

W. BOYD.
MOLDING MACHINE.
APPLICATION FILED DEC. 7, 1912.

1,069,597.

Patented Aug. 5, 1913.

Fig. 1.

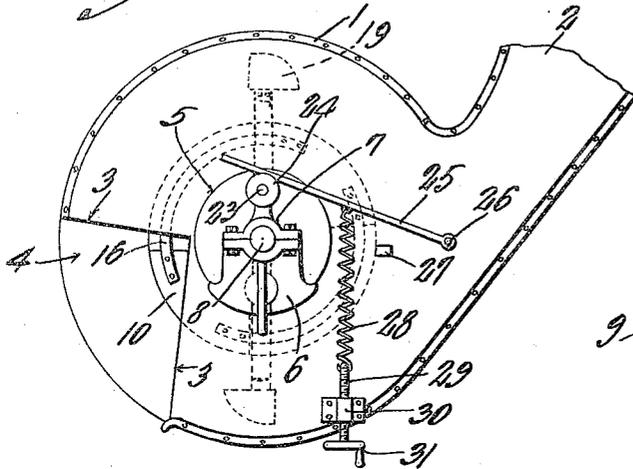


Fig. 2.

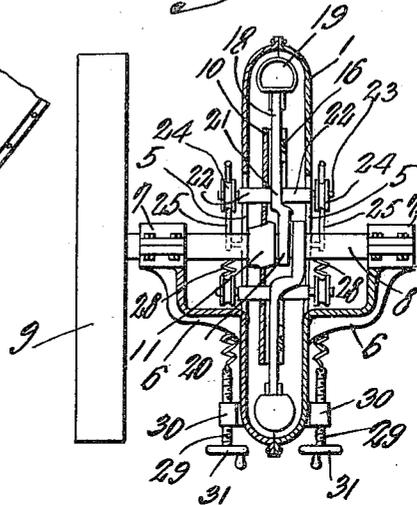


Fig. 3.

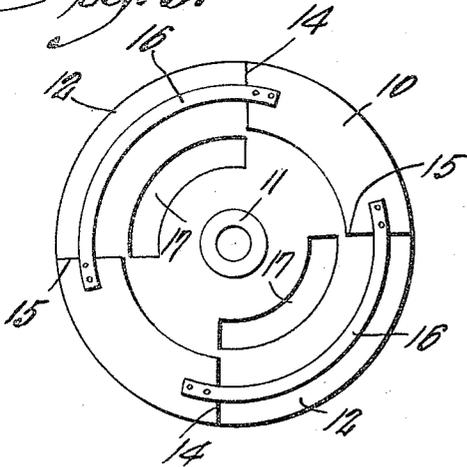
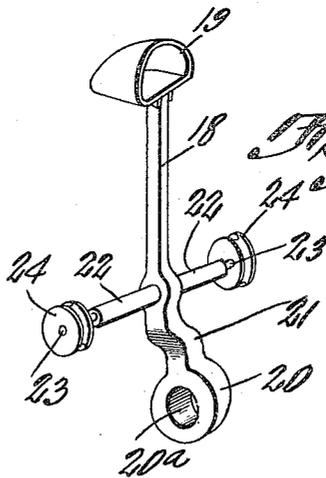


Fig. 4.



Witnesses

J. P. Jones
S. Wilson

Wyatt Boyd Inventor
by *Cashner & Co.* Attorneys

UNITED STATES PATENT OFFICE.

WYATT BOYD, OF CHICAGO, ILLINOIS.

MOLDING-MACHINE.

1,069,597.

Specification of Letters Patent.

Patented Aug. 5, 1913.

Application filed December 7, 1912. Serial No. 735,552.

To all whom it may concern:

Be it known that I, WYATT BOYD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Molding-Machine, of which the following is a specification.

The device forming the subject matter of this application is a machine adapted to be employed in the formation of molds out of sand.

The invention aims to provide a means whereby the sand may be picked up and be rotated in an orbit, the sand carrier being suddenly arrested in its orbital movement, so that the sand will be projected violently and suddenly into the flask. As a consequence, the sand will be compacted without ramming or jarring.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made, within the scope of what is claimed, without departing from the spirit of the invention.

In the drawing:—Figure 1 shows the invention in side elevation; Fig. 2 is a vertical longitudinal section, wherein sundry parts appear in elevation; Fig. 3 is a side elevation of the rotatable member; and Fig. 4 is a perspective of the carrier.

In carrying out the invention there is provided a casing 1 provided with an intake chute 2, the casing 1 being cut away as indicated at 3, to define an outlet 4. In the side walls of the casing 1 there are openings 5. Brackets 6 outstand laterally from the casing 1 and support bearings 7 in which is journaled a shaft 8, the shaft 8 extending through the openings 5. To one end of the shaft 8 is secured a pulley 9, or any other suitable mechanism whereby rotatory movement may be imparted to the shaft.

The invention further includes a wheel 10, shown in outline in Fig. 3, the wheel 10 including a hub 11, whereby the wheel is fixed to the shaft 8, the wheel being located within the casing 1. One of the side faces of the wheel 10 is equipped with recesses 12, the ends of the recesses 12 defining shoulders 14 and 15. Across the recesses 12 longi-

tudinally of the same, extend guide straps 16. The wheel 10 is equipped with arcuate slots 17.

The invention further includes a plurality of carriers, and of these carriers there may be any number. One of the carriers is shown in detail in Fig. 4. Each carrier comprises an arm 18, provided at its outer end with a bucket 19. At its inner end, each arm 18 terminates in a head 20, having an opening 20^a adapted to receive the shaft 8, the construction being such that the arms 18 are mounted to swing on the shaft 8. Intermediate their ends, the arms 18 are offset as indicated at 21, so that the outer ends of the arms may enter the recesses 12 and may lie beneath the straps 16. Intermediate its ends, each arm 18 is equipped with a transverse bearing 22 in which is journaled for rotation, a shaft 23, and to the ends of the shaft 23 are secured grooved wheels 24. (See Fig. 4.)

Lever 25 are fulcrumed as indicated at 26 upon the sides of the casing 1. Stops 27 are disposed below the levers 25 and are adapted to receive the same. Downward swinging movement is imparted to the free ends of the levers 25 through the medium of strong retractile springs 28, the lower ends of which are attached to screws 29 threaded into supports 30 which are carried by the casing 1. The lower ends of the screws 29 may be equipped with hand wheels 31 or the like.

The sand employed in the molding operation is dumped into the intake chute 2 by any suitable means, known in the art. The sand, traversing the intake chute 2 will accumulate upon the bottom of the casing 1. Rotatory movement is imparted to the shaft 8 through the medium of the pulley 9 or its equivalent. When the shaft 8 is rotated, the wheel 10 will be rotated likewise. When the wheel 10 is rotated, the arm 18, in the first instance, will come into abutment with the shoulder 14, and thus, as the wheel 10 is rotated, the bucket 19 is forced through the sand which has accumulated upon the bottom of the casing 1. The bucket is thus loaded, and moves upwardly in an orbit. Ultimately, the two wheels 24 come into engagement with the levers 25, the levers 25 being lifted off the stops 27, and the springs 28 being put under strong tension. When the wheel 24 has passed slightly forward of a vertical line passing through the center of

the shaft 8, the spring 28, actuating the lever 25, will throw the arm 18 forwardly and with considerable force, the arm 18 coming into abutment with the shoulder 15. There-
 5 by, the contents of the bucket 19 will be ejected forcibly through the opening 4 into the flask.

As will be understood readily, the hand wheels 31 may be manipulated, thereby in-
 10 creasing or decreasing the tension of the springs 28. In this manner, the force with which the sand is ejected, may be regulated. It is to be noted that, the bearings 22, during the swinging movement of the arm 18 travel
 15 in the slots 17 which are formed in the wheel 10.

The device hereinbefore described is so constructed that the sand may be compacted in the flask without ramming, tamping or
 20 jarring. A mold of uniform character is secured. The structure herein disclosed may be employed for forming the drag, cope, or elsewhere in molding operations, where it is necessary to compact the sand.

It is to be noted that the carrier not only moves in an orbit, the center of which is the shaft 8, but, as well, the carrier reciprocates in the orbit, the limits of reciprocation being defined by the shoulders 14 and 15. The
 30 spring actuated levers 25 constitute means for accelerating the movement of the carrier, the engagement between the arms 18 and the shoulders 15 serving to arrest the movement of the carrier, after the movement of the
 35 carrier has been accelerated. It is obvious that the elements 18 and 15, constitute inter-engaging parts for limiting the rotatory movement of the carrier independently of the rotatable member or wheel 10.

40 Having thus described the invention, what is claimed is:—

1. In a mold forming machine, a carrier mounted to move in an orbit; a yieldably actuated member projecting into the orbit of
 45 the carrier, the yieldably actuated member bearing first against the forward face of the carrier to retard the orbital movement of the carrier, and then against the rear face of the carrier to accelerate the orbital movement
 50 of the carrier; and means for suddenly retarding the orbital movement of the carrier after acceleration; said member constituting the sole means for accelerating the orbital movement of the carrier.

55 2. In a mold forming machine, a rotatable

member; a carrier mounted to move in an orbit; a fixed yieldable means independent of the rotatable member for retarding the movement of the carrier in its orbit and for
 60 subsequently accelerating the movement of the carrier in its orbit; and interengaging elements on the rotatable member and on the carrier for retarding the movement of the carrier after acceleration.

3. In a mold forming machine, a rotatable
 65 member having shoulders; a carrier mounted for rotation; an element upon the carrier engageable by one shoulder to advance the carrier through the material; and means in-
 70 dependent of the rotatable member for moving the carrier into engagement with the other shoulder.

4. In a mold forming machine, a wheel mounted for rotation and provided with
 75 spaced shoulders; a carrier mounted for rotation and adapted to move between the shoulders; and a spring actuated lever engaging the carrier to advance the carrier
 80 against one shoulder, the lever constituting the sole means for advancing the carrier, and being independent of the wheel.

5. In a mold forming machine, a shaft supported for rotation; a wheel upon the
 85 shaft provided with spaced shoulders; an arm mounted to swing upon the shaft and located between the shoulders; a bucket on the arm; a second shaft disposed trans-
 90 versely of the arm and supported by the arm within the circumference defined by the bucket; a spring actuated lever coacting with the second shaft to retard and to ad-
 95 vance the arm, between the shoulders; and means for supporting the lever for pivotal movement.

6. In a mold forming machine, a rotatable
 95 member having shoulders; a carrier mounted for orbital movement, the carrier being engageable by one shoulder to force the carrier through the material; and yieldably ac-
 100 tuated means independent of the rotatable member for moving the carrier out of abutment with said shoulder and into engage-
 105 ment with the other shoulder.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature
 105 in the presence of two witnesses.

WYATT BOYD.

Witnesses:

JAMES O'NEILL,
 C. H. WOLFGANG.