A. HALL.

Cartridge.

No. 39,915 Patented Sept. 15, 1863.

Fig. 4.

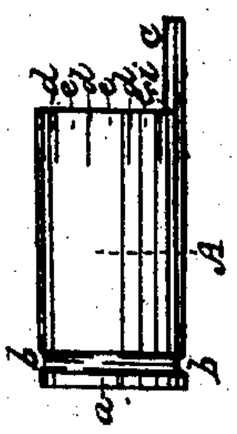


Fig. 5.

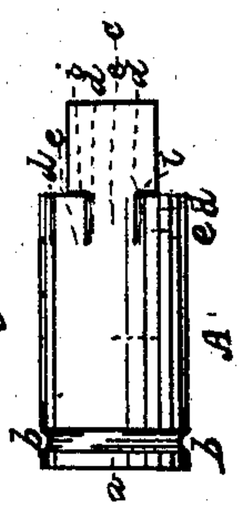


Fig. 3.

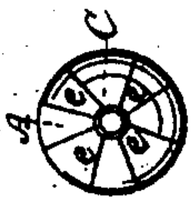
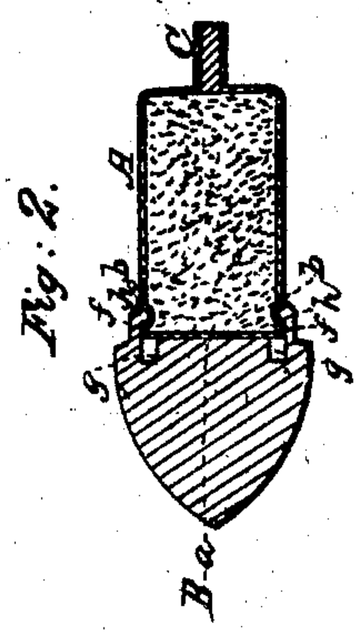


Fig. 1.

Fig. 2.



Witnesses:

Henry T. Brown

Inventor

A. Hall

UNITED STATES PATENT OFFICE.

ALBERT HALL, OF DANVILLE, IOWA.

IMPROVEMENT IN METALLIC CARTRIDGES.

Specification forming part of Letters Patent No. 39,915, *dated September* 15, 1863.

To all whom it may concern:

Be it known that I, ALBERT HALL, of Danville, in the county of Des Moines and State of Iowa, have invented certain new and useful Improvements in Cartridges for Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an outside longitudinal view of a ball-cartridge constructed according to my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a rear end view of the same. Figs. 4 and 5 are outside longitudinal views, at right angles to each other, of the shell of the cartridge before it is charged.

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

This invention relates to cartridges of that class known as fixed ammunition; and it consists in a certain novel and simple construction of such cartridges, whereby the shell is caused to be driven forward through and out of the barrel, along with the bullet, by the force of the explosion of the charge, but to be detached from the bullet, so that it will drop to the ground soon after leaving the barrel.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the shell of the cartridge, of copper or other metal. B is the bullet, and C is the percussion-primer. The shell A is of cylindrical form, smaller, externally, than the largest portion of the bullet, and than the bore of the fire-arm in which it is to be used, and is made by a stamping or springing process with a solid head or front end, *a*, and with a shallow groove, *b*, all round its exterior, very near to the said head, and should preferably be made thinnest at its rear end. One side of it is prolonged to form a narrow longitudinal projection, *c*, Figs. 4 and 5, of which to make the primer *c*, Figs. 1, 2, and 3. The remaining portion of its rear end is trimmed off square, and a number of longitudinal slits, *d d*, are cut in it at equal distances apart to enable the intervening portions *e e* to be turned over toward the center far enough to inclose the charge. Two transverse slits, *i i*, are also cut to partly separate the projection *c*, and leave it attached only by one of the portions *e e* which intervene between the slits *d d*. The primer *c* is formed by rolling up the sides of the projection *c*, to form a small tube. The bullet B has formed in its base a concentric cavity, *f f*, to receive the head *a* of the shell A, and at the back of this cavity there is formed an annular groove, *g*, the outer side of which forms a forward continuation of the sides of the said cavity.

This groove is exactly within the largest portion of the bullet, the extreme rear portion of which is reduced in size to form a thin lip, *h*, to be turned over into the groove *b* of the shell, to attach the latter to the bullet.

After the shell has been attached to the bullet, and the projection *c* has been rolled up into tubular form to make the primer *c*, the shell is charged. The portion *e* is then turned inward at a right angle to the body of the shell over the charge, and the primer C turned outward at a right angle to *e*, and parallel with the body of the shell, and the other portions *e e* are turned over, one upon another, and their ends closed around the primer to form the base or rear end of the shell, and confine the charge therein.

The charging of the primer *c* with a fulminate-priming then completes the cartridge.

The cartridge thus constructed is applicable to breech-loading or revolving fire-arms. Breech-loading or revolving fire-arms constructed for the use of such cartridges are constructed to load in front of their chamber or chambers, and the portion or portions of the chamber or chambers which receive the shell A are made sufficiently smaller than the portion or portions which receive the bullet or bullets for the shell to fit snugly thereinto, and a hole or holes are provided in the breech for the primer or primers, which protrude in a suitable manner to be struck by the hammer, for the ignition of the charge.

The largest portion of the bullet is made of larger diameter than the bore of the barrel, that the bullet may be compressed in passing through the barrel. When the charge is exploded, the force acting equally on the front and rear ends of the shell, bursts open the rear end thereof, and by its action on the stronger front end, it forces the whole shell forward through the barrel, making it drive the bullet before it, and making it follow the bullet

through the barrel, but the compression to which the bullet is subject in passing into the barrel forces the metal into the groove *g*, and by that means causes the lip *h* to be expanded, and so to be thrown out or loosened from the groove *b* of the shell, so that when the bullet and shell have passed out from the muzzle of the barrel, the latter may detach itself and drop from the bullet, and so offer no obstruction to the flight of the latter.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

As an improved article of manufacture, a metallic cartridge made with a priming-tube in one piece with the shell A, the rear portion of the shell cut and bent, as shown, the front portion grooved at *b*, and provided with a bullet, B, grooved and attached to the shell, all in the manner herein shown and described.

A. HALL.

Witnesses:
HENRY T. BROWN,
W. HAUFF.