(No Model.)

G. M. PETERS.

BLASTING CARTRIDGE.

No. 422,439. Patented Mar. 4, 1890.

Fig. 1.

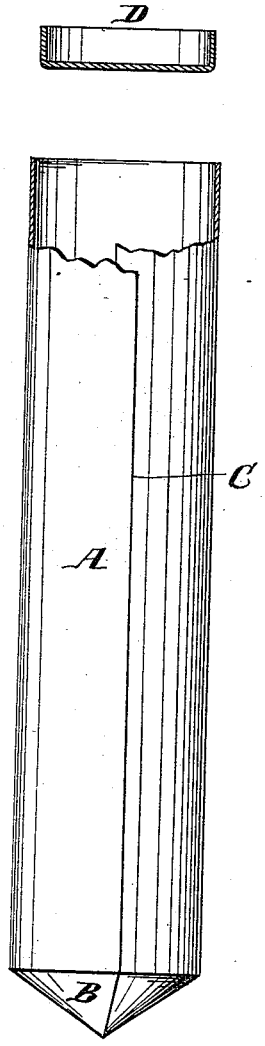


Fig. 2.

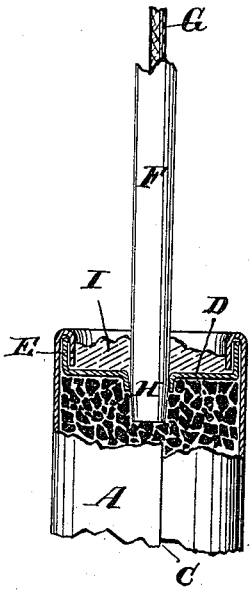


Fig. 3.

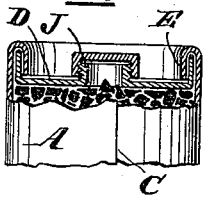


Fig. 4.

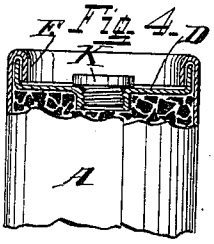
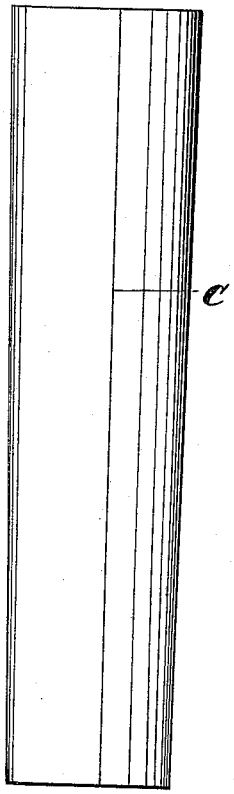


Fig. 5.



Attest
K. R. McCalmont
W. F. Gardner.

Inventor
G. Moore Peters
by J. H. MacDonald Atty.

UNITED STATES PATENT OFFICE.

GERSHOM MOORE PETERS, OF CINCINNATI, OHIO.

BLASTING-CARTRIDGE.

SPECIFICATION forming part of Letters Patent No. 422,439, dated March 4, 1890.

Application filed April 19, 1889. Serial No. 307,692. (No model.)

To all whom it may concern:

Be it known that I, GERSHOM MOORE PETERS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Blasting-Cartridges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to cartridges for blasting purposes, and has for its object convenience, effectiveness, and safety in the use of gunpowder for blasting purposes, as will be hereinafter set forth in the specification, and the construction and operation illustrated in the accompanying drawings, in which—

Figure 1 is a detail sectional view of the sealing-cap, with the cartridge in side elevation. Figs. 2, 3, and 4 are vertical sections showing the method of securing the sealing-cap and of introducing the blasting-barrel, and Fig. 5 is a side elevation of a tapering cartridge.

In mining and quarrying operations much trouble is often caused by water getting into the holes and wetting the powder, thereby entailing dynamic loss and loss of material. Many forms of cartridges have been devised to overcome these objections. The ordinary form of cartridge used by miners is made by winding paper about a stick into the form of a tube, the ends daubed together, and the tube smeared with grease, tar, or what is called "miners' soap," for the purpose of rendering it water-tight. This sort of cartridge, while comparatively inexpensive, requires time and trouble to make it, is difficult to get into the holes, and is only partially successful as a protection against water. Moreover, to make these cartridges requires the handling of loose powder, and appalling accidents have occurred as the result. In order to obviate these serious objections, I propose to pack the powder at the place of manufacture in metallic cases thoroughly water-tight and of diameter and lengths suited to the various charges required in blasting operations, and in this form pack and ship to the trade. This will prevent loose powder being exposed in mines, will save time and labor to the miner and accomplish the several objects designed.

Referring more particularly to the drawings, the cartridge consists of a metallic tube A and an imperforate sealing-cap D. The tube is preferably of tin or sheet-iron, usually from one and a half to two and a half inches and from one to three feet in length, the bottom B being tapered for more easy entrance into the blast-hole. The seam C may be soldered or double-seamed, so as to be water-tight. The sealing-cap D, which is preferably of light sheet-lead to avoid striking fire when punctured, is made cup-shaped, the edge being turned up all around about a quarter of an inch. Its external diameter should be very nearly the internal diameter of the tube, so as to make a close fit, and is placed on the powder with the edges upward. When the tube has been filled up to about half or three-quarters of an inch from the top, the cap is placed upon the powder and the edges turned down and crimped over the edge of the cap and pressed firmly against the sides, as at E, thus making practically a water-tight joint and at the same time firmly securing the cap against the powder. If found desirable, a double seam may be made, or the edges of the cap can be turned over and seamed over the edges of the cartridge. There is thus left a space I for tamping.

In firing the cartridge it is customary to use a blasting-barrel F, through which the fuse G is introduced to the powder and around which the tamping is done. In use a hole is made in the cap, as shown in Fig. 2, and the blasting-barrel closely fitting therein is then thrust into the powder. Should the water rise above the top of the cartridge, the space I is packed about the barrel, making the top water-tight. If a tighter connection should be desired for the blasting-barrel, the cap D may have a screw-nipple, as at J, Fig. 3, or preferably a screw-opening, as at K, Fig. 4, and the barrel, having corresponding threads, be screwed therein after the screw cap or plug is removed.

For effecting an easy entrance into the hole, the tube may taper its entire length, as in Fig. 5, and in this case the cone-shaped end B is dispensed with.

In placing the cartridge into the hole the

seam C should be turned toward the mass to be thrown off, for as the seam will open first the force of the explosion will be thrown out in that direction, and, the back part of the case remaining intact, the gas will be prevented from escaping backward into the openings of the standing rock or coal.

It is evident that such a cartridge can be readily handled without danger of explosion.

While I preferably use sheet-lead for the cap for the reasons heretofore given, any suitable material for the purpose can be used, and I do not confine myself to sheet-lead.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a blasting-cartridge, the combination, with the cartridge-case, of an imperforate sealing-cap placed over the powder, said cap being cup-shaped and secured to the inside of the case by seaming the edges of the case, substantially as described.

2. A blasting-cartridge case, in combination with a water-proof sealing-cap, said cap being secured to the cartridge-case by seaming the edges of the case over the edges of the cap, substantially as and for the purpose set forth.

3. The combination, with the cartridge-case, of a cup-shaped sealing-cap secured thereto, said cap being of sheet-lead and imperforate, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

G. MOORE PETERS.

Witnesses:
FRED C. TUTTLE,
A. M. BEEKLEY.