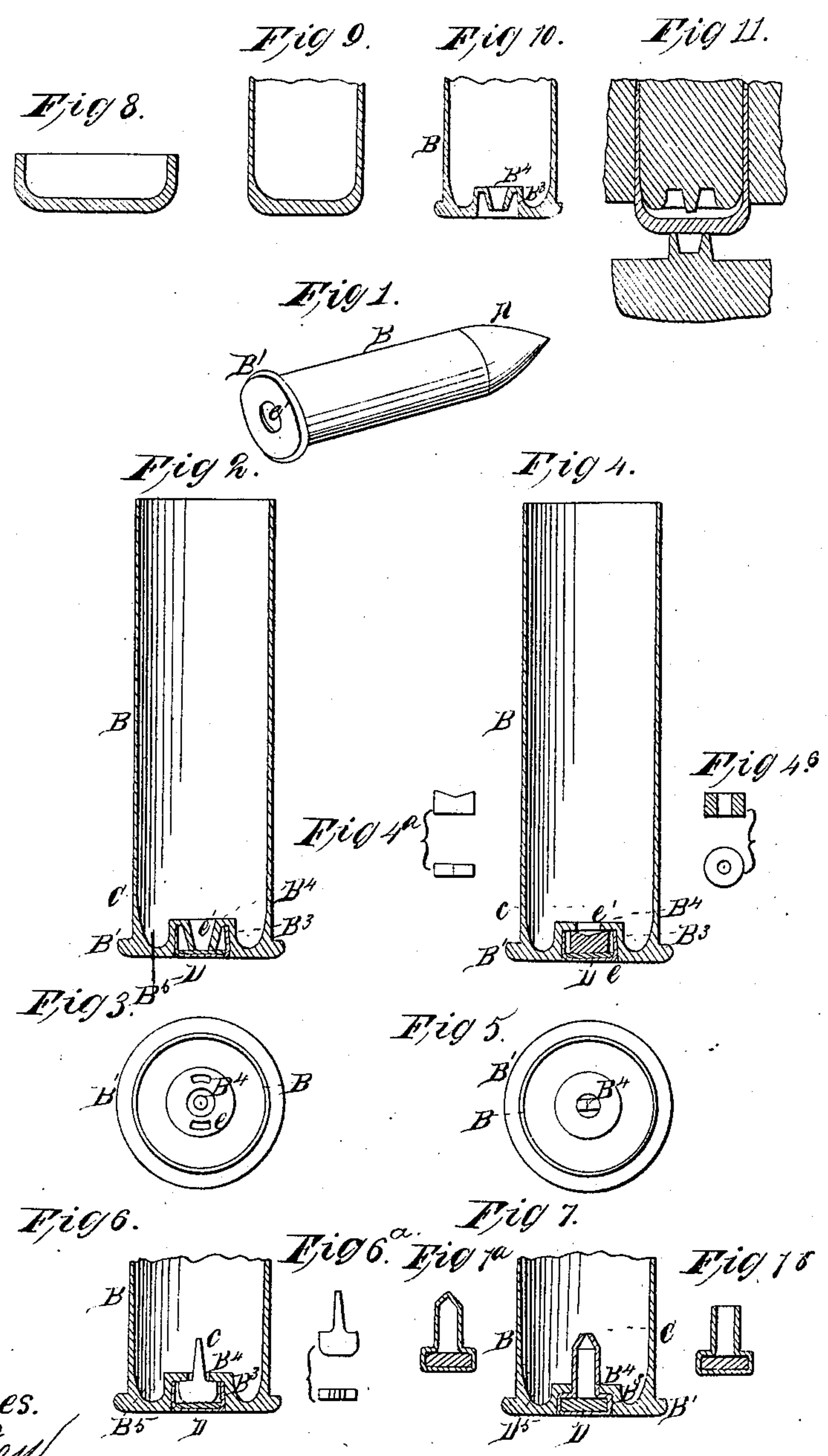


B.B. Hotchkiss,
Cartridge,
No 94,210. *Patented Aug. 31, 1869.*



Witnesses.
W. C. Dey
E. C. Living

Inventor.
B. B. Hotchkiss

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN METALLIC CARTRIDGES.

Specification forming part of Letters Patent No. 94,210, dated August 31, 1869.

To all whom it may concern:

Be it known that I, B. B. HOTCHKISS, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Cartridges; and I do hereby declare that the following is a full and exact description thereof.

My invention is a cartridge adapted for reloading and recapping many times. It is intended for small-arms, and combines features before employed separately so as to afford advantages not before found in any cartridge. I make a reloading and repriming or recapping cartridge of a single piece of copper with a solid flange or rim, instead of an open or hollow rim, as in the previous efforts in this direction, and have caused the same to be fired fifty times in succession with full charges. I will use the term "recapping" in this specification to indicate the capacity of being reloaded and reprimed, whether the priming is in the form of an ordinary gun-cap or in any other convenient form.

Such cartridges have been before proposed, but have been unsuccessful in practice, because the flanges have been hollow, as if intended for priming with fulminate around the periphery within such flange. The explosive force of the powder and the percussive effect of the firing-pin acting in opposite directions alternately several times rupture and destroy such cartridges. I deem it impossible to make such endure firing many times, by reason of this radical defect in the construction, which I have overcome by simply combining with the recapping provision, at the center, the other features before tested in other cartridges of the solid construction at the periphery.

The accompanying drawings form a part of this specification, and represent several modifications in the construction, but it will be observed that all are modifications in the form of a recapping cartridge, made in one piece and with a solid rim or flange.

Figure 1 is a perspective view of the cartridge ready for use. Fig. 2 is a central longitudinal section of the cartridge-case in a form adapted to receive ordinary percussion-caps and to hold them on a sort of nipple, with a cap in position, all magnified. Fig. 3 is a corresponding front view, showing the inside of rear. Fig. 4 is a central longitudinal section

of a modification adapted to receive such caps without a nipple. There is a piece of metal introduced to serve as the anvil for exploding the fulminate. Figs. 4^a and 4^b show two forms of such anvil. Fig. 5 is a corresponding front view. Figs. 6 and 7 show longitudinal sections of other modifications, which will be readily understood. Figs. 6^a and 7^a show parts detached. Fig. 7^b shows the cap for the form shown in Fig. 7 before its mouth is closed.

The additional figures show the successive steps by which the cartridge is produced in either form, Fig. 8 being the first, 9 the second, and 10 the final stage. Fig. 11 shows a portion of the dies which produce the final correct form.

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

A is the bullet, which may be replaced by a package of shot when the cartridge is to be used for sporting purposes. B B', &c., is the solid cartridge, and C is the powder, and D is the cap containing the fulminate. The cylindrical portion of the cartridge is designated by B, the main portion of the rear is marked B³. The lip B³ supports the internal flange B⁴, which may be turned rearward, as in Fig. 2, to receive an ordinary gun-cap, the same as are used on the nipples of ordinary muzzle-loading arms, or may be left, as in Figs. 4, 6, or 7, according to the kind of cap for which they are intended. The rear proper of the cartridge is entirely open within the lip B³, so that the cap is readily inserted and removed.

Figs. 8 and succeeding indicate, as before observed, the successive steps by which I bring the metal to the proper form. The metal is preferably copper, as pure as is ordinarily found in commerce. The construction of the dies and of the mechanism operating them will afford no difficulty to mechanics accustomed to this class of work, with the explanation now given.

In the use of my cartridge the powder C and bullet A, or the equivalent shot, having been properly secured by ordinary means at the time of its manufacture, it is necessary simply to introduce a cap of the form for which the cartridge is adapted, the caps having been previously made by proper machinery and supplied with the ordinary quantity of fulminate. It is important that in the man-

ufacture of the form of cap indicated in Fig. 7, the front end of the open end of the cap be pinched nearly together so as to prevent the powder from entering the cap. The blow of the hammer or cock of the gun against the rear of the cap D explodes the fulminate therein, the part B⁴ of the cartridge serving as a sufficient anvil or abutment. The fire from the fulminate enters the cartridge through the open space or hole within the internal flange B⁴ and fires the powder. Experiment indicates that the cap, when made in the form shown in Fig. 7, will ordinarily be closed again by the explosion of the powder after the fire from the fulminate has passed through. After the discharge the cartridge-shell is removed from the gun by ordinary means, either automatically or otherwise, and may be carried in any suitable receptacle, and charged again at leisure, while a fresh cartridge is introduced in the gun in its place. Or, if preferred, the powder C, bullet A, and cap D may be immediately introduced and the same cartridge immediately replaced in the gun.

The advantages of my solid-flange recapping-cartridge lie in its capacity to endure firing. A recapping cartridge made in several parts or with a hollow rim is weak and springy, and becomes expanded or crushed so soon as to be impracticable, with any metal yet tried and constructed of any thickness allowable. Such cartridges cannot be used as repeaters a sufficient number of times to be useful in the present state of the arts. Mine,

on the contrary, made of ordinary copper, can be fired as many times as is ever required under ordinary conditions for sporting and general purposes; that is to say, the back and flanges endure about as long and as well as the cylindrical part.

It will be observed also that with the solid flange B¹, the rounded internal corner B⁵, to avoid a re-entering angle and a probable crack along that line, is an important feature of my cartridge, without which it would be of little or no service. Also that the recess *e*, for containing the cap or fulminate D to be resupplied after each use, is an important element, and, also, one or more holes *e'* to allow the fire from the fulminate to enter the cartridge. I believe it to be indispensable to success to combine all of these features.

I do not claim any of the several features separately; but

Having now fully described my invention, I claim—

The internally re-enforced recapping-cartridge, herein described, drawn or struck from sheet metal, with the solid rim B¹, the rounded corner B⁵, the hole *e'* in the center of the back, and the cavity *e* for the fulminate, all combined and arranged as and for the purposes herein set forth.

B. B. HOTCHKISS.

Witnesses:

W. C. DEY,

C. C. LIVINGS.