "  
 20 "

Bolts

If bot

cent. extr

**Machine Bolts.**

PRICE PER HUNDRED.

Length.	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1 -
1½ inch	\$2 80	\$3 20	\$3 60	\$4 60	\$5 00	\$7 20	\$10 50	\$14 90	\$22 00
2 " "	2 90	3 35	3 80	4 90	5 30	7 70	11 10	15 80	23 10
2½ " "	3 00	3 50	4 00	5 20	5 60	8 20	11 70	16 60	24 20
3 " "	3 10	3 65	4 20	5 50	5 90	8 70	12 30	17 50	25 80
3½ " "	3 20	3 80	4 40	5 80	6 20	9 20	12 90	18 30	26 40
4 " "	3 30	3 95	4 60	6 10	6 50	9 70	13 50	19 20	27 50
4½ " "	3 40	4 10	4 80	6 40	6 80	10 20	14 10	20 00	28 60
5 " "	3 50	4 25	5 00	6 70	7 10	10 70	14 70	20 90	29 70
5½ " "	3 60	4 40	5 20	7 00	7 40	11 20	15 30	21 70	30 80
6 " "	3 70	4 55	5 40	7 30	7 70	11 70	15 90	22 60	31 90
6½ " "	3 80	4 70	5 60	7 60	8 00	12 20	16 50	23 40	33 00
7 " "	3 90	4 85	5 80	7 90	8 30	12 70	17 10	24 30	34 10
7½ " "	4 00	5 00	6 00	8 20	8 60	13 20	17 70	25 10	35 20
8 " "	4 10	5 15	6 20	8 50	8 90	13 70	18 30	26 00	36 30
9 " "	.....	.....	6 60	9 10	9 50	14 75	19 50	27 70	38 50
10 " "	.....	.....	7 00	9 70	10 10	15 75	20 70	29 40	40 70
11 " "	.....	.....	7 40	10 30	10 70	16 75	21 90	31 10	42 90
12 " "	.....	.....	7 80	10 90	11 30	17 75	23 10	32 80	45 10
13 " "	.....	.....	.....	.....	11 90	18 75	24 30	34 50	47 30
14 " "	.....	.....	.....	.....	12 50	19 75	25 50	36 20	49 50
15 " "	.....	.....	.....	.....	13 10	20 75	26 70	37 90	51 70
16 " "	.....	.....	.....	.....	13 70	21 75	27 90	39 60	53 90
17 " "	.....	.....	.....	.....	14 30	22 75	29 10	41 30	56 10
18 " "	.....	.....	.....	.....	14 90	23 75	30 30	43 00	58 30
19 " "	.....	.....	.....	.....	15 50	24 75	31 50	44 70	60 50
20 " "	.....	.....	.....	.....	16 10	25 75	32 70	46 40	62 70

Bolts with Hexagon Nuts, 10 per cent. extra.

If both Hexagon Heads and Hexagon Nuts, 20 per cent. extra.

TE, INCLUDING

21 cts.  
26 cts.

4 in.	5 in.	6 in.
50	60	69
72	87	102

..... 50c.  
..... 50  
..... 30  
..... \$5.00

per lb. 35c.  
" 30c.  
" 80c.  
per lb. 20c.  
" 30c.  
" 30c.  
" 60c.

Common Carriage Bells.

PRICE PER HUNDRED.

Length	1 1/2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
140	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
141	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
142	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
143	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
144	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
145	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
146	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
147	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
148	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
149	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
150	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
151	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
152	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
153	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
154	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
155	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
156	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
157	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
158	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
159	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
160	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
161	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
162	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
163	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
164	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
165	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
166	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
167	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
168	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
169	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
170	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
171	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
172	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
173	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
174	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
175	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
176	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
177	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
178	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
179	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
181	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
182	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
183	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
184	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
185	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
186	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
187	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
188	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
189	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
190	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
191	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
192	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
193	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
194	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
195	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
196	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
197	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
198	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
199	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Diam

1 1/2  
1 3/4  
2  
2 1/4  
2 3/4  
3  
3 1/4  
3 1/2

1 1/2 inch  
1 3/4  
2  
2 1/4  
2 3/4  
3

**Square and Hexagon Nuts.**

(Hot Pressed. U.S. Standard sizes.)

Diameter.	Thick.	Hole.	Bolt.	Price.	
				Square.	Hexagon.
$\frac{1}{2}$	$\frac{1}{8}$	$\frac{11}{16}$	$\frac{1}{4}$	13 cents.	20 cents.
$\frac{3}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	12 "	18 "
$\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	10.5 "	14 "
$\frac{3}{4}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	10 "	13. "
$\frac{7}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	9 "	11.2 "
$1\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	9 "	11.2 "
$1\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	8.7 "	10.2 "
$1\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	8.4 "	9.9 "
$1\frac{3}{4}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	8.4 "	9.9 "
$1\frac{7}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	8.2 "	9.7 "
$1\frac{15}{16}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	8.2 "	9.7 "
$2$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	8.4 "	9.9 "
$2\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	8.4 "	9.9 "
$2\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	8.8 "	10.3 "
$2\frac{3}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	8.8 "	10.3 "
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$2\frac{7}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	9.5 "	11 "
$3$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	10 "	11.5 "
$3\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	10 "	11.5 "

**Flat Head Stove Bolts.**

Length.	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$
	$\frac{1}{4}$ inch.....	\$0 65	\$1 05
1 ".....	70	1 10	2 20
$1\frac{1}{4}$ ".....	75	1 15	2 20
$1\frac{1}{2}$ ".....	80	1 20	2 20
$1\frac{3}{4}$ ".....	85	1 25	2 20
2 ".....	90	1 30	2 20
$2\frac{1}{4}$ ".....	95	1 35	2 30
$2\frac{1}{2}$ ".....	1 00	1 40	2 40
$2\frac{3}{4}$ ".....	1 05	1 45	2 50
3 ".....	1 10	1 50	2 60

## Sundry Goods.

- Boiler Tubes.** Size  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ , 2,  $2\frac{1}{4}$ ,  $2\frac{1}{2}$ , 3,  $3\frac{1}{4}$ , 4. Price: Lowest market. Send for quotations.
- Boiler Plates.** Steel and Iron. Send for circular.
- Sheet Iron,** at lowest market prices. Give size and gauge in ordering.
- Guy Wire.** Galvanized. 7 Strands.  
 Size of each strand..... No. 19 No. 18 No. 17 No. 16  
 Price per 100 feet..... 60c. 70c. 80c. \$1.00
- Wire Rope.** Homogeneous Steel—hemp centre—6 strands of 7 wires each.  
 Diameter  $\frac{3}{8}$   $\frac{7}{16}$   $\frac{1}{2}$   $\frac{5}{8}$   $\frac{3}{4}$   $\frac{7}{8}$   $1$   $1\frac{1}{8}$   
 Per foot 4c. 5c. 6c. 7c. 8c. 9c. 12c. 16c.
- Chain,** from  $\frac{1}{2}$  to 1 inch, in lengths to suit, at lowest market prices.
- Babbitt.** No. 0 1 A  
 Per pound 10c. 12c. 35c.
- Grindstones.** Any size and grade at lowest market prices.
- Shafting,** turned to standard, in sizes 1 in. to 6 in. diameter. Usual sizes in stock ready for shipment, at lowest market price.
- Hangers.** Adjustable drop, post, beam or standard pattern; sizes  $1\frac{1}{2}$  to 3 in. in stock, at lowest market prices. Prompt delivery.
- Pulleys.** Any size of Pulley furnished. Give diameter, face and bore, and state whether crowning or straight-face when ordering. I always have a large number of pulleys on hand.
- Castings** of every description at lowest market prices.
- Waste.** Best Machined Cotton Waste.  
 No. 1, White, per lb. 10c. No. 1, Colored, per lb. 8c.  
 " 2, " " 9c. " 2, " " 7c.
- Pick Handles.** Miners extra, per doz. \$2.50, No. 1 \$2.00, No. 2, \$1.50. Fork, axe and hammer handles to order.
- Standard Punches.** Richards' Patent Standard Size Punches, Dies and Couplings, from  $\frac{1}{8}$  to  $1\frac{1}{4}$  in. Send for circulars.
- Speed Indicators,** each \$1.50.
- Pulsometers.** Send for catalogue.
- Centrifugal Pumps.** Send for catalogue.

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## Portable Platform Scales.

### WITHOUT WHEELS.

No.	Capacity	Platform	Price
No. 11 $\frac{1}{2}$	400 lbs.	22 x 15 in.	\$19 50
" 11	600 "	25 x 16 in.	23 50
" 10 $\frac{1}{2}$	1,000 "	26 x 17 in.	26 00
" 10	1,200 "	28 x 20 in.	31 00
" 9	1,500 "	28 x 21 in.	34 00
" 8	2,000 "	30 x 23 in.	37 00
" 7	2,500 "	30 x 23 in.	47 00

### WITH WHEELS.

No.	Capacity	Platform	Price
No. 11 $\frac{1}{2}$	400 lbs.	22 x 15 in.	\$21 50
" 11	600 "	25 x 16 in.	25 50
" 10 $\frac{1}{2}$	1,000 "	26 x 17 in.	29 00
" 10	1,200 "	28 x 20 in.	34 00
" 9	1,500 "	28 x 21 in.	37 00
" 8	2,000 "	30 x 23 in.	40 00
" 7	2,500 "	30 x 23 in.	50 00

### WITH HEAVY WHEELS AND DROP LEVER.

No.	Capacity	Platform	Price
No. 10 $\frac{1}{2}$	1,200 lbs.	26 x 17 in.	\$33 00
" 10	1,500 "	28 x 20 in.	38 00
" 9	2,000 "	28 x 21 in.	46 00
" 8	2,500 "	30 x 23 in.	51 00
" 7	3,000 "	30 x 23 in.	61 00

## Warehouse Scales.

No.	Capacity	Platform	Price	WITH WHEELS.	WITHOUT.
No. 1	5,000 lbs.	48 x 48 in.	\$110 00	\$100 00	
" 4	3,500 "	42 x 44 in.	85 00	80 00	
" 5	3,000 "	31 x 40 in.	63 00	65 00	
" 7	2,500 "	25 x 34 in.	63 00	65 00	
" 9	2,000 "	21 x 31 in.	50 00	46 00	

## Counter Scale.

(Capacity 1-2 oz. to 36 lbs.)

Price, with Tin Scoop.....	\$8 00
" " Brass Scoop.....	9 00

## Grocers' Scale—Single Beam.

(Capacity 1-2 oz. to 62 lbs.)

Price, with Tin Scoop.....	\$9 00
" " Brass Scoop.....	10 00



**Pecora Paint Co.'s Steel Colors,**

**FOR ENGINES, TOOLS AND GENERAL MACHINERY.**

This paint gives a smooth and handsome finish; dries quick and hard; is uniform in shade, and very durable. In four shades—light, standard, medium, and dark.

Barrels (800 lbs.).....	at 10c. per lb.
Half Barrels (400 lbs.).....	" 10½c. "
Quarter Barrels (150 to 250 lbs.).....	" 11c. "
Cans (6 in a case), 25 lbs. each.....	" 12c. "
"Paint Thinner," for Flat Color.....	90c. per gal.
Iron Filler.....	\$2.80 "

The Filler makes rough castings smooth, fills all holes and irregularities even, thus preparing the castings for a fine finish with the "Steel Color."

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# THE SPILKER JOINT-CUTTER.

AHEAD OF ALL OTHERS FOR CHEAPNESS, DURABILITY,  
AND RAPID OPERATION.



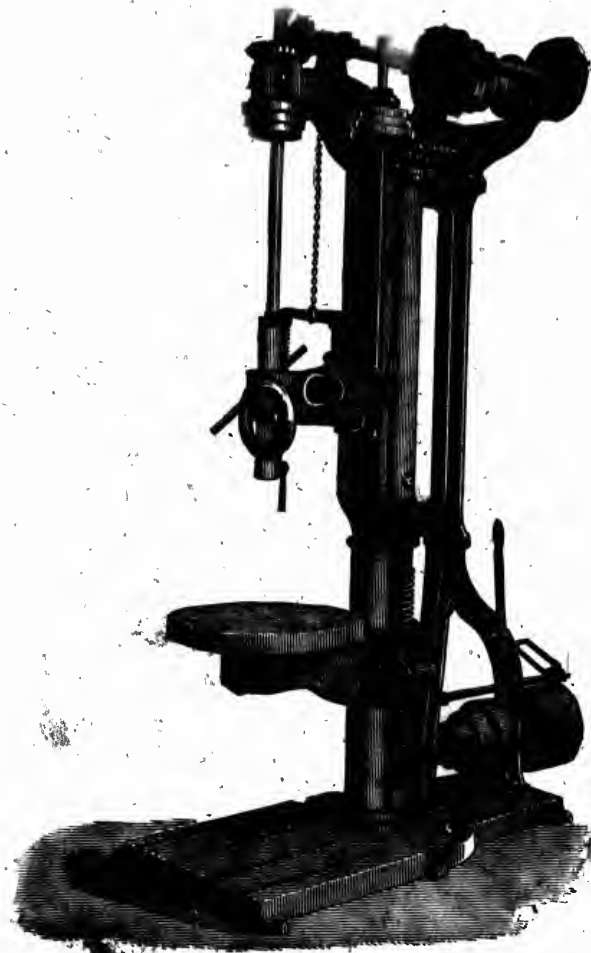
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FEB. 18-79.

Undoubtedly the best Mitre machine ever offered; has stood the severest tests. They are used by Picture Frame, Sash, Door and Blind and Cabinet and Furniture Manufacturers, and in every branch where mitring is done. A Joint-Cutter will do mitring perfect in two-thirds less time than others.

Any one with very little practice can do work on this machine equal to the best mechanic.

Price, No. 1 Size, Cuts 4 inches wide, 3½ inches high. \$36.00 net.

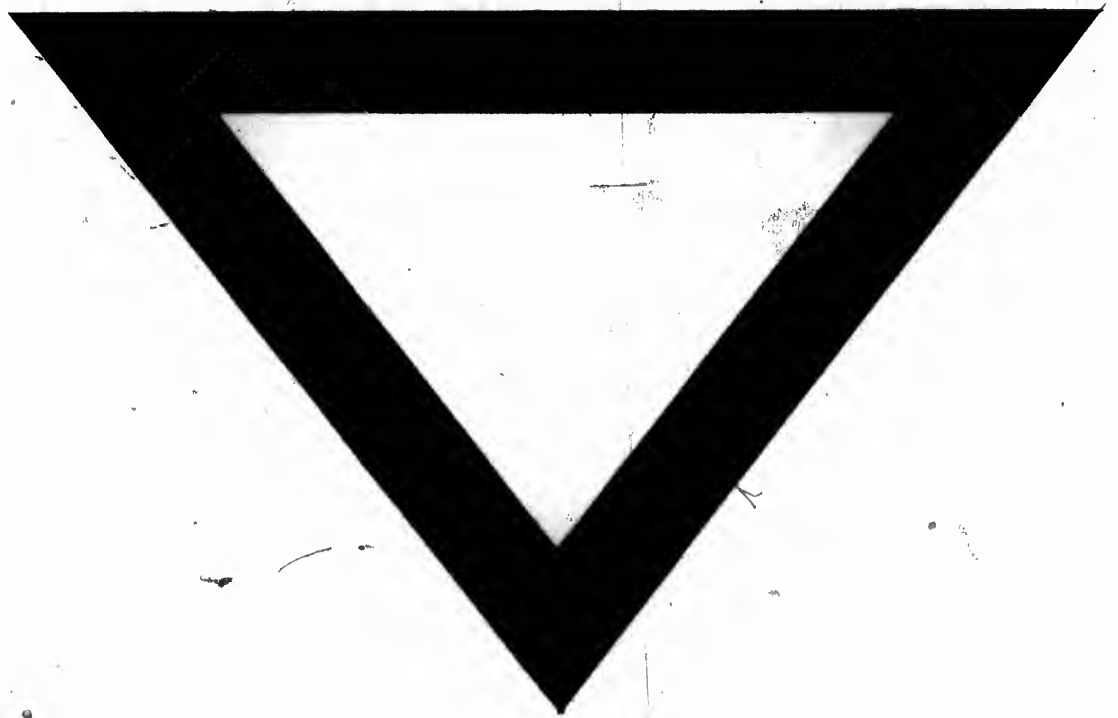
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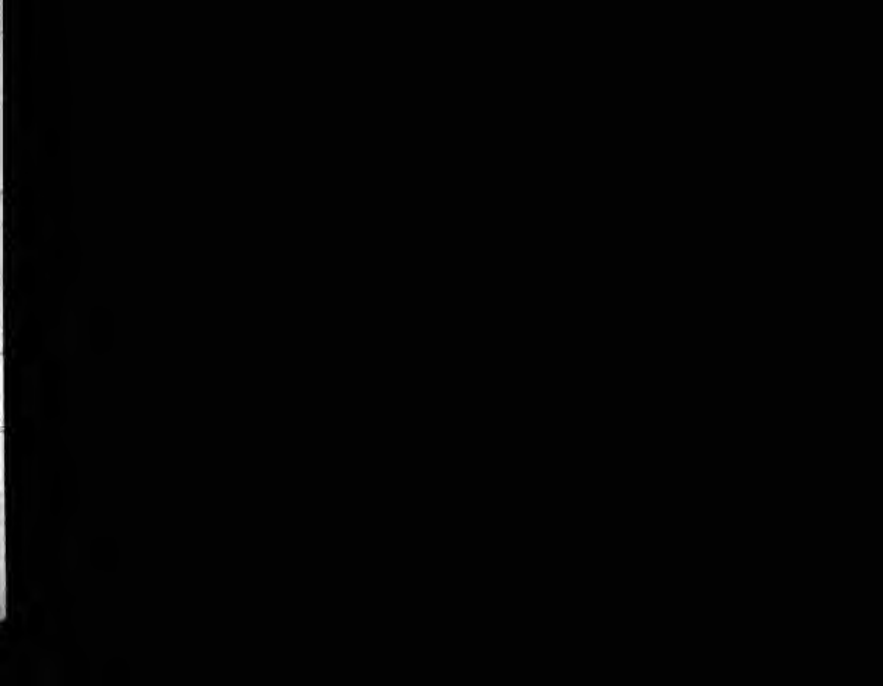
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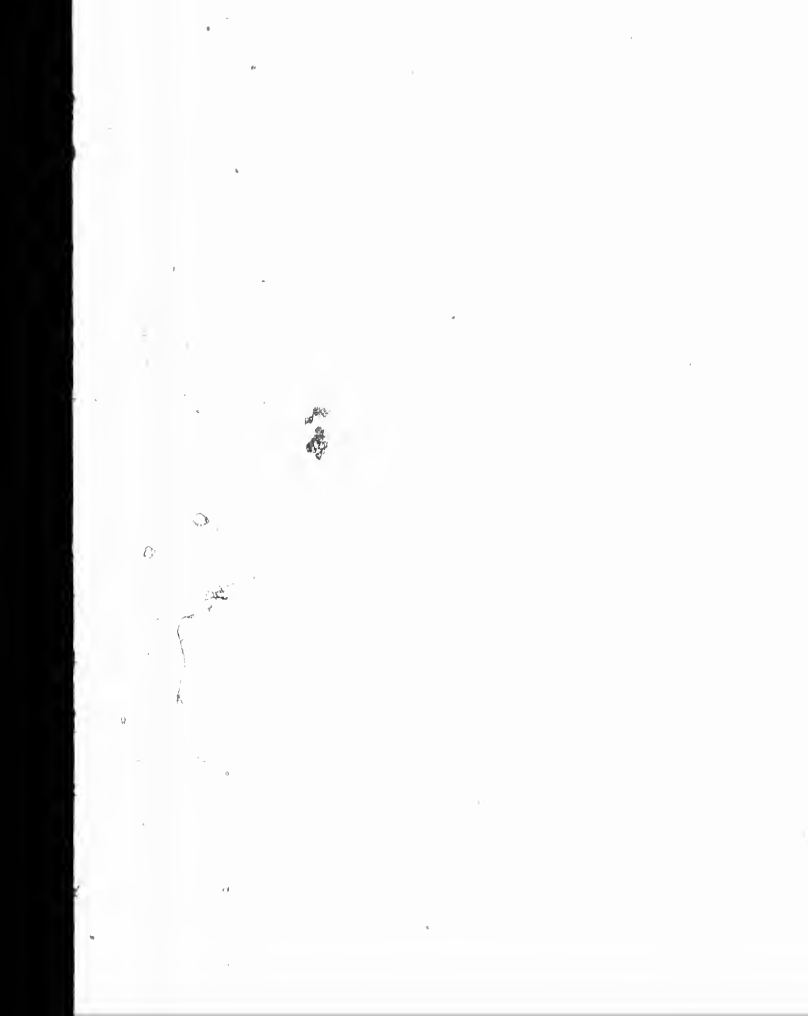


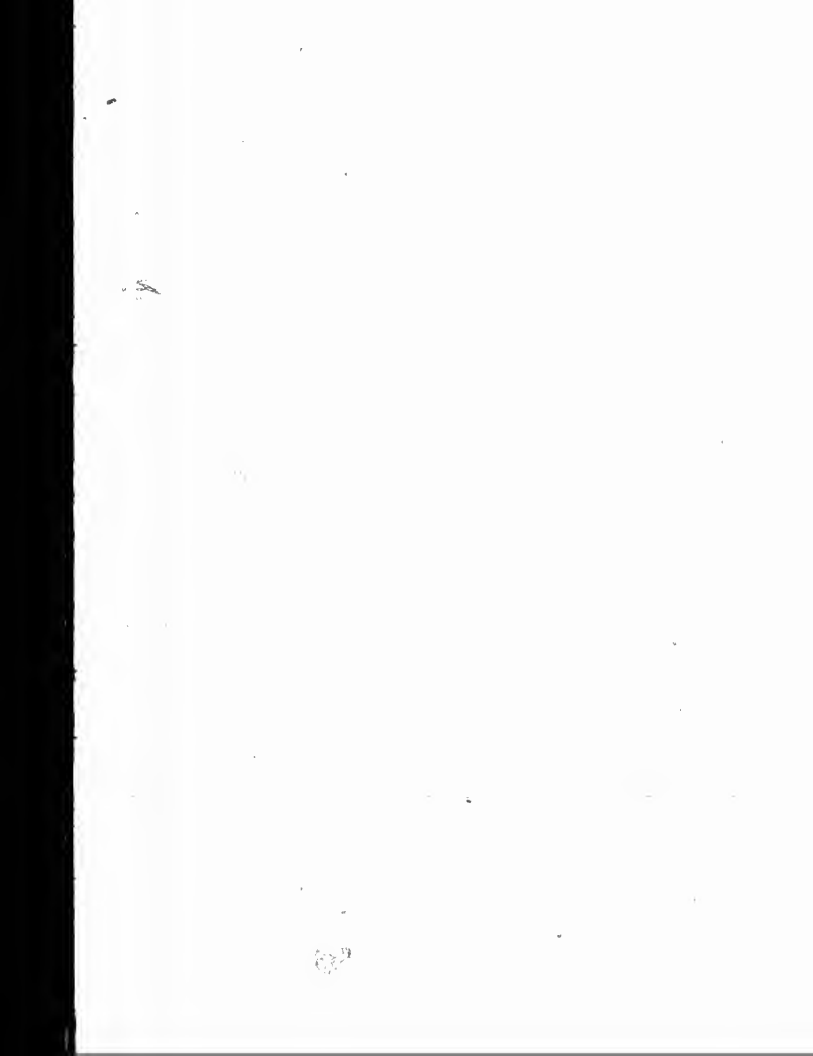












The first part of the document discusses the importance of maintaining accurate records. It emphasizes that every detail matters and that consistency is key. The following section outlines the various methods used to collect and analyze data, highlighting the challenges faced in the field.

In the next section, we explore the theoretical framework that guides our research. This includes a review of existing literature and the development of our own hypotheses. The results of our study are presented in the following section, showing a clear trend towards the expected outcomes.

The final part of the document discusses the implications of our findings and offers suggestions for future research. We believe that our work contributes significantly to the understanding of the subject matter and provides a solid foundation for further exploration.