

No. 628,034.

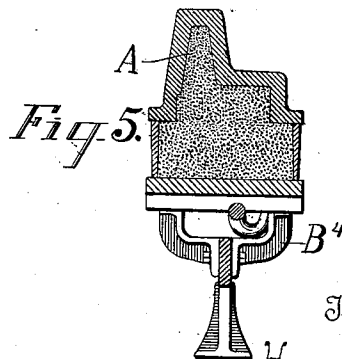
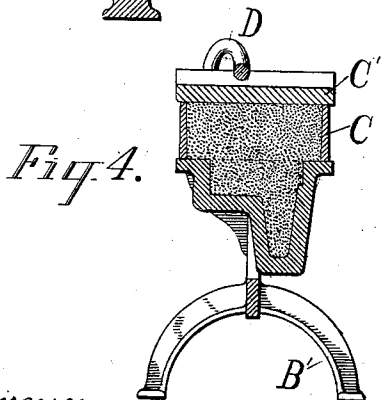
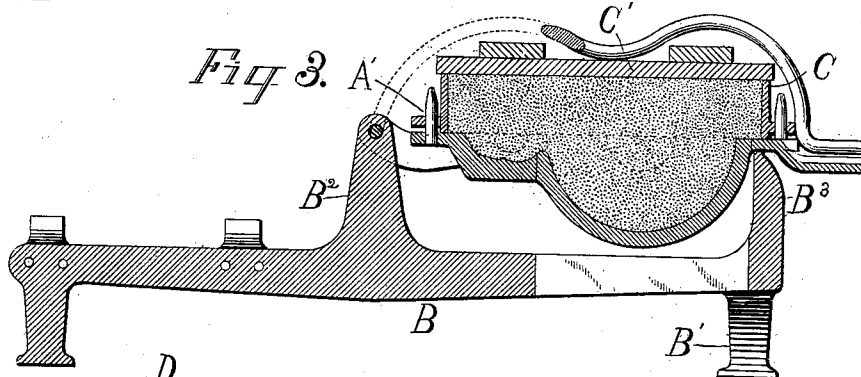
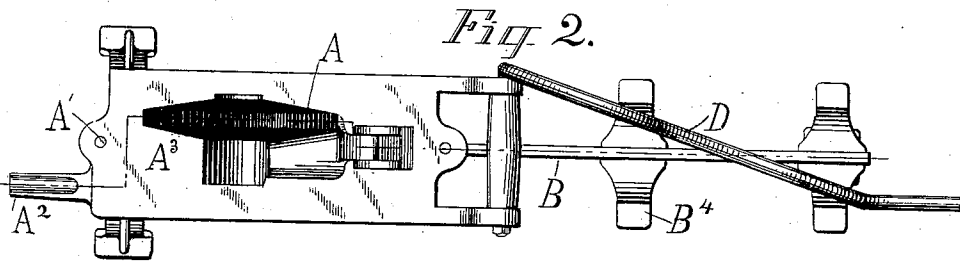
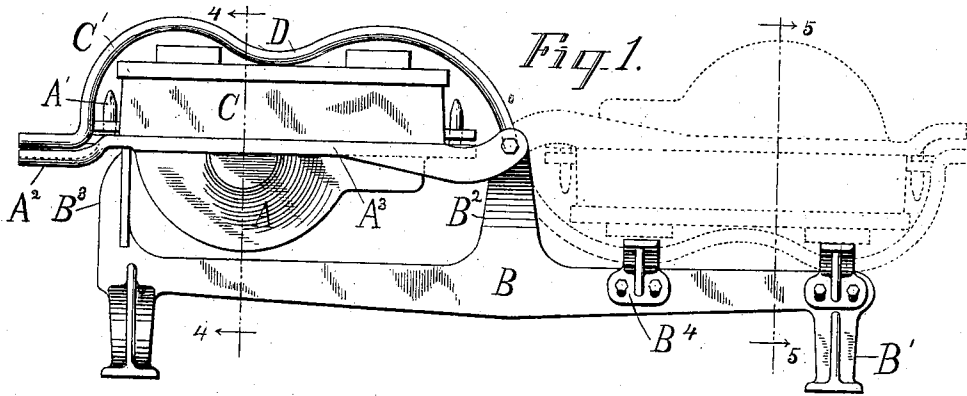
H. E. PRIDMORE.

Patented July 4, 1899.

MACHINE FOR MAKING SAND MOLDS FOR CASTINGS.

(Application filed June 6, 1891.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

HENRY E. PRIDMORE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE McCORMICK HARVESTING MACHINE COMPANY.

## MACHINE FOR MAKING SAND MOLDS FOR CASTINGS.

SPECIFICATION forming part of Letters Patent No. 628,034, dated July 4, 1899.

Application filed June 6, 1891. Serial No. 395,406. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY E. PRIDMORE, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Machines for Making Sand Molds for Castings, of which the following is a specification.

My invention relates to improvements in machines for forming sand molds for casting metals; and it has for its objects the quickening of the operation of forming such molds and the construction of a simple, practical, inexpensive machine for that purpose.

In the accompanying drawings, in which like letters refer to like parts, I show a form of the machine to carry out my invention.

Figure 1 is a side view of the machine, showing a flask and bottom board on the pattern-plate and in dotted lines the parts turned over, so that the pattern and pattern-plate are on top of the flask and bottom board. Fig. 2 is a top view of the machine, showing a pattern positioned in the pattern-plate. Fig. 3 is a longitudinal section through the machine, pattern, flask, and bottom board, the flask being shown filled with sand. Figs. 4 and 5 are cross-sections through the machine-pattern, flask, and bottom board.

The pattern-plate A, fitted with a pattern, is mounted on a frame B, which by suitable means, such as the legs B', is brought to a height most convenient for the workmen. An upstanding part of the frame B<sup>2</sup> serves as a pivot for the pattern-plate A and to support it at one end, while the other end rests upon a support—as, for instance, the upstanding rib B<sup>3</sup>—which is at sufficient height to keep the pattern-plate practically level. This pattern-plate is fitted with steady-pins A', that fit into corresponding holes on the flask C and hold the flask in position on the plate. Attention is called to the fact that the steady-pins are in the pattern-plate and not on a fixed part of the machine. This construction allows the pattern-plate to be loosely pivoted on the frame of the machine and the joint built without particular care, as the flask always retains the same position relative to the pattern-plate—an essential requirement—and were the steady-pins otherwise situated the flask

might vary its position on the pattern-plate and the mold be injured. It is readily seen that the flask C could be fitted with the steady-pins and the pattern-plate with the holes, as the object is to maintain a definite relation between the flask and pattern-plate.

A handle D serves for the pivot-pin of the pattern-plate and extends diagonally across the flask C to the handle A<sup>2</sup> on the pattern-plate A.

In making molds by machines the rapid duplication of the mold is the essential object, and any construction by which the machine can be operated with greater rapidity by the workman is of prime importance. The handle A<sup>2</sup> on the pattern-plate and the handle D, which extends across the flask and bottom board to the handle A<sup>2</sup>, make a very convenient means of keeping the parts tightly together when they are being turned, and the handling of these parts is handy and very rapid.

Heretofore clamps, hasps, and snaps that must be locked and unlocked have been used, all of which have required for each mold several extra movements on the part of the operator to unfasten the flask from the pattern-plate. Neither have the constructions heretofore used been convenient for the holding of the bottom board upon the flask and the turning of the flask and bottom board over while still holding the mold to the pattern.

Upon the outer end of the frame B are brackets B<sup>4</sup> of suitable height to hold the flask C and the bottom board when the parts are turned over. These brackets B<sup>4</sup> are made adjustable on the frame to accommodate flasks and bottom boards of varying heights and can be set level or one slightly higher than the other, according to the shape of the pattern, so that the pattern will be more easily be drawn from the mold.

In operation the pattern is mounted in the pattern-plate or, as shown in the drawings, integral with it, the flask is placed on the steady-pins and parting-sand sprinkled onto the pattern and plate, if necessary, and the flask then shoveled full of green sand, care being taken not to ram the sand into the deep parts of the pattern with too much force. The flask is then covered with the bottom

board, the clamping-handle thrown over the flask and bottom board, and the pattern-plate is clamped to the flask and bottom board by the operator and the whole turned over. The operator then loosens his hold on the handle and turns the pattern-plate back to its former position.

It will be noticed that the pattern is drawn from the sand as the pattern-plate is thrown back on the arc of a circle of which the pivot of the pattern-plate is the center. This curved lift of the pattern makes it necessary that the pattern be thin—as, for instance, stove-plates—or that the side away from the pivot shall curve toward the pivot with as great a degree, or greater, than the curve described by the pattern as it is lifted. It has been found that if the end of the flask nearest to the pivot drops a trifle from the pattern-plate when the parts have been turned over the mold will draw slightly from the pattern, and the raising of the pattern from the sand in the flask will be facilitated and less molds be injured. In all the rock-over machines which I have seen the molds formed were shallow ones, and the sand could be so solidly rammed into the half-flask that it could be turned over without the sand falling out. When, however, as has been mentioned, patterns with deep depressions are molded, the sand must not be too vigorously rammed, and a bottom board becomes necessary to hold the sand in the half-flask when it is being turned over.

Having now described my invention, what I claim is—

1. The combination with a pivoted pattern-plate, of means for positioning a flask thereon at one side of a vertical plane passing through the axis of the pivot of the plate, a handle secured to the plate, a bottom board, and a second handle on a movable clamp passing over the bottom board upon the flask, said second handle being adapted to be seized by the hand of the operator during the swinging of the plate.

2. The combination with a swinging pattern-plate, of means for positioning a flask thereon, a bottom board and a pivoted handle arranged to be seized by the operator to hold the bottom board upon the flask and retain the flask in place, said handle being arranged to turn on its pivot as the plate and flask are swung over.

3. In a machine for making sand molds for

casting metals, a machine-frame having a central raised portion, to which is pivoted the pattern-plate, a support on one side of this pivot for the pattern-plate, a vertically-adjustable support on the other side of the pivot to receive the flask and bottom board and means for clamping the support in any of its different adjusted positions.

4. In a machine for making sand molds for casting metals, a frame, a pattern-plate pivoted to the frame, supports on the frame on each side of the pivot of the pattern-plate, the support on one side of the pivot being adjustably attached to the frame and capable of being placed higher at one part of the support than at another and means for clamping the support in any of its different adjusted positions.

5. In combination in a machine for making molds for casting metals, a pattern-plate to which the pattern is fixed, pivoted to the frame of the machine at one end, a horizontal one-way pivot on which the pattern-plate and pattern are swung in a vertical plane, a handle on the pattern-plate, and a clamp to hold the flask upon the plate, which consists of a handle that is pivotally attached to the machine-frame substantially at the pivot of the pattern-plate on the machine-frame, and which passes over the top of the flask and is brought close to the handle on the pattern-plate.

6. The combination in a machine of the nature described, of a pivoted pattern-holding plate adapted to hold the flask in position, a handle extension therefrom, a flask, and a suitably-bent handle which serves first as a pivot for the pattern-holding plate and second as a clamp by passing across the flask to the extension on the pattern-holding plate.

7. The combination in a machine for making molds for casting metal, a pivoted pattern-plate, a horizontal one-way pivot on which the pattern-plate and pattern are swung in a vertical plane, a clamp pivoted on the machine to hold the flask against the pattern-plate while the flask and pattern-plate are being turned over, the clamp being pivoted to the machine practically at the center on which the pattern-plate is turned over, whereby the pattern-plate can be turned back to its first position, independent of the clamp.

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Witnesses:

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