J. GARDNER.

Primer for Cartridges.

No. 214,382. Patented April 15, 1879.

Fig. 1.

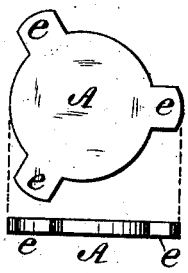


Fig. 2.

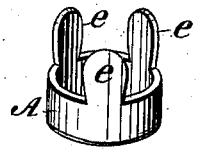


Fig. 3.

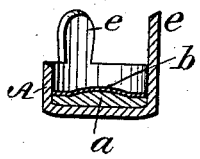


Fig. 4.

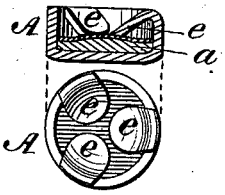


Fig. 5.

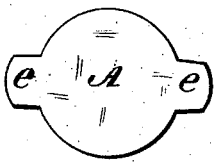


Fig. 6.

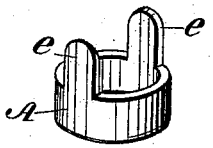


Fig. 7.

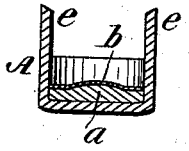


Fig. 8.

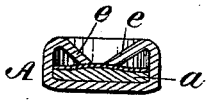


Fig. 9.

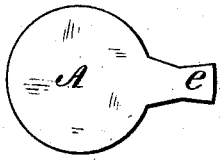


Fig. 10.

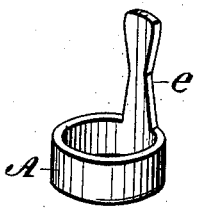


Fig. 11.

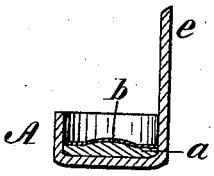
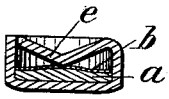


Fig. 12.



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William W. Dodge.

Inventor:

John Gardner.

by Dodgeson

Attys

UNITED STATES PATENT OFFICE.

JOHN GARDNER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR OF ONE-HALF HIS RIGHT TO THE WINCHESTER REPEATING ARMS COMPANY, OF SAME PLACE.

IMPROVEMENT IN PRIMERS FOR CARTRIDGES.

Specification forming part of Letters Patent No. **214,382**, dated April 15, 1879; application filed March 19, 1879.

To all whom it may concern:

Be it known that I, JOHN GARDNER, of New Haven, in the county of New Haven and State of Connecticut, have invented certain Improvements in Primers for Cartridges, of which the following is a specification.

My invention consists in constructing a primer for cartridges with its anvil all of one piece of metal, as hereinafter more fully described.

Figures 1, 2, 3, and 4 represent the article in its various stages of formation. The remaining figures, from 5 to 12, inclusive, represent the same, slightly modified in construction, all being enlarged several diameters.

Primers for cartridges, as is well known, are usually made like an ordinary percussion-cap, except that they are usually larger in diameter and less in height. These primers require an anvil to explode them upon, the anvil sometimes being made in the head of the cartridge-shell, and in other cases separately from the shell; but in all cases, so far as I am aware, the anvil is composed of one or more pieces of metal separate and apart from the primer or cap.

The object of my present invention is to construct the cap and its anvil all from one and the same piece of metal. This I accomplish by first punching out the disk or blank that is to form the primer with a series of radial projections, *e*, as represented in Fig. 1, which shows both a plan and an edge view of the blank. This blank is then cupped or drawn up by means of a drawing-machine, using a die and punch, in the usual manner, when it assumes the form shown in Fig. 2. The fulminate *a* is then placed in it, and covered with a disk, *b*, of tin-foil, in the usual manner, as shown in section in Fig. 3. After this has been done it only remains to fold or turn the projections *e* inward, and press their ends down upon the foil and fulminate, as represented in Fig. 4, when the primer is complete. This latter operation is readily accomplished by means of one or more punches of the proper form; and, when thus completed, it will be seen that the three projections *e* meet at their inner ends, at or near the center of the cap, and thus form an anvil upon which the fulminate can be exploded.

When the primer is inserted in the pocket of a shell so that its edge is held and supported firmly in place by the surrounding walls of the pocket, so it cannot yield, the inclined points or projections *e* will be held so as to afford the necessary resistance to insure the explosion of the fulminate when the primer is struck by the point of the firing-pin or hammer.

If the projections *e* be made of such a length as to cause their inner ends, when turned inward, to touch or bear against each other, they will thus form a pyramidal arch, and, although made of thin metal, will offer ample resistance to the blow of the firing-pin or hammer.

Instead of three projections, *e*, it is obvious that more or less may be used, and made to operate the same. In Figs. 5, 6, 7, and 8, I have shown the primer with its anvil composed of two projections, they being arranged directly opposite each other. In Figs. 9, 10, 11, and 12, I have shown it made with a single projection, *e*, which is made at least twice as long as when two or more are used. In this case the projection or arm *e* is bent at the center so as to form an apex, which bears against the fulminate at the center, with its loose end bearing against the opposite side of the cap, as represented in Fig. 12, and by which means it is so braced and held as to cause it to operate well as an anvil in resisting the blow required for explosion of the fulminate.

It is obvious that instead of having the projections *e* made in the form shown, they may be more or less varied, at will, and that in fact they may be formed of a series of points like saw-teeth, extending all around the edge of the disk or blank, it only being necessary to make them of such a length that when turned inward they shall form a bearing at or near the center of the fulminate, the principle of construction being the same whatever the number or form of the projections used.

A primer thus made has its anvil always with it, and secured in such a manner that there is no danger of its becoming detached

or lost. They are, moreover, simple and cheap to construct or manufacture.

Having thus described my invention, what I claim is—

1. A primer the cap of which is formed from a piece of metal having one or more points or radial projections, *e*, arranged to be turned inward, so as to form an anvil, substantially as shown and described.

2. An anvil for a primer, formed of one or more points, *e*, of metal, attached to the edge of the cap, or the blank from which the cap is formed, and integral therewith, the said point or points being turned inward against the fulminate, substantially as and for the purpose herein set forth.

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