

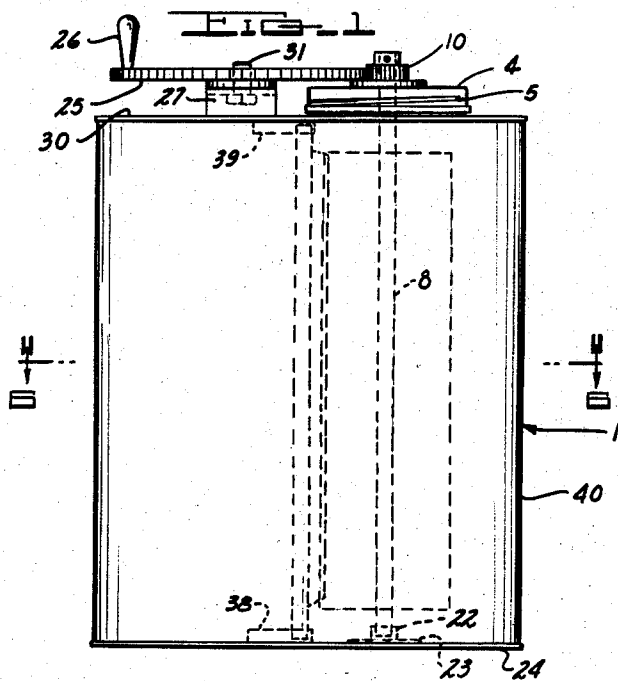
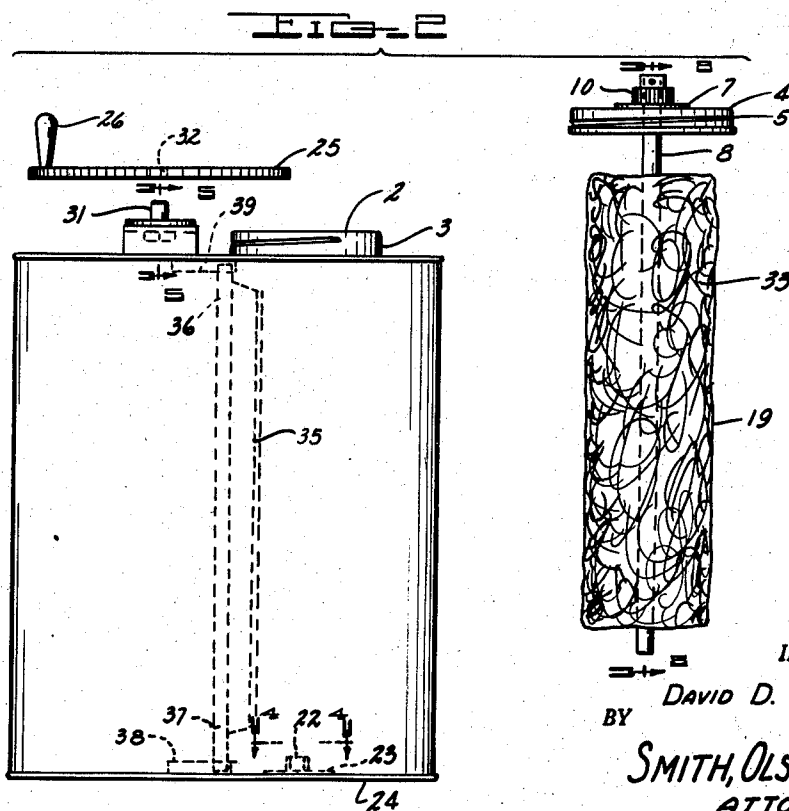
July 21, 1959

D. D. BELCHER
PAINT ROLLER CLEANER

2,895,154

Filed Feb. 9, 1955

2 Sheets-Sheet 1



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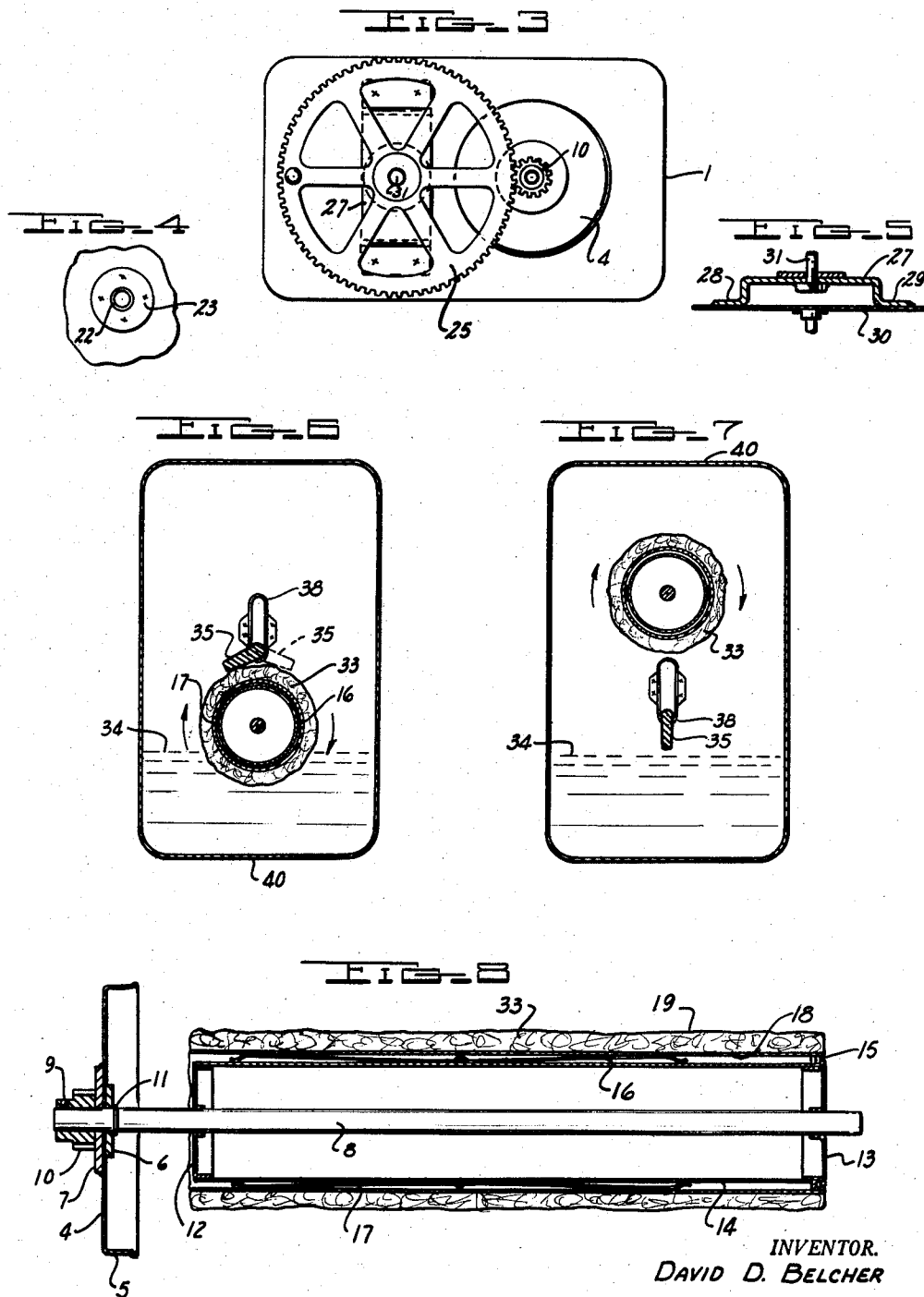
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PAINT ROLLER CLEANER

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2 Claims. (Cl. 15—121.3)

This invention relates to apparatus for cleaning paint rollers.

In the present invention cleaning of the paint roller is accomplished by effecting such an intermixture of the paint with the cleaning fluid as to cause the paint to be dissolved or otherwise absorbed by the cleaning fluid.

Intermixture of the paint and cleaning fluid is preferably accomplished by rotating the paint roller around its longitudinal axis in a body of cleaning fluid while at the same time mechanically causing the fibers of the roller nap to be lightly scraped or what might be termed "squeegeed." Rotation of the roller causes the paint coated nap fibers to move through the cleaning fluid so as to cause intermixing of the paint particles with the cleaning fluid. Squeegeeing of the nap fibers causes each fiber to be quickly freed of intermixed paint and cleaning fluid. This squeegeeing of the nap fibers is preferably carried out with a floating bar element, whereby as the paint roller is rotated the bar element scrapes the surface of the nap and thereby separates the loosened paint particles from the nap fibers. It is possible by reversing the rotation of the roller to cause the bar element to scrape against opposite surfaces of the nap fibers so as to increase the speed and thoroughness of the squeegeeing action.

After the paint roller has been cleansed of paint it is necessary to remove any retained cleaning fluid therefrom. In the present invention removal of cleaning fluid from the roller is preferably accomplished by positioning the roller out of the body of cleaning fluid and rotating it around its longitudinal axis. Such rotation causes the fluid to be spun off the roller and leaves the roller in a fully cleaned and usable condition. One aspect of the invention which is noteworthy is the fact that positioning of the roller out of the cleaning fluid (preparatory to removal of retained cleaning fluid therefrom) is accomplished quickly and without any manual handling of the roller. All that is necessary is to invert the cleaning apparatus. The roller is thereby automatically positioned above the level of cleaning fluid in a suitable location for removal of retained fluid.

In both its "paint removing" position and its "fluid removing" position the roller is positioned horizontally, thereby allowing the cleaner apparatus to be relatively small and inexpensive.

The design of the apparatus is such as to allow the use of a minimum quantity of cleaning fluid, and the preferred embodiment is of closed construction whereby to lessen the fire hazard due to the presence of cleaning fluid.

One object of the invention is to provide a paint roller cleaner which thoroughly but quickly cleans a paint roller.

Another object is to provide a paint roller cleaner wherein there is employed a mechanism for scraping or squeegeeing the roller nap fibers so as to improve the cleaning action.

Another object is to provide in a paint roller cleaner a mechanism for scraping the roller nap fibers, which mechanism will not pull out or otherwise harm the nap fibers.

Another object is to provide a paint roller cleaner which not only cleans the roller of paint but which also frees the roller of any cleaning fluid which might be retained thereon at completion of the paint removing operation.

Another object is to provide a paint roller cleaner having the above mentioned function of removing paint and retained cleaning fluid, wherein the cleaner may be changed from the "paint removing" position to the "fluid removing" position with a minimum of manual manipulations and with no manual handling of the paint roller.

Another object of the invention is to provide a paint roller cleaner having the above-mentioned function of removing paint and retained cleaning fluid, wherein the same operative elements may be employed to remove the cleaning fluid as are employed to remove the paint, thereby providing a more easily handled and less costly unit than might otherwise be possible.

Another object of the invention is to provide a paint roller cleaner which utilizes a minimum quantity of cleaning fluid to effect the cleaning operation.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

In the drawings:

Figure 1 is an elevational view of one embodiment of the invention,

Figure 2 is a view taken in the same direction as Figure 1, but with certain of the mechanisms in disassembled positions,

Figure 3 is a top plan view of the embodiment shown in Figure 1,

Figure 4 is a fragmentary view taken on line 4—4 in Figure 2,

Figure 5 is a sectional view taken on line 5—5 in Figure 2,

Figure 6 is a sectional view taken on line 6—6 in Figure 1 but with the cleaner positioned in the "paint removing" position,

Figure 7 is a sectional view taken in the same direction as Figure 6 but with the cleaner positioned in the "fluid removing" position, and

Figure 8 is an enlarged sectional view taken on line 8—8 in Figure 2.

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

Referring to the drawings the illustrated embodiment comprises a container 1 having an opening 2 therein defined by an endless rim 3. Rim 3 threadedly receives a peripheral flange 5 of a screw type cover 4. A pair of apertured plates 6 and 7 are secured on the flat faces of cover 4 whereby to form bearing means for the rotatable mounting of a shaft 8. One end of shaft 8 has secured thereto by means of a set screw 9 a gear 10. A snap ring 11 maintains shaft 8 in its Figure 8 position and prevents longitudinal movement thereof through the opening in cover 4. Secured on shaft 8 are two disks 12 and 13 which form the end walls of a closed tube 14. An annular recess is provided on tube 14 whereby to mount an endless felt element 15. Two leaf springs 16 and 17 are secured at diametrically spaced points on the periphery of tube 14. The function of springs 16 and 17 is to frictionally engage the inner wall 18 of conventional paint roller 19 whereby to retain said paint roller

on tube 14 during the cleaning operation. The function of element 15 is to act as a squeegee against wall 18. Thus, any cleaning fluid which may have collected on wall 18 during the paint removing operation will be removed by element 15 as roller 19 is slid or pulled off of tube 14 after the paint roller has been cleaned.

Initially roller 19 is slid onto tube 14 to the position shown in Figures 2 and 8. The Figure 8 assembly is then inserted through opening 2 in container 1 and cover 4 is screwed down to its Figure 1 position. In the Figure 1 position shaft 8 has its lower end positioned in a short bearing sleeve 22 projecting from a plate 23 which is welded or otherwise secured on wall 24 of container 1.

To clean paint roller 19 it is necessary that said roller be rotated around its longitudinal axis. In the illustrated embodiment rotation of roller 19 is effected by a gear 25 having a handle 26 thereon for manual rotation of said gear. For rotatably mounting said gear there is provided a bracket 27 having flanges 28, 29 thereon for its fixed securement on wall 30 of container 1. A short pin 31 projects from bracket 27 through an opening 32 in gear 25 so as to mount said gear for rotary movement around the axis of the pin.

Operation of the illustrated embodiment is such that initially gear 25 is dissociated from pin 31 (as shown in Figure 2). After cover 4 is screwed down to its Figure 1 position gear 25 is positioned on pin 31 in meshing engagement with gear 10. Turning of handle 26 causes rotation of gears 25 and 10, shaft 8 and paint roller 19.

It is preferable that during the cleaning operation some mechanism be provided for lightly scraping or squeegeeing the nap fibers 33 of roller 19, whereby to separate the loosened paint particles from the fibers. In the illustrated embodiment this squeegeeing mechanism takes the form of an elongated bar element 35 having projected from its opposite ends a pair of short shaft elements 36 and 37. Shaft elements 36 and 37 are pivotally and slidably received in two guideways 38 and 39 secured on walls 24 and 30 of container 1.

To clean paint roller 19 container 1 is partially filled with cleaning fluid 34, after which said container is positioned with its wall 40 lowermost and with shaft 8 directed horizontally (as in Figure 6). The amount of cleaning fluid required is only enough to partially immerse the roller in the fluid, it being appreciated that the entire nap surface of the roller will become coated with cleaning fluid after rotation of the roller. Gear 25 is rotated (by manual turning of handle 26) whereby to rotate roller 19 in the cleaning fluid. As the roller rotates it becomes coated with cleaning fluid which acts to loosen and dissolve the paint on the roller. The free edge of bar 35 slides over the surface of nap 33 so as to squeegee loose and partially dissolve paint from the roller. However, the contact which bar 35 makes with the roller nap is so light as not to harm or otherwise pull out the nap fibers. At low rotational speeds of roller 19 bar 35 will take the position shown in Figure 6. Apparently the paint on the roller keeps the bar against the roller as shown in Figure 6. The best squeegeeing action is obtained at low roller speeds with the free end of bar 35 in scraping engagement with the roller nap. At higher roller speeds the bar tends to flip over to the dotted line position and give a less satisfactory scraping action. Reversing the rotation of roller 19 has been found to automatically flip bar 35 over to the dotted line position so as to direct said bar for scraping engagement on continued reverse rotation of the roller. By periodically reversing the rotation of roller 19 the squeegeed paint particles will be directed into the main body of cleaning fluid 34 and the paint roller will be freed of paint. Reversing the rotation of the roller allows the bar to scrape opposite surfaces of the nap fibers and thereby improves the speed and thoroughness of the cleansing operation.

When the roller nap is free of paint particles container

1 is inverted whereby to place wall 40 in its Figure 7 position. As can be seen from Figure 7 bar element 35 falls away from engagement with roller 19 so as to permit free rotation of said roller by handle 26. As roller 19 is caused to rotate any cleaning fluid which may have been retained thereon will be caused (by centrifugal force) to spin off the roller, whereby to leave said roller in a fully cleaned and usable condition.

To remove roller 19 from the paint roller all that is necessary is to dissociate gear 25 from pin 31, unscrew cover 4 from rim 3, remove the Figure 8 assembly from container 1, and slip roller 19 off tube 14.

Although the illustrated mechanism is of simple construction it has been found to quickly and thoroughly clean paint rollers, with a minimum of manual manipulations of the paint rollers and paint roller cleaner components, and with a minimum expenditure of cleaning fluid.

I claim:

1. A paint roller cleaner comprising a container having a bottom wall, top wall and side walls therebetween; an opening in one of the side walls; a cover removably closing said opening; a manually rotatable shaft extending through said cover parallel to the container bottom wall; a paint roller-supporting core member carried on said shaft within the container and extending parallel to the container bottom wall; the axis of said shaft and core member being so located with respect to the top and bottom walls of the container that the container volume below said axis is less than the container volume above said axis; two horizontally aligned bearing members secured to said one side wall and the side wall opposite thereto, respectively, said bearing members being aligned with one another on a horizontal line above and parallel to the axis of the shaft; a scraper bar located between said bearing members; and shaft sections fixedly extending from the opposite ends of said scraper bar into rotary engagement in the bearing members so as to gravitationally suspend the scraper bar for pivotal movement around a horizontal axis; whereby when the container is filled with cleaning fluid to a level above the lower surface of the roller, the shaft can be rotated to impregnate the roller with cleaning fluid and cause the scraper bar to ride along the roller periphery so as to squeegee off loose and partially dissolved paint particles from the nap fiber roots, after which the container can be inverted so as to allow the scraper bar to fall away from the roller, and the shaft can again be rotated to cause roller-adhered cleaning fluid to be centrifugally thrown from the roller.

2. A paint roller cleaner comprising a container having a bottom wall, top wall and side walls therebetween; an opening in one of the side walls; a cover removably closing said opening; a manually rotatable shaft extending through said cover parallel to the container bottom wall; a paint roller-supporting core member carried on said shaft within the container and extending parallel to the container bottom wall; the axis of said shaft and core member being so located with respect to the top and bottom walls of the container that the container volume below said axis is less than the container volume above said axis; two horizontally aligned bearing members secured to said one side wall and the side wall opposite thereto, respectively, said bearing members being aligned with one another on a horizontal line above and parallel to the axis of the shaft; each of said bearing members defining a vertically extending slot; a scraper bar located between said bearing members; and shaft sections fixedly extending from the opposite ends of said scraper bar into rotary and slidable engagement in the slots provided by the bearing members so as to gravitationally suspend and guide the scraper bar for pivotal movement around a horizontal axis and vertical movement away from the core member axis; whereby when the container is filled with cleaning fluid to a level above the lower surface of the roller, the shaft can be rotated to impregnate the roller

with cleaning fluid and cause the scraper bar to ride along the roller periphery so as to squeegee off loose and partially dissolved paint particles from the nap fiber roots, after which the container can be inverted so as to allow the scraper bar to fall away from the roller, and the shaft can again be rotated to cause roller-adhered cleaning fluid to be centrifugally thrown from the roller.

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