

Catalog No. 92

Supplies & Equipment

For

Industrials, Contractors,

Railroads, Utilities,

Municipalities,

The Mining Industry



The Mine and Smelter Supply Co.

17th and Blake, Denver, Colo.

410-412 San Francisco
El Paso, Tex.

1775 Broadway
New York

121 W. Second South
Salt Lake City

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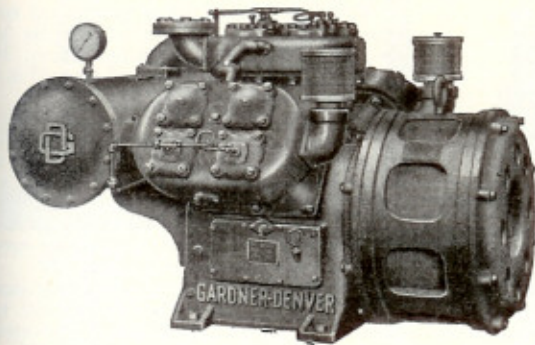
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**Class WB Gardner-Denver Vertical
2-Stage Water Cooled Compressors**



The class WB compressor is for stationary use. When discharging against 100 pounds gauge pressure a 2-stage compressor shows a theoretical power saving of 15% per cubic foot delivered, while the volumetric efficiency is increased from 15 to 20% over that of a single staged compressor of the same piston displacement. At high altitudes, because of increased compression ratios, volumetric efficiency of a single stage compressor falls off rapidly, whereas volumetric efficiency of a 2-stage compressor remains practically constant. Suitable for high altitudes because of the very much greater air output than that obtained with single stage compressors of equivalent piston displacement. Also the temperature of discharge air will be much lower. R.p.m., 870, water inlet of pipe opening, 1 1/4 inches.

Has 2 small diameter low pressure cylinders in conjunction with each high pressure cylinder. The 3-cylinder compressors have 2 low and one high pressure cylinder; 6 cylinder machines, 4 low and 2 high pressure cylinders. This construction permits use of small, lightweight pistons for all cylinders and considerably reduces inertia loads. Use of 2 small water-cooled cylinders in each instance, where one large one is ordinarily used, results in lower air temperatures than previously obtained on small vertical compressors, with corresponding saving in h.p. By watercooling cylinder walls, lower wall temperatures are obtained, with better lubrication and longer life. Oil thinning is eliminated and consequently much less lubricating oil is used.

Driving motor is mounted directly on compressor shaft saving about half of the floor space usually required. Unit is compact, easy to install and requires practically no foundation. Compressor is well balanced, quiet and vibrationless. Because of the 2-stage construction, with water cooled cylinders and intercooler, sustained high efficiency is assured.

For special current conditions, or where it is desired to use available standard motors, compressors may be direct connected by means of a flexible flywheel coupling, or driven by means of V belt or flat belt drive.

3-Cylinder—Sizes and Ratings (Sea Level)

Del. at 100 Lbs.	No.	Bore and Stroke		Motor Rating (40° C.)	Lgth. In.	Width In.	Ht. In.	PIPE OPEN, IN.		
		In.	No.					Suc- tion (2)	Dis- charge (1)	
115	2	6x5	1	4 3/4 x 5	25	47	50	38	2 1/2	2
156	2	7x5	1	5 3/4 x 5	40	50	54	41	3	2 1/2

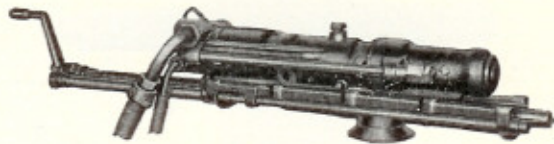
6-Cylinder—Sizes and Ratings (Sea Level)

230	4	6x5	2	4 3/4 x 5	50	60	50	38	2 1/2	2 1/2
313	4	7x5	2	5 3/4 x 5	75	62	56	42	3	3
360	4	7 1/2 x 5	2	5 3/4 x 5	75	62	56	42	3	3

Ratings are intended for average conditions and are conservative. Higher volumetric efficiencies may be obtained in conditions require them. Communicate with the factory when higher volumetric efficiencies than those shown required.

Prices upon application.

No. D-79 Gardner-Denver Drifting Drills



No. D-79 has been developed for varying conditions of service, including general mine use, tunnelling, quarrying and construction work. It is the lightest of the "9" series and is an ideal one man drill. It can be equipped for wet or dry drilling and may be mounted on either a movable cone guide shell or a standard guide shell. It is particularly adapted for drifting or cross-cutting in soft and medium formations where high drilling speed and light weight are essential.

For dry drilling in soft formations, No. D-79 can be equipped with a blow valve regulator which passes additional blowing air through an air tube directly to the steel. The amount of air may be regulated by the operator and deep holes can be easily drilled.

Bore.....in.	3
No. D-79.....each	\$370.00
Size Steel Recommended.....in.	1-1 1/4 Rd. Hollow
Size Air Hose Recommended.....in.	3/4
Size Water Hose Recommended.....in.	1/2
Weight Mounted.....lbs.	128

No. D-89-B Gardner-Denver Drifting Drills



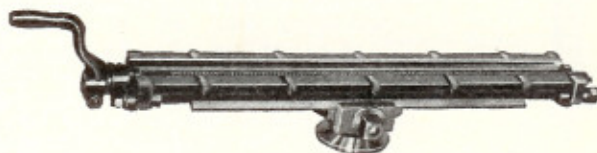
No. D-89-B has been developed for varying conditions of service, including general mine use, tunnelling, quarrying and construction work. It is a medium weight drifter suitable for use in all ordinary formations. It is furnished in either wet or dry construction and may be mounted on any type of mounting. It has exceptional hole cleaning ability and powerful rotation which permits the drilling of deep holes.

The D-89-B has been developed for drilling in formations requiring exceptional hole cleaning ability.

Can be furnished with spring handles for sinking.

Bore.....in.	3 1/2
No. D-89-B.....each	\$385.00
Size Steel Recommended.....in.	1-1 1/4 Rd. Hollow
Size Air Hose Recommended.....in.	1/4
Size Water Hose Recommended.....in.	1/2
Weight Mounted.....lbs.	149

Gardner-Denver Guide Shells

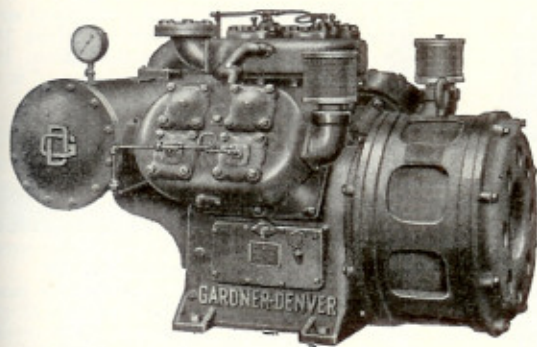


The standard guide shell has an off-center cone which facilitates changing steel. The front feed screw support is of dirt-proof construction. The feed screw is made of alloy steel, heat-treated, and will give long service even when drilling in highly abrasive material.

Adjustable and solid cone guide shells of varying lengths are available for each model of drifting drill.

Prices on application.

**Class WB Gardner-Denver Vertical
2-Stage Water Cooled Compressors**



The class WB compressor is for stationary use. When discharging against 100 pounds gauge pressure a 2-stage compressor shows a theoretical power saving of 15% per cubic foot delivered, while the volumetric efficiency is increased from 15 to 20% over that of a single staged compressor of the same piston displacement. At high altitudes, because of increased compression ratios, volumetric efficiency of a single stage compressor falls off rapidly, whereas volumetric efficiency of a 2-stage compressor remains practically constant. Suitable for high altitudes because of the very much greater air output than that obtained with single stage compressors of equivalent piston displacement. Also the temperature of discharge air will be much lower. R.p.m., 870, water inlet of pipe opening, 1 1/4 inches.

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Driving motor is mounted directly on compressor shaft saving about half of the floor space usually required. Unit is compact, easy to install and requires practically no foundation. Compressor is well balanced, quiet and vibrationless. Because of the 2-stage construction, with water cooled cylinders and intercooler, sustained high efficiency is assured.

For special current conditions, or where it is desired to use available standard motors, compressors may be direct connected by means of a flexible flywheel coupling, or driven by means of V belt or flat belt drive.

3-Cylinder—Sizes and Ratings (Sea Level)

Del. at 100 Lbs.	No.	Bore and Stroke		Motor Rating (40° C.)	Lgth. In.	Width In.	Ht. In.	Suction (2)	Discharge (1)
		In.	No.						
115	2	6x5	1	4 3/4x5	25	47	50	38	2 1/2
156	2	7x5	1	5 3/4x5	40	50	54	41	3

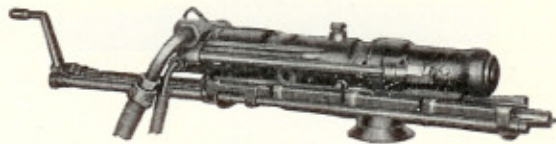
6-Cylinder—Sizes and Ratings (Sea Level)

230	4	6x5	2	4 3/4x5	50	60	50	38	2 1/2	2 1/2
313	4	7x5	2	5 3/4x5	75	62	56	42	3	3
360	4	7 1/2x5	2	5 3/4x5	75	62	56	42	3	3

Ratings are intended for average conditions and are conservative. Higher volumetric efficiencies may be obtained in conditions require them. Communicate with the factory when higher volumetric efficiencies than those shown required.

Prices upon application.

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For dry drilling in soft formations, No. D-79 can be equipped with a blow valve regulator which passes additional blowing air through an air tube directly to the steel. The amount of air may be regulated by the operator and deep holes can be easily drilled.

Bore.....in.	3
No. D-79.....each	\$370.00
Size Steel Recommended.....in.	1-1 1/4 Rd. Hollow
Size Air Hose Recommended.....in.	3/4
Size Water Hose Recommended.....in.	1/2
Weight Mounted.....lbs.	128

No. D-89-B Gardner-Denver Drifting Drills



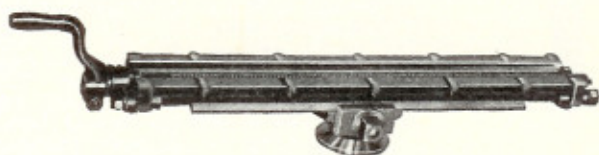
No. D-89-B has been developed for varying conditions of service, including general mine use, tunnelling, quarrying and construction work. It is a medium weight drifter suitable for use in all ordinary formations. It is furnished in either wet or dry construction and may be mounted on any type of mounting. It has exceptional hole cleaning ability and powerful rotation which permits the drilling of deep holes.

The D-89-B has been developed for drilling in formations requiring exceptional hole cleaning ability.

Can be furnished with spring handles for sinking.

Bore.....in.	3 1/2
No. D-89-B.....each	\$385.00
Size Steel Recommended.....in.	1-1 1/4 Rd. Hollow
Size Air Hose Recommended.....in.	1/4
Size Water Hose Recommended.....in.	1/2
Weight Mounted.....lbs.	149

Gardner-Denver Guide Shells

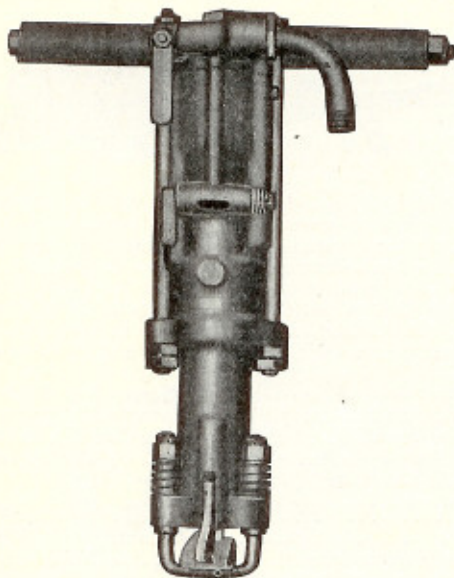


The standard guide shell has an off-center cone which facilitates changing steel. The front feed screw support is of dirt-proof construction. The feed screw is made of alloy steel, heat-treated, and will give long service even when drilling in highly abrasive material.

Adjustable and solid cone guide shells of varying lengths are available for each model of drifting drill.

Prices on application.

No. S-45 Gardner-Denver Drills



A fast, powerful, hand held drill of simple and sturdy construction. Its field is in block holing, where the air supply is limited, or where the ground is soft, badly broken, or uneven. Will handle steels up to 12 feet in length under average conditions.

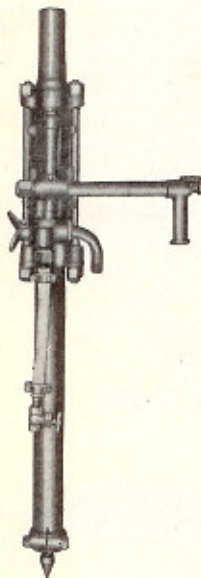
The valve assembly is enclosed in the cylinder counter-bore. Long bearing rifle bar, cylinder bushing, integral oil reservoir, and an exceptionally sturdy steel puller which is easily operated. Four-pawl rotation.

Made in the wet, dry and blowing types.

Weight, 45 pounds.

No. S-45, Dry.....each \$180.00
No. S-45W, Wet.....each 205.00

No. H-81 Gardner-Denver Stoppers



The No. H-81 is a hand rotated stopper. It combines high drilling speed, low air consumption and minimum upkeep cost, and is to be recommended for routine mining where the rock is not excessively hard.

The hammer is single diameter, reversible, block type construction.

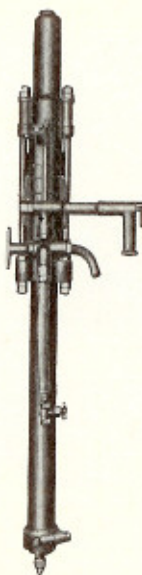
The valve is the tubular, long bearing Gardner-Denver valve, and is located in the rear of the cylinder.

The air feed is controlled independently of the throttle valve by means of an air feed control located in the end of rotating handle. This feed control permits air to be exhausted from the feed cylinder and prevents air from being admitted, enabling the operator to drill easily through broken and seamy rock.

May be furnished with a solid chuck end for any standard section of drill steel or may be furnished with a chuck end having a renewable chuck liner, which may be replaced as wear occurs.

Diameter of Feed Cylinder.....in.	2 3/8
No. H-81.....each	\$255.00
Air Hose Recommended.....in.	3/4 or 1
Water Hose Recommended.....in.	1/2
Drill Steel Recommended.....in.	7/8 to 1
Maximum Change of Steel.....in.	18
Length Over All, Feed Piston Closed.....in.	54 3/4
Length Over All, Feed Piston Extended.....in.	78 3/4
Shipping Weight.....lbs.	125

No. R-111 Gardner-Denver Stoppers



The R-111 has drilling power and speed comparable to the drifting drills that would be used in a given formation. It is self-rotating and is designed to drill in the hardest rock formations.

The chuck is held in the chuck driver by splines having ample bearing surface. The chuck parts are kept free from sludge and dirt by exhaust air conducted through special ports around the tappet and into the chuck. Rotation of the chuck sleeve is effected by an easily renewable bronze nut screwed into the chuck driver.

The rotation is accomplished by means of a ratchet ring, rifle bar, bronze rifle nut and 4 pawls. The pawls are reversible and maintenance on them is negligible.

The feed leg construction is used on No. R-111. The feed piston has a renewable point and 2 cup leathers. The feed cylinder is assembled with a heavy yoke through which the double ended side rods pass. A renewable guide bushing is held in place by a threaded clamping nut.

The side rods are double ended and the chuck end and feed cylinder yoke have long tunnel ways to aid in alignment. The lower side rod nuts may be removed to renew the water tube without disturbing the cylinder, backhead and chuck end assembly.

The water tube without disturbing the cylinder, backhead and chuck end assembly.

This stopper is lubricated from an integral reservoir. Separate metering devices are used for the chuck end parts, and for the valve and hammer action. This division of the oil from the reservoir insures that each moving part will receive adequate lubrication.

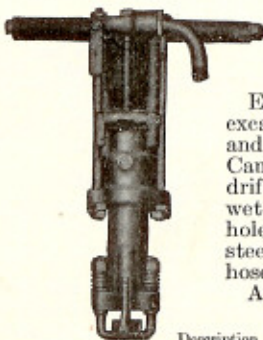
The feed control button is conveniently located in the end of the holding handle. When the feed control button is pushed inward, the machine is held in a stationary position and neither raises or lowers on the feed leg. When rotated slightly, the pressure on the feed leg is reduced.

Stop rotation may be supplied when desired. Stop rotation is particularly useful when drilling in abrasive ground as it is possible to drive an oversize bit to the bottom of the hole without rotation.

No. R-111 can be furnished with chucks for lugged shanks. The length of the lugged shanks is so short that this construction is not recommended.

Diameter of Feed Cylinder.....in.	2 11/16
No. R-111.....each	\$385.00
Air Hose Recommended.....in.	3/4 or 1
Water Hose Recommended.....in.	1/2
Drill Steel Recommended.....in.	1 Hex. or Q.O.
Maximum Change of Steel.....in.	18
Length Over All, Feed Piston Closed.....in.	62
Length Over All, Feed Piston Extended.....in.	86
Shipping Weight.....lbs.	159

S-55 Gardner-Denver 55-Pound Sinkers

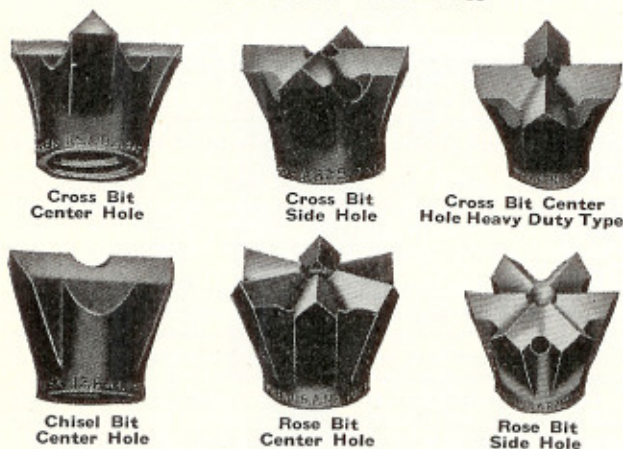


Especially adapted to general rock excavation, road work, construction and quarry work, and shaft sinking. Can be mounted in a guide shell for drifting and can be supplied in either wet or dry construction. Suited for holes up to 15 or 18 feet deep. Size steel 7/8 to 1 1/4 inches round; size air hose 3/4 inch.

Approximate weight, 56 pounds.

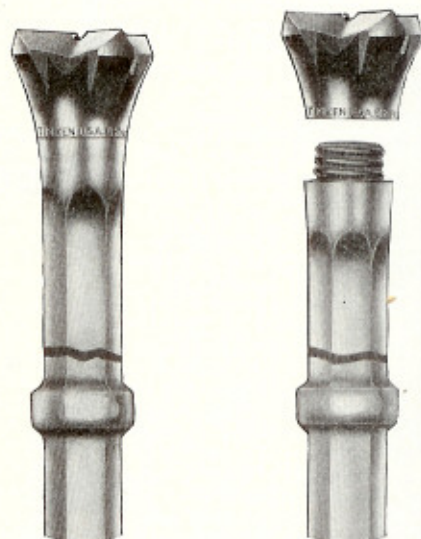
Description	Wet Each	Dry Each	Lgt. ft.
With 7/8-In. Hex. x 3 1/4-In. Chuck....	\$215.00	\$190.00	23 1/2
With 1-In. Hex. x 4 1/4-In. Chuck....	215.00	190.00	23 1/2
With Tappet Chuck.....	215.00	190.00	24 1/2
With Lug Shank Chuck.....	215.00	190.00	23 1/2

Timken Rock Drill Bits



Hollow Drill Steel

For Use with Timken Rock Bits



When Timken Rock Bits are used, much less steel is required on a job, thus cutting down capital investment and carrying charges. The average length of drill steel, which is between 4 and 6 feet, weighs 15 pounds. If the conventional bit lasts 30 minutes, and 24 hours are required to reforge and heat treat, 32 lengths of drill steel must be in circulation to supply a driller through an 8 hour shift. In many cases the life of the bit is less than 10 minutes, and the re-forging cycle is 72 hours.

On the basis of the above figures, a considerable investment is required to keep one driller supplied with steel through an 8-hour shift. With Timken Rock Bits this figure can easily be reduced to a small fraction.

B threads fit B, J, and R bits.

B and B-SH Series Cross Bits

Drill Steel Sizes, In.	Each	Bit Gage In.	PART No.	
			Center Hole	Side Hole
7/8 Hex. Diameter	\$.28	1 1/4	A-1 1/4	A-SH-1 1/4
7/8 Thread				
7/8 Hex.	.28	1 3/8	B-1 3/8	B-SH-1 3/8
7/8 Quarter Octagon	.30	1 1/2	B-1 1/2	B-SH-1 1/2
1 Round	.31	1 5/8	B-1 5/8	B-SH-1 5/8
1 Hex.	.31	1 3/4	B-1 3/4	B-SH-1 3/4
1 Quarter Octagon	.32	1 7/8	B-1 7/8	B-SH-1 7/8
1 1/8 Round	.32	2	B-2	B-SH-2
1 1/8 Thread Diameter	.32	2 1/8	B-2 1/8	B-SH-2 1/8
	.34	2 1/4	B-2 1/4	B-SH-2 1/4
	.36	2 3/8	B-2 3/8	B-SH-2 3/8
	.38	2 1/2	B-2 1/2	B-SH-2 1/2
	.40	2 5/8	B-2 5/8	B-SH-2 5/8

D Series Center Hole Cross Bits Heavy Duty Type

Drill Steel Sizes, In.	Each	Bit Gage In.	Part No.
1 Quarter	.32	1 3/4	D-1 3/4
1/8 Octagon	.33	1 7/8	D-1 7/8
1/8 Round	.34	2	D-2
1 1/8 Round	.36	2 1/8	D-2 1/8
1 1/4 Round	.38	2 1/4	D-2 1/4
1 1/2 Round	.40	2 3/8	D-2 3/8
1 3/16 Thread Diameter	.42	2 1/2	D-2 1/2
	.44	2 5/8	D-2 5/8
	.46	2 3/4	D-2 3/4
	.49	2 7/8	D-2 7/8
	.52	3	D-3

J Series Center Hole Chisel Bits

Drill Steel Sizes, In.	Each	Bit Gage In.	Part No.
7/8 Hex.	\$.28	1 3/8	J-1 3/8
7/8 Quarter Octagon	.30	1 1/2	J-1 1/2
1 Round	.31	1 5/8	J-1 5/8
1 Hex.	.31	1 3/4	J-1 3/4
1 Quarter Octagon	.32	1 7/8	J-1 7/8
1 1/8 Round	.32	2	J-2
1 1/8 Thread Diameter	.32	2 1/8	J-2 1/8
	.34	2 1/4	J-2 1/4
	.36	2 3/8	J-2 3/8
	.38	2 1/2	J-2 1/2
	.40	2 5/8	J-2 5/8

R and R-SH Series Rose Bits

Drill Steel Sizes, In.	Each	Bit Gage In.	PART No.	
			Center Hole	Side Hole
7/8 Hex.	\$.28	1 3/8	R-1 3/8	R-SH-1 3/8
7/8 Quarter Octagon				
1 Round	.30	1 1/2	R-1 1/2	R-SH-1 1/2
1 Hex.	.31	1 5/8	R-1 5/8	R-SH-1 5/8
1 Quarter Octagon	.31	1 3/4	R-1 3/4	R-SH-1 3/4
1 1/8 Round	.32	1 7/8	R-1 7/8	R-SH-1 7/8
1 1/8 Thread Diameter	.32	2	R-2	R-SH-2
	.32	2 1/8	R-2 1/8	R-SH-2 1/8
	.34	2 1/4	R-2 1/4	R-SH-2 1/4
	.36	2 3/8	R-2 3/8	R-SH-2 3/8

D and J Series Side Hole Bits, same price as Center Hole.

*Steel Thread Length Inches	1/2-In. Hex. Shank Col'd. Each	3/4-In. Hex. Shank Stoper Each	1-In. Hex. Shank Col'd. Each	1-In. Hex. Shank Stoper Each	3/8-In. Q.O. Shank Stoper Each	1-In. Q.O. Shank Stoper Each	1 1/4-In. Round Lug Each	1 1/2-In. Round Lug Each
12	\$1.95	.....	\$2.20	.....	.....	.....	\$2.75	\$2.80
18	2.25	\$2.10	2.50	\$2.35	\$2.15	\$2.45	.....	.....
24	2.40	2.25	2.75	2.60	2.30	2.75	3.35	3.60
30	.....	2.50	.....	2.90	2.55	3.05	.....	.....
36	2.85	2.70	3.30	3.15	2.80	3.35	4.00	4.40
42	.....	2.95	.....	3.45	3.05	3.65	.....	.....
48	3.30	3.15	3.85	3.70	3.25	3.95	4.60	5.20
54	.....	3.40	.....	4.00	3.50	4.25	.....	.....
60	3.75	3.60	4.40	4.25	3.75	4.55	5.25	6.00
66	.....	3.85	.....	4.55	4.00	4.85	.....	.....
72	4.20	4.05	4.95	4.80	4.20	5.15	5.85	6.80
96	5.10	4.95	6.05	5.90	5.15	6.35	7.10	8.40
120	6.00	5.85	7.15	7.00	6.10	7.55	8.35	10.00
144	6.90	6.75	8.25	8.10	7.05	8.75	9.60	11.60
168	7.80	.....	9.35	.....	.....	.....	10.85	13.20
192	8.70	.....	10.45	.....	.....	.....	12.10	14.80
216	9.60	.....	11.55	.....	.....	.....	13.35	16.40
240	10.50	.....	12.65	.....	.....	.....	14.60	18.00

B Threads Put on Steel	.....	each	\$.75
D Threads	.....	each	1.00
Collared Shank	.....	each	.75
Lug Shank	.....	each	1.00
Stoper Shank	.....	each	.60

*Drilling length exclusive of shank.

Du Pont Blasting Powders



B blasting powder for use in railroad construction work, stripping operations and coal mining is made in 7 granulations. F, FF, FFF and FFFF are the finer granulations and C, CC and CCC the coarser. The finer the granulation the quicker powder is in action. Large charges of blasting powder are usually fired by a dynamite primer. In coal mines blasting powder is fired by an electric squib, safety fuse or miner's squib. Electric squibs give best execution and least smoke. Cracked in 25-pound metal kegs.

Du Pont Red Cross Extra Dynamite

15 to 60 Per Cent

This is a low freezing high explosive of moderate shattering power and fairly good water resistance which is used in a wide variety of blasting operations such as quarrying medium hard stone, excavating for construction work, razing old buildings, blasting boulders, blasting stumps, subsoil blasting, tree planting, and other agricultural work except ditching by the propagation method.



Price.....per 100 pounds

Du Pont Gelatin—20 to 90%



A dense, plastic, highly water-resisting, low freezing explosive which is chiefly used in heavy quarry work, underground ore mining, tunnel driving and submarine blasting. It gives off a minimum of poisonous fumes.

Price.....per 100 lbs.

Du Pont Special Gelatin—30 to 90%

An ammonia gelatin which is somewhat cheaper than Du Pont Gelatin. It is also low freezing and gives off very little objectionable fumes. It is a little less plastic and a little less water resistant than Du Pont Gelatin but is being used with satisfaction in mining, quarrying and tunneling.

Price.....per 100 Pounds.....

Du Pont Blasting Caps



Blasting caps are small copper cylinders closed at one end and charged with an extremely sensitive explosive compound.

They are made in No. 6 and No. 8 sizes. The No. 6 is the standard size for all ordinary work.

Prices upon application.

Du Pont Electric Blasting Caps



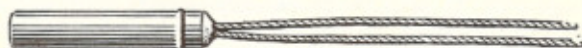
Electric blasting caps with copper wires are made in No. 6 and No. 8 sizes. Stock lengths of wire: 4, 6, 8, 10, 12, 14, 16, 18 and 20 feet.

Caps for coal mining are supplied with iron wires covered with white insulation. If specified on the order, the wires will be short circuited as a safeguard against premature explosion of the cap through accidental contact with stray electric current or a charged surface. Standard lengths of iron wires are 4, 5, 6 and 8 feet. No. 6 is the standard size for iron wire caps. The copper shells of all Du Pont electric blasting caps are coated with red shellac.

No.	6	8
Length of Shell.....inches	1 9/16	1 7/8
Calibre of Shell.....inches	.273	.273

Prices upon application.

Du Pont Electric Squibs



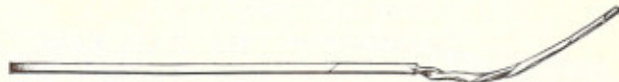
Electric squibs are designed for firing blasting powder and pellet powder. They eliminate the smoke from burning fuse, permit igniting the charge in the center, allow the blaster to control the moment of firing and practically do away with the chances of hang fires.

The improved Du Pont Electric Squib has an aluminum shell with two holes near the base. The flame from the ignition mixture in the Squib shoots out of these holes perpendicular to the axis of the Squib, thus insuring intense local heating at two points. It is designed to give a hot flame of long duration, and so give surer ignition.

Du Pont Electric Squibs are made with 4, 5, 6 and 8-foot iron wires and with copper wires from 4 up to 30 feet long.

Prices upon application.

Du Pont D. & B. Miners' Safety Squibs



For coal mining use. Burns very slowly and will not blow out easily.

Packed 100 in a pasteboard box, 10 boxes to a case. Per 100..... \$.30

Safety Fuse



Used with blasting caps. Made up of a thin train of powder tightly compressed in, and more or less water-proofed by inner and outer wrappings or coverings. Stocked in three popular grades: Sylvanite, for use in damp work; White Monarch, for use in very wet work; Black Monarch, for use in water.

In packages containing from 100 to 6,000 feet. Also on 3,000-foot reels.

Quantity prices prevail in following lots: Up to 6,000 feet, 6,000 to 30,000 feet, 30,000 to 90,000 feet.

Rawhide Blasting Paper

Width of rolls, 9 inches.

Packed 100 rolls to a case.

Weight, per case, 110 pounds.

Price.....per pound \$.15

Du Pont Connecting Wire



This is 20-gauge insulated copper wire used for connecting electric blasting caps when the cap wires are too short to reach between holes. Comes on spools containing either 1 or 2 pounds each or about 210 or 420 feet.

Prices upon application.

Du Pont Leading Wire

Leading wire is insulated copper wire (No. 14 Brown & Sharpe gauge).

The leading wire should always be long enough to keep the blaster well out of the zone of danger.

Duplex leading wire is made by binding together two insulated copper wires with an outside insulation, thus giving a return circuit cable that may be handled the same as a single wire. It weighs approximately twice as much as the same length of single leading wire and can be had in coils of the same lengths. Recommended only for single shot firing.

Single leading wire is furnished in coils as follows:

Length.....feet	200	250	300	500
Approximate Weight.....pounds	4	5	5.8	9.6

Prices upon application.



No. 1 Du Pont Cap Crimpers

5½ inches long, made of steel, nickel-plated, with 1 handle pointed for use as a punch in priming dynamite cartridges.



Makes a flat sleeve crimp.

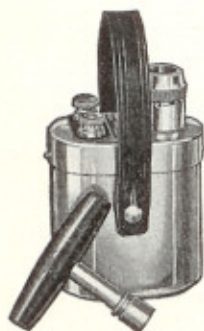


No. 2 Du Pont Cap Crimpers and Fuse Cutters

Makes a flat sleeve crimp. Designed to vent cap to prevent gas pressure from blowing spit back into fuse. Made of steel, nickel plated, 6½ inches long. Has crimping jaws and fuse cutting device for cutting straight across. One handle is pointed, the other has a screwdriver point.

Prices upon application.

Du Pont Blasting Machines



No. 1

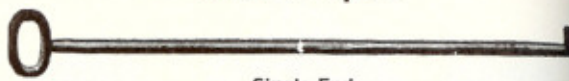


No. 30

The No. 100, with a capacity of 100 electric blasting caps, weighs 36 pounds and has the greatest range of use.

Other sizes are the Nos. 50, 30, 20, 10, all push down and two twist machines, the No. 10 Twist and the No. 1 Permissible. Prices upon application.

Alton Scrapers



Single End



Double End

These scrapers are made either single or double end as shown of either 3/8 inch or 1/2 inch round iron. Lengths, 5 to 8 feet.

Furnished with either iron or copper button. Scrapers with copper button are made in compliance with legal requirements.

Funnel scrapers with copper button furnished if desired.

Prices upon application.

No. 175 Leetonia Copper Needles



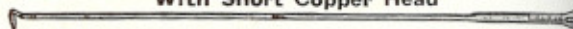
Drawn from 3/8-inch hard copper rods to an exact taper, ground, highly polished and lacquered to prevent corrosion.

The handle is large enough to allow a full grip of the hand and is made of the best malleable iron. Copper rod is fastened in handle with a small rivet which prevents it from getting loose. Specify length when ordering.

No.	Lgth. Ft.	Price per Doz.	No.	Lgth. Ft.	Price per Doz.	No.	Lgth. Ft.	Price per Doz.
175	4½ or 5	\$40.00	175	5½ or 6	\$42.00	175	6½ or 7	\$45.00

No. 178 Leetonia Copper Head Tampers and Scrapers

With Short Copper Head



The scraper end is so made that it will not push the drillings to the back of the hole. The body is made of 1/2-inch soft steel and painted black. When ordering, kindly give extreme length of tamper and scraper, diameter of copper head and diameter of steel stub.

Diam. Copper Head In.	*Size Round Steel Stub	PRICE, PER DOZEN		
		5-foot and Under	5½ and 6-foot	6½ and 7-foot
1¼	3/4	\$32.00	\$34.00	\$36.00
1½	3/4	34.00	36.00	38.00
1½	7/8	36.00	38.00	40.00
1¾	7/8	38.00	40.00	42.00
2	1	40.00	42.00	44.00

*Stub to which 1/2-inch steel is welded.

No. 177 Copper Head Tamp Drills

With Short Copper Head



This tamp drill has a soft steel body, tool steel bit; nicely painted. When ordering, kindly give extreme length of drill, diameter of copper head and diameter of steel body. Can be furnished with pipe body at an additional cost.

DIAM., IN. Copper Head	Round Steel Body	PRICE, PER DOZEN		
		5-foot and Under	5½ and 6-foot	6½ and 7-foot
1¼	3/4	\$39.00	\$41.00	\$43.00
1½	3/4	41.00	43.00	45.00
1½	7/8	43.60	45.00	47.40
1¾	7/8	44.60	47.00	49.40
2	1	48.40	51.00	53.60

Du Pont Powder Bags



**No. 2
Knapsack**



**No. 4
Pouch**

For carrying high explosives. Resists fungus, dry rot, acid waters, wet, humid conditions and other destructive elements found underground. Made of cloth which has been treated and coated with a special rubber compound that makes it waterproof and a non-conductor of electricity. A special thread used in sewing, which is also treated to resist underground mining conditions.

No. 1 Pouch Type

Capacity, 50 sticks. Single bottom, single 3-ply strap sewed to each side. Size, 6x10x12 inches.

No. 1.....each **\$1.25**

No. 2 Knapsack Type

Capacity, 100 sticks. Double box bottom, reinforced top, two 3-ply straps crossed in back. Size, 4½x12x20 inches.

No. 2.....each **\$2.50**

No. 3 Knapsack Type

Capacity, 125 sticks. Single box bottom, two 3-ply straps crossed in the back. Size, 6x12x20 inches.

No. 3.....each **\$2.40**

No. 4 Pouch Type

Designed especially for carrying du Pont pellet powder. Capacity, 26 sticks 1¼ inches in diameter, 20 sticks 1½ inches in diameter, 17 sticks 1¾ inches in diameter, 9 sticks 2 inches in diameter, and 6 sticks 2½ inches in diameter. Size, 3x8½x9½ inches.

No. 4.....each **\$1.00**

No. 5 Pouch Type

Designed especially for carrying du Pont pellet powder. Capacity about two-thirds that of No. 4 bag.

No. 5.....each **\$.50**

Hardsocg Powder or Dynamite Boxes

Made of heavy waterproof fibre, securely sewed with heavy thread. No rivets.

Packed in individual paper cartons. Weight, about 1 pound each.

Regular Size

Height, 9 inches. Width, 6 inches. Thickness, 3 inches.

Each..... **\$1.25**

Large Size

Height, 9 inches. Width, 8½ inches. Thickness, 4¼ inches.

Each..... **\$1.50**



Red Star Chutes for Coal, Sand Grain and Concrete



This Red Star Chute is made of best grade carbon steel sheets, heavily reinforced by angle along the sides. Both ends are reinforced by a flat steel band.

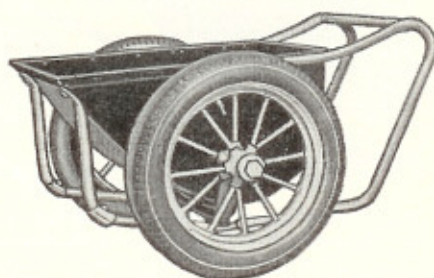
All chutes telescope, that is—the small end of any chute fits into the large end of any chute.

Made in black or galvanized in following.

Length Feet	Each		Weight Pounds	Length Feet	Each		Weight Pounds
	Black	Galv.			Black	Galv.	
6	\$10.00	\$10.60	47	12	\$13.50	\$14.70	98
8	11.50	12.30	67	14	16.00	17.40	105
10	12.50	13.50	83	..	.....	.....	...

Series R-30 Red Star Concrete Carts

Pneumatic Tired Wheels



Front legs provide forward dump like end dump barrow; with artillery axle legs—both front and rear; 30-inch pneumatic tire wheel.

No. 630—6-Cubic Foot Capacity

Length, 57½ inches; width, 39 inches; height, 32 inches; tread 36 inches.

No. 630, Complete with Drop Center Rim Wheel, Timken Bearings; 21x3.25 Drop Center Rim Wheel for 4.40x21 Straight Side Tire; 1¾-In. Precision Axle Drawing H-1414.

Without Tires and Tubes.....	each	\$64.00
Hopper.....	each	36.00
Wheels.....	each	14.00
Extra for Two 4 Ply 4.40x21 or 4 Ply 4.50x21 Straight Side Tires and Inner Tubes.....		22.00
Complete with Tires and Tubes.....		86.00

Weight

Hopper Complete.....	pounds	134
Wheels with Tires and Tubes.....	pounds	50
Wheels less Tires and Tubes.....	pounds	30
Cart Complete less Tires.....	pounds	194
Cart Complete with Tires.....	pounds	234

No. 930—9-Cubic Foot Capacity

Length, 57½ inches; width, 45 inches; height, 32 inches; tread 42 inches.

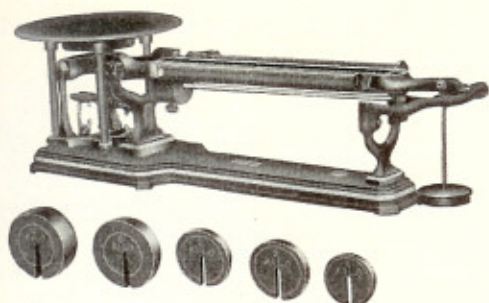
No. 930, Complete without Tires.....

each	\$72.00
Hopper.....	each 44.00
Wheels.....	each 14.00
Extra for Two 4 Ply 4.40x21 or 4 Ply 4.50x21 Straight Side Tires and Inner Tubes.....	each 22.00
Complete with Tires and Tubes.....	94.00

Weight

Hopper Complete.....	pounds	147
Wheels with Tires and Tubes.....	pounds	50
Wheels less Tires and Tubes.....	pounds	30
Cart Complete less Tires.....	pounds	207
Cart Complete with Tires.....	pounds	247

No. 80 Troemner's Solution Scales



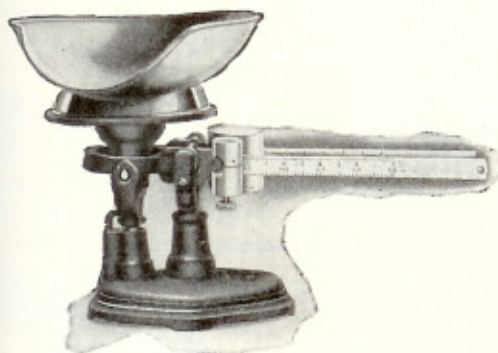
Provided with 2 weighing beams and sliding poises. One of these is divided into 100 parts, each part representing one gram; the other beam is divided into 10 parts, each part representing 100 grams. A bar with a sliding poise is placed under the weighing beam, for the purpose of balancing the empty bottle or container, which is quickly done by sliding the poise along the bar until a correct balance is secured. Will also weigh liquids with accuracy.

Capacity, 20 kilos (about 45 pounds); sensibility, 1 gram.

Shipping weight, 100 pounds.

No. 80 each \$58.50

No. 11413 Moisture Percentage Scales



Moisture percentage scales are used to quickly ascertain the amount of moisture in ores. A sample is weighed out to the full capacity of the scale. The ore is then dried or roasted in an oven and re-weighed, and the correct percentage of moisture is given directly by the percent graduations at the bottom of the beam. No calculations are necessary.

The scoop for holding the material is made of brass and is formed with a hoop base for convenience in setting. The double beam and poise are also of brass.

The base of the scale is finished in maroon enamel with bronze striping.

Capacity, 5 pounds. Beam—front bar: Upper row, 10x0.1 per cent; lower row, 0.5x0.01 pound. Back bar: Upper row, 4.5x0.5 pounds; lower row, 90x10 per cent.

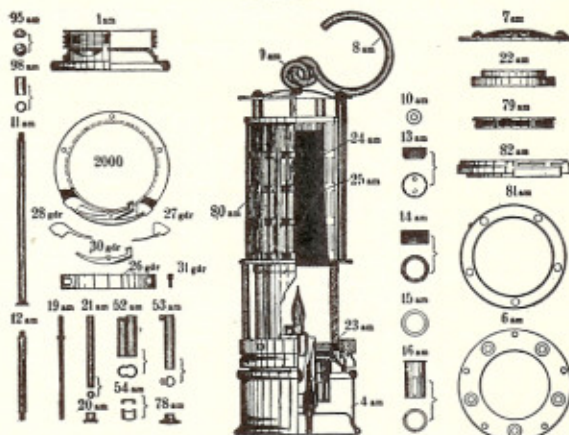
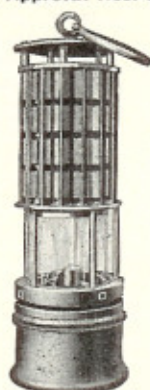
No. 11413 each \$30.00

Assay and Pulp
BALANCES

Catalogs and literature sent upon request.

No. 100 Wolf's Miners' Naphtha Safety Lamps

U.S. Bureau of Mines Approval Nos. 204, 205, 206 and 208



Has round or flat burner, taking air from below. Has corrugated shield, internal igniter and magnetic lock or key lock.

Made in steel, brass and aluminum.

When ordering lamps, please state whether they are wanted with round or flat burner and whether they are desired with metal or paraffin igniter.

Can also be furnished for burning vegetable oil.

Parts

No.	Description	No.	Description
1am	Top of Lamp Fount	22am	Gauze Ring
4am	Lamp Fount	23am	Expansion Ring
5am	Spring Ring	24am	Outer Wire Gauze
6am	Middle Ring	25am	Inner " "
7am	Dome Top of Lamp with 5 Nuts (95 am)	52am	Burner for Round Wick
8am	Handle of Lamp	53am	Wick Holder for Round Wick
9am	Eyelet	54am	Wick Stop for Round Wick
10am	Washer	78am	Wick Adjuster Knob
11am	Rods with Screw Heads	79am	Air Admission Ring with Double Wire Gauze
12am	Rods Fronting Glass Chimney	80am	Corrugated Shield
13am	Filling Hole Stopper	81am	Strengthening Ring for Shield
14am	" " with Screw Thread	82am	Protecting Ring for Air Admission
15am	Leather Washer	95am	Nut for 11am
16am	Cylindrical Cotton Spreader	98am	Tube for Fastening 81am
19am	Wick Adjuster		
20am	Bushing		
21am	Wick Adjuster Guide Tube		

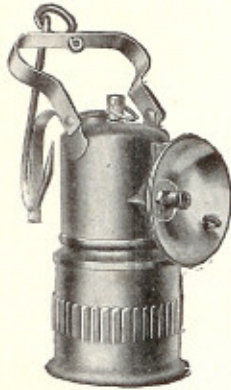
Ordinary Magnetic Lock

2000	Complete Magnetic Lock	28gdr	Tail Pole
26gdr	Plate Covering Lock	29gdr	Spring
27gdr	Spring Pole	30gdr	Anchor Beam
		31gdr	Screw for Same

In ordering parts, please state whether same are required for a steel, brass or aluminum lamp.

Prices upon application.

No. 205 ITP Mine Lamps



Water tank and carbide container of extra heavy drawn double tinned steel; water lid, valve parts, and screws of brass. Also made in all brass.

Fitted with No. 7 chromium plated reflector, 3½ inches in diameter and 7⁄8 inch deep; equipped with spark lighter.

Projects light beam 50 feet.

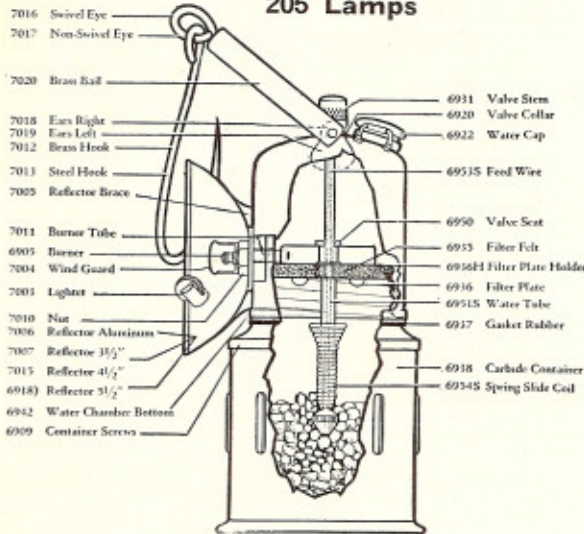
Will burn for 9 hours on 1 charge of carbide.

Height to lamp top 6½ inches; height to bail top 9¾ inches.

Weight 24 ounces.

No. 205.....each \$4.50

Repair and Replacement Parts for No. 205 Lamps



No.	Name of Part	Each
7016	Swivel Eye.....	\$.07
7017	Non-Swivel Eye.....	.07
7020	Brass Bail.....	.17
7018	Ears Right.....	.07
7019	Ears Left.....	.07
7012	Brass Hook.....	.14
7013	Steel Hook.....	.14
7005	Reflector Brace.....	.20
6909	Container Screws.....	.45
6920	Valve Collar.....	.10
6953-S	Feed Wire.....	.05
6936-H	Filter Plate Holder.....	.05
6951-S	Water Tube.....	.10
6937	Gasket.....	.10
6954-S	Spring Slide Coil.....	.10
6952	Outer Water Tube.....	.20
7011	Burner Tube.....	.15
7004	Wind Guard.....	.10
6905	Burner.....	.05
7003	Lighter.....	.10
7010	Nut.....	.03
7006	Reflector Aluminum, with Sparker Lighter... .45	
	Reflector Aluminum, without Sparker Lighter... .35	
7007	Reflector, 3½ In., with Sparker Lighter..... .40	
	Reflector, 3½ In., without Sparker Lighter... .30	
7015	Reflector, 4½ Inches, C. P..... 1.90	
6918	Reflector, 5½ Inches, C. P..... 1.90	
6942	Water Chamber Bottom Assembly..... .95	
6931	Valve Stem..... .10	
6922	Water Cap..... .10	
6950	Valve Seat..... .10	
6935	Filter Felt..... .03	
6936	Filter Plate..... .05	
6938	Carbide Container..... 1.00	

No. 206 I.T.P. Brass Lamps

This lamp is the same as No. 205 except that it is made of brass.

No. 206.....each \$3.50

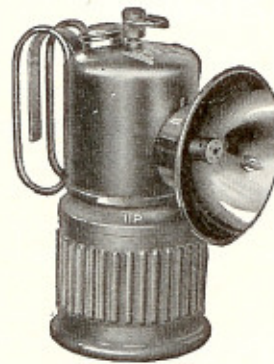
Slip Socket Burners



A double (flat flame) burner for Nos. 205 and 206 I.T.P. lamps.

Each..... \$.20

No. 204 I.T.P. Superintendent's Lamps



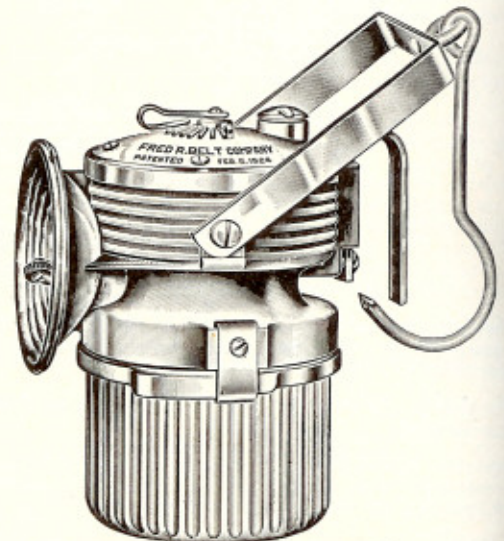
No. 204 ITP Superintendent's Lamp is of brass non-magnetic, chrome plated

Height, 6¼ inches, burning capacity 8 hours, 3½-inch reflector with lighter attachment and wind guard.

Weight, 19 ounces.

No. 204.....each \$3.50

No. 7 Lu-mi-num Miners' Carbide Lamps With Locking Device



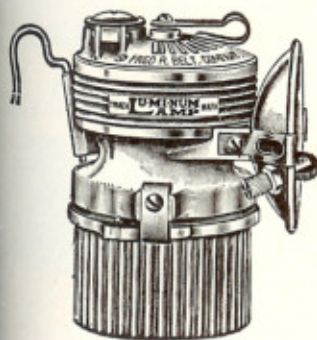
A fool-proof miner's lamp with automatic drop water feed with self-cleaning valve. Made of aluminum, cast in steel dies. Rust-proofed steel bail and hook. Detachable handle fits in slot; rust-proof. Specially designed ball screw; will not work loose.

Burning capacity, 5 to 6 hours. Height, 5¾ inches, exclusive of bail. Diameter cup, 3 inches; bottom edge ¼ inch thick. Metal is ½ inch thick, exclusive of the ribs. Weight, 26 ounces.

No. 7, with 3-Inch Brass N. P. Reflector.....each \$4.25

Lu-mi-num Miners' Carbide Lamps

With Locking Device



No. 4

Made in two styles, with round hook for use on regular miner's cap or with flat hook for use on waterproof hat.

Extra heavy plate, can be cleaned and kept bright with a few drops of ammonia.

Made of aluminum; seamless, die-cast construction.

Capacity, 2 hours; charge 1½ ounces.

Height, 3½ inches. Diameter cup, 2 inches; thickness rim, 3/16 inch. Thickness walls, 1/16 inch, exclusive of ribs.

No. 25 cap clasp included with No. 4 round hook lamps. No. 27 handy cleaning tool included with all lamps.

Weight, 6¼ ounces.

No. 4, with Round Hook and 2¼-Inch Aluminum Reflector.....each \$1.85

No. 43-F, with Flat Hook and 3-Inch Brass N.P. Reflector.....each 2.00

Universal Auto-Lite Miners' Acetylene Cap Lamps

With Bumpergrip



Bumpergrip feature prevents breaking or denting bottom when striking to break up sludge; provides excellent gripping device for removing bottom; provides a cool grip when bottom is hot; preserves bottom so that it lasts as long as lamp.

Auto-lite features self-cleaning ball dropper; non-leakable water lid; one-piece unbreakable burner tube; Sturdibilt

reflector; maximum water and carbide capacity; reinforced inner thread; seamless bottom carbide container. Polished brass finish.

Packed one dozen in folding box, 3 dozen in carton.

Weight, 20 pounds per carton.

No. 106, 2½-In. Reflector.....each \$1.00

No. 103, 3-In. Reflector.....each 1.00

No. 110, 3-In. Reflector, Flat Hook.....each 1.00

Justrite Metal Miners' Lamps

With Lighter Attachment



Constructed with a removable and automatic water feed. Valve stem can be removed and cleaned—light will not go out. With flame protector.

Diameter of reflector, 4 in.; burning capacity, 8 hours; charge, 8 ounces of carbide; height, 6 in.; height to top of bail, 8 in.; diameter of bottom, 2½ in.; weight, 20 ounces.

Steel

No. 50-D, with Bail & Hook...ea \$3.25

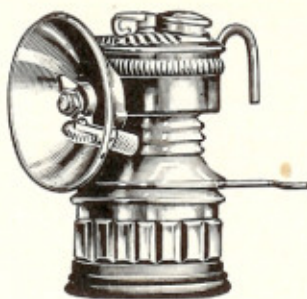
No. 56-D, with Folding Handles...ea. 3.00

Brass

No. 50-E, with Bail & Hook...ea \$3.50

No. 56-E, with Folding Handles...ea. 3.25

No. 285 Guy Dropper Carbide Lamps



No. 285.....each \$1.00

This carbide lamp has a patented valve cleaner, a sturdy burner tube assembly, and a double seamed water cup and screw cap. The wire brace is detachable; the 2½-inch diameter nickel-plated reflector is fastened to the lamp with a wing nut. The lamp has lasting imported lava tips; the prong lid drains to prevent spouting.

Length of burning time, 3 to 5 hours.

Height of lamp, 3½ inches.

Approximate weight each, 6 ounces.

No. 95 Justrite Superintendent's Lamps



No. 95 Justrite Superintendent's Lamp is of brass, non-magnetic, nickel plated.

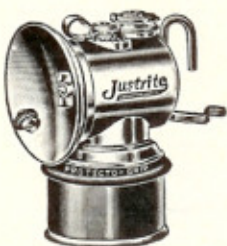
Height, 4¾ inches, burning capacity, 4 hours, 3-inch reflector with lighter attachment and flame protector.

Weight, 7 ounces.

No. 95.....each \$2.00

No. 787 Justrite Special Drivers' Lamps

Polygon Feed



Especially designed for drivers, motormen, engineers, timbermen and shotfirers for use in places subject to strong air currents.

Has extra deep concave nickel silver reflector, 2½ inches in diameter. Exterior finish polished brass. Round hook.

Equipped with No. 180 flame protector, making the lamp wind and water proof.

No. 787.....each \$1.25

No. 2 Justrite Repair Outfits

For Carbide Lamps

Packed in heavy cardboard box covered with waterproof paper, reinforced corners. Set consists of the following:

3 Dozen No. 60 Gaskets.

3 " " 62 Felts.

½ " " 64 Felt Holders.

2 " " 66 Lava Tips.

2 " " 28 Jewel Burner

Tips.

2 Dozen No. 172 Flints.

1 " " 173 Springs.

1 " " 174 Screw Caps.

1 " " 182 Hexagon Nut.

¼ Dozen No. 177 Lighters, Complete.

1 Dozen No. 37 Tip Cleaners.

Price, No. 2.....each \$3.00



Repair Parts for Justrite Lamps

No. 22 Wire Tip Cleaners



No. 22.....each \$.05

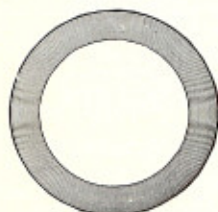
No. 28 Jewel Burner Tips



Shell made of brass with an imported Lava burner insert, combining the best qualities of the metal and Lava tip. Cannot break or crack. Easy to put in and take out.

No. 28.....each \$.05.

Rubber Gaskets



No. 60 gasket is for use on Justrite cap lamps.

No. 61 gasket is for use on Justrite Metal Miners' Lamps.

No. 60.....each \$.05

No. 61.....each .05

Felts



No. 62 is for use on Justrite cap lamps.

No. 52 is for use on Justrite Metal Miners' Lamps.

No. 62.....each \$.05

No. 52.....each .05

No. 64 Felt Holders



No. 64.....each \$.05

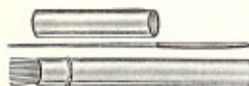
No. 69 Polished Brass Bottoms



The seam at base of bottom has 5 layers of metal rolled together. Solder is then forced into the crevices from the inside forming a solid rim 1/8-inch thick. The upper part, including the screw threads with rolled edge, is 1-piece drawn from seamless brass supported by beaded edge.

No. 69.....each \$.35

Tip Reamers



Packed 1 dozen in reamer case.

No. 145.....each \$.05

No. 150, Reamer Case

Only.....each .05

Flame Protectors



No. 180 is for all detachable reflector lamps; No. 170 for all permanent reflector lamps.

No. 180.....each \$.10

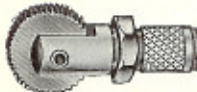
No. 170.....each .10

No. 172 Flint



No. 172.....each \$.05

No. 177 Lighters



No. 177, Complete.....each \$.10

No. 197 Wing Nuts



No. 197.....each \$.05

No. 173 Springs



No. 173.....each \$.05

No. 174 Screw Caps



No. 174.....each \$.05

No. 37 Justrite Wire Tip Cleaners



Has 50 hard rustproof steel wires and sliding cover. Wires are protected when not in use.

No. 37.....per dozen \$.75

Justrite Carbide Flasks



Made of heavy tin, double seamed, strong, durable.

Oval shape, size 6 3/4 x 2 x 3 inches.

Has large opening and empties freely.

Price, No. 23, with Screw Cap..... \$.15

Justrite Carbide Cans



Made of light steel, tin coated, ribbed, double seamed and sliding cover, air tight, concaved to fit the boot or hip pocket. Holds full day's supply. Strong and durable. The most convenient and safest carbide supply can on the market. Will not rust.

No.	Description	Price Each
77	Capacity, 10 Ounces Carbide.....	\$.15

No. 65 Justrite Lamp Clips

A black enameled steel clip for holding cap lamps in rigid position. Can be easily attached to miner's cap or hat.



Packed 1 dozen in a box, 1 gross in a carton. Shipping weight per dozen, 1/2 pound.

Price, No. 65.....each \$.10

Granite Miners' Candles



Length, 6 inches; 6 candles in a set. Weight per set, 14 ounces. Packed 40 sets in a case, in layers. Prices upon application.

Miners' Candlesticks



Furnished in 5, 6 1/2 and 7 inches, measuring from hook to point. Packed one dozen in a box. Prices upon application.

Generator Carbide

A manufactured gas-producing substance. Will not burn or explode and in original package will keep for years. When brought in contact with water in any standard generator it generates acetylene for lighting fuel, welding, etc. Sizes: $1\frac{1}{4} \times \frac{3}{8}$ inches, $\frac{1}{4} \times \frac{1}{2}$ inches, rice and ND.

Packed in substantial steel drums. Weight, 107 pounds.

Miners' Lamp Carbide

Selected for correct uniform size, high gas yield and freedom from dust. Packed in substantial steel drums, 100 pounds weight, also in 25, 10 and 2-pound cans.

Prices upon application.

No. 21-9 Milburn Portable Carbide Lights

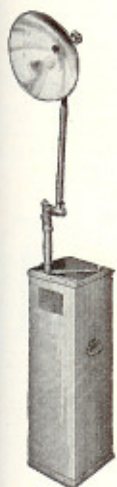
Constructed to use commercial lump carbide.

Uses 8000-c.p. burner with automatic burner cleaner and shut-off valve.

Reflector combines wide range for large area lighting and focus for distance.

Swing joints enable light to swivel in horizontal or vertical position. Reflector may be turned down against side of light for storage.

Approved by Underwriters' Laboratories.



No.	21-9
Each	\$48.00
Lump Carbide Charge .. pounds	10
Size Carbide .. inches	$1\frac{1}{4} \times \frac{3}{8}$
Burning Capacity .. hours	10-12
Burner Size ..	71
Height .. feet	6
Tank Size .. inches	10x10x36
Reflector .. inches	15
Weight, Empty .. pounds	50
Shipping Weight .. pounds	80

No. 20 Carbic Floodlight Cakes

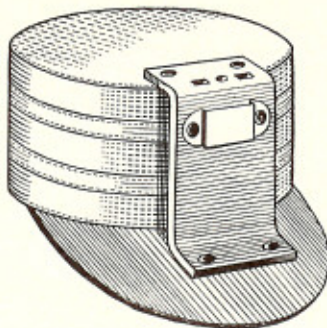
Can be used in carbic lights Nos. 2 and 3.

Made from high grade calcium carbide, treated and compressed into briquet form by special process.

Packed 40 cakes in sheet steel drum.

No. 20 .. per drum \$5.65

Our Contractors Equipment Department has a solution for your construction problem.

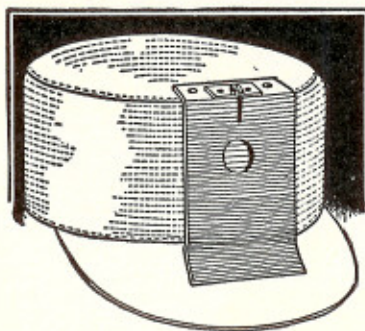
No. 421 Penn Miners' Brown Pit Caps

Made of heavy waterproof shrunken duck, flannel lined. Finished with 2 extra bands on outside.

Visor is of heavy sole leather 3 inches wide.

The lamp support is also made of heavy sole leather, and is equipped for carrying any electric lamp exactly right.

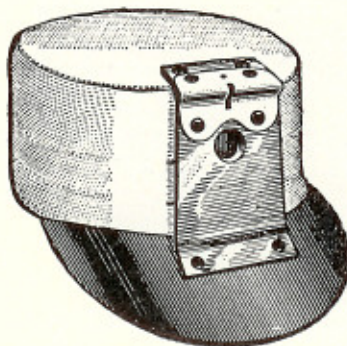
No. 421. per dozen \$5.80

No. 37 Coal Miners' Caps

Made of special waterproof shrunken duck, lined throughout with flannel. Visor is of heavy sole leather, $2\frac{3}{4}$ inches in width.

Lamp support is of heavy sole leather, with the Barta patented holder to hold any carbide lamp secure and permanent.

No. 37 .. per dozen \$5.10

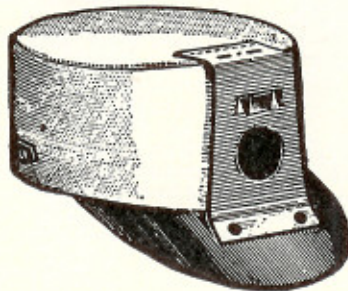
No. L800 Penn Miners' Brown Pit Caps

Made of heavy weight special shrunken duck, flannel lined.

Visor is of a heavy sole leather, $2\frac{1}{2}$ inches in width.

The lamp-holder is made of sole leather, with a metal top-piece for carrying the lamp.

No. L800 .. per dozen \$4.30

No. 151-12 Penco Miners' Brown Pit Caps

Made for carrying electric lamps in mines that are electrically equipped. Made of special waterproof shrunken duck, flannel lined. Visor is made of selected heavy sole leather $2\frac{3}{4}$ inches wide. Has a leather fastener on back of cap for carrying electric wire from battery to lamp.

Lamp holder is made of extra heavy sole leather and is equipped to carry various makes of electric lamp, securely sewed to cap with double lock stitch.

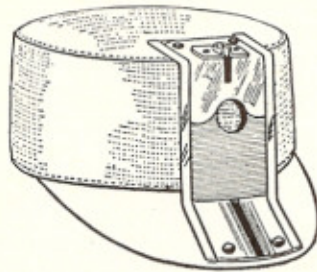
Can be furnished with fixture riveted on if desired.

No. 151-12 .. per dozen \$4.30

No. 27 Coal Miners' Caps

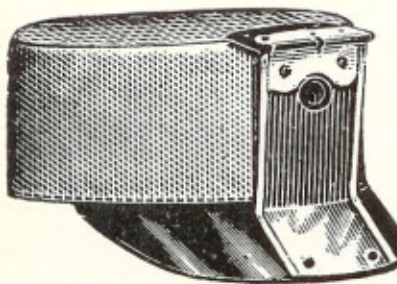
Made of special waterproof shrunken duck. Lined with flannel. Visor is made of heavy material, covered with waterproof duck, and will not be affected by water or dampness.

The Barta lamp support is of 2X tin, interlined with vulcanized fibre, making it strong, and arranged in such a manner as to carry any carbide lamp correctly; lamp will stay in place.



Price, No. 27.....per gross \$3.00

No. 97 Coal Miners' Caps

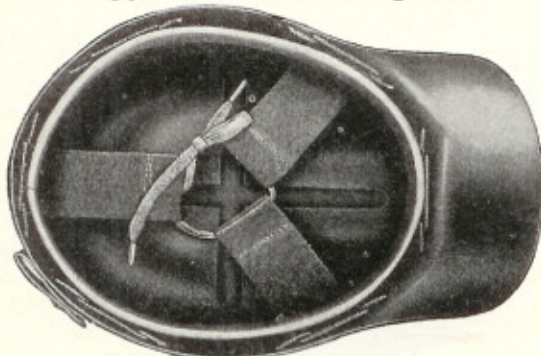


Made of special shrunken white duck, flannel lined. Visor is of heavy material covered with white duck.

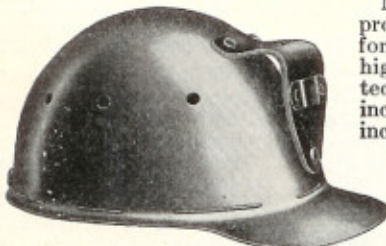
Lamp-holder is constructed of 2X tin, interlined with vulcanized fibre, making it durable. Lamp-holder adapted for the carrying of acetylene lamps.

Price, No. 97.....per gross \$2.20

Type D M.S.A. Skullgards



Showing Uncushioned Lining



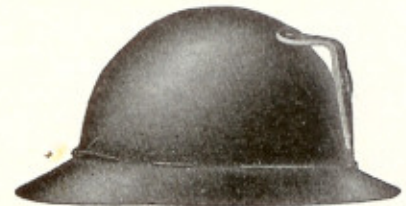
Made from black waterproof Micarta, offers comfortable light weight, highly efficient head protection. Available in 1/8 inch sizes from 6 to 8 inches inclusive.

Uncushioned lining is standard in Type D. Pliable sweatband conforms readily to shape of

head assuring utmost comfort. Air vents in crown and free air space around sweatband afford maximum ventilation without harmful drafts. Three-piece adjustable crown hammock provides exceptional shock protection.

- Type D with Leatherette Sweatband.....each \$2.00
- Type D with Genuine Leather Sweatband.....each 2.20
- Extra Uncushioned Linings, Complete, Including Leatherette Band, Cradle Straps and Laces...each .40
- Extra Uncushioned Linings, Complete, Including Genuine Leather Band, Cradle Straps and Laces...each .60

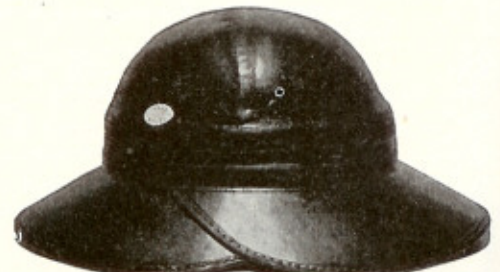
Type K M.S.A. Doughboy Model Skullgards



Extensively used in wet mines. Broad, rigid brim sheds water and protects against falling objects as well. Available in 1/8 sizes from 6 to 8 inclusive. Equipped with genuine leather sweatband.

- Type K with Lamp Bracket (as illustrated).....each \$3.50
- Type K without Lamp Bracket.....each 3.40
- Extra Genuine Leather Sweatband.....each .65

Bullard Hard-Boiled Hats



No. 122—Standard Southwester



No. 125—Slicker Model—Yellow or Black



No. 127—Cap

Made of blow resistant material. Resists fire and electric current. An object striking hat will first dent resilient crown. Free air space. Ventilating holes; raised lips exclude water. Adjustable draw string fits hammock to head. Protective brim. Felt inner padding. Strong, web hammock straps built into hat. Sweat-proof hat band.

Usually furnished with lamp brackets.

Please specify whether wanted with or without brackets when ordering.

- No. 122, Std. Southwester, with Lamp Bracket...each \$2.20
- No. 122 Std. Southwester, without Lamp Bracket...ea. 2.10
- No. 125, Slicker Model Black or Yellow, with Lamp Bracket.....each 2.20
- No. 125, Slicker Model, Black or Yellow, without Lamp Bracket.....each 2.10
- No. 127, Cap with Lamp Bracket.....each 2.15
- No. 127, Cap without Lamp Bracket.....each 2.05

Snyder Rubber Coats and Overall Pants



For miners and firemen. Heavy, black rubber, double coated fabric, fly front, snap fasteners and D rings. An outside drain hole on sleeve near cuff, pure rubber sleeves inside and adjustable straps at wrists. Ventilation holes under armpits. Drain hole at base of pocket. Back is ventilated and has a second piece of material over it. Shoulder seams have a strip over them; extra patch is cemented on the elbows. Rubber surfaced collar is standard equipment but corduroy may be had at same cost, to order.

Furnished in sizes 36, 38, 40, 42, 44 and 46.

The overall pants have shoulder straps and are

furnished in sizes 36, 38, 40, 42, 44 and 46.
 Coats, 38-Inch Length.....each \$6.00
 Coats, 48-Inch Length.....each 7.00
 Overall Pants.....each 6.00

Snyder Oilskin Slicker Jackets and Overall Pants



The slicker jackets are furnished in sizes No. 0 (44-46), No. 1 (40-42), and No. 2 (36-38).

The slicker overall pants are made with shoulder straps. Furnished in sizes No. 0 (44-46), No. 1 (40-42) and No. 2 (36-38).

Jackets.....each \$1.60
 Overall Pants....each 1.60

Snyder Heavy Red Rubber Acid Gloves



Molded, all rubber, steam cured.

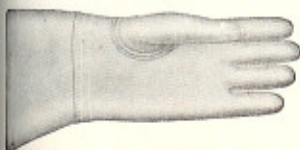
Not easily torn or punctured.

For handling acids and other corrosive materials.

Furnished in sizes 9½, 10 or 10½.

Per Pair... \$1.90

Snyder Heavy White Rubber Gloves



A 5-inch gauntlet. Cloth reinforced for use in handling dangerous chemicals such as cyanide or acid.

Furnished in size 15 only.

Per Pair..... \$3.00

Rubber Boots

White Hypac

Construction: White upper, white foxing and outsole. Bumper edge.

In men's sizes, 5 to 12.

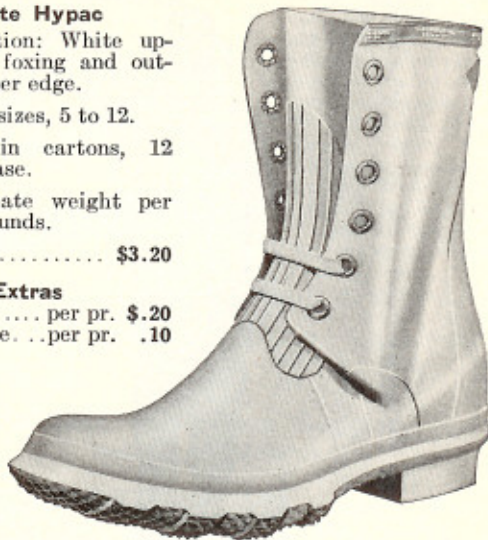
Packed in cartons, 12 pairs in a case.

Approximate weight per pair, 4¼ pounds.

Per Pair..... \$3.20

Extras

Safety Toe..... per pr. \$.20
 Cleated Sole... per pr. .10



Deerfoot

Construction: Black upper, grey outsole, black heel, cushion insole, velvet finish, fleece lined.

Height, 15 inches; width, wide.

In men's sizes, 6 to 12.

Packed in cartons, 12 pairs in a case.

Approximate weight per pair, 5 pounds and 6 ounces.

Per Pair..... \$4.10

Extras

Cleated Sole.....per pr. \$.10



Lextro Molded

Made under Lectro Process Molded Footwear patents.

Construction: Tan upper, outsole, and heel. Knit lined, natural finish. All rubber molded top.

Men's sizes 6 to 12, short, storm king, or sporting.

Packed 6 pairs to a case.

Approximate weight per pair, 8 pounds.

Can be had with safety toe.

Prices upon application.

Short..... per pr. \$3.30
 Storm King..... per pr. 5.00
 Hip Boots..... per pr. 5.50

Extras

Safety Toe..... per pr. .20



Wheeler Protective Apparel



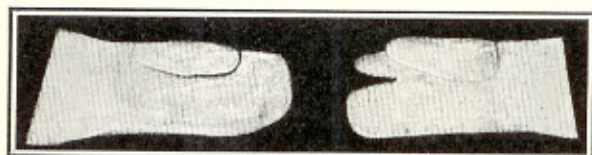
The need of protective apparel for workmen is no greater today than it has ever been, but the demand for protective apparel has increased a thousandfold. This is because plant executives have come to realize the economy of protecting their men against burns and accidents; and the added efficiency and increased output to be enjoyed by their so doing.

Design, fit and finish of this protective apparel is beyond reproach. All clothing is made to measure, so size must be specified when ordering.

Articles listed are staples, but anything desired in this line can be furnished.

No.	Description	Prices	
		1 to 11 Each	In Doz. Lots
1200	Asbestos Pants	\$8.00	\$80.00
1205	Asbestos Coats	8.80	88.00
1244	Asbestos Jumper Suit	15.00	150.00
1400	Fireproofed Duck Pants	3.00	30.00
1405	Fireproofed Duck Coats	3.30	33.00
1446	Fireproofed Jumper Suit	5.40	54.00
1000	Asbestos Helmet	6.30	63.00
1801	Asbestos Sleeves 13" Long	1.20	12.00
1802	Fireproofed Duck Sleeves 13" Long	.80	8.00
1803	Chrome Leather Sleeves 13" Long	1.80	18.00
1600	Knee Pads, Chrome Leather, Leather Straps	3.00	30.00
1601	Knee Pads, Chrome Leather, Elastic Straps	3.00	30.00
1603	Knee Pads, Chrome Leather, Small Size	2.40	24.00
1604	Knee Pads, Oak Tanned Leather	2.10	21.00
1006	Duck Pant Guards	.35	3.50

Asbestos Mittens



Style A

Style B

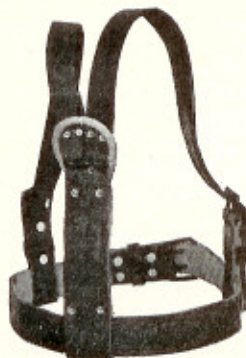
Used extensively by assayers and metal welders, and furnish efficient protection for those compelled to handle heated objects.

Made of the best asbestos cloth, reinforced on palm and thumb both front and back so that glove is interchangeable and lined with fleece lining. Can be made up to special specifications and in any lengths.

Regular lengths 12, 14 and 18 inches.

Prices upon application.

Bullard Leather Safety Belts



Made of high grade leather. D rings, snaps and buckles are all drop forged.

No. B-3 has non-sparking hardware throughout.

No. B-4, Complete without Life Line . . . each \$7.50

No. B-3, Complete without Life Line . . . each 12.50

No. B-8, 25-Ft. Life Line, Spliced on each 3.00

No. B-9, 50-Ft. Life Line, Spliced on each 5.50

Miners' Leather Belts

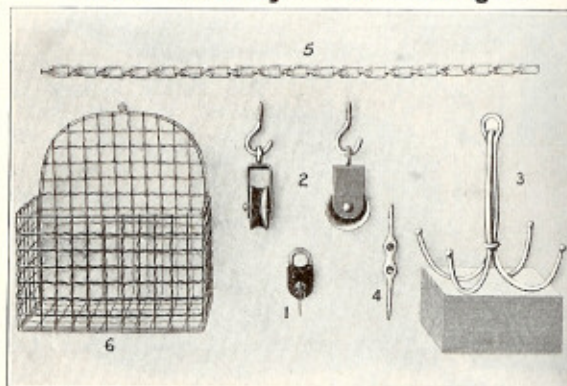


Two-piece black leather 3 inches wide, with check snap, for electric battery.

Sizes: 32, 34, 36, 38, 40, 42 and 44 inches.

Each \$1.00

Union Sanitary Clothes Hangers



This hanger is designed to be absolutely sanitary and to prevent sickness and disease. Rustproof, foolproof and sturdy. Withstands the roughest usage.

A set consists of the following:

Wire Basket, Size 8x6x5 Inches	each	\$.50
4-Prong Clothes Hook	each	.35
Cleat	each	.05
2 Pulleys	each	.30
30 Feet of No. 1 U.L.L. Chain	each	.90
Padlock	each	.60
Complete Equipment	each	3.00

No. 2856P Priscilla Round Aluminum Dinner Pails

Capacity, 6 Quarts

Made of heavy gage aluminum and is well constructed.

Highly polished, inside and bottom natural finish. Tightly rolled round beads.

Strong steel bail with ebonized grip. Inset fits snugly into pail and cover fits inset tightly so when cover is removed it lifts inset and tray with it.

Capacity pail, 6 quarts; top diameter, 8 1/4 inches; depth, 7 1/2 inches.

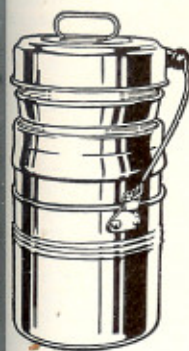
Capacity inset, 3 quarts; top diameter, 7 5/8 inches; depth, 4 1/2 inches.

Diameter pie plate, 7 3/4 inches; depth, 1 3/8 inches.



Packed 6 in a case; weight per case, 19 pounds.

No. 2856P per doz. \$22.80

No. 7777-L Aluminum Dinner Pails

Specially constructed slip-over cover protects contents. Has tray and extra large bottom vessel for liquids.

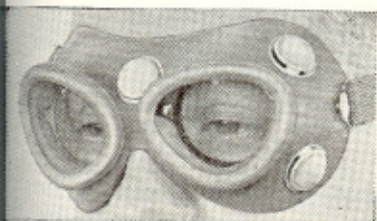
Polished. Inset and tray bright natural. Imprinted Pure Aluminum. Labeled.

Gage, 24; capacity, 7½ quarts.

Packed ½ dozen in a case; 1 in a folding carton.

Shipping weight per dozen, 27 pounds.

No. 7777-L.....each \$1.30

Willson Rubber Mask Type Goggles**Indirect Ventilation**

For chemical workers, for chipping, grinding, etc. Style X31 is used widely by chippers, riveters, grinders and others in dangerous eye-hazardous work and is equally suitable

whether or not the workman wears spectacles.

The triangular shaped Super-Tough lenses provide a wide range of vision and protection against impact. Adequate ventilation is provided through five ventilating ports which are screened to prevent entrance of dust. Two-piece adjustable elastic headbands.

Packed in a cardboard box.

Style X31, with Drop Eye Super-Tough Lenses....ea. \$1.65

Style X32, with Drop Eye Clear Unhardened Lenses.....ea. 1.30

Style X33, with Drop Eye Laminated Lenses....ea. 2.00

Drop Eye Super-Tough Lenses.....per pr. 1.05

Drop Eye Unhardened Lenses.....per pr. .80

Drop Eye Laminated Lenses.....per pr. 1.40

Headbands.....ea. .18

Willson Heavy Duty Bull Dog Goggles**Direct Ventilation**

Built to withstand hard service and punishment. For chipping, riveting, grinding, etc.

The anatomical shape of the cup is patterned after the bony structure of the orbital cavity,

so that it matches the contour of most face shapes and sizes.

This goggle has 50 mm. clear Super-Tough lenses, metallic ventilated lens retaining rings, shock absorbing spacer ring, and adjustable elastic headband. When so specified all-rubber headband may be substituted for the elastic headband at no extra cost.

Packed in a cardboard box.

Style RR50, Brown Composition Cups.....each \$1.75

Style RR502, Transparent Sonite Cups.....each 2.00

50 mm. Super-Tough Lenses.....per pr. .75

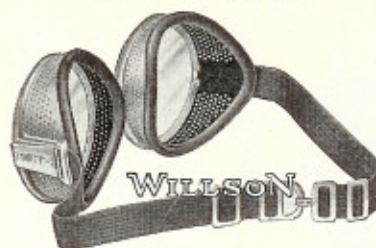
Elastic Headband.....each .12

Metallic Lens Retaining Rings.....per pr. .15

Composition Lens Retaining Rings.....per pr. .20

Ventilating Lens Retaining Rings (Including Shock

Absorbing Spacer Ring).....per pr. .20

Willson Metal Cup Goggles**Direct Ventilation**

For chipping, riveting, etc. Aluminum cups edged with sweat-proof padding; aluminized to resist corrosion. Adjustable elastic headband. Super-Tough lenses; Style LJ33½ has laminated lenses. Styles LJ50A and LJ31½A have cups of Ambrac non-corrosive material. Packed in metal case.

Style.....	LJ50	LJ50A	LJ31½	LJ31½A	LJ33½
Lenses.....mm	50	50	47.5	47.5	47.5
Each.....	\$1.65	\$1.65	\$1.50	\$1.50	\$1.70
Extra Lenses,per pr.	.75	.75	.65	.65	.75
Headbands....each	.12	.12	.12	.12	.12

Willson Metal Cup Goggles**Indirect Ventilation**

For chipping, riveting, grinding, etc.

Has indirect ventilating ports to prevent the entrance of dust, hot metal, etc.

Metal cups; one-piece adjustable elastic headband.

Packed in metal case.

Style.....	LJ58½	LJ48½
Super-Tough Lenses.....mm.	50	47.5
Each.....	\$1.75	\$1.60
Extra Lenses.....per pr.	.75	.65
Headbands.....each	.12	.12

Willson Mask Type Dust Goggles

An unusually comfortable light weight dust goggle. Oval shaped lenses give wide vision and are easily replaceable.

Fabric cups with chenille binding permit easy en-

trance of air with the exclusion of dust.

Adjustable elastic headband.

Packed 12 in a cardboard box.

Style D80, with Unhardened Clear Lenses.....each \$.80

Style D81, with Super-Tough Lenses.....each 1.60

Unhardened Lenses.....per pr. .40

Super-Tough Lenses.....per pr. 1.20

Style CC502 Willson Cover-All Goggles

This composition cup, all-purpose cover-all goggle, made of transparent Sonite, obtains for the wearer a wholly normal eye condition, the "blinder" feeling being entirely eliminated.

Shaped to fit the curves of the face and fitted with 50 mm. Super-Tough lenses, the roomy well-ventilated cups serve equally well for regular and over-spectacle use.

Style CC12 is identical with Style CC502 except that it is fitted with 45.8 mm. Super-Tough lenses.

Style CC502 Packed in Cardboard Box.....each \$2.50

Style CC12 Packed in Cardboard Box.....each 2.00

Standard Mine Cages

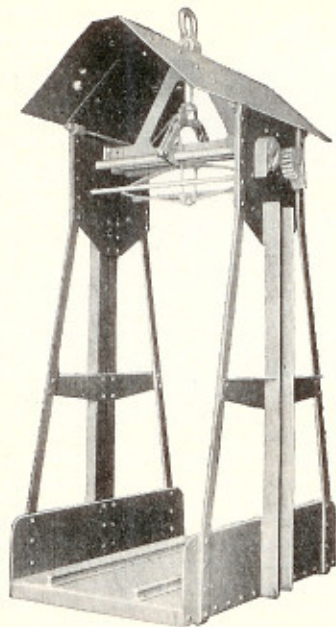
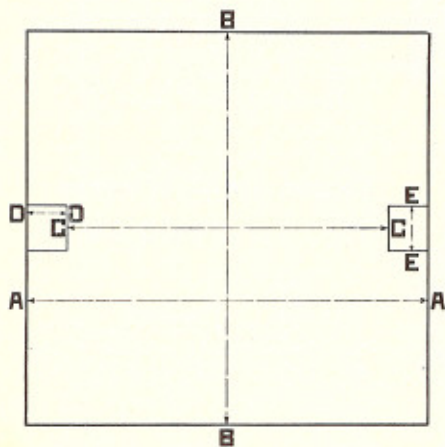


Illustration shows standard mine cage without automatic landing chairs or safety doors.

Standard mine cages are carefully designed and made of the best material and workmanship.

Style	Capacity Pounds Each Deck	SINGLE DECK		DOUBLE DECK	
		Weight Pounds	Price Each	Weight Pounds	Price Each
2	2000	925	\$340.00	1600	\$510.00
2	3000	1150	390.00	1900	585.00
2	6000	1375	440.00	2300	658.00

Information Required for Ordering Cages and Chairs



When ordering or inquiring for prices on cages and chairs, specify the load to be carried, whether safety doors are desired, as required by the Colorado and Arizona state laws, also if cages are to be equipped with automatic chairs.

In addition to this advise the dimensions as indicated in the diagram.

For cages, give all dimensions; A-A, B-B, C-C, D-D and E-E. For chairs only; A-A and B-B.

Automatic Landing Chairs

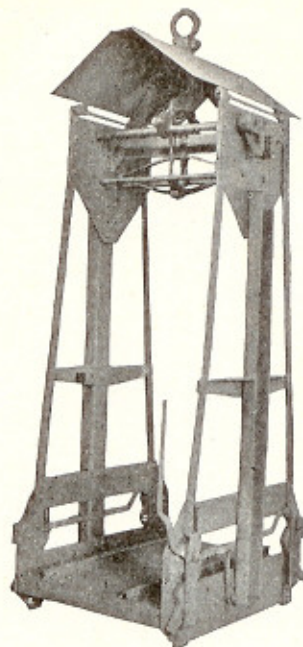


Illustration shows standard mine cage equipped with automatic landing chair.

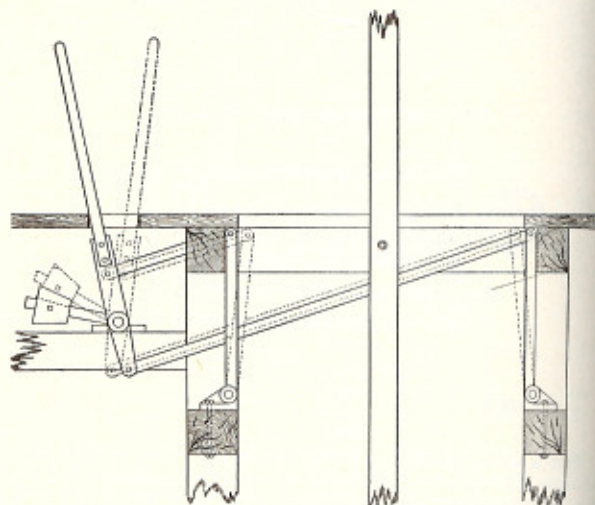
These landing chairs represent the latest and most perfect design in cage chairs. The illustration shows plainly their operation. The dogs bear on the top of the collar beams in the shaft so that no cutting is required. All the parts are of ample strength and made of solid steel forgings. The mechanism is extremely simple, nothing to get out of order or to be adjusted.

The chairs are set with the lever and automatically release when the cage is raised.

Weight of chairs approximately 200 pounds.

Prices and information furnished upon application.

Standard Landing Dogs or Chairs

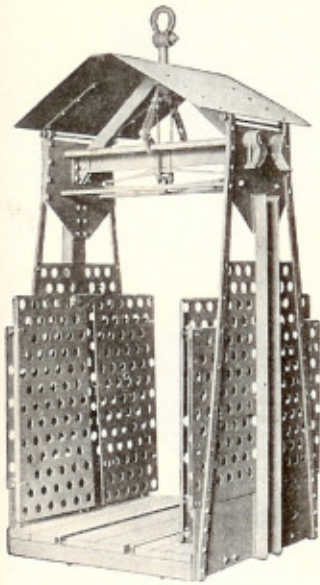


These chairs are made of Norway iron and steel. They are strong and durable. The weight may be adjusted to keep the chairs in, as shown, or it may be reversed so that it will hold them out unless thrown in by means of the hand lever.

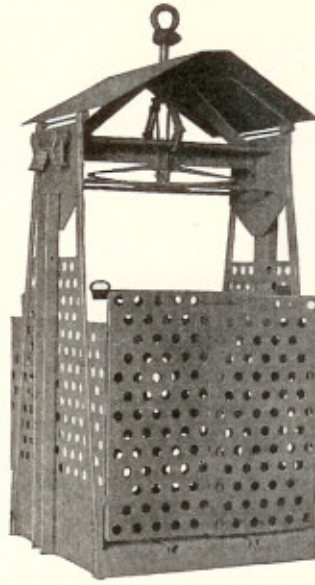
Price, Medium Weight, 450 Pounds.....per set \$80.00
 " Heavy " 550 " " " 100.00

Several other types of special chairs can be made; prices quoted upon application.

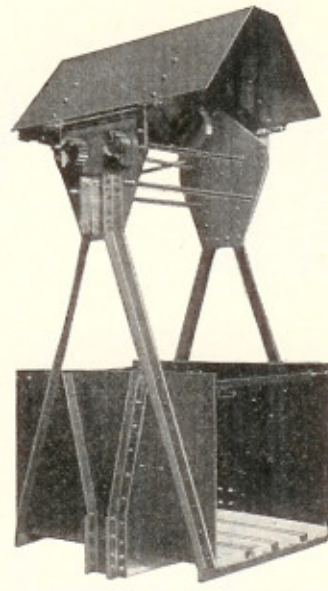
Mine Cages



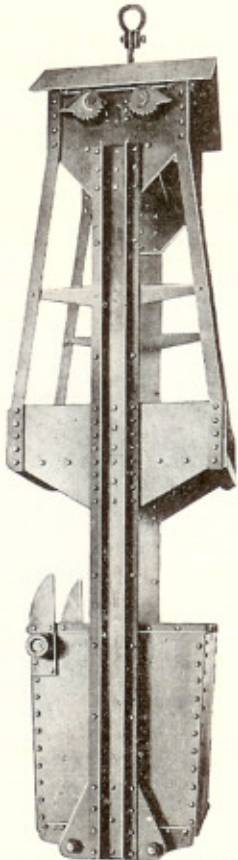
Single Deck Cage with
Safety Doors Open



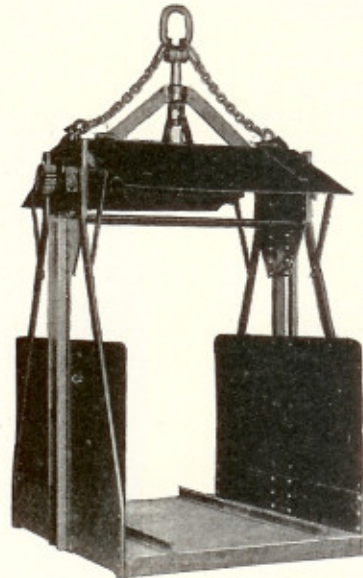
Single Deck Cage with
Safety Doors Closed



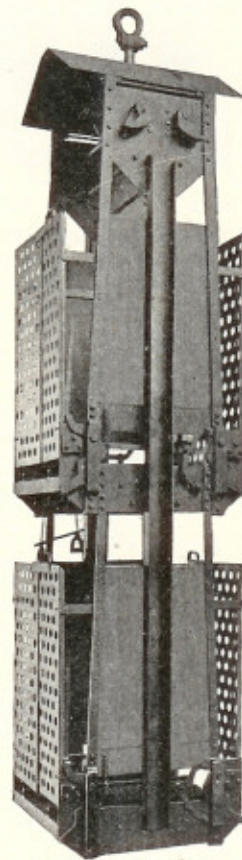
Special Single Deck
Cage



Combined Cage and Skip



Single Deck Coal Mine Cage



Double Deck Cage

First class workmanship and only the best grades of steel and iron are used in the making of all these cages. They are equipped with safety dogs and can be furnished in single or double deck, with or without automatic landing chairs and with safety doors to comply with the Colorado and Arizona state laws.

Cages are made up to order to purchaser's specifications.

When ordering or corresponding regarding mine cages, be sure to give all of the information and dimensions as indicated in diagram on preceding page.

Prices and information will be sent upon receipt of specifications.

Ore Buckets



No. 8



Nos. 9 and 9 1/2

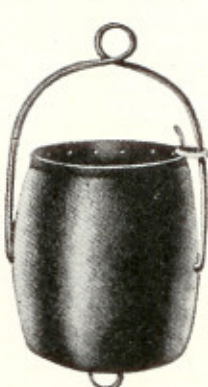
No.	Ht. In.	DIAMETER INCHES		No. of Steel	Cap. Cu. Ft.	Cap. Av. Ore Lbs.	Wt. Lbs.	With Band Price Each
		Top	Bottom					
8	16	16	14	16	1 3/4	200	33	.....
9	15	19	14	16	2	250	35	.....
9 1/2	23	22	17	14	3	375	55	.....



Style No. 1



Style No. 2



Center Swing

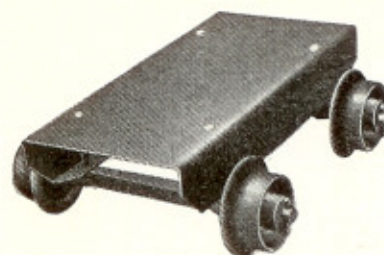
Unless otherwise ordered, bails are made in style No. 1 for Nos. 1, 2 and 3 buckets and in style No. 2 for No. 4 buckets and larger. The bottoms are dished so that the ring to which dumping chain is attached does not prevent bucket from standing upright.

No.	Ht. In.	DIAMETER, INCHES			No. of Steel	CAPACITY		
		Top	Center	Bottom		Cu. Ft.	Av. Ore Lbs.	Av. Weight Pounds
1	30	21	24	17	9	6 1/2	750	140
2	30	21	24	17	11	6 1/2	750	125
3	32	24	27	21	8	9	1100	195
4	37	28	34	23	1/4	15	1700	400
5	37	24	28	22	1/4	11	1300	350
6	24	20	22	16	14	4 1/2	550	67
6 1/2	28	20	24	16	14	6	725	75
7	19	17	19	14	16	2 1/2	300	35
10	40	27	32	23	1/4	15 1/2	1800	400
11	48	26	31	22	1/4	17 1/2	2100	425
12	40	26	31	22	1/4	14 1/2	1650	375
13	42	26	31	22	1/4	15	1700	385
14	28	22	28	19	3/8	7 1/2	900	150

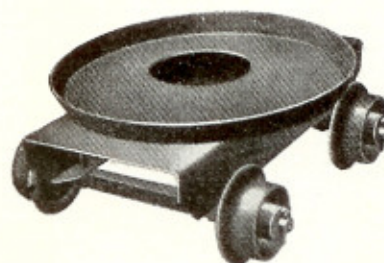
No.	STYLES 1 AND 2 BAIL			CENTER SWING BAIL	
	Without Band	With Band	Extra for Strips on Side	Without Band	With Band
1
2
3
4
5
6
6 1/2
7
10
11
12
13
14

Other sizes and weights made to order. Prices upon application.

Ore Bucket Cars



Style No. 1



Style No. 2

These bucket cars are made of steel for 18 gauge track.

Style No. 1 can be furnished with wood bed at same price.

Diameter Wheels Inches	PRICE, EACH		Diameter Wheels Inches	PRICE, EACH	
	STYLE NO.			STYLE NO.	
6	\$16.00	\$20.00	10	\$24.00	\$28.00
8	20.00	24.00	.....	.....	.....

Water Buckets

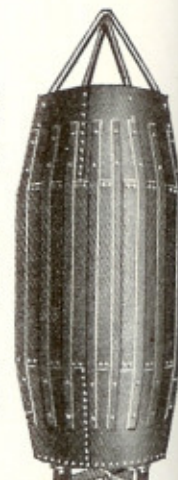


Without Strips

These water buckets are made of the best steel, with wrought iron bail.

In the bottom is an automatic valve which is tight, durable and never out of order.

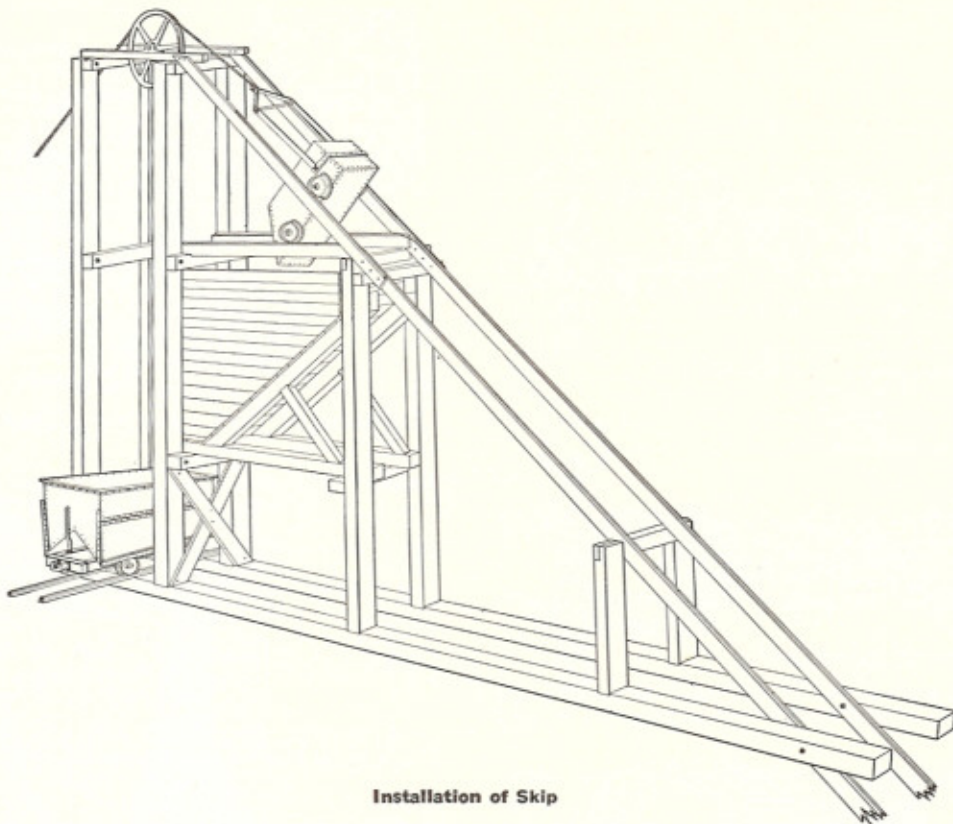
Buckets are smooth on the outside and will not catch in the shaft.



With Strips

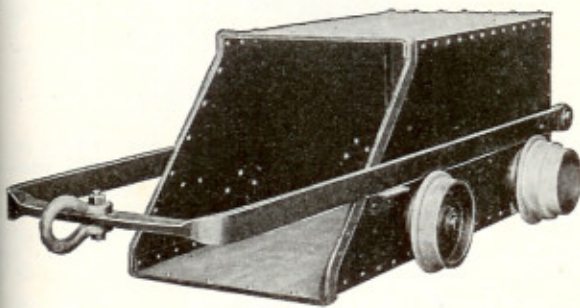
Capacity Gallons	DIAMETER INCHES		Length Inches	Thick-ness Steel Inches	Weight Pounds	PRICE, EACH	
	Middle	Ends				With Side Strips	Without Side Strips
40	20	16	36	No. 12	170	.....	.....
50	19	15	48	" 12	220	.....	.....
60	22	18	44	" 10	275	.....	.....
75	24	18	48	" 10	325	.....	.....
100	26	21	52	" 8	425	.....	.....
125	28	23	56	" 8	490	.....	.....
150	30	24	60	3/8	590	.....	.....
175	32	25	64	3/8	625	.....	.....
200	33	26	66	3/8	770	.....	.....
250	36	28	69	3/8	880	.....	.....
300	38	30	72	3/8	935	.....	.....
350	40	32	76	3/8	1000	.....	.....

Skids



Installation of Skip

Ore and Water Skids



Ore and water skids are made in 2 styles. Above is illustrated the Style No. 2 which has the axles for the wheels riveted to the sides.

The Style No. 1 is the same as the Style No. 2, except that it has standard axles bolted on the bottom of the skip.

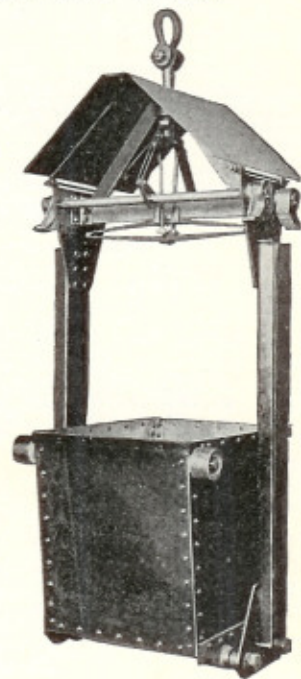
Skids are made to order in any size and style and when ordered for handling water, an automatic valve is furnished, which is placed in the bottom of the car.

When ordering, advise the size and style desired and the angle of the incline from the perpendicular or horizontal.

Vertical Self-dumping Skids or Buckets

The illustration shows the heavy type skip with hinged hood. The standard type skip is practically the same as the heavy type except lighter and is not regularly furnished with the hinged cover. Covers, however, can be furnished for the standard skip when so desired, at an extra charge. Standard safety dogs are used on all self-dumping skids.

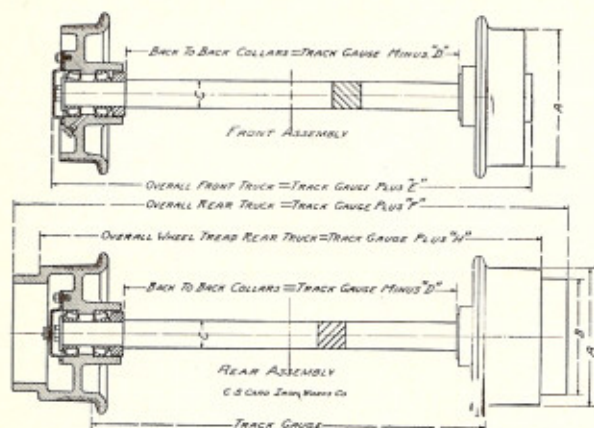
Self-dumping skids are made to order any size, to suit individual requirements.



No.	Capacity Cu. Ft.	Thickness Steel Inches	Approx. Weight Pounds	PRICE, EACH		Extra for Water Valve Each
				Style 1	Style 2	
1	10	3/8	550	\$112.00	\$140.00	\$20.00
2	15	1/4	800	150.00	190.00	20.00
3	20	1/4	1,050	190.00	235.00	30.00
4	25	1/4	1,300	225.00	280.00	30.00
5	30	1/4	1,600	260.00	325.00	30.00

Ore Capacity Cu. Ft.	APPROX. WT., LBS.		PRICE, EACH	
	Standard Type	Heavy Type	Standard Type	Heavy Type
20	1200	1600	\$290.00	\$348.00
30	1500	2000	410.00	492.00
35	1700	2265	468.00	562.00
40	2000	2665	525.00	630.00

Card Roller Bearing Skip Trucks



An easy-running skip truck. Combines Card semi-steel heat-treated wheels and Timken roller bearings, both thoroughly time and mine tested.

The bearings are grease lubricated and protected against entrance of dirt.

Axle is of a special analysis steel.

The standard truck specifications listed below are with square axle, which can attach direct to and support the skip bottom.

Trucks with round special analysis steel axles mounted in pedestals or boxes can be furnished.

Rear wheels with a straight wide tread or with the skip ring tread a different diameter or width than the standard shown can be furnished.

Wheels with flange, 1 3/4 inches high can be furnished where conditions require.

Any wheel diameter, axle size, or track gage can be furnished.

Prices and weights cover a truck consisting of 4 wheels with caps, Timken roller bearings, and 2 high carbon steel axles, assembled and grease packed, ready for use.

Prices and Weights

Wheel Diameter at Rail, 10 Inches

Axle Size In.	24-INCH TRACK GAGE		30-INCH TRACK GAGE		36-INCH TRACK GAGE		42-INCH TRACK GAGE	
	Each	Wt. Lbs.	Each	Wt. Lbs.	Each	Wt. Lbs.	Each	Wt. Lbs.
1 3/4	\$47.80	270	\$48.35	280	\$48.90	290	\$49.45	300
2	51.40	315	52.15	325	52.85	340	53.55	350
2 1/4	55.35	345	56.25	360	57.15	375	58.05	390
2 1/2	60.40	405	61.50	420	62.65	440	63.75	460

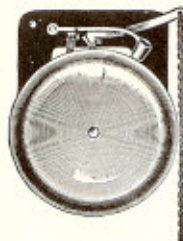
Wheel Diameter at Rail, 12 Inches

Axle Size In.	24-INCH TRACK GAGE		30-INCH TRACK GAGE		36-INCH TRACK GAGE		42-INCH TRACK GAGE	
	Each	Wt. Lbs.	Each	Wt. Lbs.	Each	Wt. Lbs.	Each	Wt. Lbs.
1 3/4	\$51.75	380	\$52.30	385	\$52.85	395	\$53.40	405
2	55.35	420	56.05	435	56.75	445	57.50	460
2 1/4	59.30	455	60.20	470	61.10	485	62.00	500
2 1/2	64.30	510	65.40	530	66.35	550	67.65	565

Dimensions

A.....in.	10	10	10	10	12	12	12	12
B.....in.	8 1/2	8 1/2	8 1/2	8 1/2	10 1/2	10 1/2	10 1/2	10 1/2
C.....in.	1 3/4	2	2 1/4	2 1/4	1 3/4	2	2 1/4	2 1/4
D.....in.	4 3/8	4 3/8	4 3/8	4 3/8	4 1/8	4 3/8	4 3/8	4 3/8
E.....in.	6 1/8	6 3/8	6 3/8	5 7/8	6 1/8	6 3/8	6 3/8	5 7/8
F.....in.	12 3/8	12 3/8	12 3/8	12 3/8	12 3/8	12 3/8	12 3/8	12 3/8
H.....in.	7 5/8	7 5/8	7 5/8	7 5/8	7 5/8	7 5/8	7 5/8	7 5/8

No. 50 Trip Gongs

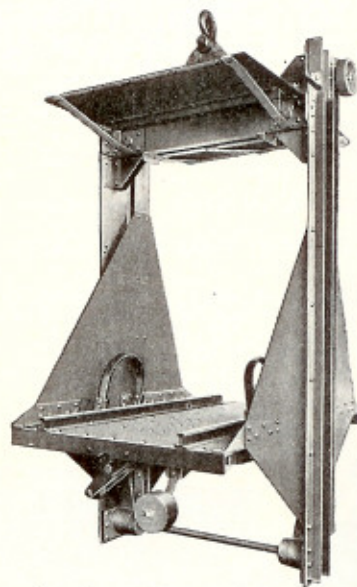


Neat appearance and unusual strength make the No. 50 a suitable gong anywhere that one of this type and quality is required.

The gong shell is polished pressed brass; hammer and lever are cast brass; base is black japanned.

Diameter Inches	Each	Diameter Inches	Each
4	\$1.05	9	\$5.85
5	1.40	10	7.00
6	2.00	12	12.50
7	2.85	..	.....
8	3.85	..	.....

Automatic Self Dumping Coal Mine Cages



The illustration above shows the long radius type automatic self dumping coal mine cage. This type affords the most gradual dumping action. The cage is arranged to dump the car automatically and retain the car on the cage platform, ready for lowering in the shaft. It is equipped with automatic device for releasing the car at the shaft bottom and is also fitted with an automatic safety device to prevent falling in case hoisting cable should break.

Mine cages will be made up to meet your requirements.

Prices and information will be furnished upon receipt of your specifications.

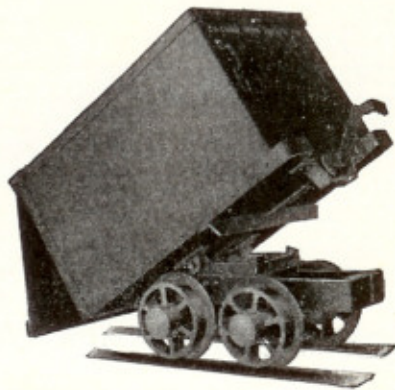
Mine SIGNAL CHARTS

We can furnish linen charts showing mine signals as approved by the state mine inspection office of the various States. Certain styles of charts will be furnished without charge.

Stonehouse SIGNS

All the various styles and types of Stonehouse Metal Signs are available for immediate delivery. Catalog sent upon request.

Card Type Z Standard Ore Cars



A standard ore car which will meet practically all ordinary conditions where a car of this style is required.

The body is well braced and balanced on the truck frame. Two angles are used to reinforce the bottom. Cars of 20-cubic foot capacity and larger are regularly furnished with 1 reinforcing strap or band in the center of the body.

Bumpers, which are used as handles when dumping, are located at the strongest part of the body. The door has a reinforcing strap at the bottom.

The turntable is semi-steel with a grease lubricated machined groove, which takes most of the load off the king pin, in turning, and is dirt-proof.

The truck frame is in one piece without riveted corners to work loose or cause trouble. It is held rigid at the top by the turntable and at the bottom by the truck.

Type Z cars are regularly equipped with Card Standard Roller Bearing Truck.

Unless otherwise specified, 18 gage cars will be furnished.

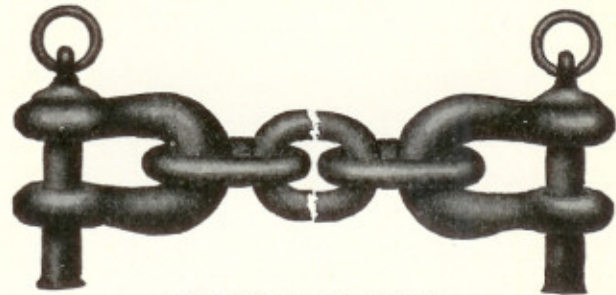
No.	18-inch Track Gage				24-inch Track Gage				Capacity Cu. Ft.
	Complete Each	Width Over All In.	Height Over All Above Rail, In.	Complete Wt. Lbs.	Complete Each	Width Over All In.	Height Over All Above Rail, In.	Complete Wt. Lbs.	
Z-12	\$73.00	27½	36½	630	\$77.50	33	37¼	670	11.7
Z-14	76.00	27½	40½	660	80.50	33	41¼	700	14.0
Z-16	81.75	29½	40½	730	88.25	33½	41¼	790	15.9
Z-18	86.50	33½	40½	780	93.00	33½	41¼	840	18.3
Z-20	99.00	34	42¾	1005	105.75	34	43½	1075	20.0
Z-22	105.50	34¼	42¾	1075	112.25	34¼	43½	1145	22.5
Z-24	111.50	34¼	44¾	1150	119.00	34½	45½	1230	24.4
Z-28	115.25	34¼	48¾	1200	122.75	34½	49½	1280	28.1

No.	Length Over All In.	INSIDE BODY DIMEN., In.			STEEL THICK. Bottom In.	Sides and Door Gage	Truck Wheel Diam. In.	Truck Axle Size In.	Truck Wheel Base In.
		Length	Width	Depth					
Z-12	46½	42	24	20	⅜	No. 10	10	1½	16
Z-14	46½	42	24	24	⅜	No. 10	10	1½	16
Z-16	48½	44	26	24	⅜	No. 10	10	1¾	16
Z-18	48½	44	30	24	⅜	No. 10	10	1¾	16
Z-20	52¾	48	30	24	¼	No. 10	12	2	18
Z-22	59	54	30	24	¼	⅜"	12	2	18
Z-24	59	54	30	26	¼	⅜"	12	2¼	18
Z-28	59	54	30	30	¼	⅜"	12	2¼	18

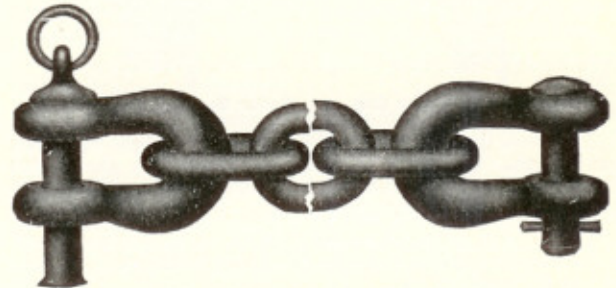
Standard Plain Solid Drawbar with Chains and Hook.
Weight, 23 Pounds.....extra per car \$4.00
Standard Brake, Weight, 55 Pounds....extra per car 10.00

Drop Forged Mine Car Hitchings

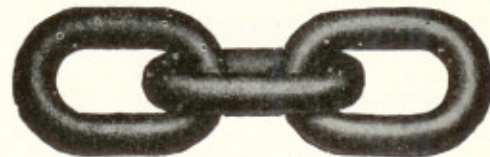
Bell Clevis Design



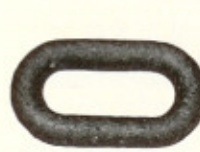
No. 1 Bell Mine Car Hitching



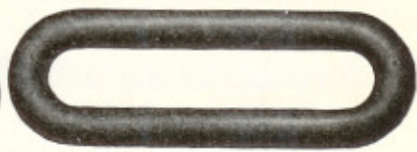
No. 2 Bell Mine Car Hitching



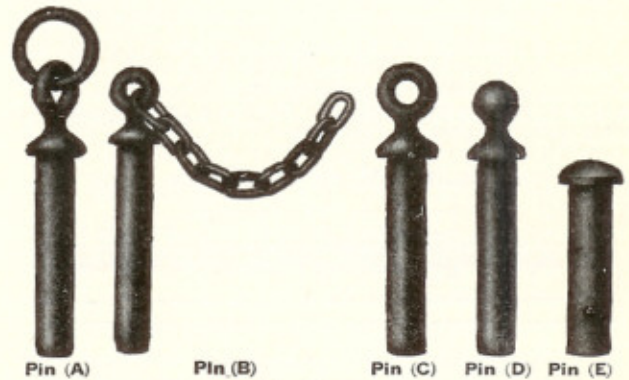
No. 6 Three Link Coupling



No. 8 Short Single Coupling Link



No. 7 Long Single Coupling Link



Clevis	Pin	Links	Size, Inches		Minimum C. to C. of Pins	Clevis	Pin	Links	Minimum C. to C. of Pins
			Pin	Links					
1	1	¾ or 7/8	17	1 3/8	17	1 3/8	1 1/8 or 1 1/4	21	
1 1/2	1 1/2	¾ " 1	18	1 1/2	18	1 1/2	1 1/4 " 1 3/8	22	
1 1/4	1 1/4	1 " 1 1/8	20	...	...	...	...	...

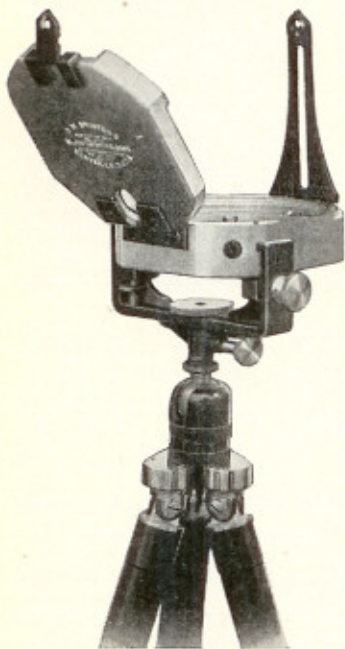
Prices will be quoted upon application.

S. & A. Gigant 25x Pencil Microscopes
Pencil Type with Clip



Twenty-five power. Ideal for minute examination of paint surfaces, magnifying and examining textiles, photos, metals, insects, abrasive products of all kinds, ores, etc. Looks like a fountain-pen.
Each..... \$1.25

Brunton Patent Pocket Transits



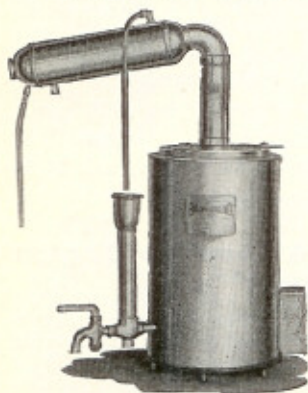
For preliminary surveys on the surface or underground, for reconnaissance and for geological field work, this is a most convenient and compact instrument for the civil mining and military engineer, mine manager and geologist. May be used on a tripod as shown or as a hand instrument. It combines the best features of a sight or prismatic compass, hand level and clinometer.

The sights fold into the aluminum case, 2 3/4 x 2 3/4 x 1 1/4 inches. Weight, 8 ounces.

Has improved sight apertures with enlarged opening in mirror bisected by a hair line, double level vials on vernier and a per cent grade scale in addition to degree graduations on clinometer. Magnetic variation is set off by means of a screw in case.

- Price, Instrument Only..... each \$30.00
- " Ball and Socket Attachment Head Adapting Instrument for Use on Tripod..... each 6.00
- Price, Tubular Extension Tripod..... " 8.00
- " Leather Case for Instrument Only, with Bell Loop " 2.50
- " " " " " " Sling Strap " 3.00
- " " " with Sling Strap to Take Instrument, Attachment Head and Tripod... " 6.00

No. EG-1 Barnstead Water Still



Provides chemically pure distilled water for not only laboratory use but for use in storage battery locomotives, miners' cap lamps, batteries in motor trucks or in electric hoists.

Easy to operate.

A 1-gallon per hour, electrically-operated still operates on 110 volts, 24 amps. or 220 volts, 12 amps. K.w. rating is 2.6.

Other sizes available.

No. EG-1..... each \$66.00

Placer Mining Books

ABC of Practical Placer Mining, by A. Sourdough. each \$1.00

Prospecting and Operating Small Gold Placers, by William F. Boericke..... each 1.50

Gold Washing Pans



No. 149-E Aluminum

Diameter..... inches	6	12	16
Depth..... inches	1 1/4	2	2 1/2
No. 149-E..... each	\$1.00	1.25	1.75

No. 149-F Polished Steel

Diameter..... inches	6	12	16
Depth..... inches	1 1/4	2	2 1/2
No. 149-F..... each	\$.40	.45	.60

No. 149-G Copper

Diameter..... inches	6	12	16
Depth..... inches	1 1/4	2	2 1/2
No. 149-G..... each	\$1.25	1.50	2.75

No. 149-H Steel and Copper



Made of steel with copper bottom.
Diameter, 16 inches; depth, 2 1/2 inches.
No. 149-H..... each \$4.50

No. 149J Richards Vanning Plaques



Made of enameled iron.
Diameter, 11 inches.
No. 149J..... each \$1.75

No. 355D Hand Gold Scales



Entire scale is of brass, including deep brass pans, hung with brass chains. Full set of accurate weights, including penny-weights and grains are furnished.

Put up in neat tin boxes, with oval ends, and enameled green with bronze stripes.

Capacity, 2 ounces; sensibility, 1/2 grain; diameter of pans, 3 inches.
Shipping weight, 3 pounds.
No. 355D..... each \$6.00

Rubber Amalgam Scrapers

Size, 6x6x1 1/2 inch.
Each..... \$.90

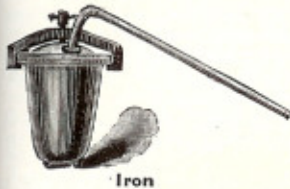
Bonanza Rubber Matting



A rubber sluice box lining approximately 1/8 inch thick. Both sides have an irregular corrugated (crepe) surface to catch the gold. Also used in launders in mills. Durable and easily cleaned by removing and washing out the gold.

In Rolls, 2x10 Ft. per sq. ft. \$.45
Less Than Rolls in One or 2-Ft. Widths Only..per sq. ft. .50

Retorts



Iron

Iron retorts are for mercury distillation, etc., movable cover fastened by screw clamp and milled smooth, making it tight fitting.

Capacity, 1/2, 1, 2, 4, 8 and 16 pints.

Nevada or Oval Type retorts, complete with iron delivery tube.

Capacity.....	pints	3	4	5	6	10
Holds Quicksilver.....	pounds	38	50	63	75	125
Weight.....	pounds	18	25	30	44	65

Copper retorts can also be furnished.

Prices upon application.

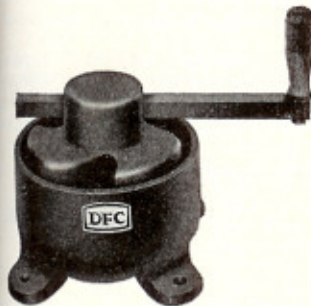
Iron Mortars



High form with pestle.

No.	Each	Cap. Qts.	Diam. In.	Wt., Lbs.
1A	\$.90	1/4	3 3/4	3
2A	1.00	1/2	5	5
3A	1.50	1	5 1/2	7
4A	2.00	2	7	12
5A	4.00	4	8 1/4	17
6A	6.00	8	11	32
7A	10.00	12	12	46

No. 2196 Denver Buck Iron Crusher Mortars



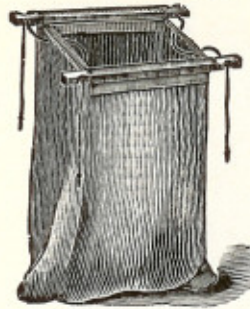
For grinding and amalgamating.

By the rotation of the muller, a large sample of ore may be ground.

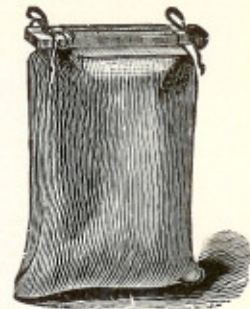
May also be ground with quicksilver.

Diameter.....	in.	6 1/2	8 1/2
No. 2196.....	each	\$9.00	15.00
Weight of Muller.....	lbs.	16	49
Total Weight.....	lbs.	30	76

**Ore Sacks and Bags
Cotton Duck Sacks**



Sack with Boss Fastener (Open)



Sack with Boss Fastener (Closed)

Furnished in any size desired. Size of sacks is based on size cut, before sewed, which makes all sizes finish about 1/2 inch less than specified size. All sacks are furnished with plain opening unless sack with Boss Fastener is specified. It only takes one-quarter the time to fill and tie sacks with Boss fasteners than it takes to fill the plain sack. This fastener will wear nearly twice as long as the plain sack.

Cotton Duck Grade No.	11	10	9	8
14 1/2 x 24 In.	each \$.31	\$.35 1/2	\$.41 1/2	\$.45
15 1/2 x 28 In.	each .36	.41 1/2	.45 1/2	.52
17 x 24 In.	each .35 1/2	.42	.....	.55 1/2
17 1/2 x 28 In.	each .41 1/2	.51 1/2	.54	.61 1/2
18 1/2 x 28 In.	each .44 1/2	.54	.57 1/2	.65 1/2

For sacks with Boss Fasteners add \$.08 to above prices.

Specie or Sample Bags

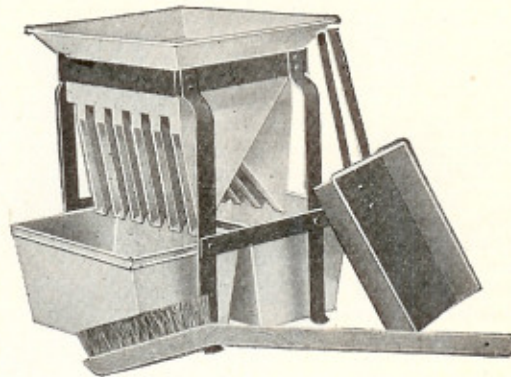
Eight-ounce duck with tie strings. Also made of light drill or any weight duck at proportionate prices.

Any size not listed made to order if desired.

No.	0	1	2	3	4	5
Per 100.....	\$9.50	15.00	20.00	25.00	54.00	52.00
Size.....in.	4x7	6x10	7x14	9x15	10x21	12x16

Made with draw strings at 25 per cent additional.

Ore Samplers



The construction of this device facilitates quick and even sampling.

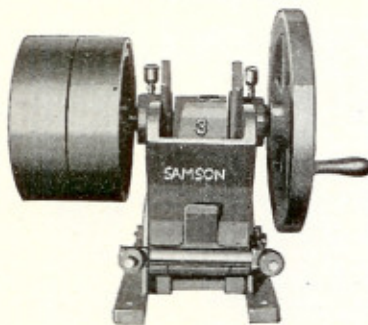
Sampler consists of hopper set in 4-legged support, scoop and 4 sampling pans and brush.

All parts can be easily cleaned.

Larger sizes than listed made to order; prices upon application.

Size.....	inches	8x10	10x18
Width Trays.....	"	3/4	1
Price, Complete.....	each	\$25.00	\$40.00
" Pan Only.....	"	1.75	2.25
" Scoop Only.....	"	1.50	2.50
" Extra Brushes.....	"	.50	.50

No. 00 Samson Laboratory Crushers



The Samson crushes anything from the hardest rock to the softest ore. It will not choke on sticky material, crushes fine to a uniform size and the forward and downward movement of the jaws accelerates discharge and prevents clogging.

Has few moving parts, unusual durability and great strength and power. It can be instantly opened without tools for cleaning by pulling down an eye bolt and dropping front journal. Stationary jaw plate may then be turned up, exposing both jaws and side plates for cleaning. Jaw plates are manganese steel.

It is simple, requires little power and can be operated either by hand or belt.

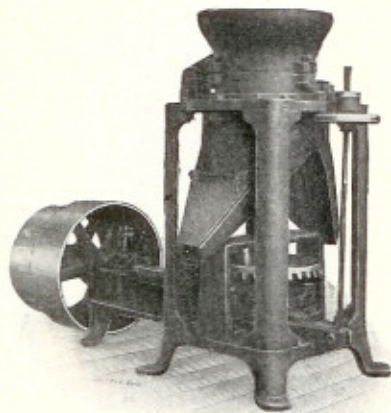
No.	00
Jaw Opening.....inches	1½x4
Approximate Capacity per Hour, to ½-Inch.pounds	300
Power Required.....h.p.	1
Speed.....r.p.m.	500
Tight and Loose Pulleys.....inches	12x3
Weight.....pounds	300
Price, No. 00.....each	\$75.00

No. 2 Improved Ore-sample Grinders

Designed for the purpose of simplifying and economizing the grinding of ore samples.

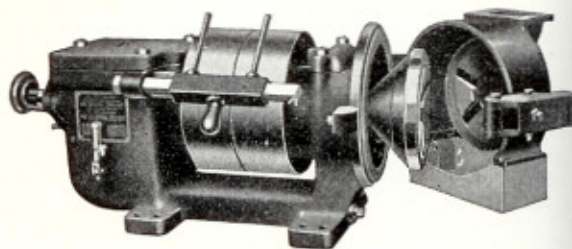
Simple in construction, compact and extremely durable, and is extensively used by the leading smelters and sampling works.

The hopper and grinding ring may be swung open and the cone lifted out and cleaned after the sample has been ground, and when the grinding ring and cone are worn they may be replaced by new ones without difficulty. The grinding parts are made of a hard composition and are durable.



Revolutions Driving Shaft.....per minute	150
No. 2.....each	\$200.00
Diameter of Pulleys.....inches	18
Face of Pulleys.....inches	6
Weight, Grinder.....pounds	850
Weight, Cone and Ring.....pounds	145
Weight, Bevel Gear and Pinion.....pounds	50
Weight, Vertical Shaft.....pounds	25
Weight, Hand Wheel.....pounds	8

McCool Pulverizers



The McCool Pulverizer is a disc-type grinder designed for grinding virtually any material, and for pulverizing to any mesh, at one operation. It is particularly adapted for the assay office, the metallurgical, the chemical and the industrial laboratory. It is economical, simple, powerful, rugged, durable, and amazingly rapid and efficient.

A self-locking device holds the hinged grinding chamber in place and affords easy and quick access to grinding chamber for removing ground samples and for cleaning.

Oil is carried to every moving part by a combined ring and splash system, and the gears run noiselessly in a bath of oil. A gauge indicates the condition of the oil-supply at all times.

It is made in 2 sizes as follows:

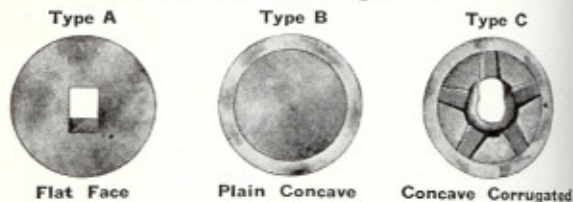
Model 6½F, which is equipped with discs 7 inches in diameter and will reduce an 8-ounce sample of quartz to 100 mesh in 30 seconds.

Model 9½K, which is equipped with discs 9½ inches in diameter and will reduce a one pound sample of quartz to 100 mesh in 30 seconds.

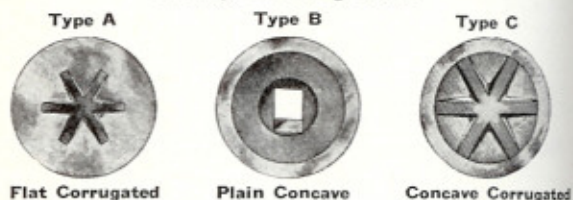
The grinding is done between 2 discs, one of which is stationary, the other revolving eccentrically at high speed. The relation of the discs is constantly altered by the eccentric movement, hence the discs cannot groove, no matter how fine or coarse the product, but will remain smooth and deliver uniform and dependable service until worn out.

The adjustment of the grinding discs to each other is automatic and positive and may be made while the machine is in operation.

Stationary Grinding Discs



Rotary Grinding Discs



The grinding discs are made of special alloy in 3 types. For general purposes Type C discs give best results. When ordering discs, however, it would be advisable to indicate the kind of material to be pulverized, as well as the desired fineness of the finished product.

McCool Pulverizer Specifications

Model No.....	6½F	9½K
Each.....	\$150.00	250.00
H.P.....	1	2
Speed.....r.p.m.	250	275
Pulley.....inches	11x3	12x4
Dimen. Over All (Lgth.xHt.xWidth)		
.....in.	30x14½x11	34x20x15
*Capacity per Hour.....pounds	30	60
Weight.....pounds	330	570
*¼-inch feed of hard rock to 100 mesh.		

Molds

No. 304-F



Metal mold.
Diameter at top, 7½ inches.
Depth, 5 inches.
Weight, 15 pounds.

No. 304-F.....each \$1.75

No. 304-G



Pouring mold for black lead crucible.

Crucible Size No.	Each	Diameter Inches	Height Inches	Weight Pounds
6	\$2.50	7½	6	16
10	4.00	9½	7½	27
16	5.00	10¾	9	35
25	6.50	12½	10½	50
35	7.50	14	12	60
50	10.00	15¼	11	85
80	12.00	17¼	13	105
100-125	15.00	19½	15	135
150	17.00	22	17	170

No. 304-M



Ingot or bullion mold.
Inside diameter, 1½x1½x8 inches with sliding bar to cast any length desired.
Capacity, 150 ounces gold; 75 ounces silver.

No. 304-M.....each \$1.50

No. 304-N



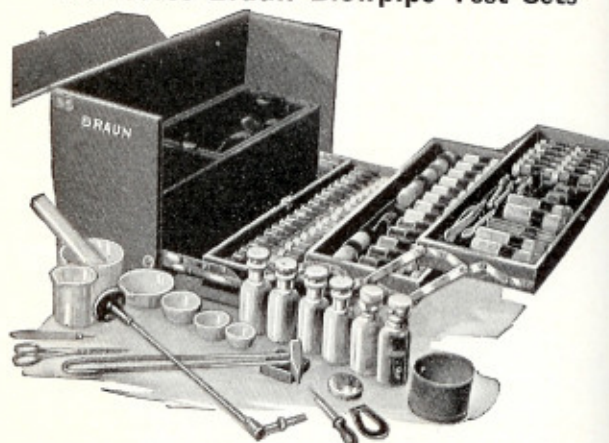
Ingot or bullion mold. Capacity of mold is figured filled within about ⅜ inch of top.

Size Inches	CAP., Oz.		Each
	Gold	Silver	
3½x1 x1	20	10	\$1.10
3½x1½x1½	50	25	1.75
4 x2 x2	100	56	2.00
5½x2½x2½	250	140	3.00
6½x3¼x3¼	500	275	3.25
9 x3¾x3¾	1000	550	5.00
11 x4¾x4¾	2000	1100	7.00
11½x5¼x4½	2500	1350	9.00
15 x7 x6	5000	3000	12.00

Lettering can be furnished when desired.

Extra.....per letter \$.15

No. 39760 Braun Blowpipe Test Sets



This set enables complete qualitative determinations of minerals to be made in the field. It is used according to methods given by J. D. Dana in his text book "A System of Mineralogy" and in other standard texts. Contains a collection of 50 carefully selected typical mineral specimens for making comparison tests; in screw-cap vials neatly labeled. The carrying case measures 16x8x6 inches.

Carefully packed to withstand rough transportation. All acids packed separately. Shipping weight, 20 pounds.

Test Pieces

1. Anvil, Polished Steel
2. Plattner's Blowpipe
3. Porcelain Mortar and Pestle
4. Alcohol Lamp
5. Beaker
6. Charcoal Block
7. Evaporating Dish
8. Porcelain Crucibles
9. Forceps, 5-Inch
10. Forceps, Platinum Tipped
11. Hammer
12. Horseshoe Magnet
13. Pipette
14. Platinum Wire Holder
15. 3 Pieces Platinum Wire
16. Scissors
17. Horn Spoon
18. Test Lead Measure
19. 3 Open Glass Tubes
20. 3 Closed Glass Tubes
21. Magnifier, 1-Inch
22. Blue Litmus Paper
23. Red Litmus Paper
24. Turmeric Paper
25. Brazil Wood Paper
26. Borax Glass
27. Borax Powder
28. Bone Ash
29. Antimony Oxide
30. Arsenous Acid
31. Salt Phosphorus
32. Soda Carbonate
33. Soda Nitrate
34. Alcohol
35. Ammonia Hydroxide
36. Hydrochloric Acid
37. Copper Oxide
38. Iron Oxide
39. Lead Oxide
40. Manganese Oxide
41. Mercury Oxide
42. Potash Bisulphate
43. Test Lead
44. Tin Oxide
45. Cobalt Nitrate Sol.
46. Nitric Acid
47. Sulphuric Acid

Mineral Specimens

1. Graphite
2. Sulphur
3. Stibnite
4. Chalcopyrite
5. Galenite
6. Rutile
7. Pyrrhotite
8. Pyrite
9. Hematite
10. Magnetite
11. Chromite
12. Limonite
13. Siderite
14. Pyrolusite
15. Rhodonite
16. Sphalerite
17. Willemite
18. Corundum
19. Cryolite
20. Fluorite
21. Calcite
22. Apatite
23. Gypsum
24. Dolomite
25. Barite
26. Magnesite
27. Celestite
28. Strontianite
29. Halite
30. Quartz
31. Orthoclase
32. Witherite
33. Albite
34. Spodumene
35. Hornblende
36. Wollastonite
37. Beryl
38. Garnet
39. Mica
40. Lepidolite
41. Chrysolite
42. Scapolite
43. Tourmaline
44. Cyanite
45. Pyrophyllite
46. Talc
47. Datolite
48. Prehnite
49. Pectolite
50. Stilbite

No. 39760.....per set \$44.00