June 25, 1963 G. B. WILLIAMS 3,094,770

COMPOSITE PAINT ROLLER

Filed June 21, 1961

2 Sheets-Sheet 1

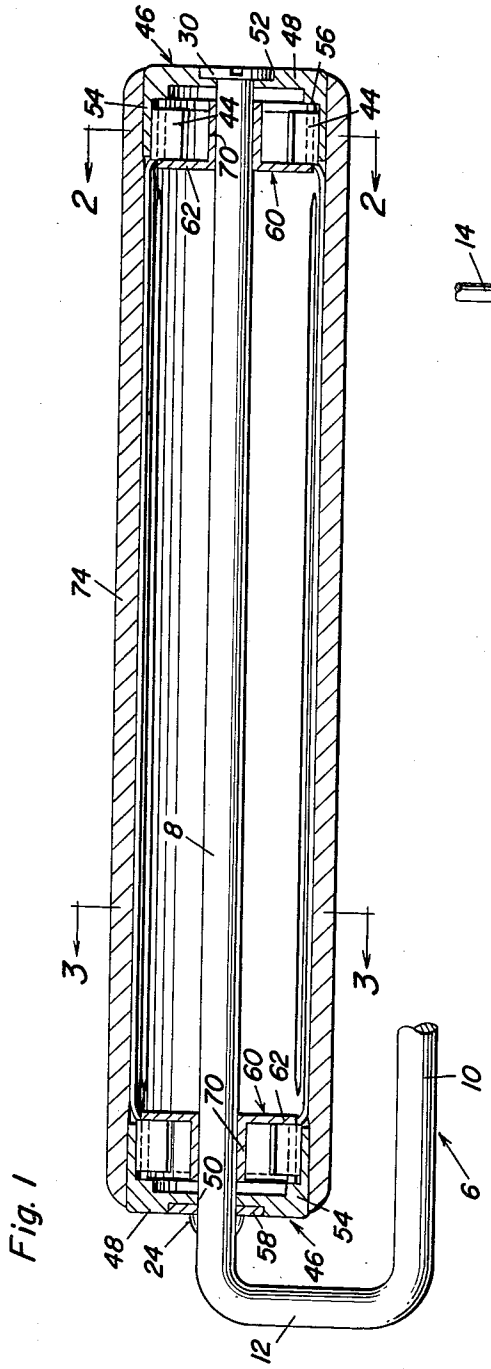


Fig. 1

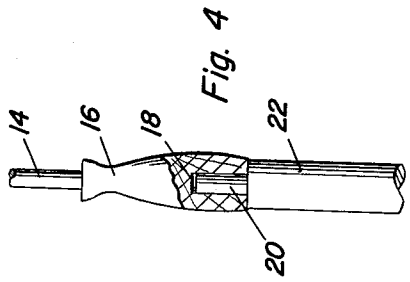


Fig. 4

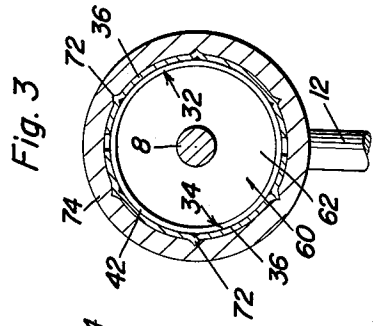


Fig. 3

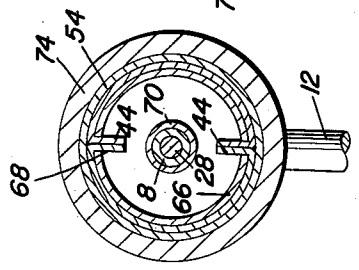


Fig. 2

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2 Sheets-Sheet 2

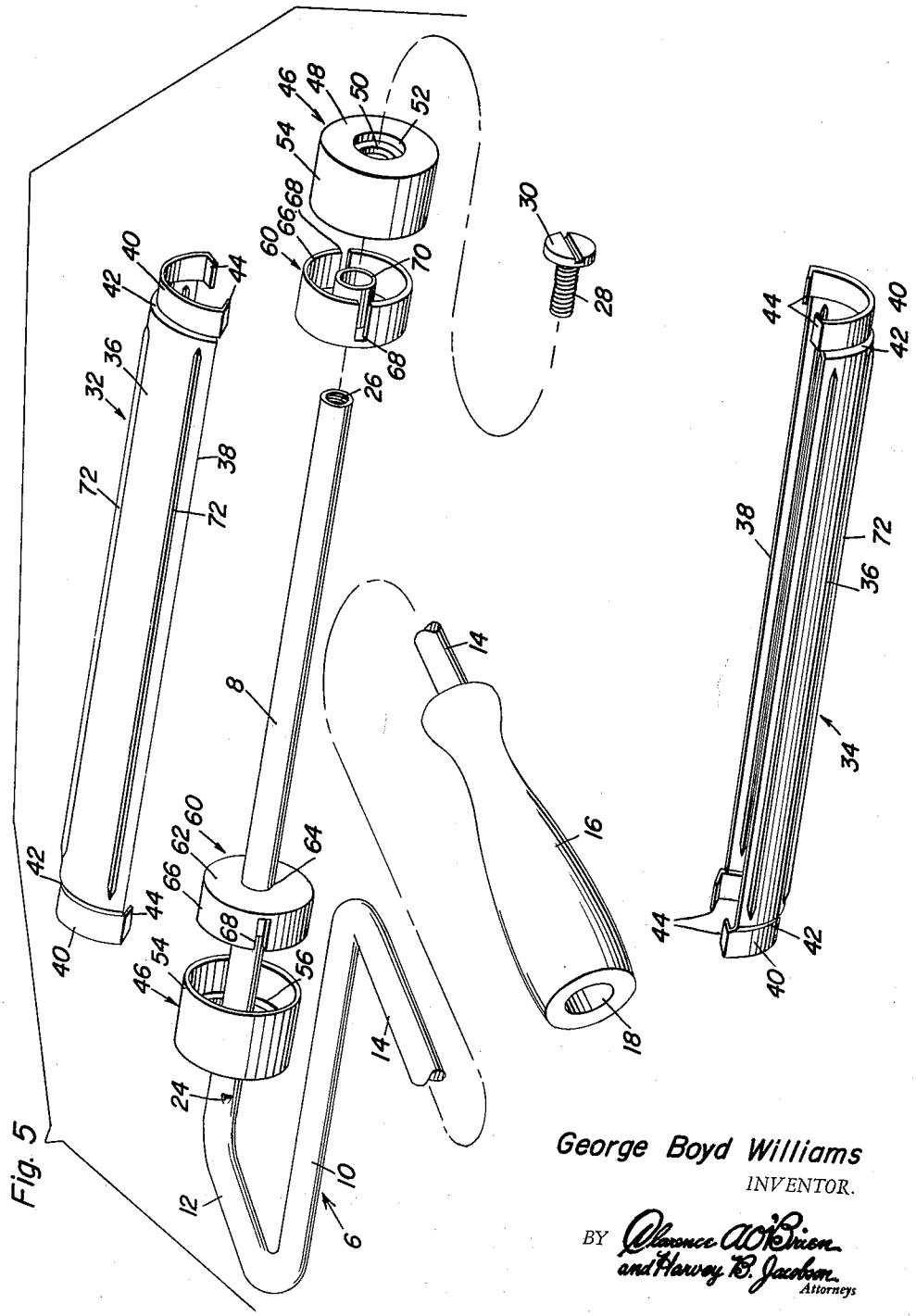


Fig. 5

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COMPOSITE PAINT ROLLER

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9 Claims. (Cl. 29—116)

This invention relates to a novel and useful composite paint roller and more particularly pertains to paint applier roller constructions which can be readily assembled and disassembled for cleaning and other purposes.

The idea of using applicator sleeves and tubular-type applier jackets in paint rollers is, of course, not new. Numerous constructions have been devised of removable and knockdown rollers which are specially constructed to promote washing and cleaning and also to cope with paint dripping difficulties. It is therefore a primary objective to structurally and functionally improve on prior attempts to promote progress in this art.

The present invention offers manufacturers, retailers and users a simple efficient roller which is strong and durable and which is such in construction that undesirable dripping of paint over the usually cupped ends is satisfactorily prevented. The ends of the herein revealed roller construction are wholly free of pockets and recesses and hence pooling and free running of paint is checked and messiness is consequently overcome.

Equally important is the fact that the roller is such in construction that by slipping the cover-sleeve off and exposing the roller components or parts, the roller can be cleaned with requisite nicety, thus prolonging the life of the same while further keeping the surfaces, interiorly and exteriorly free of accumulated paint residue. Consequently, free rotation of the roller on its axle or shaft is assured.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a view in section and elevation showing the improved roller construction;

FIGURES 2 and 3 are cross-sections on the lines 2—2 and 3—3, respectively, of FIGURE 1;

FIGURE 4 is a fragmentary view in section and elevation showing how the hand-grip may be employed to accommodate an extension type handle; and

FIGURE 5 is an exploded perspective view wherein all of the component parts are illustrated.

Briefly summarized the invention is characterized by a handle-equipped roller mounting and handling frame embodying a linearly straight axle, and a hollow composite roller comprising a pair of dripless hub caps mounted for rotation at the respective ends of said axle, a pair of opposed elongated concavo-convex shells having lengthwise edge portions spaced apart and providing diametrically opposite clearance slots, adapters fitted and secured to the end portions of said shells and connecting the shells together and defining said hollow composite roller, the adapter-equipped ends of said roller being fitted telescopically and retentively into their respective hub caps and thus mounting the roller for free rotation on said axle.

More specifically and with reference now to the views of the drawings attention is first directed to FIGURE 5 wherein it will be noted that the conventional-type roller frame is designated by the numeral 6. The U-shaped portion thereof comprises a relatively long limb 8 which constitutes a shaft or axle, this being connected to the shorter limb 10 by a suitably angled bight portion 12. The limb 10 is provided with a laterally bent shank 14

which carries the hand-grip 16. The hand-grip is provided at the lefthand end in FIGURE 5 with an axial socket 18 to accommodate (see FIG. 4) a connecting stud 20 on an attachable extension handle 22. The frame 6 is of generally conventional type. However, the left-hand end portion of the axle or shaft 8 is provided with suitably formed stops or abutments 24. The righthand end portion is provided with an axial screw-threaded socket 26 to accommodate the shank 28 of the roller retaining screw 30. The present invention concerns itself primarily with the axle 8 having the added features 24 and 26 and which axle serves to accommodate the sectional or composite roller construction. The body portion of the roller comprises a pair of substantially duplicate half-sections 32 and 34. Each half-section comprises an imperforate concavo-convex shell 36 which may also be described as a body section substantially semi-cylindrical, being semi-circular in cross-section. When these sections are assembled the lengthwise edges 38 on the respective sections are spaced apart to provide clearance for roller cleaning needs. At each end each half-section is provided with a substantially semi-circular or arcuate assembling flange 40. The flange is slightly offset as at 42. The free end portions of the flanges have laterally bent extensions which constitute keying tongues 44. Specially constructed hub means is provided at the respective left and right ends of the sectional body for securely but releasably uniting the sections 32, 34. The construction at each end is the same and therefore a description of one hub member will serve for both. The hub cap is denoted at 46 and embodies an outwardly disposed head portion 48 having a central bearing 50 which is rotatable on the axle in the manner shown. It will be noticed that this bearing is counterbored to provide a recess 52 for the head 30 of the aforementioned screw. When the screw is in position as seen in FIG. 1 a flat end portion is had. The annular rim is denoted at 54 and it is smooth on its exterior side. Interiorly this rim is provided with an endless groove defining a shoulder as at 56 (FIG. 1). The recess in the hub cap at the left serves to accommodate a filler washer 58 which rests against the stops or abutments 24. Thus the exposed head portions of the respective hub caps are smooth and with this construction the likelihood of having to cope with dripping paint is substantially overcome.

The half-sections 32 and 34 are assembled and maintained in assembled relationship by cup-shaped adapters 60. These adapters are plugged into the ends of the hollow roller and then the adapter equipped ends are plugged or fitted into the space provided therefor in the hub caps 46. Each adapter embodies a disk-like bottom 62 which is centrally apertured as at 64 (FIG. 5 to the left) thus providing a bearing for the axle. The annular rim portion 66 is provided with diametrically opposite notches or keying slots 68. Also and as best shown at the right in FIG. 5 each adapter has an axial sleeve 70 which constitutes a bearing and which is effectively journaled for rotation on the axle in an abvious manner. It will be evident that the flanges 40 of the respective half-sections 32 and 34 embrace the rim portions 66 of the adapter cups and that the keying tongues 44 are keyed in the slots 68 with the respective tongues extending through the slots and firmly abutting each other as is brought out in FIG. 2.

By considering the individual components or parts depicted in FIG. 5 and then examining the showing of the assembled parts as seen in FIGS. 1 to 3, the construction of the novel composite roller will be clear. In practice the half-sections may be provided with corrugations defining ribs and these ribs 72 when in use serve

to bite into the fibers of the applicable and removable cover sleeve 74.

The parts may be assembled to make up the complete ready-to-use roller and the roller may be fitted over the axle or shaft after which the assembling and retaining screw, that is the shank 28 thereof, may be screwed into the socket 26. This will result in removably but rotatably mounting the roller on the axle.

The adapter collars 60 may be said to be telescopically fitted or plugged into the flanged ends of the two part hollow roller or body and the adapter-equipped ends of this then assembled body may be considered as telescopically fitted and frictionally retained in the recesses provided therefor in the novel hub caps.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A paint roller including an axle and a hollow composite roller rotatably journaled upon said axle, said roller comprising a plurality of elongated concavo-convex shells disposed in circumferentially spaced side by side relation about and equidistant from said axle, adjacent shells having adjacent marginal longitudinal edges spaced to provide longitudinal clearance slots between adjacent shells, the opposite ends of each shell at each marginal edge having an inwardly directed flange, an adapter disposed in each end of said roller, said adapter comprising an annular disk having concentric tubular inner and outer portions, said tubular outer portions having longitudinal openings therethrough receiving and retaining therein said shell flanges when the shell ends rest upon the outer cylindrical surfaces of said tubular portions, said tubular inner portions being journaled on said axle, an end cap for each end of said roller, said end cap comprising an annular disk with a cylindrical rim, said disk being bored to rotatably receive said axle, said cylindrical rim having an inner cylindrical surface embracingly engaging the outer surfaces of said shell ends and securing the latter to said outer surfaces of said shell ends and securing the latter to said outer surfaces of said outer tubular portions.

2. The combination of claim 1 wherein said axle has an axial bore in one end, a fastener engaged in said axial bore and releasably retaining said end cap on said axle.

3. The combination of claim 2 wherein said end cap bore has a counterbore, said fastener having a head seated in said counterbore, said annular disks of said end caps being planar and flush with the ends of said roller.

4. The combination of claim 3 wherein said flanges are disposed in side-by-side abutting engagement with each other when received in said slots.

5. The combination of claim 4 including longitudinally extending outwardly projecting ribs upon the exterior surfaces of said shells.

6. The combination of claim 1 wherein said flanges are disposed in side-by-side abutting engagement with each other when received in said slots.

7. The combination of claim 1 wherein said end cap bore has a counterbore, said fastener having a head seated in said counterbore, said annular disks of said end caps being planar and flush with the ends of said roller.

8. A paint roller including an axle and a hollow cylindrical roller journaled on said axle, said roller comprising a plurality of elongated concavo-convex shells disposed in side by side relation spaced circumferentially about and equidistantly from said axle, the opposite ends of each shell having axially extending flanges having convex cylindrical surfaces disposed at a lesser radial distance from said axle than the exterior surfaces of said shells, a pair of rigid connectors each at one end of said roller, each connector having concentric inner and outer tubular members, the inner tubular member being journaled on said axle, the outer tubular member having slots and said flanges having portions received and anchored in said slots, said flanges resting upon the outer surface of said outer tubular member, end caps embracing said flanges and retaining them firmly upon said outer tubular member.

9. The combination of claim 8 wherein said end caps have end walls journaled on said axle.

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