

C. S. WELLS.
CARTRIDGE.

No. 122,504.

Patented Jan. 2, 1872.

FIG. 5

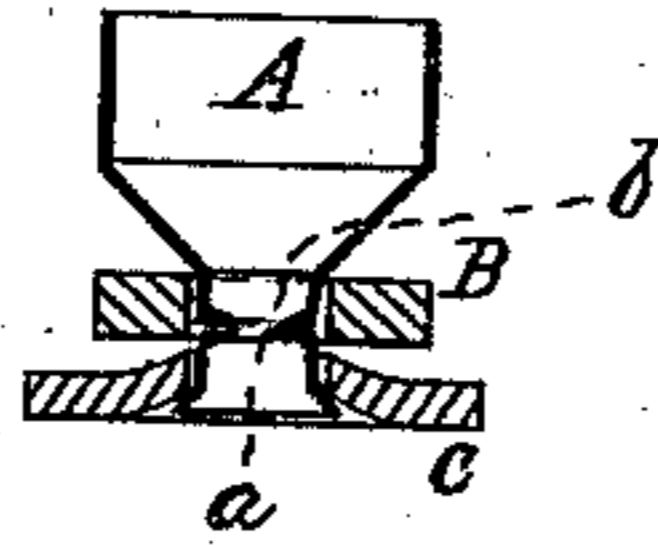


FIG. 1

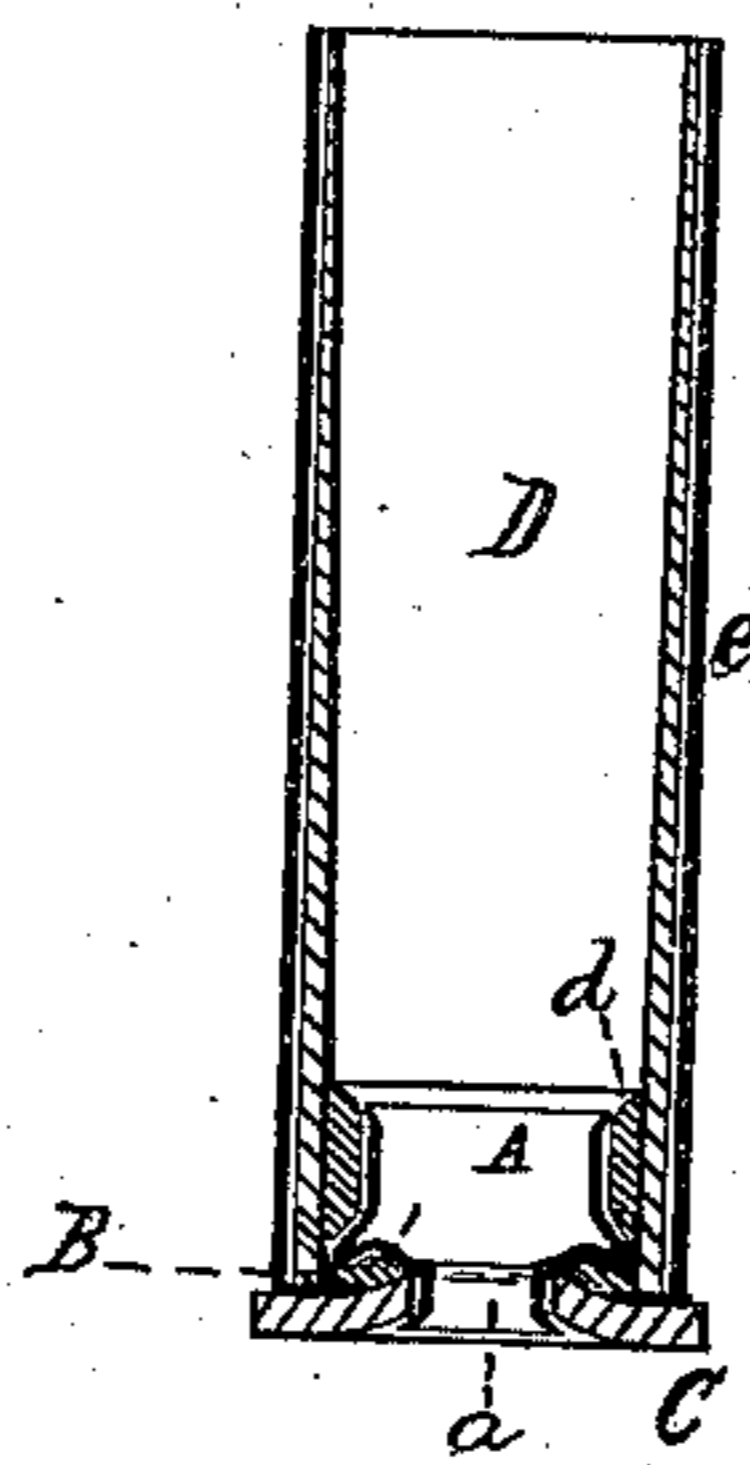


FIG. 2

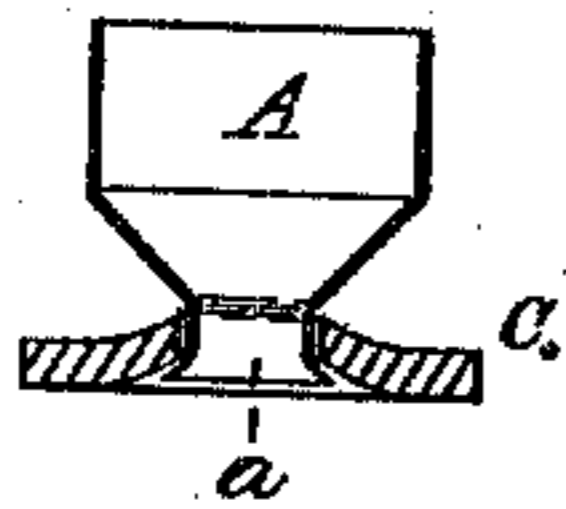


FIG. 3

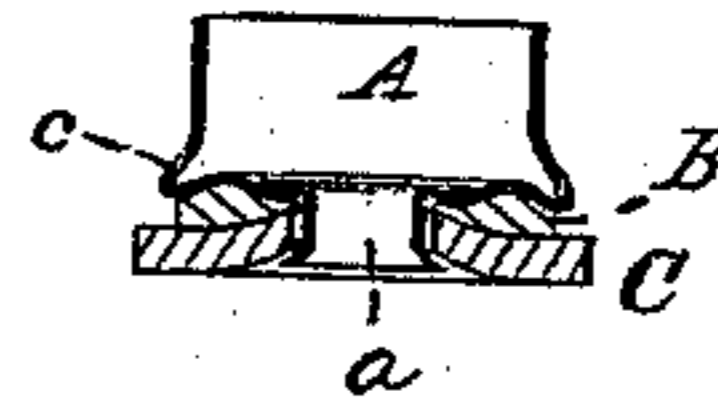


FIG. 7

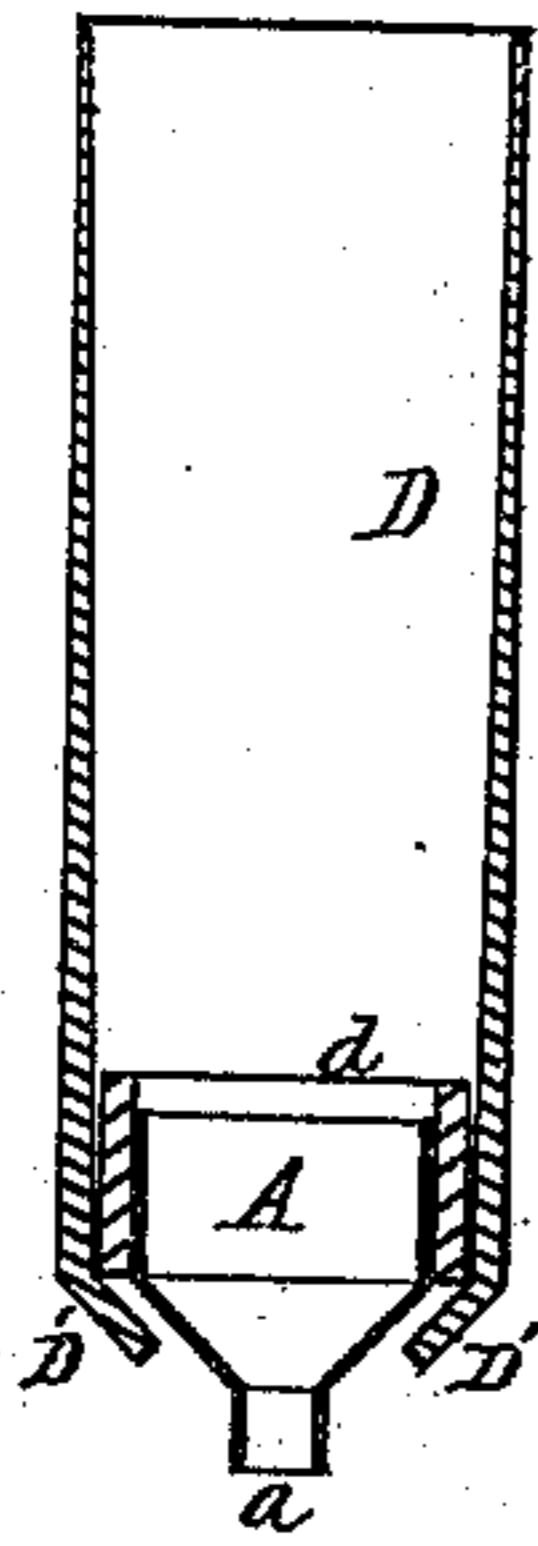


FIG. 8

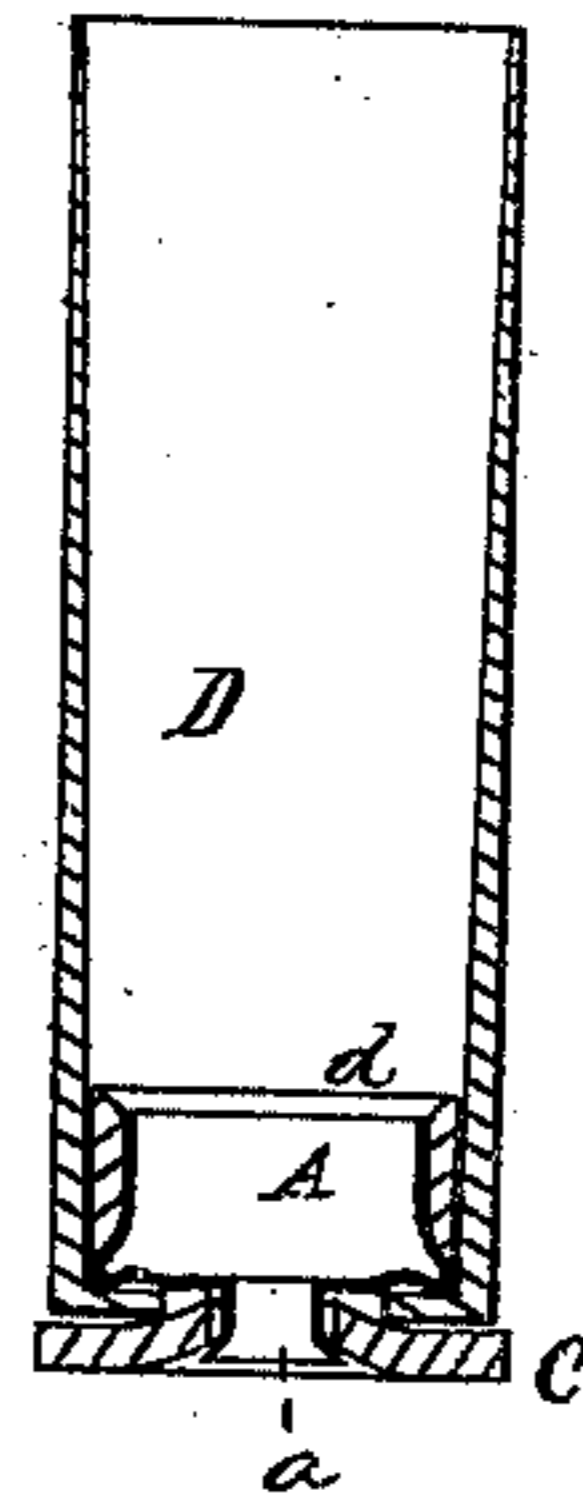


FIG. 6

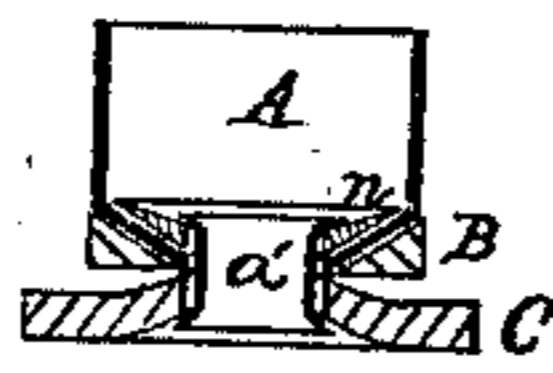
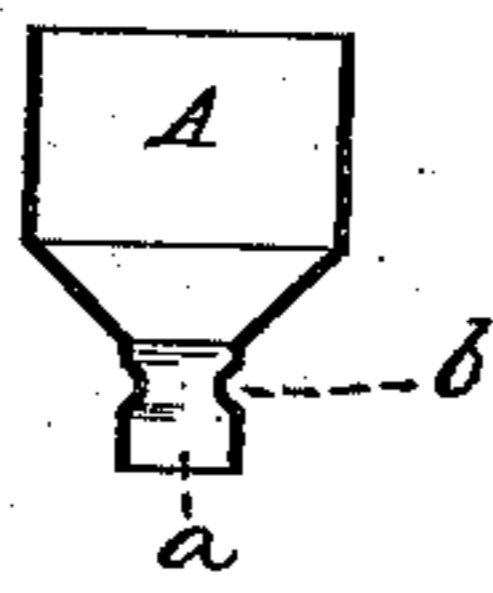


FIG. 4



Witnesses,
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UNITED STATES PATENT OFFICE.

CHARLES S. WELLS, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN CARTRIDGES.

Specification forming part of Letters Patent No. 122,504, dated January 2, 1872.

To all whom it may concern:

Be it known that I, CHARLES S. WELLS, of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Cartridges; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification and to the letters of reference marked thereon, in which—

Figure 1 is a longitudinal section of a cartridge-shell made according to my invention. Fig. 2 shows the mode of attaching the cup to the head. Fig. 3 shows the cup, wad, and head, as secured together when in place within the shell, but secured together by an eyelet instead of the nipple upon the end of the cup. Fig. 4 represents the cup with a seat or anvil for the cap spun into the nipple for a center-fire primer. Fig. 5 shows a cup with a seat or anvil spun into the nipple and closed together, and said cup secured to the wad and head. Fig. 6 shows a cup without a nipple, but secured to the wad and head by an eyelet and an iron disk, also secured in the bottom of the cup by said eyelet. Fig. 7 shows the shell without the wad and outside metal covering, in its first stage of manufacture; and Fig. 8 shows the same shell completed.

My invention relates to the construction of a cartridge-shell made of paper, or of paper and thin metal combined, whereby the re-enforcing cup is secured directly to the head of the shell, with the end of shell, or a portion thereof, closely confined between said cup and head, thus securing all the separate parts of the shell firmly together, and also forming a perfect gas check.

That others skilled in the art may be able to make and use my invention, I will proceed to describe the same and its operation.

In the drawing, A, in Fig. 7, represents the cup, having a nipple, *a*, thereon, which cup, with its nipple, is "struck" or spun up from thin metal. A disk, C, is punched out from suitable metal, with a hole in its center, through which the nipple is inserted, and both being placed within the machine. The outer end of the nipple is expanded similar to an eyelet, thus securing the cup to the disk C, and at the same time the central portion of the disk is

forced in toward the cup, bringing the outer end of the nipple in a little beyond the plane of the outside of the disk C. My method of constructing a shell having a cup and head of this description is as follows:

I roll up a paper cylinder in the usual manner upon a mandrel, and then wind paper around the cup A until of just the size to fit the inside of the shell, and then insert said cup and paper into the shell, forcing it to the bottom, as shown clearly in Fig. 7. A wad, B, is then attached by inserting the nipple *a* through a hole in the center of said wad, the head C is then placed upon the nipple, and the shell being then placed in a heading-die, a punch, the body of which fits the body of the shell D, and having a shoulder at *d*, the end being a little smaller than the inside diameter of the cup A, is forced into the shell against the bottom of the cup. This crowds the cup A, wad B, and head C firmly together, and secures them by expanding the outer end of the nipple *a*; forces the paper which was wound around the cup more closely and compactly around the cup, reducing the size of the cup a little, and making a flange at the base of the cup, as seen clearly in Fig. 1. Before this last operation is performed, however, of forcing the punch into the shell, a metallic covering, *e*, of suitable thin metal, is wrapped around the paper shell, and then turned under a little, between the end of the paper shell and the head, so that when the punch is driven in and the head secured to the cup the turned end of the metal is held securely between the paper body and the metallic head. Fig. 1 represents a cartridge made as described, in which *e* is the thin metallic covering; D, the paper body; A, the cup having the nipple *a* made thereon; *d*, the paper wound around the cup; B, the wad between the cup and the head, and C, the head, and all these parts are secured together by merely eyeleting or riveting the end of the nipple *a* to the head.

In a cartridge, constructed as described, a rim fire-primer may be used, and when it is desirable to use a center-fire primer or cap, I spin an annular groove, *b*, into the nipple, as shown in Fig. 4, and when the cup and head are forced together, in the operation of eyeletting or riveting the end of the nipple to the

head, the said groove *b* is pressed together, forming an internal annular flange, as shown at *b*, in Fig. 5. This flange forms an anvil, which receives the force of the blow when the primer is struck by the firing-pin.

The thin metallic covering *e* to the shell may be omitted, if desirable, and also the wad B; but in place of the wad I put the cup and its paper wrapping into the paper shell, as shown in Fig. 7, and turn under the lower end *D'* of the paper shell, and when the nipple is secured to the head C the end *D'* is turned in and secured firmly between the cup A and head C, and takes the place of the wad B, as shown clearly in Fig. 8.

The thin metal *e* may be soldered to the head C, where the two come in contact, in order to insure greater strength; and, if desirable, the turned in end *D'* of the shell D, shown in Fig. 7, may be dipped in a strong solution of shellac,

or other equivalent material, before the head C is attached, in order to make the entire base of the cartridge more firm and more completely water-proof.

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

1. The re-enforcing cup A, having the nipple or eyelet *a*, with the internal flange or seat *b* made therein, when said cup is secured to the head C, all substantially as described.

2. The combination of the case D, cup A, with its wrapping *d*, head C, nipple or eyelet *a*, and internal flange *D'*, all substantially as and for the purpose described.

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Witnesses:

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