

No. 699,061.

Patented Apr. 29, 1902.

C. A. BAILEY.  
CARTRIDGE.

(Application filed Feb. 1, 1902.)

(No Model.)

Fig. 1.

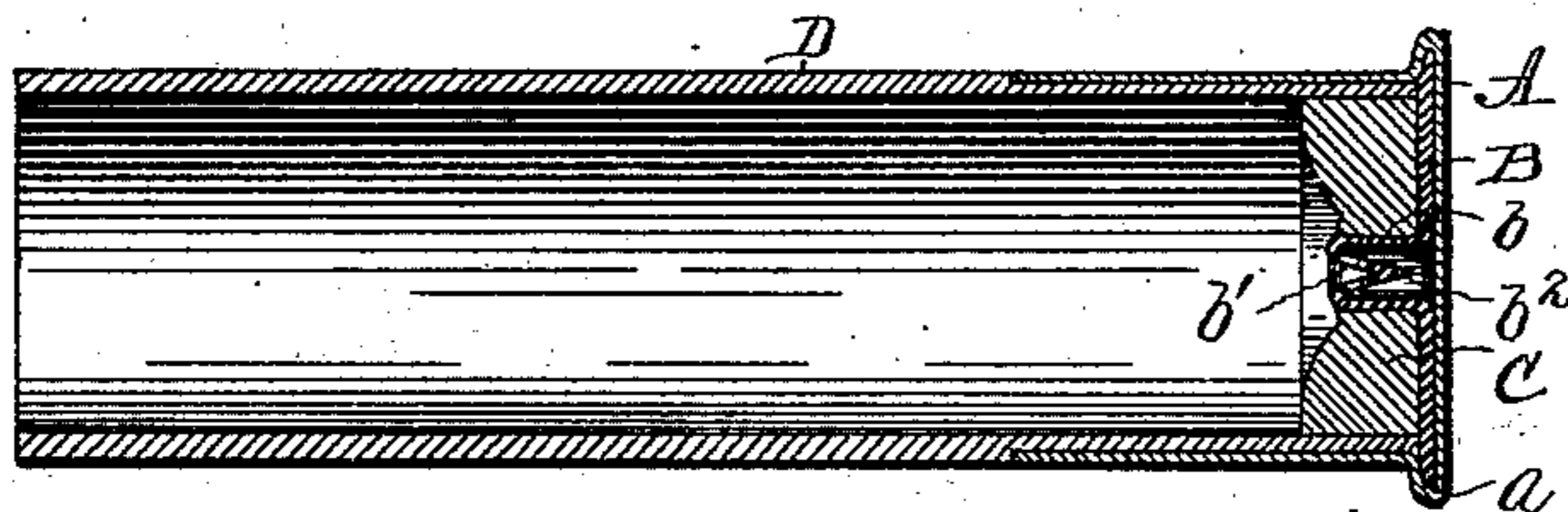


Fig. 2.



Fig. 3.

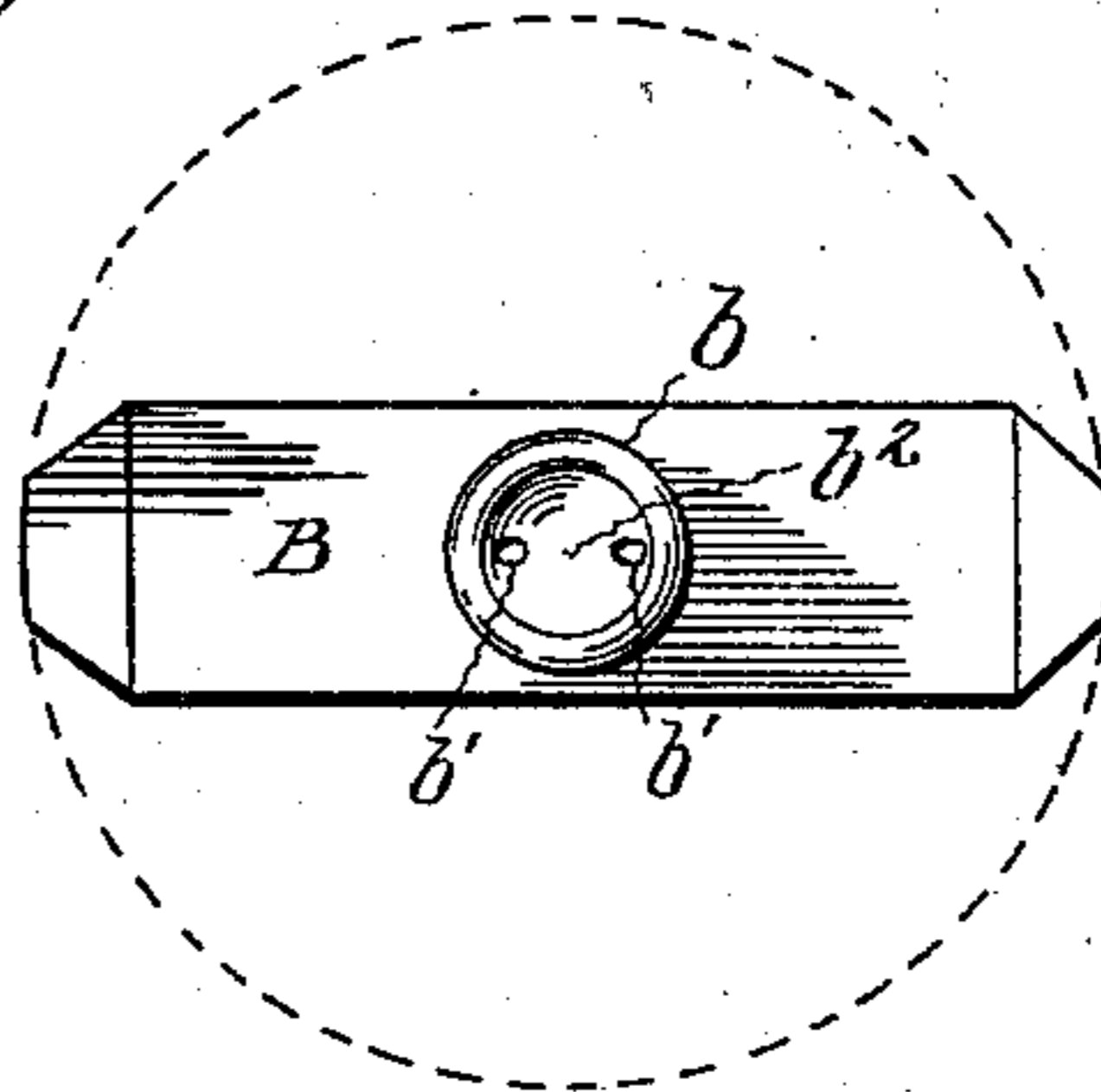


Fig. 4.

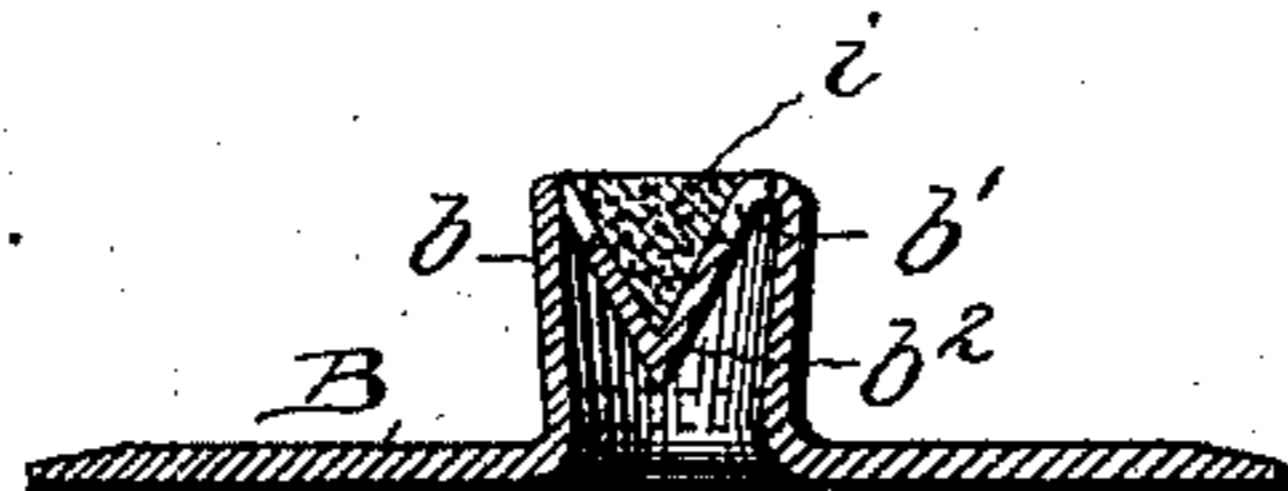
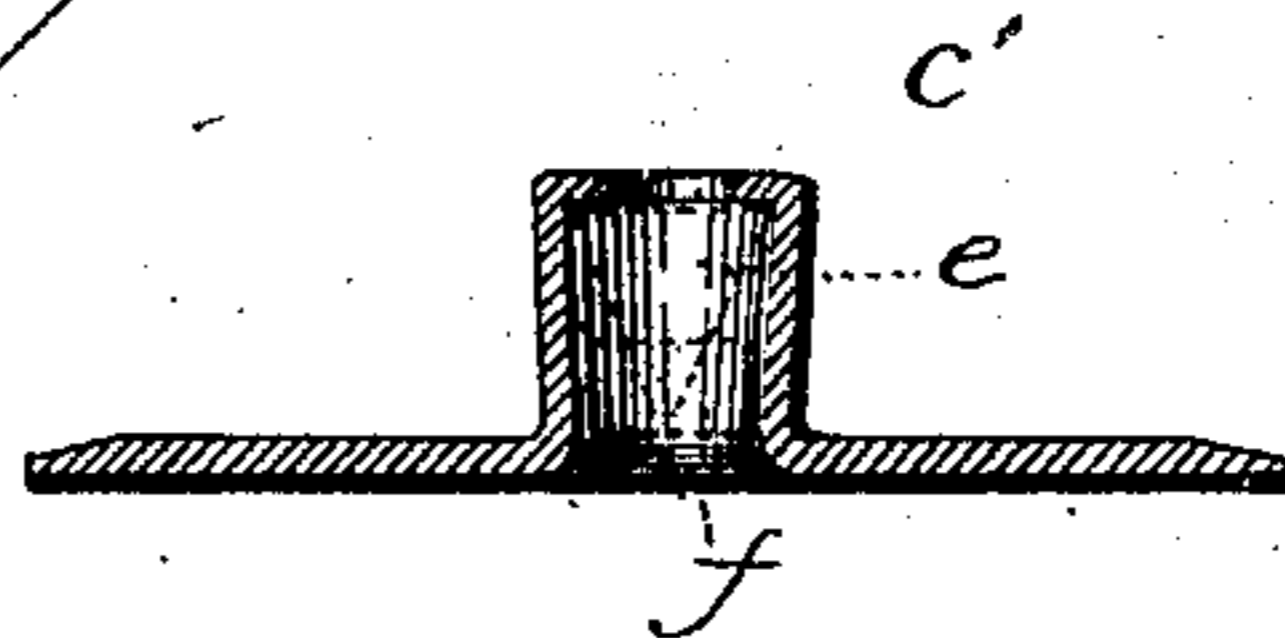


Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## CARTRIDGE.

SPECIFICATION forming part of Letters Patent No. 699,061, dated April 29, 1902.

Application filed February 1, 1902. Serial No. 92,213. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. BAILEY, a citizen of the United States, and a resident of Cromwell, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Cartridges, of which the following is a specification.

My invention relates to cartridges; and my object is to provide a simple, cheap, and effective gas-tight central-fire cartridge in which the cap or head may be made of thin metal and properly reinforced to receive the impact of the explosion of the cartridge and in which the location of the fulminate of the priming device and the particular construction of said priming device, in connection with that of the cartridge proper, is such as to insure a positive explosion of the fulminate, and consequently the ignition of the powder charge.

With the above objects in view the invention consists of a cartridge comprising a flanged cap or head, a cross-piece located therein, the said cross-piece having a nipple projecting from the center thereof, and a primer located within the nipple, combined with a tube and wad, the latter being compressed within the tube and cap against the cross-piece and nipple thereof.

The invention further consists in the particular construction and combination of the parts constituting my improved cartridge, all as hereinafter fully described, and more specifically set forth in the appended claims.

In the accompanying drawings, which illustrate my invention, Figure 1 is a longitudinal sectional view through the cartridge. Fig. 2 is a side elevation enlarged, showing the breech-piece or cross-piece of the cartridge. Fig. 3 is a plan view of the cross-piece. Fig. 4 is a longitudinal sectional view illustrating the application of the priming material. Fig. 5 is a detail sectional view showing a modification of the nipple.

Referring to said drawings, the letter A designates the cap of the cartridge, the said cap being made of thin malleable metal and provided with the usual flange *a*, and in carrying out my invention the end wall of this cap is entirely solid in order to provide a gas-tight cartridge, the primer being located within

said end wall and exploded by indenting the latter, as hereinafter described.

B designates a metal cross-piece, preferably steel, which is located within the cap, with its ends extending into the annular flange *a*, and the said cross-piece is comparatively thick, so that it will serve to reinforce the end wall of the cap A. The central portion of this cross-piece is stamped or otherwise formed to provide a tapered nipple *b*, and the outer end of the latter is provided with one or more flash-holes *b'* to establish communication with the powder-chamber of the cartridge.

C designates a wad, composed of paper, wood, or other suitable material, which is not only employed to reinforce the breech of the cartridge, but also serves to hold in place the tube D.

As shown in Figs. 1, 2, 3, and 4, the end of the nipple *b* is shaped to receive the fulminate in tablet or wafer form, and for this purpose the said end is punched inward to provide a conical portion *b<sup>2</sup>*, forming an anvil upon the apex of which the fulminate is exploded by the impact of the firing-pin. The flash-holes are located at the base of the conical portion *b<sup>2</sup>*. Though I have shown the primer composed of a tablet of fulminate placed directly within the nipple upon the apex of the conical portion thereof, it is obvious that the fulminate could be carried by a cap, as is usual, and the said cap placed within the nipple over the conical portion thereof.

In the modification shown in Fig. 5 the outer end of the nipple is plain and provided with a central opening, leaving an annular flange or shoulder *c'*, adapted to form a seat for a triangular flat piece *e*, (shown in dotted lines,) which forms an anvil for the cap *f*, (dotted lines.) I therefore contemplate using any of the foregoing priming devices, but prefer that employing a tablet or wafer of fulminate seated within the nipple against the apex of the conical portion thereof, as shown in dotted lines, Fig. 4, as it will provide less metal between the fulminate and firing-pin.

In assembling the parts the cross-piece is placed within the cap before the flange is spun

thereon, said flange being spun over the end of the cross-piece to hold the same securely in the cap. The tube is then placed in the cap, after which the wad, having a central opening for the nipple, is inserted and compressed tightly, so as to force the end of the tube into the unoccupied portion of the flange of the cap and also frictionally engage the nipple, which latter projects through the center of the wad. It will be understood, of course, that the primer is inserted in the nipple of the cross-piece before the latter is placed within the cap. When the parts are assembled, the breech of the cartridge is strongly and solidly constructed, and the tube is securely connected to the cap by the wad, which latter not only engages the tube frictionally, but also forces a portion of the same into that part of the flange not occupied by the cross-piece, the wad being further held by engagement with the nipple. The flange being reinforced by the cross-piece and end of the tube will provide the required strength at this point for the operation of an ejector.

A cartridge constructed as herein shown and described permits the use of a thin metal cap, which will reduce the cost of the cartridge and provide a thin wall at the point of contact of the firing-pin.

Though I have hereinbefore stated that the cross-piece is placed in the cap before the flange is formed on said cap, it is apparent that the said cross-piece could be inserted after the flange is formed. This could be accomplished by curving the cross-piece longitudinally before it is inserted and then flattening it out in the cap, so that the ends will project into the flange. It will also be understood that the cross-piece and nipple could be applied to a metallic rifle-cartridge.

The particular form of the nipple on the cross-piece or breech-piece provides a cavity at the outer end thereof, and I purpose to fill this cavity with a quick powder held by a suitable carrier, such as shellac or collodion. This priming material (designated by the letter *i*, Fig. 4) will ignite quickly and will serve to ignite nitropowder or slowly-igniting charges. The material is put in the cavity in the form of paste and when it hardens will be firmly held.

My improved construction provides a thoroughly gas-tight cartridge that can be manufactured very cheaply, as the cap, made of brass, as is usual, may be comparatively thin and strongly reinforced by the cross-piece of steel or other cheaper metal possessing the required strength, and as the said cross-piece extends the full width of the head of the cartridge the proper ejection of the cartridge in use will be assured. Aside from the cheapness in construction a very strong and durable gas-tight cartridge is provided, and by the addition of the quick powder in the cavity at the end of the nipple provision is made

for priming a cartridge to be used in connection with nitropowders or other slowly-igniting powders.

Having thus described my invention, I claim—

1. In a cartridge, the combination, of a metal cap provided with the usual flange, a cross-piece having its ends projecting into the flange and provided centrally with a nipple having a hole at its outer end, a tube forming the body of the cartridge, and a wad having an opening through which the nipple projects, the said wad being compressed around the nipple and against the tube to force the inner end of the latter into that portion of the flange unoccupied by the ends of the cross-piece.

2. In a cartridge, the combination, of a metal cap having a solid end wall and peripheral flange, a cross-piece located in the cap with its ends projecting into the flange thereof, and a nipple formed on the central portion of the cross-piece and provided at its outer end with an inwardly-projecting conical portion and flash-holes.

3. In a cartridge, the combination, of the metal cap having a solid end wall and peripheral flange, a cross-piece located in the cap with its ends projecting into the flange thereof, a nipple formed on the central portion of the cross-piece and provided at its outer end with an inwardly-projecting conical portion and flash-holes, and a wad having an opening through which the nipple projects, the said wad being compressed around the nipple and into the flange, substantially as shown and described.

4. In a cartridge, the combination, of a cap having a peripheral flange, a cross-piece located within the cap with its ends projecting into the flange thereof, a nipple formed on the central portion of the cross-piece and flared at its outer end, and a wad having a central opening through which the nipple projects, said wad being compressed, substantially as shown and described.

5. In a cartridge, the combination, of a cap having a peripheral flange, a cross-piece located within the cap with its ends projecting into the flange thereof, a nipple formed on the central portion of the cross-piece flared at its outer end and provided with an inwardly-projecting conical portion forming a seat for the primer, a tube forming the body of the cartridge, and a wad having a central opening through which the nipple projects, said wad being compressed in the cartridge, substantially as shown and for the purpose set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

CHAS. A. BAILEY.

Witnesses:

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ARTHUR BOARDMAN.