

H. R. ATWATER.
MOLD MAKING MACHINE.
APPLICATION FILED DEC. 12, 1908.

937,036.

Patented Oct. 19, 1909.

Fig. 1

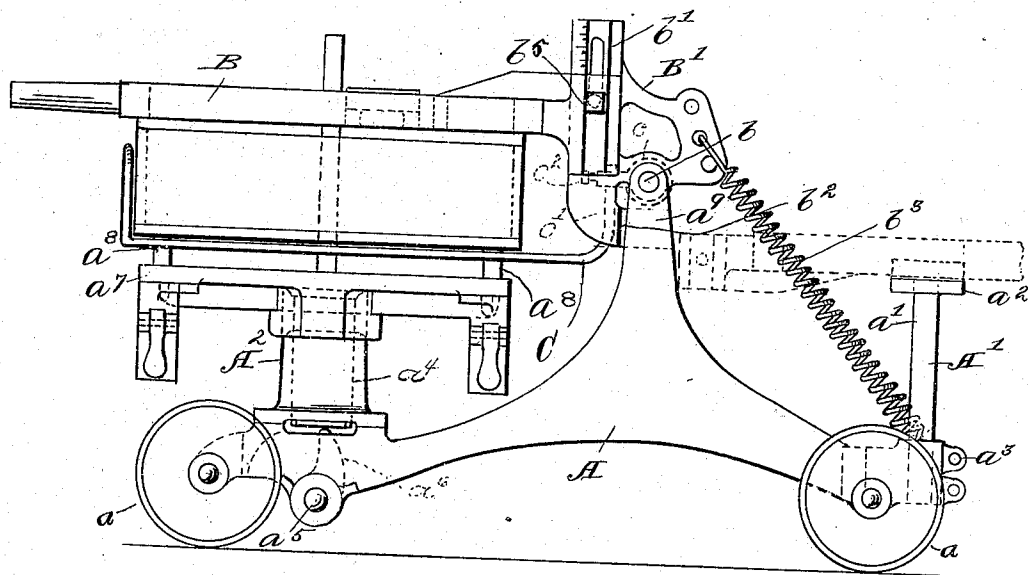


Fig. 2

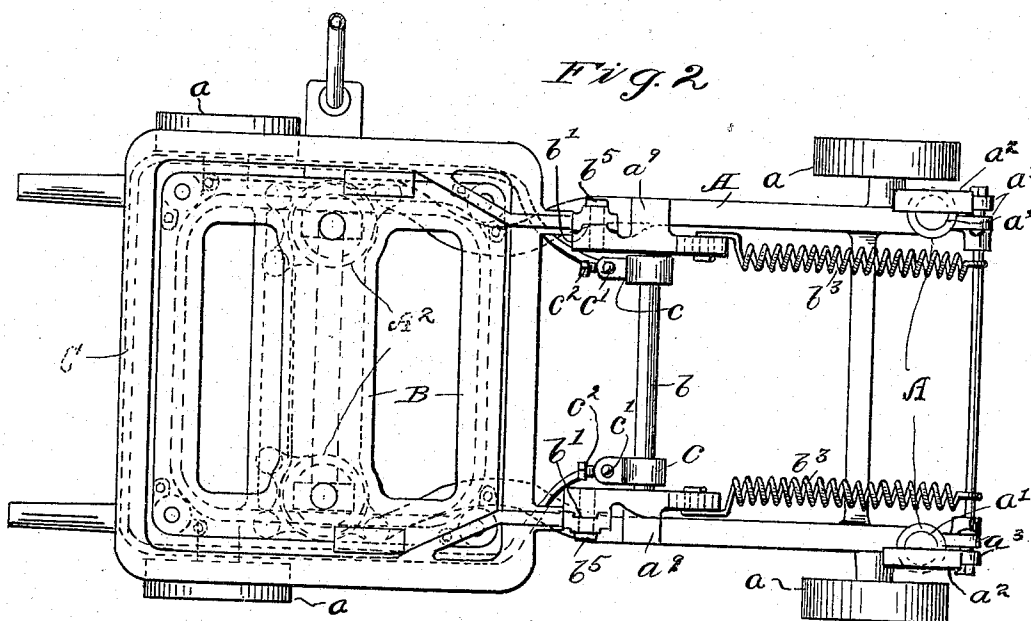
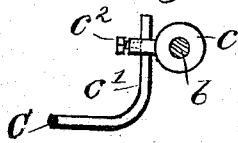


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

HARRY R. ATWATER, OF CLEVELAND, OHIO, ASSIGNOR TO THE OSBORN MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

MOLD-MAKING MACHINE.

937,036.

Specification of Letters Patent.

Patented Oct. 19, 1909.

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To all whom it may concern:

Be it known that I, HARRY R. ATWATER, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Mold-Making Machines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention relating as indicated to mold-making machines, has more particular regard to mold-making machines of the "rock-over" type, such as shown for example in U. S. Patent No. 890,919.

The object of such invention is to provide a machine of this type that will be more readily adaptable to the handling of different kinds of work; so that, in other words, a single machine may accommodate patterns for deep as well as shallow castings, all without adding materially to the complexity of the mechanism or detracting from the stability and rigidity of structure that are essential to the securing of accurate molds from a pattern.

With the above and related objects in view, said inventions, then, consist of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:—Figure 1 is a side elevation of a mold-making machine embodying my several improvements; Fig. 2 is a plan view of the same; and Fig. 3 is a side elevational view of a detail of the machine.

The frame A of the machine, which in the case of the specific structure illustrated, is mounted on low wheels or rollers *a* to permit of its movement about, includes the usual mold filling and parting stands A' A². Of these, the filling stand A' upon which the mold is designed to rest pending the filling and stamping of the sand therein, comprises simply a plunger *a'* with a small rest or head *a''* on its upper end, such plunger being adjustably secured in a suitable split collar *a³* or the like, forming a part of the frame.

The parting stand A² on the other hand,

comprises a plunger *a⁴* adapted to be vertically reciprocated by means of a rock-shaft *a⁵* that bears a cam *a⁶*, such plunger being provided with a platform-like head *a⁷* bearing laterally spaced depressible members *a⁸* arranged to be depressed by the mold bottom during the placing of the mold in position preparatorily to freeing the same from the pattern embedded in the top of the material with which the flask of the mold is rammed. These details of the construction of the parting stand need not, however, be more than incidentally noted in this connection, since they form no part of the present invention, it being to the manner in which the pattern plate-holder B is mounted that particular attention is herein desired.

Intermediate between the two stands A' A² just described are two laterally spaced standards *a⁹* that are integral or rigid with the frame work A of the machine, and in such standards is mounted a shaft or axle *b* transversely disposed with respect to the stands in question. Transversely mounted upon such shaft, is a secondary frame B' formed with guide-ways *b¹*, so disposed as to lie vertically when said frame is positioned in contact with a stop *b²* provided to limit its movement toward the parting stand. The pattern-plate-holder B is mounted upon guide-ways *b¹* so as to be vertically adjustable with respect to said parting stand in such position of the frame, set screws *b³* or like means being provided in conjunction with the guide ways to secure the plate-holder in any such vertical position as may be desired. Springs *b³* are provided, as usual, to facilitate the swinging of the frame B' and its attached pattern plate holder B together with the mold when the latter is secured to such holder, over the shaft *b* from one position to the other. Pivottally mounted upon the same shaft *b* along with frame B' are two sockets *c* in the ends of which are provided transverse apertures adapted to receive the inner ends *c¹* of a bail C, set screws *c²* serving to adjustably secure the same therein. Such bail ends are angularly disposed with respect to the body of the bail, which latter is adapted, when the outer end thereof is drawn toward the pattern plate-holder B to detachably secure the mold on such holder, as will be readily understood. By virtue, however, of the adjustment of the inner ends of said bail, the latter may

obviously be adapted to thus secure molds of various depths to the plate-holder.

The general operation of the machine being obvious, it need only be pointed out in conclusion wherein the modifications in the construction of the machine herein before described contributes to such machine's usefulness and general adaptability. It will be understood, of course, that the movement of the platform head a^7 of the parting stand from its normal raised position to the depressed position in which the mold is designed to be entirely freed from the pattern, will be limited to the throw of the cam a^6 , and cannot be readily varied except by substituting for such simple cam-movement, other more complicated mechanism. In the present construction, I have accordingly provided for the adjustment that would be necessary, were one and the same machine to be employed with patterns of various depths, by rendering the pattern plate-holder B adjustable with respect to the axis about which it is oscillatory. I am thus enabled to secure a sufficient distance between the platform of the parting stand and such holder to accommodate any desired depth of flask without it being necessary to disturb the adjustment of said parting stand. The filling stand being on the contrary immovable during operation of the machine, may be adjusted at the beginning of such operation to sustain the pattern plate-holder and appurtenant parts substantially level, irrespective of the variation in the position of such holder upon the oscillatory frame B'. The adjustment of the bail C, utilized to detachably secure the mold upon such plate-holder, will obviously cooperate with the foregoing adjustment of the plate-holder to render the machine universal in its capacity to meet the varying demands of the ordinary foundry, so that it will no longer be necessary to have a separate machine or machines for each different class of foundry work as has been the case heretofore, with a result that a goodly portion of the equipment of the foundry has had to lie idle a large portion of the time.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a machine of the character described, the combination with a filling and a parting stand the latter being vertically reciprocable to withdraw the mold from the pattern; of a member oscillatorily supported on a transverse axis between said stands; and a pattern plate holder adjustably secured to said

member, so as to be variously cooperative with said parting stand, when the latter is in its normal raised position, substantially as described.

2. In a machine of the character described, the combination with a filling and a parting stand the latter being vertically reciprocable to withdraw the mold from the pattern; of a member oscillatorily supported on a transverse axis between said stands; and a pattern plate holder slidably secured to said member, so as to be vertically adjustable with respect to said parting stand in the rocked-over position of said member.

3. In a machine of the character described, the combination of a filling and a parting stand, the latter being vertically reciprocable to withdraw the mold from the pattern; a member oscillatorily supported on a transverse axis between said stands; means limiting the oscillation of said member toward the parting stand; and a pattern plate holder adjustably secured to said member so as to be variously cooperative with said parting stand, when the latter is in its normal raised position, substantially as described.

4. In a machine of the character described, the combination of a filling and a parting stand, the latter being vertically reciprocable to withdraw the mold from the pattern; a member oscillatorily supported on a transverse axis between said stands; means limiting the oscillation of said member toward the parting stand; and a pattern plate holder slidably secured at one side to said member, so as to be vertically adjustable with respect to said parting stand in the rocked-over position of said member.

5. In a machine of the character described, the combination with a filling and a parting stand; of a member oscillatorily supported on a transverse axis between said stands; a stop limiting the movement of said member toward said parting stand, said member being formed with guide-ways disposed to lie vertically when said member is positioned in contact with said stop; and a pattern plate holder mounted upon such guide-ways so as to be vertically adjustable with respect to said parting stand in such position of said member.

6. In a machine of the character described, the combination with a filling and a parting stand; of a pattern plate holder oscillatorily supported on a transverse axis between said stands; and a member adapted to detachably secure the mold to said holder, said member being pivotally mounted with respect to said holder and being adjustable transversely of its pivotal axis.

7. In a machine of the character described, the combination with a filling and a parting stand; of a frame oscillatorily supported on a transverse axis between said stands; a pattern plate holder adjustably secured to said

frame, so as to be variously coöperative with said parting stand; and a member adapted to detachably secure the mold to said holder, said member being pivotally mounted with
5 respect to said holder and being adjustable transversely of its pivotal axis.

8. In a machine of the character described, the combination with a filling and a parting stand; of a frame oscillatorily supported on
10 a transverse axis between said stands; a pattern plate holder slidably mounted upon said frame, so as to be vertically adjustable with respect to said parting stand in one position of said frame; and a member adapted
15 detachably to secure the mold to said holder, said member being pivotal about the same axis as said frame and being adjustable transversely of such axis.

9. In a machine of the character described,
20 the combination with a filling and a parting stand; of a frame oscillatorily supported on

a transverse axis between said stands; a stop limiting the movement of said frame toward said parting stand, said frame being formed with guide-ways disposed to lie vertically when said member is positioned in
25 contact with said stop; a pattern plate holder mounted upon such guide-ways so as to be vertically adjustable with respect to said parting stand in such position of said
30 member; sockets pivotal about the same axis as said frame; and a bail adapted detachably to secure the mold to said holder, the ends of said bail being adjustably mounted in
35 said sockets.

Signed by me this 9th day of December, 1908.

HARRY R. ATWATER.

Attested by:

MARY GLADWELL,
JNO. F. OBERLIN.