

(No Model.)

2 Sheets—Sheet 1.

H. C. DUGGAN.
MOLDING MACHINE.

No. 541,080.

Patented June 18, 1895.

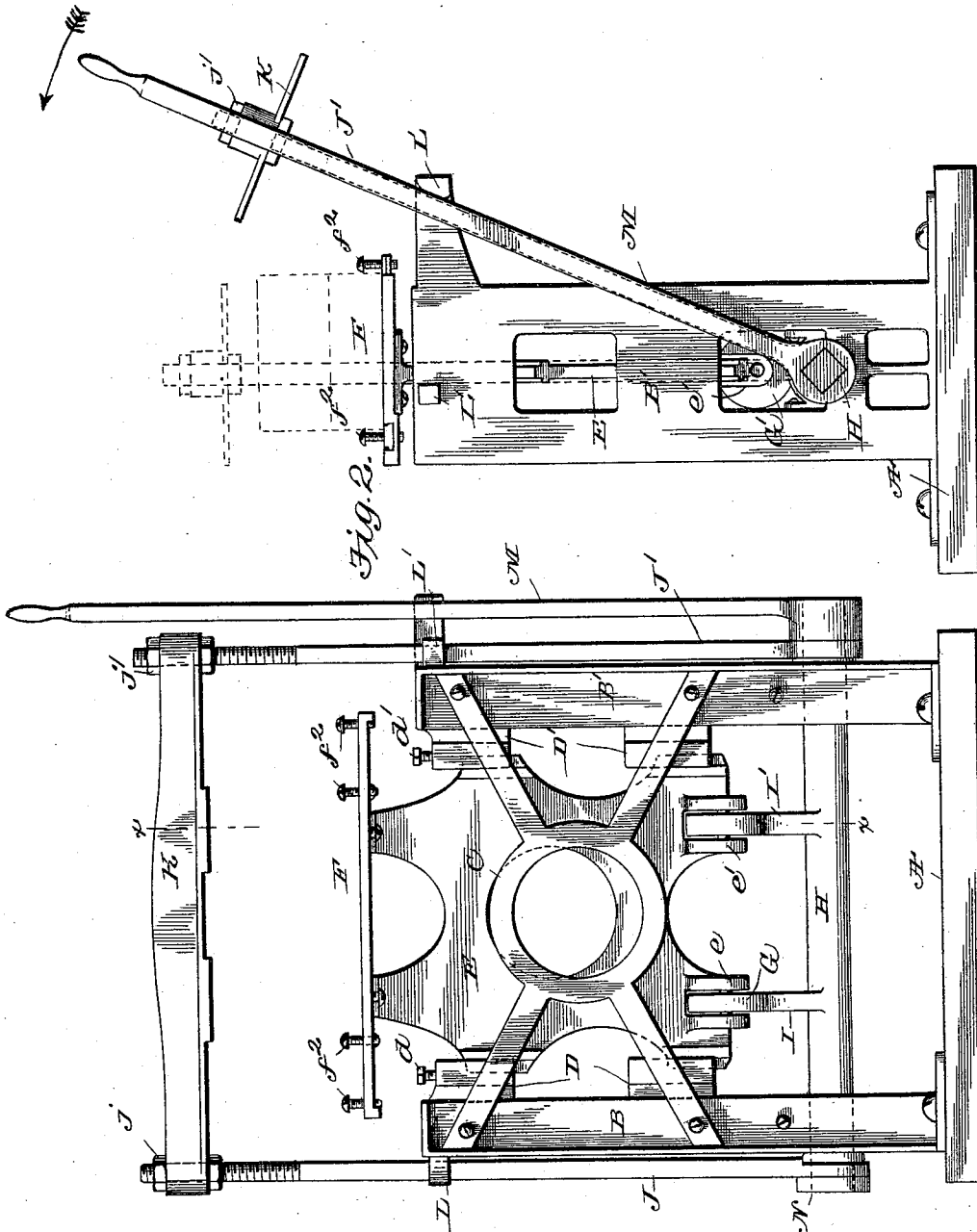


Fig. 1.

Fig. 2.

Witnesses

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Inventor

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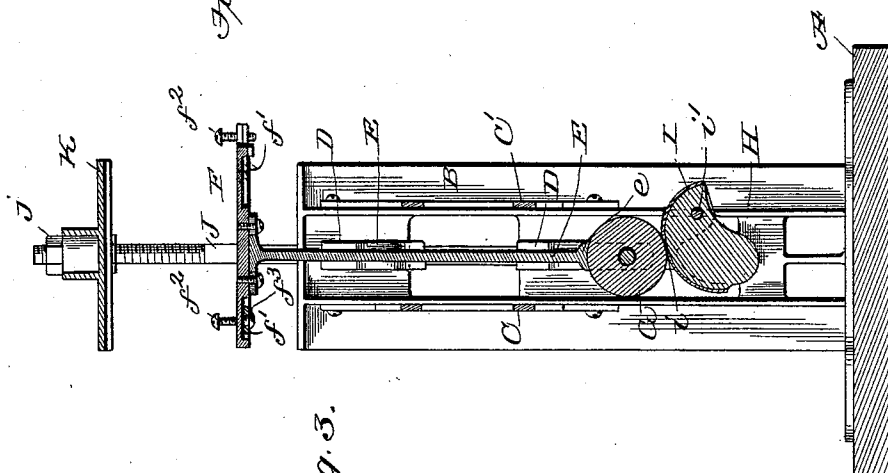
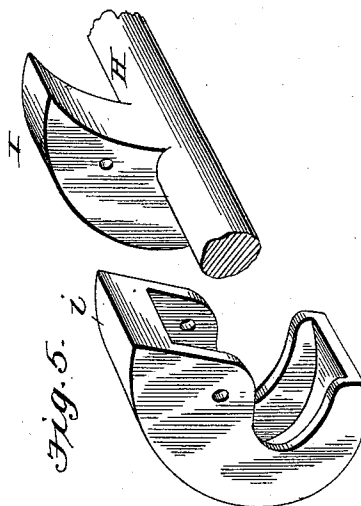
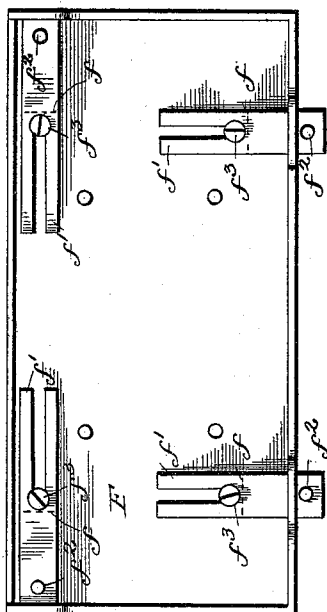
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2 Sheets—Sheet 2.

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John Emirie
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UNITED STATES PATENT OFFICE.

HENRY C. DUGGAN, OF WILMINGTON, DELAWARE.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 541,080, dated June 18, 1895.

Application filed May 23, 1894. Serial No. 512,225. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. DUGGAN, a citizen of the United States of America, residing at Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Molding-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This improvement relates to that class of molding machines in which the sand forming the mold is compressed by a reciprocating bed, and the invention consists in the peculiar construction, arrangement and combinations of parts hereinafter more particularly described and then definitely claimed.

In the accompanying drawings, Figure 1 represents a side elevation of my machine. Fig. 2 is an end view of the same. Fig. 3 is a section through the line *xx* of Fig. 1. Fig. 4 is a bottom plan of the bed, and Fig. 5 is a detail view of one of the cams.

In the description of my improvement, it will be unnecessary to give a detailed description of the flask used in connection with my machine, as my present invention relates solely to the machine with which any flask of the ordinary or usual construction can be used.

30 Referring now to the details of the drawings by letter, A represents the base of the machine, from which rise the standards B B', which are secured to said base in any manner desired. These standards B B' are braced and made rigid by securing thereto the braces C C'. Projecting from the said standards and preferably formed integral therewith are the guides D D, D' D', and moving in said guides is the slide E, which supports the reciprocating bed F. From the lower edge of this slide project the feet *e e'* in which are journaled rollers G G'. Journaled in the standards B B' and immediately under the pivots of said rollers G is a rock-shaft H on which the cams I I' are secured. These cams are for the purpose of giving the bed F and slide E a reciprocating motion when the shaft H is rocked. This shaft H projects through its bearings in the standards B B', and on its ends are journaled the rods J J' to the top of which is adjustably secured, by means of the nuts *j j'*, a

platen K. This platen is adapted to beswung to and fro over the bed F as shown in dotted lines in Fig. 2, and to limit its motion, stops L L' are cast on each of the vertical standards B B'. On one end of said shaft H is rigidly secured the lever M, which is used to give the said shaft a rocking movement, when it is desired to operate the machine. Of course a lever may be secured on each side of the shaft if desired, in which case the bed may be operated from either side of the machine, but I prefer to use only one, and therefore place a collar N on the other end of the shaft for the purpose of keeping the rod J in its proper position.

In order to give a pre-determined pressure to the sand when making a mold, I have provided the bolts or screws *d d'* in the tops of the guides D D' for the purpose of forming stops to prevent the bed rising too high. These bolts or screws are of course adjustable in order to give varying pressures to the molds.

The bed of my machine is also made adjustable, and may be described as follows: The bed has four recesses *f* formed therein in which recesses slide four adjustable bars *f'*, and in the ends of these bars are secured the set screws *f*² against which the flask abuts when it is placed on the bed. These adjustable bars are secured to the bed on the under side of the latter, by the screws *f*³ passing through the slotted ends of said bars, and their adjustability will be clearly understood on reference to the bottom plan view of the bed shown in Fig. 4.

In Fig. 5 I have shown the way in which my cams are preferably formed and their construction may be described as follows: The cam I is cast on the shaft of the usual construction but of a slightly smaller size than is desired for use on the machine; and on this cam is detachably secured the hard metal facing *i* by the screw *i'*. The reason for so making this cam is that as the sand drops from the flask whenever the sand is poured therein, the cam is quickly ground away. The removable face *i* is therefore secured to the cam, and when it wears away, a new one can readily be replaced on the cam.

The operation of my machine is as follows: The parts are placed in the position shown in

Fig. 2, and the proper parts of the flask are placed on the bed as shown in dotted lines. When the flask containing the pattern has had a sufficient quantity of sand placed therein and is ready to be pressed, the platen is swung over said flask as shown in dotted lines. The parts of the machine are now in the proper position for the bed to be raised to give the desired pressure on the sand. The lever M is therefore moved in the direction shown by the arrow, thereby rocking its shaft H, and, through the cams I and rollers G, causing the bed to be elevated, thus compressing the sand and forming one-half of the mold. Of course, the parts are then caused to assume their normal positions and the operation is repeated to form the other half of the mold in a manner well understood.

What I claim as new is—

1. In a molding machine, a pair of standards having guides projecting therefrom, a slide working in said guides and having a bed on its upper end and a roller on its lower end, a shaft journaled in said standards immediately beneath the axis of said roller and carrying a cam adapted to co-act with said roller, a lever fixed to said shaft and adapted to rock the same and thereby elevate the bed, and a

platen secured on rods journaled on said shaft, substantially as described.

2. In a molding machine, a pair of standards having guides projecting therefrom, a slide working in said guides and having a bed on its upper end and a roller on its lower end, a shaft journaled in said standards and having a cam thereon arranged to work on said roller, a lever fixed to said shaft, and a platen adjustably secured to rods journaled on said shaft, substantially as described.

3. In a molding machine, the combination with a platen, a bed, and mechanism for operating the same, of bars adjustably secured to said bed, one or more of said bars being adjustable lengthwise of said bed and others crosswise thereof, and all of said bars being adjustable lengthwise of themselves, whereby said bars may be extended beyond the bed to support flasks larger than said bed, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 16th day of May, 1894.

HENRY C. DUGGAN.

Witnesses:

JAMES BAILY,

DAVID T. BRADFORD.