

SAFETY BLASTING MACHINES

by Eric Twitty

Blasting machines and electric blasting caps date back as far as the 1870's - during this time they were sold under contract by the Laflin & Rand Powder Co. and by one of their inventors, H. Julius Smith (Van Gelder, 1927: 741). However, electric blasting did not take off in mining until the 1910's when delay-action electric caps became widely available (allowing electrically-fired charges to be shot in an order). Mining experts touted electric blasting as being an efficient, safe alternative to standard caps and safety fuse; firing charges required no flame and created no sparks, minimizing the danger of fires in coal mines, and the moment of detonation was under the miner's complete control (Munroe, 1909: 43). In reality, blasting electrically was only as safe as the miners practicing it. Mines worked under contract were notoriously unsafe, and in eastern coal miners worked by many small groups of individuals this was amplified by disorganization, lack of communication, and especially haste.

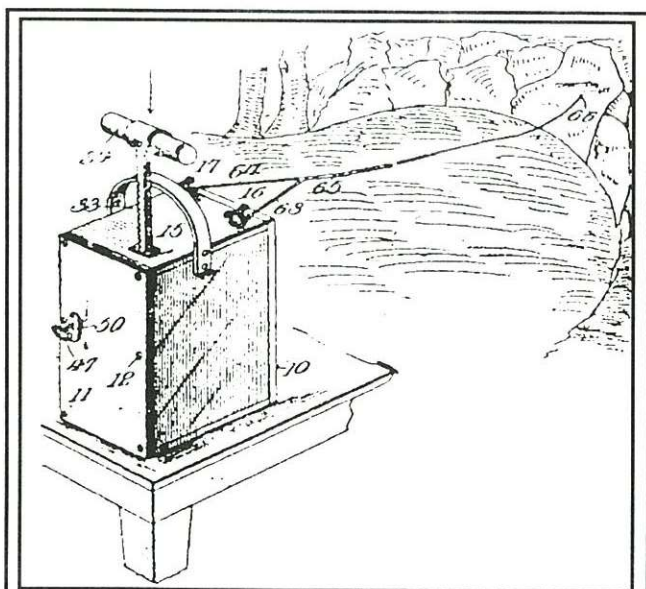


Figure 1. 1 First patented safety blasting machine filed by Joseph Beeneck in Nanticoke, on the last day of 1915. The accompanying text described use of a key to physically break the machines' electrical circuit or to lock the mechanism.

This recipe for disaster resulted in a variety of accidents, one form of which involved miners and their tripping blasting machines while another was inspecting the wiring or cleaning up tools, each not knowing what the other was doing. In response to the above scenario, Joseph Beeneck invented a safety blasting machine in 1915 which specifies that either the electric circuit could be broken by a skeleton key or the mechanism physically locked (Fig. 1). It is not known if he invented the first safety machine, but he was the first to patent it. A blasting machine manufactured by United States Standard for the Atlas Powder Co. fitting Beeneck's patent surfaced several years ago in Pennsylvania (Fig. 2).



Figure 2. An existing safety blasting machine roughly fitting Beeneck's locking mechanism patent. In this photo the baby blaster is along side a standard-size machine. The United States Standard builders' plate is on the side opposite the key-hole and the Atlas plate is on the face, right. (Author).

According to the builder's plate the machine was specified to fire three to five caps, clearly not enough to shoot a round when driving a hard rock tunnel or blasting a stope, but the right amount for blasting a breast in a coal mine. Rounds in hard rock tunnels and shafts typically included more than eight charges while shooting breasts in

coal mines often ranged from two to six. The machine, measuring only seven inches high and four wide, is a miniaturized version of the more common 30 cap blasters and utilizes a proportionately small dynamo. It features a brass builder's plate on one side, a key-hole in the other, and an Atlas Powder Co. plate on the front. When turned, the skeleton key releases a spring- steel sheet which normally pushes into the rack bar s teeth, keeping it locked in the down position; without the key, the machine could not be fired and blow up any miners.

The baby blaster dates between 1913, Atlas' inception, and the early 1920's when the large push-down magneto and hand-held twist machines became popular. This date is also supported by phraseology of the builders plate in which the word 'fuzes' is used in place of 'caps', instructions stated on the plate regarding how to use the blaster, and old-fashioned block lettering for the Atlas label.

The machine shows very little wear, which is no surprise because it was rare for blasting to be conducted electrically in coal mines. In addition, because caps, wire, and equipment

for blasting electrically required capital outlay, this machine was probably owned and used by a coal company rather than individual contract miners.

References

- Munroe, Charles & Hall, Clarence, 1909 *A Primer on Explosives for Coal Miners*, U.S. Government Printing Office, Washington DC.
- Van Gelder, Arthur & Schlatter, Hugo, 1972 *History of the Explosives Industry in America*, Arno Press, New York, NY. ✕

Here's another poem submitted by Mason Coggin.

THE IMAGE O' GOD

*Crawlin' aboot like a snail in the mud,
Covered wi' clammy blae,
Me, made after the image o' God
Jings! but it's a laughable tae.*

*Howkin' awa' 'neath a mountain o' stane,
Gaspin' for want o' air,
The sweat makin' streams doon my bare
backbane,
And my knees a' haucket and sair.*

*Strainin' and cursin' the hale shift thro',
Half starved, half blin', half mad;
And the gaffer he says, "Less dirt frae you,
Or you go up the pit, my lad!"*

*So I fi' my life to the Nimmo squad
For eichtand fower a day,
Me, made after the image o' God
Jings! but it's a laughable tae.*

Corrie, Joe, *The Image O' God and other Poems*, The Forward Publishing Co., Lote., 26 Brown Street, Port-Dundas, Glasgow 188? — *Mason Coggin*

