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D. P. WEAVER

MOLD CHARGE DELIVERY FUNNEL

Filed Oct. 3, 1925

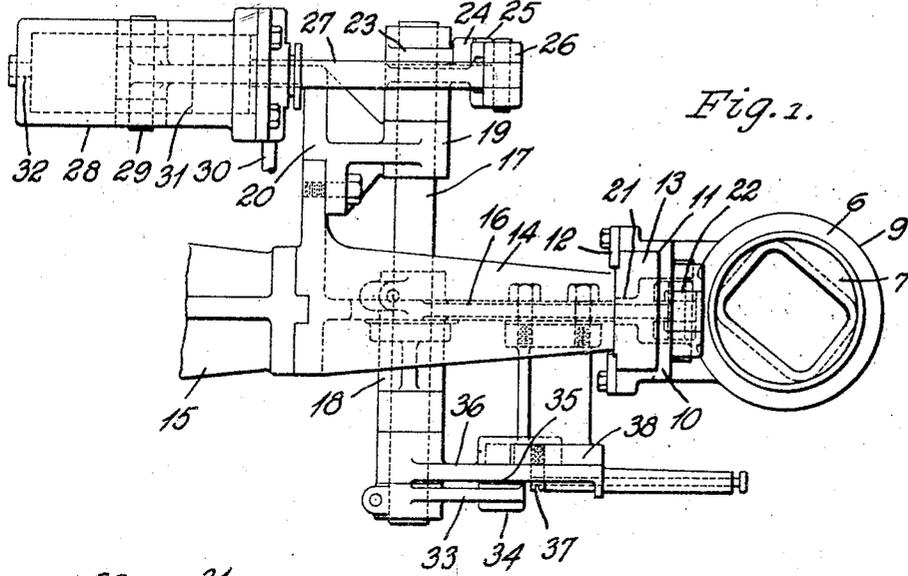


Fig. 1.

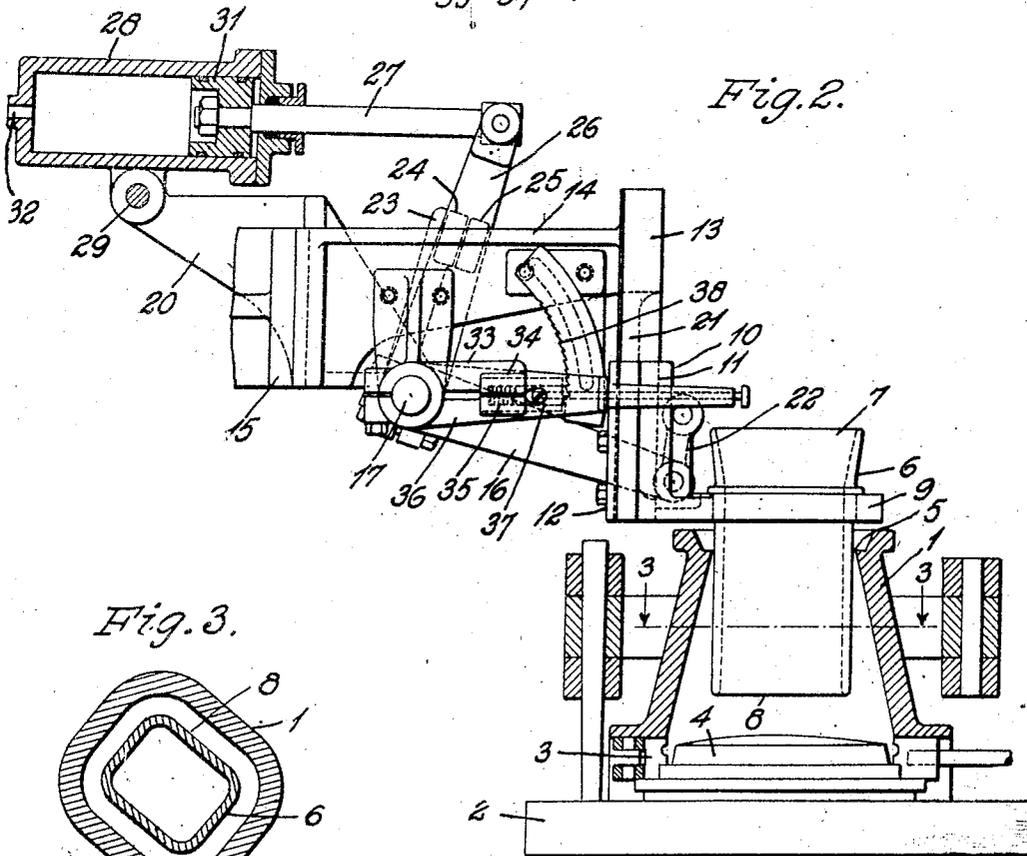
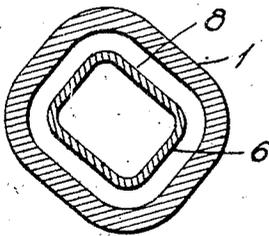


Fig. 2.

Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## MOLD-CHARGE-DELIVERY FUNNEL.

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The invention relates to glass-working apparatus and it has particular relation to funnels for delivering mold charges of molten glass to molds for shaping hollow glass-ware of rectangular cross section.

In shaping parisons for battery jars and other hollow glass articles having inclined sides and of rectangular cross section, and particularly where the charge is introduced into an inverted mold through the smaller bottom end of the mold, difficulty is encountered in obtaining the proper distribution of glass in the mold. This difficulty is occasioned by the necessity of feeding relatively long and narrow mold charges to the mold through the comparatively restricted opening in the bottom thereof, and the consequent tendency for a charge of such shape to tilt or slump laterally in the mold after it is delivered thereto, with the result that the glass either fails to fill the corners of the mold or more glass flows to one side than to another when the shaping pressure is applied.

One of the objects of the present invention is to minimize the above-mentioned difficulties by providing a funnel adapted to be inserted into the mold to a point adjacent to the bottom thereof, so as to provide lateral support for the upper portion of the charge until the lower portion has settled evenly in all directions sufficiently to prevent lateral slumping after the funnel is removed.

Another object is to provide a funnel of rectangular cross section adapted to be employed with a mold of similar cross sectional shape, so as to impart a preliminary configuration to the charge corresponding to that of the mold.

A still further object of the invention is to provide a funnel which may be adjusted vertically according to the size of the mold and the size of the mold charges being delivered to the mold.

In the accompanying drawings:

Figure 1 is a plan view of a funnel and adjusting mechanism constructed in accordance with the invention;

Fig. 2 is a side elevational view of the structure shown in Fig. 1, the mold being illustrated in vertical section; and

Fig. 3 is a sectional plan view of the mold with the funnel in place therein, shown on line 3—3 of Fig. 2.

Referring to the drawings:

An inverted blank mold 1, suitable for making battery-jar parisons, is shown as being mounted upon a suitable support or table 2 and is provided with a neck ring 3 and with a neck plunger 4. This mold is rectangular in cross section and its sides converge toward the bottom where an opening 5 is provided through which the mold charges are introduced.

A funnel 6 of rectangular cross section and having an upper flared portion 7 and a lower portion 8 having substantially parallel sides, is mounted for vertical movement in axial alignment with the mold 1. This funnel is mounted in a ring 9 which is provided with a vertical arm 10 having a groove 11 formed therein and provided with gibs 12 for sliding engagement with a vertical track 13. The track 13 is carried by an arm 14 that is secured to a bracket 15 which is supported in any convenient manner, but which is preferably mounted upon a portion of the shaping machine, not shown.

The funnel 6 is withdrawn from the mold, after the mold charge is fed, by a lever 16 which is keyed to a shaft 17 journaled in bearings 18 and 19 which are respectively provided on the arm 14 and on a bracket 20 carried thereby. The forward end of the lever 16 projects through a slot 21 formed in the track 13 and is connected to the arm 10 by a link 22.

A lever 23 is also keyed to the shaft 17 and is provided with a lug 24 which is adapted to be engaged by a lug 25 provided on a lever 26 which is freely mounted on the shaft 17. The lever 26 is connected to the piston rod 27 of a fluid pressure cylinder 28 which is pivotally mounted, as at 29, upon the bracket 20.

In order to raise the funnel 6 from the mold, fluid pressure is admitted into the cylinder 28 through a pipe 30 (Fig. 1) which, acting upon the piston 31, forces the same to the left and swings the lever 26 in a counter-clockwise direction. This movement of the lever 26 moves the lug 25 carried

thereby into abutting engagement with the lug 24 on the lever 23 and swings this lever, together with the shaft 17, in the same direction. The movement thus imparted to the shaft 17 swings the lever 16 upwardly and elevates the funnel 6 from the mold.

When it is desired to lower the funnel into the mold, the fluid pressure in the right-hand end of the cylinder 28 is allowed to escape through the pipe 30 and pressure is admitted through a pipe 32, thereby forcing the piston 31 and lever 26 to the right, as viewed in Fig. 2, and allowing the funnel 6 to descend under the action of gravity.

In order to regulate the distance that the funnel is lowered into the mold, to suit the size of the mold and the size of the mold charges being delivered thereto, the following mechanism is provided. A lever 33 is keyed to the shaft 17 and is provided with a lug 34 which is adapted to engage a lug 35 provided on a hand lever 36. This lever is freely mounted on the shaft 17 and is provided with spring detent 37 for engagement with an acute rack 39 which is fixed to the arm 14. By adjusting the position of the hand lever 36, the position of the lug 35 will be shifted so as to be engaged by the lug 34 on the lever 33 sooner or later in order to respectively decrease or increase the depth to which the funnel is allowed to descend. For example, if the hand lever 36 is swung to a position above that shown in Fig. 2, the lug 35 carried thereby will be engaged earlier by the lug 34 on the lever 33 with the result that the motion of the shaft 17 and the lever 16 will be stopped and the descent of the funnel 6 will be arrested at a higher level. In such event, the movement of the lever 23 will also be stopped, but that of the lever carrying the stop 25 will continue until the piston 31 has completed its stroke.

It will be understood that the several necessary elements constituting the invention may be varied in proportion and arrangement without departing from the nature and scope of the invention as set forth in the appended claims.

I claim as my invention:

1. In combination with a glass shaping mold, a guiding member adapted to be projected into the mold cavity and in spaced relation with the walls and bottom thereof to deposit a mold charge in the bottom of said cavity and to prevent contact between the charge and the upper wall of said mold, and means for adjustably limiting the downward movement of said member.

2. In combination with a glass shaping mold, a charge-guiding member adapted to be projected into the mold cavity and in spaced relation with the walls and bottom thereof, and arranged to deliver a charge centrally to the bottom of the cavity while preventing contact between the charge and

the upper wall of the mold cavity, and means for adjustably limiting the downward movement of said member.

3. In combination with a glass shaping mold, a guide member adapted to be projected into the mold cavity and in spaced relation with the walls and bottom thereof, and means for adjustably limiting the distance between the lower edge of said member and the bottom of said cavity.

4. In combination with a glass shaping mold, a guiding member adapted to be projected into the mold cavity and in spaced relation with the walls and bottom thereof to deposit a mold charge in the bottom thereof and to provide lateral support for the upper end of said charge until the lower portion thereof conforms to the configuration of the bottom of said cavity, and means for adjustably limiting the downward movement of said member.

5. In combination with a glass shaping mold, a guiding member adapted to be projected into the mold cavity and in spaced relation with the walls and bottom thereof to deposit a mold charge in the bottom of said cavity and prevent contact between said charge and the upper portion of the wall of said mold cavity and to remain in contact with the upper portion of said charge until the lower portion thereof commences to settle laterally in said mold, and means for adjustably limiting the downward movement of said member.

6. In combination with a glass shaping mold, a guiding member adapted to be projected into the mold cavity and in spaced relation with the walls and bottom thereof to a point where the distance between the lower edge of said member and the bottom of said cavity is less than the length of a mold charge, to deposit a mold charge in the bottom of said cavity and to prevent contact between said mold charge and the walls of the upper portion of said cavity and to remain in laterally supporting engagement with said charge until the same has commenced to settle in said mold, and means for adjustably limiting the downward movement of said member.

7. In combination with a glass shaping mold, a track, an arm slidably mounted thereon, a funnel carried by said arm, a shaft, a lever fixed to said shaft and pivotally connected to said arm, means for rocking said shaft to raise and lower said funnel relative to said mold, a fixed stop carried by said shaft, and an adjustable stop cooperating with said fixed stop for arresting the angular movement of said shaft and the downward movement of said funnel.

8. The combination of a glass shaping mold of rectangular cross section, a funnel adapted to be projected into said mold and in spaced relation with the walls and bottom

thereof, said funnel having a portion of rectangular cross section for imparting a pre-

5 preliminary cross sectional configuration to a mold charge corresponding to that of the mold, and means for moving said funnel into and out of operative position with respect to said mold.

10 9. The combination of a glass shaping mold of rectangular cross section, a funnel adapted to be projected into said mold to a point adjacent to the bottom thereof and

having a portion of rectangular cross section adapted to impart a preliminary cross

sectional configuration to a mold charge corresponding to that of the mold, means for 15 moving said funnel into and out of operative position with respect to said mold, and means for varying the distance that the funnel is projected into said mold.

Signed at Salem, N. J., this 1st day of 20 October, 1925.

DAVID P. WEAVER.