

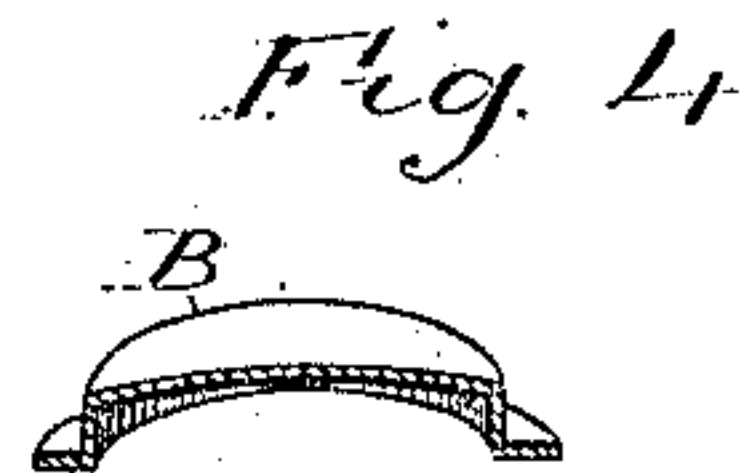
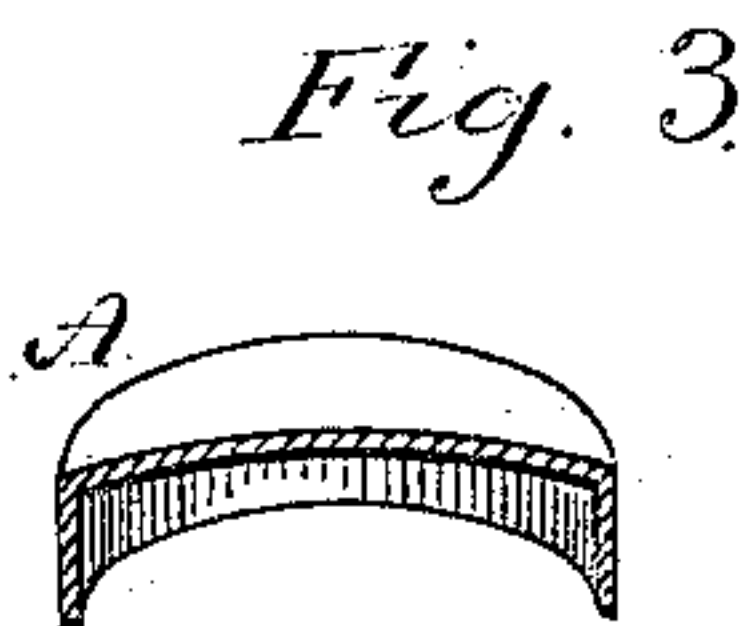
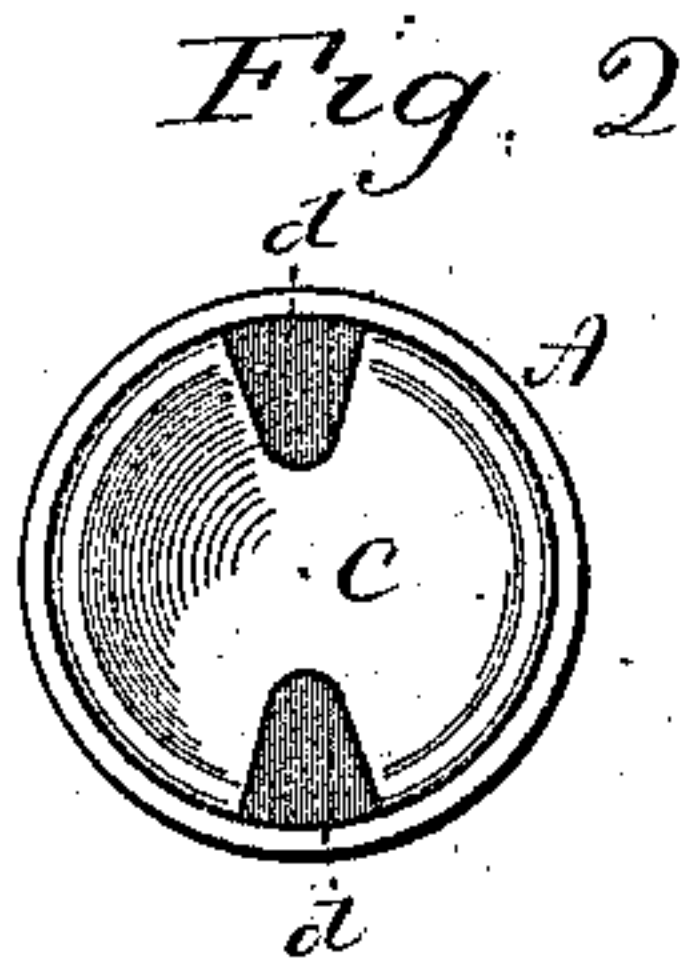
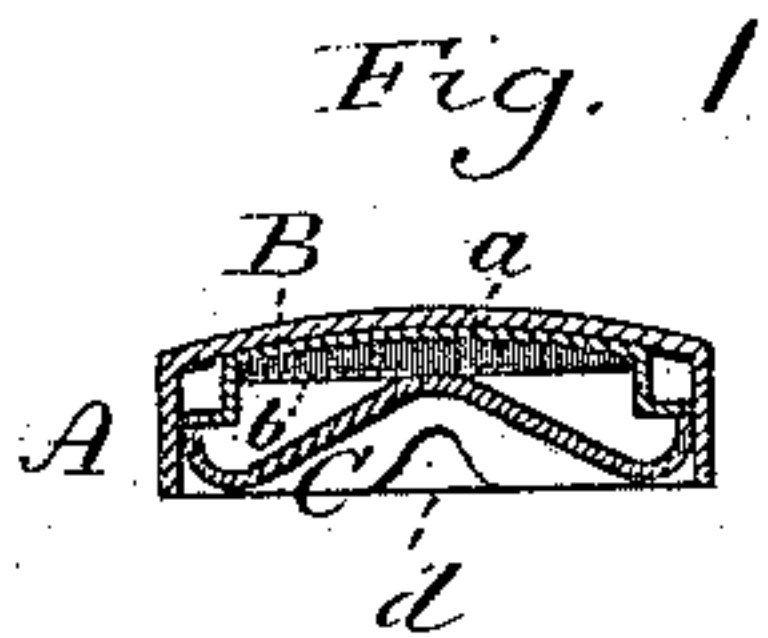
(No Model.)

H. S. BURNS.

PRIMER.

No. 291,981.

Patented Jan. 15, 1884.



Witnesses:
J. H. Murray
J. C. Earle

Henry S. Burns.
Inventor
By Atty.
Wm. Earle

UNITED STATES PATENT OFFICE.

HENRY S. BURNS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE WINCHESTER REPEATING ARMS COMPANY, OF SAME PLACE.

PRIMER.

SPECIFICATION forming part of Letters Patent No. 291,981, dated January 15, 1884.

Application filed November 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. BURNS, of New Haven, in the county of New Haven and State of Connecticut, have invented new Improvements in Primers; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute a part of this specification, and represent, in—

Figure 1, a central section of the primer complete; Fig. 2, view of the primer looking upon the anvil; Fig. 3, perspective sectional view of the principal cup; Fig. 4, perspective sectional view of the auxiliary or interior cup.

This invention relates to an improvement in that class of primers which are designed to be introduced into the cap-seat in the rear end of center-fire cartridges. The more general construction of this class of primers consists of a metal cup corresponding in external diameter to the diameter of the seat in the cartridge. Into this cup varnish is introduced to coat or cover the bottom; then upon this covered bottom a disk or pellet of moist fulminate is placed; then over that a disk of tin-foil, paper, or other flexible material pressed down thereon, so as to adhere to the fulminate; then upon this the anvil is placed. The disk of fulminate must be of sufficient thickness to insure the requisite quantity over the center upon the anvil where the blow is given. As the disk of fulminate, to be practically made, must be of equal thickness throughout, it follows that a very much larger amount of fulminate must be employed than is actually required for the purpose of explosion.

It is well known that dry fulminate is much cheaper than the wet, because less fulminate of mercury is required to produce dry fulminate than the moist; but in using dry fulminate over the bottom of the cup in place of wet it is liable to be unevenly distributed, and with no certainty of there being a sufficient quantity upon the anvil to explode under the blow.

The object of my invention is to produce a primer in which dry fulminate may be employed, and with a certainty of concentrating that dry fulminate at the center; and it consists,

principally, in the introduction of an auxiliary cup within the principal cup, the said auxiliary cup forming a central recess of less diameter than the diameter of the principal cup to receive the fulminate, and constructed with an annular flange around its open end of substantially the diameter of the interior of the principal cup, opening outward, and whereby the fulminate is concentrated about the center, and as more fully hereinafter described.

The cup A, I make from sheet metal in the usual manner and of the usual size, according to the cartridge for which it is intended. The auxiliary cup B is made from thin metal, paper, or other suitable material and of hat shape—that is, a cup having an annular flange around its open end. This annular flange corresponds in diameter to the diameter of the cup A. The bottom of this cup B is first varnished, in the usual manner of varnishing the inner surface or bottom of primers, and upon this varnish dry fulminate *a* is placed; then upon the dry fulminate a disk of paper or other suitable material, *b*, is placed and pressed down upon the fulminate; but this disk *b* is not essential, as the dry fulminate will readily adhere to the varnish, and is not, therefore, of necessity covered. The depth of this auxiliary cup is considerably less than that of the principal cup A. The flanged auxiliary cup B is set within the cup A, opening outward—that is to say, the bottom of the cup resting upon the inner side of the bottom of the principal cup, and so that the open cup is exposed toward the mouth of the principal cup—and then the anvil C is forced into the cup A to bring its center or anvil upon the priming in the auxiliary cup in the usual relation of the anvil to the primer. Through this anvil the usual apertures, *d*, are made for the exit of the flame. This completes the primer. By this construction it will be observed that the area of the fulminate is much less than the area of the principal cup, and that it is substantially concentric about the center, and because of such concentration and less area I am enabled to use dry fulminate, and by the use of dry fulminate there is less liability to explode in manufacturing the primer, for the reason that where moist fulminate is used a disk is necessarily placed over it, and this disk

must be pressed hard down upon the fulminate in order to make it adhere thereto, and in such pressing explosion frequently occurs, and when such explosion takes place it not only destroys the cup, but discolours many of the surrounding cups (it being understood that in placing the disks upon the fulminate the work is done in plates having a large number of cups under operation at the same time.) Such explosion causes a serious loss in cups, which by my invention is avoided, for the reason, first, that the fulminate is placed in the auxiliary cup independent of the principal cup—that is, before the auxiliary cup is introduced into the principal cup, and, second, for the reason that if a disk be used on top of the dry fulminate very little pressure is required; but, if under any circumstances explosion occurs, any discoloration of the cup in which explosion occurs or the surrounding cups does not injure or affect those cups, for when subsequently introduced into the principal cup that discoloration is hidden, and it is immaterial whether the internal cups be bright or tarnished. The internal cups are made from very thin metal or other material, just sufficient to retain their required shape, and so that the contact of its flange with the interior of the principal cup will be sufficient to retain it within that cup until the anvil can be introduced. This auxiliary or internal hat-shaped cup may be used in primers without the anvil—such, for in-

stance, as percussion-caps—or for use upon cartridges where no anvil is necessary in the primer itself.

Instead of employing dry fulminate in the centrally-recessed cup, moist fulminate may be used, and a considerable saving made over the usual construction of primers, for the reason that so much less amount of fulminate is required—that is, to say, the disk for the inner cup need be but half the area of that required when introduced in the usual manner into the principal cup.

I claim—

1. The combination of the principal cup A, the internal cup, B, of less diameter than the internal diameter of the principal cup, and constructed with an outwardly-projecting flange around its open end, said cup having the fulminate within it and arranged within the principal cup, opening outward, substantially as described.

2. The combination of the principal cup A, the internal cup, B, having an outwardly-projecting annular flange around its edge, by which flange the internal cup is secured, said cup having a central recess to receive the fulminate, and an anvil within said principal cup, substantially as described.

HENRY S. BURNS.

Witnesses:

DANIEL H. VEADER,
LEE H. DANIELS.