April 10, 1956 J. MESSMER 2,741,013

APPLICATOR OF THE DETACHABLE SLEEVE TYPE

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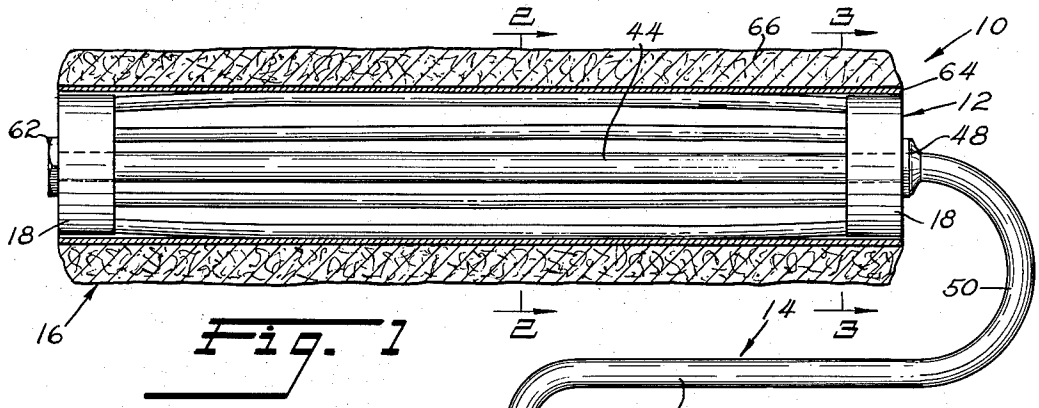



Fig. 1

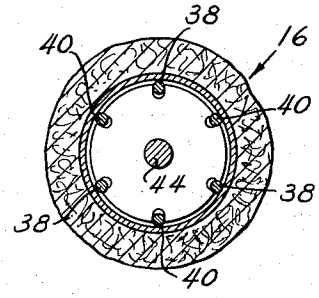
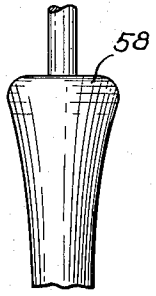



Fig. 2



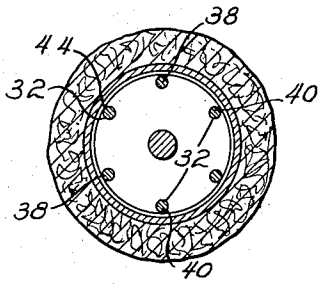




Fig. 3

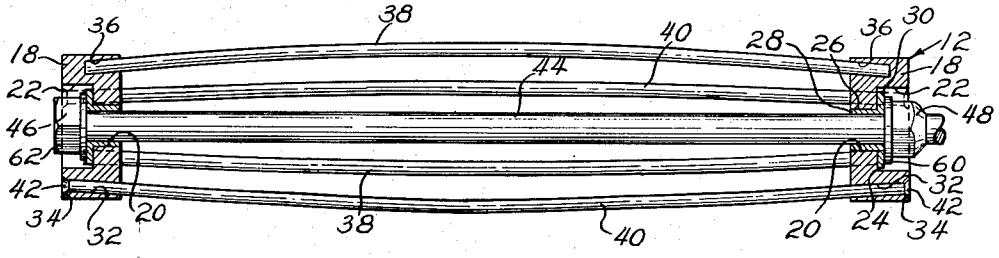



Fig. 4

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# APPLICATOR OF THE DETACHABLE SLEEVE TYPE

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4 Claims. (Cl. 29—116)

This invention relates to applicators for applying paint and other coating materials to flat surfaces and more particularly to improvements in such devices of the roller type including a carrier upon which an applicator tube is removably mounted.

In recent years roller-type applicators have come into wide-spread use both by commercial and amateur painters partly because of the lack of availability of high grade paint brush materials and partly because of the uniformly good results which may be obtained with devices of this kind without skills ordinarily requisite to produce comparable results with brush applicators.

In devices of this kind the carrier is usually of permanent construction and the applicator tube which carries the paint or other coating material is subject to relatively rapid deterioration and must be removable for cleaning and is often replaced when it is desired to change to a different color of paint or different type of coating material. It is accordingly essential that provision be made to permit easy removal and installation of the applicator tubes upon the carrier. It is also essential in order to obtain satisfactory results that the applicator tube be mounted upon the carrier with sufficient firmness to assure that the applicator tube will roll evenly with the carrier, not slide along the surface to be coated, and will apply substantial uniform pressures along its length.

In view of the recent wide-spread adoption of applicators of this type numerous efforts have been directed toward providing an applicator which satisfies these requirements. For example it has been proposed to employ a contractable sheet metal tube as a part of the carrier for yieldingly mounting the applicator tube. However, it has been found that because of the relatively large area of contact between the carrier and the applicator tube the latter cannot be removed readily from the former particularly after both units have been soaked with paint. It is often necessary even with a construction of this kind to destroy the applicator tube in order to remove it or to soak the entire apparatus in solvent to loosen the paint.

It is accordingly the primary object and purpose of the present invention to overcome the defects of such prior constructions and to provide an improved construction for supporting the applicator tube so that it may be easily removed and replaced and firmly supported in use.

Another object of this inveniton is to provide a painting roller which is of light weight but sturdy structure having suitable bearings which permit smoothness of operation and evenness of rolling.

A further object of the invention is to provide a painting roller which is simple in construction and inexpensive to manufacture.

These and various other objects are attained by the construction hereinafter described and illustrated in the accompanying drawing wherein:

Figure 1 is a longitudinal view of my painting roller, partially in section;

Figure 2 is a transverse sectional view taken on line 2—2 of Figure 1;



Figure 3 is a further transverse sectional view taken on line 3—3 of Figure 1; and

Figure 4 is a view of the roller with the tube removed and the end pieces in section.

Referring to the drawing the principal components of the painting roller indicated generally at **10**, are a roller carrier **12** rotatably mounted on a combination roller shaft and handle supporting member **14** and the outer applicator tube **16**.

Roller carrier **12** includes two disk-shaped end members **18** each having a small concentric recess **20** in its inner face and a larger concentric recess **22** having a base **24** in the opposite face. A bearing member **26** preferably of bronze or hard aluminum has a tubular portion **28** and a radial flange **30** which respectively fit in recess **20** and against base **24**.

Each end member **18** has three bores **32** extending through the member inwardly of the periphery of the inner face and terminating in a counter-sunk portion **34** in the outer face. The bores **32** are preferably disposed at an angle of 2 or 3 degrees with respect to the axis of the roller. Three holes **36** extending a little more than halfway through each member **18** are drilled at the same angle as bores **32** and these six holes, all of the same diameter, are positioned at 60° intervals on a common circumference.

Outwardly bowed spring steel or aluminum rods **38** are inserted in holes **36** and longer bowed aluminum rods **40** are inserted through bores **32**. The ends of rods **40** are then riveted as at **42** in counter-sunk portions **34** thereby securing end members **18** and rods **38** and **40** in fixed relation, the rods **38** preventing inward movement of the disks **18** and the rods **40** preventing outward movement. It will be noted in Figure 4, that the maximum diameter defined by the outer surfaces of bowed rods **38** and **40** is greater than the diameter of end members **18** for a purpose to be discussed later.

The combination roller shaft and handle support **14** includes a straight axle portion **44** which has a threaded end **46** and is provided with stop **48** welded or otherwise fastened to the opposite end. Shaft **14** is curved as at **50** and extends inwardly at **52** parallel to axle **44**, curves again at **54** to form handle support **56** having a handle **58** secured thereto midway between the ends of the axle **44**.

Axle **44** is inserted through bushings **26** with washers **60** abutting the radial flanges **30** of bushings **26** and nut **62** engaging the threaded end **46** thereby completing the assembly of roller carrier **12**.

The applicator tube comprises a tubular member **64** of substantially rigid plastic or any other suitable material having a lamb skin covering **66** secured to tube **64** by an adhesive which is insoluble in the coating material. As seen in Figure 1 the inside diameter of tube **64** is slightly greater than the outside diameter of end members **18** but is less than the maximum diameter defined by the outer surfaces of rods **38** and **40**.

The end members **18** will fit freely within tube **64** which will compress the rods **38** and **40** inwardly thereby creating a firm frictional connection between rods **38** and **40** and the inner surface of tube **64**. While this connection is retained because the resilient rods **38** and **40** are compressed within tube **64**, the tube can be readily removed even after extended use merely by tapping the unit sharply. The substantially line contact between rods **38** and **40** and the inner surface of tube **64** restricts the area between these members which may become sealed together by dry paint thus obviating the necessity for soaking the unit in a paint solvent to permit removal of the applicator tube. The fact that relatively small areas of the carrier are covered with paint in use also facilitates closing the carrier. Ordinarily the caked paint may be removed sufficiently to prevent perfect use of the carrier without the use of solvents.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:

1. A roller carrier for a coating appliance having an applicator tube comprising, a shaft; a pair of end members rotatably mounted in spaced relation on said shaft, said end members having inner and outer surfaces, a plurality of through bores and a plurality of recesses opening in said inner surfaces, said bores and said recesses being inclined with respect to the axis of said shaft; a plurality of resilient rods having their opposite ends received in said recesses; a plurality of additional resilient rods extending between said end members and having their opposite ends extending into said bores and terminating at their outer ends substantially at said outer surfaces of the respective end members; and means preventing movement of said ends of said additional rods toward said inner surfaces, said rods being yieldingly bowed outwardly beyond said end members to provide a resilient support for said tube.

2. A roller carrier for a coating appliance having an applicator tube comprising; a shaft; a pair of discs rotatably mounted in spaced relation on said shaft, said discs having substantially cylindrical peripheral surfaces and substantially flat opposed inner end faces and having a plurality of through bores and a plurality of recesses opening into said inner end faces, said bores and said recesses being arranged alternately adjacent the periphery of said discs and being inclined with respect to the axis of said shaft; a plurality of resilient rods having their opposite ends received in said recesses; a plurality of additional rods extending between said discs and having their opposite ends received in said bores and terminating at their outer ends substantially at the outer faces of said discs; and means preventing movement of said ends of said additional rods toward said inner end faces of said discs, said rods being yieldingly bowed outwardly beyond the peripheral surfaces of said discs to provide a resilient support for said tube.



3. The roller carrier according to claim 2 wherein said bores and said recesses are each inclined at an angle of at least 2° with respect to the axis of said shaft.

4. The roller carrier according to claim 2 wherein said discs are provided with a central cylindrical surface of substantial width adopted to engage bearing means to prevent tilting of said discs and facilitate their free rotation on said shaft.

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