H. E. PRIDMORE.

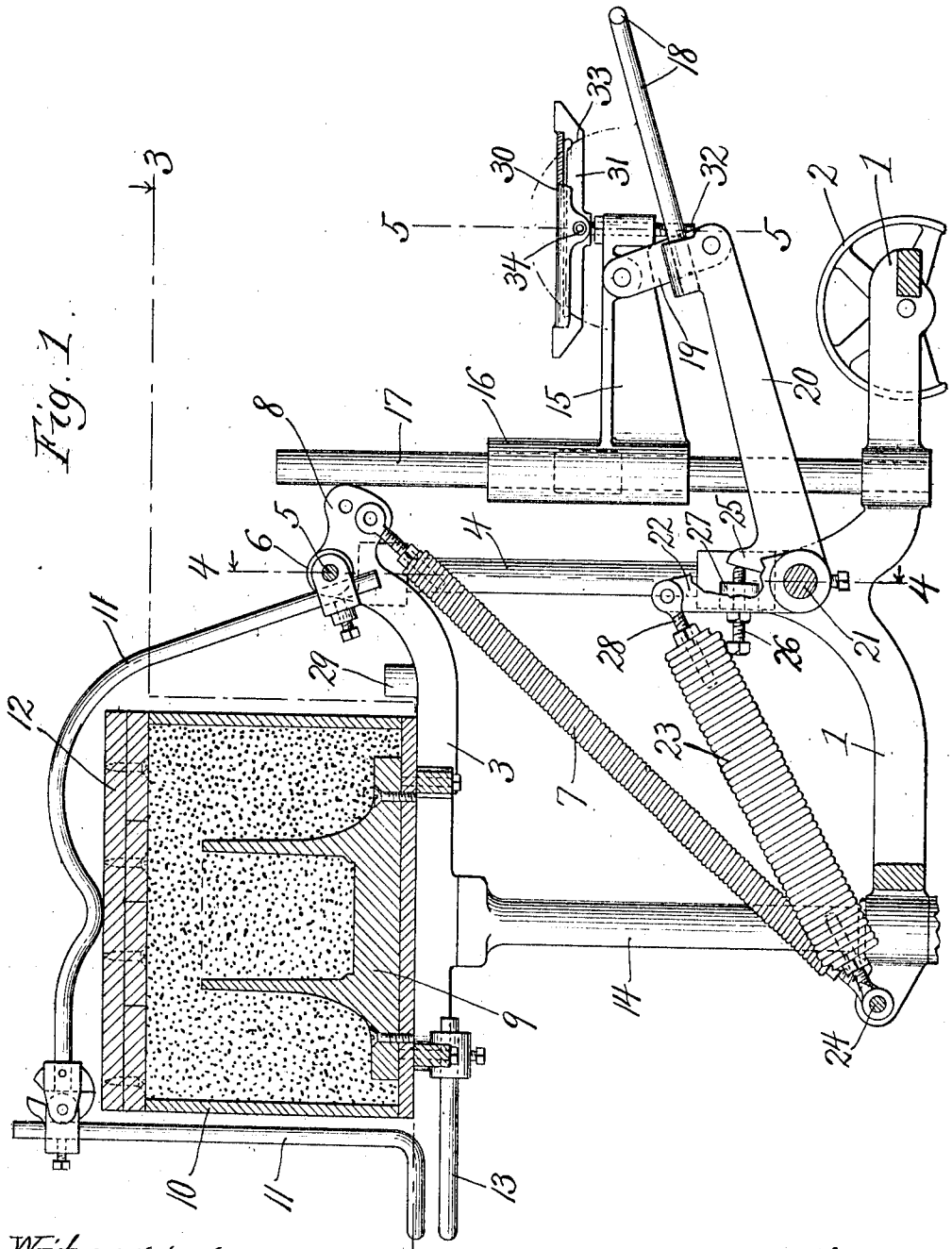
MOLDING MACHINE.

APPLICATION FILED FEB. 28, 1907.

950,558. Patented Mar. 1, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
Edward T. Wray.
Edna K. Reynolds.

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3 SHEETS—SHEET 2.

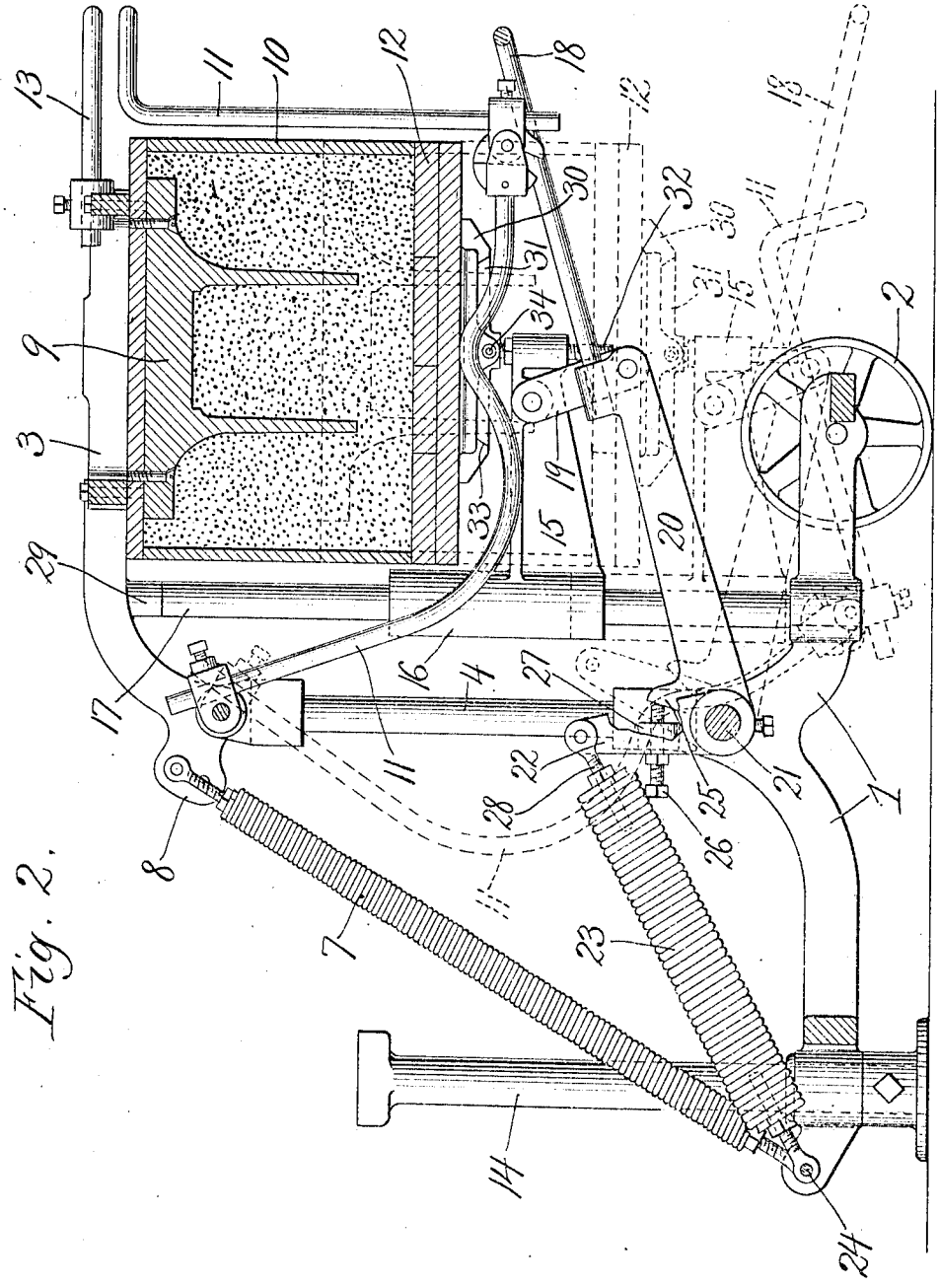

Fig. 2.

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3 SHEETS—SHEET 3.

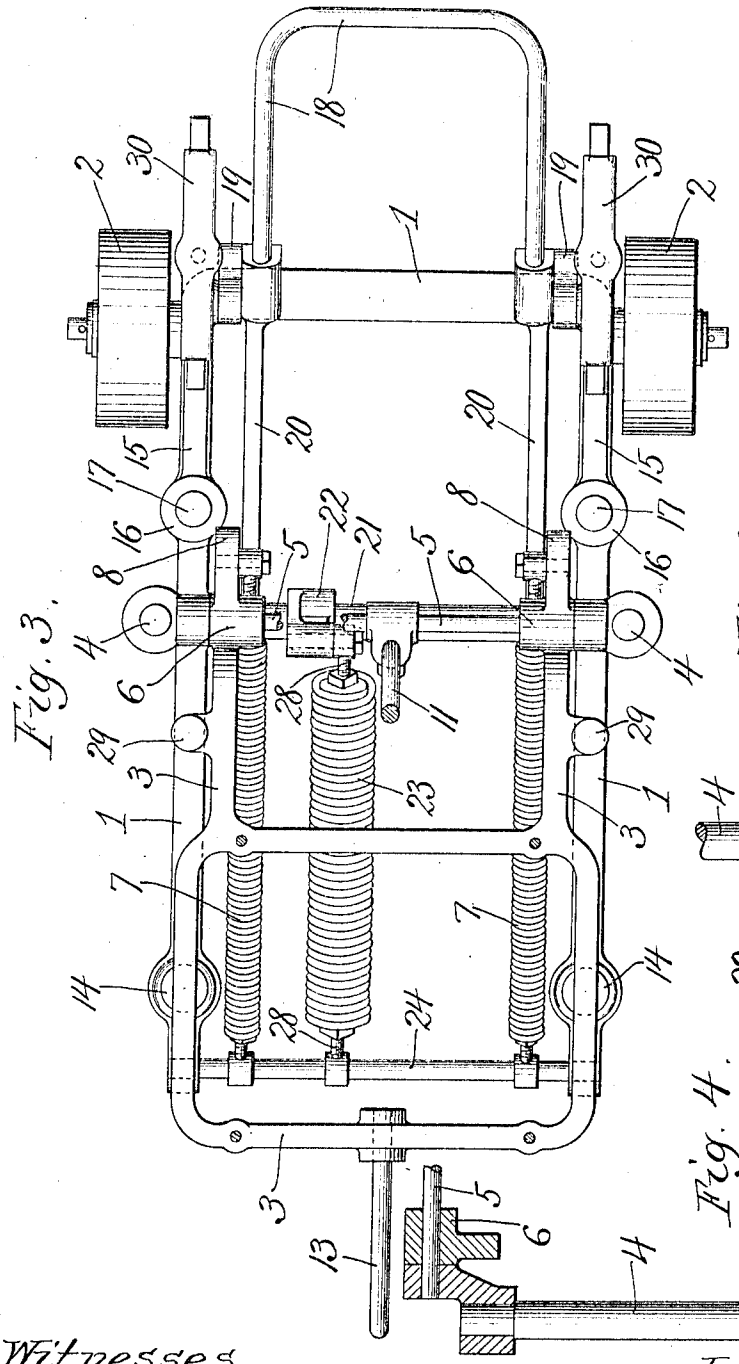

Fig. 3.

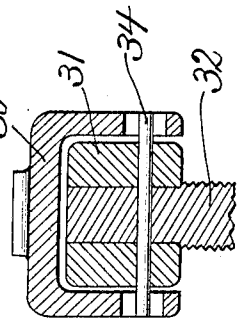

Fig. 5.

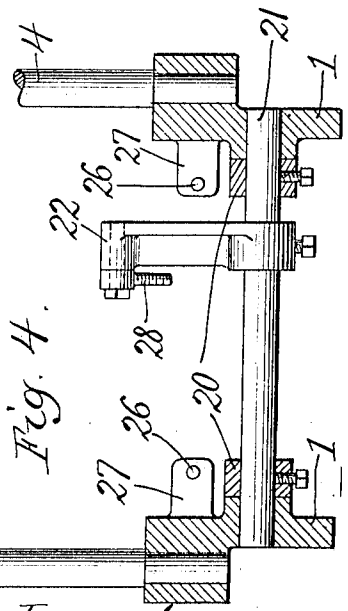

Fig. 4.

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UNITED STATES PATENT OFFICE.

HENRY E. PRIDMORE, OF CHICAGO, ILLINOIS.

MOLDING-MACHINE.

950,558. Specification of Letters Patent. Patented Mar. 1, 1910.

Application filed February 28, 1907. Serial No. 359,832.

To all whom it may concern:

Be it known that I, HENRY E. PRIDMORE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Molding-Machines, of which the following is a specification.

This invention relates to molding machines, and has for its object to provide a new and improved machine of this description.

Referring to the accompanying drawings, Figure 1 is a view in part section showing one form of a machine embodying the invention; Fig. 2 is a view similar to Fig. 1 with the parts in a different position; Fig. 3 is a sectional view taken on line 3—3 of Fig. 1; Fig. 4 is a sectional view taken on line 4—4 of Fig. 1; Fig. 5 is a sectional view taken on line 5—5 of Fig. 1.

Like numerals refer to like parts throughout the several figures.

This invention has among other objects to provide a rock-over molding machine of simple construction and adapted to automatically adjust itself to various sized flasks.

Referring now to the drawings, the machine is provided with a suitable base 1 which may be provided with wheels 2 so that it can be easily moved from place to place. A pattern carrier 3 is hinged to a suitable supporting device mounted upon the base 1. As herein shown this supporting device consists of the standards 4 connected together by the rod 5. The pattern carrier is marginally hinged to the support in any suitable manner, as by having hinged parts 6 which coact with the rod 5. A spring 7 is associated with the pattern carrier and tends to balance the weight of the pattern and flask and to assist in the turning movement. As shown, the pattern carrier is provided with a part 8 which projects beyond the hinge and to which the counterbalancing device or spring 7 is connected. Two springs, one on each side of the machine, may be used if desired. The pattern 9 and flask 10 are mounted upon the pattern carrier. A movable handle device 11 is hinged to the rod 5 and is adapted to be moved to the position shown in Fig. 1 so as to hold the bottom board 12 of the flask in position during the turning movement. The pattern carrier is also provided with a handle part 13. When the flask is ready to turn the handle parts are in the position shown in Fig. 1, and are thus in position so that they can both be grasped in the hand, thus clamping the bottom board and flask together. One or more supports 14 are associated with the frame 1 and support the pattern carrier during the process of ramming. A flask carrier or receiving device 15 is suitably mounted upon the frame. Means is provided so that the space between the pattern carrier 3 and the flask receiving device 15 will be automatically adjusted to compensate for different sized flasks. As herein shown, the flask receiving device comprises two projecting parts which are movably mounted upon a suitable supporting device so that they may be automatically moved up or down. The flask receiving device is provided with engaging parts 16 which movably engage guides 17, the arrangement being such that the engaging parts slide up and down along these guides to secure the proper adjustment. Means is provided for moving the parts relatively so as to draw the pattern. As herein shown the flask receiving device 15 is connected with a controlling device 18 by means of the links 19. This controlling device has two arms 20 which are movably connected with the frame. These arms are connected with a rotatably mounted shaft or rod 21 which is mounted in bearings in the frame. This shaft is provided with an arm 22 to which is connected a spring or counterbalancing device 23, said spring being connected at the other end to a stationary part 24. The springs 23 and 7 are preferably made adjustable by means of the screws 28 at one or both ends, which fit into the screw-threaded end pieces with which the springs are connected. By moving the screws in or out the tension of the springs can be adjusted.

The arms 20 are provided with projections 25 which are adapted to engage adjustable stops 26. These adjustable stops consist of screws fixed in the holding pieces 27. The spring 23 normally holds the projections against the stops, the springs tending to lift the flask receiving device so as to overcome the weight of the flask and associated parts. The position of the flask receiving device can be adjusted up or down by adjusting the adjustable stops. The two parts of the flask receiving device are provided with adjustable engaging pieces which engage the flask when it is moved into position upon the receiving device. These adjustable engaging devices may be formed in

any desired manner. As herein shown they are each made up of two parts 30 and 31. The part 31 is rigidly connected to a threaded rod 32, the threaded rods being moved in threaded openings in the parts of the receiving device 15. The part 31 is provided with engaging faces 33 which are engaged by similar engaging faces on the part 30. These engaging faces are preferably arcs of circles and the weight of the flask is received by them, the arrangement being such that the part 30 automatically adjusts itself with relation to the part 31, the movement being at these points of contact. The part 30 is connected with the part 31 in any desired manner. As herein shown this connection is made by the pin 34 which passes loosely through the part 30 and which also passes through the part 31, connecting said part with the rod 32. The pin 34 does not engage the part 30 during its rocking movement, but prevents it from being accidentally removed. The movement of the two parts with relation to each other provides an automatic adjustment so that the engaging part automatically adjusts itself to the flask when the flask is brought into position. By means of the threaded rods 32 the engaging parts may be also adjusted up or down to adjust the device for flasks of varying thicknesses. It will thus be seen that there is an automatic adjustment for the purpose of properly leveling the flask with relation to the receiving device, and that there is also an automatic adjustment for adjusting the parts on account of varying thicknesses of the flask, and that there is a positive adjustment not automatic for adapting the device to flasks of varying thickness, thus giving the machine a very great range of adjustment. The guides 17 act as stops for the pattern carrier when it is turned over so that the flask is on the receiving device, said pattern carrier being provided with the engaging parts 29 which engage the guides or stops 17. It will be noted that the stops are located between the inner edges of the flask when in its two positions. This location of the stops permits the use of flasks of different lengths and widths.

The use and operation of the device are as follows: When it is desired to move the device, the pattern carrier is moved to the position shown in full lines in Fig. 1. The pattern is fastened to the pattern carrier in any desired manner, and the flask placed in position. The sand is placed in the flask and then rammed while the parts are in this position. The bottom board 12 is then placed in position and the handle device 11 then moved to the position shown in Fig. 1 where it engages the bottom board so as to hold it in position. The handle device 11 and the handle 13 are then in proximity, and may be grasped by the operator and the flask and pattern carrier turned over to the position shown in Fig. 2. The handle device is then released and drops down to the position shown in dotted lines. The automatically adjustable engaging pieces 30 are engaged by the bottom board and automatically moved so as to be in proper position with relation to the flask. The flask receiving device also automatically moves so as to adjust itself to the depth of the flask. When it is desired to withdraw the pattern from the flask the controlling device 18 is pressed upon by the operator by means of his foot or otherwise, and the flask receiving device moved downwardly against the tension of the spring 23. This moves with it the flask, and thus causes a uniform and accurate withdrawal of the pattern. The pattern is then moved to the position shown in full lines in Fig. 1, and the operation above described repeated. When any given depth of flask is being used the flask receiving device can be properly positioned by moving the adjustable stops 26. It will thus be seen that this device comprises a flask receiving means and a marginally hinged pattern carrier between which flasks are positioned for drawing patterns, and means for permitting the flask receiving device and the pattern carrier to automatically move during the turning movement of the pattern carrier whereby flasks of different depths are properly positioned between the flask receiving device and the carrier. The device may also be adjusted for flasks of different sizes by raising or lowering the engaging pieces 30 through the agency of the threaded rods 32. In view of the fact that the stops for the pattern carrier are within the space between the inner edge of the flask in its two extreme positions flasks of different lengths and widths can be used upon the same machine. It will further be noted that the guides for the flask receiving device also act as stops for the pattern carrier.

I claim:

1. A molding machine comprising a marginally hinged pattern carrier and a flask receiving device between which flasks are positioned for drawing patterns, and means for permitting the flask receiving device and pattern carrier to automatically move during the turning movement of the pattern carrier to adjust the relative position of the parts so that flasks of different depths are properly positioned between the receiving device and pattern carrier.

2. A molding machine comprising a marginally hinged pattern carrier, and a spring supported flask receiving device between which flasks are positioned for drawing patterns, and automatic adjustable engaging pieces associated with the flask receiving device and adapted to engage a portion of the flask when moved to position and means for

moving the flask receiving device to withdraw the pattern.

3. A molding machine comprising a marginally hinged pattern carrier, and a flask receiving device associated therewith between which flasks are positioned for drawing patterns, and a stop to limit the movement of the pattern carrier, located between the flask and the hinge of the pattern carrier.

4. In a molding machine a marginally hinged pattern carrier and a flask receiving device between which flasks are positioned for drawing patterns, a spring associated with the flask receiving device adapted to lift it to its receiving position.

5. In a molding machine a marginally hinged pattern carrier and a flask receiving device between which flasks are positioned for drawing patterns, a spring associated with the flask receiving device adapted to lift it to its receiving position, and an adjustable stop for limiting the movement of said flask receiving device in response to said spring.

6. In a molding machine a marginally hinged pattern carrier and a flask receiving device between which flasks are positioned for drawing patterns, a spring associated with the flask receiving device adapted to lift it to its receiving position, and a spring associated with said pattern carrier adapted to assist in turning the flask over.

7. A molding machine comprising a hinged pattern carrier and an automatic adjustable spring supported flask receiving device between which flasks are received for drawing patterns, and a controlling device for said flask receiving device by means of which it is moved in opposition to said spring.

8. A molding machine comprising a hinged carrier and a flask receiving device between which flasks are positioned for drawing patterns, a supporting device for the pattern carrier while the sand is being rammed, a stop for the pattern carrier located in the space between the inner edge of the flask when in its two extreme positions.

9. A molding machine comprising a frame a hinged pattern carrier and a flask receiving device between which flasks are positioned for drawing patterns, said flask receiving device comprising two engaging parts, supports for said parts upon which they are slidably mounted, a controlling device connected with said parts and movably attached to the frame.

10. A molding machine comprising a frame a hinged pattern carrier and a flask receiving device between which flasks are positioned for drawing patterns, said flask receiving device comprising two engaging parts, supports for said parts upon which they are slidably mounted, a controlling device connected with said parts and movably attached to the frame, a spring connected with said controlling device so as to tend to lift said parts.

11. A molding machine comprising a frame a hinged pattern carrier and a flask receiving device between which flasks are positioned for drawing patterns, said flask receiving device comprising two engaging parts, supports for said parts upon which they are slidably mounted, a controlling device connected with said parts and movably attached to the frame, a spring connected with said controlling device so as to tend to lift said parts, and an adjustable stop for limiting the movement of said parts under the influence of said spring.

12. A molding device comprising a hinged pattern carrier and a flask receiving device between which flasks are positioned for drawing patterns, said flask receiving device slidably mounted upon guides, said guides acting as stops to limit the turning movement of the pattern carrier.

13. A molding machine comprising a marginally hinged pattern carrier, and a flask receiving device between which flasks are positioned for drawing patterns, said flask receiving device free to move vertically by applying pressure thereto to withdraw the pattern, and means for controlling the position of said flask receiving device.

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