

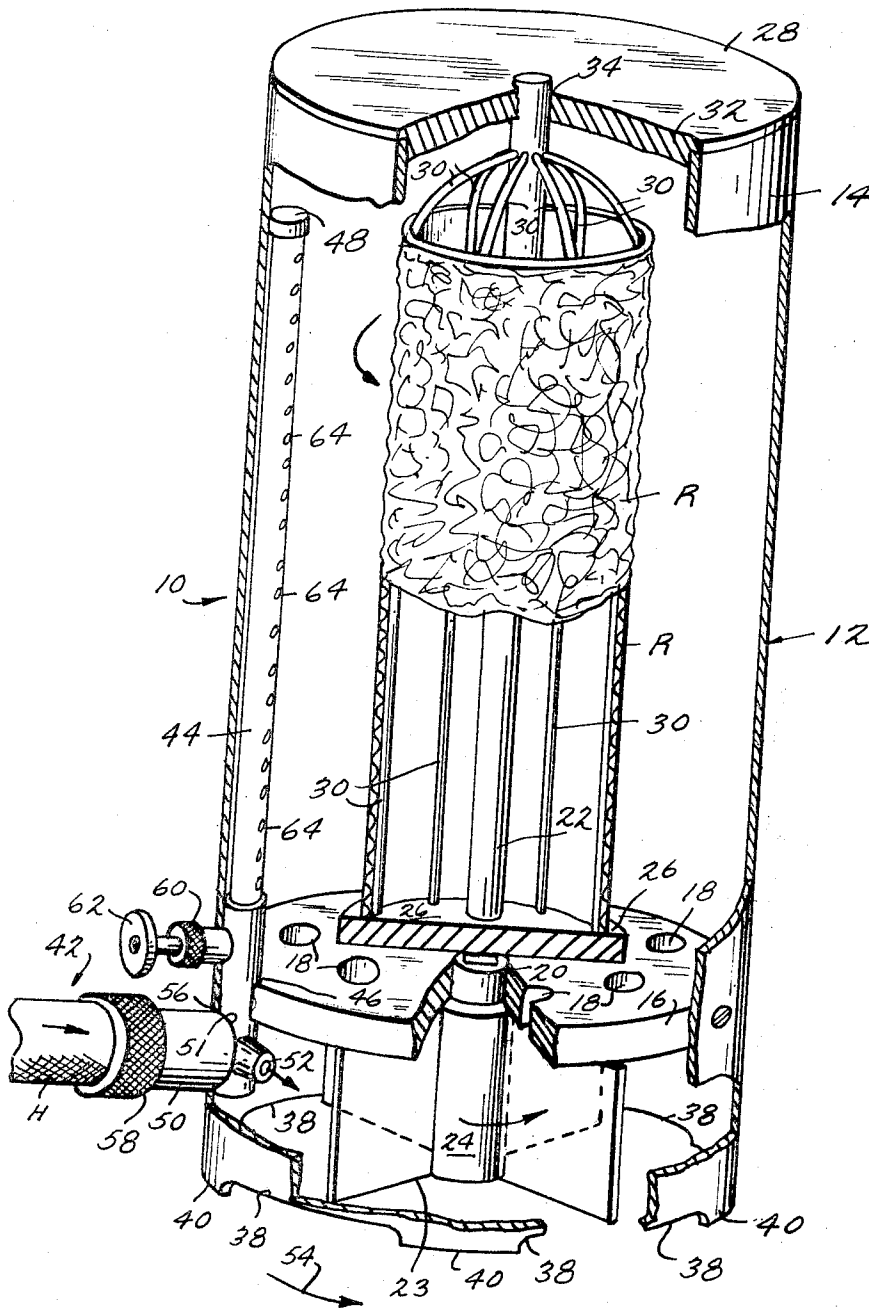
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APPARATUS FOR CLEANING PAINT ROLLERS

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APPARATUS FOR CLEANING PAINT ROLLERS

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ABSTRACT OF THE DISCLOSURE

The article cleaner housing cover and floor, journal a rotatable mount for an article, for instance a paint roller. The shaft of the article mount extends down through the floor and has an impeller secured to it. An inlet fluid conduit divides and supplies a spray of fluid against the article and a stream of fluid against the impeller to rotate the article.

The present invention relates to the cleaning of fluid applicators, and more particularly to apparatus for cleaning paint rollers.

It has become conventional to apply water based, latex paints with hollow cylindrical rollers rotatably removably secured to a handle and having a napped exterior. Some such rollers are built on a base of spiral wound chip board or the like and are intended to be discarded after a single use. Such disposable rollers are primarily marketed to occasional "do-it-yourselfers," but as a rule have a higher cost per performance than rollers of durable material which, though more expensive in first cost, can be cleaned and re-used many times and so are preferred by many persons who have occasion to paint with such paints frequently. The present invention is addressed to the provision of improved means for cleaning rollers of the latter type.

More specifically, it is an object of the present invention to provide an inexpensive apparatus for cleaning paint rollers which includes a housing, a rotatable roller mounting platform within the housing, an impeller keyed to the platform so that rotation of the impeller effects rotation of the platform; water inlet means to the housing for turning the impeller and washing the roller; means for proportioning the incoming water between an impeller turning stream and roller washing streams; and means for allowing water to drain from the housing.

Further, it is an object of the invention to provide a device of the type described which includes a removable housing cover constructed and arranged to journal for rotation the opposite end of the roller from that received against the rotatable platform.

Another object of the invention is the provision of a paint roller cleaning device which is inexpensive, rugged, easy to operate, which can utilize a common garden hose for water input, and in which mounting and demounting of the paint roller is an easy task. Of course other paint roller-like articles can be cleaned using the device of the present invention.

These and further objects of the present invention will become more clearly apparent during the course of the following detailed discussion, having reference to the attached drawing wherein a preferred embodiment is illustrated.

In the drawing, the figure is a perspective view of a device according to the present invention, a paint roller being shown received thereon and some elements being partly broken away to expose otherwise hidden details.

The paint roller cleaner device 10 includes a housing 12 having a generally cylindrical sidewall 14 adapted to rest on the floor or ground.

Near, but somewhat above, the lower end thereof the housing 12 is provided with a floor 16, fixedly mounted in place and shown having a plurality of angularly spaced

vertical holes 18 therethrough as well as a central vertical opening at 20. An axle or spindle shaft 22 is received in the opening and extends to the vicinity of the upper and lower ends of the sidewall 14. Below the floor 16 an impeller 23, shown comprising a central hub 24 and a plurality of radial vanes, is fixedly mounted on the shaft 22 so as to have its lower extent just above the lower end of the sidewall 14, its upper extent just below the underside of the floor 16, and its radially outer extent near the inner surface of the sidewall 14. Just above the floor 16, a platform 26 is fixedly mounted on the shaft 22. The platform is shown having a circular periphery of substantially smaller diameter than the floor 16 so that the holes 18 are not obstructed by the platform.

For most applications, no further bearing means for the shaft 22 are needed beyond the impeller and platform already described plus the centrally ported cover 28, to be more fully described hereinafter.

A plurality of angularly spaced wires 30 extend longitudinally upwardly of shaft 22 from near the outer periphery of the platform and are shown bowing in near their upper extent toward fastening points on the shaft 22 near its upper end.

A disk-like cover 28 having a depending slightly smaller diameter skirt 32 is constructed and arranged to removably close the upper end of the housing sidewall 14. The skirt 32 is adapted to be circumscribed by the inner surface of the sidewall 14 to prevent lateral movement of the cover 28 when emplaced as shown. The cover 28 is centrally ported at 34 to receive and journal for rotation the upper end 36 of the shaft 22.

The sidewall, at the lower end thereof, is scalloped to provide angularly alternating drain ports 38 and ground engaging feet 40.

The device 10 of the figure is completed by the water input system 42 shown comprising a pipe or conduit 44 fixedly mounted on the internal surface of the sidewall 14 so as to extend from just short of the upper end thereof to just short of the lower end thereof including through an appropriately configured notch 46 in floor 16. At its upper extent the conduit 44 is capped at 48; at its lower end the conduit 44 joins a radially directed conduit 50 in a T connection 51. At its inner end, which is slightly radially spaced from the tips of the impeller blades, the conduit 50 terminates in a nozzle 52 directed at the impeller vanes, for instance in a sense to drive them in the direction of the arrow 54. Near its outer end, the conduit 50 sealingly extends through an appropriately configured opening 56 in the sidewall 14 and terminates in a hose-receiving coupling 58. A valve 60 is interposed in the conduit 44 just above the T connection and has an operator 62 that is accessible from outside the housing to regulate the proportion of water input to the nozzle 52 and the openings 64 through the conduit 44. The latter are serially spaced along the side of the conduit which faces the shaft 22 between the valve 60 and the upper end of the conduit 44.

To use the device 10, the coupling 58 is attached to a garden hose, or the like, H and a used hollow cylindrical paint roller R is axially slid downwardly about the shaft 22 in frictional engagement with the wires 30 until the lower end of the roller abuts the platform 26. The cover 28 is then put in place as illustrated and the water turned on. The water stream from the hose 14 is divided in the T 51 with part travelling up the conduit 44 and out the openings 64, spraying on the roller so as to wash paint therefrom. The spent wash water drains to the floor, passes out the openings 18 and through the drain ports 38. The remainder of the water input stream passes out the nozzle 52 turning the impeller, and so rotating the shaft 22, the platform 26 and the paint roller R. The speed of roller rotation relative to the amount of wash water can be de-

creased by further opening the valve 60 to shunt a larger proportion of the input water to the conduit 44 openings 64. The speed of roller rotation relative to the amount of wash water can be increased by further closing the valve 60 to shunt a larger proportion of the input water to the nozzle 52. During the first part of the washing process it is advantageous to shunt more of the water to the washing mode at the expense of rotation, then as water dilutes the paint in the nap of the roller rotation speed can be increased to centrifugally draw paint from deep down in the nap. Next, when the roller has been substantially washed free of paint, the valve 60 can be closed to spin excess water out of the roller R. The housing cover can then be lifted, preferably after the hose H has been turned off, and the cleaned roller removed. If inspection at this point indicates that droplets of diluted paint remain on the interior of the housing, these may then be removed by replacing the housing cover, fully opening the valve 60 and turning on the water for a short time.

It should now be apparent that the apparatus of the present invention is versatile inasmuch as the whole cleaning operation can be conducted from exteriorly of the housing with minimal manipulation of the roller and device, that the device is simple in construction yet comprehensive in cleaning ability, including self-cleaning ability and that each of the objects set forth hereinbefore are achieved by the apparatus just described. The principles of the invention now having been explained with reference to a preferred embodiment, it should be apparent that this embodiment can be considerably modified without departing from these principles or failing to accomplish the objects of the invention. Accordingly, the present invention should be interpreted as encompassing all such modifications as are within the spirit and scope of the following claims.

I claim:

1. Apparatus for cleaning articles comprising means defining a housing having a generally cylindrical sidewall; a shaft longitudinally centrally mounted within said housing and surrounded by said cylindrical sidewall; an impeller fixedly mounted on said shaft toward one end thereof; means on said shaft, spaced axially from said impeller for removably mounting an article about said shaft for rotation with said shaft; conduit means extending longitudinally of the housing sidewall and having means defining a plurality of axially spaced openings therethrough in communication with the interior of said housing, said openings being directed toward said shaft; a fluid source inlet conduit connector on said conduit means near one end thereof; a nozzle on said conduit means near said one end, said nozzle being directed toward said impeller in a sense to effect rotation of said impeller upon the issuance of fluid from said nozzle; a valve interposed in said conduit means between said nozzle and said plurality of axially

spaced openings, said valve being constructed and arranged to allow selective proportioning of inlet fluid from said fluid source inlet conduit between said nozzle and said plurality of axially spaced openings; and said housing including a disk-like floor fixedly transversely mounted within said cylindrical sidewall intermediate the opposite ends thereof; said floor having means defining a central opening therethrough through which said shaft extends, said article mounting means being adjacent one face of said floor and the impeller being adjacent the opposite face of said floor, whereby said article mounting means and said impeller aid in mounting said shaft for rotation within said housing.

2. The apparatus of claim 1 further includes a cover removably receivable on one end of said sidewall; said shaft extending into contiguity with said cover when said cover is received on said one end; said cover having recess means defined centrally thereon for receiving and journalling one end of said shaft; said cover also having means thereon engageable with said sidewall to prevent lateral movement of said cover when said cover is received on said one end.

3. The apparatus of claim 1 wherein said article mounting means comprises a platform fixedly mounted on said shaft near said floor one face, and a plurality of axially extending wires secured at one end to said platform near the periphery thereof and projecting away from said floor, and means at the opposite end of said wires securing said wires to said shaft whereby tubular articles to be cleaned can be downwardly over said wires in frictional engagement therewith and into abutment with said platform.

4. The apparatus of claim 1 further including means defining a plurality of angularly spaced fluid drain holes in said floor intermediates the radial extent thereof.

5. The apparatus of claim 4 further including means defining alternating drain ports and ground engaging legs on the end of said sidewall which is beneath said floor.

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