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ROTARY PAINT APPLICATOR

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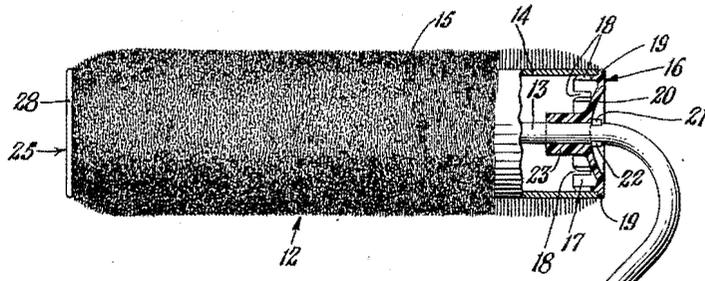


Fig. 1.

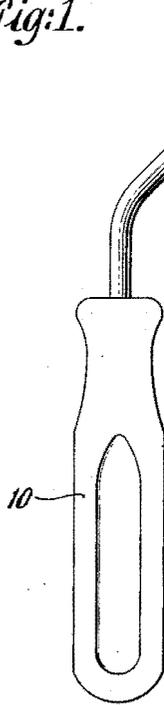


Fig. 3.

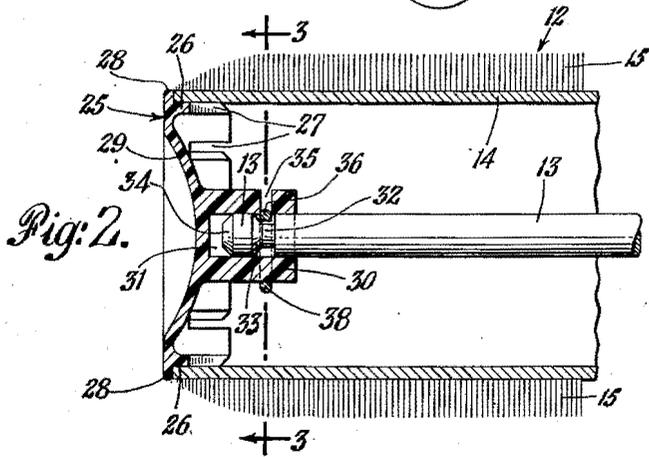
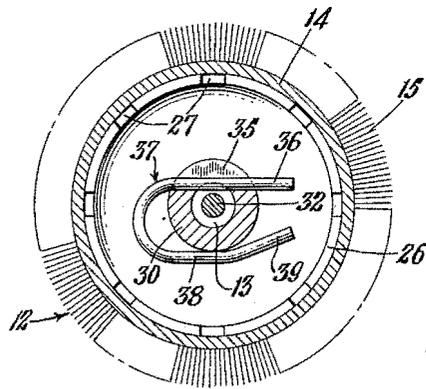


Fig. 2.

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## ROTARY PAINT APPLICATOR

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1 Claim. (Cl. 15—230)

The present invention relates to applicators for paint and the like and more particularly to applicators of the roller type for applying paint and other coating materials to walls, ceilings and other surfaces.

A principal object of the invention has been to provide a novel and improved roller-type applicator for paint and the like.

More particularly, it has been an object of the invention to provide an inexpensive applicator of the above type which is of simple construction and which may be fabricated economically.

Another object of the invention has been to provide an applicator of the above type which may be easily and quickly disassembled for cleaning and for changing rollers.

A feature of the invention has been the provision of an end cap for retaining the paint roller in the desired radial and axial positions relative to the applicator shaft, the end cap being adapted for easy and convenient attachment to and removal from the applicator shaft, the manual removal of the end cap being possible without grasping the roller.

Other and further objects, features and advantages of the invention will appear from the following description.

In accordance with the invention, the above objects are achieved by providing a roller-type applicator for paint and the like comprising a handle, a shaft affixed at one end thereof to the handle, an elongated hollow cylindrical roller rotatable about the shaft and having a paint-absorbing outer covering, means for releasably engaging the roller adjacent one end thereof and for rotatably mounting the one end of the roller on the shaft at an intermediate point thereon and means for releasably engaging the roller adjacent the other end thereof and for rotatably mounting the other end of the roller on the shaft, the latter means being adapted to releasably engage the shaft to suppress axial movement of the roller relative to the shaft.

The invention will now be described in greater detail with reference to the appended drawing in which:

Fig. 1 is a plan view, partly in cross section, of a roller-type paint applicator according to the invention;

Fig. 2 is a cross sectional view illustrating the outer end of the applicator shown in Fig. 1; and

Fig. 3 is a cross sectional view taken along the line 3—3 of Fig. 2.

Referring now to the drawing, the paint applicator shown comprises a handle 10 which might conveniently be formed of wood or plastic, a shaft 11 and a roller generally indicated at 12. The handle 10, which is spaced from the roller 12, is preferably located opposite the middle of the roller. The shaft 11, which could conveniently be formed from a relatively thin metal rod, is affixed at one end thereof to the handle 10. The other end of the shaft 11 is formed as a straight axle 13 centrally disposed within the roller 12 and having a length substantially equal to or slightly less than the length of the roller 12.

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The roller 12 comprises an elongated hollow, cylindrical sleeve 14, which might conveniently be formed of cardboard or the like, and a paint-absorbing covering 15 arranged on the outside of the sleeve 14. Any suitable paint-absorbing covering may be employed such as, for example, lambs wool, woven fiber pile or flock fiber pile described in the copending patent application of J. W. Thackara and W. M. Franklin, Serial No. 298,358, filed on July 11, 1952.

The inner end of the sleeve 14 (Fig. 1) is engaged by a generally cylindrical end cap 16. The cap 16, which may conveniently be formed of plastic material or the like, is provided with a thin annular ring 17 having an outside diameter about equal to or slightly larger than the inside diameter of the sleeve 14 and having a plurality of slots 18 therein. The slots 18 render the ring 17 resilient so that the ring may firmly but releasably engage the sleeve 14. The cap 16 is also provided with an upwardly extending flange 19 on the outer edge thereof. The flange 19 engages the edge of the sleeve 14 to prevent axial movement thereof toward the right in Fig. 1. The central portion of the rear of cap 16 may be dished, as shown at 20, to accommodate projection 21 and 22 of axle 13. The projections engage the dished portion 20 of the cap 16 to prevent further axial movement thereof toward the right in Fig. 1. A hub portion 23 of the cap 16 is rotatably mounted on the axle 13 to support one end of the roller 12 for rotation about the axle 13. If desired, the cap 16 may be molded in a single piece, as shown in Fig. 1.

The outer end of the sleeve 14 is engaged by an end cap 25 which is generally similar in shape and construction to the cap 16. The cap 25, which is best shown in Figs. 2 and 3, is provided with a thin annular ring 26 having an outside diameter about equal to or slightly greater than the inside diameter of the sleeve 14 and having a plurality of slots 27 therein which render the ring 26 resilient and permit firm but releasable engagement of the ring 26 with the sleeve 14. An upwardly extending flange 28 on the outer edge of the cap 25 is adapted to engage the edge of the sleeve 14 to prevent axial movement thereof toward the left in Fig. 1. The central rear portion of the cap 25 may be dished, as shown at 29.

A hub portion 30 of the cap 25 is rotatably mounted on the axle 13 to support the adjacent end of the roller 12 for rotation about the axle 13. The hub 30 has a blind circular passage 31 for accommodating the end of the axle 13. The passage 31 is unlike the corresponding passage of the hub 23 in that the latter extends clear through the cap 16 to accommodate the axle 13.

A short portion 32 of the axle 13 within the passage 31 is of reduced diameter. The portion of axle 13 to the left of the portion 32 (Fig. 2), i. e., the outer wall of the groove formed by the portion 32, is beveled, as shown at 33 while the inside wall of the groove formed by the portion 32 is vertical to suppress inward movement of the cap 25. The adjacent end of the axle 13 is also beveled, as shown at 34.

A transverse slot 35 is provided in the hub 30. The slot 35 is arranged to communicate with the groove formed by the reduced diameter portion 32. The bottom of the slot 35 is preferably located slightly above the top of the reduced diameter portion 32. A leg 36 of a generally U-shaped spring clamp 37 is adapted to enter the slot 35. The leg 36 is firmly held in the bottom of the slot 35 by the other leg 38 of the clamp 37 which is arranged to engage the outside surface of the hub 30 on the opposite side thereof from the slot 35. The free end of the leg 38 may be bent slightly toward the corresponding end of the leg 36, as shown at 39 (Fig. 3) in order firmly but releasably to retain the clamp 37 in position in the slot 35.

Since the bottom of the slot 35, and therefore the bottom of the leg 36 of clamp 37, extend below the plane of the upper edge of axle 13, the spring clamp 37 serves to limit or suppress axial movement of the hub 30 on the axle 13. The only axial movement of the hub 30 which is normally permitted is determined by the clearance between the leg 36 and the adjacent walls of the groove formed by the reduced diameter portion 32.

While the leg 36 is normally held firmly within the space above the reduced diameter portion 32, provision of the beveled section 33 permits the hub 30 to be relatively easily pulled off the outer end of axle 13 when it is desired to disassemble the paint applicator. When the cap 25 is grasped and pulled toward the left, or when pressure is applied to cap 16 in a direction parallel to axle 13 and toward the outer end thereof, the leg 36 rises within the slot 35 as it is pulled or pushed to the left over the beveled section 33. Applying pressure to the end cap 16 constitutes the preferred manner of disassembling the paint applicator in that it does not require grasping of the roller and the consequent soiling of the hand with paint. The pressure may conveniently be applied by grasping the shaft 11 just below the roller 12 with the fingers of the right hand and pressing on the cap 16 with the thumb. The cap 25 will be disengaged from the axle 13, as described, and the roller 12 will be forced along the shaft 13 toward the outer end thereof. The operation will generally result in disengaging the cap 16 from the sleeve 14, but if this does not occur they may be easily separated. If desired, the cap 25 may easily be disengaged from the roller 12. The roller 12 may then be cleaned or changed, as desired.

To reassemble the paint applicator, the sleeve 14 of the roller 12 is engaged with the cap 16. To facilitate this engagement, the ends of the teeth formed in the ring 17 by the presence of the slots 18 are preferably beveled, as shown in Fig. 1. The engagement of the sleeve 14 and the cap 16 may be effected before or after the cap 16 is mounted on the axle 13. After the roller 12 and the cap 16 are in place on the axle 13, the cap 25 is fitted on the axle and pressed into engagement with the sleeve 14. It will be observed that the beveled section 34 of the axle 13 facilitates raising of the leg 36 to permit the hub 30 to be placed on the axle 13. To facilitate engagement of the ring 26 with the sleeve 14, the ends of the teeth of the ring 26 are preferably beveled, as shown in Fig. 2. When the hub 30 is in place on the axle 13, the leg 36 enters the space above the reduced diameter portion 32 to hold the cap 25 and the roller 12 firmly axially in place on the shaft 13.

The paint applicator is now ready for use and may be dipped into a supply of paint and then used in the conventional manner. It will be observed that, as the roller 12 and the cap 25 rotate about the axle 13, the leg 36 is carried freely through the space around the reduced diameter portion 32. The provision of a slight clearance between the leg 36 and the portion 32 prevents binding.

While the invention has been described in a particular embodiment thereof and in a particular use, it should be understood that various modifications thereof will occur to those skilled in the art without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

A dip-type applicator for paint and the like, comprising a handle, a shaft affixed at one end thereof to said handle, the other end of said shaft being formed as a substantially straight axle, an elongated hollow cylindrical roller rotatable about said axle and having a paint-absorbing outer covering, a first end cap having an axially extending ring portion thereof adapted releasably to engage the inside of said roller adjacent one end thereof, said first end cap having a hub portion thereof rotatably and slidably mounted on said axle adjacent one end thereof for rotatably supporting said roller on said axle, means for limiting sliding movement of the hub portion of said first end cap toward said one end of said axle, a second end cap having an axially extending ring portion thereof adapted releasably to engage the inside of said roller adjacent the other end thereof, said second end cap having a hub portion thereof rotatably mounted on said axle adjacent the other end thereof for rotatably supporting said roller on said axle, said hub portion of said second end cap having a transverse slot therein and said axle having a peripheral groove therein communicating with said slot, and a generally U-shaped spring clip having one leg thereof adapted to fit into said slot and to engage the walls thereof and to loosely engage the sides of said groove to suppress axial movement of said second end cap along said axle, the other leg of said spring clip being adapted to engage a portion of the periphery of said hub portion thereby releasably to retain said one leg in said slot, the wall of said groove adjacent said other end of said axle and said other end of said axle each being beveled whereby said spring clip may readily be released by moderate manual force exerted on said first end cap in a direction generally parallel to said axle and toward said second end cap, the opposite wall of said groove being substantially vertical to suppress inward movement of said second end cap.

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