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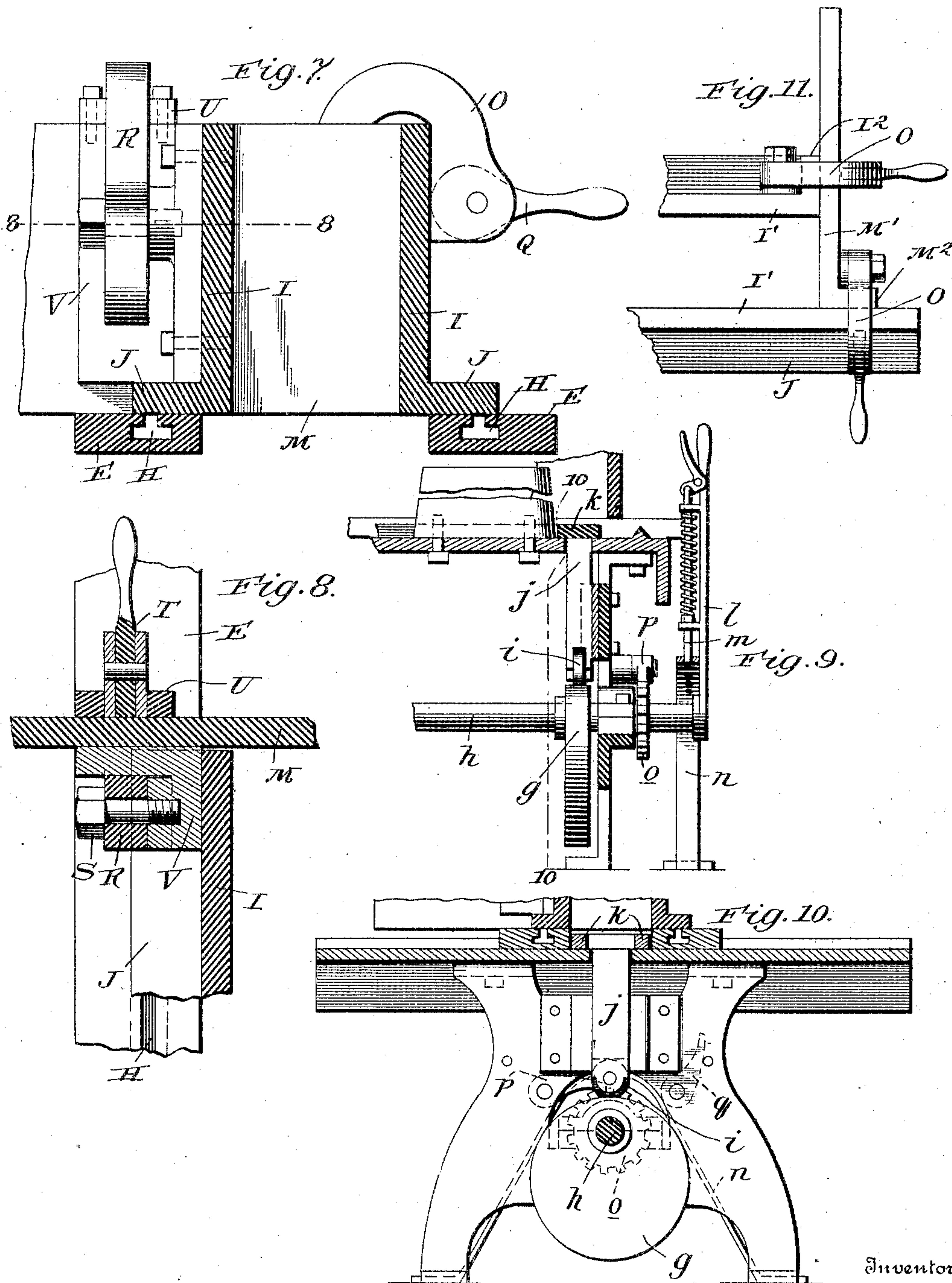
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E. L. STEVENSON.
MOLDING MACHINE.

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NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EDWARD L. STEVENSON, OF CINCINNATI, OHIO.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 777,445, dated December 13, 1904.

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To all whom it may concern:

Be it known that I, EDWARD L. STEVENSON, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Molding-Machines, of which the following is a specification.

My present invention pertains to improvements in molding-machines, the construction and advantages of which will be hereinafter set forth, reference being had to the accompanying drawings, wherein—

Figure 1 is a vertical longitudinal sectional view of the apparatus; Fig. 2, a top plan view thereof; Fig. 3, a side elevation; Fig. 4, an end elevation; Fig. 5, an enlarged sectional view on the line 5 5 of Fig. 1; Fig. 6, an enlarged vertical sectional view on the line 6 6 of Fig. 3; Fig. 7, a transverse sectional view on the line 7 7 of Fig. 2, the parts being shown on a somewhat enlarged scale; Fig. 8, a horizontal sectional view on the line 8 8 of Fig. 7; Fig. 9, a vertical sectional view showing a modified form of construction; Fig. 10, a vertical sectional view on the line 10 10 of Fig. 9, and Fig. 11 a plan view of a modified form of the mold boards or sides.

The main object of my invention is to provide an expansible mold for molding-machines, the size of which may be varied as desired, the opposite sides being maintained in parallelism at all times. The construction is such that the sides and ends of the mold are always held in a vertical position with relation to the bed of the machine, so that the parts may be quickly clamped or locked together and to the bed when the desired adjustment as to width and length of the mold has been obtained.

A further object of the invention is to provide a novel device for elevating the false bottom or palate to a point slightly above the upper edge of the mold, so that the palate, with the molded block thereon, may be moved laterally from the apparatus, as is now the usual practice.

The advantages of the construction referred to, as well as of certain details thereof, will be hereinafter more fully set forth

Referring first to the construction shown in Figs. 1 to 8, inclusive, A A indicate the end frames or supports of the machine, each of which carries a horizontally-disposed member B, having a track or way C upon its upper face and being likewise formed with a downwardly-extending flange or web D. Mounted upon said members B are two slides or supporting members E E of such length that they project slightly beyond the members B for a purpose which will presently appear. Members E are provided with suitable grooves upon their under faces, the grooves conforming with ways C of members B, so that when the parts are unclamped said members E may be moved laterally upon the members B to any desired extent, the guides or ways maintaining the same in parallelism.

J-shaped clamping members F are carried by the outer ends of members E E, the lower end of each clamping member extending inwardly below the web or flange D. The parts are drawn together by cam-levers G, pivotally connected to the clamping members F and bearing upon the members E. Each supporting member E is provided in its upper face with an undercut groove or channel H, which preferably extends from end to end of said member. The members B form, in effect, the bed of the machine, the supporting members mounted thereon in turn carrying the adjustable mold. Mounted upon each of said members E and extending longitudinally thereof are the mold sides I I, each of which is provided with a lateral extension or foot-piece J, overlying the undercut groove or channel H. A series of holes or openings is formed in each foot-piece J, and bolts K (see Fig. 6) extend through said openings, the heads of the bolts being placed in the grooves or channels H. To the upper end of each bolt is pivotally connected a cam-shaped locking-lever L, which when turned into an upright position, or that shown in the drawings, serves to draw the bolt upwardly and to force the member J downwardly upon the supporting member E, thereby securely clamping the side of the mold in its adjusted position.

In the form shown in Figs. 1 to 8 the sides

I are straight throughout their length and contact with end plates M. Each plate M is provided with a lateral offset or bearing-plate N, which bears against the inner face of the corresponding side piece. In other words, the end plates are L-shaped, and the foot of the L bears directly against the inner wall of the side I.

As will be seen upon reference to Fig. 2, the bearing plates or members N of the end plates abut against the adjacent side pieces I. This arrangement facilitates the adjustment of the mold and the clamping of the parts together. The clamping of each bearing member N to the corresponding side I is effected by means of a U-shaped bail or clamp O, (see Fig. 4,) one end of which is slotted and connected to the end plate M by a bolt P. The other end of the clamp is provided with a cam-lever Q, which bears against the outer face of the side wall or member I. The other end of each side member I is secured to the corresponding end plate or member M by means of a U-shaped clamp R, which is slotted at one end and connected to the side member by a bolt S. The opposite end of the clamp is provided with a cam-lever T, which bears directly against the outer face of the end plate M. In order to prevent separation of the side members I and end plates M when the parts are released for adjustment, (either to increase or diminish the size of the mold,) fingers U are employed, said fingers being connected to castings V, carried by the side members I.

In increasing or diminishing the size of the mold it is not essential that the clamps O be released, though it may be preferable to do this in order to more readily center the mold over the palate-raising mechanism, which will now be described.

As is usual in this class of machines, I propose to employ mechanism for bodily elevating the palate, with the molded block thereon, to a point where it may be moved laterally over the upper edge of the mold to any suitable conveying device, the mechanism being likewise employed to regulate the depth of the mold. The mechanism which I employ for this purpose comprises a cross-beam W, the ends of which are provided with internally-threaded openings through which pass screw-shafts X, each shaft carrying a bevel-pinion Y at its lower end. Said pinions are in mesh with corresponding gears or pinions Z, mounted upon a shaft α , which is journaled in suitable bearings formed in the end supports A. A hand-lever b is loosely journaled upon the outer end of the shaft and carries a spring-pressed locking-dog c , which engages with a toothed disk or wheel d , secured upon the shaft α . By means of this lever and wheel the shaft may be rotated in either direction, so that the beam W may be raised or lowered,

as desired. Any suitable mechanism may of course be employed for actuating the shaft, power devices falling within the limits of my invention.

Carried by the beam is a series of posts or uprights e , each having at its upper end a bearing-plate f , said plates, as will be seen upon reference to Fig. 2, being elongated. The palate or false bottom rests squarely upon these bearing-plates f , and when the beam is elevated the palate will be moved out of the mold, so that the block mounted thereon will not be distorted or broken.

The uprights e are adjustable in the cross-beam, so that their position may be shifted as the form of the mold is changed, or some of them may be removed if the mold be contracted, so that a less number of said bearing-plates f is required. So, too, plates of larger size may be employed.

It is apparent that the mold may be readily adjusted to blocks of various sizes. Assuming that it be desired to expand the mold from the adjustment shown in Fig. 2, the operator will release the end clamps F, clamps O and R, and also by releasing levers L the locking-bolts K. The members E may then be moved upon the guides or ways of supporting members B. The sides I of the mold will be carried with the members E, and as a consequence the ends M will be drawn through the fingers U. The sides may then be moved endwise, one to the right and the other to the left, to extend the length of the mold, and after the parts are in the desired positions the various clamps are secured in place. The bearing-plate or offset N of each end will of necessity keep the members M in parallelism and likewise at right angles to the sides I. Thus it will be seen that the sides and ends are maintained at all times in proper relation to each other and also retained in vertical position.

In Fig. 11 a modification of the mold is shown. In this instance the side members I' are each provided with an integral lateral offset or bearing-plate I², each end plate M' also having a lateral offset or bearing-plate M². Suitable clamps are employed to maintain the parts in proper position. This construction is the equivalent of that shown in the figures heretofore specifically referred to. So long as the U-shaped clamps loosely engage the opposite members the parts may be moved to secure the desired adjustment, although not permitted to become entirely separated.

In Figs. 9 and 10 a further modification of the invention is illustrated wherein instead of employing screws to elevate the false bottom or palate a cam g is mounted upon a shaft h , the cam working in conjunction with a roll i , carried by the lower end of a vertically-movable member j , which bears against the under face of the palate or false bottom k . A lever l is secured to the outer end of

the shaft, said lever carrying a locking-dog or detent *m*, which works in conjunction with a segment *n*, having a series of openings therein for the reception of the dog or detent *m*.

5 The shaft *h* is also provided with a ratchet-wheel *o*, and locking-pawls *p* and *q*, mounted upon the frame, work in conjunction therewith and prevent the parts from moving backward when the dog or detent *m* is released
10 previous to throwing the lever in one or the other direction. It is to be understood, of course, that one or the other of the paws *p* *q* will be thrown out, according as the palate is raised or lowered. This construction is shown
15 simply to illustrate the fact that mechanism other than that above described may be used in conjunction with an adjustable mold of the form herein set forth.

Having thus described my invention, what
20 I claim is—

1. In a molding-machine, the combination of a suitable bed; a pair of supporting members adjustably mounted thereon; mold sides secured upon said supporting members and adjustable lengthwise thereon; and mold ends
25 adjustably and securely connected to said mold sides, substantially as described.

2. In a molding-machine, the combination of a suitable bed; a pair of supporting members mounted and movable thereon toward
30 and from each other; a mold side mounted upon each of said members and adjustable longitudinally thereof; means for clamping said sides to said supporting members; and mold
35 ends adjustably connected to said mold sides, substantially as described.

3. In a molding-machine, the combination of a suitable bed; supporting members mounted thereon and movable toward and from each
40 other; mold sides mounted upon said members and movable longitudinally thereon; means for securing said sides in position; and mold ends each provided with a lateral offset or bearing-plate at one end, which bears against
45 the face of the adjacent mold side; and means for securing said sides and ends in position.

4. A mold comprising imperforate side and end members, said end members being each provided with a laterally-extending bearing-
50 plate at one end only, which plates bear against the adjacent side members; and means for clamping the bearing-plates to the side members, said means acting upon the outer faces of said parts whereby a wide range of adjust-
55 ment is secured, substantially as described.

5. A mold comprising imperforate side members; imperforate ends each having a bearing-plate or offset extending from one extremity only thereof, said bearing-plates resting
60 against the faces of the adjacent side members; and clamps embracing said bearing-plates and side members outside of the mold proper, substantially as described.

6. In a molding-machine, the combination

of a suitable bed; supporting members mounted
65 thereon and movable toward and from each other; means for securing said members to the bed in their adjusted positions; mold sides mounted and movable longitudinally upon said
70 supporting members; means for securing said sides in their adjusted positions; mold ends, each of which has a lateral offset or bearing-plate which bears against the face of the adjacent mold side; and clamps for securing the
75 mold sides and ends together.

7. In a molding-machine, the combination of a suitable bed; supporting members adjustably mounted thereon; and a mold adjustably
80 mounted upon said supporting members, said mold comprising vertically-disposed members having lateral offsets which bear against the faces of the adjacent mold members; and means for securing the mold members together at their points of junction, substantially as described.
85

8. In a molding-machine, the combination of a bed; supporting members arranged thereon; an adjustable mold carried by said supporting members; a cross-beam; a series of removable uprights carried by said cross-
90 beam; a bearing-plate carried at the upper end of each of said uprights; and means for elevating said cross-beam, whereby the number of uprights and the size of the bearing-plates may be varied according as the mold is
95 made larger or smaller, substantially as described.

9. In a molding-machine, the combination of a suitable bed; an adjustable mold mounted thereon; a cross-beam; a series of uprights
100 detachably mounted upon said beam; bearing-plates carried by the upper ends of said uprights; and means for raising and lowering the beam, whereby the number of uprights and the size of the bearing-plates may be varied according as the mold is made larger or
105 smaller, substantially as described.

10. In a molding-machine, the combination of a suitable bed, having parallel ways formed thereon; a pair of supporting members mounted
110 on said ways and movable toward and from each other, said members having undercut channels in their upper faces; means for securing said members to the bed; mold sides having lateral projections, said sides being
115 mounted and longitudinally movable upon said supporting members; clamps coacting with said lateral projections and the channels in the supporting members; mold ends; and means for securing said ends and the mold sides
120 together.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD L. STEVENSON.

Witnesses:

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MILTON SATER.