

(No Model.)

G. M. PETERS.

MANUFACTURE OF CARTRIDGE SHELLS FROM PAPER PULP.

No. 297,712.

Patented Apr. 29, 1884.

Fig. 1.

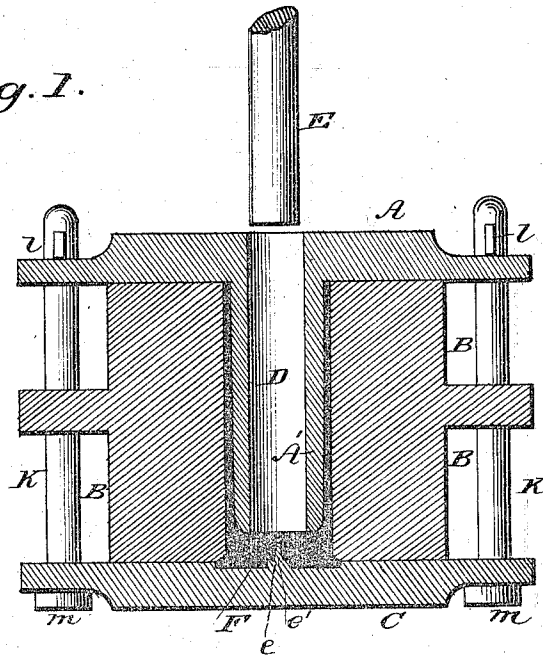
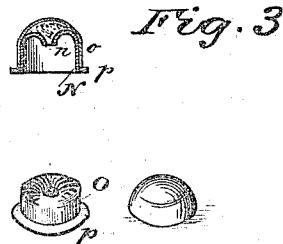
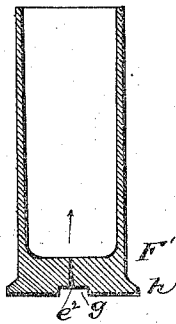


Fig. 2.



WITNESSES:

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MANUFACTURE OF CARTRIDGE-SHELLS FROM PAPER-PULP.

SPECIFICATION forming part of Letters Patent No. 297,712, dated April 29, 1884.

Application filed March 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, G. MOORE PETERS, a citizen of the United States, residing at Xenia, in the county of Greene and State of Ohio, have
5 invented certain new and useful Improvements in the Manufacture of Cartridge-Shell from Paper-Pulp, of which the following is a specification, reference being had therein to the accompanying drawings.

10 My invention relates to the manufacture of cartridge-shells from paper-pulp.

Heretofore paper cartridge-shells have been made with a metal base, to which the sides of the shell are secured. This necessitates extra
15 labor and expense in fitting the shell-case to the base. I now propose to make shells of one piece, base and sides complete and integral, at one operation. This I accomplish as follows, reference being had to the accompanying drawings, in which—

20 Figure 1 is a section of the mold for forming the shell; Fig. 2, a vertical section of the completed shell, and Fig. 3 a detail view of the primer that I propose to use with the
25 shell.

For the purpose required I use paper-pulp made in the ordinary way, or with a sizing such as used with papier-maché. This pulp, of the proper consistency, is delivered in any
30 suitable way into the mold A, having the depending sides A', forming a tube, the sides B, and base C. Between the sides B and tube A' an opening is left, which tapers upward slightly, to aid the withdrawal of the shell,
35 and is enlarged circumferentially and vertically to form the base of the shell. The base C has a central shouldered projection, e, to form the seat for the primer, and a conical projecting point, e', to form the opening in the
40 base for the flash to reach the powder.

The method of constructing the shell is as follows: The pulp is poured into the opening D of the tube A'. The rammer or piston E (which closely fits opening D) is forced into the
45 tube by a power-press, or in any other suitable way, and the pulp forced upward into the opening just described, which forms the body of the shell. The pulp, being forced downward and upward, forms the sides and the base
50 of the shell. The molds are heated before the pulp is poured in, and the rammer allowed

to remain long enough for the pulp to set and become somewhat dry. The rammer being withdrawn, the mold remains with the shell therein. The mold is usually further heated, 55 so as to rapidly dry the pulp. When said pulp has become dried out and contracted, the shell is withdrawn by removing the bolts K, which hold the parts of the shell together. It is expected that the drying of the shell will 60 cause it to shrink sufficiently to be withdrawn from the molds, this being assisted, also, by the slight taper of the tube before referred to. The tube A' is not only tapered, but is rounded at the bottom, as shown in Fig. 1. It may, how- 65 ever, be necessary, previous to the insertion of the pulp, to lubricate the mold with paraffine or other oily substance, to prevent the pulp from sticking. This may also serve the purpose of oiling the surface of the shell, and 70 thus afford protection against the moisture of the atmosphere. It is evident that hundreds of these molds may be arranged on one set of plates, and all be filled and pressed at one time. The sides A' of the tube and the sides B 75 of the mold are of suitable metals or other material, care being had as to their relative expansion. The point or projection e' may be formed on the end of the rammer E, instead of the base C, and an opening thus formed. 80

The cap or primer shown in Fig. 3 consists in an anvil, N, having a central fire opening, formed by puncturing the top and forming the projections n, opening inward. The outer shell or cap, o, containing the fulminate, is 85 compressed against the sides and over the anvil. The anvil is provided with a flange, p, forming a base therefor, which base is forced into the seat g of the shell with a tubular implement covering the primer, or in any suitable way. 90

What I claim is—

1. The process of making cartridge-shells from paper-pulp, which consists in pouring said pulp into a mold enlarged vertically and 95 circumferentially at the bottom to form the base of the shell, and having an internal tube slightly tapered on its outer surface and rounded at the bottom, and a piston for forcing the pulp into the mold, whereby the body 100 of the shell is formed in said mold, substantially as and for the purpose set forth.

2. A mold for making cartridge-shells from paper-pulp, consisting of the internal cylinder, and sides having a tapered opening between them, and a base provided with means for
5 forming a seat for the primer, and an opening through the base into the charge, substantially as set forth.

3. A cartridge-shell made of paper-pulp compressed or molded, and provided with a

thickened base and a flange, and a seat for the 10 primer, substantially as set forth.

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

G. MOORE PETERS.

Witnesses:

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