

R. WHITE.  
METALLIC CARTRIDGE

No. 97,843.

Patented Dec. 14, 1869.

Fig. 1.

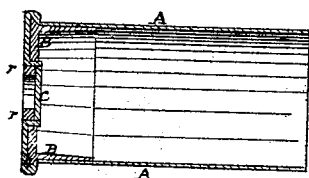


Fig. 2.

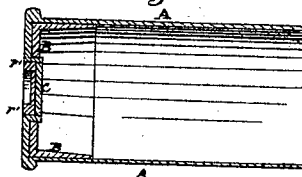


Fig. 3.

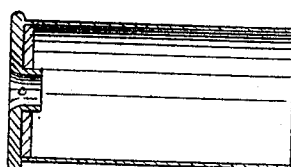


Fig. 4.

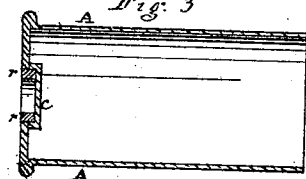


Fig. 5.

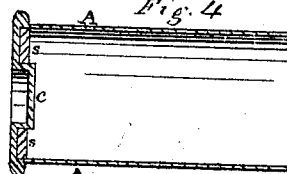


Fig. 6.

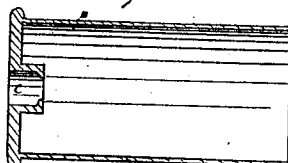


Fig. 7.

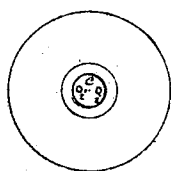


Fig. 8.



Fig. 9.



Witnesses.  
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ROLLIN WHITE, OF LOWELL, MASSACHUSETTS.

Letters Patent No. 97,843, dated December 14, 1869.

## IMPROVEMENT IN METALLIC CARTRIDGES.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, ROLLIN WHITE, of Lowell, in the county of Middlesex, and State of Massachusetts, have invented a new and useful Improvement in Metallic Cartridge-Shells; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figures 1, 2, 3, and 4, are longitudinal sections of different modifications of my invention.

Figure 5 is a rear end view of figs. 1, 2, and 3.

Figures 6 and 7 are cross-sections of different modifications of the pellet or cap, which is primed with fulminate, on an enlarged scale.

Figures 8 and 9 are modifications of the cup or recess in the base of the cartridge-shell.

This invention relates to that class of cartridges which are primed with fulminate and exploded by a blow of the hammer, or in some equivalent manner.

In all the figures, A is the outer metallic case or shell which contains the charge.

In the modifications shown in figs. 1 and 2, there is a supplemental shell or cup, B, within the main shell A, at its base, to reinforce said shell A.

In fig. 1, this cup is provided with an annular flange, b, around which the metal of the flange of the outer shell is closely pressed, as shown in the drawings.

In fig. 2, said inner cup has no flange, this being the only difference in said inner cup or shell, as shown in figs. 1 and 2.

In all the figures the metal of the base of the shell A is pressed in, so as to form a central cup or recess. But said cup may be made in the inside shell or reinforce-plate, and this plate to be made of sufficient strength to resist the force of the hammer and the explosive force of the cup and charge. If said cup is made in the reinforce-plate, to receive the cap or pellet, the rear portion of the outside shell may be cut out in such form that the cap can be inserted through said opening into the cup or cavity in the reinforce-plate.

The inner shell or cup B, figs. 1 and 2, has a circular hole in the centre of its base, just large enough to embrace the cup c, formed in the base of the outer shell, as aforesaid.

Figs. 1 and 3 show a steel ring, r, fitting closely in the cup c. In both these figures, as well as in fig. 4, the bottom of the cup c forms the anvil, against which the fulminate is driven by the blow of the hammer, but in each a supplemental anvil, consisting of a thin steel disk, fitting into the bottom of the cup c, may be used.

In fig. 2, instead of a steel ring fitting into the cup c, there is a steel cup, r', the bottom of which forms the anvil.

In fig. 4 there is neither ring nor cup fitting into said cup c, but there is a ring, S, in the base of the shell A, surrounding said cup c, and serving as a reinforce to support it, both against the explosive charge and the blow of the hammer.

Through the bottom of the cup c, and also through the supplemental anvil, when one is used, there is one or more vent-holes, i, fig. 5, to convey the fire from the fulminate to the charge of powder in the shell.

The various parts forming the base of the shell are to be so grooved or recessed, that when stamped together they will adhere firmly, or they may be soldered.

The shell is primed by means of a metallic circular pellet or cap, carrying the fulminate, fitted into and closing the cup c in the base of the shell A. Two forms of this pellet or cap are shown in cross-section, on an enlarged scale, in figs. 6 and 7. In both forms the outer edge of the metal plate or disk of which the pellet consists is bevelled to a sharp edge, as shown in the drawings. In fig. 6, this metal plate or disk has a sharp annular corrugation, near its periphery, in which the fulminate e is placed.

The fulminate may be exploded either by an oblique or perpendicular blow of the hammer. A blow on the central part of the pellet will force the same forward into the cup c, and at the same time, by flattening the central part of the pellet, will force its periphery outward against the inner circumference of the cup, compressing the fulminate e in the annular corrugation or groove in which it is located, so as to cause its explosion. The bevelled edge of the pellet will, by the blow of the hammer, be pressed against the wall of the cup c, so as effectually to prevent the escape of any gas rearward.

When this form of pellet is used, an anvil is not absolutely necessary, and the bottom of the cup c may even be left open, as shown in figs. 8 and 9, making an opening similar to the vent of a cannon. In this case, however, the cup or vent c should be conical, or a little flaring at its rear, as shown in fig. 8, so that by forcing the pellet or cap into or through the conical, and into the cylindrical part of the ring, cup, or vent c, the cap or pellet will be so compressed as to explode the fulminate and ignite the charge.

I prefer to drive the cap or pellet so far into the ring or vent, by the blow of the hammer, follower, or plunger, (and to hold it in place during the firing of the charge,) that there will be space enough in the rear of the exploded cap or pellet to insert another one in the ring or vent for the next charge, and as the next cap is fired it will drive the former one through the ring or vent. Or the ring or vent may have a shoulder at its inner extremity, as shown in fig. 9, to prevent the cap or pellet from being driven through it until it has been used as an anvil to ignite the fulminate in the next cap or pellet; and as the last cap is pressed

against the former by the blow of the hammer, follower, or plunger, said previously-exploded cap will be driven through the ring or vent.

This cap or pellet may be used in the vent of a cannon, or, in fact, in any kind of a fire-arm having a vent, by making the vent large enough to receive it.

In the form of pellet shown by fig. 7, the fulminate is placed in the centre, and is exploded by a central blow of the hammer, driving the fulminate against the anvil.

The blow of the hammer flattens the central part of the disk, which has the effect to press out the periphery against the wall of the cup *c*, or the ring *r*, closing it gas-tight, as hereinbefore explained.

Instead of mixing the fulminate with gum-shellac, as has heretofore been practiced, I mix it with a paste containing a portion of dissolved India rubber, or some other similar elastic substance, which will be less liable to shell and crumble, when dry, than shellac. For this purpose, India rubber or caoutchouc, thirty grains, may be first dissolved in naphtha or ether, and then may be added thirty grains of shellac. After this is dissolved, or nearly so, this liquid may be used with the fulminate the same as liquid gum-shellac or varnish.

It will be an improvement on the use of shellac as heretofore, if only one grain of caoutchouc is used to forty grains of shellac, but I prefer to use more. Or collodion may be used, one ounce to about ten grains of caoutchouc.

I do not confine myself to the proportions herein given, because they may be varied without materially changing the effect.

Having thus described my invention, and the several modes of carrying it into effect,

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the cup *c*, and pellet or cap fitting therein, a metal ring or cup, to reinforce said cup *c*, substantially as shown in figs. 1, 2, 3, and 4.

2. In combination with a cup in the base of the cartridge-case, or the vent of a gun, substantially as described, a pellet or cap, with a recess or cavity in its centre or near its rim, to receive the fulminate, substantially as and for the purpose described.

3. In combination with a recess, vent, or cup in the base of the cartridge-case, or in a gun, a pellet or cap, so corrugated that by the blow of the hammer, or its equivalent, the rim or edge of said pellet or cap will be pressed against the wall of the cup or vent, or ring within the same, substantially as and for the purpose set forth.

4. A fulminate paste, formed by mixing the fulminate powder with India rubber or other similar elastic substance, substantially as described.

ROLLIN WHITE.

Witnesses:

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WM. U. AMSDEN.