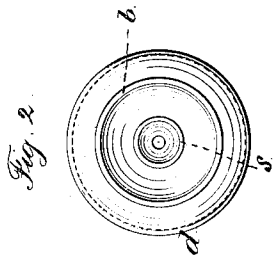
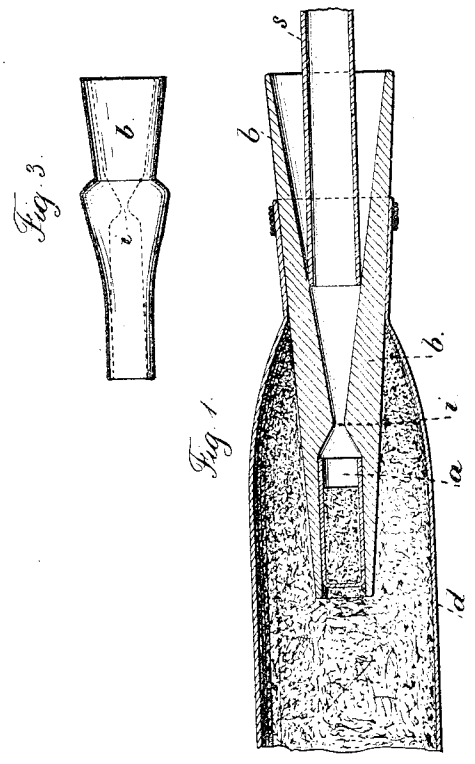
(No Model.)

A. FROTHINGHAM.

PRIMER FOR BLASTING CARTRIDGES.

No. 273,270. Patented Mar. 6, 1883.





Witnesses

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Inventor

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per Lemuel W. Serrell atty

UNITED STATES PATENT OFFICE.

ARTHUR FROTHINGHAM, OF SCRANTON, PENNSYLVANIA.

PRIMER FOR BLASTING-CARTRIDGES.

SPECIFICATION forming part of Letters Patent No. 273,270, dated March 6, 1883.

Application filed April 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR FROTHINGHAM, of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented an Improvement in Protectors for Explosive Caps, of which the following is a specification.

Metallic cases or caps containing fulminating material have been used for igniting gunpowder or other explosive material in blasting. Such caps, however, are very dangerous when handled carelessly, because they contain considerable fulminating material, and sometimes they will explode if dropped upon a hard substance or when struck by a piece of stone or any drill or tool. In some instances the fuse has been inserted into the cap and inclosed by a rubber tube; but this is attended with risk, because the elasticity of the rubber will allow the end of the fuse to come into contact with the surface of the fulminate, and thereby produce a pressure or rubbing action that may explode the fulminate. In other instances the cap has been placed in a holder; but the same was not adapted to receive either the squib-tube or the needle, and there had to be additional appliances by which the cap-holder was connected either to the squib-tube or to the needle.

My improvement relates to a cap-holder, of wood or other soft material, that receives the cap into one end, so as to inclose and protect the same and form a plug to which the cartridge-bag may be fastened, said holder being provided with a conical hole, the inner end of which is only large enough for the passage of the fire that ignites the fulminate, and into which conical hole the squib-tube, barrel, rifle, or needle is introduced in tamping the blast. This holder lessens the risk of the fulminate being exploded accidentally or prematurely, because the cap is completely surrounded, and the ordinary implements employed in preparing the blast are kept entirely out of contact with the cap.

In the drawings, Figure 1 is a section of the cap-holder, the cap, and the squib-tube. Fig. 2 is an end view of the cap-holder; and Fig. 3 is an elevation of the cap-holder with an external shoulder, around which the cartridge-case may be tied.

The fulminate-cap *a* is usually a thin copper case filled with fulminate.

The cap-holder *b* is usually of wood; but it may be made of paper, rubber, or other suitable material. It has an opening at one end, into which the cap *a* is inserted, and it is held therein by the surface contact. The remainder of the hole is enlarged or conical, there being but a small opening at *i*.

The bag or case *d*, containing the gunpowder or other explosive material, may be tied around the holder *b*, or otherwise connected to the same; or the cap and holder may be placed on the tube or needle and passed into the cartridge after the latter has been inserted into the drill-hole in the rock.

The tube *s* for the ordinary squib or fuse is inserted into the conical hole in the holder *b*, and the cartridge is passed into the hole in the rock, coal, or other substance and tamped with sand or other material, as usual, after which the fuse, straw, or squib is passed into said tube and fired in the ordinary manner. If a blasting-needle is used, the end is inserted into the conical hole in *b* and the tamping applied around the same, after which the needle is withdrawn and the fuse or squib inserted and fired, as usual.

This cap holder or protector, being of comparatively rigid material, and having a hole through it that is adapted to receive the cap into one end and the needle, squib-tube, or barrel at the other end, is to be distinguished from the devices that have received electric wires, and from a section of rubber tube that has acted simply as a coupling between a cap and the fuse.

I claim as my invention—

In combination with a blasting-cartridge and with a fulminate-cap to fire the same, a cap-holder constructed with a hole at the inner end to receive and hold the cap, an opening through the holder, enlarged at the other end, to receive the fuse-tube or needle, and with a contracted intermediate opening, substantially as set forth.

Signed by me this 7th day of April A. D. 1882.

A. FROTHINGHAM.

Witnesses:
GEO. T. PINCKNEY,
HAROLD SERRELL.