

Moulds

Pouring



A



B



D

A POURING MOULDS.—Heavy, solid iron, with 2 conical depressions, 2 1/8 inches diameter, 1 3/8 inches deep, wood handles, for crucible and scorification assays.

B POURING MOULDS.—Heavy, solid iron, with 6 conical depressions, 2 1/4 inches diameter, 1 5/8 inches deep, solid iron handle. The slag will cool rapidly.

C POURING MOULDS.—Same as B, but with 8 depressions.

D POURING MOULDS.—Same as B, with 6 conical depressions, 2 inches diameter, 1 3/8 inches deep, with iron ring handle.



K

K POURING MOULDS.—Iron, with 6 conical depressions and handle, bottom running down to a fine point, for scorification.



L

L POURING MOULDS.—Iron, with 3 conical depressions, bottom running down to a fine point, wood handle, for lead or scorification.



M

M POURING MOULDS.—Iron with 12 conical depressions, 2 1/4 inches diameter, 1 inch deep, for crucible or scorification assays.

N MOULDS.—Same as M, with 12 conical depressions, 3 inches diameter, 1 1/2 inches deep, for crucible or scorification assays.



N

P MOULDS.—The same as M, with 20 conical depressions, 2 1/4 inches diameter, 1 inch deep, for crucible or scorification assays.

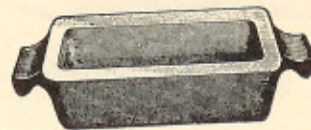
Q POURING MOULDS.—Cast iron with 25 spherical depressions, for crucible or scorification assays. Prices upon application.

Moulds



H

H MOULDS, INGOT OR BULLION.—Inside diameter, 1 1/2 x 1 1/2 x 8 inches, with sliding bar to cast any length desired, capacity 150 ounces gold, 750 ounces silver.



J

J MOULDS, INGOT OR BULLION.—Capacity of moulds is figured filled within about 3/16-inch of top.

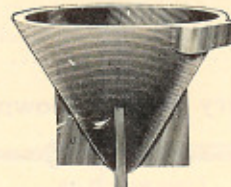
Size Inches	Capacity, Ounces Gold	Capacity, Ounces Silver	Size Inches	Capacity, Ounces Gold	Capacity, Ounces Silver
3 1/2 x 1 x 1	20	10	9 x 3 3/4 x 3 3/4	1000	550
3 1/2 x 1 1/2 x 1 1/2	50	25	11 x 4 3/4 x 4 3/4	2000	1100
4 x 2 x 2	100	50	11 1/2 x 5 1/4 x 4 1/2	2500	1350
5 1/2 x 2 1/2 x 2 1/2	250	140	15 x 7 x 6	5000	3000
6 1/2 x 3 1/4 x 3 1/4	500	275			

Lettering on above moulds can be furnished when desired.



E

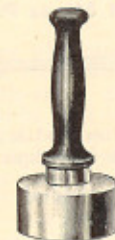
E POURING MOULDS.—For large crucibles, only one large depression, 6 inches diameter, 5 inches deep.



F

F POURING MOULDS.—For black lead crucibles.

For black lead crucible No.	Weight	Capacity
7	16 pounds.	
10	27 "	
16	35 "	
25	50 "	
35	60 "	
50	85 "	
80	105 "	
100 or 125	weight 135 pounds.	



G

G CUPEL MOULDS.—Brass or iron, are finely finished. Diameter, 1, 1 1/8, 1 1/4, 1 1/2, 1 3/4 and 2 inches. Prices upon application.

of steel,
or alumi-
6 12 16
1 2 2 1/2
es upon
on.



No. 2
point, 1 quart,

grizers
is easy to
in, as there
are joints or
cores
for pulver-
ing material to
be in. It re-
sults easier
when pulver-
izing mate-
rial than it
does when
empty. It
discharges
the material
as soon as
pulverized.
minimizing
the

can be used for a
being rounded to

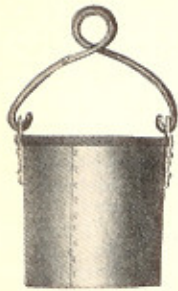


Nevada
c., movable cover
making it abso-

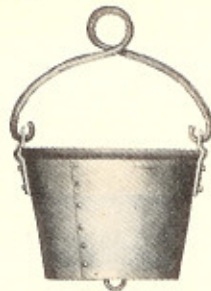
with iron delivery

4	5	6	10
50	63	75	125
25	30	44	65

Ore Buckets

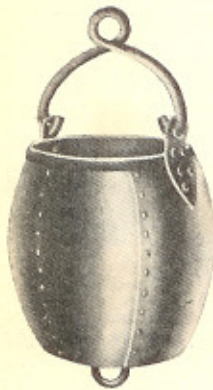


No. 8



Nos. 9 and 9 1/2

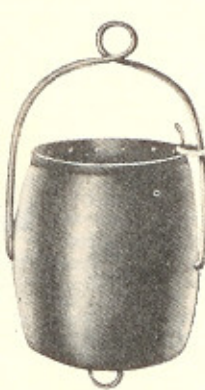
No.	Ht. In.	DIAMETER INCHES		No. of Steel	Cap. Cu. Ft.	Cap. Ore Lbs.	Wt. Lbs.	With Band Price Each
		Top	Bottom					
8	16	16	14	16	1 3/4	200	33	\$10.50
9	15	19	14	16	2	250	35	10.50
9 1/2	23	22	17	14	3	375	55	17.00



Style No. 1



Style No. 2



Center Swing

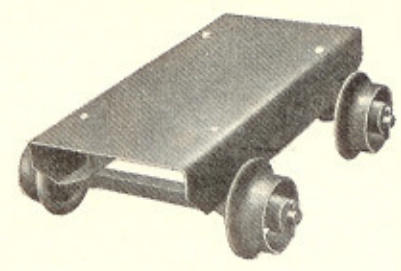
Unless otherwise ordered, bails are made in style No. 1 for Nos. 1, 2 and 3 buckets and in style No. 2 for No. 4 buckets and larger. The bottoms are dished so that they ring to which dumping chain is attached does not prevent bucket from standing upright.

No.	Ht. In.	DIAMETER, INCHES			No. of Steel	CAPACITY		Av. Weight Pounds
		Top	Center	Bottom		Cu. Ft.	Av. Ore Lbs.	
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

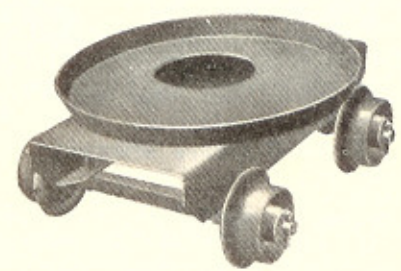
No.	STYLES 1 AND 2 BAIL			CENTER SWING BAIL	
	Without Band	With Band	Extra for Strips on Side	Without Band	With Band
1	\$43.00		\$7.50	\$53.00	
2		\$35.00	7.50		\$45.00
3	53.00	56.00	11.00	60.00	64.00
4	109.00	116.00	15.00	122.00	130.00
5	84.00	90.00	13.00	103.00	109.00
6		24.00	6.00		30.00
6 1/2		30.00	7.00		36.00
7		20.00	4.00		24.00
10	112.00	120.00	15.00	122.00	130.00
11	122.00	126.00	18.00		
12	109.00	112.00	13.00		
13	114.00	118.00	15.00		
14	47.00	50.00	7.00		

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

Ore Bucket Cars



Style No. 1

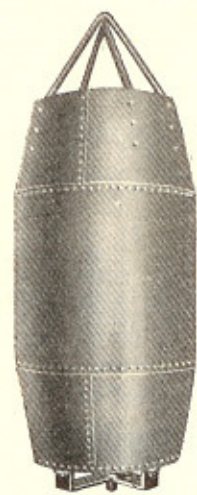


Style No. 2

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	
	1	2		1	2
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.



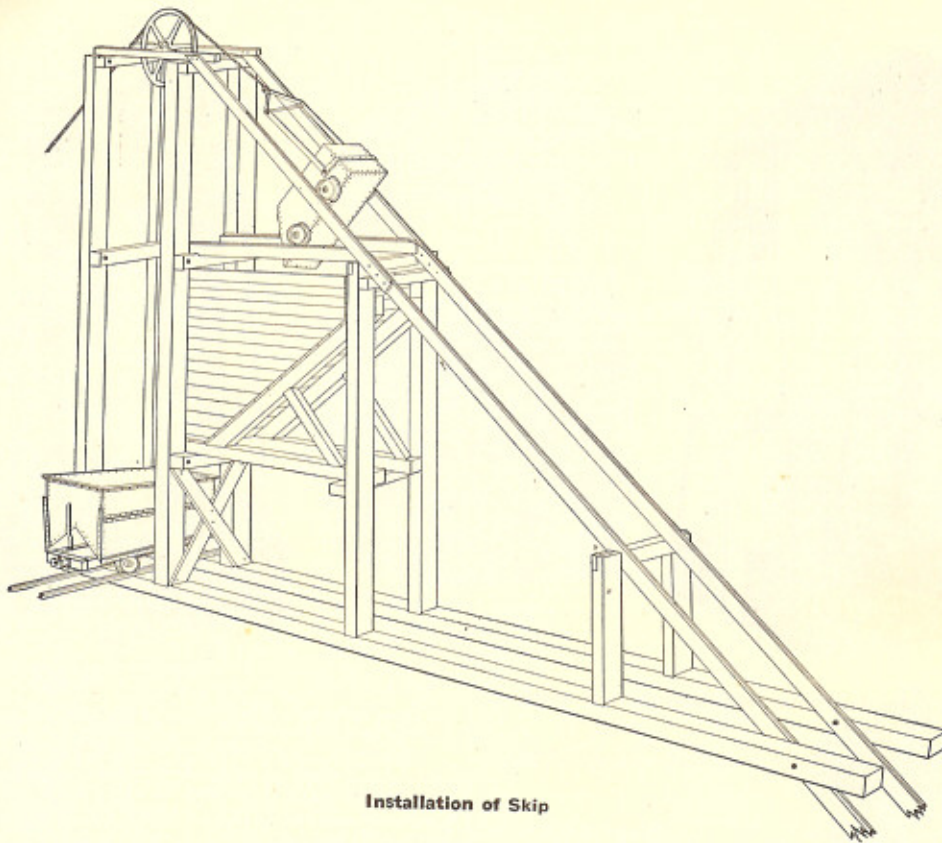
With Strips

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

Capacity Gallons	DIAMETER INCHES		Length Inches	Thickness Steel Inches	Weight Pounds	Price, Each
	Middle	Ends				
40	20	16	36	No. 12	170	
50	19	15	48	" 12	220	
60	22	18	44	" 10	275	\$105.00
75	24	18	48	" 10	325	126.00
100	26	21	52	" 8	425	128.00
125	28	23	56	" 8	490	168.00
150	30	24	60	3/16	590	200.00
175	32	25	64	3/16	625	230.00
200	33	26	66	3/16	770	262.00
250	36	28	69	3/16	880	283.00
300	38	30	72	3/16	935	304.00
350	40	32	76	3/8	1000	325.00

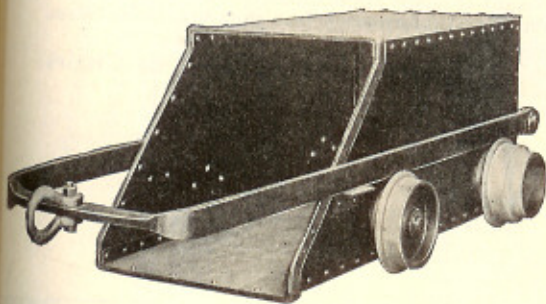
Order which angle No. 1 2 3 4 5

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.

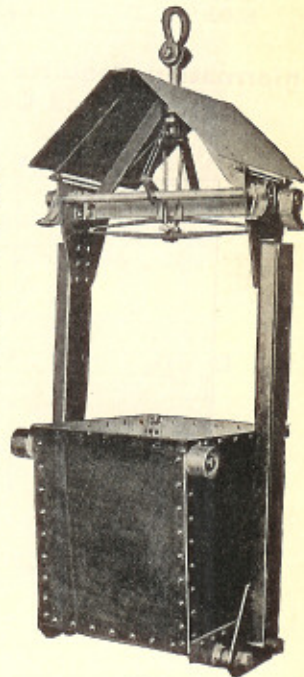
Skids are made to order in any size and style and when ordered for handling water, an automatic valve is furnished, which is placed in the bottom of the car.

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 hood 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 skips.

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



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

Capacity Cu. Ft.	Thickness Steel Inches	Approx. Weight Pounds	Price, Each		Extra for Water Valve Each
			Style 1	Style 2	
10	3/8	550	\$112.00	\$140.00	\$20.00
15	3/4	800	150.00	190.00	20.00
20	1/2	1,050	190.00	235.00	30.00
25	3/4	1,300	225.00	280.00	30.00
30	1/2	1,600	260.00	325.00	30.00

Standard Mine Cages

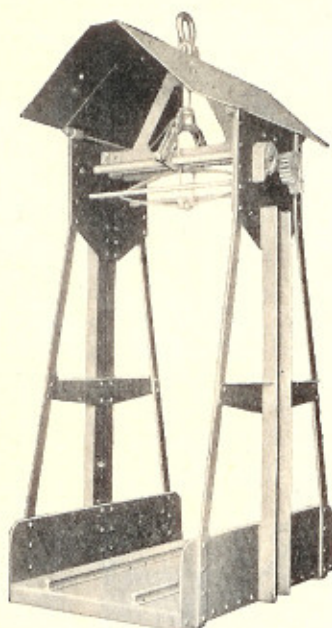
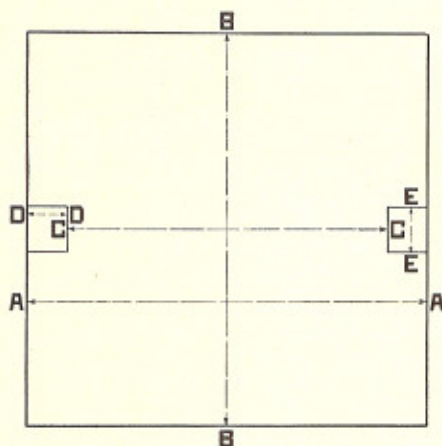


Illustration shows standard mine cage without automatic landing chairs or safety doors.

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

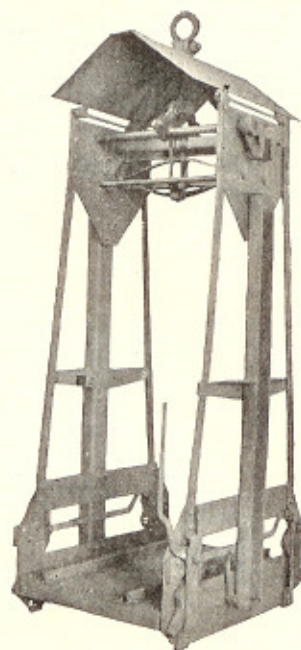


Illustration shows standard mine cage equipped with automatic landing chair.

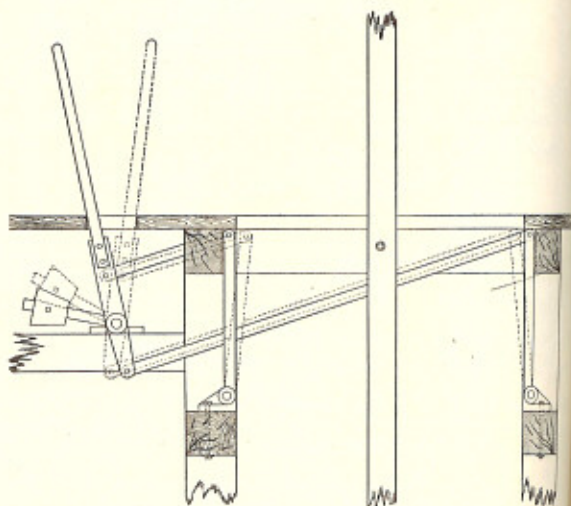
These landing chairs represent the latest and most perfect design in cage chairs. The illustration shows plainly their operation. The dogs bear on the top of the collar beams in the shaft so that no cutting is required. All the parts are of ample strength and made of solid steel forgings. The mechanism 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



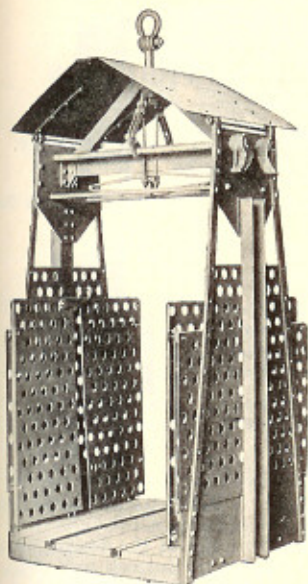
These chairs are made of Norway iron and steel. They are strong and durable. The weight may be adjusted to keep the chairs in, as shown, or it may be reversed so that it will keep them out unless thrown in by means of the hand lever.

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

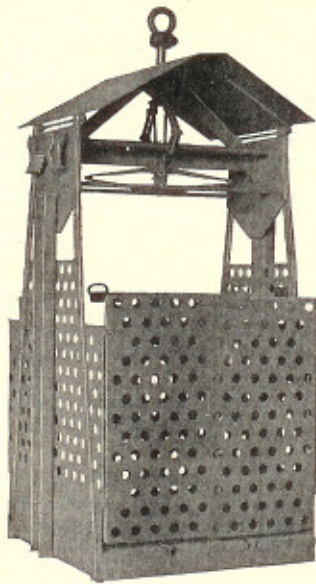
Several other types of special chairs can be made; prices quoted upon application.

First class
 They are e
 and with safety
 Cages are
 When orde
 diagram on pre
 Prices and

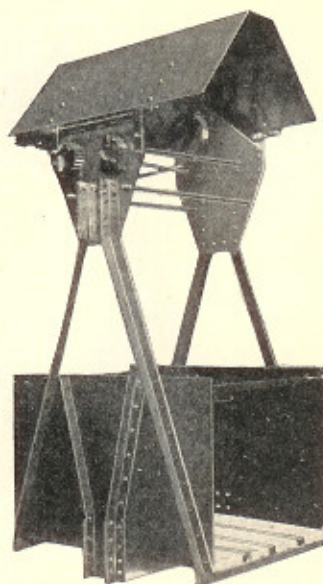
Mine Cages



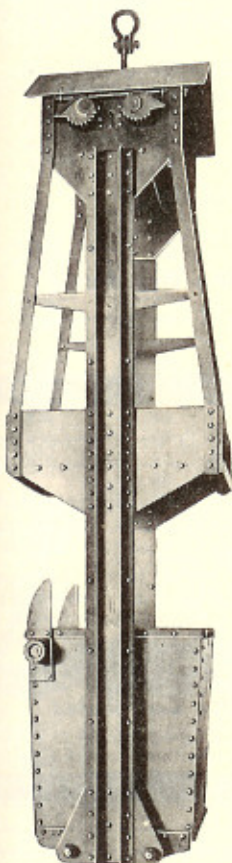
Single Deck Cage with Safety Doors Open



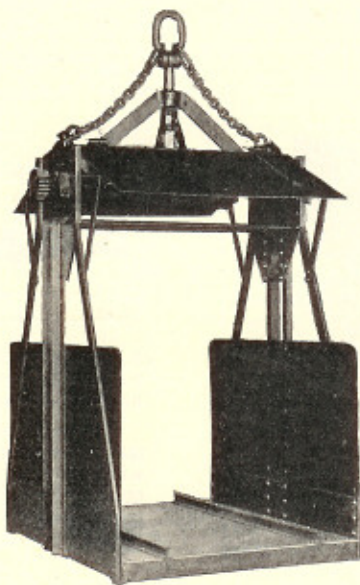
Single Deck Cage with Safety Doors Closed



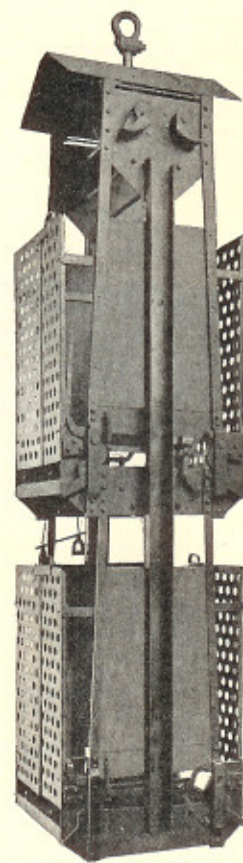
Special Single Deck Cage



Combined Cage and Skip



Single Deck Coal Mine Cage

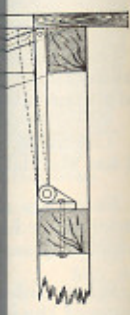


Double Deck Cage

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.

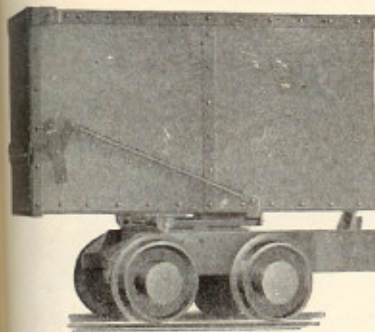
with auto-
most perfect
plainly their
beams in the
are of ample
mechanism is
be adjusted.
cally release

ation.
airs



el. They are
l to keep the
t it will hold
lever.
set \$80.00
100.00
made; prices

Automatic Dump Ore Cars



Has automatic door opening and locking features. As the body is dumped, the door is released by the lever and hook and when righted is again locked. The car body is held and released by a foot treadle and spring attachment. The body is well braced

and riveted and mounted on a machined groove turntable which is grease lubricated and dirt proof.

Cars less than 20 cubic feet in capacity, regularly furnished without reinforcing strips or bands in center of the body. Regularly furnished with standard roller bearing trucks but can be equipped with the plain trucks when so desired.

Unless otherwise specified made for 18-inch gauge, but can be furnished for any gauge and with other special features such as coupling chains, hooks, bumpers and so forth, when desired.

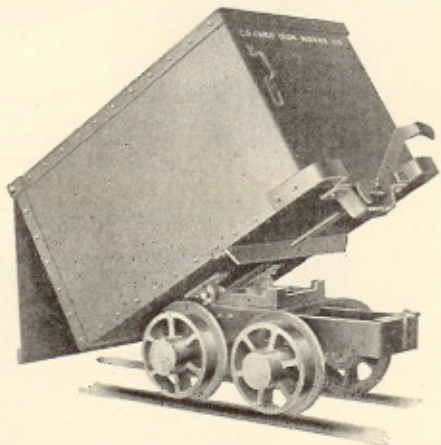
Cap. in Cu. Ft.	OVER ALL DIMEN., IN.			Bottom In. and Ga.	Sides In. and Ga.	DIMEN. TRUCK, IN.				
	WIDTH					Wheel Diam.	Axle Size	Wheel Base		
	18-in.	24-in.	Ht.							
11.7	51	30	33	37 1/8	No. 8	No. 12	10	1 1/2	16	
14	51	30	33	41 1/8	3/8	"	10	10	1 1/2	16
16	53	32	33	41 1/8	3/8	"	10	10	1 1/2	16
18.3	53	36	36	41 1/4	3/8	"	10	10	1 3/4	16
20	57	36	36	43 1/4	1/4	"	10	12	1 3/4	18
22.5	63	36	36	43 3/8	1/4	3/8	12	2	2	18
28.1	63	36	36	50	1/4	3/8	12	2 1/4	18	

Prices upon application.

Type Z Ore Cars

The Type Z Ore Car will meet practically all ordinary requirements.

The truck frame is in one piece without riveted corners to get out of order. It is rigidly held at the bottom by the truck, and at the top by a cast iron, machined groove, grease lubricated and dirt proof turntable.

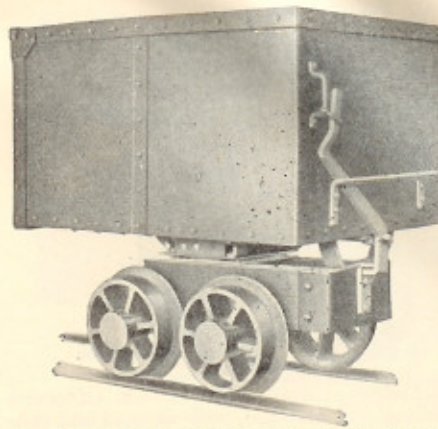


Regularly equipped with standard roller bearing truck but can be furnished with plain bearing truck, when so desired. Special features can be furnished as desired, at an additional price. Unless otherwise specified, will be furnished for 18-inch gauge.

Cap. in Cu. Ft.	OVER ALL DIMEN., IN.			Bottom In. and Ga.	Sides In. and Ga.	DIMEN. TRUCK, IN.			
	WIDTH					Wheel Diam.	Axle Size	Wheel Base	
	18-in.	24-in.	Ht.						
11.7	47	28	33	37 1/8	10	12	10	1 1/2	16
14	47	28	33	41 1/8	10	12	10	1 1/2	16
16	49	30	33	41 1/8	3/8	10	10	1 1/2	16
18.3	49	34	34	41 1/4	3/8	10	10	1 3/4	16
20	53	34	34	43 1/4	1/4	10	12	1 3/4	18
22.5	59	34	34	43 3/8	1/4	3/8	12	2	18
28.1	59	34	34 1/2	50	1/4	3/8	12	2 1/4	18

Prices upon application.

Leadville Type Ore Cars



This car is commonly known as the "Leadville Type."

It is well braced and regularly mounted on a cast iron machined groove, dirt proof and grease lubricated turntable. It can, however, be furnished mounted on a wrought steel turntable as illustrated. The

door is operated, and the car locked to keep from dumping by the lever on the rear.

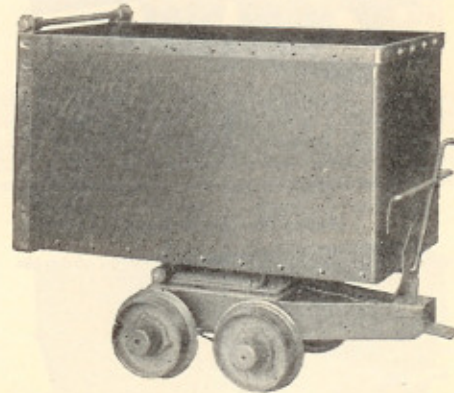
Truck frame is oak, well ironed and braced. The oak acts as a cushion between the body, load, and the running gear.

Regularly fitted with roller bearing truck but can be equipped with plain bearing truck if so desired. Unless otherwise specified, it will be furnished in 18-inch gauge. Bumpers, coupling chains, hooks, etc., can be added when desired at an additional price.

Car No.	Cap. in Cu. Ft.	OVER ALL DIMEN., IN.			Bottom In. and Ga.	Sides In. and Ga.	DIMEN. TRUCK, IN.			
		WIDTH					Wheel Diam.	Axle Size	Wheel Base	
		18-in.	24-in.	Ht.						
T-14	14	47	28	33	41 1/8	3/8	10	10	1 1/2	16
T-16	16	49	30	33	41 1/8	3/8	10	10	1 1/2	16
T-18	18	49	34	34	41 1/4	3/8	10	10	1 3/4	16
T-20	20	53	34	34	43 1/4	1/4	10	12	1 3/4	18
T-22	22.5	59	34	34	43 3/8	1/4	10	12	2	18
T-28	28	59	34	34 1/2	50	1/4	10	12	2 1/4	18

Prices upon application.

Standard Ore Cars



The Standard Ore Car is carefully made and designed for severe service.

It is regularly furnished with standard plain bearing wheels but can be furnished with roller bearing wheels, when so desired. Regularly furnished for 18-inch gauge track but can be made up special to meet your special requirements.

Car No.	SIZE OF BOX, IN.			Thick-ness of Steel In. and Ga.	Size Axle In.	Size Wheel In.	Cu. Ft.	CAPACITY		Price Each
	Lth.	Wth.	Dth.					Average Lbs. Ore	Wt. Lbs.	
00	40	22	19	No. 16	1 1/4	8	10	1250	250	\$46.00
01	44	24	20	"	1 1/4	10	13	1500	375	56.00
02	44	24	20	"	1 1/2	10	13	1500	440	65.00
03	48	24	20	"	1 1/2	10	14	1625	512	75.00
04	48	24	20	3/8	1 1/2	10	14	1625	600	85.00
05	48	24	24	1/4	1 1/2	10	16	1920	650	100.00
06	48	30	24	1/4	1 1/2	10	20	2400	700	123.00
07	54	30	24	1/4	1 3/4	12	23	2760	800	132.00

Prices upon application.

as the part of loose

ating ring.

ed and

36
\$25.88
27.50
30.08
32.85
32.63
35.33

wheels and truck for

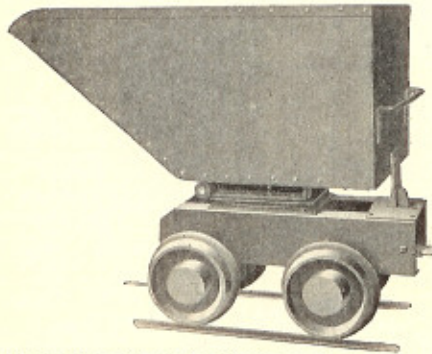
ltd caps

abled and

36
24
40
93
44 \$27.46
54 24.00
03 25.69
31 28.13
89 30.91

Special Ore and Industrial Cars

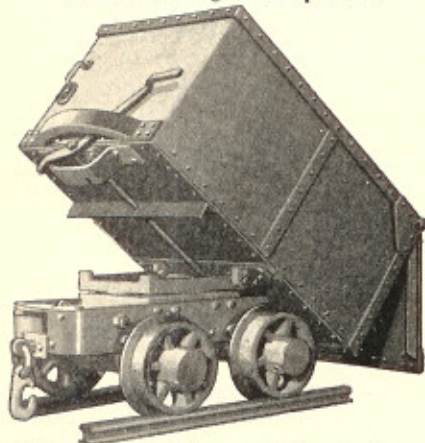
Scoop Cars



Used by mines, industrial plants and contractors. Of special advantage for handling wet material, such as sand and concrete.

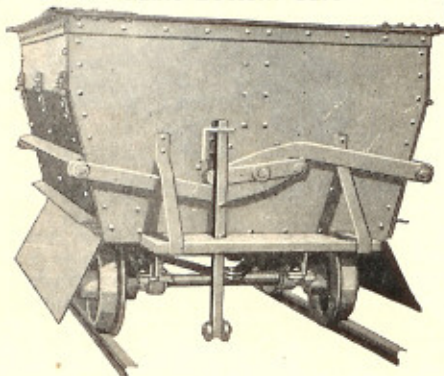
It is equipped with a steel turntable, allowing the car to be dumped at the end or either side. Can be furnished without turntable and dumped forward only.

Motor Haulage Dump Cars



Of extra heavy construction, made to stand up under the most severe service. Body mounted on a heavy cast iron machined turntable, grease lubricated and dirt proof. Car can be swung or rotated without lifting the body. Regularly fitted with roller bearings, spring drawbar and bumpers for use in trains.

Gable Bottom Cars



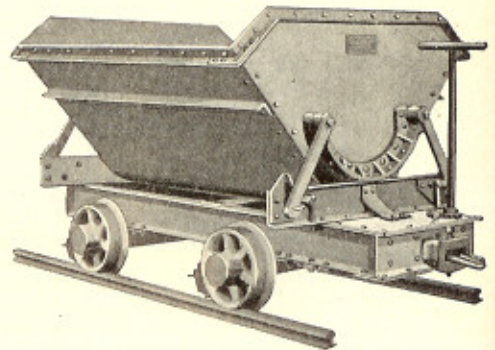
Built for handling refuse rock and is equipped with automatic door opening device. The doors are released by levers which form a toggle.

It can be furnished with hand lever operating device bumpers for use in trains, and for any track gauge.

We are prepared to furnish special cars for all purposes. Made up to your special dimensions and to meet your particular requirements. We illustrate above a few of the different types of special cars which we make. Cars can be furnished with either roller bearing or plain bearing wheels as desired.

When ordering or inquiring for prices, furnish us with the following information: Capacity, kind of material to be handled, weight of material per cubic foot, the gauge of the track, and the limiting overall dimensions.

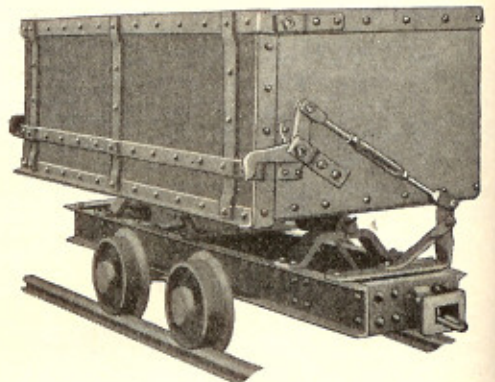
Rocker Dump Cars



Used in gravel and clay pits, stone quarries and mines and by contractors for handling dirt and bulky material.

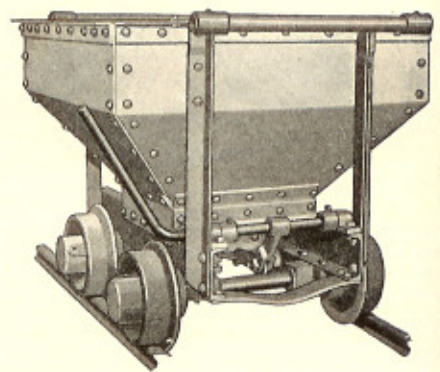
It is easily dumped and has automatic body fasteners at all corners for keeping the body in an upright position. Equipped with combination spring drawbar and bumper for use in trains. Can be furnished with or without brakes.

One-way Side Dump Cars



Very often used in tunnel work. It is a one-way dumper with automatic door opening device. The body is easily dumped and righted and is mounted on structural steel frame and is equipped with combination spring drawbar and bumper for use in trains.

Hopper Bottom Cars

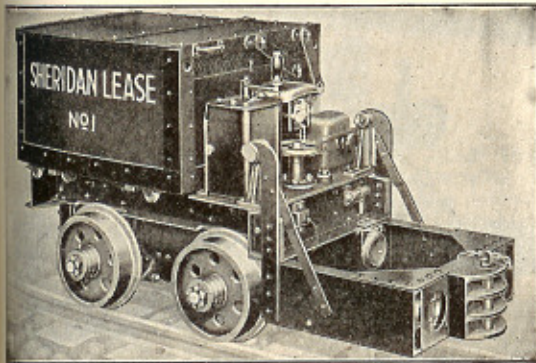


Used where dumping over bins and into limited spaces between rails. Can also be made to discharge to the outside of the rail. Made for handling hot or cold material.

Bottom is equipped with a slide valve gate. Can be equipped with drawbars and bumpers for use in trains.

a
su
tri
on
an
pl
an
S
to
ove
47
of
loc
bel
a d
gau
ite
mir
mir
exc
gat
I
diu
also
loc
L
furr
out
desi
Gaug
Chas
Fo
"
"
"
Leng
Turn
Heigh
"
Total
Inf

Storage Battery Locomotives



Mancha's Little Trammer with Vizor Down

Will run onto a small mine cage and go to any level like mine car. Can even be pulled up most raises to work on all levels. Will work wherever it is placed, without electrification except for battery charging which can be done on the surface. Is economical because it displaces trammers and stack. One locomotive with only one operator, will displace several mules and drivers or as many trammers as mules and drivers combined.

Specifications of Mancha's Little Trammer: Gauges, 18 to 36 inches; chassis clearance width, 32 3/4 inches; length over all, vizor down, 75 inches; length over all, vizor up, 5 1/2 inches; height over all, hinged lid, 41 1/2 inches; h. p. motor, 5; total weight, 1 1/2 tons.

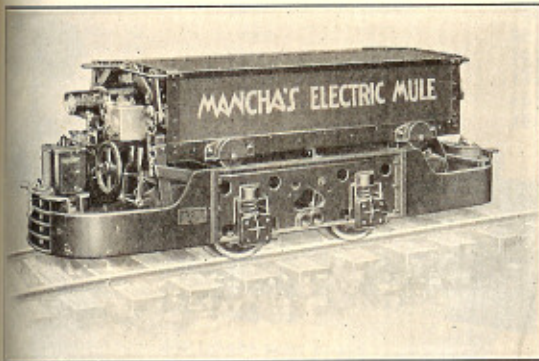
The Standard A Type locomotive illustrated above, being especially adapted to narrow gauges makes it a favorite among the metal mines, and in the coal mines, where it has done excellent work as a hauling locomotive.

In mines using medium sized cars, it serves as a main haul locomotive.

Locomotives can be furnished with or without a sanding device, as desired.



Little Trammer with Vizor Up

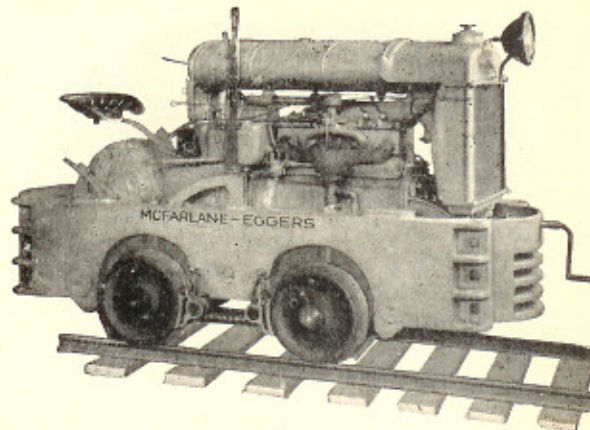


Mancha's Electric Mule, Standard A Type

Gauges	..... inches	24 to 48
Chassis Clearance Width	.....
For 30-inch Gauge	.....	36 1/2
For 32 to 40-inch Gauge, Inclusive	.....	45 1/2
For 42 to 44 " "	.....	50 3/4
For 48-inch Gauge	.....	54 3/4
Length Over All	..... feet	10 3/4
Turning Clearance Length	.....	7
Height Over All, with Flat Top Lid	..... inches	42 1/2
" " " Hinged Lid	.....	43 3/4
Total Weight	..... tons	4 to 5 1/2

Information and prices for other types upon request.

Gasoline Locomotives



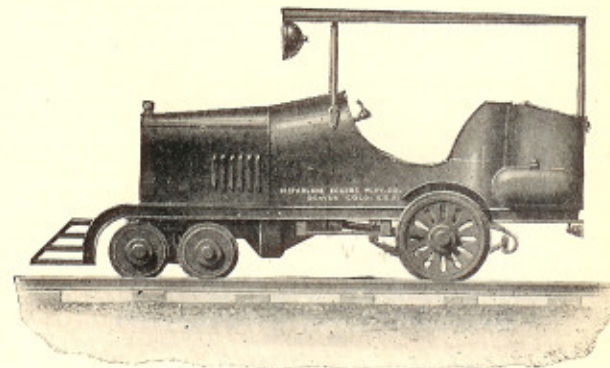
The gasoline locomotive is a self-contained power plant. Low first cost; easy and economical in operation. It is always ready for immediate service and is of no expense while idle.

Where the installation of steam or electricity is impractical or too expensive, the application of the gasoline engine as the motive power for industrial haulage has solved the problem. Locomotive shown is equipped with a standard Fordson tractor engine, using either gasoline or kerosene for fuel. Standard Fordson selective transmission arranged for three speeds forward and reverse, with a maximum of 10 miles per hour. Four-wheel drive, hand operated, 4-wheel brakes, electric head light, signal whistle, 16-inch drives, 34-inch wheel base. Has a draw bar pull of 1200 pounds. Net hauling capacity on grades as follows: level track, 35 tons; 1-per cent grade, 20 tons; 2 per cent, 13 tons; 3 per cent, 10 tons; 4 per cent, 7 tons; 5 per cent, 5 tons.

Gauge Inches	Length Inches	Width Inches	Height Inches	Contents Cu. Ft.	Shipping Weight Pounds
18	104	42	56	170	6300
24	104	43	56	153	6400
30	104	37	56	153	6400
36	104	43	56	177	6600

A 1 1/2-ton locomotive can also be furnished with the standard Model T Ford Automobile Engine Power Plant, otherwise similar in design, speeds and track gauges, but with about half the hauling capacity of the 3-ton locomotive. For lighter duty this locomotive has exceptional merit.

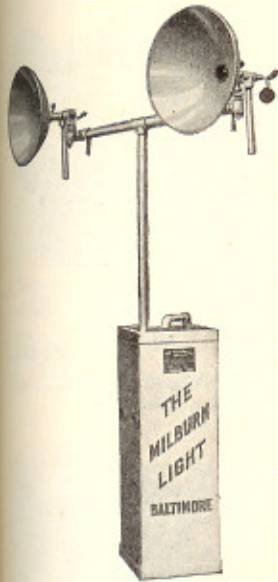
Gauge Inches	Length Inches	Width Inches	Height Inches	Contents Cu. Ft.	Shipping Weight Pounds
18	84	32	52	95	3300
24	84	38	52	110	3300
30	84	36	52	105	3300
36	84	42	52	121	3500



A gasoline passenger locomotive can be furnished in gauges from 18 to 36 inches. It is equipped with electric self-starter and geared for a maximum speed of 20 miles an hour in either direction. Approximate weight, 2000 pounds.

Prices and full information upon application.

No. 12 Milburn Duplex Carbide Lights
16000 Candle Power



The No. 12 Duplex Light has the double reflector feature and is useful when a greater candle power is desired. The burners are equipped with double swing joints, permitting the reflectors to be turned independently in any direction.

They are also fitted with regulating needle valve. The reflectors are 13 inches in diameter, made of non-tarnishable aluminum or porcelain enamel and re-enforced with patented indestructible steel backs.

The No. 12 Duplex is light in weight and easily moved about.

Each burner is 8000 candle power. The gas generator gives a burning period of about 10 hours with both burners in operation.

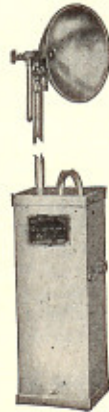
Tank Size.....	inches	12x12x39
Height.....	feet	7
Carbide Charge.....	pounds	14
Burning Capacity.....	hours	10
Diameter, Reflector.....	inches	13
Weight, Empty.....	pounds	106
Packed.....	"	137
Price, Complete.....	each	\$110.00
Cost per Hour to Operate.....		.07

No. 12 Milburn Carbide Lights

12000 Candle Power—Lights 1500 Feet

This light is smokeless, storm-proof and unaffected by vibration, wind or weather. Like all large Milburn Lights, gas can be turned off at any time without over-generation or after-generation. Operates on lump or cake carbide.

Tank Size.....	inches	12x12x39
Height.....	"	78
Carbide Charge.....	pounds	12
Burning Capacity.....	hours	12
Diameter, Reflector.....	inches	15
Weight, Empty.....	pounds	85
Packed.....	"	112
Price, Complete.....	each	\$85.00
Cost per Hour to Operate.....		.05

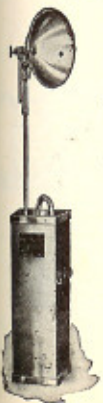


No. 8 Milburn Carbide Lights
8000 Candle Power—Lights 1000 Feet

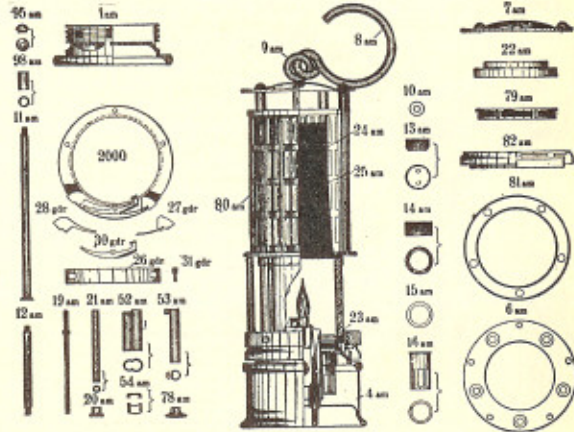
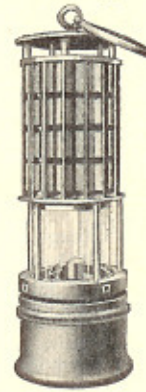
For builders, contractors, railroads, mines, etc. Because of the conical pocket generator, this light uses commercial lump carbide, which gives the maximum gas generation, or cakes.

Fitted with 13-inch aluminum or white enamel, non-tarnishing reflector. The storm-proof burner is equipped with Vanadium steel burner cleaner which can be operated while light is in use.

Tank Size.....	inches	10x10x36
Height.....	"	72
Carbide Charge.....	pounds	8
Burning Capacity.....	hours	12
Diameter, Reflector.....	inches	13
Weight, Empty.....	pounds	60
Packed.....	"	85
Price, Complete.....	each	\$60.00
Cost per Hour to Operate.....		.03½



No. 100 Wolf's Miners' Naphtha Safety Lamps
United States Bureau of Mines Approval Nos. 204, 205 and 206



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
6am	Middle Ring	24am	Outer Wire Gauze
7am	Dome Top of Lamp with 5 Nuts (95 am)	25am	Inner " "
8am	Handle of Lamp	52am	Burner for Round Wick
9am	Eyelet	53am	Wick Holder for Round Wick
10am	Washer	54am	Wick Stop for Round Wick
11am	Rods with Screw Heads	54am	Wick
12am	Rods Fronting Glass Chimney	78am	Wick Adjuster Knob
13am	Filling Hole Stopper	79am	Air Admission Ring with Double Wire Gauze
14am	" with Screw Thread	80am	Corrugated Shield
15am	Leather Washer	81am	Strengthening Ring for Shield
16am	Cylindrical Cotton Spreader	82am	Protecting Ring for Air Admission
19am	Wick Adjuster	95am	Nut for 11am
20am	Bushing	98am	Tube for Fastening 81am
21am	Wick Adjuster Guide Tube		

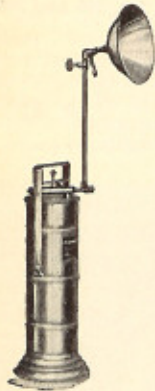
Ordinary Magnetic Lock

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.

Reliance Carbide Lights

1000 Candle Power

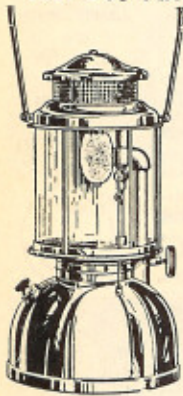


For construction work of all description where the light must be handled by one man. Wind and storm proof.

The reflector and standpipe can be turned in any direction.

Tank Size.....inches	7x29
Height....."	51
Carbide Charge.....pounds	2
Burning Capacity.....hours	8
Diameter, Reflector.....inches	10
Weight, Empty.....pounds	17
" Packed....."	32
Price, Complete.....each	\$35.00
Cost per Hour to Operate.....	.007½

No. 335 American Dark Chaser Lanterns

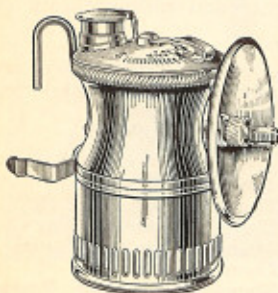


Storm proof; no chimneys to wash; no wicks to trim; no smoke, soot, or odor; 400 candle power. Makes and burns its own gas from common gasoline, burning at a cost of less than one-half cent per hour. Will not go out if tipped over, and fuel cannot leak or spill out, or explode. Made of heavy brass, nickel-plated and polished. Globe is mica. Equipped with American Automatic Cleaner by means of which impurities that may lodge in the gas orifice and obstruct the flow of gas are instantly removed without interfering with light. Height, 13 inches not including bail; fount is 6½ inches in diameter, holds one quart of gasoline.

Packed complete with pump, wrench, torch and mantle.

Price, No. 335.....each \$7.50

No. 911c Wolf's Carbide Cap Lamps



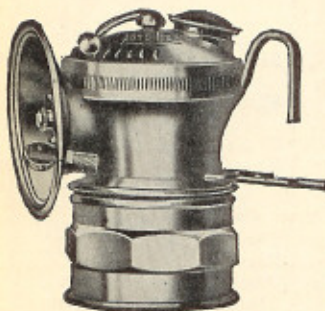
Handsomely finished in nickel plate or brass, made of the thickest gauge metal. It has been kept within the limit of less than 5½ ounces.

The bottom is double seamed, giving three thicknesses of metal at the point where it has to stand the hardest wear.

The burner will stay lighted under severe conditions. No tools or cement necessary to replace a burner. Has sensitive water-feed, controlled by the little ratchet on top of the lamp. Has an excellent instantaneous lighter.

Price, No. 911c.....each \$1.25

Auto-lite Miners' Acetylene Cap Lamps



This lamp gives a 20 candle power light and burns 3 to 4 hours with each charge of carbide.

Has a 2½-inch silver nickered reflector with self lighter. Has a bull dog grip carbide bottom with re-enforced construction; and an extra strong reflector construction with hexagon tip and wing nut for easy removal.

Auto-lite water dropper can not clog. Shipping weight, 6 pounds to dozen.

Price, No. 106, Polished Brass Lamp.....per dozen

" " 306 " Nickel "

No. 225 S. L. Lamps



Has 2¾-inch nickel-plated reflector and self lighter. Equipped with a metal non-blowout tip. Wire brace and corrugated bottom.

Packed one in a box.

Price, No. 225.....each \$1.00

Guy Dropper S. L. Lamps



Has a 2½-inch deep polished brass reflector intended for miners working in wet places or where the roof is low.

This reflector is deep enough to protect the burner tip from water.

The reflector is fastened to the lamp with a wing nut that will also extract the tip.

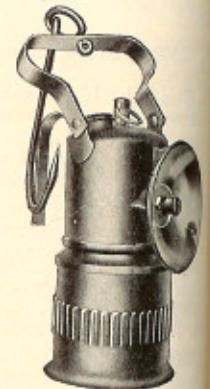
Has corrugated bottom and detachable wire brace.

Packed, one in a box.

Price, No. 28, Brass Finish.....each \$1.00

" " 280, Nickel-plated

I T P Mine Lamps



Fitted with No. 6 reflector, 3 inches in diameter by 1 inch deep. The No. 6 is made of aluminum alloy.

Reflector equipped with a spark-er lighter.

No. 305 lamp is the same as No. 205 excepting that all parts, excepting reflector is made of brass.

Nos. 205 and 305 lamps: Height to lamp top, 6½ inches, to top of bail, 9¾ inches.

Weight, each, 19 ounces.

Burns for 9 hours on one charge of carbide.

Price, No. 205.....each \$4.50

" " 305....." 5.00

Justrite Miners' Brass Cap Lamps

This miners' cap lamp has Polygon feed, round hook and lighter attachment.

The principal feature of the Polygon Valve is the square button threaded and soldered on the valve stem. It is set rigid and cannot get out of alignment.

The concave reflector is 2½ inches in diameter.

Burning capacity, 2½ hours. Charge, 2 ounces carbide. Height, 3¾ inches. Diameter of bottom, 2 inches. Candle power, 16.7.

Weight, 5 ounces. Packed 12 in a carton, weight, 6 pounds.

Price, No. 707, Polished Brass.....each \$1.00

" " 709, Nickel-plated



Brass, wire feed. Size Reflector, Inches 2½

No. 787 Justrite Special Drivers' Lamps

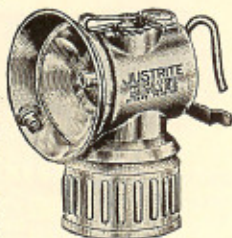
Has a polygon feed, round hook, and nickel silver reflector.

Diameter, 2 $\frac{5}{8}$ inches.

This lamp has an extra deep concave nickel silver reflector, exterior finish polished brass. Equipped with No. 170 flame protector, making lamp wind and water proof.

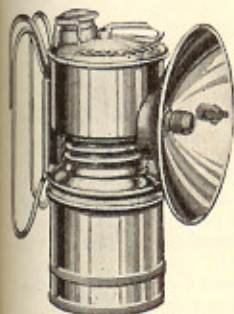
The lamp is especially designed for use in places subject to strong air currents.

Drivers, motormen, engineers, timbermen, and shotfirers will find this lamp satisfactory.



Price, No. 787, Lamp Only.....each.....

No. 100 Superintendents' Brass Nickel-plated Hand Lamps



Usually furnished with the No. 230 S. L. reflector.

Will burn 3 to 4 hours.

Has large hook and folding handles.

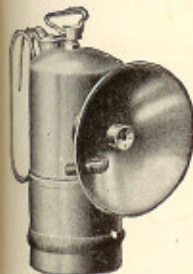
Used by those who prefer a hand lamp.

Also used by hunters, campers, etc.

Packed one in a box.

Price, No. 100.....each \$1.75

No. 160 I T P Mine Superintendent's Lamps



Made of brass, nickel-plated and highly polished. It is fitted with No. 6 reflector—this is made of aluminum alloy, is easily polished. The No. 6 reflector measures 3 inches in diameter by 1 inch deep, and is equipped with a sparker lighter.

This lamp is made entirely of non-magnetic metal, can be used when reading a transit without deflecting the needle. Lamp is fitted with hinged wire handles and hook—can be used as a hand lamp or suspended by hook. Lamp is regularly equipped

with patented wind shield, making it wind and concussion proof. Lamp is 5 $\frac{1}{4}$ inches in height, weighs 11 ounces and will burn for 6 hours on one filling of carbide.

Price, No. 160.....each \$4.00

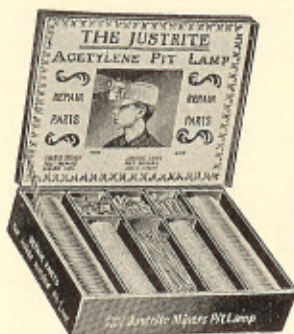
No. 100 Justrite Superintendents' Carbide Lamps



Brass, nickel-plated. Equipped with lighter attachment; wire feed; No. 77 carbide can included.

Refractor, inches	Height, inches	Burning Cap., Hours	Weight, Ounces	Price Each
2 $\frac{5}{8}$	3 $\frac{3}{4}$	2 $\frac{1}{2}$	6	....

No. 1 Justrite Repair Outfits For Carbide Lamps



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

- 6 Dozen No. 60 Gaskets.
- 5 " " 62 Felts.
- 5 " " 64 Felt Holders.
- 1/2 " " 66 Lava Tips.
- 1 " " 28 Jewel Burner Tips.
- 3 Dozen No. 172 Flints.
- 1 " " 173 Springs.
- 1 " " 174 Screw Caps.
- 1 " " 182 Hexagon Nuts.
- 1/2 Dozen No. 177 Lighters, Complete.
- 1 " " 37 Tip Cleaners.

Price, No. 1.....each.....

Justrite Carbide Flasks



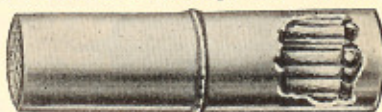
Made of heavy tin, double seamed, strong, durable.

Oval shape, size 6 $\frac{3}{4}$ x2x3 inches.

Has large opening and empties freely.

Price, No. 23, with Screw Cap..... \$1.15

No. 75 Justrite Waterproof Match Boxes



Round, seamless brass, nickel-plated. Size 2 $\frac{7}{8}$ x1 $\frac{1}{2}$ inches. Price, No. 75.....each \$1.10

Justrite Carbide Cans



Made of light steel, tin coated, ribbed, double seamed and sliding cover, air tight, concave 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.....	\$1.15

Miners' Lamp Union Carbide



25-pound Drum

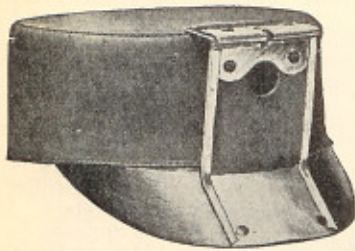
Specially selected and perfectly adapted for use in miners' lamps on account of its high gas yield, special selection, uniform size and freedom from dust.

Packed in substantial steel, blue and gray, 100 and 25-pound drums. Each drum is equipped with a screw-top which can easily be replaced in position.

Miner's Lamp Union Carbide is also supplied in 2-pound cans. Each can is equipped with a compression top which can be easily replaced in position.

Prices upon application.

No. 9 Coal Miners' Caps



No. 9 white cap of heavy special shrunk white duck, flannel lined. Visor of heavy material covered with white duck; will not be affected by dampness. Lamp-holder of 2X tin interlined with vulcanized fibre. No. 9 brown cap same as white, but made of brown duck, and the visor is of heavy material covered with Black Glazed oilcloth.

Either white or brown cap can be furnished with leather or long oil visor, if desired. Prices upon application.

Hansen Miners' Lamp Flints



This flint is mounted in brass holder. It is double over-size. It is easy to remove and replace when necessary.

The snap lite is an economical lighter because it shaves the flint and does not grind it. For Hansen lamps only.

Price.....each \$.10

Granite Miners' Candles



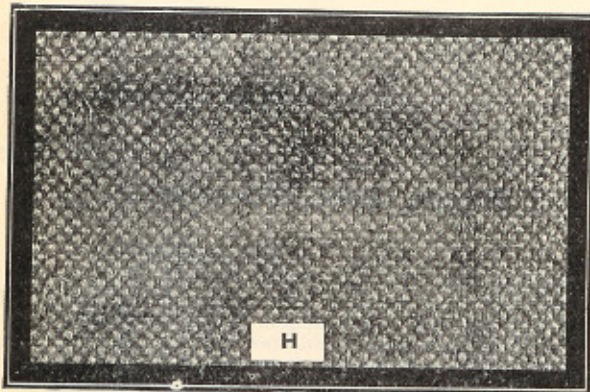
Length, 6 inches; 6 candles in a set. Weight per set, 14 ounces. Packed 40 sets in a case, in layers. Prices upon application.

Miners' Candlesticks



Furnished in 5, 6½ and 7 inches, measuring from hook to point. Packed one dozen in a box. Prices upon application.

No. H Brattice Cloth



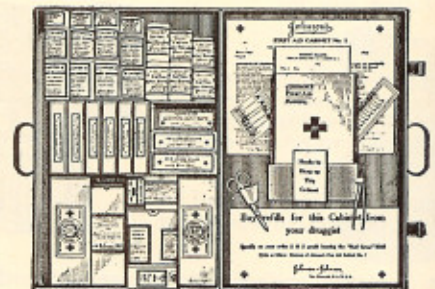
A clear non-inflammable jute brattice cloth closely woven, made of selected jute yarn. It is a strong and durable cloth especially constructed for brattice purposes and should be compared with imitation cloths by holding up to the light.

Comes in sizes 36, 48, 60, 72 and 84 inches in width. Can also furnish other widths by sewing 2 widths together.

Samples sent upon request.

Prices upon application.

No. 1 Johnson's First Aid Cabinets



A standard cabinet, containing a complete assortment of surgical supplies for use in first aid work in railroads, shops, mines, factories, public buildings, schools and homes, etc.

Contents

Two "Johnson's First Aid for Wounds Packet No. 3," each containing one gauze compress, 2 yards x 4 inches; one triangular bandage, and two safety pins;

Two "Burn Dressing Packets No. 22," each containing four pieces picric acid gauze, about 18 inches square; one triangular bandage, and two safety pins;

Four packages Red Cross Absorbent Gauze, each 1 yard x 36 inches;

Two packages Red Cross Absorbent Cotton, 4 ounces each;

One spool "ZO" Adhesive Plaster, 1 inch x 5 yards;

Six cotton roller bandages, 2 inches x 5 yards;

Six cotton roller bandages, 3 inches x 5 yards;

Four linton gauze bandages, 1 inch x 10 yards;

Eight linton gauze bandages, 2 inches x 10 yards;

Six linton gauze bandages, 2½ inches x 10 yards;

Two ounces absorbent lint;

One 2-ounce bottle aromatic spirits ammonia;

One 3-ounce tube carbolized petrolatum;

One 1-ounce bottle camphenol;

One empty 8-ounce bottle for camphenol solution;

One 2-ounce bottle alcoholic solution of iodine. One iodine applicator;

Four wooden splints, 15¾ inches x 3 inches. One tourniquet;

Two packages safety pins;

One pair scissors. One pair tweezers;

One "Johnson's First Aid Manual";

Blanks for reporting accidents;

Blanks for inventory and ordering refill supplies;

One Band-Aid;

Dimensions: 20x13x3½ inches. Weight, 12 pounds. Price, No. 1.....each \$15.00

No. 26 Insurance First Aid Cabinets

Contents: Three packages Red Cross Absorbent Gauze each one yard; three packages Red Cross Absorbent Cotton each one-half ounce; one spool "ZO" Adhesive Plaster, 1 inch by 5 yards; four linton gauze bandages, 1 inch by 10 yards; six linton gauze bandages, 2 inches by 10 yards; two linton gauze bandages, 2½ inches by 10 yards; two 3-ounce tubes petrolatum and bicarbonate of soda, 3%; one 2-ounce bottle alcoholic solution of iodine; one 2-ounce bottle aromatic spirits of ammonia; one 2-ounce bottle castor oil; one 3-ounce bottle boracic acid solution; one iodine applicator; four wooden splints, 15¾ inches by 3 inches; one tourniquet; one pair scissors; one pair tweezers (thumb forceps); one medicine glass—graduated; one dozen wooden tongue depressors; one dozen wooden applicators wound with cotton; one "Handbook of First Aid."

Dimensions: 16½ x 12¼ x 3 inches. Weight, 8¼ pounds

Price, No. 26.....each \$10.00

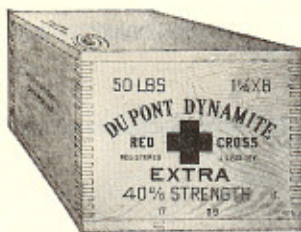
Du Pont Blasting Powders



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 squib gives best execution and least smoke. Packed in 25-pound metal kegs.

Du Pont Red Cross Extra Dynamite

Made in all strengths from 30 to 60 per cent. Is low freezing. Suitable for difficult stumping, ditching in dry soil with a blasting machine, boulder blasting (except mud-capping), pond drainage, ice blasting, tree felling, road grading, digging post holes, blasting very hard subsoils; in short, it is a general all-around explosive that can be used for many classes of work. Packed in cartridges of heavy paraffin-coated paper. Standard size of cartridge is 1 1/4 x 8 inches, each cartridge weighing approximately a half pound. Shipment is made in tight wooden cases which contain either 25 or 50 pounds of dynamite. Prices upon application.



Du Pont Gelatin



Du Pont Gelatin is put up in 25 and 50-pound cases, all standard size cartridges. It is a very popular high explosive for all classes of mining. It is dense, plastic and waterproof. It gives off less objectionable fumes than any other high explosive and is low freezing. It is made in all strengths from 30 to 75 per cent. The strongest grades are used in tunneling in the hardest rock, and the 30 and 35 per cent for most metal mining operations. Price upon application.

DuPont Blasting Caps



Manufactured in the No. 6 and No. 8 sizes. A No. 7 blasting cap is intermediate in strength between Nos. 6 and 8, but as one of these two numbers is adaptable to all general classes of blasting, the No. 7 strength is not recommended and is furnished only on special factory order. Prices upon application.

Du Pont Electric Blasting Caps



An electric blasting cap, as the name implies, is a special form of detonator fired or exploded by an electric current. The strength of electric blasting caps is governed by the amount of the explosive charge contained, and is expressed by the numbers 6 and 8. The No. 8 Du Pont Electric Blasting Caps contain nearly twice the charge of the No. 6 and are almost twice as strong. Where large charges of explosives are used in one bore hole the use of a No. 8 Electric Blasting Cap will more than pay for itself in increased execution of the dynamite.

The following table describes fully the two sizes:

Grade	No. 6	No. 8
Color of Label	Red	Green
Length of Shell, inches	1.4	2
Calibre " "	.273	.273

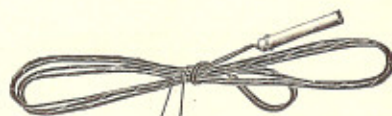
There is a No. 7 Electric Blasting Cap intermediate between Nos. 6 and 8, but on account of these two strengths being adapted to all general work, the No. 7 strength is not recommended and is furnished only on special order.

The blasting cap wires, varying in length to suit different depths of bore holes and different classes of work, must always be long enough to reach a few inches out of the bore hole, and should preferably be long enough to reach the wires of the adjoining bore holes.

Stock lengths of wires are: 4, 6, 8, 10, 12, 14, 16, 18 and 20 feet. Special lengths not shown above will be supplied on special order.

Length Wire, feet	4	6	8	10	12
Price, per 100					
Length Wire, feet	14	16	18	20	
Price, per 100					

Du Pont Electric Squibs



The Du Pont Electric Squib has a heavy paper shell or cap. The end of the shell is closed with a small cork, which should be taken out before using. The charge in this cap does not detonate as does that in an electric blasting cap, but merely shoots out a small flame. When electric squibs are used, the charge of blasting powder can be ignited in the center, thus giving a little quicker and stronger action.

They are manufactured with 4, 6, 8, 10 and 12-foot copper wires, and 4, 5, 6 and 8-foot iron wires. Those with iron wires are somewhat less expensive, but require a stronger electric current to explode them, because of the inferior conductivity of iron as compared with copper wire. The iron wires are also more subject to current leakage when in contact with moisture. Electric squibs with iron wires longer than 8 feet, are not recommended, nor are they carried in stock.

The method of connecting electric squibs is exactly the same as for electric blasting caps.

Electric squibs are packed 50 to the carton and 10 cartons to the case.

Dupont Safety Fuse



Made up of a thin train of powder tightly compressed in, and more or less waterproofed by inner and outer wrappings or coverings. Sold in packages containing from 500 to 6000 feet. Prices upon application.

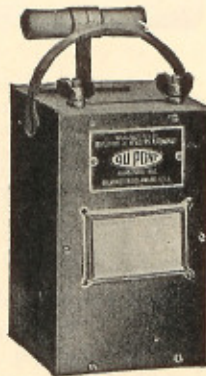
Du Pont Blasting Machines

Pocket size has permanent field magnets. For coal mining, stump and boulder blasting. Capacity, 3 electric blasting caps. Weight, 4½ pounds.



Pocket Size

No. 2 size is used for springing bore holes on large work and for smaller jobs. Capacity, 10 electric blasting caps, with copper wire, or 7 with iron. Weight, 15 pounds.



No. 2

No. 3A is for quarry, mine and excavating work. It is a new type machine combining light weight and high capacity. Capacity, 50 electric blasting caps with copper wires. Weight, 23 pounds.

No. 5 is for use in quarry, and contracting work. Capacity, 100 electric blasting caps with copper wires. Weight, 53 pounds.

No. 6 is operated like the others but is of a different type giving it greater power and lighter weight. Capacity, 150 copper wire electric blasting caps. Weight, 37 pounds.

Size Machine	No. of 30-foot Electric Blasting Caps, Copper Wires	Size Machine	No. of 30-foot Electric Blasting Caps, Copper Wires
Pocket	1 to 3	5	1 to 100
2	1 " 10	6	1 " 150
3-A	1 " 50	..	.....

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.



Single leading wire is furnished in coils as follows:

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

Prices upon application.

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.

Blasting Barrels



Furnished in 4 to 6-foot lengths.

Prices upon application.

No. 243 Miners' Needles



Length, 5 to 7 feet. Furnished in oil finish, polished or copper.

Prices upon application.

No. 240 Octagon Coal Drills



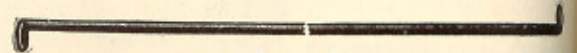
Made of 1-inch octagon tool steel in lengths 5 to 7 feet. Furnished with or without copper head as desired.

Prices upon application.

Alton Scrapers



Single End



Double End

These scrapers are made either single or double end as shown of either ½-inch or ¾-inch round iron. Lengths, 7 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. 1 Du Pont Cap Crimpers



When using blasting caps and safety fuse the blasting cap must be securely crimped to the fuse or there is danger that the fuse will be pulled out when the primed cartridges are loaded and the bore holes tamped. The Du Pont Cap Crimper makes a flat sleeve crimp which holds the cap securely on the fuse and makes waterproofing possible with but a small amount of waterproofing material. It is made of blued steel, is 5½ inches long, has sleeve type of crimping jaws and one handle pointed for use as a punch in priming dynamite cartridges.

Prices upon application.

No. 2 Du Pont Cap Crimpers and Fuse Cutters

The No. 2 Du Pont Cap Crimper is made of steel, nickel-plated. It is 7 inches long. In addition to crimping jaws, it is provided with an effective fuse cutting device, so designed to prevent accidental cutting of blasting caps. One handle is pointed for use as a punch and the other has a screwdriver point.



This crimper makes a flat sleeve crimp which holds the cap securely on the fuse. The No. 2 Du Pont Cap Crimper is designed that it will not squeeze the copper shell far enough into the fuse to interfere with the burning of the powder and cause misfires.

Prices upon application.