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2,545,700

PAINT ROLLER WITH REPLACEABLE CYLINDER

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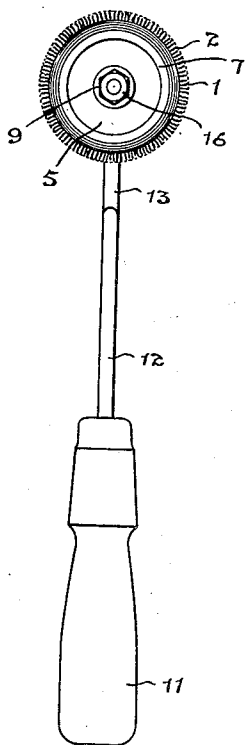


Fig. 2.

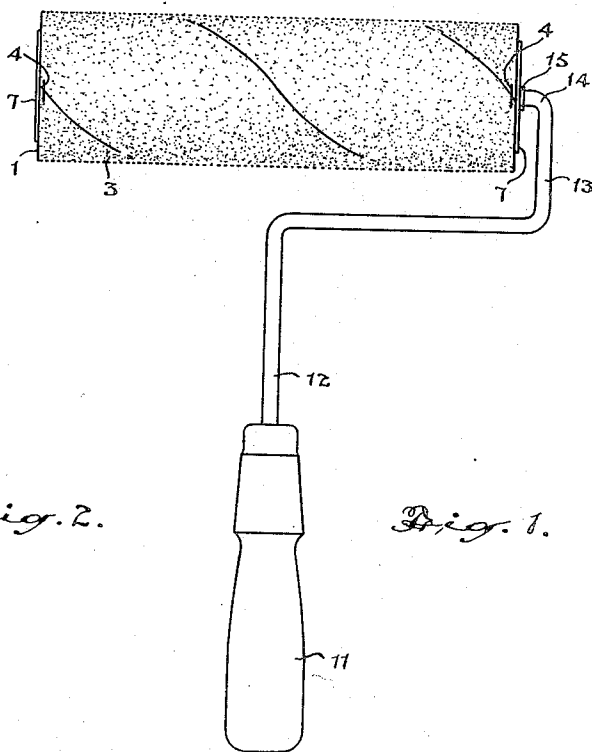


Fig. 1.

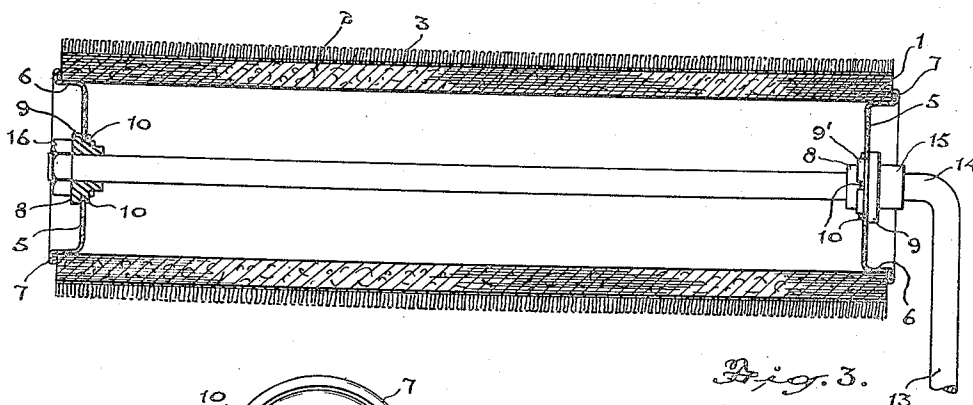


Fig. 3.

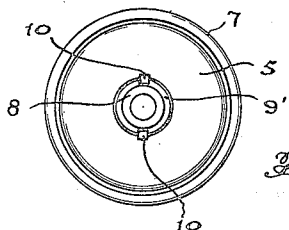


Fig. 4.

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UNITED STATES PATENT OFFICE

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PAINT ROLLER WITH REPLACEABLE CYLINDER

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This invention relates to improvements in rollers particularly adapted for applying paint uniformly to surfaces and the principal objects of the invention are to devise an implement presenting a uniform pile covered surface which will roll smoothly over the surface to which the paint is to be applied and will spread the paint uniformly over such surface, to provide a simple and effective means for manipulating said roller in the application of paint to a surface and to devise a structure which will permit the easy and quick interchange of rollers.

A further object is to provide a form of roller which may be manufactured economically so that it may be discarded and replaced without undue cost.

The principal feature of the invention consists in spirally mounting a length of textile fabric upon an open-ended cylinder, mounting bearing supports in the open end of said cylinder and rotatably securing said bearing supports and cylinder from the shaft extension of a handle.

A further important feature consists in the novel manner of constructing the end closures and bearing supports for the cylinder whereby a journal member is secured centrally in a flanged cup or disc adapted to fit into and seal the ends of the cylinder.

In the accompanying drawings

Figure 1 is a plan view of a paint-applying implement constructed in accordance with this invention.

Figure 2 is an end elevational view.

Figure 3 is a longitudinal part mid-sectional and part elevational view of a roller and bearing support constructed in accordance with this invention.

Figure 4 is an elevational view of the inside face of one of the end closure caps and journal bearing.

In the construction of the device herein shown the paint-applying roller 1 is preferably formed of a plurality of substantially cylindrical laminations 2 of cardboard and on the periphery of this cylinder is spirally mounted a length or lengths of a suitable textile fabric 3 which is preferably a short pile fabric which, because of the spiral winding, presents a uniform cylindrical pile surface. The fabric is mounted upon the cardboard cylinder and secured by a suitable adhesive so that the spiral edges of the fabric strips abut snugly and there will be no definite line of demarcation which might cause a bumping effect if the textile material were joined in a straight line lengthwise of the cylinder.

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The terminal ends of the textile strips may be firmly secured in place in addition to the adhesive by the use of wire staples 4 which may be driven into the cardboard and will grip and hold the terminal ends of the strips. It will be noted in Figure 1 that any line extending lengthwise of the cylinder parallel its axis will intersect the spiral seam of the fabric 3 at only two points, affording extensive areas of pile surface either side of the seam in direction of such line and also in the direction perpendicular to, the areas forming reservoirs for paint storage of sufficient capacity to afford feed of paint to a surface being coated to bridge said seam with undiminished flow at the seam. In addition, the individual hairs of the pile 3 adjacent the spiral seam will bend in the direction of the pass and will tend to bridge said seam.

It will be understood that a cylinder such as described may be made in any desirable length and afterwards cut into shorter lengths if desired to facilitate manufacture.

Sheet metal discs 5 formed with flanges 6 to fit snugly within the interior circumference of the cardboard cylinder are formed with outturned end flanges 7, the sheet metal of the outer flanges being preferably rolled inwardly to avoid raw edges of the metal being exposed. These discs when fitted into the ends of the cylinder have their end flanges 7 abut snugly against the ends of the cylinder.

The discs 5 are formed with circular central orifices and inserted into these orifices are the journal bushings 8 which are formed with flanges 9 on the outward side which abut the outer face of the disc and said bushings are formed with stepped shoulders 9' which extend through the holes in the disc and the bushings are secured in place by deforming the edges of the shoulders 9' to form lugs 10 which overlap the inside face of the disc and thus hold the bushings securely in position.

It will be understood of course that these end discs 5 may be made from a solid section of cast or machined metal if desired in which case the bushings would form an integral part of the disc but the construction described is preferable.

A handle 11 has mounted therein a rod 12 of circular cross section which is bent at right angles for approximately a length slightly longer than half the length of the cylinder, being bent again at right angles to form a short length 13 which is formed with a right angle bend 14 providing a substantially U-shaped structure, the end remote

from the handle 11 being of a length to extend through the paint-applying cylinder.

A collar 15 is rigidly secured on the rod which extends through the cylinder at a point adjacent to the bend 14 and abuts the bearing bushings in the cap inserted in one end of the roller formed by the flanged discs.

The outer end of the rod extends through and is journaled in the bushing in the disc at the opposite end of the roller and it is threaded to receive a suitable nut 16.

The roller is thus mounted on adequate journals at both ends and provides a tool for applying paint to surfaces which may be handled with ease and facility.

When it is desired to change the roller, either because of excessive wear or being allowed to dry with paint upon it or to use another colour of paint, it is simply necessary to remove the nut 16 from the threaded end of the handle rod and withdraw the rod from the end discs. The discs may then be pried loose from the end of the cylinder and inserted in the fresh cylinder. When thus inserted the rod end is slipped into place and the nut replaced and the device is again ready for use.

The spirally wound pile fabric mounted on journals in the manner described provides an exceptionally fine implement for applying paint to surfaces and its ready removal and substitution can be accomplished at very low cost.

What I claim as my invention is:

1. A roller for applying paint comprising a cylinder open at the ends and having a textile paint-applying outer surface, circular members pressed into the ends of said cylinder and having peripheral flanges gripping the interior of said cylinder and each formed with a central orifice and an out-turned end flange projecting right angularly from its peripheral flange abutting the adjacent end of the cylinder preventing inward movement of said members, journal bushings extending through and secured in said central orifices in said members, said members forming both the sole means of supporting said journals bushings within said cylinder and the means maintaining separation of said journal bushings with said journal bushings secured to and removable with said members from said cylinder, a rod having a handle extension removably and rotatably mounted in said bushings, a shoulder carried by said rod abutting the journal bushing of one of the said circular members, and a nut carried at the free end of said rod and abutting the journal bushing of the other of said circular members effecting pressing of the circular members into the cylinder ends to grip said cylinder between said out-turned flanges to locate said bushings within said cylinder and to support and hold said cylinder on said rod.

2. A roller for applying paint comprising a replaceable cylinder open at the ends and having a textile fabric having a uniform pile surface spirally wound thereon pile outwardly and presenting a uniform cylindrical pile paint-applying outer surface with a continuous spiral seam to provide an even paint application throughout the length of said cylinder, circular members removably mounted in the ends of said cylinder and having right angularly turned flanges in tight frictional contact with the inner surface of said cylinder maintaining cylinder shape, and out-turned end flanges projecting right angularly outwardly from the aforesaid flanges and abutting the end faces of said cylinder, each of said cir-

cular members being formed with a central orifice, a journal bushing extending through each of said orifices and flanged to grip its circular member, a handle rod rotatably mounted in said journal bushings, a stop on said rod abutting the journal bushing of one of said circular members, and means operable longitudinally of the rod portion extending through said bushings abutting the journal bushing of the other of said circular members urging said members into said cylinder to grip said cylinder between said out-turned end flanges anchoring said cylinder on said circular members and locating and anchoring said bushings in separated relation within said cylinder.

3. A paint applying roller capable of applying a uniform surface coating upon a single pass of the roller over the surface, comprising a replaceable cylinder open at the ends, a length of textile fabric having a uniform pile surface spirally wound on said cylinder pile outwardly and presenting a cylindrical pile paint applying outer surface having as the sole deviation from surface uniformity a spiral seam, which when intersected by any line extending lengthwise parallel to the axis of said cylinder presents a maximum of two points with extensive areas of pile surface either side of the seam in direction of said line and in a direction perpendicular to said line, said areas of pile surface forming reservoirs for paint storage of sufficient capacity to afford feed of paint to a surface being coated to bridge said seam with undiminished flow at said seam, circular members removably mounted in the ends of said cylinder and having right angularly turned flanges in tight frictional contact with the inner surface of said cylinder maintaining cylinder shape, means projecting right angularly outwardly from the aforesaid flanges and abutting the end faces of said cylinder, each of said circular members being formed with a central orifice, a journal bushing extending through each of said orifices and flanged to grip its circular member, a handle rod rotatably mounted in said journal bushings, a stop on said rod abutting the journal bushing of one of said circular members, means operable longitudinally of the rod portion extending through said journal bushings abutting the journal bushing of the other of said circular members urging said members into said cylinder to grip said cylinder with said journal bushings located in separated relation within said cylinder.

CECIL RHODES MacKEY:

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