J. GOLDMARK.

Detonating-Caps for Blasting, &c.

No. 168,895. Patented Oct. 19, 1875.

Fig. 1.

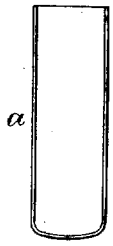

Fig. 3.

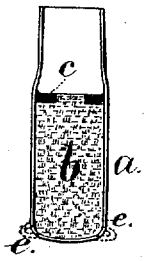

Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH GOLDMARK, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN DETONATING-CAPS FOR BLASTING, &c.

Specification forming part of Letters Patent No. **168,895**, dated October 19, 1875; application filed July 14, 1875.

To all whom it may concern:

Be it known that I, JOSEPH GOLDMARK, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Explosive Caps, of which the following is a specification:

These caps are especially intended for firing torpedoes, blasts, cartridges of nitroglycerine, and of other materials, and said caps contain powerful fulminating or exploding material, and they are usually fired by a fuse or slow match led into the opening of the cap, or by an electric spark.

Caps of this character are not reliable, because the fulminate sometimes adheres to the inner surface of the cap, and an explosion may take place either in the act of inserting the fuse by the contact of the fuse with grains of fulminate in the cap near the mouth, or else by the friction of the fuse upon the surface of the fulminate as the fuse is pushed into the cap.

Where metal or paper disks are employed in ordinary percussion-caps they serve to prevent the atmospheric influence upon the fulminate, and if used in detonating or explosive caps to be fired by a fuse, they check or prevent the flame of the fuse reaching the fulminate or explosive material.

My invention is made for consolidating the fulminate, removing any portions that might adhere to the inside of the metallic cap, and for concentrating the fire of the fuse or spark upon the center of the explosive material in the cap.

In the drawing, Figure 1 is a section of the cap before it is filled. Fig. 2 is a plan and section of the perforated cover; and Fig. 3 is a section of the cap complete and ready for use.

The metallic cap *a* is of suitable size and shape; it, however, is usually larger and deeper than an ordinary percussion-cap.

The fulminate *b* is introduced in a plastic or dry state, and then the perforated cover *c* is pressed down upon the fulminate. This cover is of thick paper or pasteboard, or similar material, and slightly larger than the interior diameter of the cap *a*, so that its edges are compressed, and at the same time the washer carries before it any particles of fulminate that may adhere to the inner surface of the cap near the mouth, and the fulminate is rendered compact by the pressure, and such fulminate may rise up through the opening in the perforated cover and be level with the surface thereof. This washer effectually holds the fulminate in its place within the cap, even if it should shrink in drying, and the surface of the fulminate at the center is exposed to the action of the fire from the slow-match or fuse, or the electric spark.

When the fulminate or exploding compound is confined in a long narrow tube its action is slow and progressive. I insure a much more instantaneous ignition of the fulminate and a better effect upon the blasting material by using a cap that is of larger diameter than heretofore, so that the fulminate is in a mass close to the point of ignition.

I make the cap with a neck that is contracted to about the size of the fuse in order that the fuse may be more easily secured within the cap, and the explosion is confined and bursts the cap with greater force than it would if the mouth were large. Hence, the explosion is more reliable and efficient by igniting instantaneously the whole of the blasting-cartridge.

This shape and construction of cap are shown in Fig. 3.

When there is a flange around the base of the detonating-cap or exploder it prevents the shell lifting out of its holder with the rammer as the charge is pressed into such cap. This flange is shown at *e* by dotted lines in Fig. 3.

I claim as my invention—

1. The detonating-cap or exploder made with a perforated cover pressed upon the fulminate, for the purposes, and substantially as set forth.

2. The detonating-cap made with a fulminate space and a contracted neck of a size to receive and hold the fuse or exploder in its proper position relatively to the fulminate, substantially as set forth.

Signed by me this 26th day of June, A. D. 1875.

J. GOLDMARK.

Witnesses:

GEO. T. PINCKNEY,

CHAS. H. SMITH.