

No. 646,188.

Patented Mar. 27, 1900.

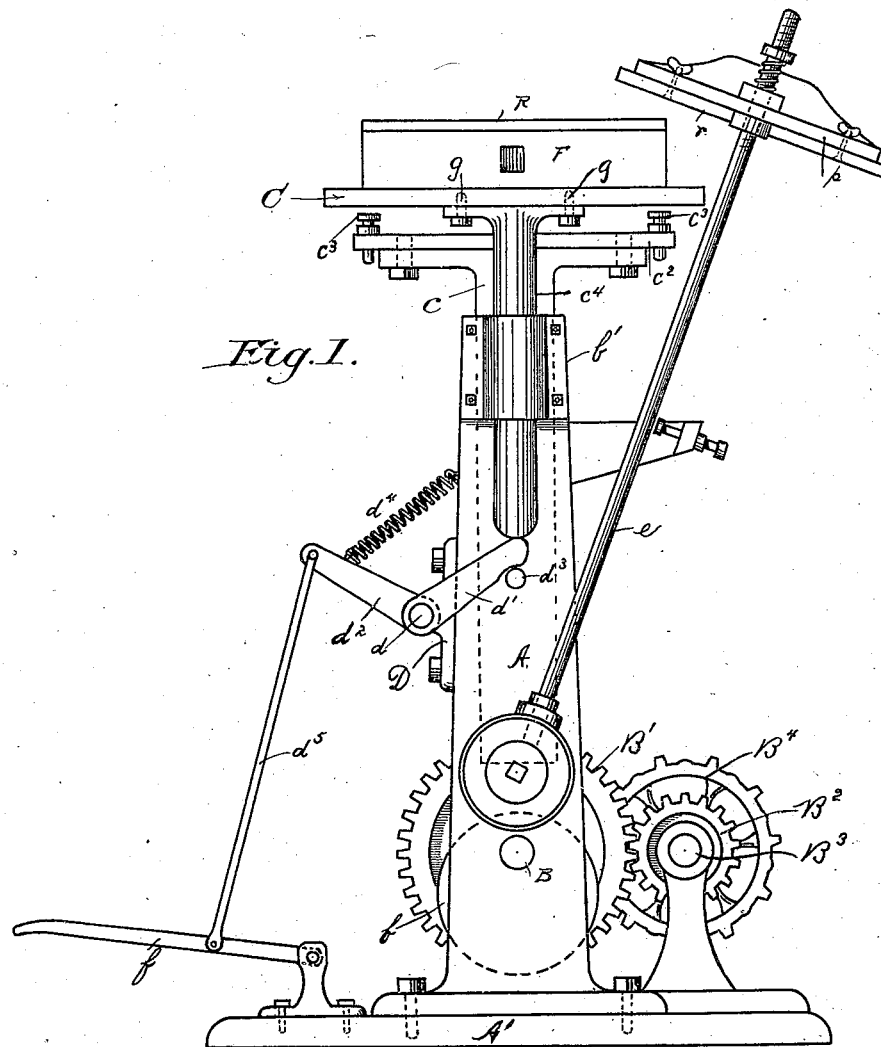
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MACHINE FOR MAKING SAND MOLDS.

(Application filed Mar. 6, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

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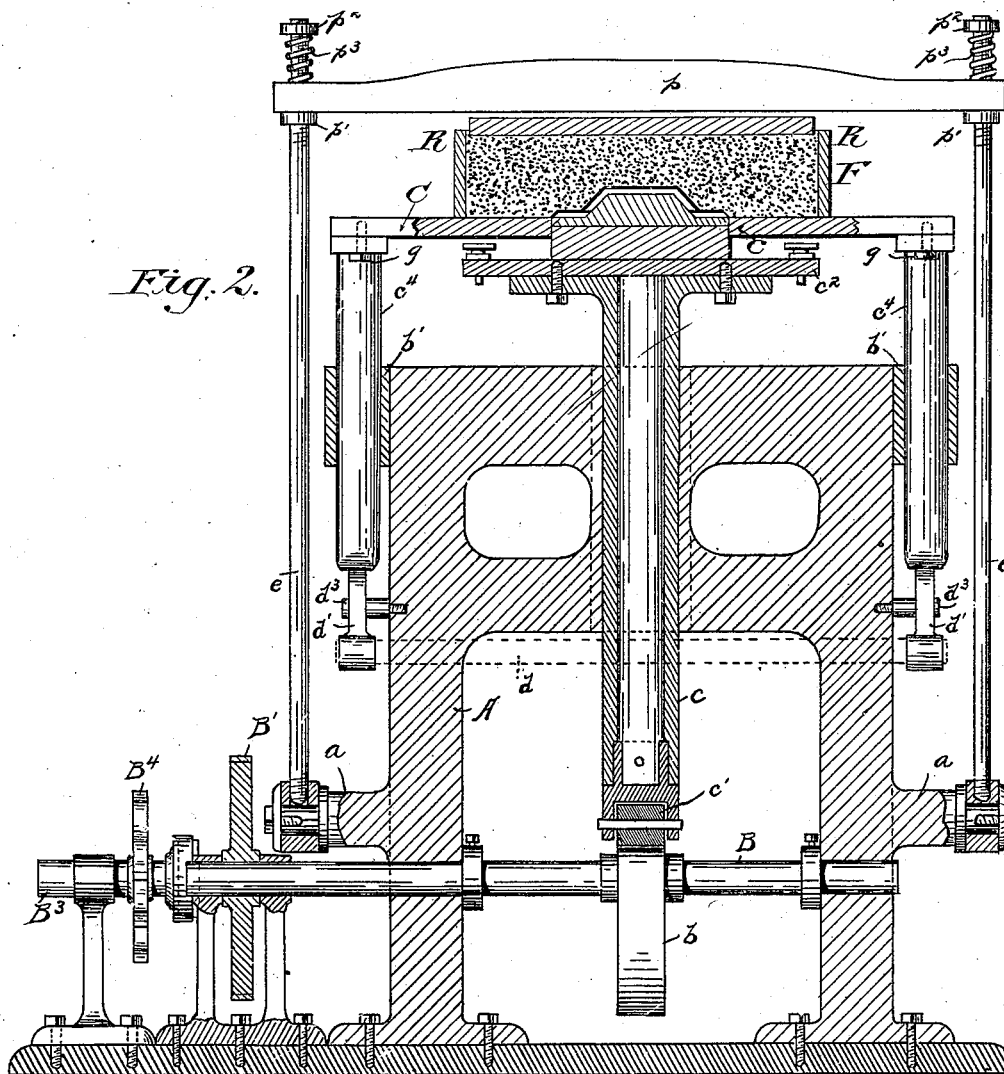
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2 Sheets—Sheet 2.

Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM MURCHEY, OF DETROIT, MICHIGAN.

MACHINE FOR MAKING SAND MOLDS.

SPECIFICATION forming part of Letters Patent No. 646,188, dated March 27, 1900.

Application filed March 6, 1899. Serial No. 707,882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MURCHEY, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Machines for Making Sand Molds; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to mold-making machines, and has for its object an improved form of mold-making machines by which a sand mold is formed readily and quickly. The machine itself is simply constructed and easily operated.

In the drawings, Figure 1 is an end elevation. Fig. 2 is a vertical section longitudinal of the shaft by which the press is operated.

A indicates a frame, in which there is journaled a horizontal shaft B, which is provided with a driving-wheel B', that receives power from any convenient source of power, as from the pinion B² on the counter-shaft B³.

The pinion B² is on a counter-shaft which is provided with clutch mechanism, so that a constantly-driven sprocket-wheel B⁴ can be employed to intermittently actuate the shaft B.

Near the middle part of the frame A there is mounted on the shaft B an eccentric b, that engages under the lower end of a standard c, which is arranged to slide vertically in the frame A. At its lower end the standard c carries a friction-roller c'. At its upper end the standard c carries a table c², and on the table c² is placed the pattern from which the mold is made.

At each side of the frame A is a projection or stud a, and on each stud is journaled the eye of a lever e. The two levers e e are yoked together at their upper end by a broad platen-shaped yoke adapted to engage on its under surface over the upper side part of the flask of sand in which the mold is to be made. The platen p is adjustably mounted on the levers e and is held in place by nuts p', that are run on the screw-threaded upper terminals of the levers and are located below the platen. Nuts p² run onto the terminals of the levers e above

the platen, hold the platen from escaping, and springs p³, which are interposed between the platen and the nuts p², furnish a yielding resistance to the upward movement of the platen when the flask is lifted against it in the way hereinafter described.

Near the top of the frame A and on each side of it there is a bracket b', bolted or otherwise secured to the frame, and through each bracket b' is a vertical hole or passage, through which is inserted a standard or guide c⁴, that supports the stripper-plate C. The stripper-plate C is capable of an independent vertical movement above the table c². Its approach to the table c² is adjustably limited by adjustable stop-screws c³.

On the front side of the frame A is a bracket D, in which is journaled a rock-shaft d, from the ends of which rock-shaft d rock-arms d' project and are arranged to swing under the ends of the legs c⁴ and engage against a stop d³. From the middle of the rock-shaft d an arm d² projects on the forward side, and the arm d² is connected by a link d³ to a foot-lever f, suitably mounted with respect to the main part of the machine. A spring d⁴ is arranged to pull the arm d² upward and back and to bring the extreme end of the arm d' against the stop d³. In this position the stripper-plate is lowered to its lowermost position and the foot-lever f is raised. Depression of the foot-lever lifts the stripper-plate; but as soon as the foot or other power which depresses the foot-lever f is removed the spring d⁴ returns these parts to their normal position. The yoke-plate p and the levers or arms on which it is mounted swing on the studs a from a position in which the yoke-plate is above and parallel to the stripper-plate and the presser-table c² to a position at the rear, such that the flask F may be readily removed from the stripper-plate.

The operation of the machine is as follows: The pattern is placed on the table c², and a stripper-plate suited to the pattern is mounted on the upper ends of the vertically-sliding guides c⁴. The stripper-plate is easily removable by taking out the screws g, which hold this plate to the guides. The stop-screws c³ are properly adjusted to allow the stripper-plate to rest on the flat, or follow-board, part of the pattern, with medallion parts of the

pattern projecting through and above the surface of the stripper-plate. The half of the flask, either the cope or the drag part, as the case may be, is placed above the stripper-plate and pattern and filled with sand. Above the flask is placed a frame R to hold the necessary surplus sand to enable the proper compression or packing against the mold. The yoke *p*, provided with a press-board *r*, that enters the frame R, is swung over the flask, and pressure is applied by revolving the shaft B and the cam *b*. After the sand has been sufficiently compressed or packed the table *c*² is dropped, and the parts resting above it, consisting of the stripper-plate and flask, all drop with it, the yoke-plate *p* is swung back, the auxiliary sand-holder R removed, and the top of the flask "struck," and the stripper-plate is then lifted by applying the foot to the treadle *f*. The stripper-plate in lifting carries up with it the half-flask, and the half-flask can then be readily lifted off the machine and joined to its mate, in which the other part of the mold has been made, either by previous operation of the same machine or (in case the mold differs in its obverse and reverse sides) by an operation on an adjoining machine. Where the pattern is alike on both sides, both parts may be made consecutively on one machine; but where the mold in the cope differs from the mold in the drag the two parts are made on different machines. The guides of the stripper-plate drop until their lower ends engage the ends of the rock-arm *d'*. The table *c*² continues to fall and draws the pattern through the stripper-plate and out of the sand. The half-flask can then be readily lifted off.

In order to facilitate the removal of the mold, it is first raised above the highest part of the pattern by depressing the lever *f*, thus

raising the stripper-plate C by the action of the arms *d'* upon the lower ends of the legs *c*⁴. When the mold has been removed, the lever *f* is still further depressed, carrying the arms *d'* from under the legs *c*⁴, thus allowing the stripper-plate to fall against the stop-screws *c*³ in position to receive a flask and its sand for the making of another mold. When the pattern and mold are again raised by means of the eccentric *b*, the lower ends of the legs *c*⁴ are raised above the arms *d'*, and said arms are drawn by means of the spring *d'* under said legs and against the stop *d*³ in position to limit the downward movement of the stripper-plate C, so that the pattern will be withdrawn from the sand, as above described.

What I claim is—

1. In a machine for making sand molds, in combination with a vertically-movable pattern-supporting table, a vertically-movable stripper-plate table, a swinging arm engaging under the stripper-plate table, arranged to lift, and then swing clear from its supporting position, and means for automatically returning the swinging arm to its supporting position, substantially as described.

2. In a machine for making sand molds, in combination with a pattern-table vertically movable, a stripper-plate also vertically movable, a swinging arm arranged to sustain the stripper-plate and means whereby the said swinging arm first lifts the said stripper-plate and then by a continuance of the same motion swings from under and allows the stripper-plate to drop, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM MURCHEY.

Witnesses:

CHARLES MURCHEY,
CHARLES F. BURTON.