Oct. 29, 1957 E. SLINGLUFF 2,810,924

PAINT ROLLER AND MOUNTING

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Fig. 1.

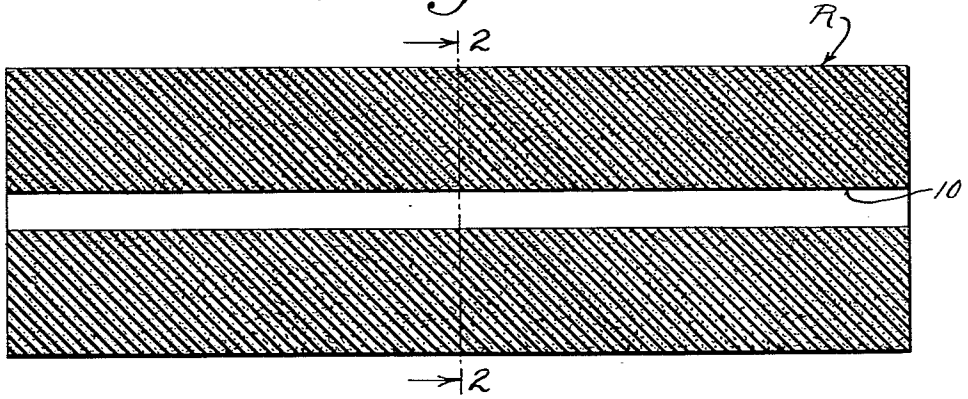


Fig. 2.

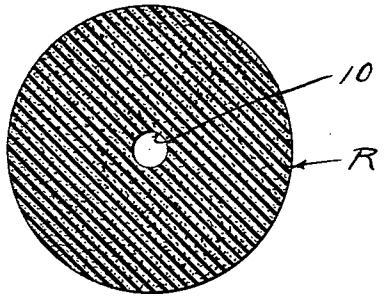
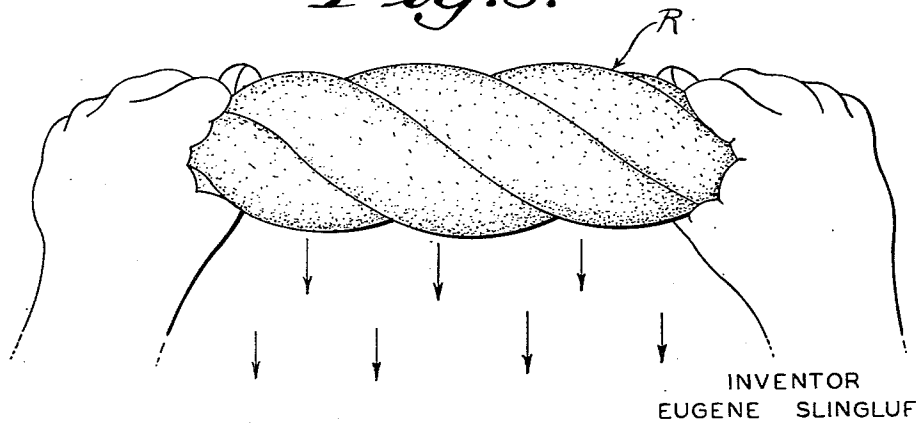


Fig. 3.



INVENTOR
EUGENE SLINGLUFF

BY
Young & Wright
ATTORNEYS

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Fig. 4.

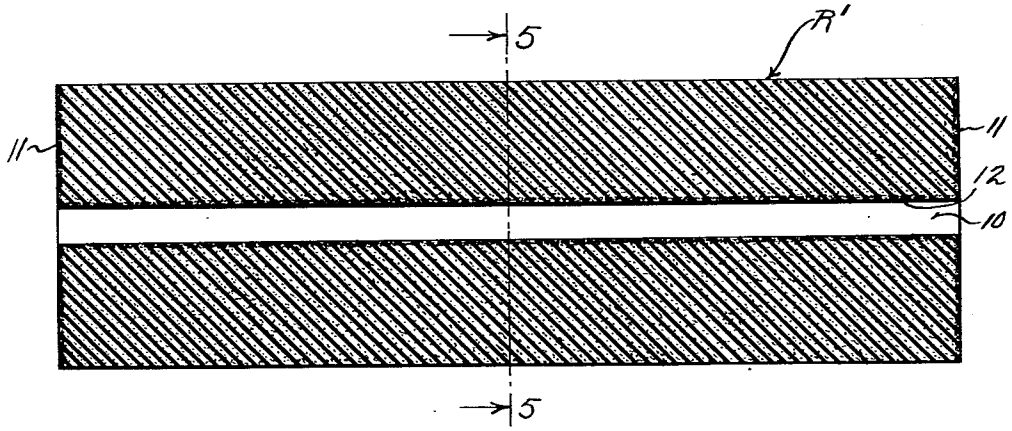
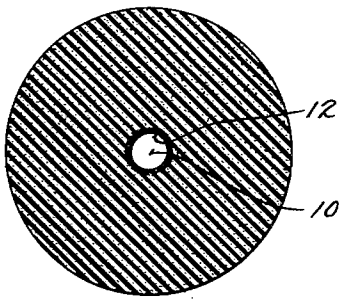


Fig. 5.



INVENTOR
EUGENE SLINGLUFF

BY

Young & Wright

ATTORNEYS

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Fig. 6.

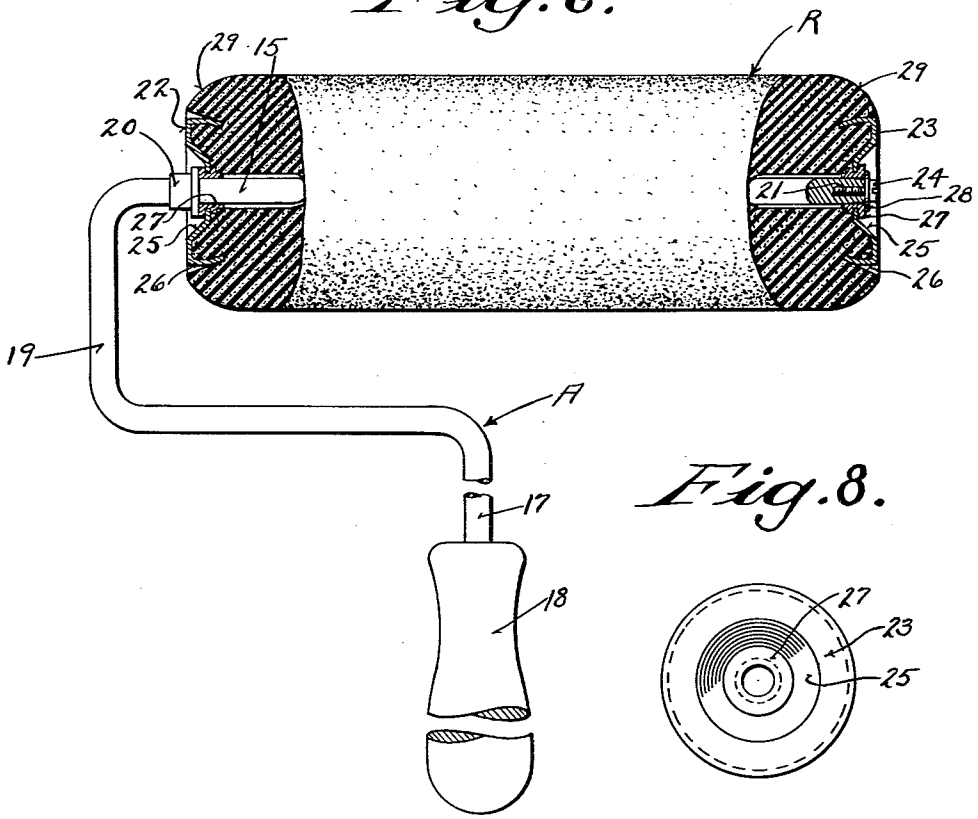
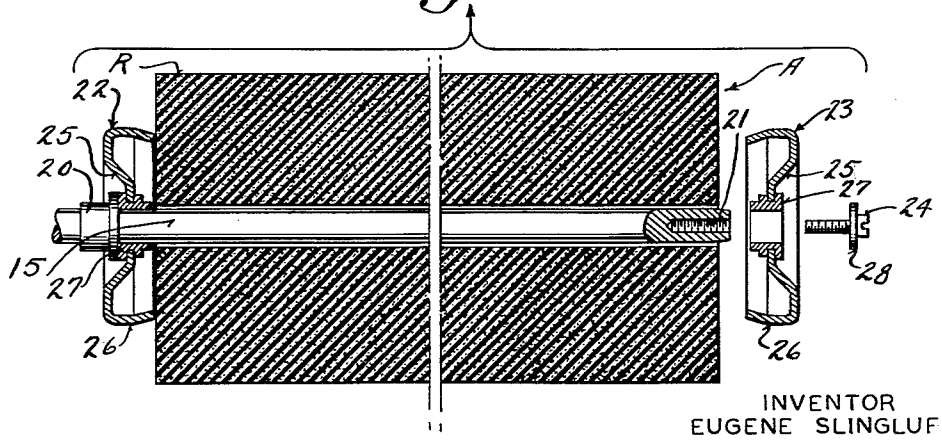


Fig. 8.

Fig. 7.



INVENTOR
EUGENE SLINGLUFF

BY

Young and Wright

ATTORNEYS

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PAINT ROLLER AND MOUNTING

Eugene Slingluff, Milwaukee, Wis., assignor to The Sunlite Mfg. Company, Milwaukee, Wis., a corporation

Application June 14, 1955, Serial No. 515,395

2 Claims. (Cl. 15—244)

This invention appertains to paint applicators, and more particularly to paint applicators of the so-called roller type.

In all paint rollers with which I am familiar, a handle is provided having a laterally extending shaft on which is journaled an expanding mandrel or cylinder for snugly receiving and holding a paint applying sleeve. This sleeve is usually formed from an outer member of sheepskin or a simulation thereof, i. e., a fabric having a pile. The fabric or sheepskin is reinforced by an inner rigid core or liner formed from a thermoplastic or a fibrous (cardboard) material. The sleeves are difficult to clean and the paint applying pile soon becomes matted. Further, if a seam is employed on the sleeve to join the edges of the fabric, such seam tends to mark the surface being painted. Obviously, the expanding mandrel, its journals, the reinforcement for the sleeve, etc., result in an expensive, inadequate structure.

It is, therefore, one of the primary objects of my invention to provide an inexpensive paint roller in which the expanding mandrel, reinforced sleeves, etc. are entirely eliminated.

Another salient object of my invention is to provide a paint applying roller formed from rubber foam, sponge rubber, or the like, having an unbroken paint applying surface, whereby marking of the surface being painted is prevented.

A further object of my invention is the provision of a paint roller formed from a cylinder of paint absorbing material, such as rubber foam, so that as the cylinder is rolled over a surface with a desired pressure the paint will be effectively and evenly applied to a desired surface.

Another further object of my invention is to provide a paint roller formed from a solid cylinder in contrast to a sleeve, the cylinder being formed from rubber foam or the like mounted for free turning movement directly on the shaft of the handle, so that the use of expanding mandrels and the like is entirely eliminated.

A still further object of my invention is to provide a paint applying roller which can be readily cleaned by alternate soakings in detergents and the like, and by a wringing out process.

A still further object of my invention is the provision of means for sealing the ends and the wall of the bore of the paint applying roller so that leakage of paint from the ends and bore of the roller will be prevented, and whereby the paint can be readily pressed from the roller onto a desired surface from the periphery of the roller only.

Another further object of my invention is to provide novel means for rotatably mounting the resilient and compressible roller directly on a shaft carried by a manipulating handle.

A further salient object of my invention is the provision of novel end caps forming hub plates for receiving and clamping the resilient compressible rubber foam roller therebetween and on the shaft for free turning movement,

whereby the roller can be easily rolled over the paint containing tray and the surface to be coated.

A still further salient object of my invention is to provide a novel arrangement of end caps or hub plates for the roller, so that upon adjustment of the hub plates toward one another, the roller will be slightly compressed longitudinally and whereby the peripheral edges of the roller at its opposite terminals will be slightly bowed or curved to prevent marking of the surface being painted by abrupt edges.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts as will be hereinafter more specifically described and claimed, and illustrated in the accompanying drawings, in which drawings,

Figure 1 is a longitudinal sectional view through one form of my novel paint applying roller;

Figure 2 is a transverse sectional view through the roller taken on the line 2—2 of Figure 1 looking in the direction of the arrows;

Figure 3 is a side elevational view showing how the roller can be cleaned by a wringing out process;

Figure 4 is a central longitudinal view through another preferred form of my paint applying roller;

Figure 5 is a transverse sectional view taken on the line 5—5 of Figure 4, looking in the direction of the arrows;

Figure 6 is a front elevational view in partial section, showing one improved mounting for my novel roller;

Figure 7 is an enlarged longitudinal sectional view through the roller, illustrating the means for initially mounting the roller on the shaft of the paint appliance, and

Figure 8 is a detail end elevational view illustrating one of the novel end caps or hub plates.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter R generally indicates my improved paint roller, and this roller is formed from a substantially solid cylinder of paint absorbing material, preferably rubber foam or synthetic rubber foam, and more particularly, a roller made from a polyurethane compound. The cylinder or roller R is provided with a centrally disposed longitudinally extending bore 10 through which the shaft of a paint roller outfit or appliance A extends.

The roller when mounted on a shaft, as will later appear, for free turning movement is saturated with paint in the accustomed manner, i. e., the roller is rolled over a pan containing paint and the foam rubber will pick up and carry a certain quantity of this paint. Upon the rolling of the roller R over a surface to be covered, the paint will be applied in an even coat on such surface without any marks in view of the fact that the surface of the roller is continuous and unbroken by seams or the like. Due to the porosity of the roller, a quantity of paint will be picked up by the roller and the paint can be applied as a coat when pressure is applied to the roller and to the surface being coated. In actual practice, the thickness of the coat can be controlled by varying the pressure of the roller on the surface being coated.

Besides the advantage of producing an inexpensive roller, my roller has the added advantage of being able to be quickly and thoroughly cleaned, and thus the roller can be used over and over again with different colors and shades of paint. The roller can be easily cleaned in view of the fact that the same is formed from foam rubber, and hence, the roller can be wrung out in the same manner as a fabric garment, and the roller can be washed directly under a faucet or can be soaked in a detergent or paint solvent liquid and then wrung out and washed in soap and water under a faucet and wrung out. Great stress is laid on the fact that the roller is formed substantially

from a solid cylinder of absorbent material and that it is only necessary to provide a bore through the cylinder to receive the shaft of the paint applying handle.

In repeated usage of my roller, it may be found desirable to seal the ends of the roller or the ends of the roller and the wall of the bore **10** so as to prevent the seeping of paint through the ends and bore of the foam rubber. This can be accomplished in varying manners, such as by forming a sealing skin on the ends of the roller and on the bore of the roller, leaving only open pores on the periphery of the roller.

As illustrated in Figures 4 and 5, the ends of the roller R' can be provided with a sealing coat **11** of any desired material having an affinity for synthetic foam rubber. A similar coating **12** can be applied to the wall of the bore **10**. The coating can be neoprene and the neoprene can be sprayed on the ends of the cylinder and onto the wall of the bore, and, obviously, the neoprene will not materially affect the resiliency or compressibility of the roller. Other steps can be taken to seal the ends of the rollers, such as thin discs of thermoplastic secured by adhesive or the like to the terminals of the cylinder.

Now referring more particularly to the paint roller outfit or appliance A the same includes a longitudinally extending shaft **15** for rotatably supporting the roller R.

The shaft **15** is preferably formed as an integral extension of a shank **17** carrying a manipulating handle **18**. The handle **18** is disposed transversely of the shaft **15** and is spaced therefrom. The shank **7** is connected with the shaft **15** by a gooseneck portion **19**.

The shaft **15** adjacent to, but spaced from the gooseneck portion **19** has rigidly secured thereto a stop collar **20**, the purpose of which will later appear and the outer end of the shaft is provided with an internally threaded bore **21**.

The mounting for the roller R includes a pair of like end caps or hub plates **22** and **23** and in assembling the paint appliance, the end cap or hub plate **22** is slipped on the shaft **15** against the shoulder **20** after which the roller R is placed on the shaft. The end cap **23** is then applied to the shaft and is held thereon by a machine screw **24** threaded into the bore **21**.

The end caps or hub plates **12** and **13** each include a disc shaped body portion **25** which is inwardly and centrally dished. Formed on the body portion **25** is an inwardly directed peripheral flange **26** of an annular formation and this flange can be slightly tapered inwardly toward its peripheral edge. Bushings **27** are rigidly set into the body portions **25** and these bushings form bearings for rolling contact with the shaft **15**.

Considering that the parts of the paint appliance A have been assembled on the shaft **15** as heretofore described, and the screw **24** is turned into the bore **11** (it being understood that a washer **28** is interposed between the head of the screw **24** and the bushing **27** of the end cap or hub plate **23**), then upon tightening of the screw the flanges **26** of the end caps or hub plates **22** and **23** will be pressed into the opposite ends of the roller R and the roller will be slightly compressed longitudinally. The compression of the roller longitudinally will bow or curve the periphery of the roller at its end edges, as best shown in Figure 6 and indicated by the reference character **29**. The curvature of the roller R at its terminals is important to this invention, in that, abrupt edges at its ends are eliminated, and consequently, as the roller is rolled along a surface during the application of paint, the marking of such surface will be prevented. Where the ends of the roller R are sealed to prevent leakage of paint therefrom, the curving of the ends of the roller is of the ulmost importance, in that, the skin or sealing means will not contact the surface being painted.

By forming the end caps or hub plates **22** and **23** of a less diameter than the diameter of the roller R and by providing the inwardly directed peripheral flanges **26**, the ends of the roller are pressed inwardly bringing about the desired curving of the roller.

Obviously, equivalent means can be utilized for the set screw **24** to adjustably hold the end caps or hub plates in clamping compression engagement with the roller.

The bore of the roller is preferably of a slightly greater diameter than the diameter of the shaft **15** so that the roller will turn freely with the end caps or hub plates **22** and **23** and these plates form the bearing for the roller.

Various changes in details may be made without departing from the spirit or the scope of this invention, but what I claim as new is:

1. An appliance for painting and like operations comprising a shaft, a paint applying roller formed from compressible, resilient material having pores, said roller having an axially disposed longitudinally extending bore receiving the shaft, said roller having its bore and terminals sealed to prevent leaking of paint therethrough, and means gripping the terminals of the roller freely rotatable on the shaft curving the periphery of the roller at its terminal edges.

2. An appliance for painting and like operations comprising a shaft, a manipulating handle extending transversely of the shaft, means connecting one end of the shaft with the handle, a stop on the inner end of said shaft, a paint absorbing roller formed from compressible, resilient material having a longitudinally extending bore receiving the shaft, end caps of a less diameter than the roller gripping the terminals of the roller, each of said caps including an inwardly dished body portion and inwardly directed annular flanges, said end caps being freely rotatable on the shaft with one end cap engaging the stop, and adjustable means on the outer end of the shaft engaging the other end cap for moving said last mentioned end cap toward the end cap engaging the stop, whereby the roller will be slightly compressed longitudinally and the ends of the roller pressed inwardly curving the periphery of the roller at its terminal edges.

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