

(No Model.)

2 Sheets—Sheet 1.

C. E. BLUE.

MOLD FOR THE MANUFACTURE OF GLASSWARE.

No. 531,609.

Patented Dec. 25, 1894.

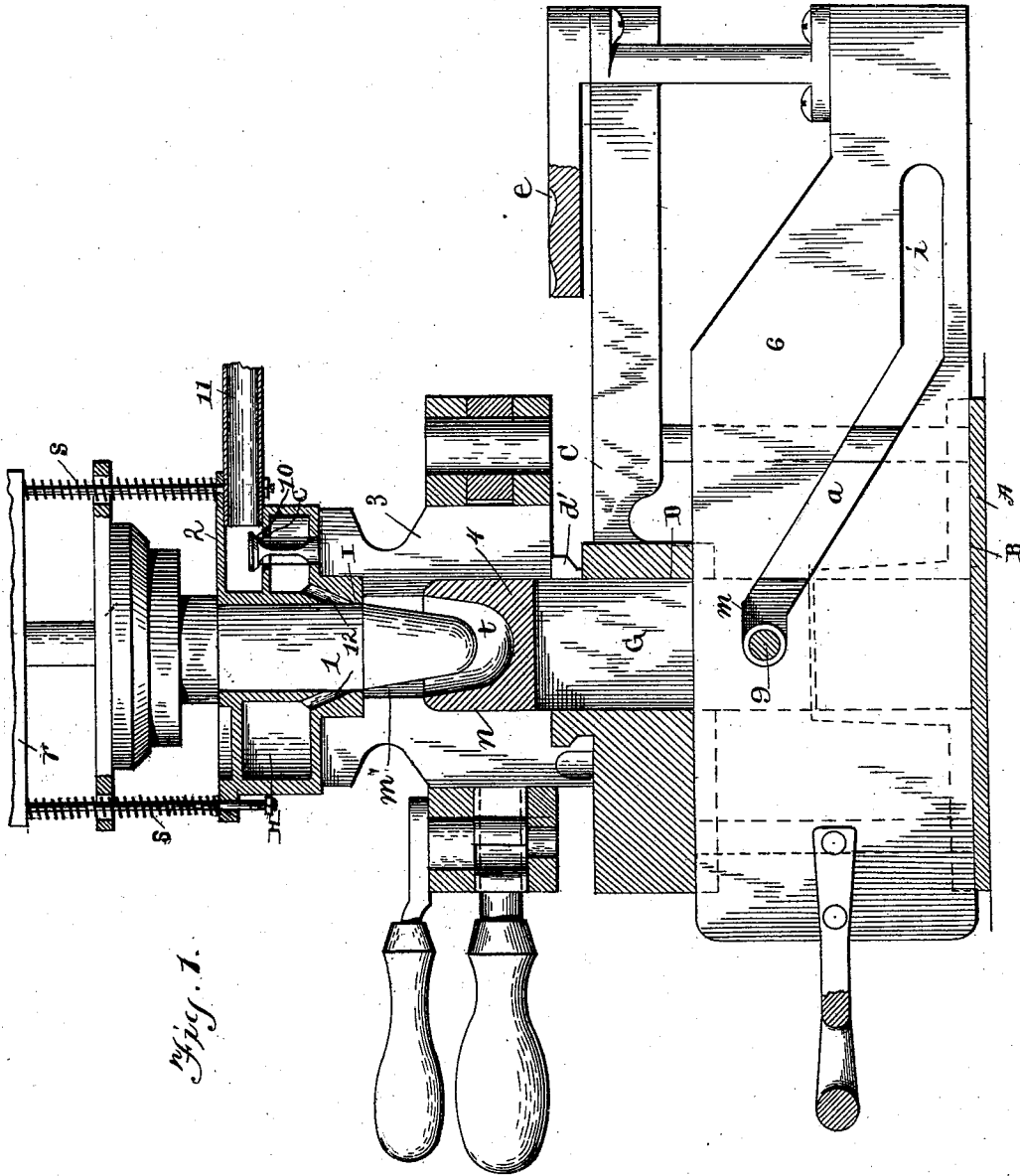


Fig. 1.

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(No Model.)

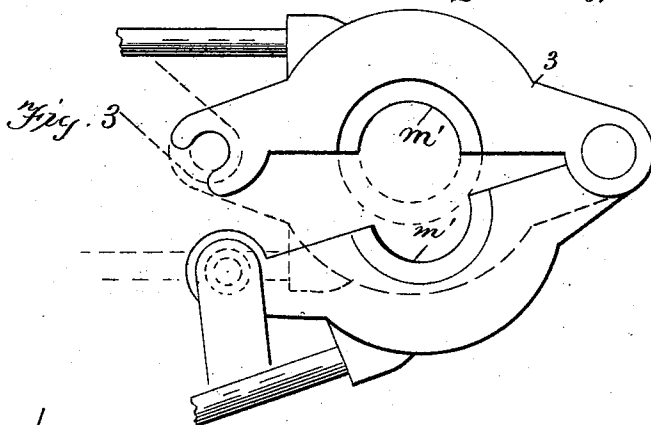
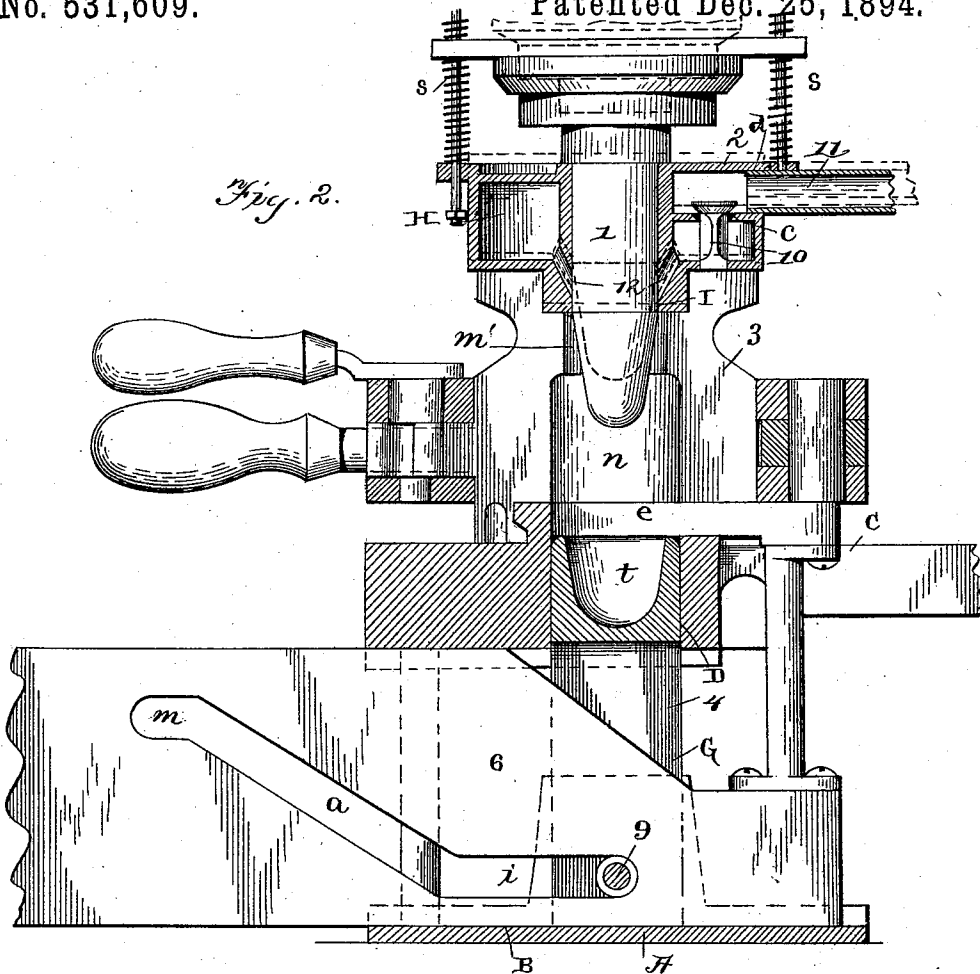
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Geo. C. Trech?
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UNITED STATES PATENT OFFICE.

CHARLES E. BLUE, OF WHEELING, WEST VIRGINIA, ASSIGNOR OF FIVE-EIGHTHS TO ARTHUR E. HUBBARD AND LOUIS V. BLUE, OF SAME PLACE.

MOLD FOR THE MANUFACTURE OF GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 531,609, dated December 25, 1894.

Application filed June 27, 1894. Serial No. 515,872. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BLUE, of Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Molds for the Manufacture of Glassware; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in molds for the manufacture of glassware; and it consists in the construction, combination and arrangement of parts which will be fully described hereinafter, and particularly pointed out in the claims.

One object of my invention is to provide a mold for the manufacture of glassware having primary and secondary movable bottoms, the two being so constructed and arranged that when the primary bottom moves downward within the mold the secondary bottom is simultaneously moved in place.

Another object of my invention is to so construct the mold that when the plunger is raised either by steam or hand or other motive power, air is automatically admitted within the mold for expanding the glass, and at the proper time the flow of air is automatically cut off, all of which will be more fully described hereinafter and illustrated.

In the accompanying drawings:—Figure 1 is a vertical sectional view of my invention showing the same complete; showing the position of the parts such as assumed when the ordinary glass press is down. Fig. 2 is a similar view showing the positions assumed by the parts when the glass press is raised. Fig. 3 is a detached plan view of the mold, which is hinged, the same being shown separated.

A indicates the stand or main portion of the apparatus having at its lower end a transverse vertical opening B for the reception of a sliding bar 6. Above this transverse opening B is what I term the stationary bottom of the mold, which has formed therein a vertical opening D in and through which the primary

bottom 4 moves up and down. This blank mold D is provided with a vertical transverse opening G which registers with the opening B in the lower portion of the main portion of the apparatus when the said bottom 4 is in its downward position, and through this opening the endwise moving bar 6 travels.

Made in the endwise moving bar 6 is an incline slot *a* having at its outer end the elongated straight portion *i* and at its upper end the short straight portion *m*. The primary bottom 4 is raised and lowered by the cam action of the incline slot as will be readily understood.

Placed over the portion C of the mold end and attached in the manner hereinafter described is the main portion of the mold 3 having the neck portion *m'* and the enlarged lower portion *n*. The primary bottom 4 fits within the enlarged portion *n* as clearly shown and the upper end of this bottom is provided with the cavity *t*, for the reception of the lower end of the plunger 1. Placed removably over the upper end of this mold 3 is a ring 2 having an internal air chamber H, and an air inlet *d* having an opening *c* into said chamber. Passing through the ring at this point and through the opening *c*, is a valve 10 having its lower end normally projected beyond the lower base of the movable ring 2, and an air tube 11 is connected with the inlet *d*, said air tube being connected with any desired means for supplying air. In a factory there will be a main air supply such as a pump or other device, with which all of the molds will be connected by means of an air tube 11 for each mold respectively.

The plunger 1 is connected with the lower cross-head *r* of an ordinary glass press, and the ring 2 is connected with this glass press by means of springs *s* in the ordinary manner.

Air-channels 12 extend from the air-chamber H into the opening I formed in the depending central extension J of the ring 2, entering the same at a point above the lower end of said extension, and through this opening the plunger 1 passes. From this description it will be seen that when the plunger 1 is down as shown in Fig. 1 and the ring also in its lower position, the plunger 1 closes the

air-chamber and prevents any passage of air into the mold and the valve 10 is held upward by contact at its lower end with the upper end of the mold 3.

5 Connected with one end of the endwise moving bar 6 is a secondary bottom *e* adapted to pass through the opening *d'* in the mold 3 when the said bar is moved forward for drawing the primary bottom downward, which bot-
10 tom automatically takes the place of the blank mold as clearly illustrated in Fig. 3.

From this description it will be seen that a single movement of the endwise moving bar 6 by the operator, depresses the primary
15 bottom 4 and carries automatically and simultaneously the secondary bottom *e* in its place for the mold 3.

The operation of my invention is as follows:—Glass is placed within the mold 3 when
20 the primary bottom is upward as shown in Fig. 1, and by a movement of the glass press downward the plunger is carried within the glass forming a cavity therein in the ordinary manner as is well understood by those
25 skilled in this art. This being done the operator throws the endwise moving bar 6 in the position shown in Fig. 2 thus carrying simultaneously and automatically the primary bot-
30 tom 4 downward and the secondary bottom *e* in place. The press is then moved either by hand, steam or other motive power, thus carrying upward the plunger 1 about half an inch when air is admitted through the channel from
35 the air-chamber H as will be readily understood thus admitting air to the entire interior of the mold and expanding the glass equally at all points until the same is expanded to fill
40 the mold 3 and thereby form a bottle in the ordinary manner. From this it will be seen that the movement of the press upward automatically admits air by the movement of the plunger to open the air-channel, and that
45 a further movement of the press lifts the ring 2 according to the tension of the springs which are connected therewith, and when this ring 2 is lifted above the mold 3 sufficiently far, the valve 10 automatically drops upon its seat thus shutting off the air as is also readily
50 seen from the drawings.

From this description it will be seen that I have produced a mold which will be a great
55 saving in time and labor, owing to the fact that but a single movement of the press is necessary to displace the primary bottom 4 and put in its stead a secondary bottom *e*, and that but a single movement of the press is necessary to automatically admit and automatically shut off the air for expanding the glass into the desired form.

60 In Fig. 3 the mold is shown in plan view and shown open. From this figure it will be seen that the mold is hinged and provided with handles and a lock for locking the same when it is closed. The object of having this
65 mold hinged and adapted to open as shown is to permit the article formed to be readily removed therefrom as is understood.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

70 1. A mold comprising a mold body, a vertically movable primary bottom, a horizontally movable secondary bottom, and a direct communication between said bottoms for the purpose described.

75 2. A mold comprising a mold body, a movable primary bottom therein, a movable secondary bottom adapted to take its place, and a slide connected with the said bottoms for moving them simultaneously, substantially as
80 set forth.

85 3. A mold comprising a mold body, a movable primary bottom within the same, a movable secondary bottom for taking the place of the primary bottom, and a slide carrying said secondary bottom and operatively connected with the said primary bottom, substantially
as set forth.

90 4. A mold comprising a mold body, a vertically movable primary bottom, a horizontally movable secondary bottom, and a handle operatively connected with both of said bottoms.

95 5. A mold comprising a mold body, a movable primary bottom for the same, a sliding rod having a secondary bottom connected thereto, and a cam carried by said rod adapted to engage and operate the said movable primary bottom.

100 6. A mold comprising a mold body, a movable primary bottom within the same, a rod moving transverse the said mold and operatively connected with the said primary bot-
105 tom, a secondary bottom moving transverse the mold and adapted to take the place of the primary bottom, and operative connections between the said rod and the secondary bot-
tom, substantially as described.

110 7. A mold comprising a mold body, a movable primary bottom within the same, the mold body having a transverse opening, a
movable rod or bar within the opening, a movable secondary bottom adapted to take the place of the said primary bottom, and operative connections between the bottoms and
115 the rod whereby the rod simultaneously operates both bottoms for the purpose set forth.

120 8. A mold comprising a mold body, a movable primary bottom within the same, the mold body having a transverse opening below the main portion of the mold, an endwise
moving rod within the same, the said primary bottom having a vertical opening for the movement of said rod, the rod having a cam adapted to operate said primary bottom, and
125 a movable secondary bottom adapted to be operated by the said rod simultaneously with the operation of the primary bottom for the purpose described.

130 9. A mold comprising a mold body, a movable air chamber above the same having a vertical plunger opening, the walls of said opening having an air inlet, the wall of said chamber having a valve air inlet, the said

valve adapted to engage the upper wall of said mold, and a plunger within the said vertical opening and adapted to close the air inlet.

10. A mold comprising a mold body, a movable air chamber above the same having a vertical plunger opening, the walls of said opening having an air inlet, a valve inlet for the said air chamber, and means for opening said valve when the air chamber is in its downward position, substantially as described.

11. A mold comprising a mold body, a movable air chamber above the same having an air inlet in the said mold, a vertically moving plunger adapted to close the said inlet, and a valved air inlet to the said chamber and an air supply, substantially as specified.

12. A glass mold comprising a mold, a mov-

able combined ring and air chamber having a plunger opening the wall of which is provided with an air inlet, a plunger movable in said opening and adapted to open and close said air inlet, in combination with a press and its head, the plunger having a firm connection with said head, and the ring and air chamber a yielding connection with the same head, whereby a single upward movement of the head first lifts the plunger and admits air, and a continuation of the same movement of the head lifts the combined air chamber and ring, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. BLUE.

Witnesses:

L. V. BLUE,
W. B. JONES.