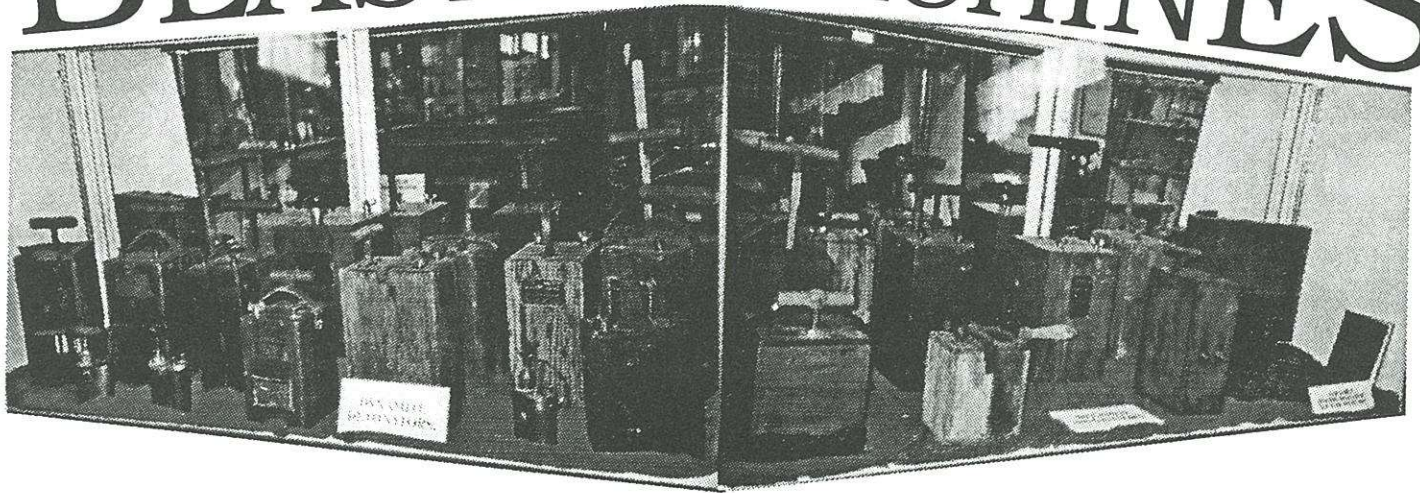
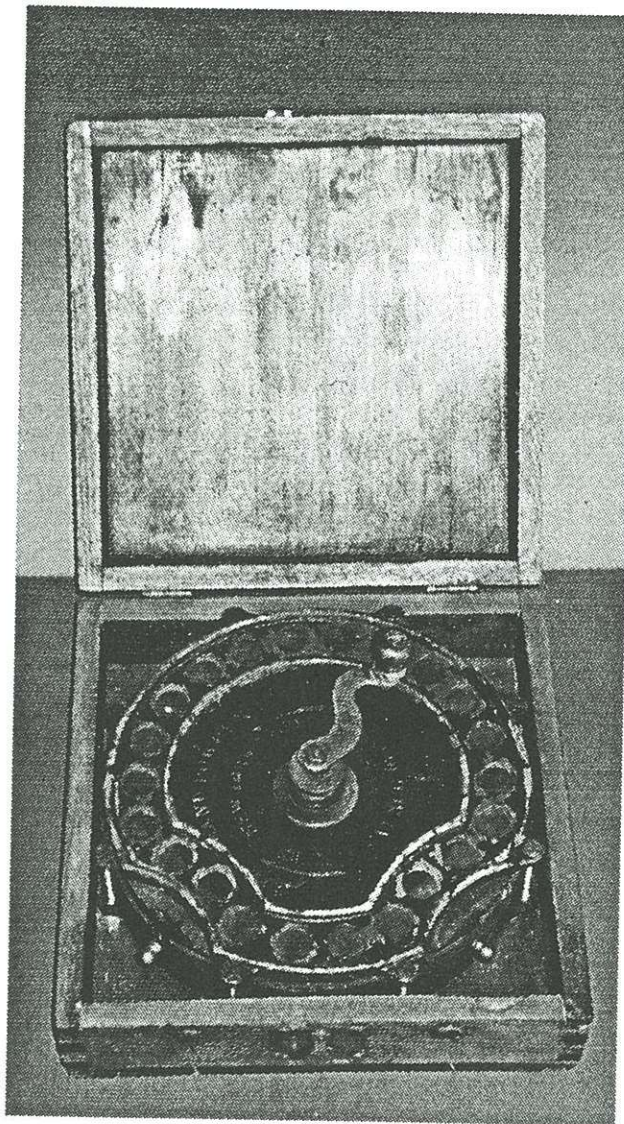


BLASTING MACHINES



by Bob Schroth

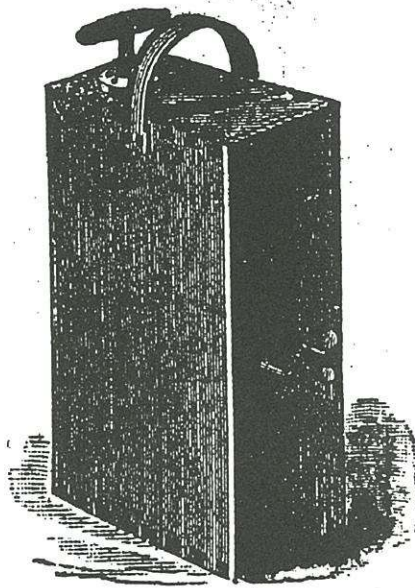
One of the most easily recognized mining related collectables is a plunger type, rack bar blasting machine. You see them in cartoons, T.V. shows, and in movies. I always enjoy seeing how they are used in the movies. I recently saw a show where the bad guys wanted to blow a train car coupling with dynamite, and they used a small crank blaster to do the job, I have never seen a blaster of this type before so I found it interesting. You might remember the one. It was one of the last episodes of Little House on the Prairie, where the evil railroad company somehow owned the town so everyone blew up their own house with a blasting machine, doing multiple shots. Most of the major powder companies at one time or another sold a blasting machine of some type. I won't



An early crank blaster.

be getting into the small twist blasters or the newer battery charged blasters in this article, I have found so many types of machines, it will be impossible to fit them all in.

Electrical ignition of gunpowder seems to have been accomplished first by a Dr. Watson (not of Sherlock Holmes fame) in 1745 by means of an electrical spark. In America, Benjamin Franklin was doing experiments with gun powder by encasing and compressing gun powder in a cartridge and igniting it with an early electric FUZE (pronounced fu-zee) the term FUSE refers to the tape fuse invented by Bickford, eighty years after Franklin's first experiments along this line. In 1825 Moses Shaw, of New York was granted a



ELECTRIC BLASTING MACHINES.

The Blasting Machine which has the greatest sale at the present time is a magneto-electric instrument of small size, weighing only about sixteen pounds, occupying considerably less than one-half a cubic foot of space.

The capacity of this machine is for about twelve or fifteen holes, though under entirely favorable circumstances many more can be fired.

MAGNETO-ELECTRIC BLASTING MACHINE, No. 3	<i>Cost Laflin Rand 1871</i>	\$ 25 00
MAGNETO-ELECTRIC BLASTING MACHINE, No. 4 (Larger).....		50 00



An early H. Julius Smith blaster is shown left. Manufactured by the Laflin Rand Powder Co., it is shown above, advertised in a Mine and Smelter Supply Co. catalog.

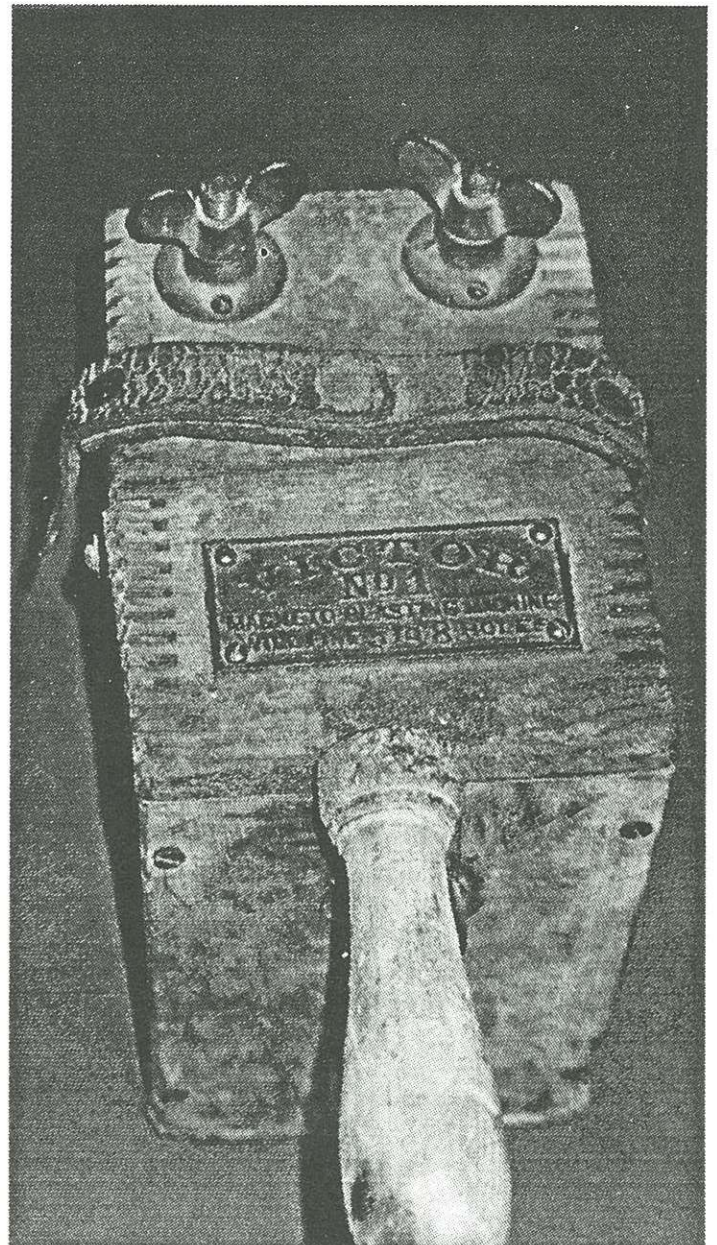
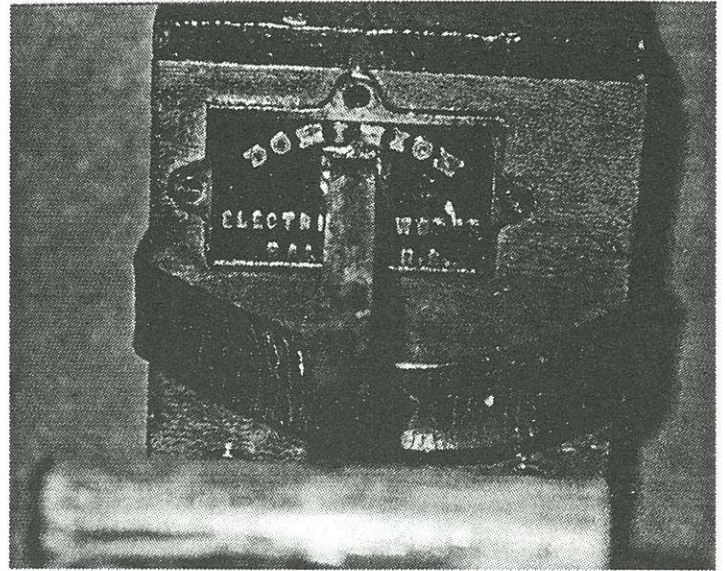
U.S. patent for firing charges of gunpowder simultaneously by electricity. Through the use of a priming composed of Fulminating silver and gun powder. The ignition source was provided by power from an early type of battery called a Leyden Jar. Early in 1832 Dr. Robert Hare improved on both the Leyden Jar as a power source, and developed the wire bridge method of electrical blasting. Hare was able to fire as many as 12 charges from a distance of 130 ft. from his battery called a deflagrator. About the middle of the century Baron Von Ebner of the Austrian Engineers first devised a frictional charging detonating machine, one that was suitable for use in the field. Then in 1869, H. Julius Smith, an inventor from Boston, further improved this type of machine and that model saw extended use in the Hoosac Tunnel. Later this machine was modified by a Dr. Mowbray by substituting a rotating cylinder in place of Smiths rotating plate. This machine was know as the Powder Keg.

In 1871 Moses G. Farmer developed a Dynamo-Electric machine that was actuated by a hand crank, and weighed 120 pounds. H. Julius Smith improved on this design and reduced the weight to a slim 77 pounds. Two years later he did away with the crank, and

(below left) The oval tab is the supply company that sold the machine. Smith machines seem to have 100's of different dealers. All have nice brass tags attached.

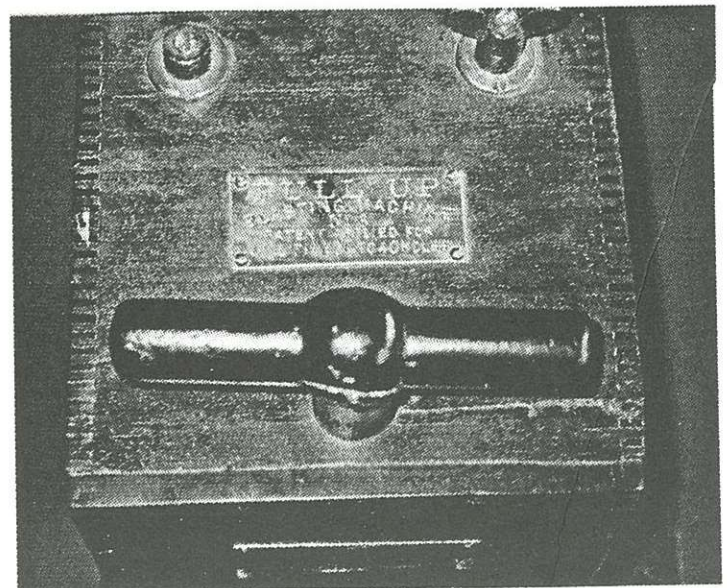
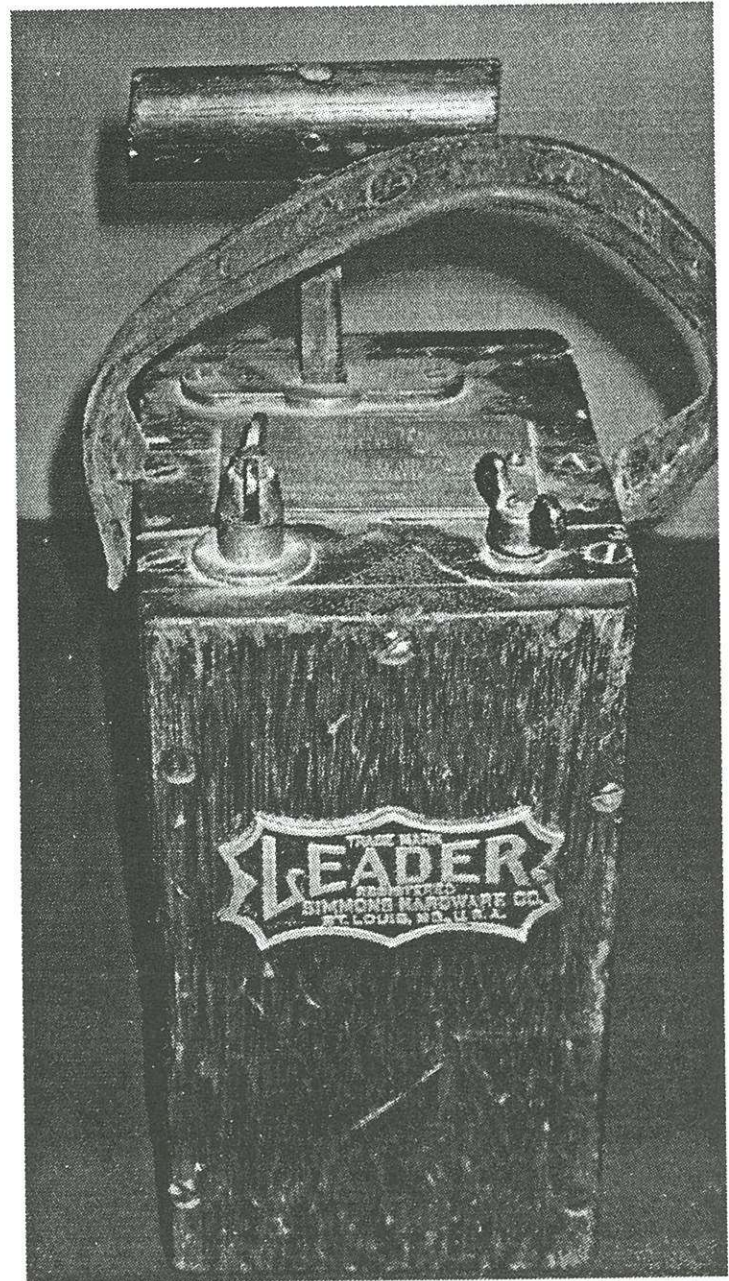
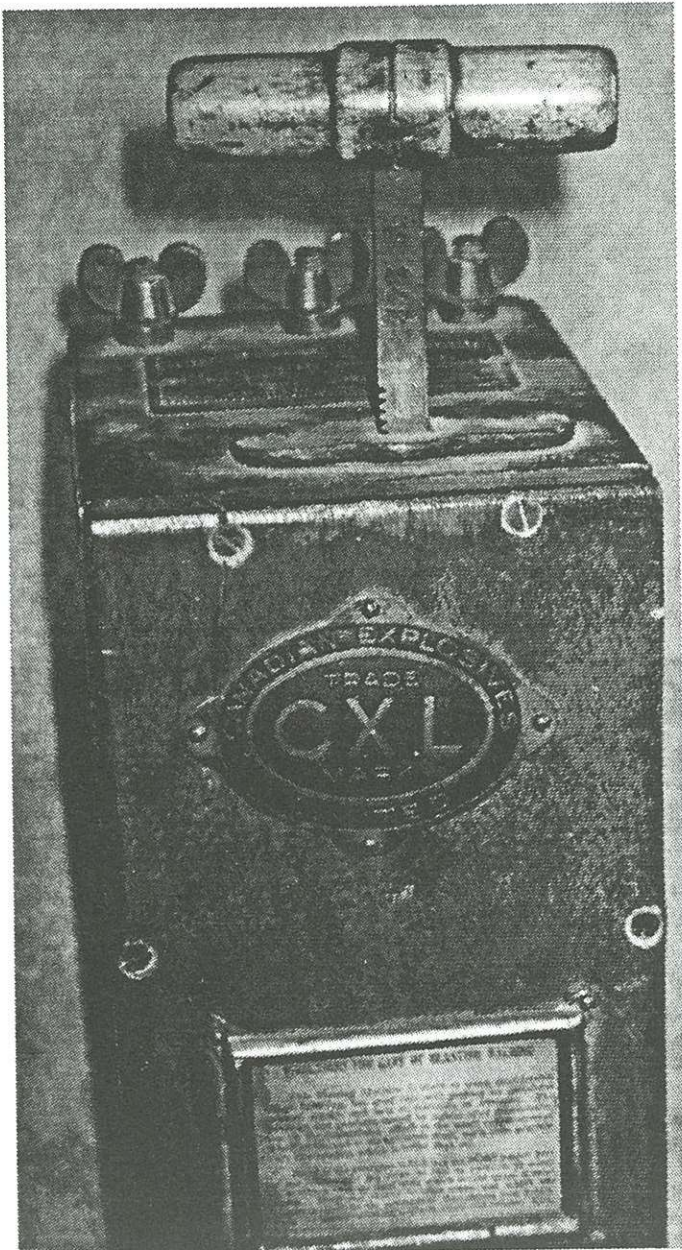
(above right) Dominion Elsectrical Works. Halifax Nova Scotia.

(below right) Victor No. 1 crank blaster.



opted for a rack and pinion plunger type. This machine was known as the Magneto #3, and was manufactured by the Laflin Rand Powder Co. It was mounted in a wooden case measuring 16" by 8" by 5" weighing only 181/2 pounds. These basic principles were used the manufacturing of blasting machines through modern day. Smith continued working with Laflin Rand Powder Co. until 1886 when he left to open and build a plant of his own at Pompton Lakes, New Jersey.

The early blasters were heavy, hard to handle, and didn't always generate enough electric power to detonate all the shots planned.

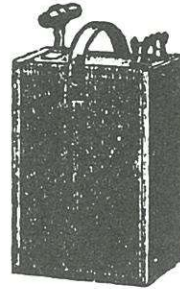
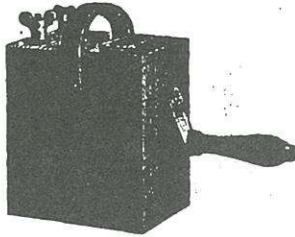


BLASTING MACHINES

VICTOR

UNITED STATES STANDARD

SMITH



VICTOR BLASTING MACHINES

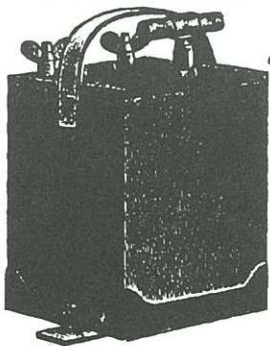
Number	1	2	3
Number of Holes will Fire	5 to 8	10 to 20	20 to 40
Price.....each	15.00	25.00	50.00

UNITED STATES STANDARD BLASTING MACHINES

Number.....	3	4
Number of Holes will Fire.....	1 to 20	40 to 50
Price.....each	25.00	50.00

SMITH BLASTING MACHINES

Number.....	3	4
Number of Holes will Fire.....	10 to 20	20 to 40
Price.....each	25.00	50.00



PULL UP BLASTING MACHINES

Number.....	3	4	5
Number of Holes will Fire	20 to 30	40 to 50	75 to 100
Price.....each	25.00	50.00	75.00

Several designs were tried, the plunger push down type, the plunger pull up design, the hand crank type machine, and the 3 post connection type. While all these machines served a purpose the crank and pull up machines saw limited use in the mining industry.

There are no absolutes in the sizing of machines, generally speaking, a #1. would fire 1 to 3 electric Fuzes, #2. will fire 1 to 10, #3 1 to 30, #4 10 to 50, #5 10 to 100, and #6 10 to 150, any machines bigger than that are usually for quarry blasting. I did see a # 6 Du-Pont machine that claimed to fire 10-250 caps, it was twice as large as my #6 Hercules blaster.

Catalog of Supplies

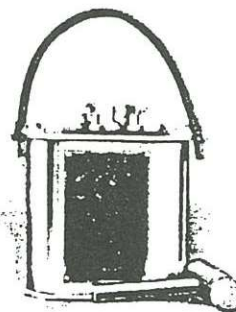
STANDARD BLASTING MACHINE

Made in Three Sizes



- No. 2, will fire 1 to 15 holes.
- No. 3, will fire 1 to 30 holes.
- No. 4, will fire 1 to 50 holes.

The above machines are the strongest and most powerful ever made for electric blasting. They are especially adapted for submarine blasting, large railroad quarrying and mining work.



Atlas Blaster No. 0

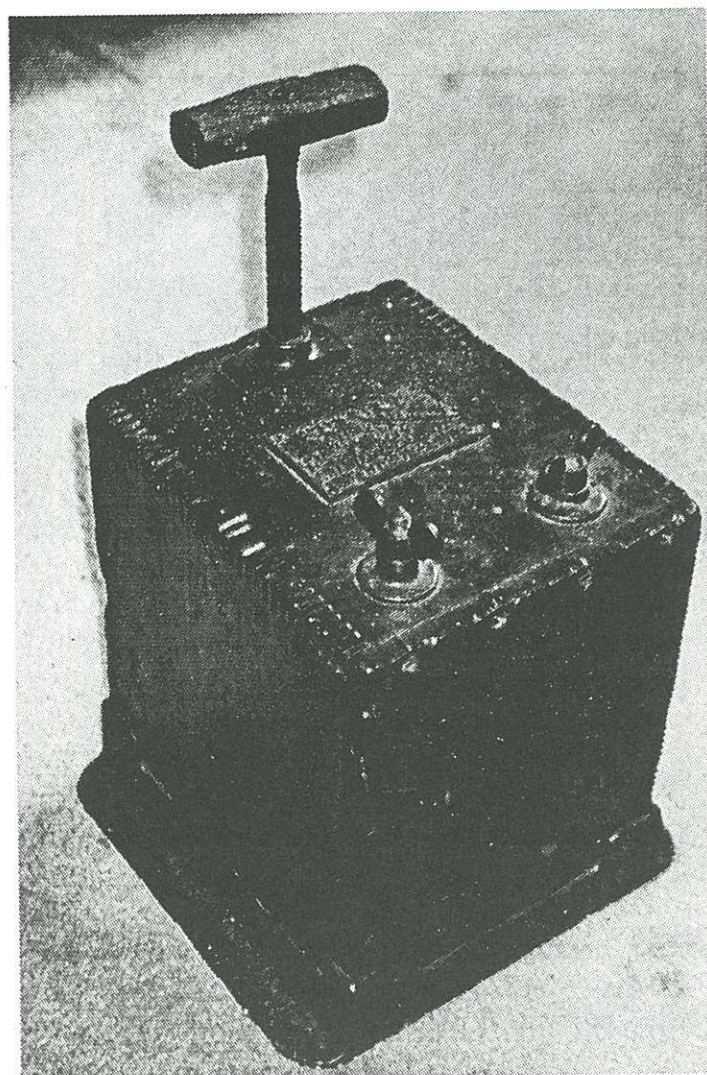
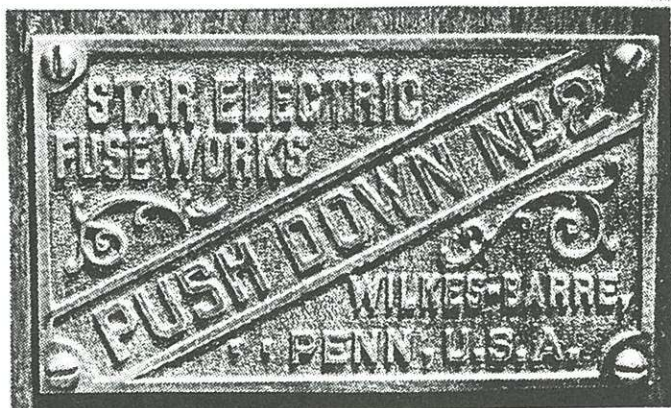
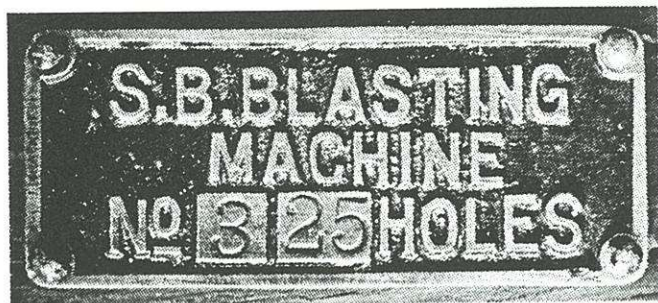
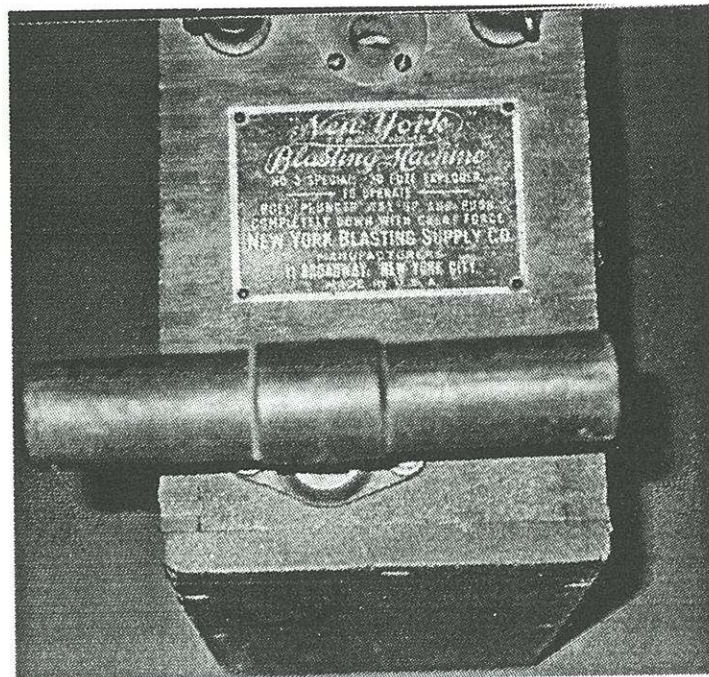
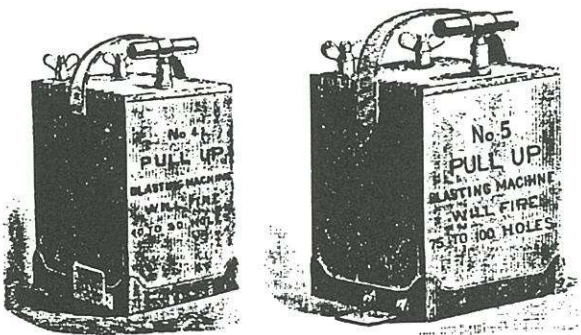
Atlas Blaster No. 0*

This blasting machine bears the permissible plate of the U. S. Bureau of Mines and should be used for the sake of safety in gassy and dusty coal mines.

Capacity: Will fire one 30-foot copper wire electric blasting cap or one 6-foot iron wire electric blasting cap.

Dimensions: 4 3/4" x 2" x 4 1/2" high.
 Net Weight: 3 1/4 lbs.
 Shipping Weight: 4 lbs.

"PULL UP" MAGNETO BLASTING MACHINES.



Atlas No. 3 Blasting Machine

The improved Atlas No. 3 Blasting Machine is the result of considerable experimental work. By the use of the proper materials and improved design, it has been possible to build a blasting machine of high capacity, great durability and smooth operation. The capacity of this machine is far in excess of the old type blasting machines of equal weight. Resistance to the thrust of the rack bar does not appreciably increase during operation, resulting in a machine with a very smooth action.

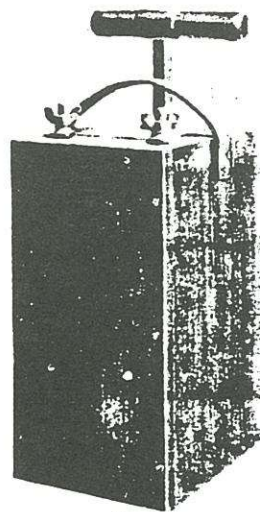
Standard size for quarry, mine and ditch blasting. It is strong and substantial, and one of the most useful sizes of blasting machines.

Capacity: Will fire fifty 30-foot copper wire electric blasting caps or fifty 6-foot iron wire electric blasting caps connected in single series.

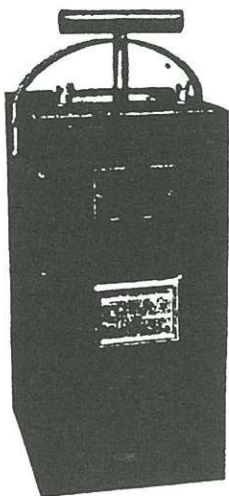
Dimensions: 7" x 8" x 14³/₄" high.

Net Weight: 22 lbs.

Shipping Weight: 31 lbs.



No. 3



No. 5

U. S. Standard No. 5 Blasting Machine

This machine is the same general style as the Atlas No. 3, but differs considerably in design.

Capacity: Will fire one hundred 30-foot copper wire electric blasting caps or one hundred 6-foot iron wire electric blasting caps connected in single series.

Dimensions: 9" x 11" x 21" high.

Net Weight: 57 lbs.

Shipping Weight: 75 lbs.

In the early years of electrical blasting four companies were the leading force in the manufacture of of blasting machines. Victor, a company who made the hand crank type, H. Julius Smith, who had his push down model manufactured by the Laflin & Rand Powder Co., Reliable who made early models for Du-Pont, and Hercules Powder Companies, United States Standard who had there own style of plunger type machine, and the Pull Up machine that was sold by the New York Powder Co., in the 1890's. In later years the Fidelity Electric Co. was manufacturing most of the push down machines for the major Powder Companies. The plunger or rack bar machines seem the be by far the most common type of blasters found today. With all the different companies and styles known you could collect 50 different names and styles and still not have them all.

Sources:

1. The History Of The Explosives Industry In America, by Arthur Pine Van Gelder and Hugo Schlatter 1927.
2. The Du-Pont Blasters Hand Book 4th, 6th, and 12th editions
3. New York Powder Co. Illustrated Catalog 1890.
4. Many thanks to Robert Hauck, of the Sterling Hill Mining Museum, Andy (Cap King) Martin, Jim Swallow, and Mark Bohannon, for photos and text advertisements.