H. R. ATWATER.

MOLD MAKING MACHINE.

APPLICATION FILED FEB. 3, 1909.

1,067,895. **Patented July 22, 1913.**

2 SHEETS—SHEET 1.

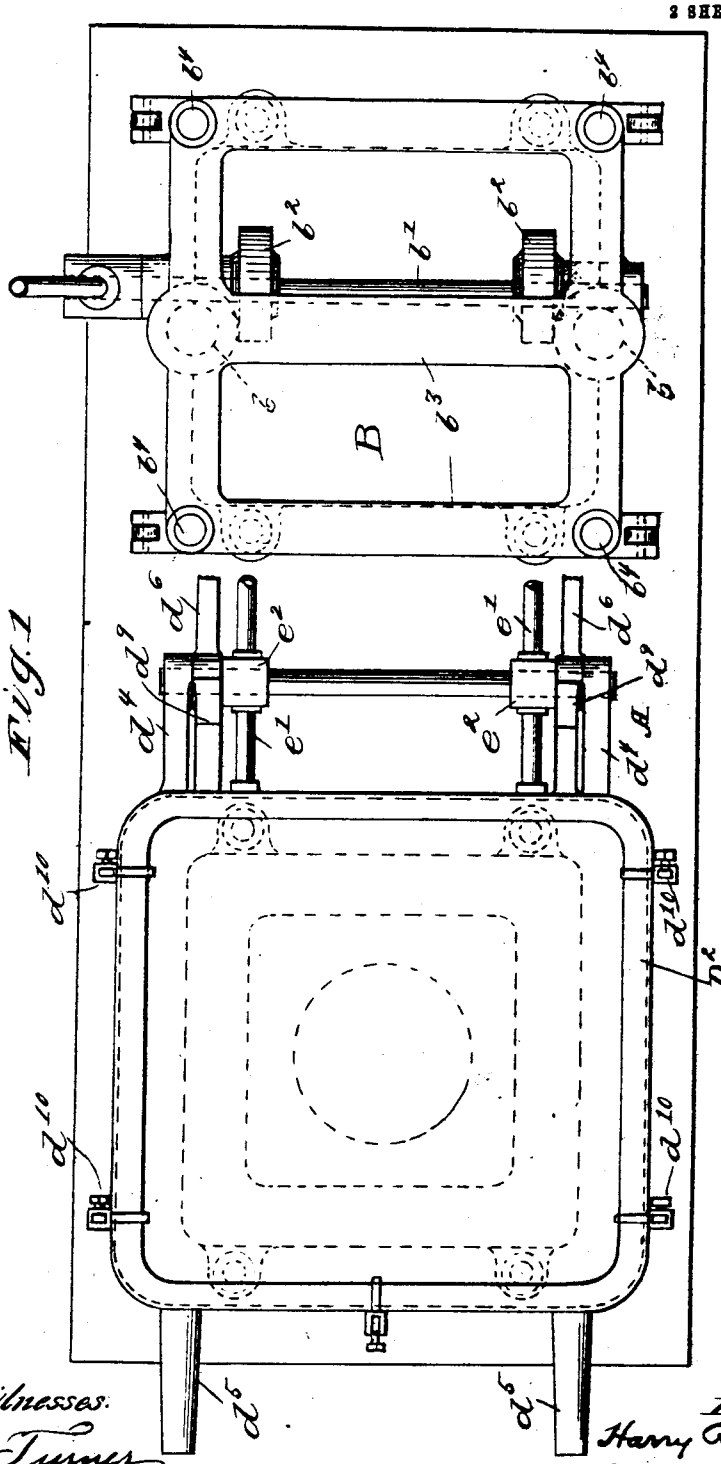


Fig. 1

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Inventor:
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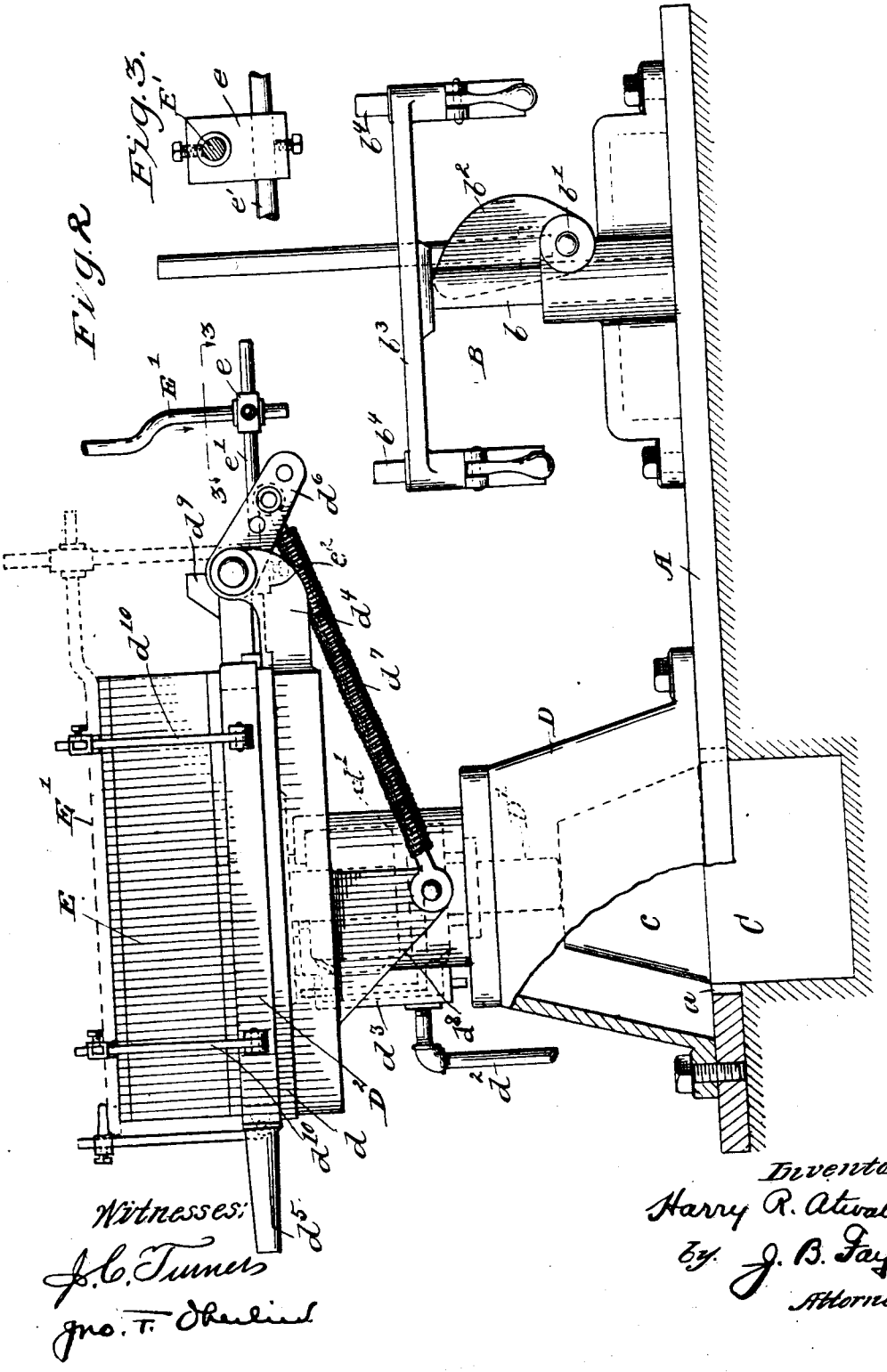
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1,067,395.

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Witnesses:
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UNITED STATES PATENT OFFICE.

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

MOLD-MAKING MACHINE.

1,067,895. Specification of Letters Patent. Patented July 22, 1913.

Application filed February 3, 1909. Serial No. 475,825.

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.

Among the various forms of molding machines that have been put upon the market, the so called "rock-over" type has been deservedly popular, by reason of the convenience of its manipulation, and the relative simplicity of construction possible therein. As heretofore constructed, however, this type of machine has not been adjustable to the degree that might be desired where various sizes of patterns are employed, and furthermore it has not been possible to satisfactorily handle large work, for the reason that hand-tamping has had to be relied upon to pack the sand.

The object of the present invention, is the provision of a "rock-over" molding machine that in the matter of adjustability will be capable of handling patterns, that is flasks, of considerable range in the matter of size, and that will, at the same time, embody means for jarring down or automatically packing the same in such flasks.

To the accomplishment of these and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings 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 plan view of a mold making machine embodying my several improvements; Fig. 2 is a side elevation of the same; and Fig. 3 is a section taken on the line 3—3, in Fig. 2.

The several parts of the machine, with one exception are designed to be supported upon a base A, although if desired, two separate bases properly disposed upon a firm foundation may be substituted for such single base. The parts thus supported include first of all a parting stand B, of which the details of construction need not be more than incidentally noted in this connection since they form no part of the present invention, being described and claimed in U. S. Patent No. 890,919. Parting stand B comprises simply two plungers b adapted to be reciprocated by means of a rock shaft b' that bears two cams b^2, such plungers being provided with a platform-like top or head b^3 that bears laterally spaced depressible members b^4 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. Adjacent to said parting stand, is an anvil block C that, while resting on the same foundation as the base A of the machine, is wholly independent of the same, a suitable aperture a being formed therein to permit said block to rise to the desired height above the top of the base. Such upwardly projecting portion c of the block is surrounded by a casing D constituting the frame for the filling stand. This filling stand comprises a vertically reciprocable plunger D' that is provided with a platform-like top d constituting the filling stand proper. In the normal position of the plunger and stand, the lower end of the former rests on top of the block C, but suitable mechanism is provided in connection with said plunger for raising the same, and then allowing it to drop onto the block in order to secure the desired jarring of the contents of the flask E resting upon the stand. While such jarring mechanism may take on various forms, I show, for the purpose of illustration, a fluid pressure actuated device, comprising a piston d' wherewith said plunger is provided intermediate of its ends, which piston is reciprocably held in a cylinder surrounding the portion of the plunger in question and forming a continuation of the casing or frame D of the filling stand. Air or like pressure medium, admitted through a supply pipe d^2 is utilized to thus successively raise the plunger and piston, and allow the same to drop in the manner just described, admission of the air being controlled by a valve in a valve casing d^3, as will be readily understood.

Pivotally attached to arms or brackets d^4 extending laterally from the filling stand d

in the direction of the parting stand, is a pattern plate holder D^2, the forward end of which is provided with handles d^5 whereby said plate holder, along with the flask E carried thereby, may be swung over in reverse position onto said parting stand when desired. To facilitate such oscillation of the plate holder, it is provided with projecting arms d^6, to which are attached the outer ends of tension springs d^7, the inner ends of which are secured to brackets d^8 projecting downwardly from the under side of the parting stand. Such springs assist in initially raising the plate preparatory to thus turning the same over, and also restrain too rapid movement, as it approaches its position of rest upon the parting stand. Lugs d^9 are furthermore provided on said pattern plate adapted to engage with offsets on the arms d^4 of the filling stand to retain said plate in a horizontal position when it is thus turned over, as is necessary when by depressing the parting stand, the mold proper is lowered away from the pattern.

In order to secure the flask and pattern plate holder onto the filling stand, pending the jarring of the latter, clamps d^{10}, or other like means, are provided along the lateral edges of said stand, which are adapted to engage the edge of the flask. For similarly detachably securing the flask to the plate as the two are swung over together onto the parting stand, a bail E′ is provided, that, while similar in its general features to those heretofore employed, presents several novel possibilities of adjustment, rendering the same particularly useful with a machine designed, as is the present one, for handling flasks of various sizes. The rear ends of the bail, accordingly, are slidably held in blocks e that are in turn adjustable along rods e' carried in sockets e^2 pivotal about the same axis as that about which the plate holder D^2 swings. It will accordingly be seen that not only is a considerable range of position possible for said bail vertically with respect to the plate holder, but that it may also be adjusted longitudinally of the same. The lower ends of the rods e' are furthermore adapted to engage with the plate-holder, so as to prevent the bail from being tilted over backwardly when in its open position, as during the jarring operation, while at the same time it will be sufficiently overbalanced to prevent it from dropping forwardly.

In order to adapt the parting stand for the reception of molds, that is flasks, of different depths, I have arranged to give the cam, by means of which said stand is lowered from its normal position, a sufficient throw to clear of its pattern the deepest flask within the capacity of the machine. Since, however, flasks of less depth may be used, these might not contact with the depressible members b^4 upon said parting stand, for their range of depression is purposely made slight, their function being, as explained in the patent previously referred to, to compensate for inequalities in the under surface of the flask. I accordingly make such depressible members, or plungers, detachable from the sockets in which they are resiliently supported, so that, for the set shown, another set of greater length may be substituted if desired, thus correspondingly raising the effective height of the stand for the reception of a shallower flask, without requiring provision to be made for any greater movement on the part of the depressible members, and still permitting utilization of the full throw of cam b^2 in lowering the flask from the stand.

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 of a vertically reciprocable plunger provided with a top constituting a filling stand, means for reciprocating said plunger to jar said stand, a pattern holder pivotally attached to one edge of said stand, a member similarly pivotally attached to said stand for detachably securing a mold to said holder, and a tension spring connecting said holder to said stand, whereby oscillation of the former is facilitated.

2. In a machine of the character described, the combination with a parting stand; of a vertically reciprocable plunger adjacent thereto and provided with a top constituting a filling stand; means for reciprocating said plunger to jar said stand; a pattern plate holder pivotally attached to one edge of said stand and adapted to be swung over in reverse position onto said parting stand; a member likewise pivotally attached to said parting stand for detachably securing a mold to said holder; and a tension spring connecting said holder to said parting stand, whereby oscillation of the former is facilitated.

3. In a machine of the character described, the combination with a filling and a parting stand; of an oscillatorily mounted plate holder adapted to rest upon said filling stand and to be swung over in reverse position onto said parting stand; and means adapted to detachably secure the mold to said holder, said means including rods oscillatory about the same axis as said holder, and a bail angularly disposed to said rods, the ends of said bail being se-

cured to said rods so as to be adjustable both therealong and transversely thereof.

4. In a machine of the character described, the combination with a filling and a parting stand; of an oscillatorily mounted plate holder adapted to rest upon said filling stand and to be swung over in reverse position onto said parting stand; and means adapted to detachably secure the mold to said holder, said means including sockets oscillatory about the same axis as said holder, rods adjustably mounted in said sockets, blocks adjustably mounted upon said rods, and a bail angularly disposed with respect to said rods and having its ends adjustably secured in said blocks.

Signed by me this 1st day of February, 1909.

HARRY R. ATWATER.

Attested by—
MARY GLADWELL,
JNO. F. OBERLIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."

BEST AVAILABLE COPY

Correction in Letters Patent No. 1,067,895.

It is hereby certified that the name of the assignee in Letters Patent No. 1,067,895, granted July 22, 1913, upon the application of Harry R. Atwater, of Cleveland, Ohio, for an improvement in "Mold-Making Machines," was erroneously written and printed "The Osborne Manufacturing Company," whereas said name should have been written and printed *The Osborn Manufacturing Company;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of August, A. D., 1913.

[SEAL.]

THOMAS EWING,

Commissioner of Patents.