(No Model.)

H. C. WOOD.

DEVICE FOR GRINDING AND POLISHING GLASSWARE.

No. 469,052. Patented Feb. 16, 1892.

Fig. 1.

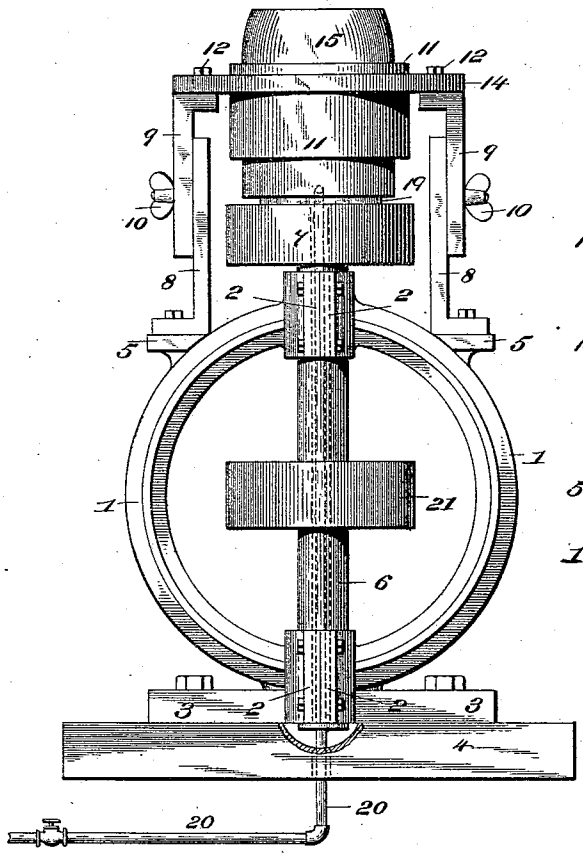


Fig. 2.

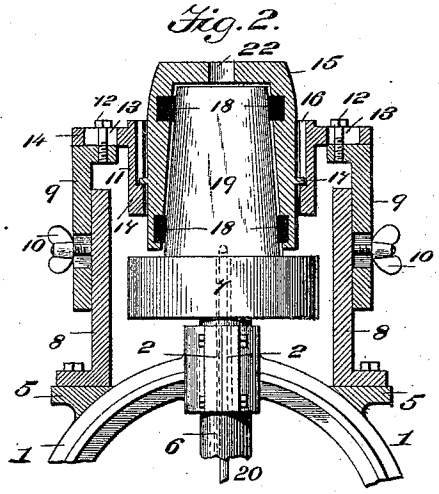


Fig. 3.

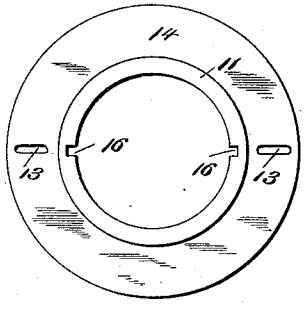
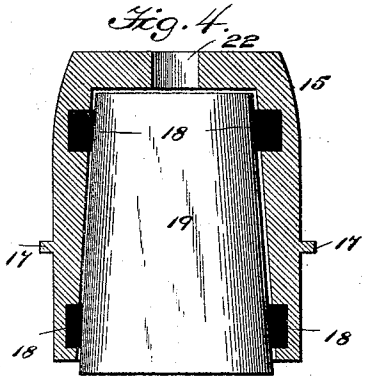


Fig. 4.



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UNITED STATES PATENT OFFICE.

HARRY CURTIS WOOD, OF TIFFIN, OHIO.

DEVICE FOR GRINDING AND POLISHING GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 469,052, dated February 16, 1892.

Application filed August 31, 1891. Serial No. 404,284. (No model.)

To all whom it may concern:

Be it known that I, HARRY CURTIS WOOD, a citzen of the United States, residing at Tiffin, in the county of Seneca and the State of Ohio, have invented a new and useful Improvement in Devices for Grinding and Polishing Glassware, of which the following is a specification.

My invention is directed to improvements in devices for grinding and polishing the mouths of light blown glassware, and particularly tumblers; and the objects of my improvements are to produce a comparatively light machine for holding and operating on single articles fed by gravity to the grinding-wheel, with provision for adjusting the holding device for the article centrally or eccentrically to the axis of the grinding-wheel, whereby the article may be presented to different parts of the grinding-surface and the latter thereby preserved for longer effective use, and with provision for adjusting and limiting the descent of the article to the grinding-surface, as illustrated in the accompanying drawings, and the novel features of which I will point out in the claims concluding this specification.

Referring to the drawings, Figure 1 is an elevation of my improved device for the purpose stated. Fig. 2 is a vertical section thereof. Fig. 3 is a top view, and Fig. 4 is a vertical section, of the inverted cup that holds the article being ground.

The frame is a casting of two semicircular ring parts 1 1, each having end flanged parts 2 2, by which they are bolted together to form a ring, each having a base-flange 3 3, by which the ring is bolted to a table 4, and each having at its upper side a lug 5 5, upon which are mounted the devices for holding the article to be ground. The end flanged parts of the ring form the bearing-boxes for a vertical shaft 6, on the end of which above the ring is fitted a horizontal grinding-wheel 7, which I prefer to make of emery as being best adapted for grinding the edges of light glassware. An upright 8 is fixed to each ring lug, which rises above the grinding-wheel, and to their upper ends are fixed other uprights 9 by means of thumb-screws 10, which pass through slots to permit of the vertical adjustment of the said uprights 9, the upper ends of which are turned inward and upon which is secured a ring 11, so that its walls stand vertical between the uprights and over the grinding-surface. In this position the ring is secured by bolts 12, which pass through radial slots 13 in a rim 14 of said ring, which rim rests upon the upper ends of the uprights 9, whereby the said ring can be adjusted laterally to set it centrally with or to one side of the center of the grinding-wheel. An inverted cup 15 for holding the article to be ground is adapted to fit closely and to have vertical movement within this ring, and for this purpose their joining walls are turned perfectly smooth and straight. Vertical grooves 16 16 are formed diametrically in the inner walls of the ring to receive pins 17 17, projecting from the walls of the inverted cup as a means of holding the cup firm, preventing the latter from turning within the ring and for limiting the descent of the cup within the ring. These grooves 16 are open at the top of the ring to permit the cup to be placed within and removed from the ring, and their lower closed ends form stops on which the pins rest as a limit to the descent of the cup. The chamber of this cup is preferably of the form of the article to be ground, and at one or more places its inner wall is formed with annular recesses, within which are placed rings 18 of rubber, cloth, cork, or similar soft substance for gripping and holding the article 19 placed therein inverted and with its bottom preferably supported upon the bottom of the cup and its mouth projecting a little below the mouth of the cup to expose the edge of the article to the grinding-surface and allow it to be ground down to a limit determined by the descent of the cup-pins in the ring-slots; and it will be understood that this descent must not permit the contact of the lower edge of the cup with the grinding-surface. The shaft of the grinding-wheel is made hollow and is open at both ends to allow a small pipe 20 to be passed up through it for supplying water under hydrant-pressure to the surface of the wheel, which is driven by a pulley 21 on the shaft.

The operator places the article in the cup and

puts the cup into the ring with the edge of the article resting on the grinding-wheel, over which the water flows. It will be understood that the ring is adjusted and set vertically by the thumb-screws of the cup-supporting uprights to limit, by the cup-grooves and ring-pins, the descent of the cup and thereby limit the grinding down of the edge of the article, the descent of which is free and effected by the weight of the cup and the article held therein and that when the limit of descent is reached the grinding ceases while the wheel continues in motion. It will also be understood that one operator can attend to a number of these machines fixed along the table and driven from the same power, as he is only required to remove the cups, take out the ground tumblers, and put other tumblers in them and replace the cups in the rings. A hole 22 in the bottom of the cup provides for the introduction of means for pushing out the tumbler when the cup is removed, and the handling of the cup to place and remove it and to place and remove the article is convenient, requires little time, and is not liable to break the article. The sectional construction of the frame renders it easy to make, to put together, and to adjust.

The provision for adjusting or setting the cup laterally either side of the center of the grinding-wheel gives the advantage of shifting different articles, so as to change the relation of each to the grinding-surface as the latter wears, and in this way get the benefit of using as much of the grinding-surface as possible. This adjustment of the cup is parallel with the face of the grinding-wheel, and is made by shifting the ring on its uprights to the one side or to the other between them or centrally with the wheel. The emery-wheel may be secured on its shaft so as to be reversible to increase its capacity for wear, and when its surface becomes ridged it can be ground smooth.

It is important to notice that the article being ground has no movement independent of its holding-cup, and within said cup it is held by the grasp of the rubber rings countersunk in the walls of the cup, so that the article can be forced into the cup against the pressure of the rubber rings and held by such pressure within the cup and as easily forced out of the cup by pressure applied through the bottom opening therein. It is obvious that the pins may be in the ring and the grooves in the cup-walls, and that the uprights 8 and 9 may be ring-formed.

Without limiting myself to the precise construction and arrangement of parts, I claim—

1. In a glass-grinding device, the combination, with a flat-top rotary grinding-wheel, of a non-rotative ring above said wheel, an inverted non-rotative cup for holding the article to be ground, fitted and movable vertically within said non-rotative ring, and suitable means for supporting said ring, for the purpose stated.

2. In a glass-grinding device, the combination, with a flat-top rotary grinding-wheel, of a non-rotative inverted cup for holding the article to be ground, having a free vertical movement therewith toward the grinding-wheel, a holder for said cup, and means for limiting the descent of the cup and its contained article, for the purpose stated.

3. In a glass-grinding device, the combination, with a flat-top grinding-wheel, of an inverted cup for holding the article to be ground and suitable means for adjusting it sidewise in relation to the grinding-wheel and for allowing it free descent thereto within certain limits, for the purpose stated.

4. In a glass-grinding device, the combination, with a flat-top grinding-wheel, of an inverted cup for holding the article to be ground, having wall projecting pins, a ring for holding the cup, having vertical wall-grooves closed at their lower ends to receive the cup-pins, and means for vertically adjusting the ring in relation to the wheel, for the purpose stated.

5. In a glass-grinding device, the combination, with a flat-top grinding-wheel, of an inverted cup for holding the article to be ground, having gripping-rings on its inner wall and pins on its outer wall, and a ring for holding said cup, having vertical wall-grooves for said pins, for the purpose stated.

6. In a glass-grinding device, the frame consisting of the semicircular ring parts having flanged ends, diameter-bearings, and base-flanges, in combination with a hollow shaft mounted in said bearings, having a flat-top grinding-wheel above said ring, a driving-pulley on said shaft, and suitable means supported on said ring for holding the article to be ground upon said wheel.

7. In a glass-grinding device, the combination, with a flat-top grinding-wheel, of an inverted cup having yielding grips on its inner wall for holding the article to be ground therein and suitable means for holding the cup for free descent with its contained article.

8. A device for grinding the mouths of glass articles, consisting of a frame, a hollow shaft mounted in bearings therein, having a flat-top grinding-wheel above said frame, fixed and movable standards mounted upon the latter on each side of the wheel, a laterally-adjustable ring upon the adjustable standards, an inverted cup having interior-wall yielding grips, and outer-wall pins engaging grooves in the said ring and limiting the descent of the cup, for the operation stated.

9. In a device for grinding the mouths of glass articles, a holder or chuck for the article, self-adjusting vertically and laterally adjustable, in combination with a flat grinding-surface and suitable means for supporting said chuck and for limiting its descent.

10. In a machine for grinding the mouths of glass articles, a holding device for the article, consisting of a cup-shaped chuck vertically self-adjustable, a ring-holder for said cup laterally adjustable, a support for said ring vertically adjustable, and a stop for limiting the descent of said cup toward the grinding-surface.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HARRY CURTIS WOOD.

Witnesses:
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