No. 650,433. Patented May 29, 1900.

W. STEWART.

FINISHING MACHINE FOR GLASS ARTICLES.

(Application filed July 3, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

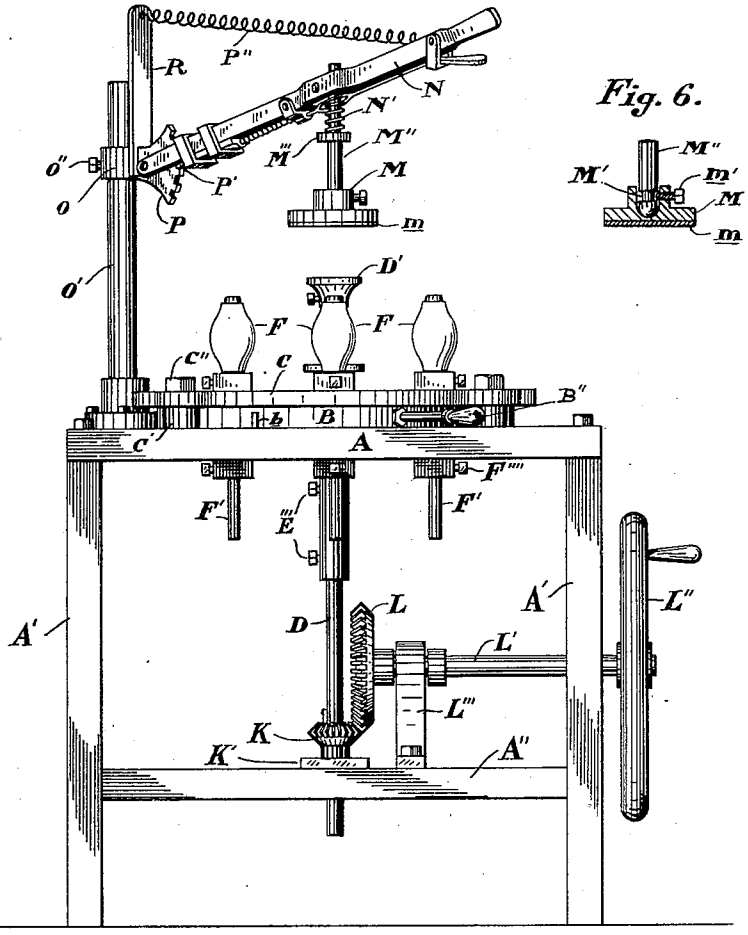


Fig. 6.

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Fig. 2.

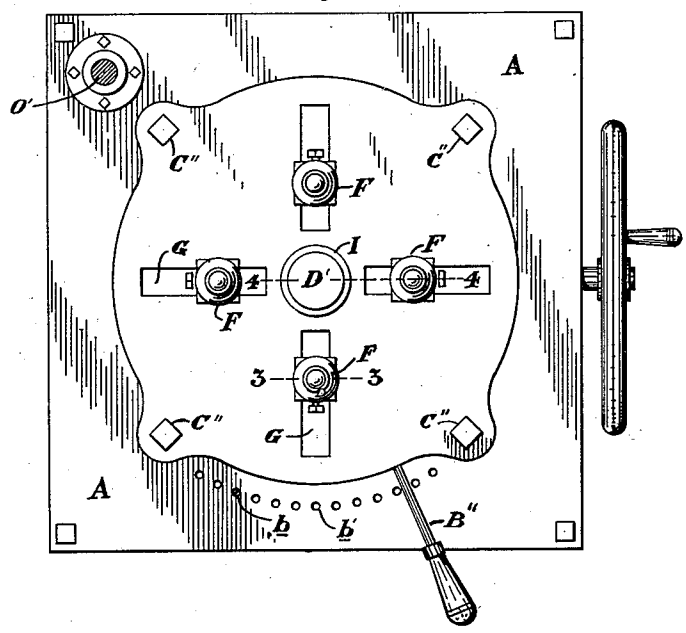


Fig. 5.

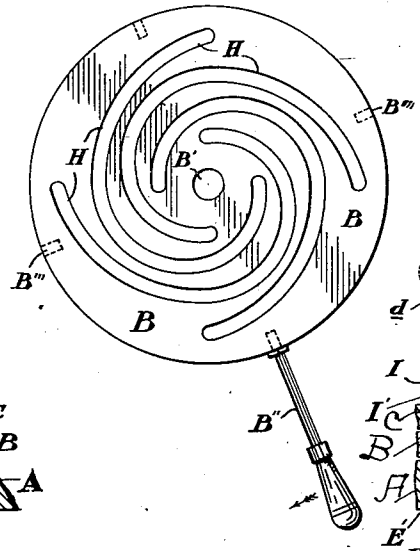


Fig. 3.

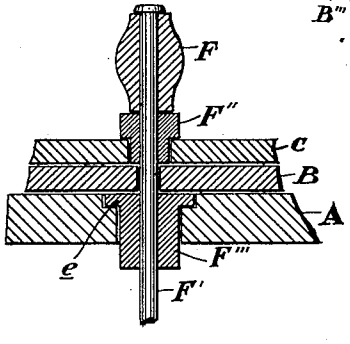
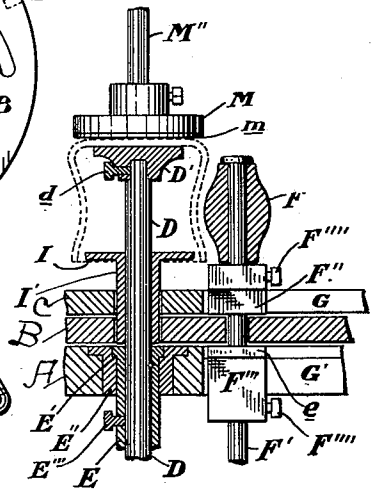


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM STEWART, OF WHEELING, WEST VIRGINIA, ASSIGNOR OF ONE-HALF TO WILLIAM P. CLARKE, OF MUNCIE, INDIANA.

FINISHING-MACHINE FOR GLASS ARTICLES.

SPECIFICATION forming part of Letters Patent No. 650,433, dated May 29, 1900.

Application filed July 3, 1899. Serial No. 722,645. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STEWART, a citizen of the United States, residing at Wheeling, county of Ohio, and State of West Virginia, have invented a new and useful Finishing-Machine for Glass Articles, of which the following is a specification.

My invention relates to improvements in finishing-machines for glass articles wherein the article is reheated and pressed into the shape desired. The aim and purpose of the invention is to provide mechanism which will form the articles into their desired shape in the least possible time and at a very small cost. These and other objects not hereinbefore mentioned are accomplished by the construction illustrated in the accompanying drawings, wherein like letters of reference indicate corresponding parts in the several views, and in which—

Figure 1 is a side elevation of my improved machine. Fig. 2 is a top plan view of the same. Fig. 3 is a section on the line 3 3, Fig. 2. Fig. 4 is a section on the line 4 4, Fig. 2. Fig. 5 is a top plan view of the plate for moving the formers, and Fig. 6 is a detail sectional view of the universal connection between the shoe and its supporting-shaft.

In the drawings, A designates a table which is supported on the legs A'.

B designates a plate which rests on top of the table A.

C designates a cover over the plate B. This cover is supported on the legs C', which rest on the table, and is secured in place by means of the bolts C''.

D designates a shaft which extends up through the table, through the aperture B' in the plate, and through the cover. Supported on top of this shaft is the supporting-block D' for supporting the ware to be formed and finished, as hereinafter described. This shaft is secured in position by means of the collar E, which has a shoulder E' at its upper end. This shoulder engages a bushing E'', which is secured to the table A, as plainly shown in Fig. 4. The shaft passes through this collar and is held in its adjusted position by means of the set-screws E'''. By this construction the shaft can be adjusted to any desired height and held firmly in its adjusted position for a purpose hereinafter described.

F designates the finishing and shaping rolls. I preferably use four of these rolls, although it is evident that I could use a greater or less number. These rolls are supported on the shafts F', which pass through blocks F'' and F''' and through the plate B. The upper block F'' rests on the cover C, and the lower block is hung to the table by means of the shoulder *e*, which engages a cut-away portion on the table. These shafts are secured in their position by means of the set-screws F'''', which pass through the blocks and engage the shafts. It will readily be seen that by unloosening the screws the shafts can be withdrawn and another shape of former placed on the shaft other than the one shown in the drawings and the shafts put back and secured in place.

The shafts pass through grooves H in the plate B. By referring to Fig. 5 it will be noticed that there are four grooves, one for each shaft. These slots start from near the outer edge of the plate and curve inward to near the center. The blocks F'' slide in slots G in the cover C and the blocks F''' slide in slots G' in the table, so that when the plate is turned to the left, as shown by the arrow, Fig. 5, and the shafts engage the slots, the shafts carrying the shaping and finishing rolls will be forced inward against the article to be finished and formed and the parts will assume the position shown in Fig. 4, when the shaft D will be revolved in a manner to be described hereinafter and the article is given the required shape and finished for the market. The machine is adapted to finish and shape pressed articles which have straight sides, and when the convex rolls F are brought up against the ware it will make the ware have concave sides. It is to be understood that while I have shown this style of finisher and former to make an article with a concave side I do not desire to limit myself to this shape, as it is evident that any style of finisher and former can be placed on the shaft, as hereinbefore described.

The article to be finished and shaped is first reheated and placed on the supporting-block

D′ in an inverted position, as shown in Fig. 4. The supporting-block is held on the shaft D by means of the set-screw *d* and can be removed and a larger or smaller one secured thereon, if desired.

The plate B is revolved by means of the handle B″, which is secured in a socket B‴ on the side of the plate. *b* designates a pin arranged in the path of the handle for stopping the plate in the required position. This pin can be placed in any one of the series of apertures *b*′ on the table A. In some instances when forming and finishing small articles it will be necessary for the handle to pass beyond the post C′. I therefore make the handle removable and provide four apertures in the side of the plate, in any one of which the handle can be secured.

I designates a plate surrounding the shaft D, which has an annular portion I′ extending downward through the cover and plate B, which acts as a bushing for the shaft. This plate is adapted, as shown in Fig. 4, to engage the inner face of the article to be finished and shaped and will prevent the edge of the article from being pressed in. This plate is removable and can be dispensed with, if found necessary, in finishing and shaping other styles of articles.

Motion is imparted to the shaft D by means of a bevel gear-wheel K, which is keyed on the shaft and is supported by means of the block K′, which rests on the cross-piece A″. This gear-wheel meshes with a bevel gear-wheel L, which is mounted on a shaft L′. On the opposite end of this shaft is a hand-wheel L″ for imparting motion to the shaft. The shaft is supported by means of the standard L‴, resting on the cross-piece A″. It takes but a few revolutions of the hand-wheel to rotate the shaft D, carrying the article to be finished and shaped, sufficiently to finish the article.

To steady the article on the support D′ while the shaft is being revolved, I provide a shoe M, which has an asbestos bottom *m*, which bears against the bottom of the article to be finished and shaped, as shown in Fig. 4. This shoe is secured to a shaft M″, which has a sliding connection with a lever N. The shaft is provided with a shoulder M‴, and between this shoulder and the lever is interposed a coiled spring N′, so that when the shoe is pressed down against the article it will yield slightly and not break the same. The lever N is pivoted to a collar O, which is slidingly secured on a standard O′ by means of the set-screw O″. The standard is supported by the table A. The collar is provided with a notched segment P, and the lever N is provided with an ordinary spring-tongue P′ for holding the lever in its adjusted position. P″ designates a coiled spring which extends from the top of a post R, secured to the collar, to the free end of the lever N. This spring acts as a check when the lever is lowered against the article to be finished, so that the lever will not be lowered too quickly, thereby breaking the article, and will raise the lever after the finishing has been done.

The article which is to be finished sometimes has an uneven bottom, and for that reason I provide the shoe M with a universal connection with the shaft M″. This is accomplished by the construction illustrated in Fig. 6. The shoe M is provided with a socket having a rounded bottom in which rests the end of the shaft M″, which is provided with a rounded end. The shaft is provided with an annular groove, and in this groove projects the end of the set-screw *m*′ for holding the shoe to the shaft. The diameter of the set-screw is less than the width of the groove, so that the shoe can have a swivel motion on the shaft. By this construction whether the bottom of the article to be finished has an even bottom or not the shoe will always rest firmly thereon and hold the article on the support.

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

1. In a glass-finishing machine, the combination with a rotatable shaft adapted to carry the article to be finished, of a series of finishing-rolls surrounding the shaft, and a rotatable plate connected to the finishing-rolls adapted to simultaneously move the rolls toward and from the shaft.

2. In a glass-finishing machine, the combination with a table, of a plate resting on the table, provided with a curved slot extending from near the outer edge of the plate to a point adjacent the center thereof, a rotatable shaft extending up through the table and plate, a shaft engaging the slot in the plate, and a finishing-roll mounted on the said shaft.

3. In a glass-finishing machine, the combination with a table of a plate resting on the table, provided with a slot extending from near the outer edge of the plate to a point adjacent the center thereof, a rotatable shaft extending up through the table and plate, a shaft engaging the slot in the plate, a finishing-roll mounted on the said shaft, and means for limiting the movement of the plate.

4. In a glass-finishing machine, the combination with a shaft adapted to carry the article to be finished, of a shoe adapted to hold the article on the shaft when being finished, a movable support for the shoe, means for locking the shoe in its adjusted position and a universal joint between the shoe and its support.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

WILLIAM STEWART.

Witnesses:
D. W. MORRIS,
ANDY YOUSE.