

E. W. WHITAKER.
CLAMPING MEANS FOR MOLDING MACHINES.
APPLICATION FILED APR. 9, 1919.

1,316,259.

Patented Sept. 16, 1919.
3 SHEETS—SHEET 1.

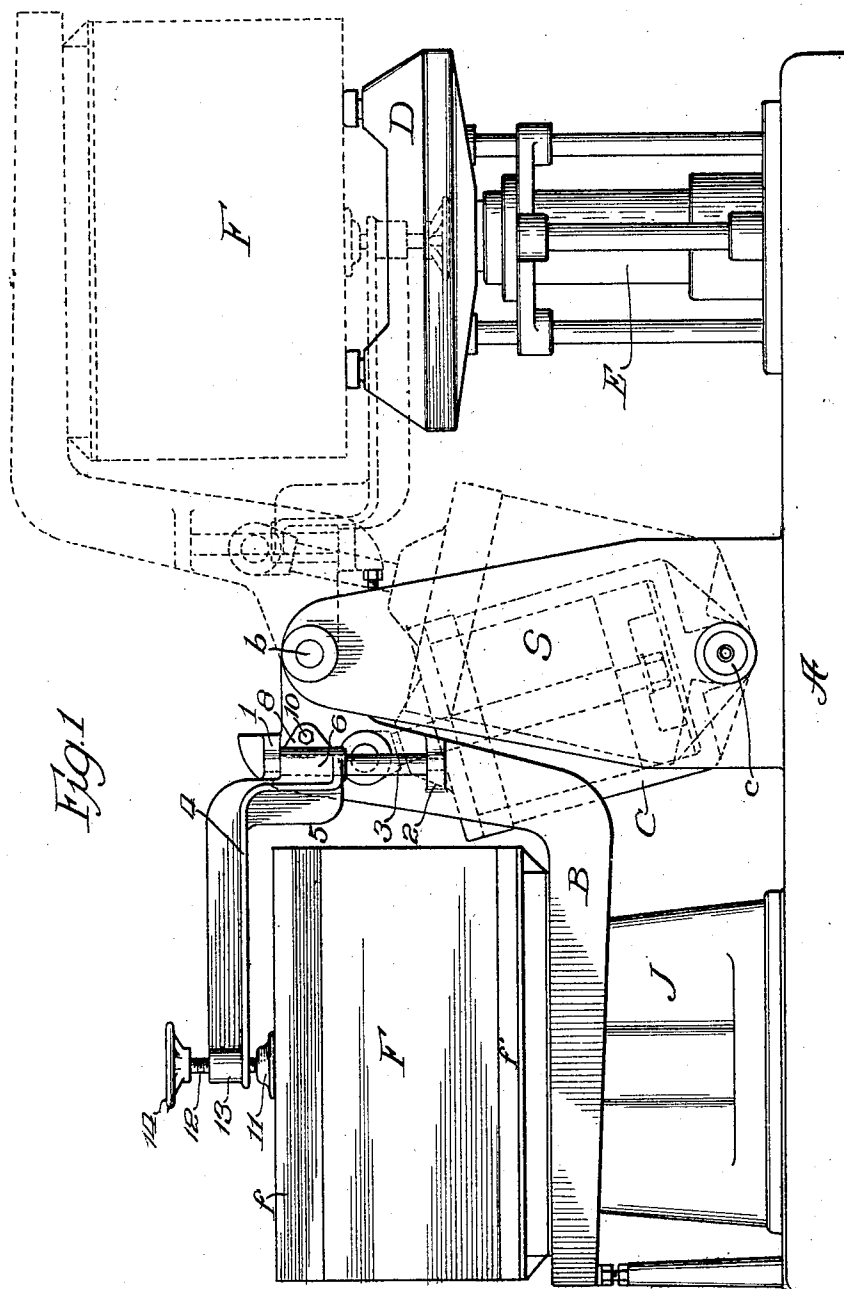


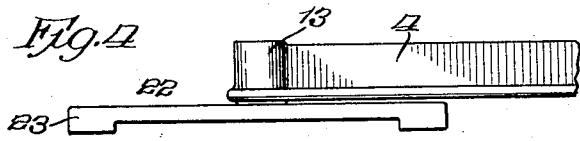
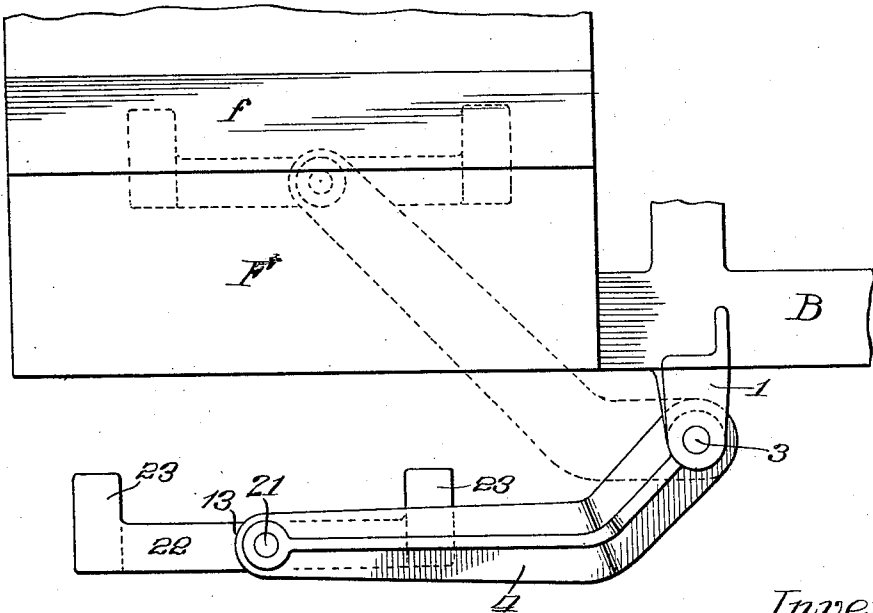
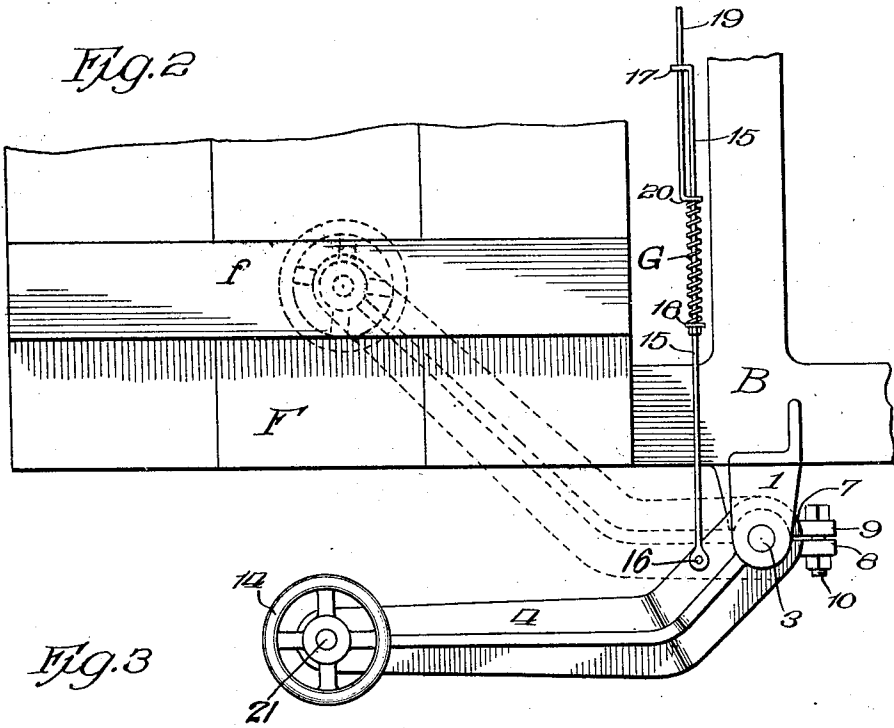
Fig. 1

Inventor:
Edward W. Whitaker
By *Alfred Brown* Atty.

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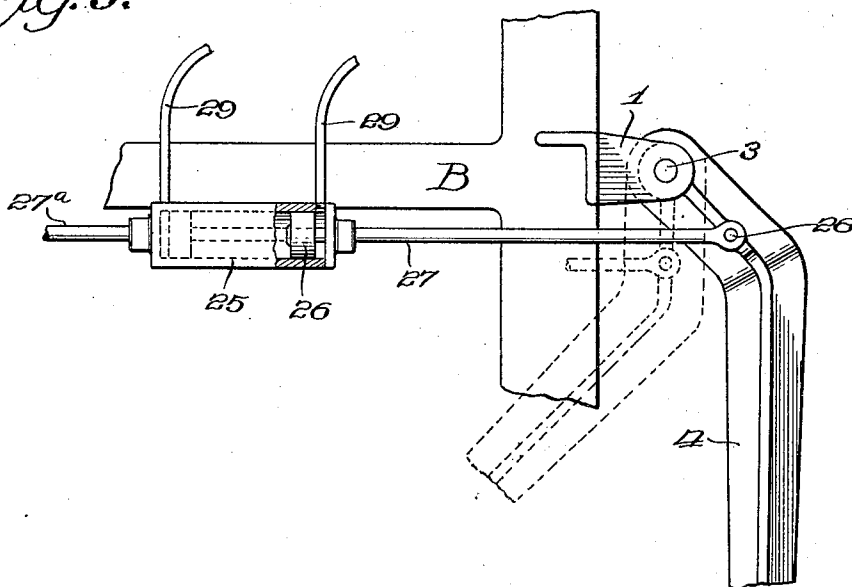
Inventor:
 Edward W. Whitaker
 By *J. H. Brown*
 Atty.

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3 SHEETS—SHEET 3.

Fig. 5.



Inventor
Edward W. Whitaker
By *W. A. Brown*
Atty.

UNITED STATES PATENT OFFICE.

EDWARD W. WHITAKER, OF DAVENPORT, IOWA, ASSIGNOR TO DAVENPORT MACHINE & FOUNDRY COMPANY, OF DAVENPORT, IOWA, A CORPORATION OF IOWA.

CLAMPING MEANS FOR MOLDING-MACHINES.

1,316,259.

Specification of Letters Patent.

Patented Sept. 16, 1919.

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To all whom it may concern:

Be it known that I, EDWARD W. WHITAKER, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Clamping Means for Molding-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to mechanism for clamping a mold flask to the movable arm of a molding machine of the roll-over type, firmly uniting the two during the "roll-over" operation, wherein the flask is conveyed from its initial position at one end of the machine to an inverted position at the other end of the machine.

The object of the invention is to produce a strong and efficient clamping arm, readily adjustable to compensate for inequalities in the height of flasks, and at the same time of simple construction, easily operated, and not liable to get out of order.

The invention consists in the matters illustrated and described and hereinafter pointed out in the appended claims.

In the drawings:

Figure 1 illustrates, in side elevation, a typical molding machine of the roll-over variety, to which my improved clamping mechanism is applied.

Fig. 2 is a plan view of the arm and of the part of the machine to which it is attached.

Fig. 3 is a similar view showing a modification of the clamping means.

Fig. 4 is a side view of the arm end and of the modified clamping means shown in Fig. 3.

Fig. 5 is a plan view of the clamping arm and the cylinder for actuating the arm.

Referring now more particularly to Figs. 1 and 2, the base A of the molding machine is provided at one end with a jolt unit J and at the other end with a pattern drawing unit D, and intermediate these units with an operating cylinder C, pivotally mounted at c to a standard or support S. The movable member or roll-over arm B is pivotally mounted on the rock shaft b. The

table of the drawing unit D is suitably united to the piston of an operating cylinder E. The flask F has bottom and top boards f, f' respectively, and is shown in its initial position resting on the arm B. After the flask F has been filled with sand, and submitted to the familiar action of the jolt unit J, the bottom board f is placed on the flask, a clamping arm 4 swung over the bottom board and clamping parts applied whereby the flask is securely locked and clamped to the arm B. The latter may now be moved by the action of the cylinder C, and the arm B, and its load (flask F and contents), rolled over into the position shown in dotted lines in Fig. 1. The table of the flask drawing unit D will then be brought into operative position under the influence of the cylinder E, to receive the now inverted flask F, the clamping arm 4 released, and the flask and the pattern separated, and the arm B with the top or mold board f' carrying the pattern, returned to the initial position, where a new flask will be used and the operation repeated. As the parts just described form no part of my present invention, no further description will be required, especially as machines of this type and their operation are familiar to those skilled in the art.

The clamping means will now be described. On the side of the roll-over arm B, I provide two vertically apertured bearing lugs 1, 2, adapted to receive and support a pivot rod or shaft 3. The clamp arm 4 is bent and its short member 5 is vertically disposed and provided with a sleeve 6 adapted to engage the pivot rod or shaft 3 by means of the collar 7, apertured lugs 8 and 9 on the sleeve and collar respectively, and the bolt 10. The outer end of the arm 4 is provided with clamping means comprising a clamp plate 11 on the end of a screw 12 passing through the end 13 of the arm 4, said screw being operated by the handle 14.

A rod 15 pivotally connected at 16 to the arm B, is provided at its other end with an apertured, inturned bearing flange 17, and intermediate its ends with a shoulder collar 18. A guide rod 19 having an inturned apertured flange 20 is positioned parallel to said rod 15, the latter passing through the flange 17, thus forming telescopic connection between the rods 15 and 19. Surrounding the

rod 15 is a spring G, one end of which bears against the flange 20 and the other end against the collar 18. The rod 19 is fixed to the roll-over arm B by any suitable means, not herein illustrated. When the arm 4 is moved, by hand or otherwise, into the position shown by dotted lines in Fig. 2, the spring G is contracted, the collar 18 pushing the spring against the flange 20, thus putting the spring under tension. When the clamping plate 11 is released, the normal thrust of the spring G will cause the rod 15 to move the arm 4 away from the flask F and to assume the position shown in full lines in Fig. 2.

It is immaterial, of course, whether or not in moving the arm 4 to the flask F, the arm turns or swings on the pivot rod or shaft 3, or is fast to said rod or shaft and the latter turns or swings in its bearings 1 and 2.

Referring to the modified clamping means illustrated, in Figs. 3, 4, it will be noted that in the end 13 of the arm 4 is secured downwardly projecting bolt 21 carrying on its lower end a clamping bar 22, which latter is provided with two laterally extending wedge shaped lugs or locking projections 23, 23, the under, inclined surfaces of which bear against the bottom board *f* of the flask F. By swinging the arm 4 over the flask F and moving the bar 22 toward the bottom board *f*, the wedges 23 will contact with and may be pushed tightly against the bottom board *f*, thus firmly clamping the flask F and the roll-over arm B together.

Fig. 5 shows means for pulling the arm 4 over the flask, said means comprising a cylinder 25 connected with a source of fluid pressure supply, and operatively connected with the arm 4. Said cylinder 25 is provided with a piston 26 to which is connected one end of a rod 27, the other end of said rod 27 being pivotally connected at 28 to the arm 4. Fluid pressure to actuate the piston 26 may be obtained through the conduit 29 connected with any suitable source of fluid supply, not shown. If two arms 4 are used, the other arm may be connected with the cylinder 25 by a rod 27^a.

It is obvious that the strain of clamping, largely borne by the arm 4, is distributed to the cam bearing and the roll-over element and hence the construction shown is very strong and not liable to easily break or to get out of order. My invention possesses great practical utility, is simple in action, devoid of complicated parts and is very efficient in operation.

I claim as my invention:

1. In a molding machine, a roll-over element adapted to receive a flask placed thereon, an arm pivotally mounted upon said element and adapted to have its free end swing in a horizontal plane into a position above

the flask and means for engaging the free end of said arm upon the flask to clamp the latter to the roll-over element.

2. In a molding machine, a roll-over element adapted to receive a flask placed thereon, an arm pivotally mounted upon said element and adapted to have its free end swing in a horizontal plane into a position above the flask and means for engaging the free end of said arm upon the flask to clamp the latter to the roll-over element, said means including a vertically operating element.

3. In a molding machine, a roll-over element adapted to receive a flask placed thereon, an arm pivotally mounted upon said element and adapted to have its free end swing in a horizontal plane into a position above the flask and means for engaging the free end of said arm upon the flask to clamp the latter to the roll-over element, said means including a movable flask contact element on said arm.

4. In a molding machine, a roll-over element adapted to receive a flask placed thereon, an arm mounted upon said element and adapted to have bodily, vertical movement relative thereto and also to have its free end adapted to swing in a horizontal plane into a position above the flask and means for clamping the flask between the roll-over element and said arm.

5. In a molding machine, a roll-over element adapted to receive a flask placed thereon, an arm pivotally mounted on said element out of line with the flask and adapted to have its free end swing in a horizontal plane to a position above the flask, means for vertically moving said arm bodily toward the flask to clamp the latter to said roll-over element and means for maintaining the parts in clamped relation.

6. In a molding machine, a roll-over element adapted to receive a flask thereon, a pair of guide-shaft bearing lugs on the side of said element, a shaft mounted in said lugs, a flask clamping arm mounted upon said shaft adapted to have its free end swing into position above the flask and means for clamping the arm, the flask and the roll-over element together.

7. In a molding machine, a roll-over element adapted to receive a flask thereon, a pair of lugs on said element, vertically arranged, alined apertures in said lugs, a shaft in said apertures, an arm on said shaft, the free end of the arm being adapted to swing in a horizontal plane over the flask and means for clamping the flask and the arm to the roll-over element.

8. In a molding machine, a roll-over element adapted to receive a flask thereon, a clamping bar movably mounted on the side of said element, its free end being adapted to swing in a horizontal clamping position over said flask, means to effect the clamping

of the arm and flask, and roll-over element together, said means including bearing elements mounted upon the under side of the free end of said arm and adapted to bear
5 against the flask.

9. In a molding machine, a roll-over element adapted to receive a flask thereon, an arm mounted at the side of the said element, means for moving said arm whereby its free
10 end may swing in a horizontal plane over the flask position, means for clamping the

arm in said last mentioned position and means for holding said arm normally away from the clamping position.

In testimony that I claim the foregoing 15 as my invention I affix my signature, in the presence of two witnesses, this 5th day of April, A. D. 1919.

EDWARD W. WHITAKER.

Witnesses:

OTTO KINNEMANN,
ARTHUR D. ZIEBANT.

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