

(No Model.)

2 Sheets—Sheet 1.

M. J. MORTON, T. BLANKENSOP & S. HIPKINS, Jr.

GLASS MOLD FOR CASTING FEET TO BLOWN BOWLS.

No. 423,264.

Patented Mar. 11, 1890.

Fig. 1.

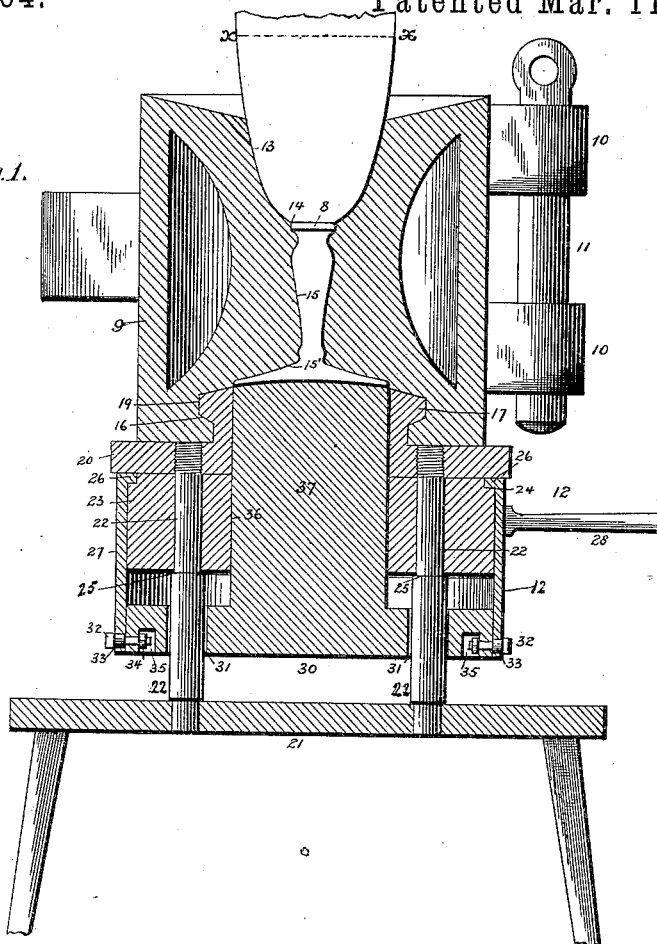
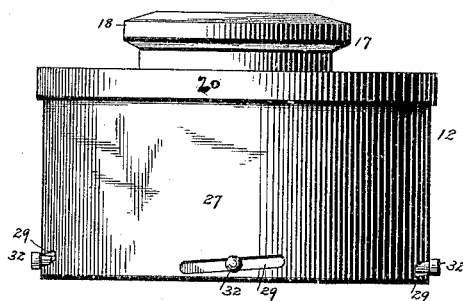


Fig. 2.



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Fig. 3.

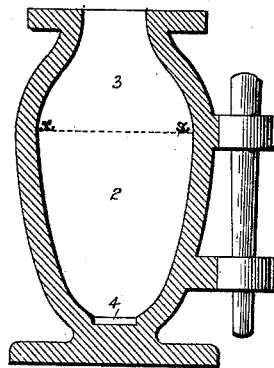


Fig. 4.

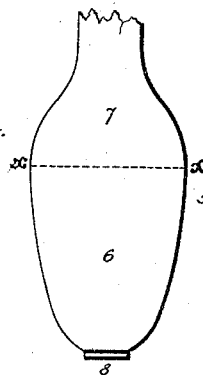
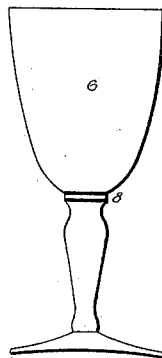


Fig. 5.



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UNITED STATES PATENT OFFICE.

MICHAEL J. MORTON, THOMAS BLANKENSOP, AND STEPHEN HIPKINS, JR.,
OF MARTIN'S FERRY, OHIO.

GLASS-MOLD FOR CASTING FEET TO BLOWN BOWLS.

SPECIFICATION forming part of Letters Patent No. 423,264, dated March 11, 1890.

Application filed December 2, 1889. Serial No. 332,309. (No model.)

To all whom it may concern:

Be it known that we, MICHAEL J. MORTON, THOMAS BLANKENSOP, and STEPHEN HIPKINS, Jr., citizens of the United States, residing at Martin's Ferry, in the county of Belmont and State of Ohio, have invented new and useful Improvements in Glass-Molds for Casting Feet to Blown Bowls, of which the following is a specification.

Our invention relates to molds for casting feet and legs upon the blown bowls of articles of glassware; and our improvements consist in the construction and arrangement or combination of parts hereinafter fully described in the description, drawings, and claims.

In the process of casting legs upon blown bowls it has heretofore been necessary to take up the surplus glass which could not fill the mold for the stem or leg in the cup-shaped foot, as it is a well-known impossibility to take up an exact quantity of glass from a pot and put it into a mold, and this has been the cause of an irregularity in the thickness of the feet of articles of glassware manufactured in this manner, as one article would have a thick foot and one would have a thin foot, according to the quantity of glass placed in the mold for the leg.

The feet of articles of glassware have heretofore been molded in a cup shape, and after the leg had been cast to the bowl the cup-shaped feet have been heated and thrown out or flared by a subsequent process. This involved labor, and consequent increase in the cost of manufacture; and the objects of our improvement are to form the leg and foot perfect and in one operation, and to allow for irregularities in the quantities of glass placed in the leg-mold at another part of the leg than the foot, so that the feet of all the articles cast in the same mold will be alike in size and proportions. These objects are attained by the molds illustrated in the accompanying drawings, forming part of this specification, in which the same reference-numerals indicate the same parts, and in which—

Figure 1 represents a vertical section of our improved mold, showing the glass within the same; Fig. 2, a side elevation of the bottom

part of the mold; Fig. 3, a section of the mold for blowing the bowl; Fig. 4, a view of the bowl, and Fig. 5 a view of the finished article.

In the drawings, the numeral 1 indicates the mold into which the bowl is blown. Said mold is preferably made in two parts hinged together, and has its hollow interior 2 shaped to the form of the article to be blown, besides having the usual space 3 for the material blown over the cut-off line *xx*, and a shallow cylindrical recess 4 in its bottom, which recess forms the distinguishing feature between our mold and the molds usually employed for this purpose. The bulb 5, which is blown into shape in this mold, will consist of the bowl 6, the blown-over portion 7, and a shallow cylindrical step 8, the purpose of which will appear later.

The mold for casting the leg to the bowl, which is illustrated in Fig. 1, consists of an upper portion 9 in two or more parts, hinged together by lugs or ears 10 and suitable pintles 11 inserted through said lugs or ears, and a bottom portion 12, suitably supported upon a table. The upper portion 9 has a recess 13 for the reception of the blown bowl, a shallow cylindrical recess 14 in the bottom of said recess for the reception of the step 8, a leg-recess 15, and a flat and flaring foot-recess 15'. Below said foot-recess the mold is formed with a flanged recess 16, into which the flanged upper neck 17 of the bottom portion may fit, the flange 18 of said neck fitting into the enlarged portion 19 of said recess and securing the bottom portion of the mold to the upper portion when the latter is closed. The bottom portion consists, further, of a top plate 20, supported above the base of the mold by posts 22, and a disk 23, formed with a rabbet 24 in its upper edge, is supported against the under side of said top plate upon shoulders 25 upon said posts. Said rabbet forms, together with the overhanging rim of the top plate, an annular groove, into which an inwardly-bent flange 26 upon the upper edge of a wide ring 27, which fits around said disk, may project. Said ring 27 is provided with a handle 28 for partly revolving it upon the disk, and is formed with inclined slots 29 at

regular intervals. A disk 30 slides vertically within said ring upon the lower enlarged ends of the posts 22, having holes 31 for said posts, and pins or bolts 32 are inserted into the rim of said disk to project outward through the inclined slots 29 of the ring. Said pins or bolts have preferably anti-friction rollers or sleeves 33 upon the portions sliding in the slots, and are inserted into the rim of the disk and secured by nuts 34 or pins, which are accessible from the under side of the disk through recesses 35 in said under side, into which the inner ends of said bolts or pins project. The top plate, its neck, and the disk 23 are formed with a central bore 36, within which the bottom valve 37, which projects from the center of said lower sliding disk 30, may slide vertically when said disk is raised or lowered. The upper surface of said bottom valve or glass-valve is nearly flat and slightly convex to shape the foot with the proper slightly-concave supporting-surface, and the edge of the upper surface of the valve will fit perfectly against the edge of the foot portion of the recess in the mold, so that the foot will be cast when the valve is raised with a perfect edge and entirely completed. The central bore 36 in the neck of the bottom portion of the mold forms, therefore, a perfect and true continuation of the recess in the upper portion of the mold for the foot, so that no pins or projections will be formed upon the foot in casting the same. The raising or lowering of said disk is accomplished by partly revolving the slotted ring 27, which, being vertically immovable, will draw the bolts or pins up or down in the inclined slots, and thus raise or lower the disk and the valve upon it.

In practice the bowl is first blown in its mold with the step in the bottom. The bulb which forms the bowl is thereupon placed in the recess for it in the mold for casting the leg and foot, a sufficient quantity of glass for said leg and foot having previously been placed in the mold upon the lower valve, and the mold closed. When said valve is raised by turning the ring by its handle, the molten glass will be forced up into the recess for the leg and foot, and will be cast in its proper shape and adhering to the step of the bowl. Said step being cylindrical and capable of sliding in its recess in the mold, any surplus glass over the quantity required for the leg and foot may find space in said recess, raising the bowl slightly. After casting the leg and foot to the bowl the article may be removed from the mold, which is opened for that purpose, and the blown-over portion of the bulb may be cracked off in the usual manner and the completed article placed in the annealing-oven.

From the foregoing it will be obvious that

a very uniform article of glassware may be made, as the legs and feet of all articles cast in this mold will be of uniform size and proportions. The small variations, which will be taken up in the step at the juncture of the bowl and leg, will not be sufficiently perceptible at that place to mar the uniformity of the articles.

The article formed in our mold will be ready for the annealing-oven without requiring the additional operation of having the cup-shaped foot softened and flared, and the feet of all the articles cast in our mold will be of uniform size and thickness, as the surplus or irregularity in the quantities of glass used for the leg will not be taken up in the foot, but in the cylindrical step between the leg and bowl.

Having thus fully described the construction and arrangement or combination of the several parts of our improved mold for casting legs upon blown bowls, its operation, and advantages, what we claim as new is—

1. The method of casting legs upon blown bowls, which consists in first blowing the bowl with a shallow cylindrical step upon its bottom and thereupon casting the leg and foot to said bowl and taking up irregularities in the quantity of glass used for said leg and foot at said step, substantially as described.

2. The method of casting legs upon blown bowls, which consists in first blowing the bowl with a shallow cylindrical step upon its bottom, thereupon casting the leg and foot to said bowl with the foot flat and complete, and taking up all irregularities in the quantity of glass used for said leg and foot at said step, substantially as described.

3. In a mold for casting legs upon blown bowls, the combination of the upper part-mold portion 9, the top plate 20, having the flanged neck 17 18, the shouldered posts 22, which support said top plate, the rabbeted disk 23, supported upon said posts, and the flanged hoop 27, having the handle 28 and the inclined slots 29, with the disk 30, loosely fitted upon said posts and provided with the bolts 32, working in said slots, and having the plunger-valve 37, adapted to operate through the central bores of the said top plate, its neck, and rabbeted disk, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

MICHAEL J. MORTON.
THOMAS BLANKENSOP.
STEPHEN HIPKINS, JR.

Witnesses:

HARRY HOOD,
W. H. CONNELLY.