

E. M. HUGGINS.
MOLDING MACHINE COUNTERBALANCE.
APPLICATION FILED APR. 6, 1907.

948,975.

Patented Feb. 8, 1910.

Fig. 1.

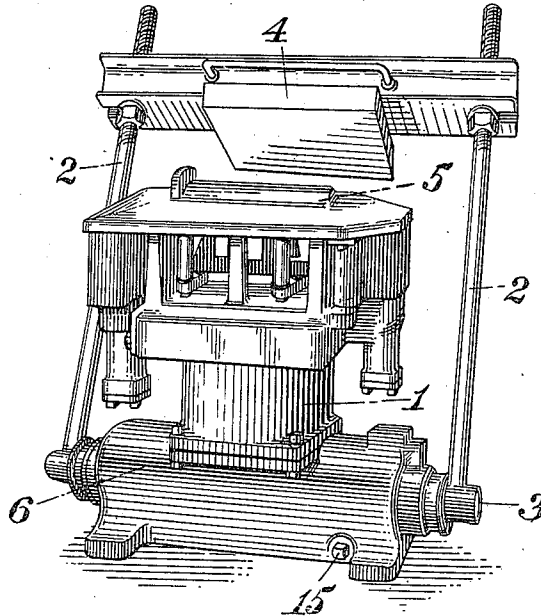


Fig. 2.

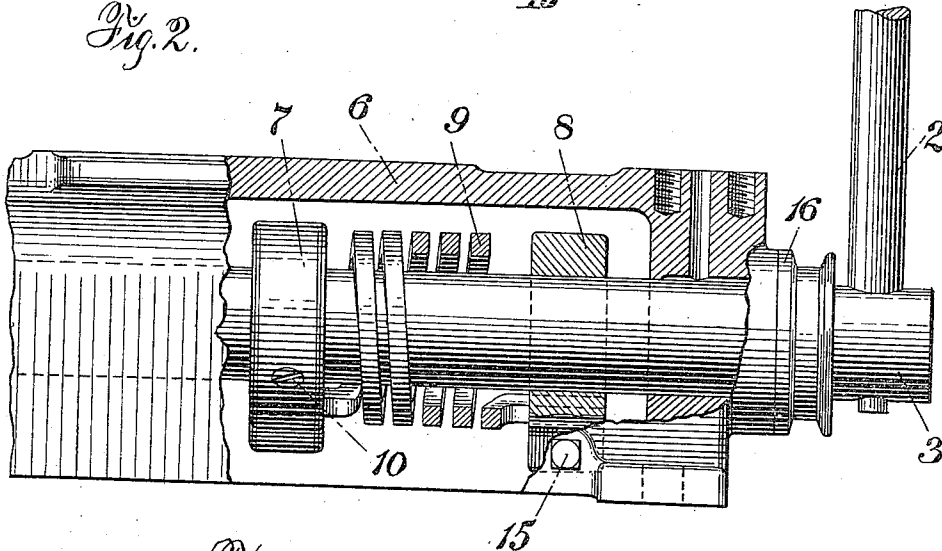


Fig. 3.

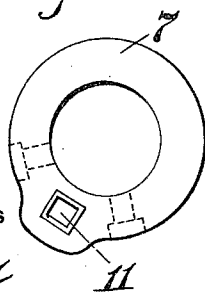
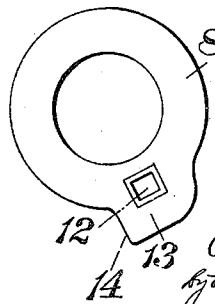


Fig. 4.



WITNESSES

J. H. Bradley
A. E. Gaither.

INVENTOR

E. M. Huggins
By *Paul Symonstrott*

UNITED STATES PATENT OFFICE.

EDWARD MELVILLE HUGGINS, OF PHILADELPHIA, PENNSYLVANIA.

MOLDING-MACHINE COUNTERBALANCE.

948,975.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed April 6, 1907. Serial No. 366,756.

To all whom it may concern:

Be it known that I, EDWARD MELVILLE HUGGINS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Molding-Machine Counterbalances, of which the following is a specification.

My invention relates to counterbalances for molding machines, and has for its objects; to provide an arrangement of parts wherein a counterbalancing spring is inclosed and protected from sand; to provide an arrangement of parts wherein the counterbalancing spring is so positioned that it is out of the way of the molders, and wherein there are no projecting parts to interfere with the molders shovels in filling the molds; and finally to provide a compact and simple arrangement of parts wherein the tension of the counterbalancing spring may be easily adjusted. These and other objects are accomplished by my invention, one form of which is illustrated in the accompanying drawings, wherein:—

Figure 1 is a perspective view showing the machine to which the improved counterbalance spring is applied,

Figure 2 is a detail partly in longitudinal section through the casing inclosing the counterbalancing spring, and

Figures 3 and 4 are side elevations of the two collars with which the opposing ends of the counterbalancing spring engage, Figure 3 showing the collar which is secured to the rammer trunnion, and Figure 4 showing the loose collar which is held from rotation by engagement with the protective casing.

In molding machines of the oscillatory ramming yoke type, such as that shown in Figure 1 it is necessary that means be provided for counterbalancing the heavy oscillatory rammer, so that it may be moved from its inclined position to a vertical position without undue labor for the molders. To this end various means have been heretofore employed for counterbalancing, such as cords running over pulleys and provided with weights, and coil springs acting as tension members between the frame work of the machine and the oscillatory rammer. These arrangements are objectionable in that the counterbalancing members are exposed to the sand, and because they interfere with the molders in their work about the machine.

My invention is designed to avoid this difficulty by using a coil spring torsionally about the trunnion of the oscillatory rammer in a protective casing in the base of the machine, whereby the spring is out of the way and protected from dirt and accident.

Referring to Figure 1 of the drawing which shows a molding machine with my counterbalancing means applied, 1 is the frame work of the machine, 2 are the oscillatory side rods, 3 is the cross rod to which the rods 2 are secured, 4 is the rammer, 5 is the pattern plate, and 6 is the protective casing in which the spring for counterbalancing the rammer is housed, which spring is connected to the shaft 3 and to the casing so that it tends to hold the rods 2 normally in vertical position. The arrangement for securing the counterbalancing spring to the shaft, and casing, is shown in detail in Figure 2. By reference to this figure it will be seen that the shaft 3 is supplied with two collars, 7 and 8, for engaging the opposite ends of the spring 9. The spring 7 is secured rigidly to the shaft 3 by means of set screws 10, and as indicated in Figure 3 which shows a side elevation of this collar, is provided with a transverse opening 11 for receiving the end of the spring. The other collar 8, is provided with a transverse opening 12 similar to the opening 11 in the collar 7 for receiving the other end of the spring, and this collar is mounted rotatively upon the shaft 3 and is prevented from turning by virtue of its engagement with the casing 6. This engagement with the casing 6 is secured by means of the lug 13 on the collar 8 which has a face 14 adapted to contact with a screw 15 tapped through the casing 6. By the use of a screw, means are provided for adjusting the tension of the spring 9 by changing the position of the collar 8. The collars 7 and 8 are so adjusted upon the shaft that when the rods 2 are in vertical position the spring will be under slight tension which tension of course increases as the rods are swung to inclined position, thus forming a means for assisting in returning the rammer to vertical position when it is desired to pack the sand in the mold. In order that the sand may be excluded from the interior of the casing 6, the casing is made to fit the shaft 3 tightly and packing is ordinarily applied inside of the member marked 16. From the foregoing it will be seen that a very compact arrangement of parts is secured and that the

counterbalancing spring is entirely protected from dirt and is out of the way of the molders.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is the following:—

1. In combination in a molding machine, a frame provided at its base with a casing, a yoke rammer with a trunnion extending through the casing, a coil spring about the trunnion for counterbalancing the rammer, a pair of collars on the trunnion inside the casing engaging the opposite ends of the spring, one of which is secured to the shaft and the other of which is loose on the shaft and is secured from rotation by the casing.

2. In combination in a molding machine, a frame provided at its base with a casing, a yoke rammer with a trunnion extending through the casing, a coil spring about the trunnion for counterbalancing the rammer, a pair of collars on the trunnion engaging the opposite ends of the spring, one of which is secured to the shaft and the other of which is loose on the shaft, and adjustable stop means on the casing for engaging the loose collar.

3. In combination in a molding machine, a frame provided at its base with a casing, a

yoke rammer with a trunnion extending through the casing, a coil spring about the trunnion for counterbalancing the rammer, a pair of collars on the trunnion engaging the opposite ends of the spring one of which is secured to the shaft and the other of which is loose on the shaft, and a threaded member on the casing for engaging the loose collar and adjusting the tension of the spring.

4. In combination in a molding machine, a frame provided at its base with a casing, a yoke rammer with a trunnion extending through the casing, a coil spring about the trunnion for counterbalancing the rammer, a pair of collars on the trunnion engaging the opposite ends of the spring, one of which is secured to the shaft, and the other of which is loose on the shaft, and is provided with a projecting lug, and a bolt threaded through the side of the casing with its end in position to contact with the lug and form an adjustable stop therefor.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

E. MELVILLE HUGGINS.

Witnesses:

E. H. MUMFORD,
C. S. LOVELL.