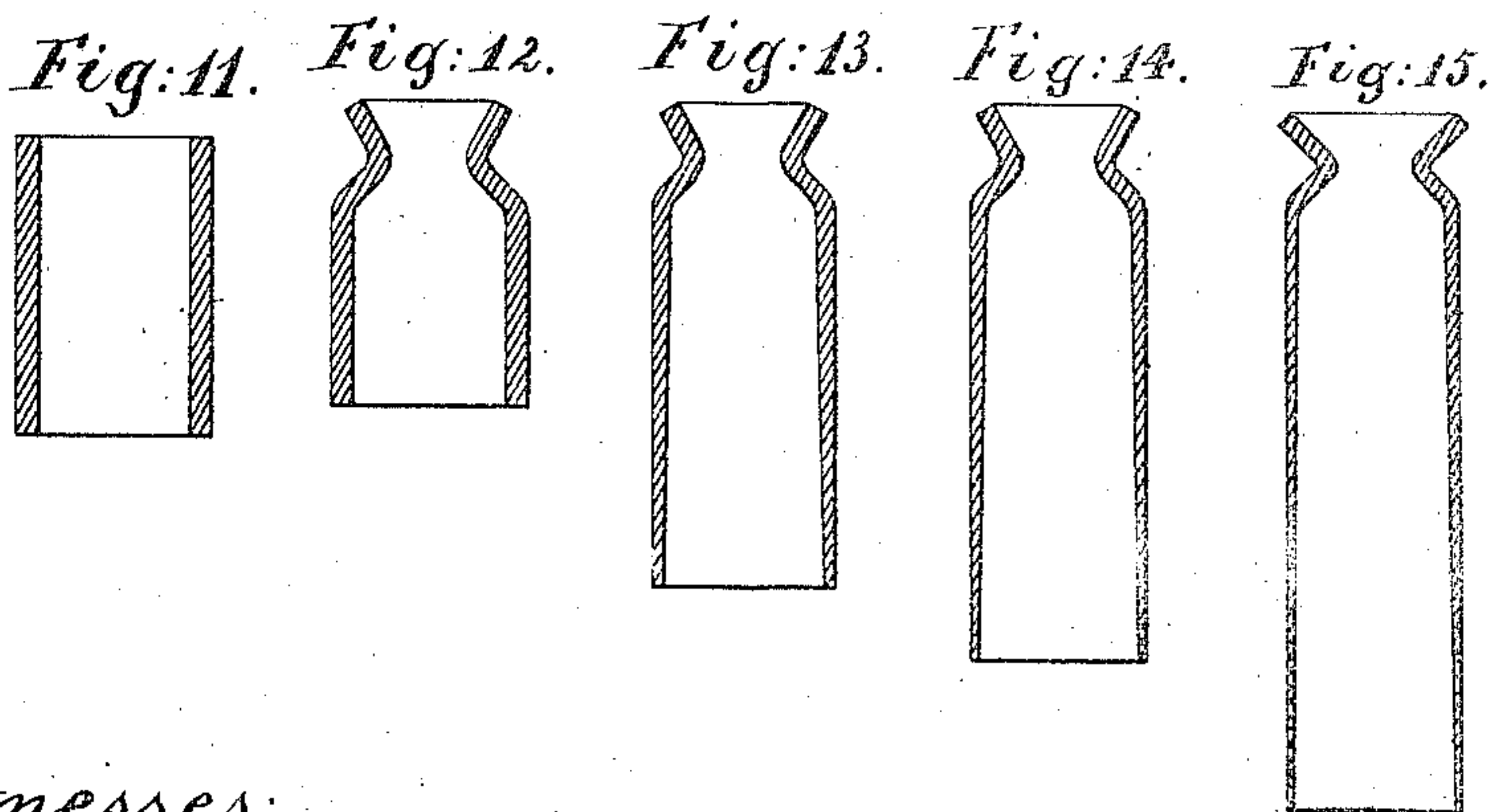
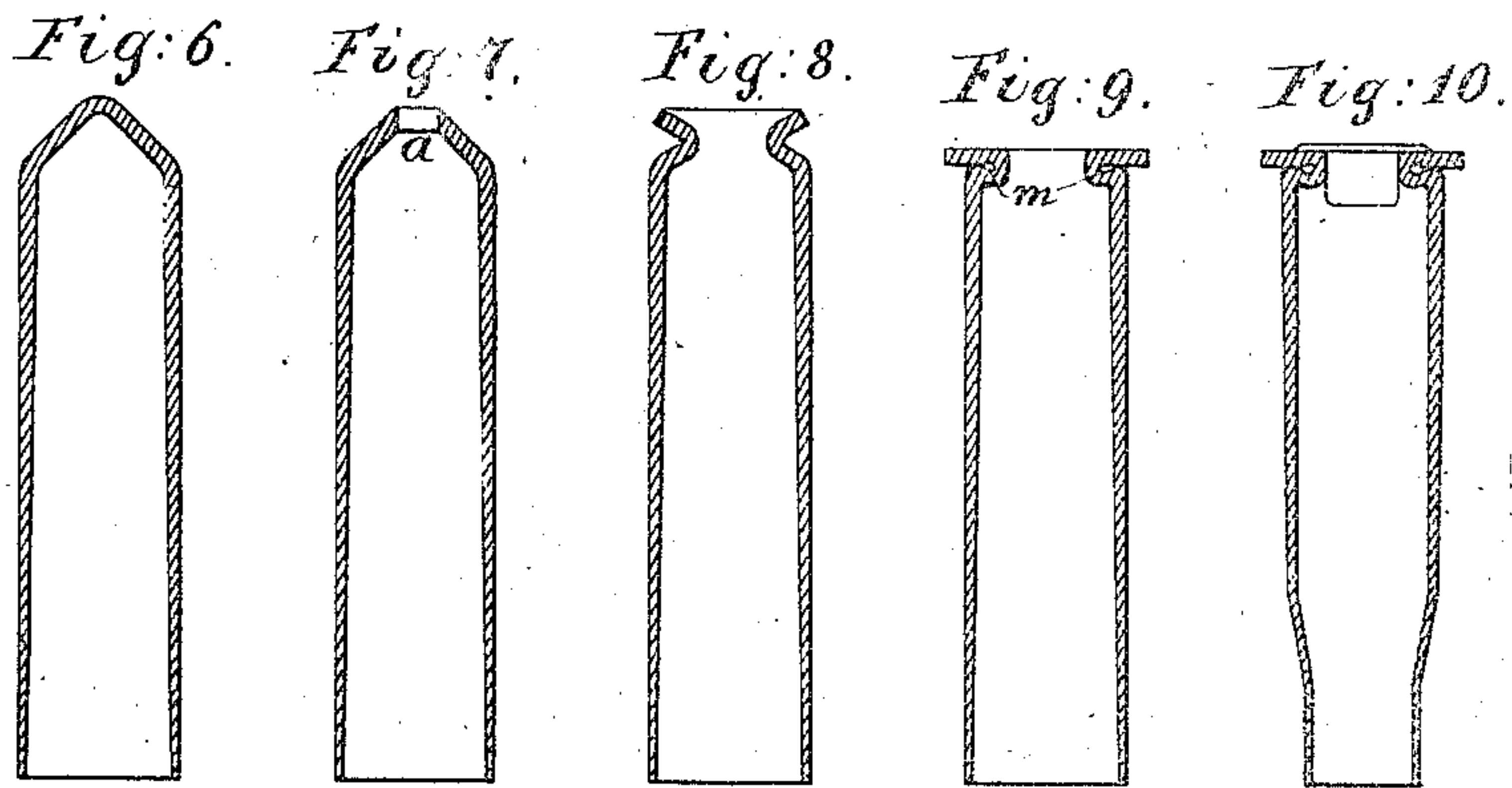
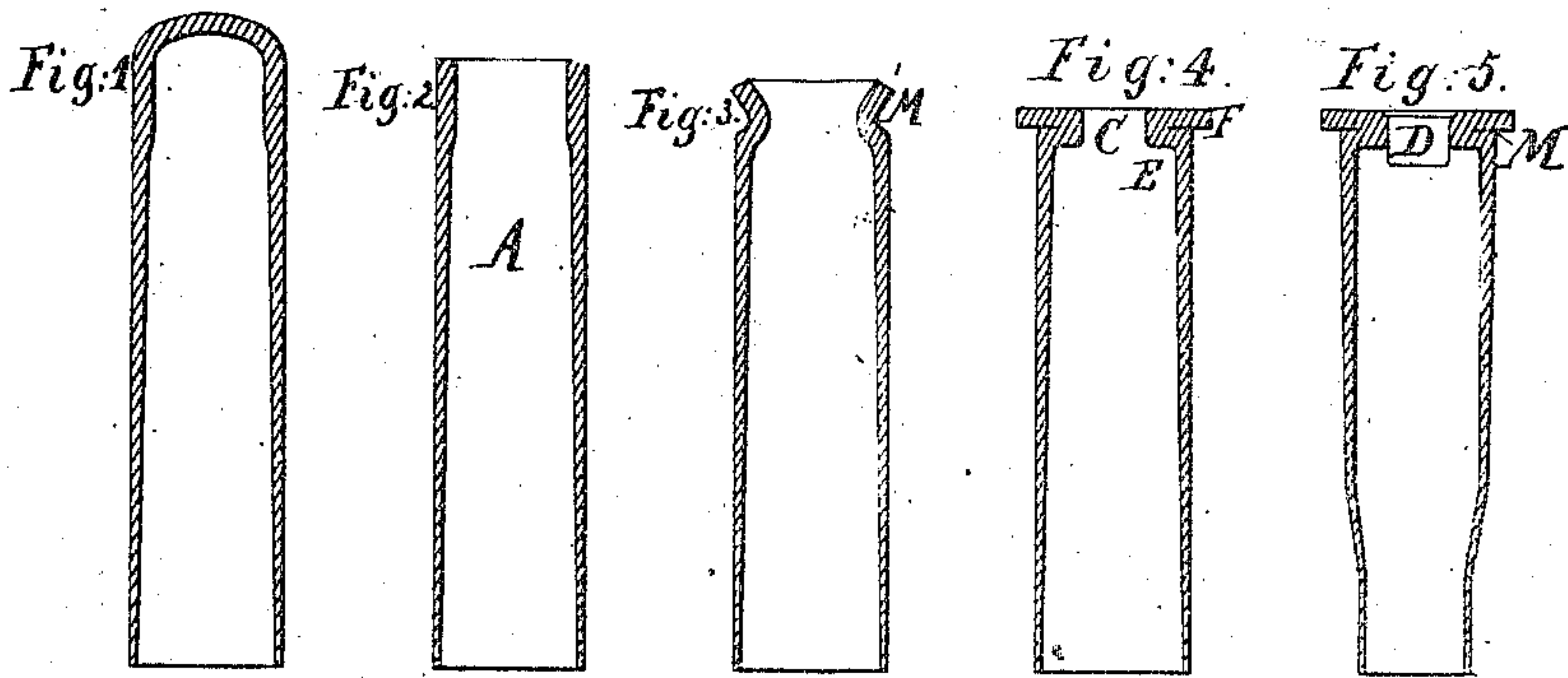


B. B. HOTCHKISS.
METALLIC-CARTRIDGE.

No. 191,430.

Patented May 29, 1877.



Witnesses:
M. A. Gayless
A. B. G. G. G.

Inventor:
B. B. Hotchkiss
by his attorney
J. D. Stetson
New York

UNITED STATES PATENT OFFICE.

BENJAMIN B. HOTCHKISS, OF NEW YORK, N. Y.

IMPROVEMENT IN METALLIC CARTRIDGES.

Specification forming part of Letters Patent No. **191,430**, dated May 29, 1877; application filed September 22, 1876.

To all whom it may concern:

Be it known that I, BENJAMIN B. HOTCHKISS, of New York city, in the State of New York, temporarily residing in Paris, France, have invented certain new and useful Improvements relating to Metallic Cartridges, of which the following is a specification:

The improvement applies to center-fire cartridges having a flange or enlargement of the exterior at the rear. It is designed more particularly for cartridges for small arms, but may be used with success for the larger cartridges used in some of the forms of revolving cannon, and for cartridges of any size for which a metal sufficiently plastic can be obtained. The ordinary metallic cartridge for such use is produced by enlarging the external diameter of a closed cup. The cup is drawn successively to the required length, and headed with a tendency to rend the exterior of the metal at the periphery of the flange. This last operation—the heading—is long and delicate, requires special attention, and, even with all care, it occurs that, in firing, many cartridges burst at the heads because the metal is injured and partly broken by the heading process, which throws it into a more or less defined outward swell to form the flange. In order to obviate this disadvantage, I have designed a new cartridge, which avoids the difficulties of the usual heading operation.

I will describe my cartridge, and some of the means of manufacturing it, in connection with the fifteen figures of the annexed drawing.

Figure 1 represents a sectional elevation of an ordinary blank for a cartridge-shell. I take such for the manufacture of my new cartridge.

The first operation consists in cutting open the closed end of the shell by means of any appropriate tool. I obtain thus a tubular shell, A, open at both extremities, but much thicker at one end. (See Fig. 2.) The second operation consists in making, near the end of this tubular shell, externally, a circumferential groove, M, produced by forcing the metal inward by any suitable tool, which I term a "neck" or "gorge," inducing the condition indicated in Fig. 3. The third operation consists in depressing or forcing endwise the metal about and in rear of this neck by the use of

punches, dies, or any other suitable heading-tools, inducing the condition shown in Fig. 4, preserving in the center of the depressed or headed part a hole, C, for receiving the primer D. Fig. 5 represents one of my cartridge-shells finished and primed.

A nearly similar cartridge, with another way of making, is indicated in Figs. 6 to 10. Fig. 6 shows a shell-blank drawn in the ordinary way, but with the closed end in a conoidal form. A small hole, *a*, is punched out or drilled, or made in any suitable way, at the closed end of this shell, as shown in Fig. 7. Then the circumferential depression or gorge is made in it, and the rear end is enlarged, as represented in Fig. 8. The head of the cartridge is formed by pressing the metal endwise or axially in and around the gorge, as indicated in Fig. 9. The finished and primed cartridge-shell is shown by Fig. 10.

Still another way of manufacturing this cartridge is shown in Figs. 11 to 15, taken in connection with Figs. 9 and 10. Fig. 11 represents a piece of drawn metal tubing, open at both ends. I form in this tube the cylindrical gorge, as shown in Fig. 12, and then draw the so-obtained shell to the required size and length by succeeding drawings, which are represented in Figs. 13, 14, and 15. I then depress the head. The last stages are the same as in the last preceding method, and as shown in Figs. 9 and 10.

I remark here, specially, that the heading of this cartridge can be made either by depressing the metal around the gorge completely until the two depressed sides E F touch throughout, as shown in Fig. 4, or, if desirable, it can be depressed in such way (Figs. 9 and 10) as to touch only along a narrow annulus, leaving a space, *m*, extending around. This is the best method of production when very thin metal is used. By this way a larger bearing for the primer is obtained, and the danger of breaking the metal at the extreme edge is greatly reduced. I remark, also, specially, that by sinking a sufficient shallow recess around the priming-hole the primer can be put in to enter completely the head, and not to project, Fig. 5, or, omitting such recess, the primer can be left projecting outward.

Among the advantages of this cartridge I

especially value its solidity and resistance at the head. The metal forming it not having been injured by the fabrication, the head remains about the original thickness of the metal. Another very important point is that the line where the cartridge tends to burst is located much farther inward in the chamber than in ordinary cartridges, and is supported by the chamber, so that all danger of bursting this cartridge is avoided.

I reserve to myself the construction of this cartridge, whatever means may be employed to carry out the fabrication.

I claim as my invention—

1. A flanged metallic cartridge, having the metal near the rear compressed inward, and the extreme rear edge turned outward to form the flange, as and for the purposes specified.

2. A flanged metallic cartridge, having the metal near the rear compressed inward, and the extreme rear edge turned outward, forming a space in the center of the head for the insertion of a primer, as specified.

3. A cartridge-shell formed with the gorge, as specified, and left with the annular space *m* in the head, as and for the purposes specified.

In witness whereof I have hereunto set my hand this 13th day of September, 1876, in the presence of two subscribing witnesses.

B. B. HOTCHKISS.

Witnesses:

PHILLIPS ABBOTT,
CHAS. C. STETSON.