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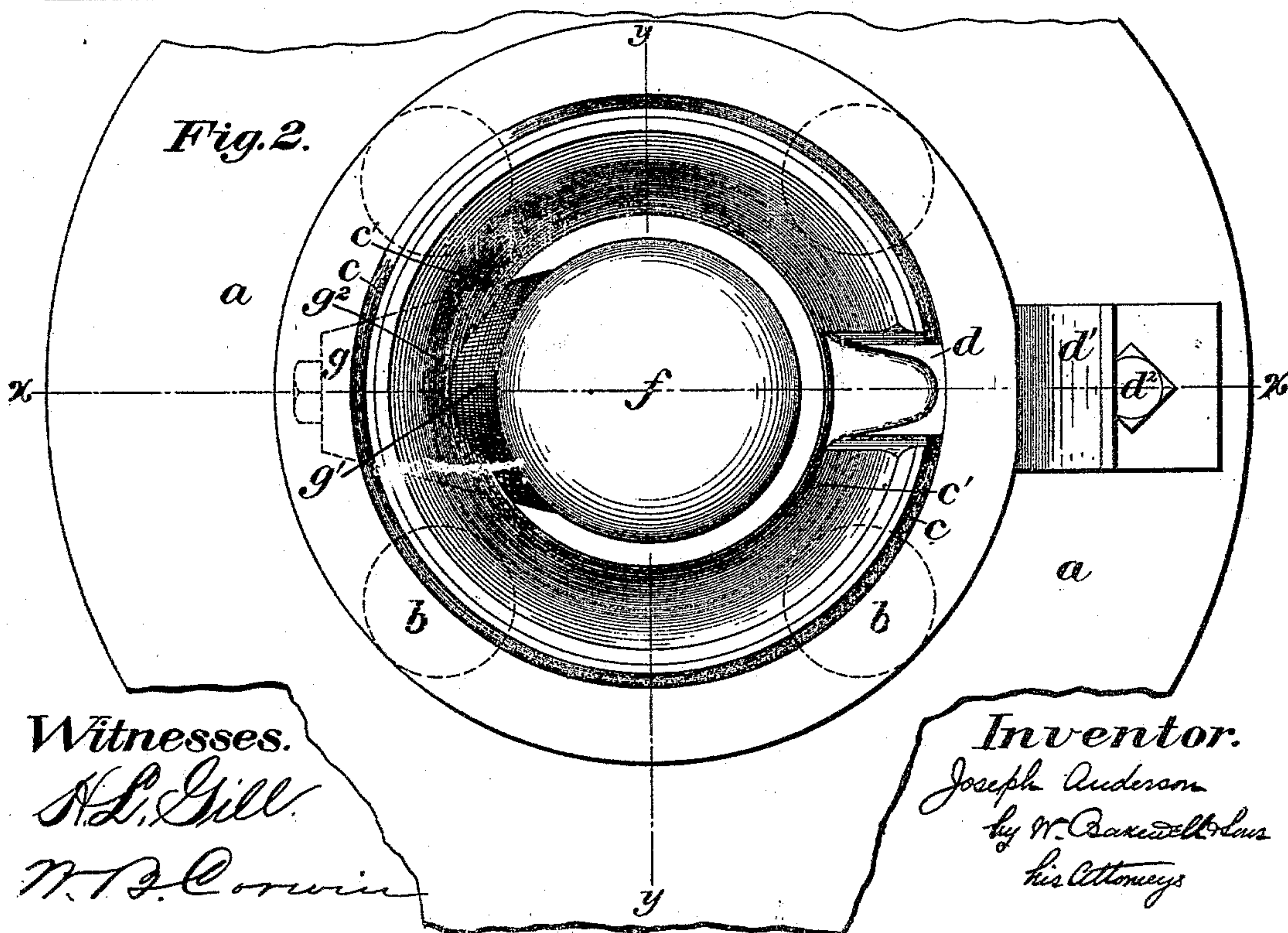
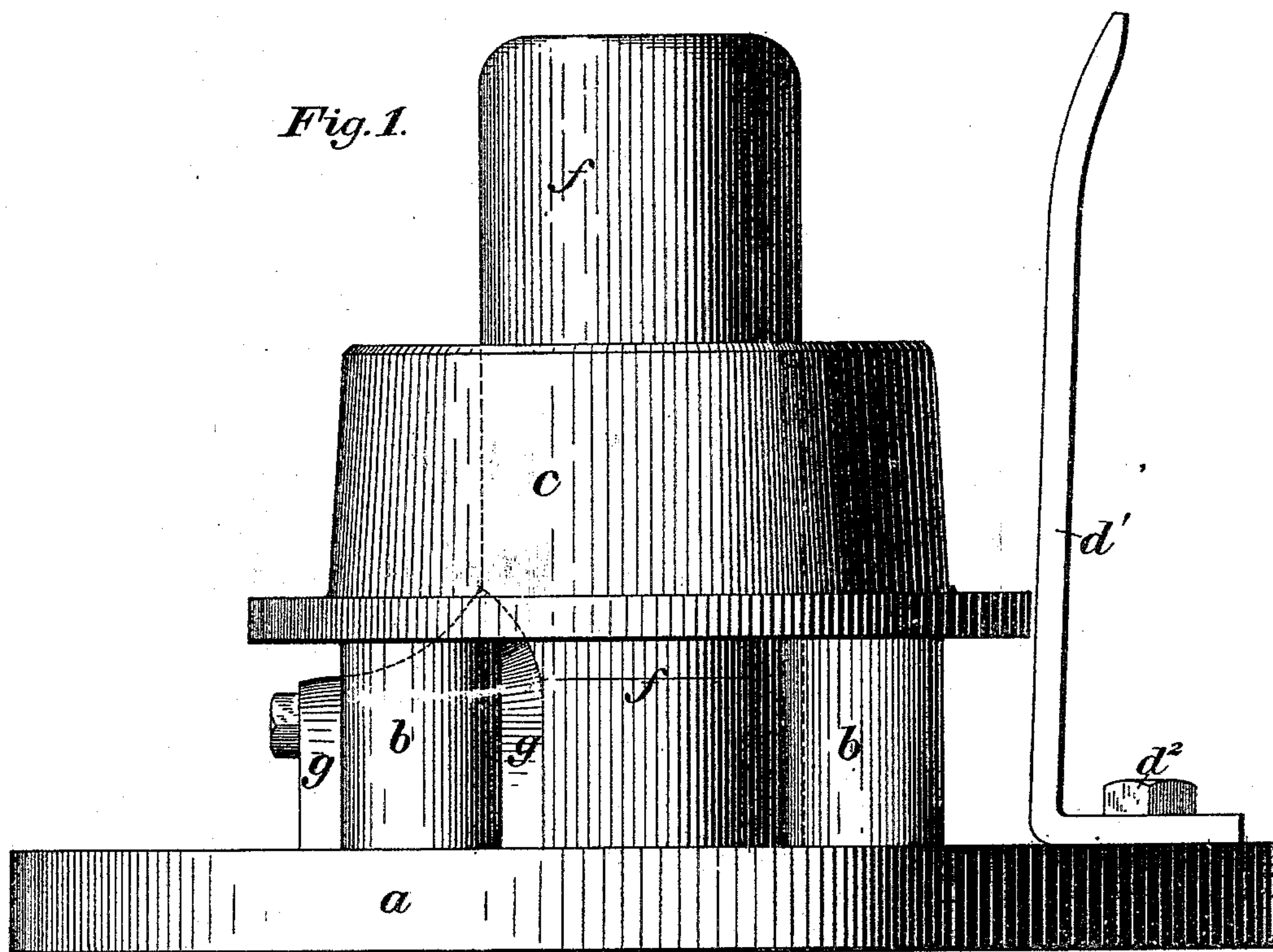
3 Sheets—Sheet 1.

U. ANDERSON.

# APPARATUS FOR SHAPING GLASSWARE.

No. 401,099.

Patented Apr. 9, 1889.



*Witnesses.*

*H. L. Gill.*

W. B. Corwin

*Inventor.*

Joseph Anderson  
by W. Baxendale & Sons  
his Attorneys



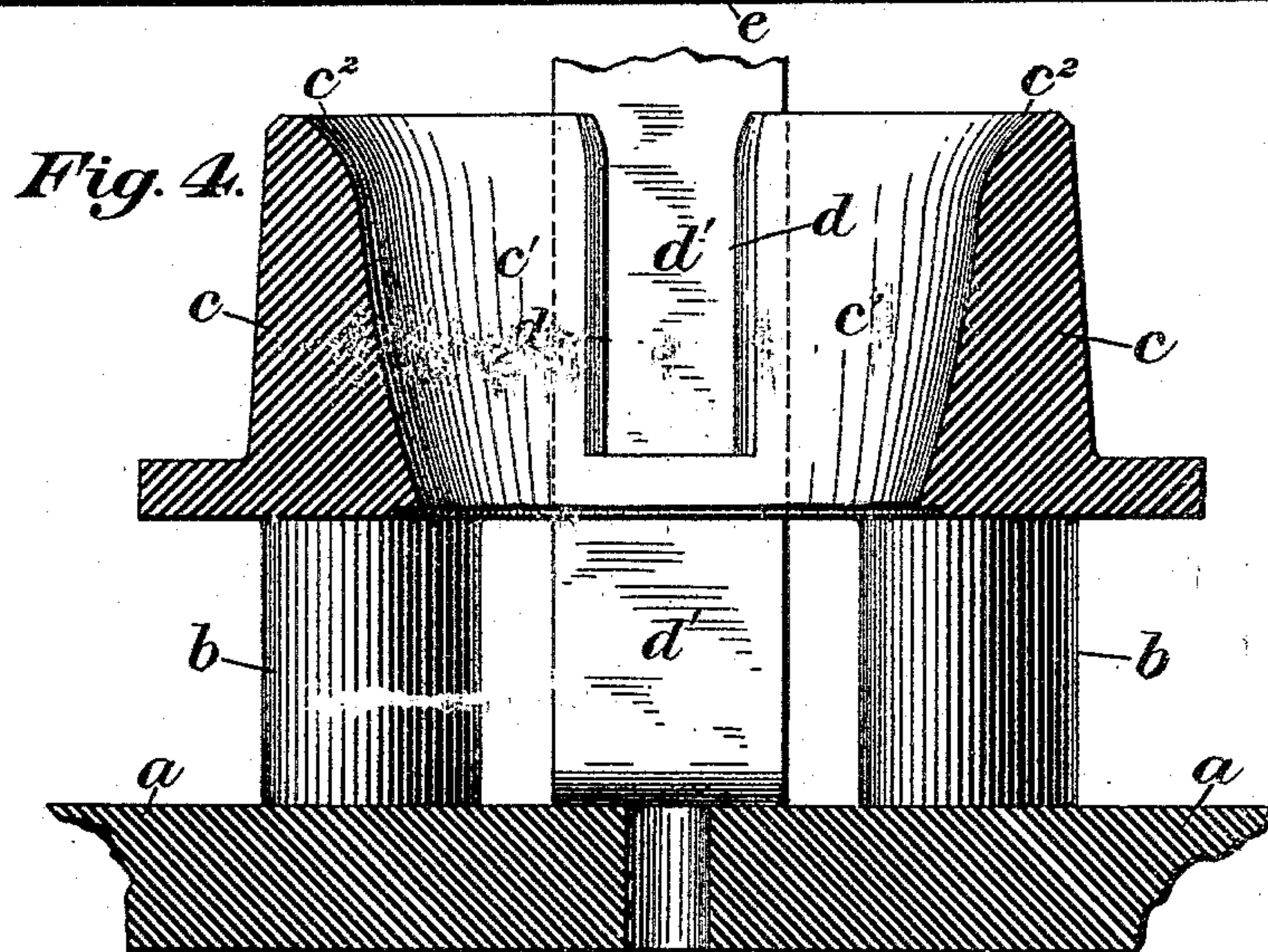
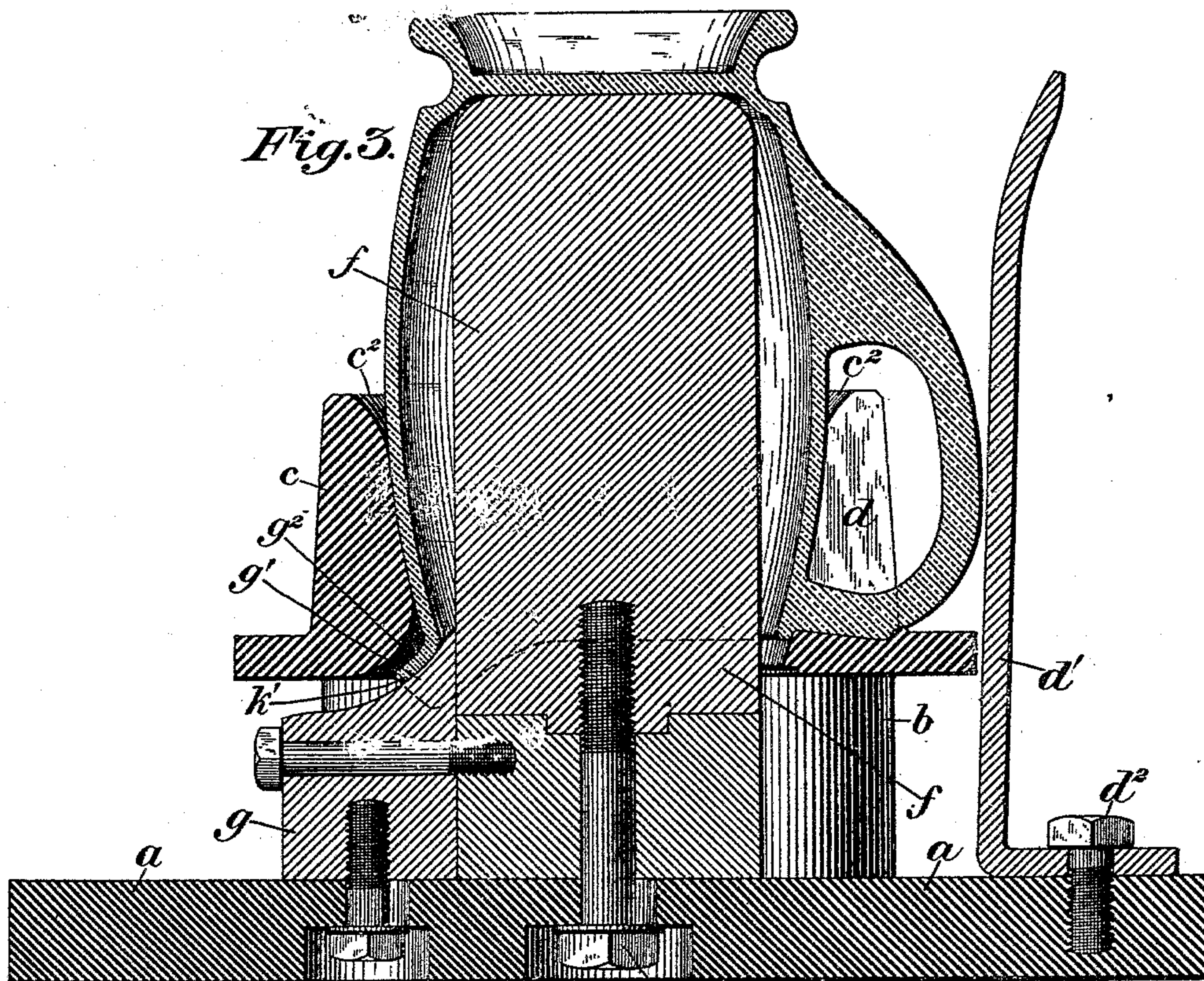
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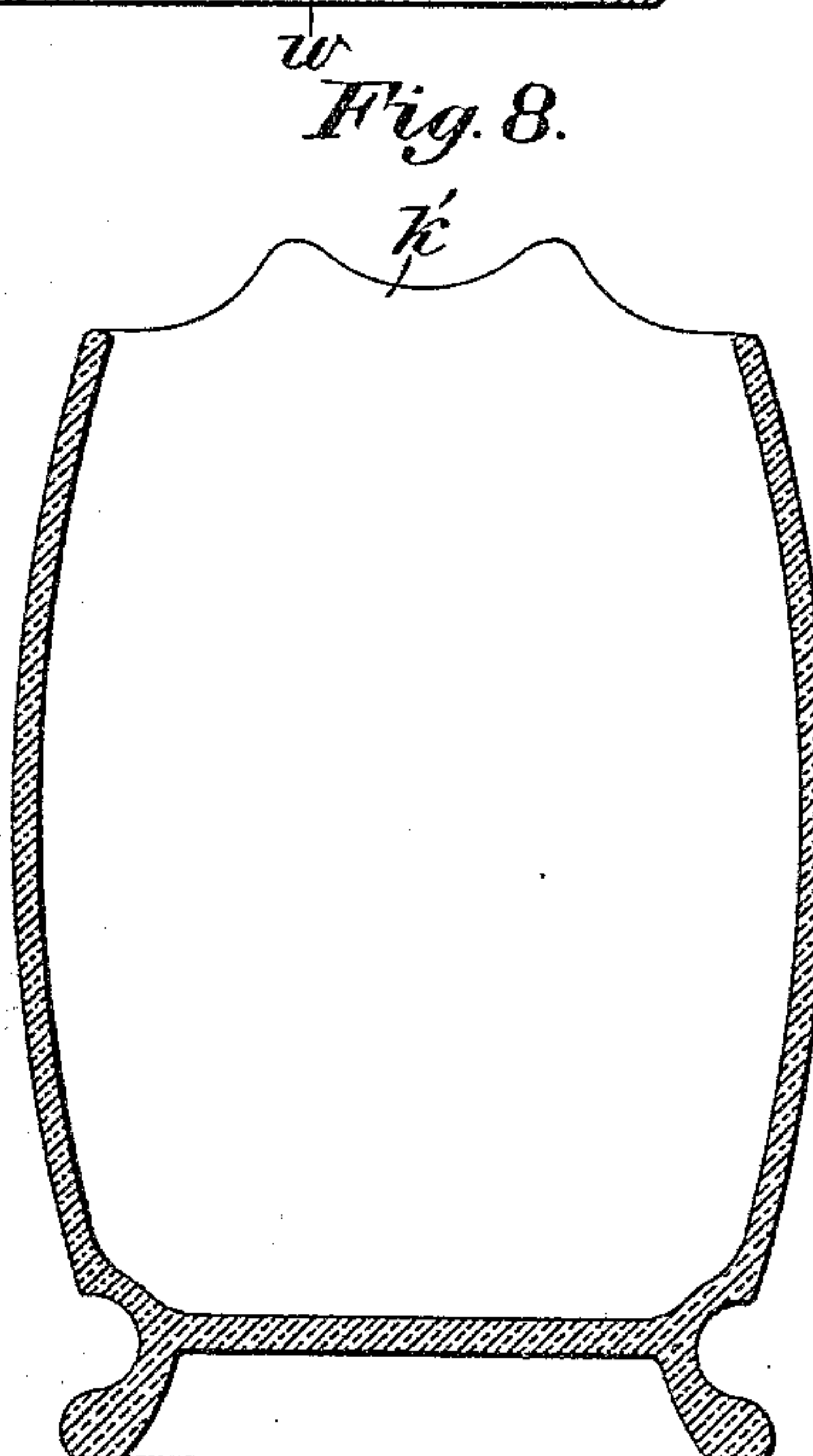
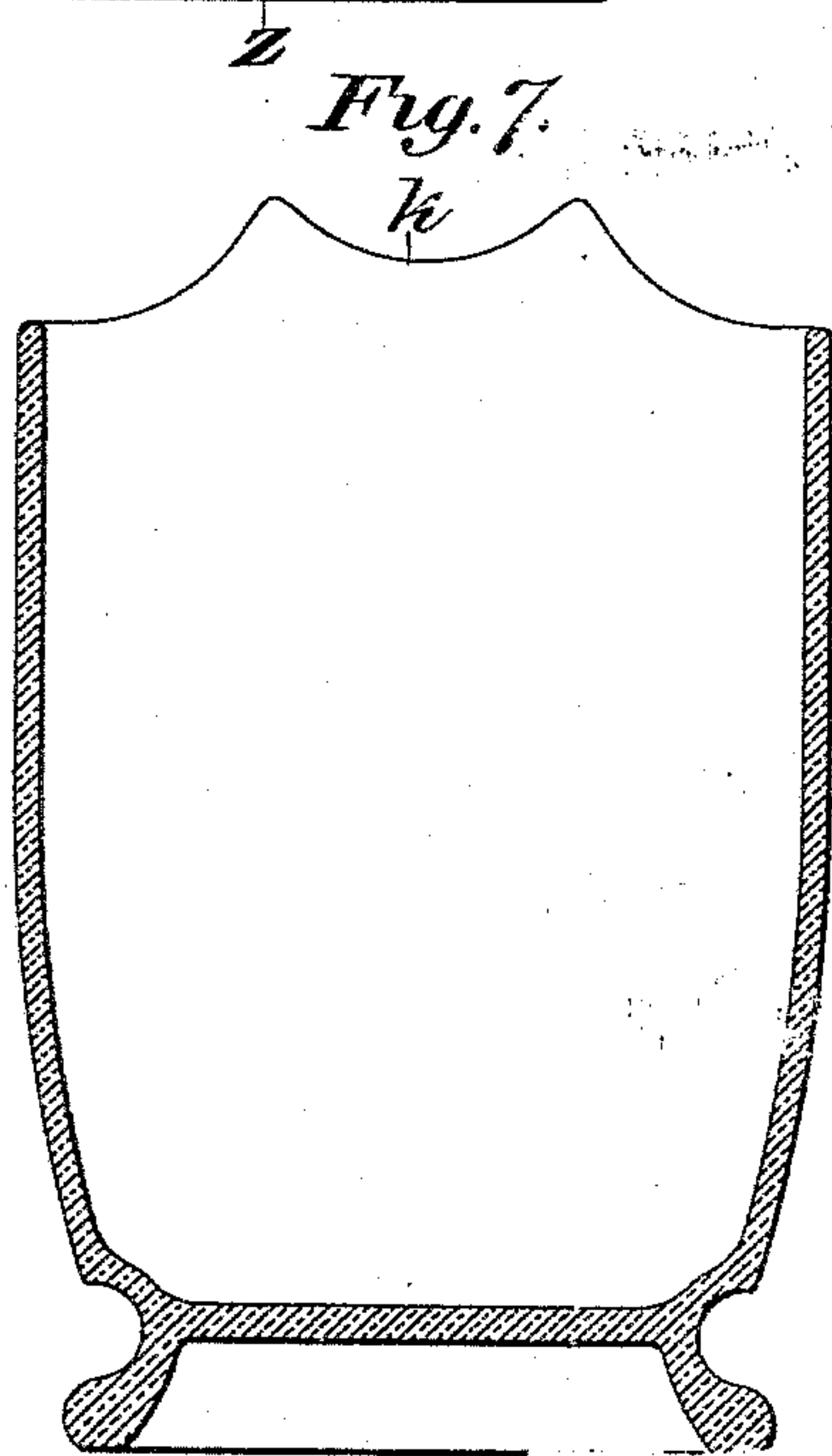
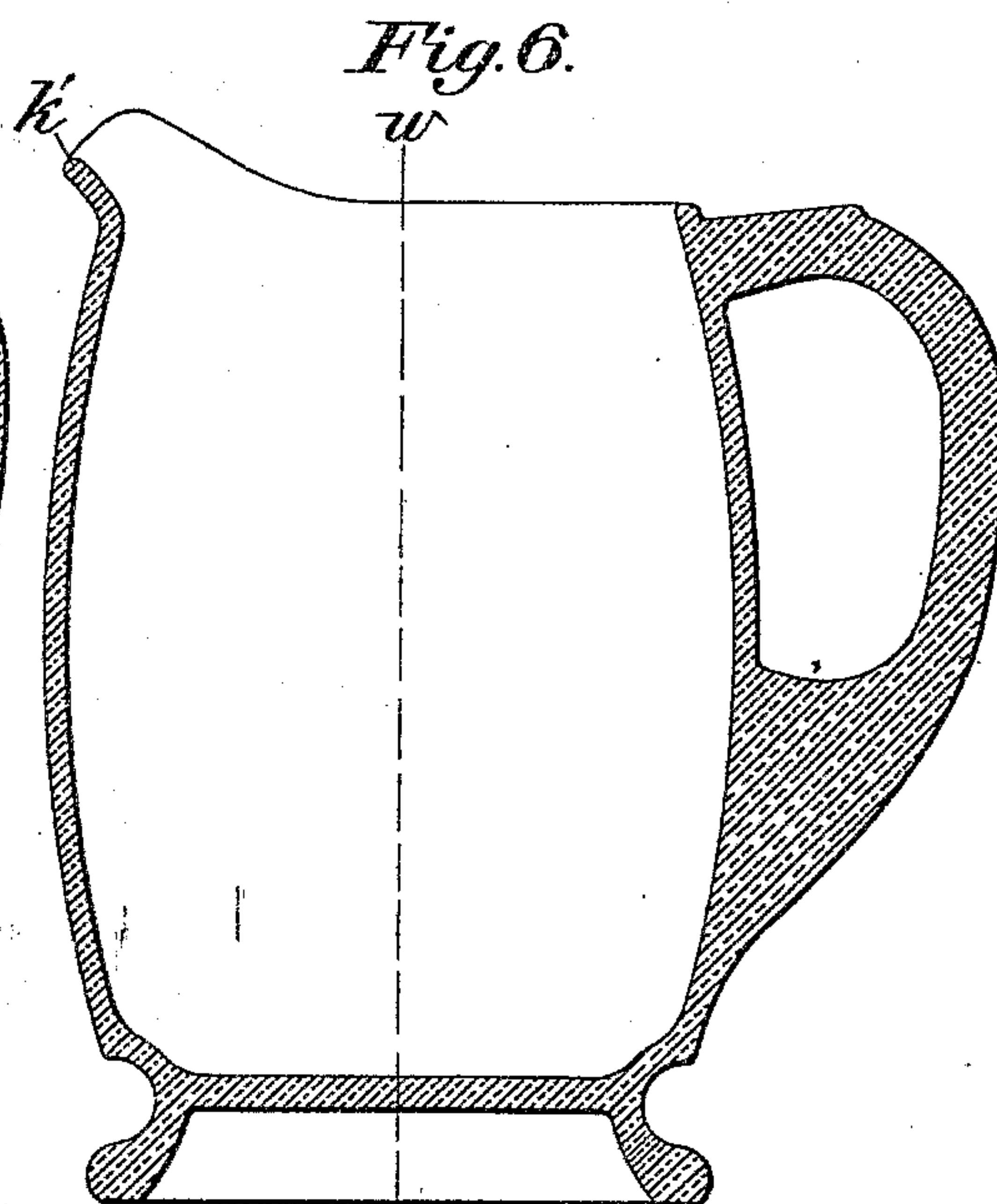
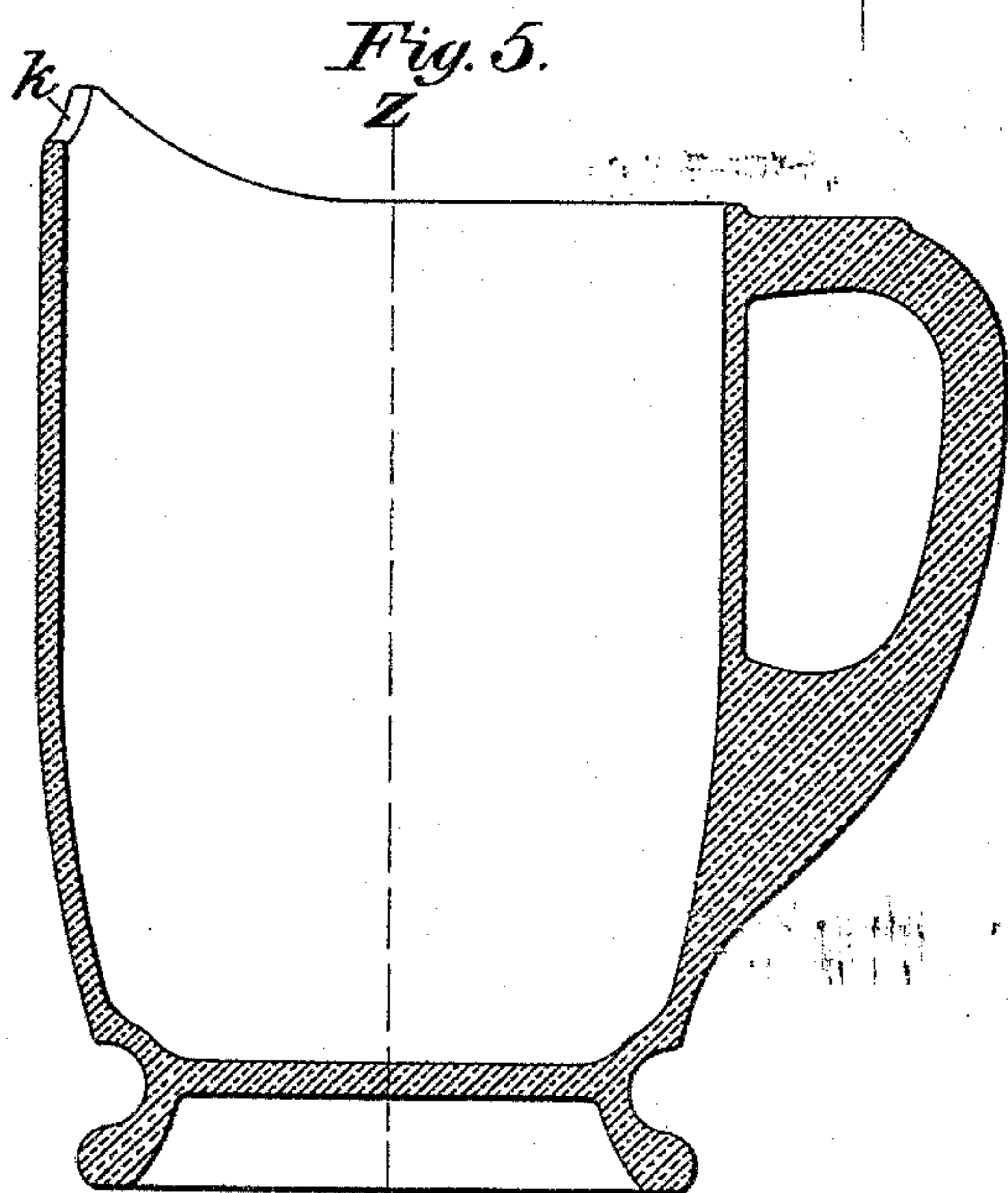
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*his Attorneys*



# UNITED STATES PATENT OFFICE.

JOSEPH ANDERSON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE  
OHARA GLASS COMPANY, (LIMITED,) OF SAME PLACE.

## APPARATUS FOR SHAPING GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 401,099, dated April 9, 1889.

Application filed November 19, 1887. Serial No. 255,581. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH ANDERSON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Shaping Glassware; and I do hereby declare the following to be a full, clear, and exact description thereof.

In the manufacture of glassware, where hollow vessels—such as jugs, bowls, and similar articles—are formed in a mold by a plunger, the interior of the vessel when it is removed from the mold is necessarily as large in diameter at the mouth as at the base, owing to the withdrawal of the plunger, and when it has been desired to contract the mouth of the vessel the work has heretofore been done by hand by the use of a tool. This work requires the services of skilled workmen, and it has been impossible to obtain uniformity in the manufactured articles, owing to the fact that the workman is guided merely by his eye. It has also been necessary in such vessels to attach the handle after the jug or bowl has been removed from the mold, which also requires the services of a skilled workman and a separate operation or manipulation of the vessel.

The object of my invention is to provide the mechanical means for performing these operations, whereby the services of skilled workmen are dispensed with, the labor and time are lessened, and uniformity in shape and size is obtained.

I will now describe my invention, so that others skilled in the art may manufacture and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved apparatus. Fig. 2 is a plan view of the same. Fig. 3 is a vertical sectional view on the line *x x* of Fig. 2, showing a glass vessel fitting within the former. Fig. 4 is a vertical sectional view of the lower portion or matrix of the former on the line *y y* of Fig. 2, the plunger being removed. Fig. 5 is a vertical sectional view of the glass vessel as it appears when removed from the mold and before it is placed in the former. Fig. 6 is a like view of the vessel after it has been removed from the former. Fig. 7 is a vertical sectional view on the line

*z z* of Fig. 5. Fig. 8 is a like view on the line *w w* of Fig. 6.

Like letters of reference indicate like parts in each.

In the drawings, *a* represents the bed-plate, to which are secured by bolts the supporting-posts *b*. Mounted on the posts *b* is the matrix portion *c* of the former, having a central cavity, *c'*, which curves or flares outwardly from the base to the top or mouth. The mouth of the cavity is beveled or rounded away, as at *c''*, to allow of the easy admission of the glass vessel to the cavity of the matrix. In one side of the matrix *c* is a slot or opening, *d*, extending from a point near the base of the cavity to the top of the matrix. The purpose of this slot *d* is to prevent the matrix from interfering with the handle of the glass vessel, the slot allowing the handle to project beyond and outside of the body of the matrix. Secured by a suitable bolt, *e*, to the bed-plate *a* is the upright die or fixed plunger *f*, which extends up through the cavity *c'* of the matrix *c*. This die *f* may be cylindrical in shape, the edge of the top being rounded away, so as to conform to the shape of the bottom of the inside of the glass vessel. At one side of the die *f*, below the matrix *c*, and secured to the base of the die, is a die or post, *g*, having a rounded inclined upper face, opposite to which the matrix is recessed, as at *g''*. The purpose of this post is to give the required curve to the lip of the glass vessel. At the rear of the slot *d* is an upright rod, *d'*, which is secured by the bolt *d''* to the bed *a* and is slightly curved backward at its top. This rod serves to preserve the shape of the handle of the glass vessel, which handle bears against the face of the rod as the vessel is pushed down in the matrix *c*.

The operation is as follows: The glass pitcher or other similar vessel is first formed in the mold in the usual manner, excepting that the mold is of such shape as to form the handle *h* as a part of the vessel. When removed from the mold, the jug or pitcher is of the shape shown in Figs. 5 and 7. After the jug has been removed from the mold it is reheated, so as to make the glass plastic, and the mouth of the jug is placed over the die *f*, and the jug is forced down within the



cavity of the matrix *c* until the bottom of the jug rests on the top of the die *f*. The handle of the jug then passes through the slot *d*, the outer portion of the handle coming in contact with the rod *d'*. As the soft glass is pressed into the matrix, the mouth of the vessel is contracted, owing to the curved surface of the cavity *c'*, and when the lip portion *k* comes in contact with the curved surface *g'* of the post *g* it is pressed outward, forming the lip *k'*. The glass vessel is then lifted out of the matrix, (the die, being cylindrical, forming no obstacle thereto,) and is in the shape shown in Figs. 6 and 8. The function of the die *f* is to act as a guide to center the article when it is being inserted into and removed from the matrix.

Although I have shown a matrix or former adapted to forming cream-jugs, the shape or form of the matrix may be altered to suit glass vessels of other shapes and designs.

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

1. A former for shaping glass articles, which consists in a central guide die or post and an outer matrix into the cavity of which the article is inserted, said matrix being of less width than the original diameter of the article to be shaped and being contracted in diameter from the outside inwardly, whereby a compressing and shaping action on the article is obtained, substantially as and for the purposes described.

2. A former for shaping glass articles, which consists in a matrix into the cavity of which

the article is inserted, said matrix being of less width than the original diameter of the article to be shaped and being contracted in diameter from the outside inwardly, whereby a compressing and shaping action on the article is obtained, substantially as and for the purposes described.

3. In a former for shaping glass articles having a handle or projection, a matrix into the cavity of which the article is inserted, said matrix being of less width than the original diameter of the article to be shaped and being contracted in diameter from the outside inwardly, the cavity of the matrix being slotted at the side to permit passage of the handle or projection and having a guide, *d'*, situate at the rear of the slot, substantially as and for the purposes described.

4. A former for shaping glass articles, which consists in a matrix into the cavity of which the article is inserted, said matrix being of less width than the original diameter of the article to be shaped and being contracted in diameter from the outside inwardly, whereby a compressing and shaping action on the article is obtained, and a lip-former or die at the base of the said matrix, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 14th day of November, A. D. 1887.

JOSEPH ANDERSON.

Witnesses:

W. B. CORWIN,  
THOMAS W. BAKEWELL.