(No Model.) 3 Sheets—Sheet 1.

I. BRADLEY.

MANUFACTURE OF CARTRIDGE HEADS AND CASES.

No. 457,767. Patented Aug. 18, 1891.

Fig. 1.

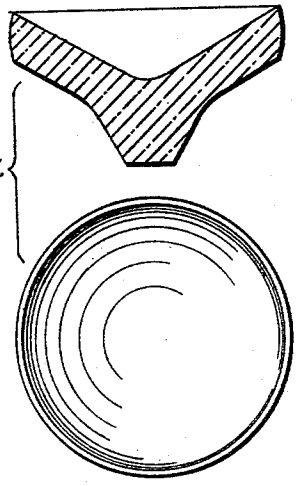


Fig. 2.

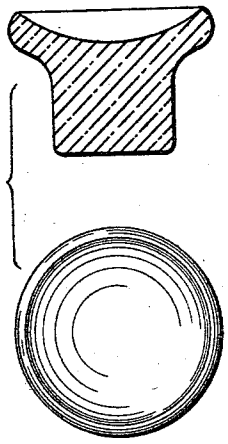


Fig. 3.

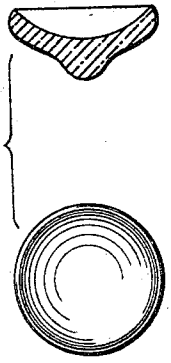


Fig. 5.

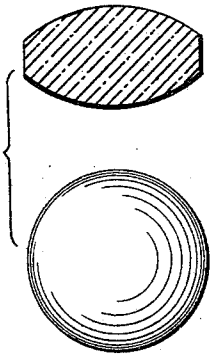


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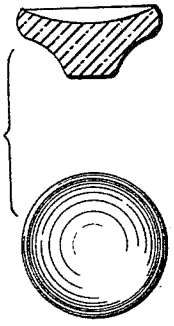


Fig. 6.

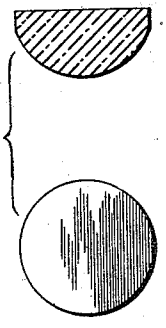
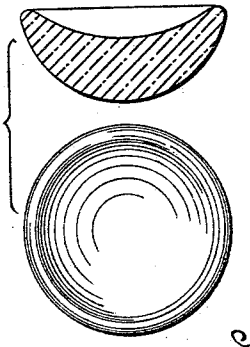


Fig. 7.



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MANUFACTURE OF CARTRIDGE HEADS AND CASES.

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Fig. 8.

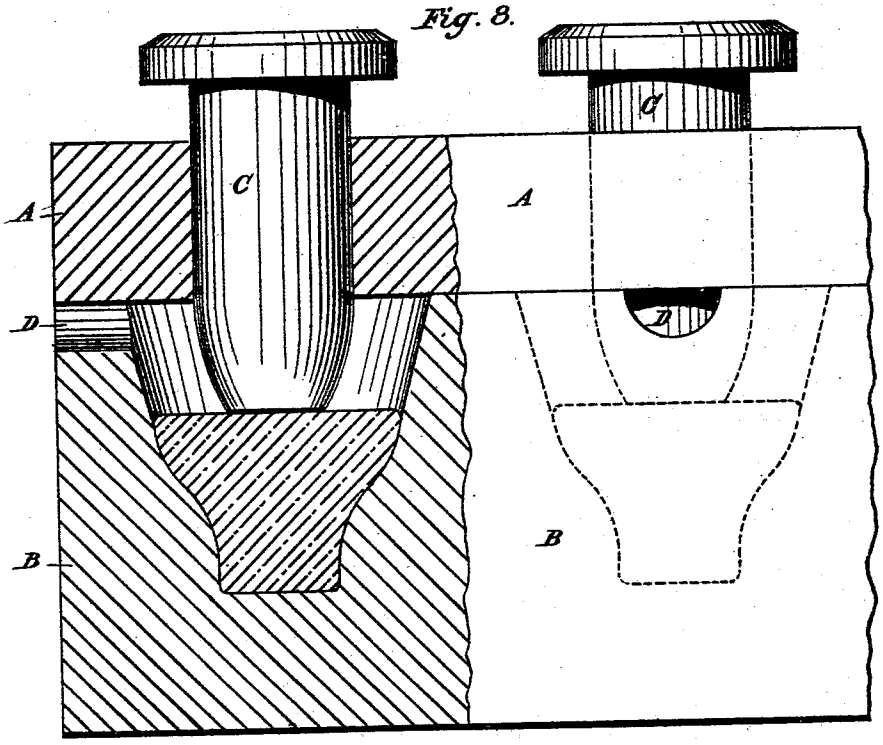


Fig. 9.

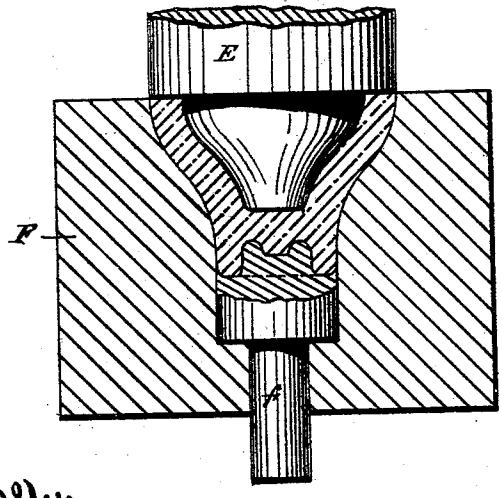
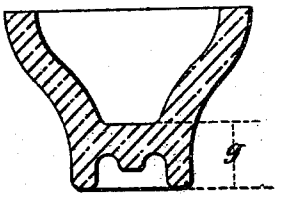


Fig. 10.



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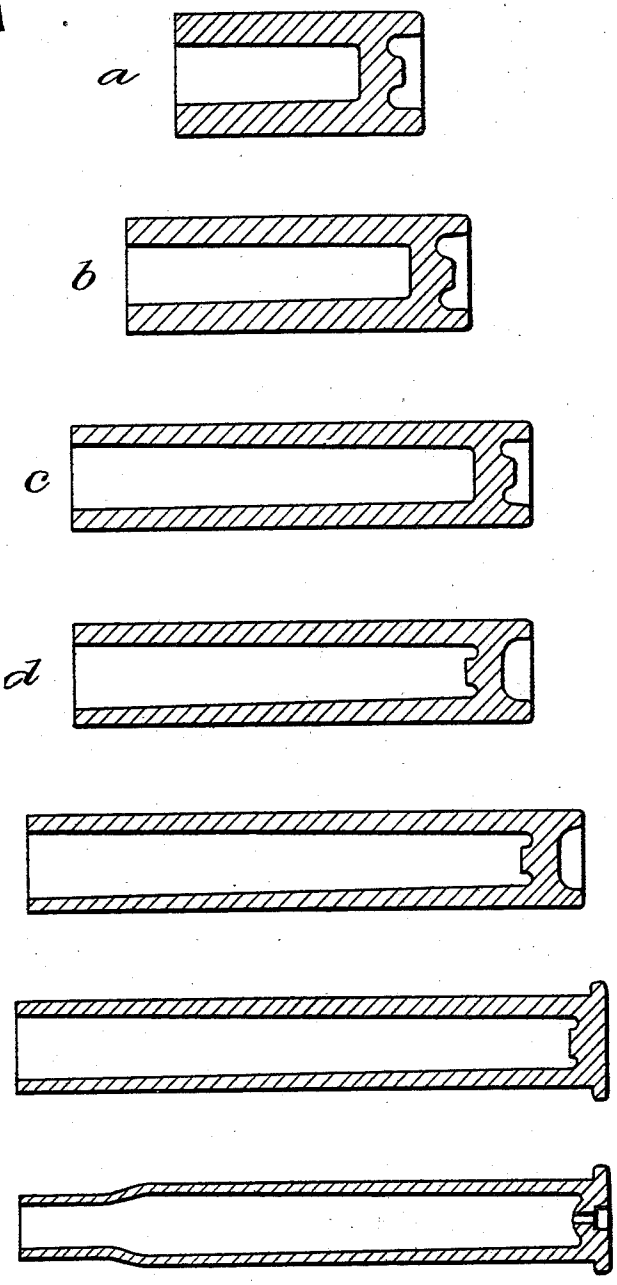
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MANUFACTURE OF CARTRIDGE HEADS AND CASES.

No. 457,767. Patented Aug. 18, 1891.

Fig. 11



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UNITED STATES PATENT OFFICE.

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MANUFACTURE OF CARTRIDGE HEADS AND CASES.

SPECIFICATION forming part of Letters Patent No. 457,767, dated August 18, 1891.

Application filed November 18, 1890. Serial No. 371,815. (No model.)

To all whom it may concern:

Be it known that I, ISAAC BRADLEY, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Cartridge Heads and Cases, of which the following is a full, clear, and exact specification.

In the manufacture of cartridge-cases as heretofore carried out it has been the custom to first cast the metal, then to roll it into sheet metal of the desired thickness, and from this to punch or cut out a disk which was then formed into a cup shape, and finally into a solid drawn cartridge-case.

The object of my invention is to produce cartridge-cases in a cheaper and equally efficacious manner; and to this end I propose to dispense with the usual rolling process, which renders sheet metal more expensive than the cast, and also to dispense with the cutting out of the disks and to manufacture said cartridge-cases directly from disk or other forms cast from molten and workable metal.

In order that the method of carrying my invention into effect may be clearly understood, reference is made to the accompanying drawings, which form part of this specification, in which—

Figures 1 to 7 represent sections and plan views of the forms of castings which I deem most suitable for my purpose, although I do not confine myself to these particular forms. Fig. 8 is an elevation partially in section of a mold with plungers by which the metal while in a semi-molten state may be pressed into the desired shape. Fig. 9 represents a sectional elevation of dies by which cold metal may be pressed or stamped up into the desired form, and Fig. 10 is a sectional view of a partially-formed cartridge-case. Fig. 11, *a*, *b*, *c*, *d*, *e*, *f*, and *g*, are views illustrating the development of the cartridge.

When it is desired to compress the cast metal while in a semi-molten condition, and thus secure a highly homogeneous and solid casting, the molds B are preferably of metal, (although other materials may be employed,) and the covers or tops A are perforated so as to permit of the passage of plungers C, which are so formed as to give the desired internal configuration to the casting, suitable vents D being provided, so that the excess metal may escape.

When the cast disks or blanks are to be stamped or pressed up from cold or simply heated cast metal, I employ suitable dies E F, and preferably have the part *f* movable, so that the formed metal may be pressed or pushed from the die. In Fig. 10 a blank thus formed is shown, in which the thickness of the metal at the base *g* is greater than at any other part, which renders such a blank peculiarly adapted for the manufacture of solid-head cartridge-cases. It will be understood that the metal having been formed into the requisite shape the cartridge heads or cases are finished in the usual manner.

In the stages of development by one prior common process or method of forming a completed cartridge-case the blank shown in Fig. 10 is passed in a machine to the action of the several drawing-dies, which increases the length and reduces the diameter of the shell, as shown successively at *a*, *b*, *c*, *d*, *e*, and *f*, to the finished shell *g*, Fig. 11, properly flanged.

What I claim, and desire to secure by Letters Patent, is—

1. In the manufacture of cartridge heads or cases, the casting of blanks or disks in metallic or other molds of suitable form, substantially as described.

2. In the manufacture of cartridge heads or cases, the casting of blanks or disks in suitable molds, and while the metal is in a semi-molten or plastic condition subjecting it to pressure, substantially as and for the purposes set forth.

3. In the manufacture of cartridge heads or cases, a mold provided with one or more chambers for the reception of the metal, a lid or cover with openings formed containing movable plungers, substantially as set forth.

4. In the manufacture of cartridge heads or cases, the stamping or pressing up of said heads or cases from cold or simply heated

cast-metal blanks in dies, substantially as set forth.

5. In the manufacture of cartridge heads or cases, a blank substantially as shown and described with reference to Fig. 10.

6. The improved manufacture of cartridge heads or cases, which consists in first casting a blank or disk of the desired form and then stamping or pressing up and finishing said head or case, substantially as set forth.

ISAAC BRADLEY.

Witnesses:
H. R. WILLIAMS,
A. B. JENKINS.