G. P. SALISBURY & C. L. HUNT.

CARTRIDGE BASE FORMER.

No. 190,080. Patented April 24, 1877.

FIG. 1.

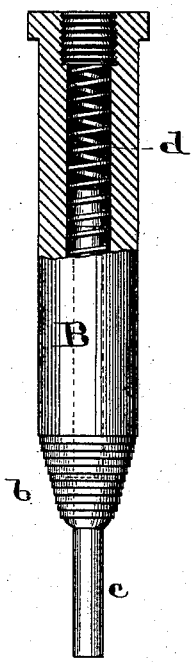
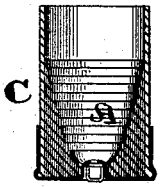


FIG. 3.

FIG. 4.

FIG. 2.



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UNITED STATES PATENT OFFICE.

GEORGE P. SALISBURY, OF NEW HAVEN, CONNECTICUT, AND CHARLES L. HUNT, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN CARTRIDGE-BASE FORMERS.

Specification forming part of Letters Patent No. **190,080**, dated April 24, 1877; application filed March 7, 1877.

To all whom it may concern:

Be it known that we, GEORGE P. SALISBURY, of New Haven, Connecticut, and CHARLES L. HUNT, of St. Louis, Missouri, have made new and useful Improvements in Cartridge-Base Formers, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is an elevation, partly in section, of the former; Fig. 2, a sectional elevation of a cartridge having a base made by our improved former; and Figs. 3 and 4, respectively, a cross and a longitudinal section of the roll of paper from which the cartridge-base is made.

The same letters denote the same parts.

Our invention relates to an improved means for giving the conical or cup-shaped form to the base of the chamber in a cartridge.

It has been proposed heretofore to obtain this form by molding the cartridge from paper-pulp.

It has also been effected by taking a right-angled, triangular, or wedge-shaped strip of paper, and beginning at its narrow end forming a roll therewith, each successive layer of which, at one edge, overlaps the preceding layer, while the other edge of the strip is kept even. This roll thus becomes cup-shaped, and it is inserted as a plug in the base of the cartridge-shell.

Such a procedure, however, is inconvenient and expensive, and we overcome the difficulty in the following manner:

In place of a tapering strip of paper, we take one of even width, and with it form a cylindrical roll, A, Figs. 3 and 4, that is solid throughout, saving a central opening, *a*, that is of uniform diameter. The base is now formed from this roll, and by means of the former B, Fig. 1, the latter has a peculiarly-shaped point, *b*. Instead of being a continuous bevel it is made up of a series of ridges of constantly-enlarging diameters, and that, in size, correspond, respectively, with the various layers of the roll A. The former B is also furnished with a spindle, *c*, that is arranged centrally, and to move longitudinally, therein, and that is pressed outward from the former by means of the spring *d*. The spindle in diameter corresponds with that of the opening *a* in the roll A. The latter being inserted in the cartridge is now brought under the action of the former B.

The spindle *c* is inserted in the opening *a*, and the point *b* of the former is forced against the outer end of the roll. Each ridge of the point is thus brought squarely against the edge of the corresponding layer of the roll as the former penetrates the roll, and in consequence of thus squarely meeting the edges of the various layers, the point of the former does not slip past the paper, and operate as a wedge to split the roll and cartridge, as it would do were the point a continuous bevel; but the layers are forced, as the corresponding ridges of the former-point encounter them, directly inward toward the base of the cartridge, the central layer being driven in the farthest, the next outer layer slightly less than the central one, and so on to the outermost layer, which is moved the least of all.

The effect is to compress the roll from the shape shown in Figs. 3 and 4, into the shape shown in Fig. 2.

The desired cup-shaped base is thus not only readily given to the cartridge, (the roll A being comparatively easily formed and finally shaped,) but the cartridge is made denser at its base, and so as to interpose more resistance to the shock incident to the discharge of the cartridge.

As the point of the former enters the roll, the spindle *c*, by reason of its encountering

the bottom of the cartridge-shell, retreats into the former.

It is always, however, sufficiently projected from the former to sustain the roll A as it is being compressed, so as to preserve the usual central opening in the base of the cartridge for the reception of the cap.

What we claim is—

1. The former B, having the point *b* made up of a series of constantly-enlarging ridges, substantially as and for the purpose described.

2. The combination of the former B and the movable spindle *c*, substantially as described.

3. The combination of the former B, spindle *c*, and spring *d*, substantially as described.

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