W. J. MILLER.

PRESSING PLUNGER MECHANISM FOR GLASS MACHINES.

APPLICATION FILED APR. 7, 1919.

1,342,056. Patented June 1, 1920.

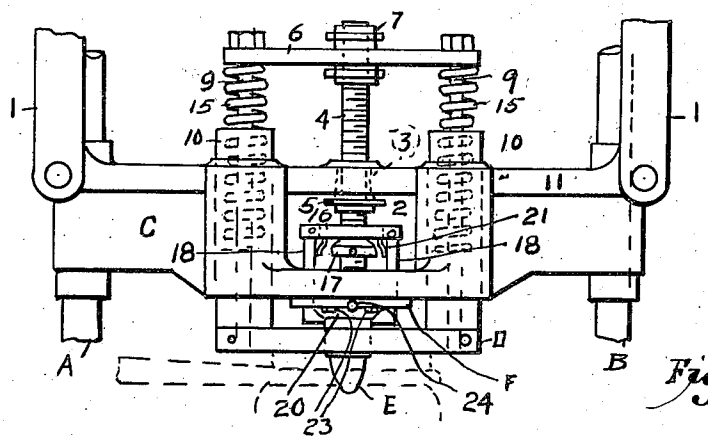


Fig. 1

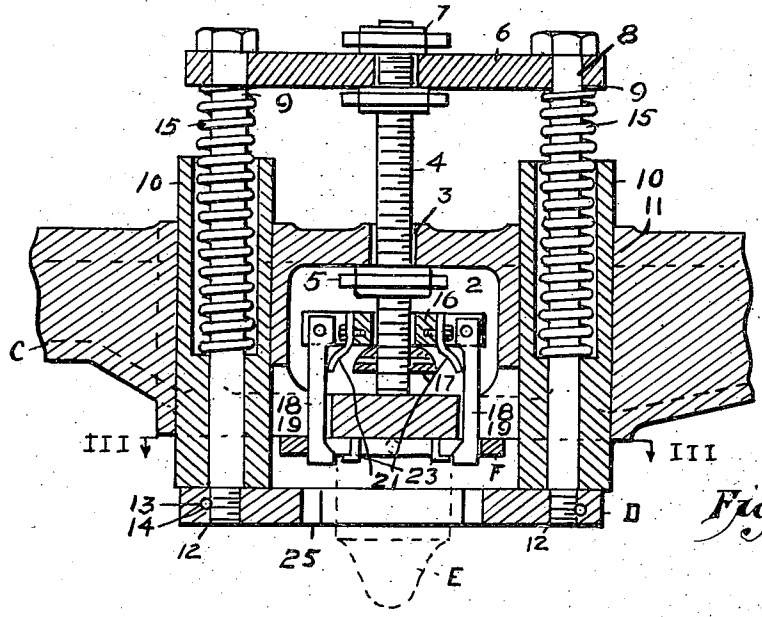


Fig. 2

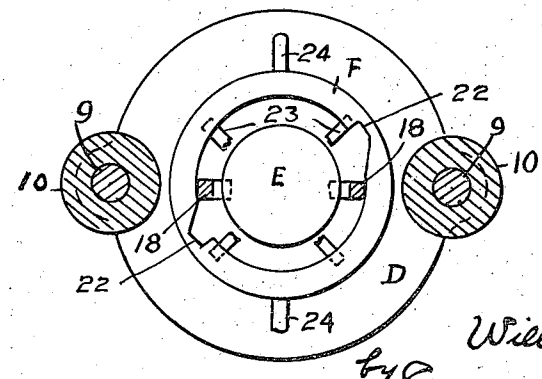


Fig. 3

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PRESSING-PLUNGER MECHANISM FOR GLASS-MACHINES.

1,342,056. Specification of Letters Patent. Patented June 1, 1920.

Application filed April 7, 1919. Serial No. 287,948.

To all whom it may concern:

Be it known that I, WILLIAM J. MILLER, a citizen of the United States, and residing in the borough of Swissvale, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Pressing-Plunger Mechanism for Glass-Machines, of which the following is a specification.

My invention consists in certain new and useful improvements in machines for forming articles of glass.

My present invention is a further improvement in the type of plunger mechanism shown and described in Letters Patent of the United States, No. 1,326,365, granted to me on December 30th, 1919.

More particularly my present invention comprises new and improved means for mounting the pressing plunger in the machine whereby the plunger may be properly centered and alined in relation to the mold or molds into which the plunger is to enter.

Further my invention consists in a new and improved mounting of the spring ring which closes the mouth of the mold.

Many other novel features of construction and arrangement of parts will appear from the following description.

In the accompanying drawings, which are merely intended to illustrate a practical embodiment of the principles of my invention without limiting the scope of the same to the construction shown, Figure 1 is a broken elevation of the pressing mechanism of a machine embodying my invention; Fig. 2 is an enlarged vertical section of the same, the pressing plunger being shown in dotted lines and Fig. 3 is a horizontal section taken along the line III—III in Fig. 2.

The following is a detailed description of the drawings.

A and B represent a pair of standards which form part of the general machine, not shown, or other suitable vertical supports.

C represents a member, such as a cross head, slidably mounted on said standards. To indicate in a general way the application of power to move the cross head C up and down on the standards A and B, I show toggle links 1, but it will be understood that any suitable application of power may be used.

The cross head C is provided with a transverse, horizontal opening 2, and 3 is a central circular hole extending through the top of the cross head into the opening 2. 4 is a shaft extending down through the hole 3 and resting on the bottom of the opening 2. The shaft 4 is threaded, and 5 is a nut screwed on said shaft up against the top of the opening 2 to hold the shaft rigidly in place.

6 is a cross bar having a central hole through which the upper end of the shaft 4 extends, the elevation of said bar on said shaft being determined by the upper and lower hand nuts 7. The outer ends of the bar 6 are pierced with vertical holes 8 for the downward extension of the headed bolts 9 which extend through the cylindrical sleeves 10 slidably mounted in vertical bearings 11 in the cross head C. The lower ends of the bolts 9 are threaded and screwed into threaded holes 12 in the mold closing ring D. The holes 12 are tangentially intersected by small horizontal holes 13, in which are screwed the screw bolts 14 thereby locking the bolts 9 from unscrewing from the ring D.

15 represents helical springs coiled about the upper ends of the bolts 9 and bearing against the bar 6 while their greater portions are contained in relatively deep countersinks in the sleeves 10.

It is evident that the springs 15 tend to depress the ring D.

16 is a horizontal yoke having a central hole which loosely fits the shaft 4 and its position on said shaft within the opening 2 is determined by the nut 17 screwed on the shaft below the yoke. The upper face of the nut 17 is rounded so that the yoke may rock in a vertical plane.

18 represents a pair of gripping fingers whose upper ends are pivotally secured to the slotted or bifurcated ends of the yoke 16 and whose lower ends depend through slots 19 in the cross head C and are provided below said cross head with inturned hooks or grasps, which are adapted to engage the beveled top flange 20 of the pressing plunger E. 21 are leaf springs mounted on the yoke 16 and pressing outwardly on the fingers to spread the same.

F is a ring provided with a pair of internal recesses 22 with cam walls. Said ring surrounds the fingers 18 and is held against the lower face of the cross head by hooks 23 depending from the cross head, the ring being slidable laterally in its mounting. When the ring is rotated so that the recesses 22 register with the finger 18, the springs 21 spread said fingers apart so that a pressing

plunger may be inserted in place or removed. When a plunger is inserted in place, the ring F is then rotated so that its cam surfaces force the fingers 18 together to properly grip the head of the plunger. The nut 17 is then screwed up on the shaft 4 to elevate the yoke 16, thus drawing up the fingers 18 and securing the plunger rigidly to the cross head. Before screwing up the nut 17, the ring F and with it the fingers 18 and the plunger E may be adjusted laterally to properly center and aline the plunger with the mold or molds into which it is to be inserted. The ring F is provided with radial handles 24 for its ready adjustment. The ability of the yoke 16 to rock on the shaft 4 assists in the lateral adjustment of the plunger, as the swinging of the fingers in connection with the tilting of the yoke does not loosen the grasp on the plunger.

The ring D is provided with notches 25 on its inner perimeter to provide clearance for the fingers 18.

When the plunger is moved down toward the mold, the ring D, being depressed by the springs 15, engages the top of the mold first, and the springs 15, are compressed as the plunger E enters the mold. As the plunger rises from the mold, after the pressing operation, the springs 15 hold the ring D down against the top of the mold, thus preventing the pressed article from sticking to the plunger and following it out of the mold. As the cross head C rises the compression of the springs is relieved and the ring D then follows the cross head upwardly.

The springs 15 being coiled about the suspension bolts 9 give greater clearance for the application of a wrench or the hands to the nuts 5, 7 and 17 for the assemblage and adjustment of the parts, and the countersunk sleeves 10 protect the springs and enable the mounting of the mold ring to be more compact, thus economizing space which is very valuable in mechanism of this character.

What I desire to claim is:—

1. In a machine for pressing articles of glass, a pressing plunger mechanism comprising a reciprocating member, a yoke mounted on said member and capable of rocking in relation thereto, grasping fingers pivotally attached to said yoke and depending below said member, resilient means for spreading said fingers apart, a pressing plunger impinging against the under surface of said member, and means for locking said fingers into engagement with said pressing plunger.

2. In a machine for pressing articles of glass, a pressing plunger mechanism comprising a reciprocating member, a yoke mounted on said member and capable of rocking in relation thereto, grasping fingers pivotally attached to said yoke and depending below said member, a pressing plunger impinging against the under surface of said member, means for clamping said fingers into engagement with said pressing plunger, means for raising said yoke in relation to said member whereby said pressing plunger is rigidly secured to said member and resilient means for automatically spreading said fingers out of engagement with the pressing plunger when said clamping means are inoperative.

3. In a machine for pressing articles of glass, a plunger mechanism comprising a reciprocating member, a pressing plunger depending from said member, a support mounted on said member, headed bolts depending from said support and slidable therein, sleeves sliding vertically in said member through which said bolts extend, a mold closing plate mounted on the lower end of said bolts, and helical springs seated in countersinks in said sleeves and bearing against said support, said countersinks being of sufficient depth to receive the major portion of the springs when compressed.

4. In a machine for pressing articles of glass, a plunger mechanism comprising a reciprocating member, a pressing plunger depending from said member, a support mounted on said member, the elevation of said support in relation to said member being adjustable, headed bolts depending from said support and slidable therein, sleeves sliding vertically in said member through which said bolts extend, a mold closing plate mounted on the lower end of said bolts, and helical springs seated in countersinks in said sleeves and bearing against said support, said countersinks being of sufficient depth to receive the major portion of the springs when compressed.

5. In a machine for pressing articles of glass, a plunger mechanism comprising a reciprocating member, said member being provided with vertical bearings, a pressing plunger depending from said member, a support mounted on said member, headed bolts depending from said support and slidable therein, cylindrical sleeves having their upper bores countersunk mounted in said bearings, said bolts extending through said sleeves, a mold closing plate mounted on the lower ends of said bolts, and helical springs seated in said countersinks and coiled about said bolts, the upper ends of said springs bearing against said support, said countersinks being of sufficient depth to receive the major portion of the springs when compressed.

Signed at Pittsburgh, Pa., this 27th day of March, 1919.

WILLIAM J. MILLER.