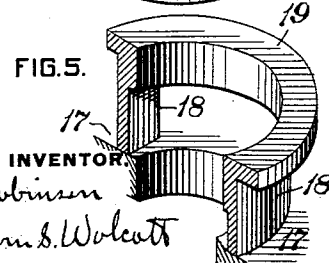
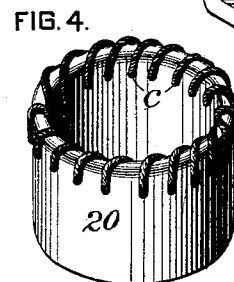
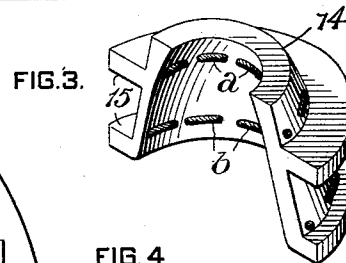
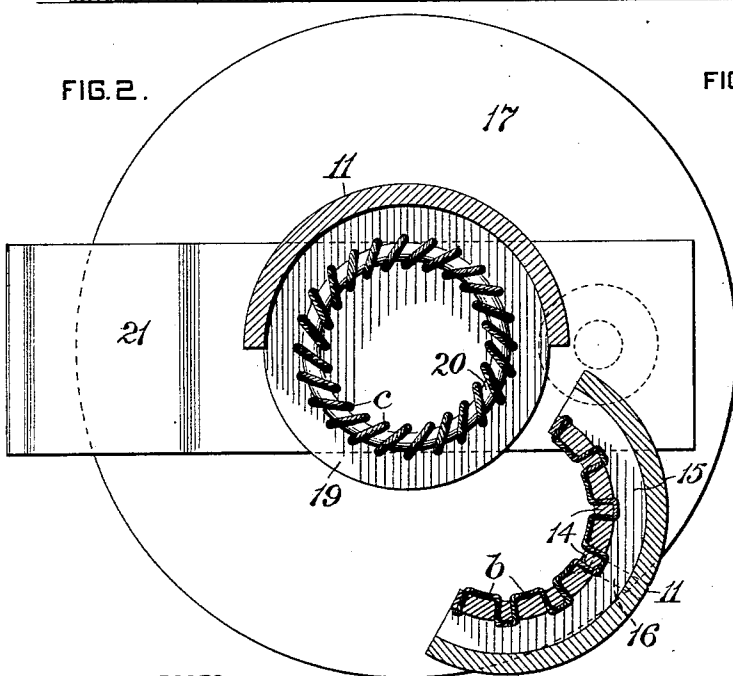
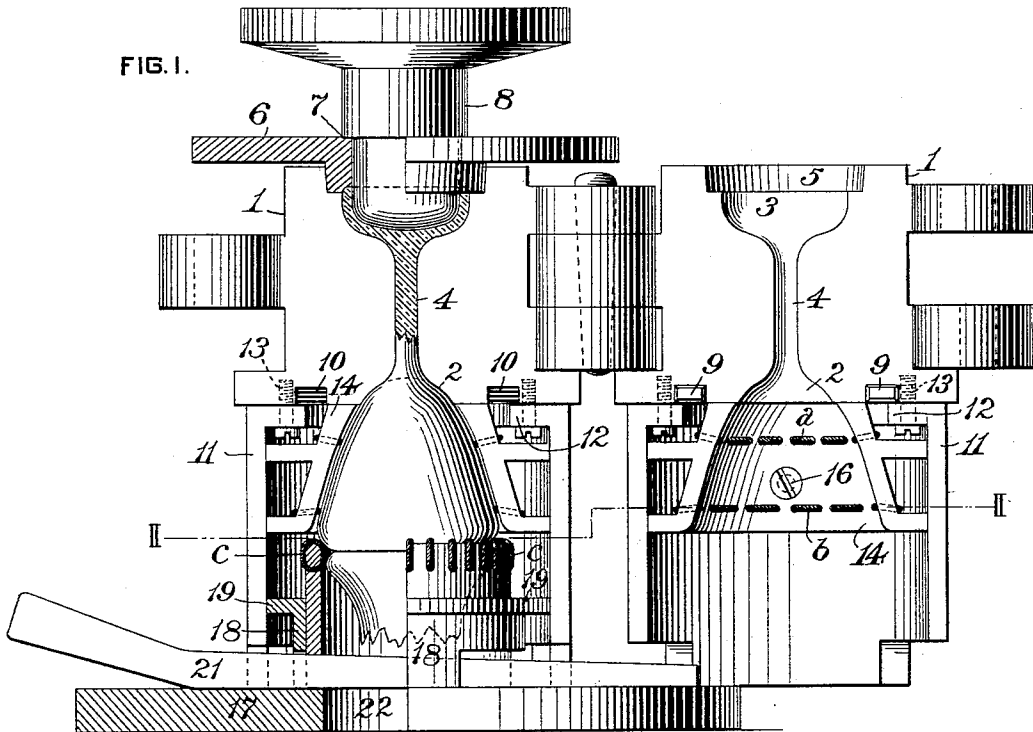


(No Model.)

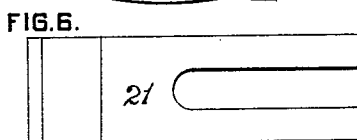
E. ROBINSON.
APPARATUS FOR MANUFACTURING GLASSWARE.

No. 588,013.

Patented Aug. 10, 1897.



WITNESSES:
Chas. F. Miller
J. E. Gaither



INVENTOR:
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by *Samuel S. Wolcott*

Att'y.

UNITED STATES PATENT OFFICE.

EDWIN ROBINSON, OF ZANESVILLE, OHIO.

APPARATUS FOR MANUFACTURING GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 588,013, dated August 10, 1897.

Application filed February 5, 1897. Serial No. 622,094. (No model.)

To all whom it may concern:

Be it known that I, EDWIN ROBINSON, a citizen of the United States, residing at Zanesville, in the county of Muskingum and State of Ohio, have invented or discovered a certain new and useful Improvement in Apparatus for the Manufacture of Glassware, of which improvement the following is a specification.

My improvement relates more particularly to that class of apparatus which is designed for the manufacture of footed or stemmed articles of glassware wherein the bowl or body of the article, after first being formed upon a blowpipe, has the foot, stem, or other finishing portion simultaneously affixed and pressed to any desired form in a mold having its lower portion formed by the bowl or body of the article.

The object of my invention is to provide an apparatus for the manufacture of glassware of the kind above described wherein means are provided whereby the body or bowl of the article is firmly supported in such a position that the foot, stem, or other finishing portion may be securely and centrally pressed thereon.

In the accompanying drawings, which illustrate my invention, Figure 1 is a view in elevation of a mold embodying my improvement, the same being shown open, with the manufactured article in position, portions of the mold and article being broken away for the purpose of illustration; Fig. 2, a horizontal section of the same on the line I I of Fig. 1, the two parts of the mold being somewhat closer together than in Fig. 1; Fig. 3, a perspective view of one part of the receiving and supporting cup or sleeve; Figs. 4 and 5, similar views of the lifting-ring and its support, respectively, the latter being shown as formed integral with the bottom plate and having a portion broken away for better illustration; and Fig. 6, a view, on a smaller scale, of the tapered bar, showing a slight modification of the same.

In the practice of my invention I provide a mold 1, formed of two parts hinged upon a vertical plane and having their free ends locked together when closed in the usual manner. The mold is open both at the top and bottom, the opening 2 at the bottom being

made to correspond to the shape of the bowl or body, to which the finishing portion is to be attached at this point. The opening 3 at the top of the mold is flared out to form the bottom or flare of the stem of the article, the openings 2 and 3 being connected by a central opening 4 through the mold, which forms the stem. The opening 3 is surrounded by an annular recess 5, into which a lift-off ring 6, provided with a central circular opening 7, fits. A plunger 8 enters the openings 7 in the lift-off ring and is adapted to press the molten glass into the upper stem and lower openings and onto the body or bowl of the article in a manner to be presently described. One of the half-sections of the mold 1 is provided near its lower end with projecting lugs 9, which engage corresponding recesses 10 in the other half-section when the mold is closed and serve to prevent independent movements of the half-sections, which would cause an irregular stem and faulty joint.

An annular box 11, formed in two parts corresponding to the two parts of the mold and provided with an inwardly-projecting flange 12 upon its upper end, is secured to the underside of the mold and centrally therewith by means of bolts or screws 13, passing through the flange 12 and into the body of the mold. A receiving and supporting cup or sleeve 14, formed of two corresponding half-sections of an internal shape corresponding with that of the bowl of the article to which the stem is to be attached and provided with two outwardly-projecting flanges 15 of a diameter equal to that of the inside of the annular box 11, fits in said box and abuts against the lower side of the mold in line with its center, and is held in position by means of screws 16, passing through its walls and into the walls of the annular box 11. The two parts of the receiving cup or sleeve 14 are further provided with two rows of perforations *a* and *b*, located near their tops and bottoms, respectively, through which are laced asbestos cords, said cords forming yielding cushions adapted to prevent injury to the bowl when the two parts of the cup are closed about the same. From the foregoing it will be obvious that the two parts of the mold 1, annular box 11, and receiving-cup 14 will open and close simultaneously for the purpose of

admitting and removing the article to be manufactured.

The annular box 11 rests upon a bottom plate 17 and is centered thereon by closing
5 around an annular ring 18, provided at its top with a flange 19 of a diameter equal to that of the inside diameter of the annular box. The ring 18 may be formed integral
10 with or secured in any desired manner to the bottom plate 17. An annular lifting-ring 20 of an external diameter approximately equal to the inside diameter of the ring 18 slides in the same and rests upon a tapered bar 21,
15 which passes through openings in the bottom of the box 11 and ring 18 and rests upon the bottom plate. The lifting-ring 20 is provided near its upper edge with a series of perforations *c*, through which and over the edges is laced an asbestos cord to serve as a cushion
20 for the support of the body or bowl to which a stem is to be attached.

In the operation of my device the body or bowl portion of the article is first blown in a separate mold to the desired shape and is
25 then, together with the overblow, removed from the blowpipe and placed with the overblow down in the lifting-ring 20, resting upon the tapered bar 21, the overblow being of such a shape as to rest firmly upon the asbestos cord laced around the top of the lifting-ring. Said cord acts as a cushion and prevents
30 any injury to the bowl. The mold 1, together with the annular box 11 and receiving cup or sleeve 14, is then closed around the bowl and firmly locked. The tapered bar 21 is pushed
35 in until the bowl rests firmly in the receiving and supporting cup or sleeve 14, the asbestos lacings in same acting to prevent injury to the bowl. The lift-off ring 6 is then placed
40 in position and the molten glass placed in the cavity 3. The plunger 8 is then forced into the circular opening, thereby causing the molten glass to fill all of the mold-cavities and adhere firmly to the bowl or body portion.
45 The mold is then opened, the article removed, placed in the snap, and finished.

It will be obvious that in closing the mold the receiving and supporting cup or sleeve 14 fits firmly around the bowl, thus bringing its
50 axis into line with the axis of the stem-cavity. The tapered bar 21 need only be adjusted once during a working turn, as the lifting-ring 20 will always remain in one position so long as the bar 21 remains stationary.

55 If it is desired to press the stem onto the bowl without removing the same from the blowpipe, it can be accomplished by having

a slot in the bar 21, as indicated in Fig. 6, and allowing the pipe to pass through it and down through a hole 22, formed in the bottom plate. 60

While the bowl and overblow of the article may be of any desired form, I have illustrated a form which I think best adapted to the process described, which consists of a substantially egg-shaped body or bowl portion having a regular overblow portion attached, but
65 having in addition thereto a maree formed in said overblow, the maree consisting of a circumferential groove, bounded by convex walls, extending around the overblow. The maree is designed for the purpose of holding
70 the bowl in the snap and also in a chuck when the article is being finished. The particular form of bowl and overblow, as above described, will form the subject of an application to be
75 filed in due time.

I claim as my invention and desire to secure by Letters Patent—

1. In combination with a glass-mold a receiving or holding cup, a lifting-ring, and
80 means for raising and positively or unyieldingly supporting the ring and receiving-cup in their raised position, substantially as set forth.

2. In combination with a glass-mold a supporting-frame, a receiving or holding cup, detachably secured in said frame, a lifting-ring, and means for raising and positively or
85 unyieldingly supporting the lifting-ring and receiving-cup in their raised position, substantially as set forth. 90

3. In combination with a glass-mold a supporting-frame, a receiving or holding cup, detachably secured in said frame, a lifting-ring supported below said receiving-cup, and a longitudinally-movable tapered bar for raising
95 and positively or unyieldingly supporting the lifting-ring and receiving-cup in their raised position, substantially as set forth.

4. In combination with a glass-mold, a supporting-frame, a receiving or holding cup detachably secured in said frame, a lifting-ring supported below said receiving or holding cup, and a longitudinally-movable, slotted, taper bar for raising and positively or
100 unyieldingly supporting the lifting-ring and receiving-cup in their raised position, substantially as set forth. 105

In testimony whereof I have hereunto set my hand.

EDWIN ROBINSON.

Witnesses:

DARWIN S. WOLCOTT,
M. S. MURPHY.