W. TIBBALS.

Cartridge.

No. 90,607. Patented May 25, 1869.

Fig. 1.

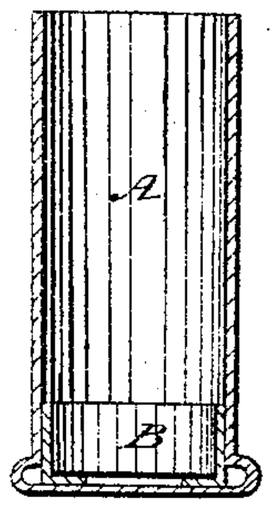


Fig. 2.

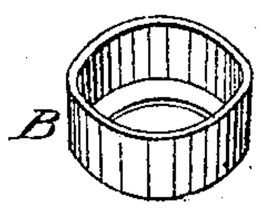


Fig. 3.

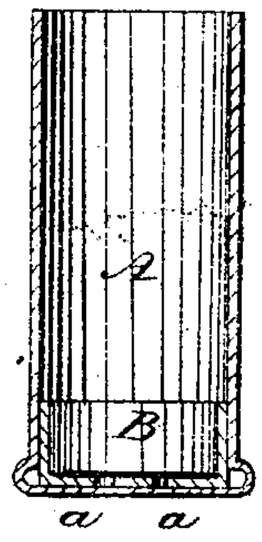
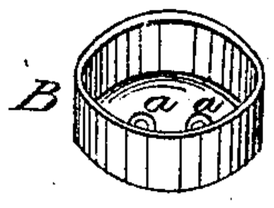


Fig. 4.



Witnesses;
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United States Patent Office.

WILLIAM TIBBALS, OF SOUTH COVENTRY, CONNECTICUT.

Letters Patent No. 90,607, *dated May* 25, 1869.

IMPROVEMENT IN METALLIC CARTRIDGES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM TIBBALS, of South Coventry, in the county of Tolland, and State of Connecticut, have invented certain new and useful Improvements in the Construction of Metallic Cartridge-Cases; and I do hereby declare that the following is a clear, full, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

Figures 1 and 3 represent longitudinal sections of my improved cartridge-case, complete.

Figures 2 and 4 represent, in perspective, the cup detached from the case.

In the manufacture of the ordinary metallic cartridge-case, the metal is first cut out in the form of a disk, by a punch, after which it is forced through a hole in a die of less diameter than the disk, which turns up the edge all around, and thereby forms it into a cup similar in form to that shown in fig. 4. It is then repeatedly forced through other dies or holes, each successive one being less in diameter than the preceding one, whereby the sides of the cup are elongated, the diameter of the cup being reduced at each step in the operation, until it is finally brought to the required size, both in length and diameter, it then being in the form of a plain cylindrical tube, having one end closed. It is then placed in a die, having a recess in its upper face of proper size to form the flange, and the flange is formed therein by pressing down the closed end of the tube, causing the metal to bend and spread out radially all around, the case then being in the form represented by A, in the drawings.

At each operation of drawing the case, the metal becomes hardened, and rendered brittle, and it is necessary, therefore, to anneal it at various stages of the process, notwithstanding which fact, it frequently happens that, in crushing down the metal to form the flange, the metal becomes cracked or fractured, and oftentimes it is impossible to detect the defect until the cartridge is used, when it bursts at the flange, permitting the escape of the gas, and endangering the eye-sight, or even life, of the person firing the gun. This is more especially the case in cartridges made for military arms, in which a heavy charge of powder is used.

To remedy this defect is the object of my present invention, and to accomplish this object, I make a cup, B, of such a diameter as to fit within the case A, and insert it therein, as shown in figs. 1 and 3.

This cup, when used in a case having the fulminate placed in the flange, may be made with a large hole at the centre of its base, as represented in fig. 2, the fire from the fulminate, in such case, passing from the flange to, and through this hole, and thus igniting the powder within the case.

When it is desired to make what is known as a central-fire cartridge, or one having the fulminate located at the centre of the base, in which case the cup will serve as an anvil, the cup will be made with two or more small holes *a* in its base, as shown in fig. 4, the holes *a* being located a short distance away from the centre, so as to leave a portion of the base, directly at the centre, solid, to serve as an anvil, against which the fulminate may be crushed, by a blow upon the centre of the base of the case, externally, the fire passing through the holes *a*, and thus igniting the charge. When used as a central-fire cartridge, the cup must be secured in the case with sufficient firmness to hold it in place, and resist the blow of the hammer, or firing-pin, which may be effected either by forcing the cup in very tight and snug, or by indenting the case A, directly over the upper edge of the case.

When the powder is ignited, the gas formed by its combustion will press upon the inner side of the cup, and force it outward, tight against the surrounding walls of the case A, the same as it forces and holds the case itself against the surrounding walls of the barrel, and will thus exert its force upon the cup B, and thereby relieve the flange of the strain that would otherwise come upon it. As the cup itself has no flange formed on it, there is no danger or liability of its being cracked or fractured, and, therefore, is much stronger and safer than the case A, which must have the flange on it, in order to enable it to be withdrawn from the barrel after the charge is exploded. The cup, when constructed and inserted in the case in the manner described, renders the case sufficiently strong to withstand the strain of the heaviest charges necessary to be used, and, at the same time, occupies so little space that the case need not be perceptibly increased in size or length, and this latter is a very important consideration, especially in guns using a large charge of powder and having a small calibre, or bore, as is now becoming the practice in the more recently constructed and improved fire-arms.

I am aware that a cartridge-case has been made, composed of thin material wrapped on a former, and having its end formed by crimping or folding over the wrapper, and then completing it by the addition of a disk, or cup, of pasteboard, as in the patent of Rodman and Crispin, of December 15, 1863; and I am also aware that a similar case has been made in which it was proposed to use a cup of pasteboard, metal, or elastic material to complete the end, as in the patent of S. Crispin, August 8, 1865, and, therefore, I do not claim such; but having thus described my invention,

What I claim, is—

The cup, or reinforce B, when inserted within the flanged metallic case A, in such a manner as to cover and protect the flange, substantially as described.

WM. TIBBALS.

Witnesses:

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