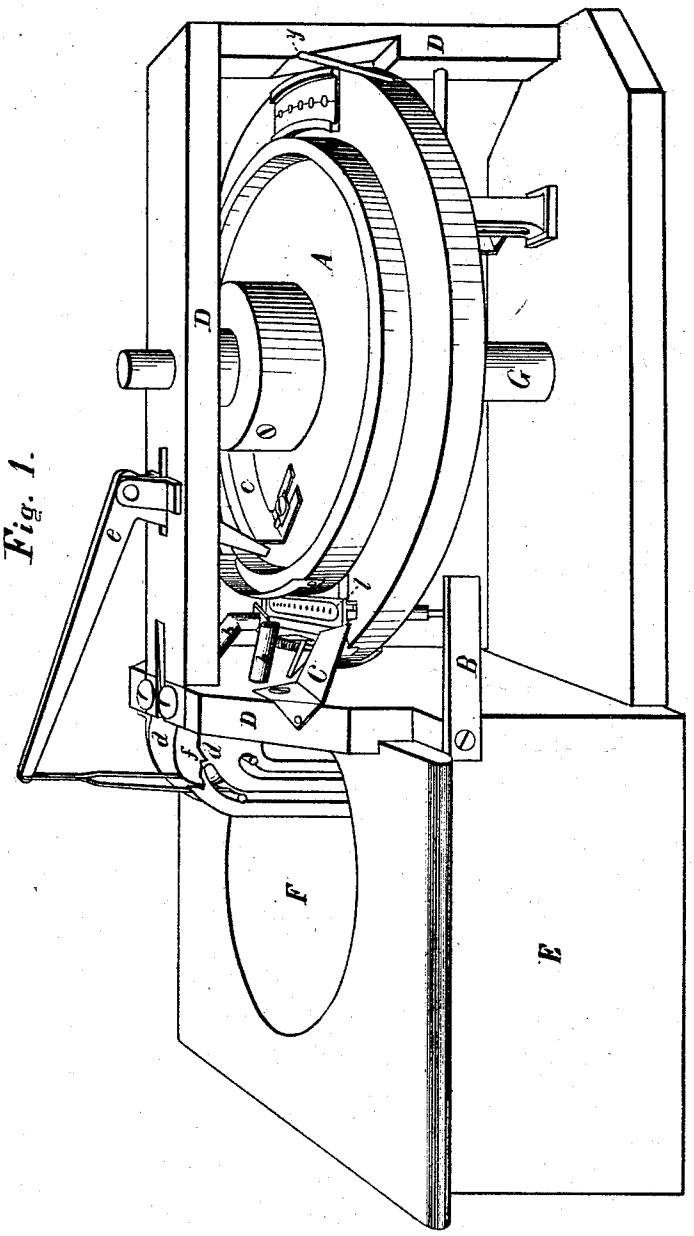
2 Sheets—Sheet 1.

C. S. MEEKER.

MACHINE FOR CASTING BULLETS.

No. 172,273. Patented Jan. 18, 1876.

Fig. 1.



Witnesses
Roger M. Sherman
William F. Hopson

Inventor
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George Terry.

2 Sheets—Sheet 2.

C. S. MEEKER.

MACHINE FOR CASTING BULLETS.

No. 172,273. Patented Jan. 18, 1876.

Fig. 2

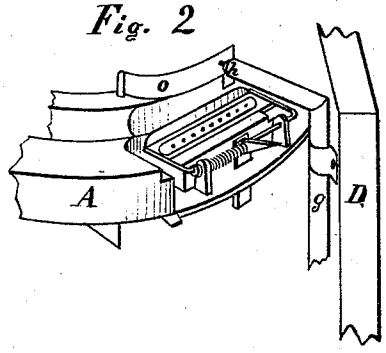


Fig. 3

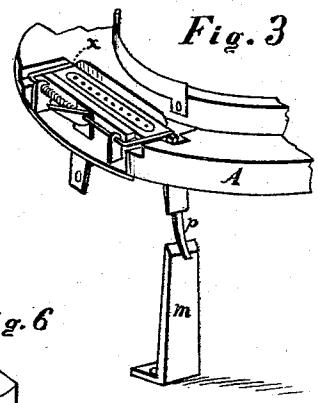


Fig. 6

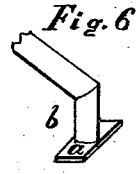


Fig. 4

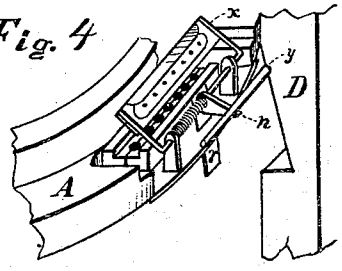
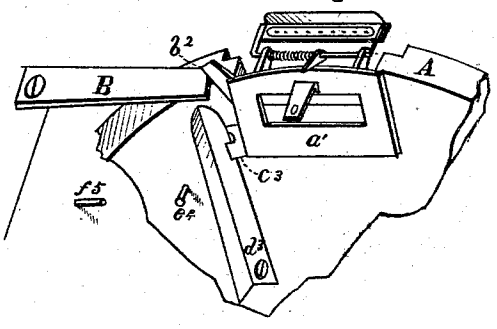


Fig. 5



Witnesses
Roger M. Sherman
William F. Hopson

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UNITED STATES PATENT OFFICE.

CHARLES S. MEEKER, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR CASTING BULLETS.

Specification forming part of Letters Patent No. **172,273**, dated January 18, 1876; application filed March 19, 1875.

To all whom it may concern:

Be it known that I, CHARLES S. MEEKER, of the city and county of New Haven, State of Connecticut, have invented a new and useful Machine for Casting Bullets; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to a machine for casting bullets; and consists in combining with and arranging on a revolving wheel one or more bullet-molds, and in a series of automatic devices by which, when the molds are filled, the requisite operations are performed to get them in readiness to be again filled.

The object of the invention is the manufacture of bullets in large quantities, with great rapidity, and with the least possible expense.

In Sheet 1, Figure 1 is a general view of the machine embodying my invention, in perspective. In Sheet 2, Figs. 2, 3, 4 and 5 show the several devices by which, when the molds are filled, they are prepared to be again filled. In Sheet 2, Fig. 6 shows the supply-pipe, provided with a mouth-piece, fitting the molds closely.

In the drawing, in Sheet 1, Fig. 1 is a general view of the machine. E represents the furnace, in which the kettle F is set for melting the lead. D D D indicate the frame which is set beside the furnace E, or is attached to it. A represents the revolving wheel, on which the bullet-molds are arranged on its outer edge. G is the upright shaft, to which the wheel A is attached. The bent lever *e*, operated by the cam *c*, attached to the wheel A, is itself attached to the top part of the frame of the machine. From its longer arm a connecting-rod extends to the bucket *f*, to which are attached cross-pieces, which move in the slots in the guides *d d*. The bucket *f* brings up the melted lead from the kettle F and empties it into the pipe *b*, through which it runs into the filling-trough *x*. As the wheel A turns, and the molds with it, they are brought under a jet of water from the water-pipe *g*, attached to the frame D, and cock *h* operated by the cam *o*, attached to the wheel A, each of which is shown in Fig. 2, Sheet 2.

In Sheet 2, Fig. 3 shows the piece *m* attached to the bottom of the frame, against which the lever *p*, pivoted to the wheel A, comes, forces the shorter arm of the lever against the filling-trough *x*, moves it in the direction of its length on the mold, and cuts the sprues from the bullets. As soon as the wheel A has moved forward sufficiently so that the lever *p* is clear of the piece *m*, the spiral spring shown on the hinge of the filling-trough *x* forces the filling-trough *x* back to its place. The flat spring against the lever *p* forces that back also.

In Fig. 4 a portion of the frame D is shown, from which the arm *y* is extended, inclining downward. The short lever *n* is attached to the hinge of the filling-trough *x* in such a manner that the trough and lever move together. The lever *n*, coming against the arm *y*, is pressed downward, and the filling-trough is raised upward until, by means of a flat side on the lever *n*, and the flat spring *r*, the filling-trough *x* is suddenly brought to a position nearly vertical and suddenly stopped, when the sprues are thrown from it by their momentum.

In Sheet 2, Fig. 5 shows the devices for opening the molds, letting the bullets drop out, and closing them again. The parts are arranged on the under side of the wheel A, and for the purpose of showing them distinctly the machine is turned up until the wheel A is raised to a position nearly vertical.

A flat piece of metal, *a'*, is attached to the under side of the wheel A, on which the molds rest. The lever B^2 is pivoted to a flat piece of metal, *a'*, and the inner end of the lever is attached to a slide, c^3, which opens the molds as the outer end of the lever b^2 comes against the piece B, attached to the frame D, pushes the straight piece d^3 against the pin e^4, which, as the wheel turns, comes against the stud f^5, attached to the frame of the machine, which forces the straight piece d^3 back to its position and closes the mold. The cam C (shown in Fig. 1, Sheet 1) closes the filling-trough, when the molds are ready to be again filled.

This machine is adapted to both curved and straight molds—to straight molds, because such molds are already in existence and in use; to curved molds, one of which is shown in Fig. 1, Sheet 1, because such molds are the

best, and, when used, the devices shown in Figs. 3 and 4, Sheet 2, are not wanted. The melted lead can also be drawn from a pipe inserted in the bottom of the kettle.

When curved molds are used, the melting-kettle is placed above the molds The supply-pipe *b*, Fig. 6, Sheet 2, extends from the bottom of the kettle to the molds. The end of the pipe *b* in contact with the molds has a curved mouth-piece, *a*, whose curvature corresponds with the curvature of the molds. The mouth-piece *a* is fitted to the molds, so that no lead escapes through the joint, and the molds are made so thin at the upper portion of the cavity, or mold proper, that there is no sprue to be cut off. By increasing the distance between the molds and the melting-kettle, and increasing the length of the pipe *b*, the melted lead may be forced into the molds with any desired pressure, and the elongated opening on the under side of the mouth-piece operates to give ample time to fill them when the machine is running with high velocity The curved molds should be made in sections, and extend around the wheel A, forming a complete circle.

The machine may be driven by any suitable contrivance; for instance, a bevel-gear wheel on the shaft G, into which a bevel-pinion on a horizontal shaft in the frame of the machine meshes for the purpose, may be employed.

The operation of the machine has been described in describing the parts.

I claim as my invention—

1. The combination of cam *c*, attached to the wheel A, bent lever *e*, guides *d d*, each of which is provided with two slots, and bucket *f*, as and for the purpose set forth.

2. The combination of the piece *m*, attached to the frame D, lever *p*, attached to the wheel A, and filling-trough *x*, hinged to the bullet-mold, as and for the purpose set forth.

3. The combination of the arm *y*, attached to the frame D, lever *n*, attached to the hinge of the filling-trough *x*, and spring *e*, attached to wheel A, as and for the purpose set forth.

4. The combination of the piece B, lever b^2, and slide c^3, as set forth.

5. The combination of the slide c^3, piece d^3, pin e^4, and stud f^5, as set forth.

6. In a machine for casting bullets, the cam C, attached to the frame D, as set forth.

CHARLES S. MEEKER.

Witnesses:

GEORGE TERRY,

MARY A. BASSETT.