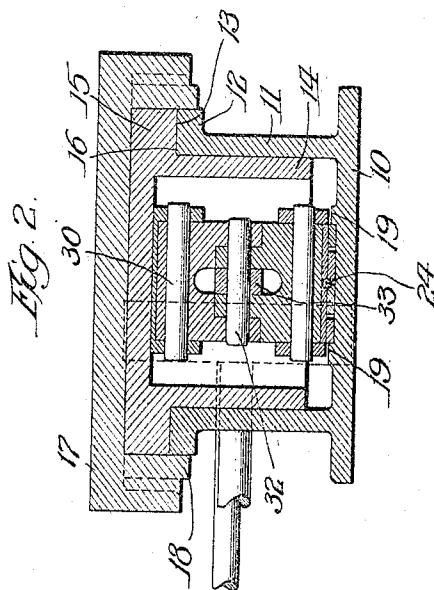


1,010,024.



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UNITED STATES PATENT OFFICE.

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JARRING-MACHINE.

1,010,024.

specification of Letters Patent.

Patented Nov. 28, 1911.

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To all whom it may concern:

Be it known that I, EDSON C. COVERT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Jarring-Machines, of which the following is a specification.

My invention relates to the art of molding and has particular reference to a mechanical jarring machine or jolter.

In the making of molds it has been found that for some classes of castings mechanical jarring machines may take the place of hand tamping.

It has been customary for many years in the preparation of molds to place a quantity of molding sand over the pattern, then tamping or ramming the sand therein adding further quantities of sand as required. This is a slow and costly method and for this reason jarring machines have been substituted. These machines are adapted to cause such vibration of the flask and contained sand that the sand is satisfactorily rammed or tamped without the use of hand labor.

One of the objects in the present invention is the production of a jarring machine which shall be adapted for the handling of comparatively heavy molds without unnecessary expenditure of power. It will be understood that molds such as contemplated for use with the present machine weigh in some instances several tons and to cause the reciprocation or jarring of such a mold requires considerable power. It is thought that the present machine is so arranged that the minimum of power will be consumed in securing the desired result.

A further object is the provision in a jarring machine of the character described of a toggle joint so arranged that the vertically movable member carrying the flask and contained sand shall be permitted to fall without reference to the actuating mechanism. In this way a sharp and decisive blow is given in each case, the force of the blow being determined by the weight superposed thereabove.

A further object is the provision of means in connection with a machine of the character described whereby a long or short stroke is provided, this means being so arranged that the adjustment may take place without interruption in the operations on the stoppage of the machine.

My invention will be more readily understood by reference to the accompanying drawings wherein—

Figure 1 is a longitudinal vertical section of a machine such as contemplated by me and Fig. 2 is a transverse section on the line 2—2 of Fig. 1.

Referring more particularly to the drawings, it will be seen that I provide a base 10 having a wall 11 projecting upwardly therefrom. This wall is provided with an enlargement or flange 12, the upper surface 13 of which acts as the anvil or striking surface of the machine. Mounted within the recess formed by the circular wall 11 is a piston-like member 14 fitting closely the wall 11. The upper portion of the member 14 is provided with a concentric flange 15 the lower face 16 of which forms the striking surface which contacts the anvil 13. A table 17 of any preferred shape may be placed upon the member 14 being held in proper relation by depending flanges 18.

The parts heretofore described may be of any preferred shape or configuration in order to meet the requirements of the user, the shape being entirely immaterial.

The base 10 is provided with upstanding lugs 19—19 forming a seat therebetween and with perforated lugs 21. Two wedges 22—23 oppositely positioned are mounted between the upstanding lugs 19, the wedge 22 fitting between a bifurcation in the wedge 23. The two wedges are perforated and threaded, one having a right and the other a left hand thread. A threaded shaft 24 having a hand wheel 25 is inserted in the wedges a portion of the shaft having right hand and another portion left hand threads corresponding to the threads in the wedges. The shaft 24 is held in proper position by the perforated lugs 20—21. Seated on the wedges is a block 26 carrying a pin 27 by means of which one lever 28 of the toggle joint is pivoted to the block. The under surface of the block is shaped to correspond to the angle of the wedges in order to provide for the vertical adjustment of the block with reference to the base. Another block 29 is secured by proper bolts to the under side of the piston-like member 14. The block 29 carries a pin 30 and by means of this pin the second lever 31 of the toggle is pivoted to the block. A pin 32 joins the toggles at their free ends and also provides

for the connection to the toggle of a connecting rod 33 having a slot 34 therein. The connecting rod is pivoted at 35 to a crank arm 36 secured to a gear 37 mounted in suitable bearings. The gear 37 meshes with a pinion 38 fixed on a shaft 39, which shaft carries a balance wheel 40 which may also act as a belt wheel. It will be seen by reference to Fig. 2 that the parts 28—31 described as levers composing the toggle are very heavy and that they are bifurcated to permit the attachment of the connecting rod 33.

The purpose of the slot 34 in the connecting rod 33 will be apparent from the following description. Assuming the motion of the connecting rod to be in the direction of the arrow in Fig. 1 it will be seen that the rod will travel a short distance before contacting the pin 32. It will then make a sudden contact raising the superposed structure with a jerk. As soon as the toggles reach a point slightly past center the weight carried thereby will be permitted to drop due to the slot 34 which will permit the pin to advance ahead of the connecting rod. It will thus be seen that with a rapid reciprocation of the connecting rod there is a jerk both in rising and falling and that in view of the fact that the superposed material is very heavy a much greater blow will be procured than if the slot 34 were not provided. Assuming that a longer stroke is desired, that is that the piston might be given greater reciprocation with each stroke of the connecting rod, the hand wheel 25 is rotated to

bring the oppositely disposed wedges closer together thus raising the block 26. Of course if a shorter stroke is desired the wedges will be separated. In order to permit the entrance of the connecting rod and also permit the escape or entrance of air large openings 11^a and 14^a are provided in the walls 11 and 14 respectively.

It will be understood that the mechanism herein shown is only typical, many modifications in the structure and operating parts being possible without departure from the spirit of my invention.

I claim:—

1. A jarring machine comprising, in combination, a base, a jarring member cooperating with said base, a toggle connecting said base and said jarring member, a slotted reciprocating member connected to said toggle, and means for adjusting said toggle whereby the length of stroke of said toggle may be varied, substantially as described.

2. A device of the class described, comprising, in combination, a base having guiding walls, a jarring member mounted between said guiding walls, a toggle connecting said base and said jarring member, a slotted reciprocating member connected to said toggle and wedge means arranged whereby the length of stroke of said toggle may be varied, substantially as described.

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