

(No Model.)

H. & G. F. REYNOLDS.
MOLDING MACHINE.

No. 568,548.

Patented Sept. 29, 1896.

Fig. 1

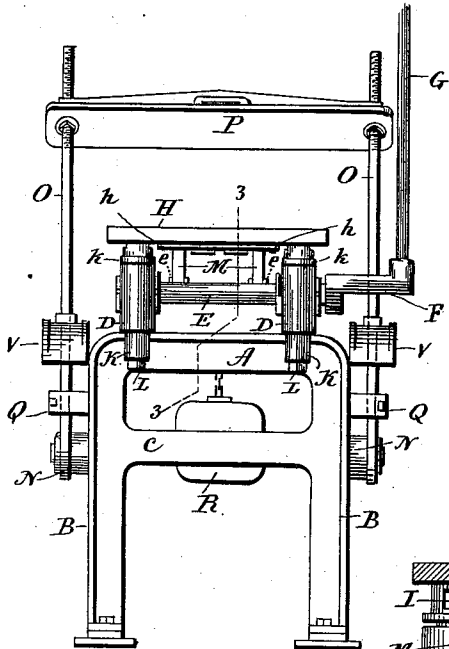


Fig. 2

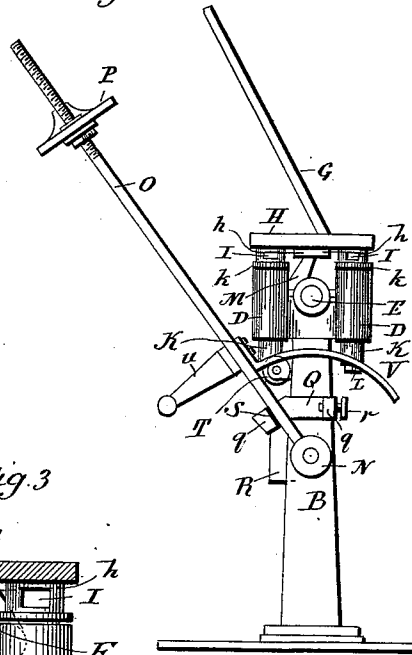


Fig. 3

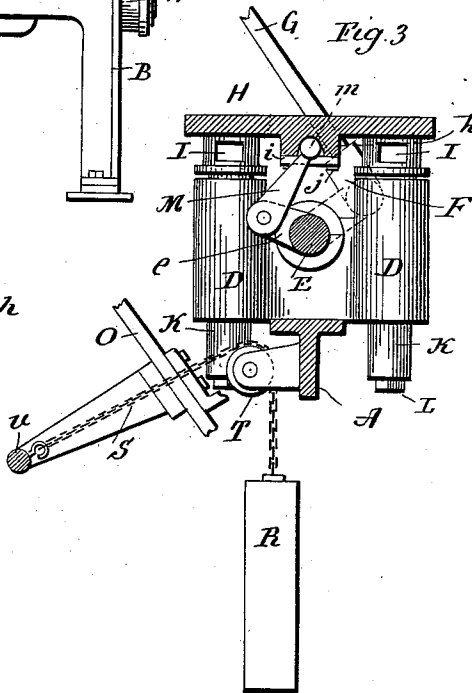


Fig. 4

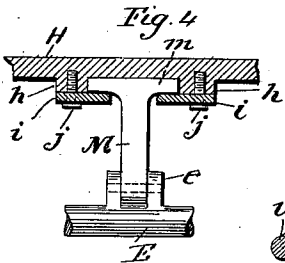
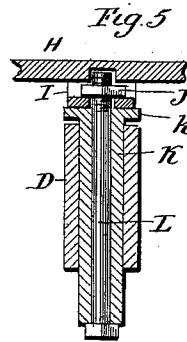


Fig. 5



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY REYNOLDS AND GEORGE FRANCIS REYNOLDS, OF NEW HAVEN,
CONNECTICUT.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 568,548, dated September 29, 1896.

Application filed November 25, 1895; Serial No. 570,065. (No model.)

To all whom it may concern:

Be it known that we, HENRY REYNOLDS and GEORGE FRANCIS REYNOLDS, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Molding-Machines; and we do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view; Fig. 2, a side view; Fig. 3, a sectional view on the line 3 3 of Fig. 1; Fig. 4, a detached view of one of the links, showing its connection to the moldboard and rock-shaft; Fig. 5, a sectional view illustrating the connection of one of the guides to the moldboard.

This invention relates to an improvement in molding-machines, particularly such as are employed in molding small articles in sand preparatory to casting, and is an improvement on the machine patented July 24, 1883, No. 281,926, the object of this invention being to simplify the construction of the machine and increase the pressure required and decrease the amount of force necessary for operation; and the invention consists in the construction and combination of parts as hereinafter described, and particularly recited in the claims.

The frame of the machine consists of an upper cross-bar A, supported by legs B B, which legs are connected by a brace C. Mounted on the cross-bar A and formed integral therewith are four vertical guide-tubes D, arranged in pairs at opposite sides of the bar. Mounted in bearings between each pair of guides is a rock-shaft E, formed with two pairs of ears *e* and at its outer end with a crank-arm F, into the outer end of which is fixed an operating-lever G. The crank-arm is offset from the shaft for the purpose which will hereinafter appear.

H is a moldboard constructed on its under face with four lugs I, corresponding in position to the guide-tubes D and recessed to receive nuts J. Secured to each lug I is a guide K, which consists of a tubular portion corresponding in external diameter to the inter-

nal diameter of the tubes D, and formed at its upper end with a flange *k* and secured in position by a bolt L, which extends upward through the guide K and lug I into engagement with the nut J, whereby the guide is clamped to the lug, the head of the bolt forming a bearing at the lower end of the guide, as shown in Fig. 5. The moldboard H is connected to the shaft E by links M, the lower ends of which are pivoted between the ears *e*. The upper ends of the links are formed with trunnions *m*, which are seated in sockets *h*, formed integral with the moldboard, and across these sockets are plates *i*, which are secured in position by screws *j*, whereby the links are held in position. As the ears *e* are upon one side of the shaft E, it is apparent that as the shaft is turned the moldboard will be raised or lowered accordingly and held in vertical position by the guides in the guide-tubes D. Mounted on trunnions N, formed on opposite sides of the frame, are rods O, connected at their upper ends by a platen P, which is adjustable vertically upon the rods O, which are screw-threaded for that purpose. To limit the swinging movement of the platen, stops Q are formed on the sides of the frames above the trunnions M and integral with the frame, which stops consist of lugs *q*, one of which carries a screw *r*, by which the movement of the rods O is adjusted, and the other a rubber packing *s*, against which the rods O will strike in their rearward movement.

To counterbalance the platen and assist in moving the same, a weight R is employed, from which a chain S extends over a pulley T, mounted in the frame to the center of a bar U, which is formed at each end with an arm *u*, which arms are respectively attached to the rods O. Also attached to the arms O and preferably to the point of attachment of the arms *u* are guards V, which protect the stops and trunnions from sand which falls from the moldboard.

The machine operates in substantially the same manner as the machine of the patent before referred to. That is, the flask or mold is arranged upon the moldboard when it is in its depressed position and filled with sand. The platen is then turned upward, so as to

stand over the flask, and adjusted into proper position with relation thereto. In their raised position the rods O stand vertical, which position is permitted by the offset of the crank-arm F from the rock-shaft E. The lever G is then turned, which rocks the shaft E, and through the links M raises the moldboard and compresses the sand in the mold or flask between it and the platen, the moldboard being guided vertically by the guides and guide-tubes, and owing to the fact that the links are connected to ears offsetting from the shaft a cam action is secured thereby and a very high degree of pressure upon the mold is secured. The lever is then thrown upward, which depresses the moldboard, and the platen thrown backward, as indicated in Fig. 2, in which movement it is counterbalanced by the weight R, which, being connected to the center instead of at one side, controls its movement equally, and in its rearward movement it strikes the cushion s, which avoids jarring. The flask is then free to be removed and another one placed on the moldboard. When the platen is retired, as shown in Fig. 2, the guard V stands over the stops and trunnions N, so that they are protected from sand as the mold or flask is being filled.

By forming the guides K tubular a large bearing-surface is obtained and the surfaces of the tubes are readily finished so as to easily slide within the guide-tubes.

We are aware that guides have been formed with threads at their upper ends for engagement with the under face of the moldboard to act as guides therefor, but a much better result is obtained by the use of the supplemental tubes, as herein described.

By operating the rock-shaft immediately below the moldboard great pressure may be obtained with the minimum amount of force.

It will be seen that in this construction the number of parts required is greatly reduced and the principal part of the machine formed in a single casting.

We claim—

1. In a molding-machine the combination with a frame formed with vertical guide-tubes of a moldboard formed with chambered lugs upon its under side corresponding in position to said tubes, tubular guides extending through said guide-tubes, nuts seated in said chambers, and headed bolts passing upward through said guides into engagement with said nuts whereby said guides are supported and secured in position, substantially as described.

2. In a molding-machine the combination with the frame thereof, of platen-rods pivoted in trunnions on opposite sides of the frame, stops arranged above said trunnions, and guards secured to said rods and so as to extend over said stops and trunnions, substantially as described.

3. In a molding-machine, the combination with the frame formed at its upper end with guide-tubes, a moldboard provided with guides sliding in said tubes, a rock-shaft mounted between said tubes, links connecting said moldboard and rock-shaft, a swinging platen carried by rods pivoted on opposite sides of the frame, and a lever connected to a crank offsetting from one end of the said rock-shaft, substantially as described.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

HENRY REYNOLDS.

GEORGE FRANCIS REYNOLDS.

Witnesses:

CLARA M. REYNOLDS,

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