July 22, 1924. 1,502,641

J. L. DAHL ET AL

CLEANER FOR TUMBLERS OR THE LIKE

Filed Dec. 12, 1921 2 Sheets-Sheet 1

Fig. 1.

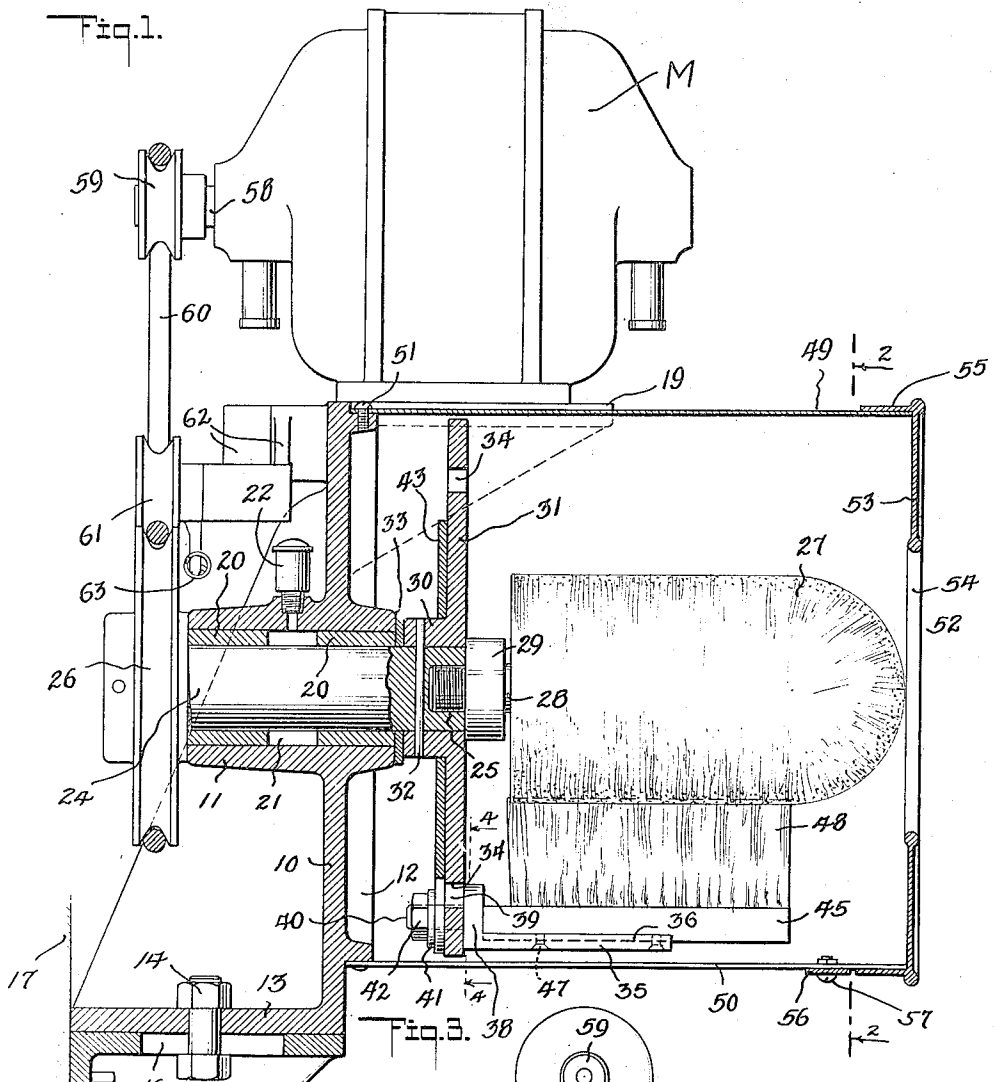
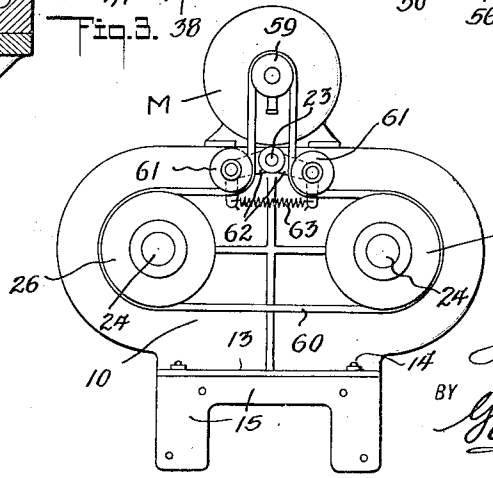


Fig. 3.



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Fig. 2.

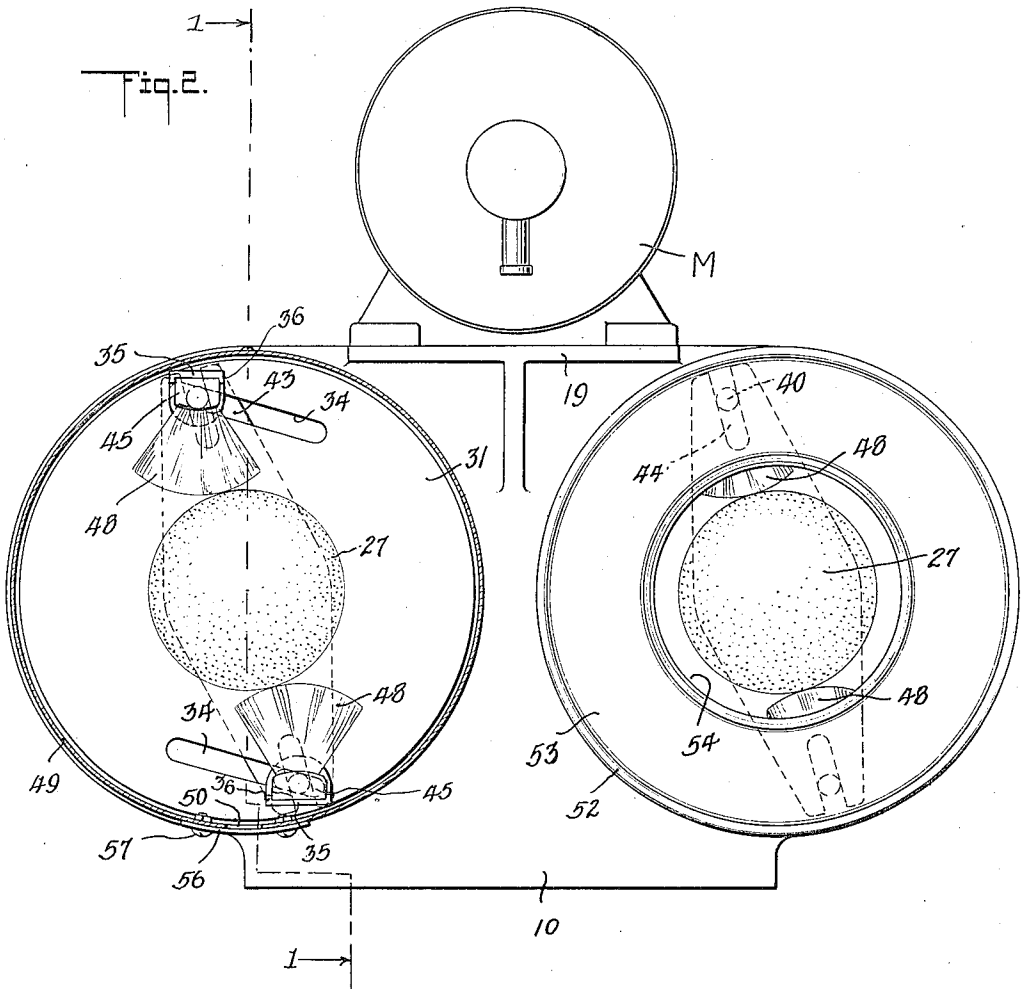


Fig. 4.

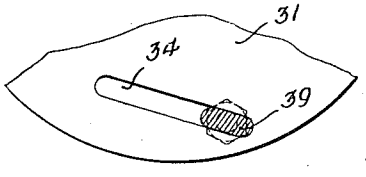


Fig. 5.

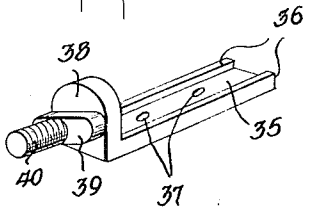
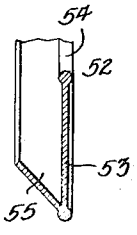


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN L. DAHL, OF TEANECK, AND ROBERT H. FRECH, OF BOGOTA, NEW JERSEY, ASSIGNORS TO THE ELECTRISAN CORPORATION, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE.

CLEANER FOR TUMBLERS OR THE LIKE.

Application filed December 12, 1921. Serial No. 521,721.

To all whom it may concern:

Be it known that we, JOHN L. DAHL and ROBERT H. FRECH, both citizens of the United States, residing at Teaneck and Bogota, respectively, and both in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Cleaners for Tumblers or the like, of which the following is a specification.

This invention relates to apparatus for washing or cleansing tumblers, cups, or other analogous articles, and has particular reference to means for performing this function both rapidly and effectively in such places as restaurants, hotels, or the like.

Among the objects of this invention is to provide brushing mechanism adapted to be operated at high speed by power means and including one or more brushes for the inside or both the inside and outside of a tumbler, the brush or brushes to be rotated around a central axis while the tumbler is held momentarily in contact therewith for cleansing purpose, special means being provided to protect the tumbler from damage as well as the operator from injury.

Another object of the invention is to provide a machine including a plurality of cleansing units operated simultaneously from a single source of power and so arranged that the operator may present two tumblers at the same time for cleansing by two independent units whereby the output of the machine is facilitated in a practical manner.

A further object of the invention is to improve the arrangement of the brushes at each unit of the machine, each group of brushes including a central brush for the inside of the tumbler and one or more outside brushes for the outside surface of the tumbler, the outside brush or brushes being adjustable closer to or farther from the axis of the central brush according to the diameter of the tumblers to be cleansed or the wear on the brushes, a further object being to provide means for the simultaneous radial adjustment of the brushes when a plurality of them are employed and whereby they may not only be adjusted closer to the axis of the central brush but will be caused to present new sets of bristles for action.

A still further object of the invention is to provide an improved hood or cage for each brush group or unit, the same serving not only as a safety guard but also as a means to prevent splashing of the washing fluid.

With the foregoing and other objects in view the invention consists in the arrangement and combination of parts hereinafter described and claimed, and while the invention is not restricted to the exact details of construction disclosed or suggested herein, still for the purpose of illustrating a practical embodiment thereof reference is had to the accompanying drawings, in which like reference characters designate the same parts in the several views, and in which—

Figure 1 is a vertical sectional view of a complete apparatus, substantially on the broken line 1—1 of Fig. 2.

Fig. 2 is a front elevation of the same, not including the supporting bracket or shelf, and parts being in section on the line 2—2 of Fig. 1.

Fig. 3 is a rear elevation on a reduced scale indicating especially the driving mechanism and the supporting shelf.

Fig. 4 is a vertical sectional detail on the line 4—4 of Fig. 1.

Fig. 5 is a detail perspective of one of the outside brush supports.

Fig. 6 is a fragmentary detail view of one of the guard members before being applied to the hood shell.

Referring now more specifically to the drawings we show our improved machine as embodying a substantially vertical frame 10 which may be made as an integral casting and including a pair of spaced parallel horizontal hubs 11 surrounding each of which is a concentric front circular flange 12. At the bottom of the bracket or frame is a base 13 adapted to be secured, as by means of clamping bolts 14, to a shelf 15 having slots 16 through which the exact position of the frame 10 on the shelf may be determined according to local conditions. The shelf is designed to be secured against any convenient vertical wall such as the side or back of a tank 17, by means of lag screws 18 or their equivalent. At the top of the frame 10 is a shelf 19 upon which any suitable motor M may be supported.

Mounted or secured in any suitable man-

ner in each hub 11 are a pair of bushings 20 spaced from each other forming a grease pocket 21 but lying substantially flush with the front and rear ends of the hub. Any suitable lubricant may be applied to said pocket through a cup 22. Adjacent to the top of the frame 10 and projecting rearward therefrom is a stud 23.

Journaled in each pair of bushings 20 in each hub 11 is a shaft 24 having a socket 25 tapped into the front end thereof and carrying at its rear end a transmission member 26.

According to the illustration of this invention each group of brushes comprises a central brush 27 having a spindle 28 to be screwed into the socket 25 of the shaft 24, the spindle having a shoulder 29 which is adapted to be turned snugly against the end of the shaft and which is wide enough to extend radially beyond the shaft and bear against the hub portion 30 of a disk 31 mounted upon the front end of the shaft and fixed thereto as by means of a pin 32 passing through said hub and the shaft back of the socket 25. I show also a washer 33 between the frame hub and the disk hub to reduce the possibility of leakage of grease from the bearing or washing fluid into the bearing. As shown best in Fig. 2 each disk is provided with a pair of slots 34 arranged symmetrically on opposite sides of the center of the disk. These slots are straight and are externally tangential to an imaginary circle located about one-third of the way inward from the periphery of the disk toward its axis so that the outer end of each slot is relatively close to the periphery of the disk while the inner end of each slot is closest to the hub.

Mounted in each slot 34 is an outside brush support comprising a plate 35 having a pair of longitudinal ribs 36 on its side edges, the plate being formed with a plurality of screw holes 37. At one end of the plate is an angularly formed base 38 from which projects a fin 39 having a central shank 40 externally screw threaded. The axis of the fin and the shank lies parallel to the plate 35. The fin is fitted for location in or adjustment along the slot 34, while the shank projects rearward beyond the disk and is furnished with a washer 41 and nut 42. Obviously the fin holds the brush support from rotation relatively to the disk but provides for its adjustment circumferentially or tangentially when the nut is loosened.

Supported upon the hub 30 close against the rear face of the disk is a plate or spider 43 having a slot 44 for each shank 40, the slot being radial with respect to the axis of the disk and spider. When the nut is tightened the washer 41 is clamped against the rear face of the slotted end of the spider and so the brush support is clamped to the disk. It will be understood that while we show two outside brush supports with a corresponding number of arms for the spider this number might be greater or less and the disk would vary only in the difference in the number of slots. Secured to each brush support plate 35 is an outside brush having a back 45 with a suitable configuration to receive the ribs 36, the connection being effected by screws 47 passing through the holes 37. Each outside brush includes a mass of bristles 48 the cross sectional form of which is in the form of a segment of a circle, the points of the bristles being directed toward or in normal mesh with the points of the bristles of the central brush. When the brushes are new and unworn the points of the central and outside brushes substantially touch as shown in Fig. 2 with the outside brushes adjusted farthest from the axis, so that when a tumbler or the like is applied directly over the central brush its inner and outer surfaces will be brushed simultaneously by the central and outside brushes respectively. These brushes all rotate or revolve as a unit around the axis of the shaft 24, the central brush being removably attached to and in said axis while the outside brushes are clamped to the disk which in turn is fixed to the shaft. For the adjustment of the outside brushes either to compensate for the wear of the bristles thereof or to position them closer to the axis of the unit for the brushing of the outer surfaces of small tumblers the nuts 42 are loosened and with the movement of either outer brush along its slot 34, while the brush so moved is moved bodily along the slot, such movement acts through the spider, rotating it around the hub 30, and causing movement of the other outer brush to exactly the same extent along its slot. For this adjustment the shanks 40 of the outside brushes will move inward along the slots 44 according to the difference in the effective length of the distance between the axes of said shanks. When therefore either outside brush is adjusted the remaining outside brush or brushes will be similarly adjusted, and such adjustment will be fixed by tightening the nuts 42. It will be noted therefore by observing Fig. 2 that this adjustment inward of the outside brushes will cause a new or fresh set of bristles to be brought into action adjacent to or opposite the central brush. The central brush 27 is long enough for all sizes of tumblers, but the outer brushes are preferably shorter, their function being especially for brushing the outer surfaces of the rim portions of the tumblers.

Surrounding each brush unit or group is a cylindrical shell 49 made preferably of sheet metal and having a slot 50 on its

bottom. The rear end of this shell is fitted upon the flange 12 and preferably secured there by some suitable means such as screws 51. From the nature of this element it is made with an inherent tendency to contract or collapse in diameter for the reception of the guard 52. This guard is made preferably of a good quality of live rubber or its equivalent and comprises an annular web 53 having a central opening 54 through which the operator projects the tumbler upon the central brush and whereby the tumbler is prevented from going into contact with the rapidly revolving outside brush backs and also the operator's fingers will be similarly guarded. The guard also includes a rearwardly projecting flange 55 which due to the nature of the material has a tendency to assume the normal form indicated in Fig. 6. When however the shell 49 is contracted before being applied to the flange 12 the flange portion 55 of the guard may easily be applied on the front end of the shell after which the rear end of the shell will be applied upon the flange 12 and secured in such position expanding the shell accordingly. The operator then expands the front end of the shell to a similar extent, placing and locking the periphery of the shell in such expanded position or form by means of a strip of metal 56 fastened on opposite sides of the slot 50 by means of fasteners such as screws or bolts 57. The guard will thus be held reliably in the position shown in Fig. 1.

Any suitable means may be provided to rotate the shafts 24 and brush units connected thereto. For this purpose we mount a motor M as indicated and to its shaft 58 is attached a pulley 59 over which operates an endless belt 60 for co-operation with the belt pulleys 26. Obviously any other means might be provided for operating the brush units at high speed. To maintain suitable and substantially uniform tension on the belt 60 and also to insure a sufficient amount of the belt in contact with the driving pulley 59 we provide a pair of idlers 61 journaled on arms 62 which in turn are hung upon the stud 23. A spring 63 is connected to the arms 62 and tends to draw the idlers 61 toward each other.

We claim:

1. In a tumbler brushing machine, the combination with a brush unit and means to cause rotation thereof at high speed, of a hood embracing the brush unit and comprising an expansible cylindrical shell split along its bottom forming a slot, the shell being arranged co-axially of the unit, a flexible guard of contractile material stretched upon the front end of the shell, and means to hold the shell expanded after the guard is applied thereto, and whereby the guard is held in place.

2. A device as set forth in claim 1 in which the means for holding the shell expanded is a plate spanning the slot formed by the expanding of the bottom of the shell and fasteners passing through the plate and the portions of the bottom of the shell adjacent to said slot, the slot serving in practice as a drainage for the bottom of the device.

3. The combination with a cleaning unit, of an expansible shell surrounding the unit, and an elastic guard on the outer end of the shell having an annular flange around the end of the shell and held in place when the shell is expanded against the flange.

4. The combination with a cleaning unit, of an expansible shell surrounding the unit, a guard on the outer end of the shell, said guard being of flexible elastic material comprising a disk having a central opening, and an annular flange on the disk, normally of general conical form but held in cylindrical gripping shape by the shell.

5. The combination with a cleaning unit, of an expansible cylindrical shell surrounding the unit, said shell being split longitudinally along its lower portion forming a drain outlet, means holding the shell in expanded form and a guard fitting the outer end of the shell.

In testimony whereof we affix our signatures.

JOHN L. DAHL.
ROBERT H. FRECH.