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MACHINE FOR GRINDING THE RIMS OF GLASS VESSELS.

APPLICATION FILED JUNE 8, 1915.

1,241,236. Patented Sept. 25, 1917.

Fig 1.

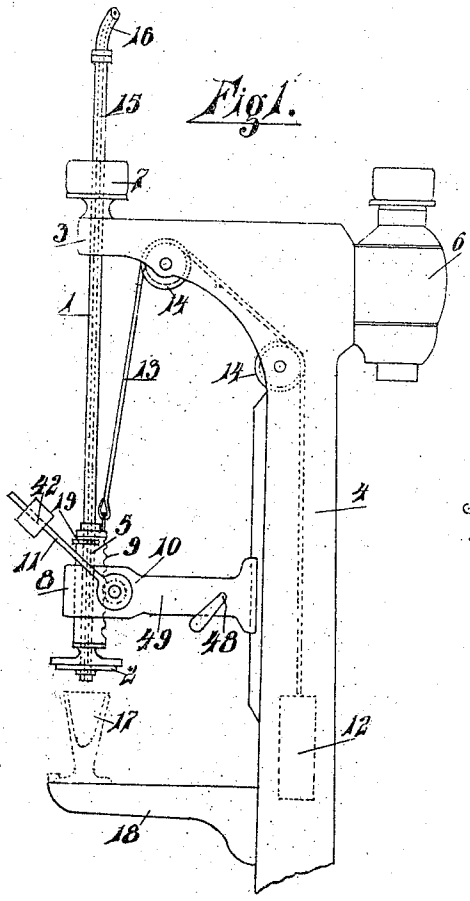


Fig 2.

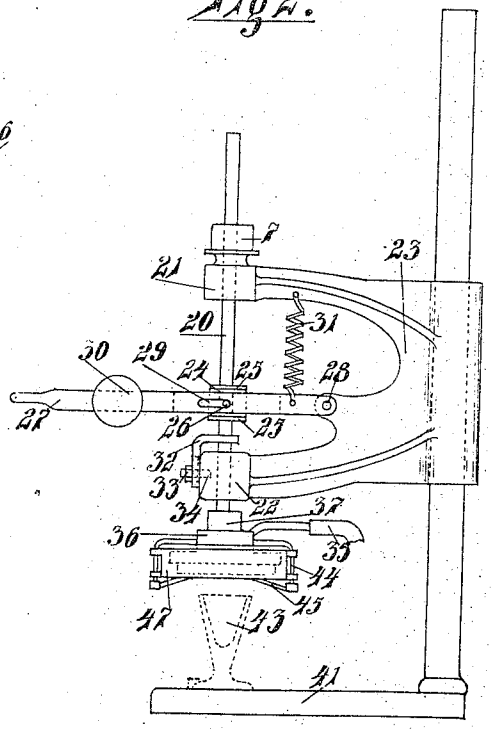
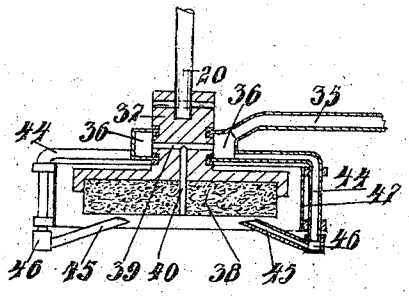


Fig 3.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR GRINDING THE RIMS OF GLASS VESSELS.

1,241,236. Specification of Letters Patent. Patented Sept. 25, 1917.

Application filed June 8, 1915. Serial No. 32,877.

To all whom it may concern:

Be it known that I, MAURICE MATHY, a subject of the King of Belgium, residing at Flémalle-Grande, Belgium, 28 Rue Léopold, have invented certain new and useful Improvements in Machines for Grinding the Rims of Glass Vessels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked therein, which form a part of this specification.

The present invention relates to a machine for grinding the upper rim of glasses, cups and other glass vessels so as to polish said upper rim and at the same time to cut and straighten the same in such a manner that its plane is exactly parallel to the base plane of the vessel and that all the vessels of a set are shaped to the same height.

The machines used for this purpose comprise generally a rotary grindstone rotating on a vertical shaft and supplying water to the glass to be ground by means of a duct provided in the axis of the shaft and of the grindstone. In these machines, the vessel to be ground is secured to a holder adapted to be moved vertically at will so as to force the glass vessel against the grindstone. Such a device has disadvantages because the movable parts used for performing the vertical motion of the glass, being arranged under said glass, are damaged in a short time by the action of water and abrading powder flowing down from the glass.

These inconveniences are avoided in the machine according to the present invention, by the fact that the vessel to be ground remains quite motionless while the grindstone is allowed to move vertically during the operation so as to be brought into contact with the vessel. The invention also consists in means for adjusting the pressure exerted upon the glass by the grindstone and for limiting the vertical movement of the grindstone according to the height of the glass.

Means are also provided for supplying water to all the parts of the operating face of the grindstone.

Figure 1 is a side view of a first form of the invention.—

Fig. 2 is a similar view of a second form of the invention.—

Fig. 3 is a partial vertical section, on an enlarged scale, in this second form.—

The machine according to Fig. 1 comprises a vertical rotary shaft 1 fixed to the grindstone 2 and journaled in a bearing 3 of the frame 4 and in a movable sleeve 5. The shaft 1 is driven by an electric motor 6, by means of a belt and pulley 7; it can slide freely in the bearing 3 and rests by means of a shoulder upon the sleeve 5. Said sleeve is slidably mounted in a socket 8 fixed to a slidable arm 49 which can be secured to the frame 4 at any desired height, by means of a screw 48: the sleeve 5 is provided with a rack 9 in gear with a pinion 10 that can be operated by a lever 11 in such a manner as to cause a vertical movement of the sleeve 5. The weight of the vertically sliding parts is balanced by a counterweight 12 hanging to a cable 13 secured by its other end to the sleeve 5 and passing over suitable pulleys 14. Upon the lever 11 is arranged a weight 42, the position of which can be varied at will, and which causes the lever 11 and at the same time the sleeve 5 to go down. In the shaft 1 and grindstone 2 is bored an axial duct 15 through which the necessary water finds its way into the glass 17. The water is supplied by means of a hose 16 attached to the shaft 1 with the interposition of a joint allowing the shaft to rotate freely. The glass to be ground is secured to a fixed table 18 by any suitable means.

When the glass is secured to the table 18, the shaft 1 rotated at the required speed and the water supplied, the workman, who is holding the lever 11 in the upper position, releases the lever, the weight 42 of which causes the sleeve 5 to go down and the grindstone 2 to come into contact with the glass 17. The pressure exerted by the grindstone upon the glass can be varied according to the thickness of the glass by varying the position of the weight 42 on the lever 11.

When the glass 17 has been ground out to such a degree that the required height of the glass has been attained, the movement of the sleeve 5 is limited by a ring 19 adapted to be secured to said sleeve at any suitable height.

In the second form of the invention (Figs. 2 and 3), the rotary shaft 20 is adapted to revolve and to slide in bearings 21 and 22 of the frame 23. Loosely mounted on the shaft 20 is a sleeve 24 holden between two shoulders 25 of the shaft, and provided with two pins 26. A lever 27 pivotally mounted at 28 on the frame 23 is so shaped as to form two arms surrounding the sleeve 24 and provided with slots 29 through which the pins 26 pass. On the lever 27 is also arranged a weight 30, the position of which can be varied at will. The weight of the movable parts is partially balanced by the power of a spring 31. As a means for limiting the downward movement of the shaft, an iron piece 32 is provided; this piece is bent at a right angle and the horizontal arm is provided with a circular hole through which the shaft 20 passes, while in the vertical arm a longitudinal slot is made, through which passes a screw-threaded rod 34 fixed to the bearing 22; the piece 32 is secured to the bearing 22 at any desired height by means of a nut 33 screwed on the rod 34. The shaft 20 is power driven as in the apparatus shown at Fig. 1.

Water is supplied by means of a hose 35 and an annular channel 36 which surrounds the cylindrical part 37 of the carrier of the grindstone 38 and is attached to said cylindrical part by means of tight joints adapted to permit the carrier 37 to revolve freely. The water supplied to the channel 36 is divided into several currents; a portion of this water passes through ducts 39 and 40 provided in the carrier 37 and grindstone 38 and comes in the vessel to be ground. Other portions are sent against the lower face of the grindstone by means of pipes 44.

The ends 45 of these pipes are adapted to turn at 46 on the pipes 44 in such a manner that the jets can be directed at will against any desired point of the grindstone. A wire-gauze 47 is fixed to the pipes 44 so as to prevent the water from being thrown about.

The vessel 43 is secured to a fixed table 41.

Before beginning to grind a set of glass vessels, the workman arranges the weight 30 in the right position according to the pressure to be exerted on the vessels, and secures the iron piece 32 at the height required. Then he lifts the lever 27, secures the vessel 43 to the table 41, opens the supply of water and releases the lever 27; then the machine performs automatically the work required.

It must be noted that the arrangement of pipes 44, 45 and 46, as described hereinbefore in connection with the device represented in Figs. 2 and 3, can also be applied to the device represented in Fig. 1. In such a case, the pipes 44 communicate with the axial duct 15 at any suitable point below the sleeve 5.

What I claim is:

1. In a machine for grinding the rims of glass vessels, the combination of a vertical shaft, a grindstone attached to the lower end of said shaft, means for counterbalancing the vertical shaft and appendant parts, driving gear for rotating said shaft, means for fixing the glass vessel so that the rim thereof is presented to the grindstone, a pivoted lever operatively connected to said shaft, an adjustable weight on said lever to gravitate the same and impart axial movement to the shaft so that the grindstone thereon engages the rim of the glass vessel with predetermined pressure, and central and radial conduits for conducting water to the cutting surface of the grindstone.

2. In a machine for grinding the rims of glass vessels, the combination of a vertical shaft, a grindstone attached to the lower end of said shaft, means for fixing the glass vessel so that the rim thereof is presented to the grindstone, means for axially displacing the vertical shaft so that the grindstone engages the rim of the glass vessel, and a central conduit and adjustable radial conduits for conducting water to the cutting surface of the grindstone.

3. In a machine for grinding the rims of glass vessels, the combination of a vertical shaft, a grindstone attached to the lower end of said shaft, means for fixing the glass vessel so that the rim thereof is presented to the grindstone, means for axially displacing the vertical shaft so that the grindstone engages the rim of the glass vessel, and a conduit branching, in proximity to the grindstone, into a plurality of central and radial conduits, the latter being adapted to direct the flow of water against the inner face of the grindstone.

In testimony whereof I affix my signature in presence of two witnesses.

MAURICE MATHY.

Witnesses:
GEORGES VANDER HAEGHEN,
HENRI JOYEUX.