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WASHING MACHINE FOR VENETIAN BLINDS

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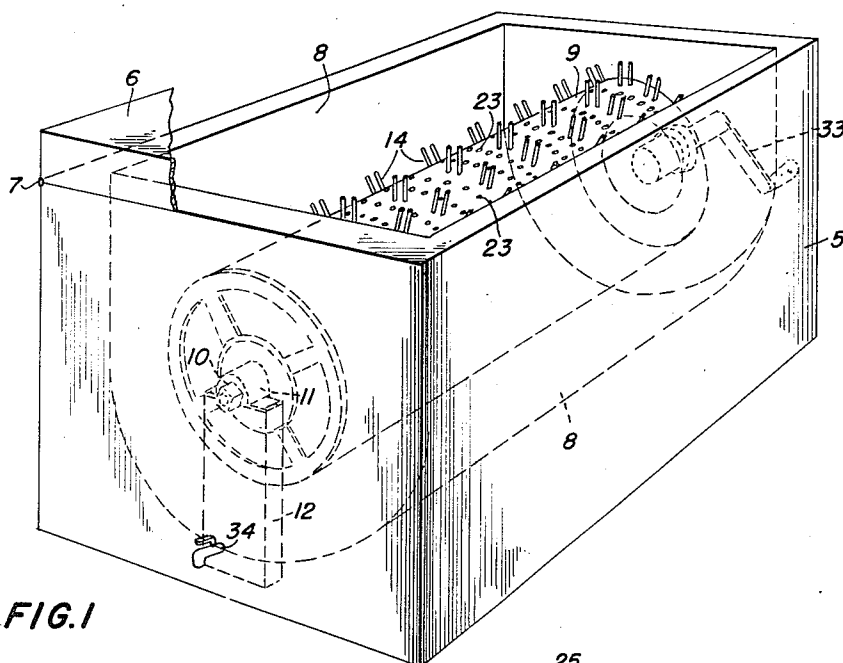


FIG. 1

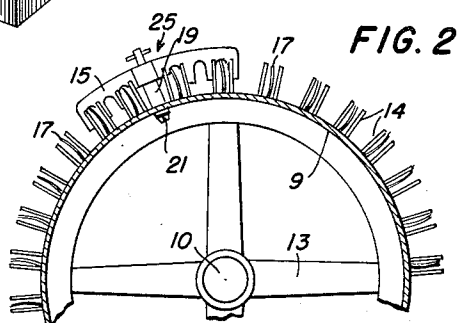


FIG. 2

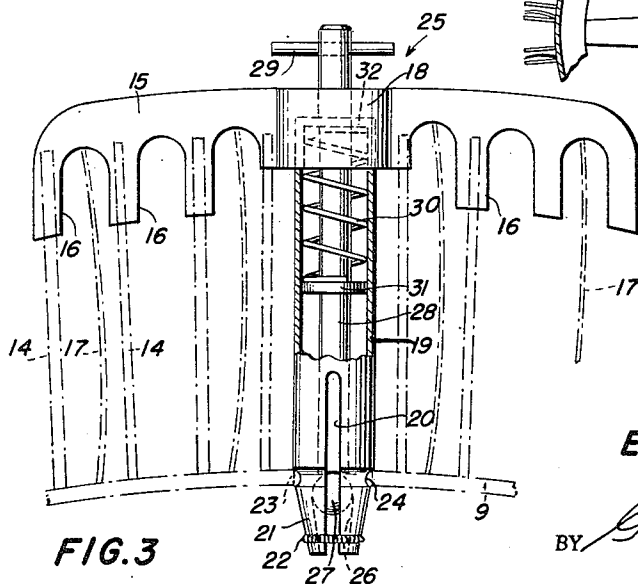


FIG. 3

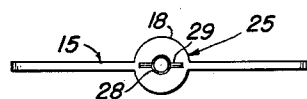


FIG. 4

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1

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WASHING MACHINE FOR VENETIAN BLINDS

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4 Claims. (Cl. 134—159)

This invention relates to apparatus for washing Venetian blinds or the like and consists more particularly in new and useful improvements in a washing machine adapted to support a Venetian blind in a horizontal position with its slats disposed edgewise about a cylinder, while being carried in a circular path through a body of cleansing liquid.

Another object of the invention is to provide a Venetian blind washing machine including a main housing or receptacle adapted to contain a body of cleansing liquid and provided with a horizontally disposed, cylindrical support about which a Venetian blind is adapted to be wrapped with its slats maintained in substantially radial positions with respect to the axis of the cylinder, means being provided for rotating the cylinder and the attached Venetian blind, through said body of cleansing liquid.

A further object of the invention is to provide a Venetian blind washing machine of this character, wherein the supporting cylinder is equipped with sets of radially disposed supporting pins for laterally embracing the slats of a Venetian blind and maintaining them in the proper position to facilitate their cleansing as the cylinder rotates through the cleansing fluid.

Still another object of the invention is to provide a novel clamping device which cooperates with the radially projecting supporting pins on the cylinder, to lock a Venetian blind on the cylinder during the washing operation.

Another object of the invention is to provide a clamping device adapted for use in selective multiples and designed for easy insertion in and removal from complementary apertures selectively arranged in the periphery of the supporting cylinder.

A still further object of the invention is to provide a Venetian blind washing machine which is extremely simple in construction and may easily be operated by one person to wash, rinse and damp dry a Venetian blind with a minimum of effort and manual labor.

With the above and other objects in view which will appear as the description proceeds, the invention consists in the novel features herein set forth, illustrated in the accompanying drawings and more particularly pointed out in the appended claims.

Referring to the drawings in which numerals of like character designate similar parts throughout the several views,

Figure 1 is a perspective view of one form of the invention with a portion of the top closure broken away to illustrate the inner tank and Venetian blind supporting cylinder,

Figure 2 is a fragmentary transverse sectional view, showing the cylinder with a Venetian blind clamped in place thereon,

Figure 3 is an enlarged detail, partly in section, showing the preferred form of Venetian blind clamping unit, and

Figure 4 is a reduced top plain view of the clamp.

In the drawings, referring first to Figure 1, 5 represents

2

a main tank housing which is preferably rectangular in shape and provided with a lid or closure 6, hingedly connected along one longitudinal edge as at 7, to permit ready access to the interior. The housing may be constructed of any suitable material, preferably having an external finish of porcelain or baked enamel to enhance its appearance. Within the housing 5, there is provided an inner tank or chamber 8, spaced from the walls of the main housing and preferably having straight side and end walls and a semi-cylindrical bottom as seen in dotted lines in Figure 1.

A cylindrical drum 9 is horizontally disposed within the inner chamber 8 and rotatably supported by coaxial trunnions 10, mounted in suitable pillow bearings, on upright supports 12. These bearings and supports are preferably located at each end of the housing 5 between its outer end walls and the spaced inner walls of tank 8. The drum may be formed with spoked wheels 13 at each end, having a sheet of suitable metal in the form of a cylinder tank welded or otherwise rigidly secured to the peripheries of the longitudinally spaced wheels 13.

The periphery of the cylinder 9 is provided with a series of longitudinally extending rows of radially projecting pins 14, arranged in pairs spaced peripherally of the cylinder. As best seen in Figure 1, aligned pairs of pins 14 in the respective longitudinal rows, are aligned to receive therebetween, the successive slats of a Venetian blind when the latter is wrapped around the cylinder, as will later appear. It will also be noted that the pins 14 may be removable and shiftable in suitable openings or apertures in the cylinder, so that they may be adjusted to meet the requirements of different sized blinds and may be replaced by longer pins when required. The outer periphery of the cylinder 9 and the pins 14 are preferably coated with rubber or a rubber-like material such as neoprene, for the protection of the blind during the washing operation.

As before explained, the cylinder 9 is adapted to support a Venetian blind in horizontal position, with its slats extending longitudinally of the periphery of the cylinder between respective pairs of pins 14. In order to secure the Venetian blind in place on the cylinder in this position, it is necessary to employ some type of clamping device which will prevent the radial displacement of the blind slats from between the pins 14 and in Figure 3 I have shown one form of such device which is suitable for this purpose. This clamp consists of an elongated head 15 formed of a strip of metal or plastic of sufficient length to bridge a selective number of Venetian blind slats when the latter are supported edgewise between respective pairs of pins 14. The head 15 is presented edgewise and is slightly curved longitudinally to substantially coincide with the curvature of the drum 9, and its underside is provided with a series of transverse recesses 16 spaced to accommodate the outer edges of the respective slats shown in dotted lines at 17 in Figure 3.

The central portion of the head 15 is provided with an enlarged boss 18 which is internally recessed to receive and support the upper end of a depending locking tube 19. The tube 19 is longitudinally slotted on both sides, adjacent its lower end as at 20, and terminates in a tapering nipple 21. As the slots 20 are extended through the periphery of the nipple 21, the entire lower end of the tube 19 may be expanded or contracted laterally, within the limits permitted by the slots 20. An annular coil spring or the like 22 embraces a complementary groove in the lower tapered end of the nipple 21 and normally causes a contracting action on the lower end of the tube 19. When contracted, the nipple end of the tube 19 may be inserted in any one of a series of apertures 23 extending through the wall of the cylinder 9 and, above the nipple 21, the tube 19 is peripherally recessed to provide

3

an annular groove 24, so that when the nipple is expanded as later explained, the groove 24 embraces the respective aperture 23 in the cylinder 9.

The expansion and contraction of the cylinder engaging end of the tube 19 is controlled by a spring biased plunger and ball assembly generally indicated by the numeral 25 and located within the tube 19. As best seen in Figure 3, the split nipple 21 at the end of the tube 19, is internally recessed to provide a ball receiving chamber 26 which is gradually restricted toward its lower extremity and adapted to receive a ball 27. The diameter of the ball 27, with relation to the chamber 26, is such that normally the ball engages the walls of the chamber adjacent the upper extremity of the latter and unless a downward pressure is exerted on the ball, it simply rests idly in the upper portion of the chamber 26. A vertical plunger 28 is reciprocally mounted within the tube 19 and protrudes from the tube and through the upper end of the boss 18 in the head 15, where it is provided with a suitable external handle 29. The lower end of the plunger 28 normally rests upon the periphery of the ball 27 and is urged downwardly against the ball by a coil spring 30 which surrounds the plunger and is longitudinally compressed between a radial flange 31 fixed to the plunger, and the radially flanged upper end 32 of the tube 19.

Thus, when the plunger 28 is pulled upwardly by the handle 29, against the tension of the spring 30, releasing pressure on the ball 27 the annular spring 22 on the end of the nipple 21 contracts the nipple and the lower portion of the tube, forcing the ball upwardly. When in this contracted position the nipple end of the tube may easily be inserted in or removed from any one of the respective apertures 23 in the cylinder 9. However, when the handle 29 is released, permitting the plunger 28 to move downwardly under the tension of coil spring 30, the ball 27 is forced downwardly in the restricted chamber 26, causing the expansion of the nipple and tube 19, so that the tube is radially locked in place with its annular groove 24 firmly gripping the walls of the respective opening 23 in the periphery of the cylinder 9. When thus locked in place, the clamping head 15 is firmly retained in bridging engagement with the upper edge of the series of slats 17 embraced by the partitioned recesses 16.

Any suitable means may be employed for rotating the cylinder 9 but in the interests of simplicity I have simply shown a hand crank 33 in Figure 1. It will be understood however, that an electric motor may be employed with various conventional mechanisms for rendering the operation of the machine completely automatic. A suitable drain 34 is provided adjacent the bottom of the inner tank 8 at one end of the container 5.

In the use of this machine, a Venetian blind is simply wrapped around the cylinder 9 with its series of slats 17 embracing the periphery of the cylinder, in edgewise position and extending longitudinally between respective pairs of pins 14 which are spaced longitudinally on the cylinder so as to accommodate the usual tapes to which the slats are fastened. The opposite ends of the blind are then secured in place on the cylinder by the insertion of the required number of clamping heads 15 in the manner previously described and if necessary, additional clamping heads may be installed as desired to firmly secure the blind in place during the washing operation. The inner

4

tank 8 is then filled with water to which soap or detergent is added and after closing the lid 6 the cylinder 9 is set into operation either by the hand crank 33 or by energizing an electric motor. By alternately reversing the direction of rotation of the cylinder the slats and tapes are thoroughly washed as they pass through the liquid in the tank 8 and after a reasonable time the cleaning fluid is drained out of the tank through drain 34 and fresh rinsing water is charged to the tank. Thus, the Venetian blind may be washed, rinsed and damp dried, ready for replacement on the window to permit the tapes and cords to dry in hanging position.

During the entire washing operation the slats 17 of the blind are firmly secured in place so as to prevent distortion and due to the rubber-like coating on the pins 14 and the outer periphery of the cylinder 9, disfigurement of the blind slats is avoided.

From the foregoing it is believed that my invention may be readily understood by those skilled in the art, without further description, it being borne in mind that numerous changes may be made in the details of construction, without departing from the spirit of the invention as set forth in the following claims.

I claim:

1. A washing machine for Venetian blinds and the like, comprising a receptacle for cleaning liquid, a cylinder rotatably supported on a horizontal axis in said receptacle, means for rotating said cylinder, a series of radially projecting pins mounted on the periphery of said cylinder in longitudinally aligned pairs and in peripherally spaced rows, to receive and laterally support the slats of a Venetian blind in edgewise position, when the latter is wrapped around said cylinder, a series of apertures in the periphery of said cylinder, a tubular support, a clamping head carried by said support and adapted to bridge the radially exposed edges of a predetermined series of slats, and spring-biased means for selectively locking the lower end of said tubular support in said apertures.

2. A washing machine as claimed in claim 1, wherein the periphery of said cylinder and said pins are covered with a rubber-like material.

3. In combination with a cylinder adapted to immerse a Venetian blind in a liquid containing receptacle, said cylinder having means for supporting the slats of a Venetian blind in edgewise position and a series of peripheral apertures; a clamping device comprising a head adapted to bridge the radially exposed edges of said Venetian blind when wrapped around said cylinder, a tubular support for said head, and means for locking the lower end of said support in selected apertures in said cylinder.

4. The combination as claimed in claim 3, wherein the lower end of said tubular support is longitudinally split to permit lateral expansion and contractions and spring biased means in said support for controlling said expansion and contraction.

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