B. B. HOTCHKISS.

Cartridge-Cases.

No. 157,916. Patented Dec. 22, 1874.

Fig: 1.

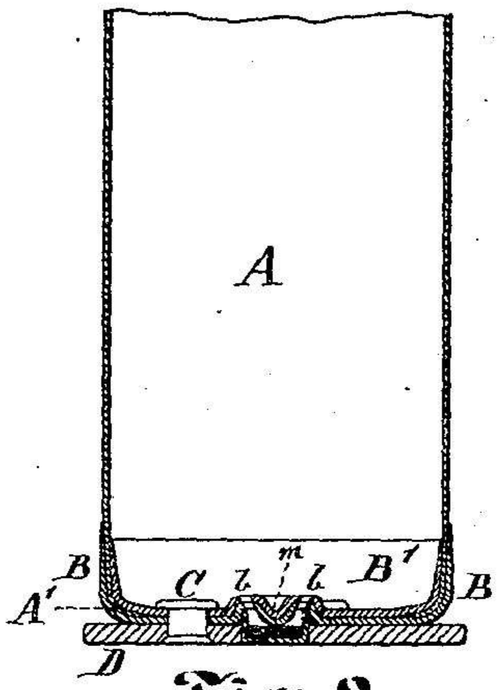


Fig: 2.

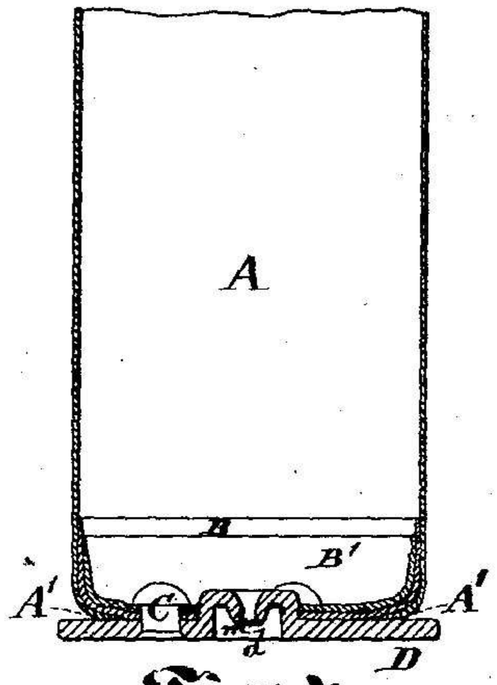


Fig: 4.

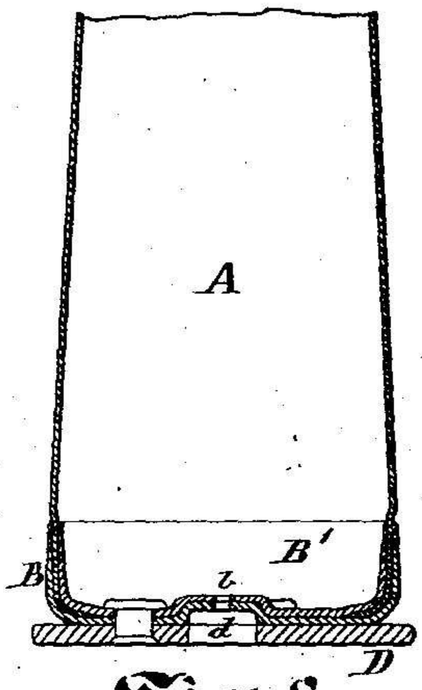


Fig: 6.

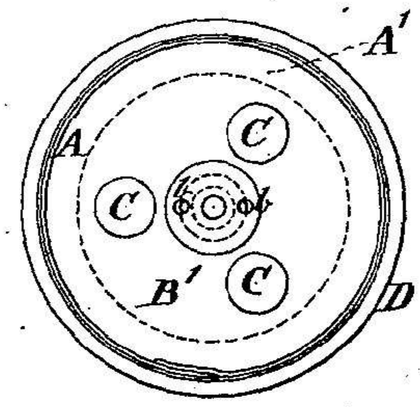


Fig: 7.

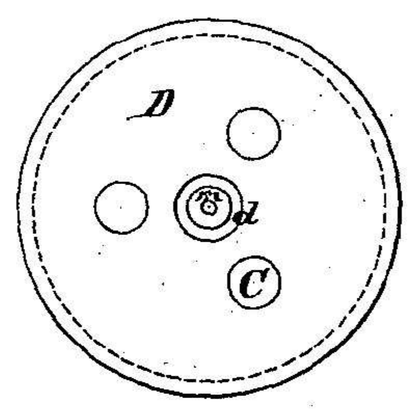


Fig: 8.

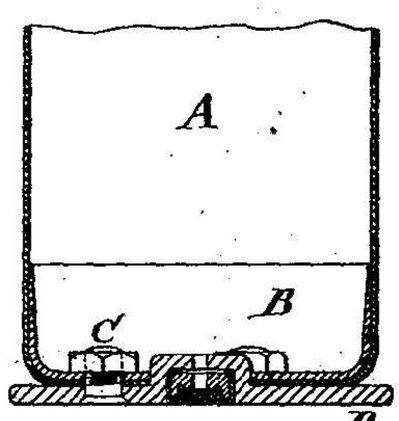
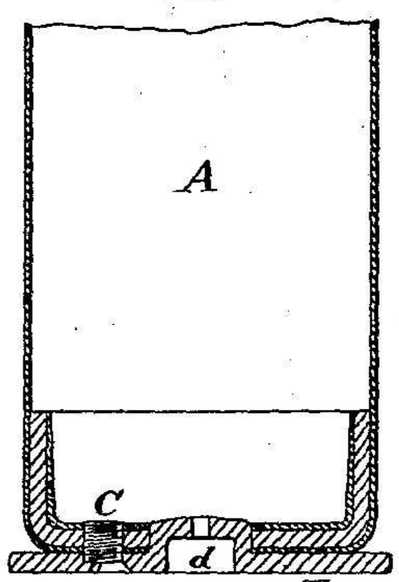
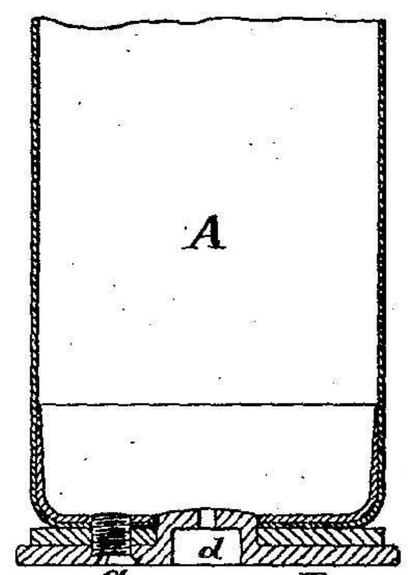
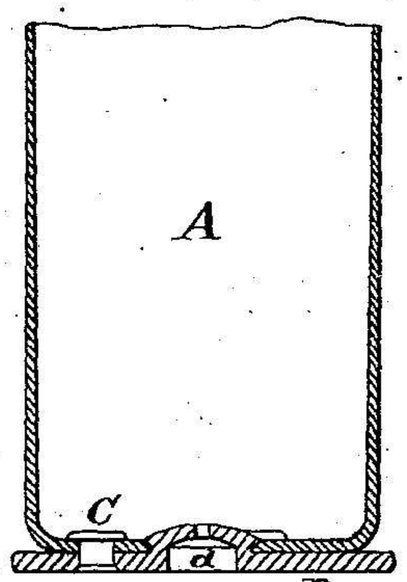


Fig: 9.







Witnesses:

Arnold Hornamer.

M. C. Dey

Inventor:

B. B. Hotchkiss,

by his attys T. L. Stetson

New York City

UNITED STATES PATENT OFFICE.

BENJAMIN B. HOTCHKISS, OF NEW YORK, N. Y.

IMPROVEMENT IN CARTRIDGE-CASES.

Specification forming part of Letters Patent No. **157,916**, dated December 22, 1871; application filed March 17, 1874.

To all whom it may concern:

Be it known that I, BENJAMIN B. HOTCHKISS, of New York city, in the State of New York, temporarily residing in Paris, France, have invented certain Improvements Relating to Metallic Cartridge-Cases, of which the following is a specification:

The invention is intended more particularly for large cartridges for cannon, but it may be of some service for small cartridges for other arms. I form a strong successful cartridge from thin material by riveting. I have also introduced modifications in the details relating to provisions for retaining and discharging the fulminate.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a central longitudinal section of the rear portion of a cartridge constructed according to this invention. Fig. 2 is an end view, looking in at the front and open end. Figs. 3 and 4 represent a modification. Fig. 3 is a central longitudinal section, and Fig. 4 an end view from the rear. The remaining figures are all central longitudinal sections, representing different modifications.

Ordinary provisions (not represented) may be employed at the front for retaining the powder with which the cartridges are to be filled.

Similar letters of reference indicate corresponding, or nearly corresponding, parts in all the figures.

Referring more particularly to Figs. 1 and 2, A is the main body or shell; A′, the turned-in portion at the rear end. B and B′ are cup-shaped pieces of metal, which perform the double function of strengthening the rear portion of the cartridge-case, and serving as a gas-check. C C are rivets or screws, which extend through the cups, and also through a stout metal disk, D, which extends over the rear and projects beyond the periphery of the cartridge. The inward bend or internal flange A′ of the main shell may extend inward only a little distance, as in Figs. 1, 3, and 5, or may extend inward beyond the fastenings C and receive them, as shown in Figs. 6, 7, 8, and 9.

Fig. 7 represents only a single strengthening-cup, B, made considerably smaller than the shell A A′, with a thickness of paper or *papier-maché* between. Fig. 8 represents the *papier-maché* introduced between the rear of the shell A′ and the disk D. Fig. 9 represents the material of the disk expanded so as to take hold upon the inner edge of the turned-in portion A′ in the manner of a rivet, and hold it or aid in holding it.

In Fig. 2 the material of the shell A is represented as simply lapped. The edges may be joined by riveting, soldering, or other suitable means; or they may be locked together by bending in the manner familiar to tinsmiths; or the shell may, if preferred, be formed from a tube.

To make the cartridge self-priming, I provide for receiving a percussion-cap by providing a cavity in the disk D, as indicated by *d*.

In Figs. 1 and 6 the fulminate is represented as applied in the form of a thin metallic cap containing the fulminate in its interior in the ordinary manner.

The drawings represent several modifications in the provisions for introducing an anvil for the percussion.

In Figs. 1 and 2 the central portions of the cups B B′ are formed to serve as an anvil by being forced inward in a ring concentric with the center, and standing back in the center to form a point, *m*, against which the fulminate is struck by the discharging blow. Holes *b* allow the fire from the fulminate to enter the cartridge, as will be readily understood.

In Figs. 3 and 4 a large hole is made in the center of the cups, and the material of the disk D is forced inward in an annular ring, *m*, around the center, and stands back in the center. This cartridge-case is used in the same manner as the form shown in Figs. 1 and 2.

The provision for allowing the passage of the fire from the fulminate into the cartridge is by means of a single central hole in Figs. 3 and 4, but this is not a necessary condition of forming the anvil in the disk. Instead thereof there may be two or more holes arranged in the position shown in Figs. 1 and 2. So, also, in the construction shown in Figs. 1 and 2, there may be a single hole in the center for the fire.

In Figs. 1 and 5 the cups B B′ are one on

the outside and one on the inside of the shell. In such case the shell A should be contracted in diameter for a sufficient length to allow for the thickness of the outer cup, as indicated in Fig. 5.

In Fig. 3 there are two cups, both on the inside. In Fig. 8 one alone is employed, and Fig. 7 shows only one with the paper between.

I propose in some cases to use three or more of these cups, using, by preference, one outside and the others inside of the main shell, making them all of different depths and chamfering them to a thin edge, so that there shall be no appreciable shoulder or line of weakness where either of the cups end.

By inserting screws, as shown in Fig. 6, of a greater length than the thickness of the rear of the cartridge, and tightly secured by a nut on the inside, I can make a very firm joint, but at more expense than by riveting.

I claim as my invention—

A cartridge-case composed of the open-ended tube A, having its rear end A′ turned inward, with one or more cups, B B′, and a rigid disk, D, attached thereto, substantially as described.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

B. B. HOTCHKISS.

Witnesses:

CH. F. THIRION,

DAVID T. S. FULLER.