J. M. COOPER.

Cartridge.

No. 45,319.

Patented Dec. 6, 1864.

Fig:1

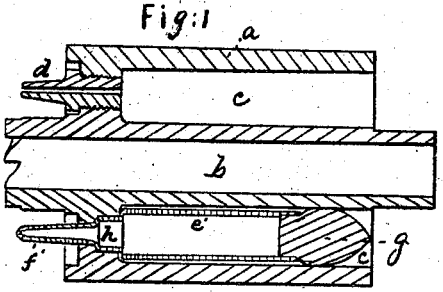


Fig:2

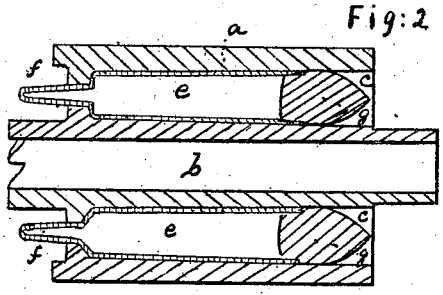


Fig:3

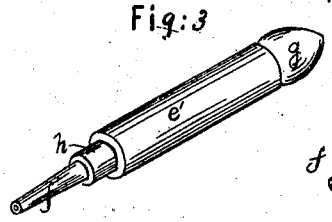


Fig:4

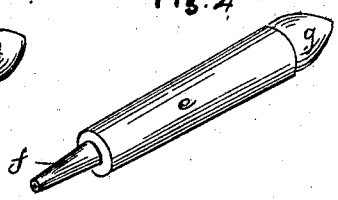
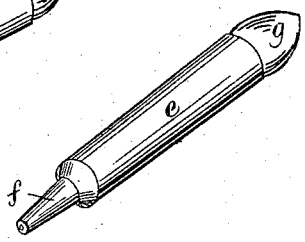


Fig:5



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES MASLIN COOPER, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN CARTRIDGES FOR REVOLVING FIRE-ARMS.

Specification forming part of Letters Patent No. 45,319, *dated December* 6, 1864.

To all whom it may concern:

Be it known that I, JAMES MASLIN COOPER, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful improvement in adaptation of metallic cartridges to breech-cylinders of revolving fire-arms; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a longitudinal section through the axis of a revolving breech or charge cylinder of a pistol or other fire-arm, showing one of the charge-chambers furnished with my cartridge, and the other with a cone for using loose ammunition. Fig. 2 is a longitudinal section of a revolving breech with charge-chambers loaded with my metallic cartridges. Figs. 3, 4, and 5 are perspective representations of my metallic cartridges.

My invention consists of a metallic cartridge-case having a ball projecting from the front end, and a perforated cone, suitable for percussion-caps, projecting from the rear end, adapted for charging fire-arms with fixed ammunition from the front end of the breech. Another feature of my invention is constructing my cartridge-case with a short neck of reduced diameter to fit into a similarly-shaped cavity at the rear end of the breech-cylinder; the object of which is, that by the ball at one end and the neck of the cartridge-case at the other end the cartridge is not only centered in the chamber of the breech, but is also so held in place as to sustain the stroke of the hammer at the end of the nipple with sufficient firmness to prevent the cartridge being pushed forward, and to secure the explosion of the cap.

Another feature of my improvement is that my improved cartridge is susceptible of being primed or capped after it is inserted into the charge-chamber as readily as before by adapting the rear end of the breech to the projecting cone or nipple. The advantage thus arising from the use of my improved cartridge is great, because when fixed ammunition is loaded into the front end of a charge-chamber, if the priming should be defective, and fail to explode when struck, a great difficulty would exist in removing the useless charge, but by the use of my cartridge the place of the cap may be supplied by a good one, and the difficulty surmounted.

To enable others skilled in the art to construct and use my improvement, I will proceed to describe it more fully.

In the drawing, *a* is a revolving charge-cylinder for a revolving pistol, having, as is usual, a central bore, *b*, for the arbor or spindle of the revolver, surrounded by a number of charge-chambers, *c c*, having their axes parallel with the axis of the cylinder. These charge-chambers *c* may be of the same diameter from the front end to within a short distance of the rear end, where the diameter contracts slightly.

The cartridges consist of a metallic cylinder or case, *e*, most conveniently made of thin sheet-brass, with a cone or nipple, *f*, at one end, and at the other the cylinder is open to receive the end of the ball *g*, which is of slightly larger diameter than the cartridge-case. The cavity of the case is filled with powder, and the nipple *f* is fitted with an ordinary percussion-cap. The cone may be of brass or of steel, either made in one piece with the cartridge-case *e* or inserted into and attached to it.

Figs. 3, 4, and 5 show different modifications of shape of the cartridge-case. In Figs. 4 and 5 the case is slightly tapering toward the rear end, while that shown in Fig. 3 is of the same diameter throughout. The rear end of the case may be either a plane surface, at right angles to the axis of the cartridge-case, with the cone projecting centrally from it, as in Fig. 4, or the extremity of the cylinder may be beveled off toward the base of the cone, as in Fig. 5, so as to fit into a correspondingly-shaped cavity at the base of the bore of the charge-chamber.

Where the cartridge-case and the charge-chambers are made slightly tapering, the body of the cartridge-case may be made of the same diameter as the bore of the cylinder, and thus fit tightly therein when the cartridge is rammed home by the ramrod, as a slight force applied to the end of the nipple, after the cartridge has been fired, will serve to loosen the cartridge-case, when it will readily drop out in front. These cartridge-cases will serve for repeated use by filling them with powder and inserting a ball in the open end.

When, however, the charge-chambers are of uniform diameter from the front end to the shoulder formed for the reception of the cone or nipple in cylinders of ordinary construction, it will not do to have the body of the cartridge-case fit tightly throughout its entire length, as the explosion of the charge would tighten the cartridge-case in the charge-chamber so that it could not be readily removed after firing; and as my metallic cartridges are intended to be used in revolving cylinders of ordinary construction, in most of which the charge-chambers are of uniform diameter, I make use of cartridge-cases constructed as shown in Fig. 3.

The cartridge-case *e'* is cylindrical and of uniform diameter, which is less than that of the charge-chamber. At the rear end of the chamber the diameter is still further reduced for a short distance only from the rear end, forming a short neck, *h*, (see Fig. 3,) and the cone or nipple *f'* projects from the rear end, as before described. In the rear end of the charge-chamber the diameter is reduced so as to correspond exactly with the diameter of the neck *h* of the cartridge-case. The diameter of the ball attached to the cartridge-case is such as to fit tightly into the bore of the charge-chamber. Now, when the cartridge thus constructed is inserted into the front end of the charge-chamber, and forced home by the ramrod, the cartridge-case touches the bore of the revolving cylinder only at the neck *h*, leaving a space all around the cartridge-case, but the ball fits sufficiently tightly in the bore to sustain the stroke of the hammer on the end of the nipple *f'*; and when the cartridge is fired the case will still be loose in the bore of the charge-chamber, excepting at the neck *h*, which is easily relieved by a slight pressure on the nipple. This construction of metallic cartridges with a ball projecting from the front end, and a neck at the rear end, of smaller diameter than the body of the cartridge, may also be advantageously used with cartridges without cones, and primed with fulminating powder at the rear end.

The great advantage of the use of metallic cartridges thus constructed in revolving fire-arms is the ease with which the piece may be loaded, the cartridge being inserted in the front instead of the rear. It also avoids the necessity of boring the charge-cylinder clear through of uniform diameter, and the consequent danger attendant on having the cylinder open at both ends. It is manifest also that there is no peculiar construction of the other parts of the fire-arm necessary, as a revolver so constructed as to use a charge-cylinder furnished with nipples for using loose ammunition may be used, the cylinder or breech having a round hole at the rear end of each charge-chamber for the cone *f* of the cartridge to project through, the cone of the cartridge thus bearing the same relation to the hammer as the nipples of cylinders of ordinary construction, as seen in Fig. 1, where one of the charge-chambers is represented, for the purpose of illustration, with an ordinary nipple, *d*, inserted.

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

1. A metallic cartridge case having a perforate metallic cone (for percussion-caps) projecting from its rear end, and having no flange or other projection of greater diameter than that of the charge-chamber in which the cartridge is to be inserted, and having a neck at or near the rear end of the case to fit a cavity in the chamber or equivalent construction for holding the cartridge in place, so as to resist the impact of the hammer in firing, substantially as hereinbefore described.

2. Making metallic cartridge-cases with or without a nipple, and having a short neck at the rear end, of less diameter than the main body of the cartridge, fitting closely into a corresponding cavity or perforation at the rear end of the cylinder, so as to hold and center the cartridge in the chamber of the breech or cylinder, and at the same time sustain the recoil of the cartridge, substantially as described.

In testimony whereof I, the said JAMES MASLIN COOPER, have hereunto set my hand.

J. MASLIN COOPER.

Witnesses:

W. BAKEWELL,

J. D. HANCOCK.