(Model.)

# E. B. STOCKING.

## CARTRIDGE.

No. 259,237. Patented June 6, 1882.

Fig. 1.

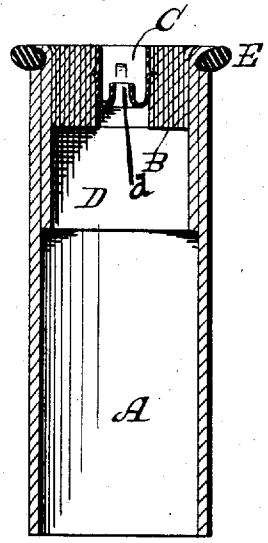



Fig. 2.

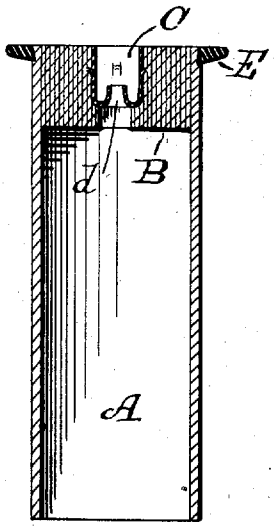



Fig. 3.

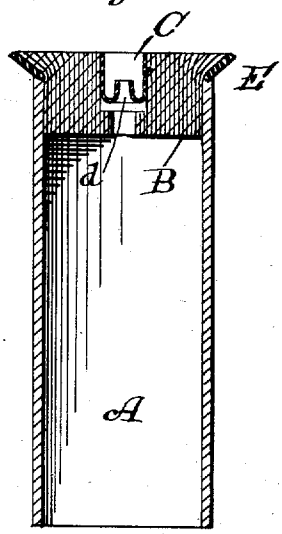



Fig. 4

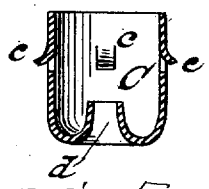



Fig. 6

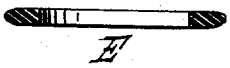



Fig. 8.

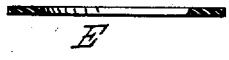



Fig. 5.

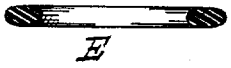



Fig. 7.

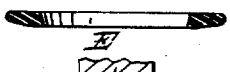



Fig. 9.

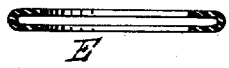



Fig. 10.




Witnesses:

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# UNITED STATES PATENT OFFICE.

EDGAR B. STOCKING, OF WASHINGTON, DISTRICT OF COLUMBIA.

## CARTRIDGE.

SPECIFICATION forming part of Letters Patent No. 259,237, dated June 6, 1882.

Application filed October 20, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, EDGAR B. STOCKING, a citizen of the United States of America, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Paper Cartridges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The object of my invention is to reduce the cost of paper cartridges of that class which consist of a paper shell or body portion, a base or a plug of coiled paper with or without a re-enforcing shell of paper between said body and base portions, and a metal cap covering the closed end or base of such cartridges, and provided with an aperture having therein an anvil or seat for a percussion-cap, said metal cap being also extended around and upon the body portion of the cartridge, and also being upset or spread to form an annular projection or flange at the rear edge of said body portion for the purpose of providing a means for extracting the shell from a gun after being discharged.

The manner in which I reduce the cost of cartridges of the class above described is primarily in the amount of metal used, and secondarily in a simplified method of applying or attaching the metal constituting a flange to the shell; and my invention consists in said method and in a paper cartridge having certain characteristics, as hereinafter more fully described, and specifically set forth in the claims.

Referring to the drawings, Figures 1, 2, and 3 represent in vertical section cartridges embodying my invention. Fig. 4 is a vertical section of the cap-seat and anvil. Figs. 5, 6, 7, 8, and 9 represent various forms of flanges, and Fig. 10 is a sectional view of devices used in practicing my said method.

Like letters of reference indicate like parts in all of the figures.

A represents the body portion of the cartridge or shell proper; B, the base or plug; C, the cap-seat or anvil; D, the re enforce, and E the flange.

I construct the cartridge in the usual manner so far as the shell, base, and re-enforce are concerned, and instead of covering the closed end or base thereof and a portion of the shell with a metal cap, I apply or attach securely a ring of metal in such a position as to constitute a flange which operates as a means by which a cartridge may be extracted from the gun, and which flange also necessarily acts to strengthen and hold firmly together the shell and plug, and when a re-enforce is used the re-enforce, shell, and plug.

The flange E may be of any desired form in cross-section, but should, as is evident, be annular or ring shape in contour. I have illustrated in Figs. 5 to 9, inclusive, several desirable forms of rings, which, when applied to the shell, constitute flanges. Fig. 5 is a ring of oval outline in cross-section; Fig. 6, the same with a square or flat inner face. Fig. 7 has a flat upper rounding lower and beveled inner face. Fig. 8 is a ring all of the faces of which are flat or plain, the inner face being beveled; and Fig. 9 is a ring having plain or flat faces at its top, bottom, and interior, and a rounded edge, said interior face being grooved to receive a portion of the shell in a ridge or rib form when compressed thereon. Other shapes will readily suggest themselves to one skilled in the art; but as the particular outline of the rings or flanges is non-essential I have not further illustrated them.

Different methods may be employed in attaching the flanges to the shells, and the inner faces of the rings may, if desired, be screw-threaded and screwed onto the cartridge, or corrugated radially or circumferentially in continuous ridges or points, for the purpose of more firmly securing them to the shell, and they may be attached to the shell, the re-enforce, or the plug, as desired, and this either before the plug or the plug and re-enforce are entered into the shell in the process of manufacture, and the flanges may be applied to the shell or re-enforce, and be secured thereto by forcing a tapering plug therein, the particular time in the manufacture of the cartridge at which the flanges shall be or are applied being a minor feature of my invention. For instance, in the form of cartridge shown at Fig. 1, a ring is placed in the path of the plug and re-enforce just as they are introduced and forced into the shell, when

the pressure applied upsets the plug and re-enforce against the upper oval face of the flange, the shell at its end forming a shoulder against the lower oval face, while said pressure also tends to flatten the flange and cause it to tightly bind against the re-enforce, whereby the flange is securely held against force applied thereto in either direction longitudinally of the shell; but as in extracting the shell from a gun the force is applied in a direction to the rear (the open end of the shell being considered the front) there is less need of a shoulder in front of the flange, and hence other constructions than that shown in Fig. 1 will be of practical utility and less expensive. For instance, taking the form of flange shown at Fig. 6, it may be forced from front to rear, and, fitting tightly, it may be held at the rear end of the shell by friction only, and this friction may be increased by corrugating its inner face, as above described.

In the foregoing examples I have shown and described the flange secured to the re-enforce and to the shell. In Fig. 3 I have illustrated a dish-shaped flange secured to the plug, which is upset to fill the flange and then driven into the shell. I would here observe that the plug, re-enforce, and shell may be cemented each to the other, as is usual, if desired.

Any of the above-described methods of attaching the flange may be followed; but my preferable method is in all cases to provide my rings with beveled inner faces, whether plain, oval, or grooved. An oval inner face would be the equivalent of a beveled inner face when the longer axis of the oval in cross-section is inclined, as clearly shown in Fig. 1. With such faces I also prefer that they shall be substantially dish-shaped when applied, as clearly shown at Figs. 1, 3, and 10. In this form the flange, of such a size internally as to easily fit the shell, re-enforce, or plug, is placed with its inner face at about the position it is to occupy in the finished article, and is then flattened so as to force the lower edge of its inner face into the shell, re-enforce, or plug to which it is to be attached. By this method the inner diameter of the flange is practically lessened and the flange is shrunk upon the shell.

Referring to Fig. 10, I have illustrated one means of practicing my preferred method. F is a fixed die, having an annular groove or countersink, *f*, at its upper end. G is a movable plug, adapted to fit the shell internally, and H is a movable flat-faced die. Their operation is as follows: The flange is placed upon the shell as shown. The plug G and die H approach each other with equal speed and operate to flatten the flange and raise the shell as the inner face of the flange is raised and compressed into the body of the shell. The flange, during this operation, resting upon the upper edge of the groove *f*, is virtually depressed at its outer edge and in like degree is elevated at its inner edge, and the shell is elevated correspondingly. The final result is that a ring or flange which fits the shell easily is laterally and inwardly compressed upon or shrunken against and into the surface of said shell, so as to be rigidly attached thereto. This same result may be accomplished by a direct lateral swaging or compression of a flange not in dish shape; but I do not prefer such a method on account of the complicated nature of the means necessary to its accomplishment.

The cap-seat or anvil of my cartridge is of the usual construction, except that it does not project from the base and is secured thereto in the following manner: It consists of a tube, C, provided with an anvil proper, *d*, and tongues *e*, which, by being forced into the base B, securely hold it therein.

The tongues may be made before the tube is inserted into the base, and then forced into it; or they may be simultaneously made and forced into the base by suitable means; or the cap-seats may by secured by frictional contact only.

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

1. As an article of manufacture, a paper cartridge having an uncovered base and a metallic flange, the rear surface of which is in a common plane with the rear surface of said base, substantially as shown and described.

2. The method of attaching a cap-seat or anvil to a cartridge base or plug, which consists in simultaneously forming from the walls or sides of the seat tongues of a thickness equaling that of the walls or sides, and forcing said tongues into the base or plug, substantially as shown and described.

3. A method of attaching a flange to a cartridge, which consists in flattening it from a dish or conical shape, thereby laterally and inwardly compressing it into the body of the cartridge, substantially as and for the purpose set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

EDGAR B. STOCKING.

Witnesses:

JNO. S. SLATER,

CHAS. A. JOHNSON.