

Aug. 25, 1959

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APPARATUS FOR THE CLEANING AND DRYING  
OF ROLLER-TYPE PAINT APPLICATORS  
Filed Nov. 29, 1956

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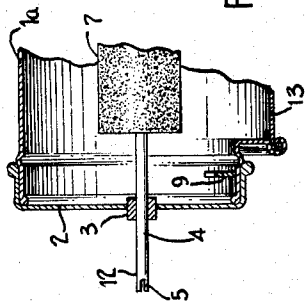


FIG. 3.

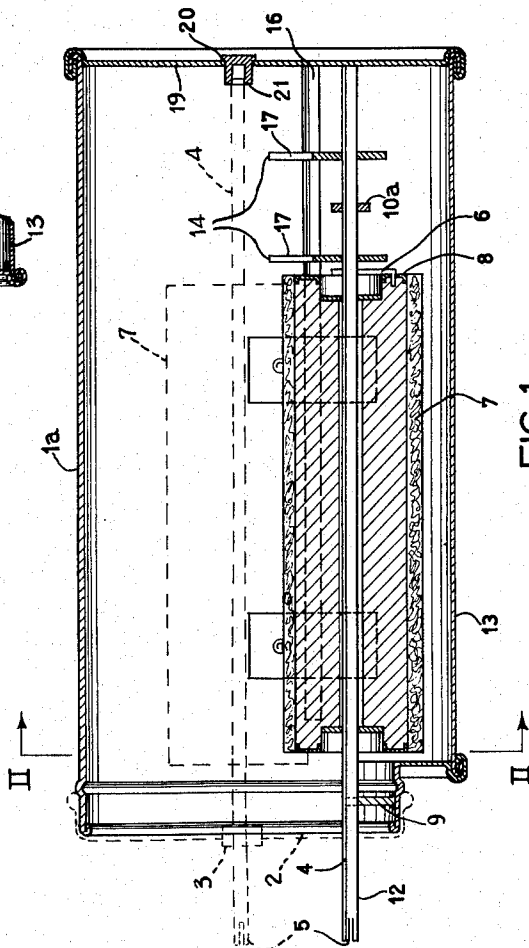


FIG. 1.

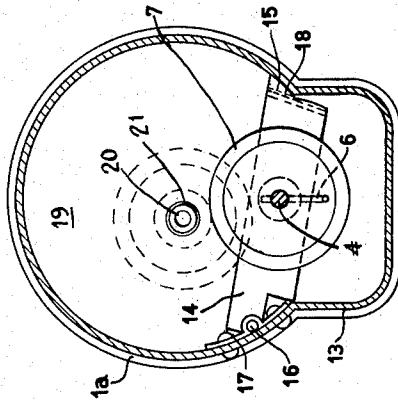


FIG. 2.

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## APPARATUS FOR THE CLEANING AND DRYING OF ROLLER-TYPE PAINT APPLICATORS

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Application November 29, 1956, Serial No. 625,174

Claims priority, application Union of South Africa  
February 22, 1956

3 Claims. (Cl. 134—135)

This invention relates to an improved device for the cleaning and drying of roller-type paint applicators and in particular provides a device for these purposes by means of which it is possible to dispense with the usual methods, such as rolling the used applicator roller on absorbent material, scraping it with some instrument and immersing it in a paint solvent or cleaning solution and allowing to dry out. Such methods are unsatisfactory for various reasons, for instance they are tedious, inefficient, messy and wasteful of time and material; residual paint is forced deeper into the material covering the roller, and the fibers or "pile" of the material suffer damage by being flattened, leading to unduly rapid deterioration of the roller.

The device according to the invention, overcomes such disadvantages as the foregoing by reducing "messiness" to a minimum, greatly reducing time required for thorough cleansing and partial (or complete) drying, expelling virtually all residual paint without damage to the roller covering; and offers the valuable advantages of restoring the fibers or pile of the covering to the natural condition with full retention of resiliency inherent in the material used for the covering; giving maximum cleaning results with minimum quantity of paint solvent or cleaning solution with resultant prolongation of the working life of the roller; enabling the cleaned roller, as soon as it is removed from the device, to be re-used immediately; and enabling the user, if so desired, to recover residual paint from the roller after use and before it is cleaned.

It is known that there are means for the cleaning and/or drying of a paint applicator roller wherein the roller is subjected to rotary or spinning motion about its rolling axis at relatively high speed sufficient for the effective and relatively rapid expulsion of residual paint and/or solvents or the like by centrifugal force.

In the majority of such cases, the method is carried out with the roller arranged in an effectively-closed container or vessel in which centrifugally-expelled residual paint, fluids or the like may not recontaminate the roller.

In most of the known forms of construction the containing vessel and roller-receiving and spinning means are separate entities, which tend to easy loss and misplacement of the required parts. However, constructions are also known wherein this disadvantage is eliminated by a simple and effective arrangement in which the two elements are adapted to form a single, self-contained unit.

In this latter case, the roller has first to be placed in a cleansing solution or the like before insertion in the device for the subsequent drying by expulsion of the paint and cleansing liquid by centrifugal force.

An object of the present invention is to provide an improved form of device containing an additional feature over existing constructions in that the cleansing means for the roller is combined with the drying means in one unit. This leads to a simpler and much more efficient

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construction in that the roller may be inserted in one device for the double purpose of being cleaned and dried. This ensures a great saving of time, especially where a large number of rollers used on the same color paint need to be cleaned and dried at one time ready for further use.

According to this invention, a device for the cleaning and drying of a roller type paint and like material applicator comprises a container having one open end, a trough-like receptacle extending outwardly from an opening in a longitudinal side of such container for containing the cleansing liquid, a roller mounting spindle arranged internally of said container with one end extending through the open end of such container and having its opposite end region permanently mounted in rotatable and limited axially movable fashion in hinged mounting means, such hinged spindle mounting means being swingably disposed in the closed end region of the container about an axis arranged in parallel spaced relationship to the longitudinal axis of the container and further so arranged that in one of two alternate positions a roller, mounted on the spindle, extends into the fluid contained in said trough-like receptacle extension of the container and in the other alternate position said roller is in a raised position above said fluid, while in either alternate positions the spindle rotating and spinning action is applied to the externally disposed end of the spindle for rotating the roller through said cleansing fluid and for spinning said roller when in the raised position.

The said roller mounting means is pivotally mounted on the inside of the container in such a manner that the axis of the roller may be moved along an arcuate path to and from the alternate roller dipping position by a simple operation involving the thumb and finger of one hand.

In order that the invention may be more clearly understood and carried into effect a preferred form of construction of the device will now be described with reference to the accompanying sheet of drawings, wherein:

Figure 1 is a longitudinal cross-section of the device constructed according to the invention;

Figure 2 is a transverse cross-section taken along the line II—II of Figure 1; and

Figure 3 is a fragmentary longitudinal cross-section of the open end of the device, showing the spindle supported in the raised position.

Referring to the drawings, the container 1a is of substantially cylindrical form with the roller-receiving and spinning means arranged to support the roller axis in coincidence with the container axis during use, in such a way also that there is liberal clearance both radially and axially between the walls of the container 1a and roller 7, such clearance affording spaces of the kind referred to.

The cylindrically shaped container 1a is closed at one end. The opposite open end of container 1a is closable by a lid 2 having a journal bearing 3 substantially at its center for receiving the outwardly projecting end of the roller-receiving spindle 4. The container 1a is further provided with a rectangular opening in its bottom forming longitudinal side, such opening extending in the axial direction along practically the full length of the container and is large enough to comfortably receive a substantial longitudinal portion of any of the paint rollers likely to be used. A trough 13, of rectangular section is soldered or otherwise secured to the outside of the opening to provide a receptacle for carrying the cleansing liquid and to form a base support for the device when it is in the dipping position of the roller 7.

The spindle 4 is rotatably journaled in bearings in

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each of two arm elements 14 extending pivotal fashion from the inner wall of the container 1a. These arms 14 are rigidly fixed together by a cross-bracing piece 15 adjacent their free ends while the fixed ends are secured to a pivot rod 16 which is rotatably mounted on the inside of the wall of the container 1a.

The ends of arms 14 fixed to the pivot rod 16, have shoulders 17 so as to limit their rocking movement from the dipping position to the spinning position of the roller and their opposite free ends are notched as at 18 to rest partly along the container wall and partly inside the trough in their lowermost roller dipping positions. The spindle 4 is provided with a stop collar 10a between the bearing arms 14 to prevent the spindle 4 from being pulled out of the arms 14. A radial stop pin 6 is also provided for engaging with formations in the roller 1a to lock the roller to the spindle. Conveniently the pin 6 is provided with an upturned end 8 parallel with the spindle 4, such end 8 being adapted to cooperate with a corresponding eccentrically disposed hole in the roller end for locking the roller to the spindle. The inner of arms 17, in cooperation with the outer one, serves to keep the spindle 4 in alignment and parallel with the axis of the container 1a during the cleaning operations of the roller, while a short notched plate 9 is provided in the opening or mouth of the container as an additional support.

The inner end of the spindle is capable of engaging an axially disposed thrust bearing 20 in the center region of the end wall 19 of the container 1a, when the roller 7 is in the spinning and drying position, while the lid 2 may then be placed on the open end of the container 1a while the outer end region of the spindle extends through a journal bearing 3 in the center region of the lid 2, as mentioned earlier, to present a projecting end 12 whereby it may be rotated.

In the spin-drying alternate position of the roller 7, said roller is preferably coaxially disposed within the container 1a to permit a liberal clearance, both radially and axially relative to the internal faces of the container, while in the other alternate or lowered position the lower circumferential region of the roller 7 extends freely into the trough 13, the roller axis remaining parallel with the axis of the container.

In operation the device is placed in its normal horizontally disposed position on the under face of the trough 13 with the lid removed. The trough is then filled with the cleansing liquid. The roller 7 is threaded and locked on to the spindle 4 and projection 8 and is then lowered to extend into the trough 13, whereafter it is rotated while the lower longitudinal portion of the roller is immersed in the cleansing liquid. After rotating of the roller 7 for a certain time in the said position, the spindle 4 is then raised and the inner end pushed into the end wall thrust bearing 20. The lid 2 is now engaged with its journal bearing 3 on the spindle 4 and closed over the container 1a, whereafter the spindle is rapidly rotated or spun in any convenient manner thus centrifugally expelling the paint and cleansing solution against the interior of the device for cleaning and drying the roller 7.

The expelled fluid or liquid gravitates down to the trough 13 for re-use and the process may be repeated until the cleansing solution requires replacement, whereupon the container may be emptied, cleaned and refilled with fresh solution.

The spindle 4 may be rotated in any convenient manner, and in one direction or alternately in opposite directions. Thus by providing the spindle end with a suitable anchorage slot 5, hole or the like for a length of string or the like, the latter may be wound round the spindle and, with the device steady, may be sharply pulled to set the spindle 4 and the roller 7 attached to it into high-speed spinning motion which may be continued as long as desired and in alternate directions of rotation by repeated pulling on the string each time it has rewound

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on the spindle under the rotational momentum imparted by the previous pulling.

For spin-drying the roller 7, it may also be used in the upright vertical position but otherwise it must be horizontally disposed to keep the solution in the trough 13.

The invention is susceptible of modification and addition within the ambit of the more general statements herein. For instance, the thrust bearing 20 for the inner end of the spindle may be flared as at 21 for easier positioning of the spindle therein. Other means, such as guide tracks, may be provided for guided movement of the inner spindle end to alternate operating positions within the container 1a. The spindle must be capable of sufficient axial movement for its inner end to be inserted and withdrawn as required from the thrust bearing support 20.

The trough 13 containing the cleansing liquid may be detachably or hingedly fixed to the container while funnel or other means may be provided for filling and emptying it. The spindle 4 may also be rotated electrically, as by an electric drilling machine, or in any other suitable fashion, and other means may be provided for detachably connecting the roller to the spindle or the equivalent to which the high speed spinning motion is applied.

What I claim is:

1. A device for cleaning and drying a roller-type applicator for paint and like material comprising, in combination, a cylindrical container having one open end and a closed end, a removable lid for closing said open end, a journal bearing in the central portion of said lid, a thrust bearing in the central portion of said closed end of the container, a circumferential side of said container having a rectangular opening, a trough-like receptacle extending outwardly from said rectangular opening in the container for receiving and retaining a cleansing liquid, a spindle on which the roller is adapted to be coaxially threaded and locked for rotation therewith, said spindle being disposed interiorly of said container with one end portion extending through the open end of the container and its opposite end portion permanently rotatably mounted for limited axial movement in pivoted mounting means, means on the spindle for locking the roller coaxially thereon, said spindle mounting means being swingably disposed within the closed end portion of the container about an axis in parallel spaced relationship with respect to the longitudinal axis of the container and adjacent said receptacle, said mounting means being movable from a lower position in which a roller mounted on the spindle will extend into the cleansing liquid contained in the said trough-like receptacle extension to a raised position in which said roller will be in a raised position above the liquid, said lower position being retained by gravity and said raised position being retained by the lid when applied to the open end of the casing with the spindle extending through the journal bearing in the lid and the thrust bearing, a rotary action being applicable to the roller when in its lower position and when in raised position a spinning action being applicable, such rotating and spinning actions being applicable to the outwardly extending end of the spindle.

2. A device for cleaning and drying a roller-type paint applicator as defined in claim 1, wherein said pivoted spindle mounting means comprises a pair of parallel spaced arms each rigidly fixed at one end to a rod-like element which is rotatably secured to the internal surface of said container adjacent the outwardly extending receptacle, the opposite ends of said arms being rigidly secured together by a cross bracing, and said arms being provided intermediately of their ends with journal bearings for locating the spindle, the spindle being provided with a fixed collar at a position between said arms to limit the extent of axial movement of said spindle relative to the arms to permit the spindle to be inserted into and withdrawn from the thrust bearing when such spindle

is in its upper position for drying of the roller mounted thereon.

3. A device for cleaning and drying a roller-type applicator as defined in claim 2 wherein shoulders are provided on the pivoted spindle-mounting means for limiting the raised position of the spindle and providing alignment of the spindle with the thrust bearing. 5

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