

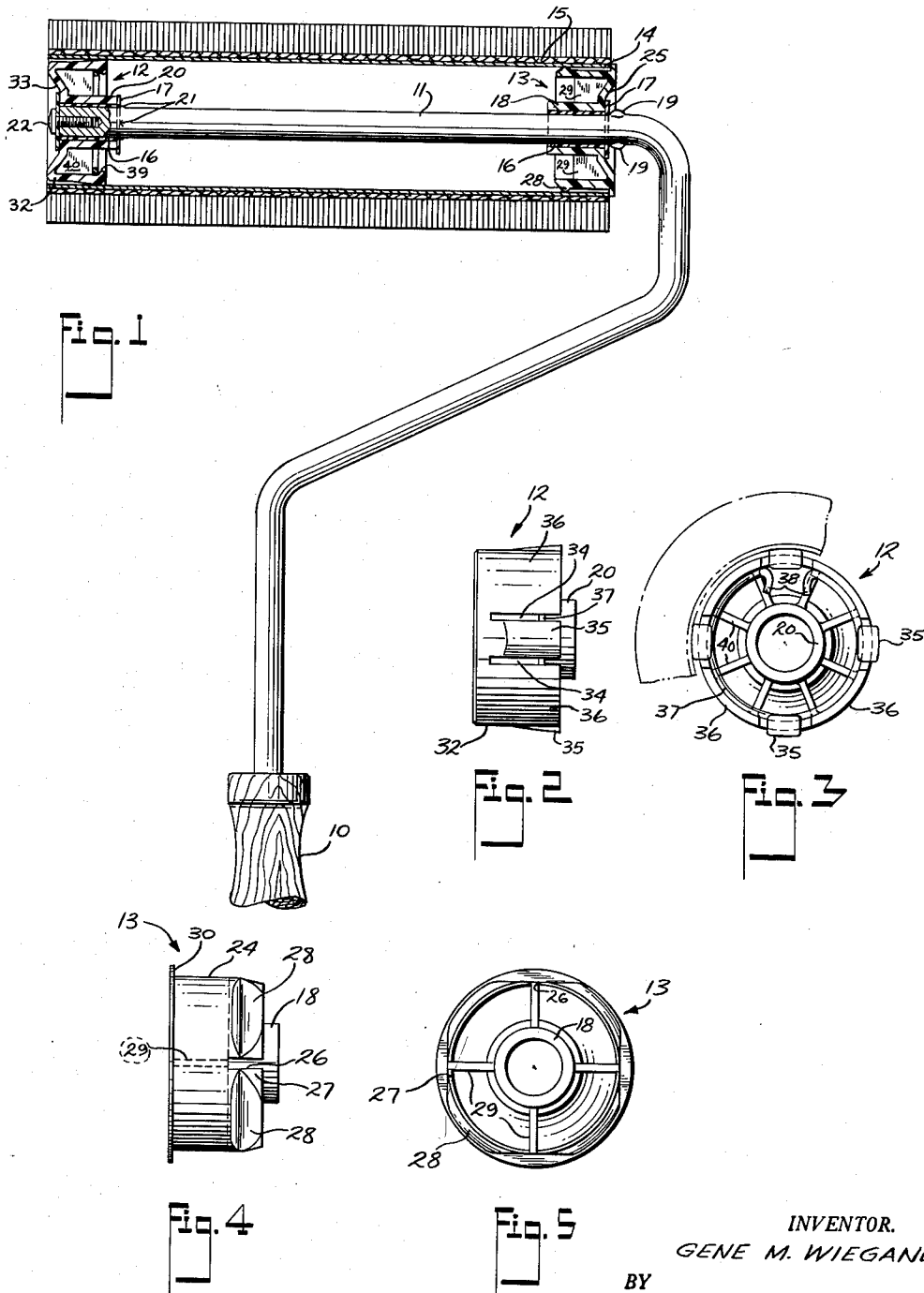
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PAINT ROLLERS

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PAINT ROLLERS

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This invention relates to improvements in paint rollers and more particularly, to paint rollers in which the paint-applying covers thereof are carried by removable cylindrical sleeves, the removability of said sleeves, with their covers, enabling the covers to be more conveniently cleaned when desired.

The invention has for its primary object the provision of new and improved chucks or mandrels for the support and releasable retention of a paint roller cover sleeve, the said chucks or mandrels being characterized by their structural simplicity, the economy of their manufacture, their usefulness with cover sleeves of various diametral sizes, and the particularly effective manner in which they firmly but removably support said cover sleeve.

A further and more specific object of the present invention is the provision, for a paint roller cover sleeve, of a chuck or mandrel having a plurality of longitudinally disposed, circumferentially spaced, radially outwardly extending fingers for frictional retaining engagement with said cover sleeve, and which chuck or mandrel also has arranged therein a spring ring for yieldingly resisting radial inward movement of said fingers.

A further object of the present invention is the provision, for a paint roller cover sleeve, of a chuck or mandrel having a stop or thrust shoulder, of annular form if desired, for the cover sleeve, and also having a plurality of longitudinally disposed, circumferentially spaced fingers for the support of the cover sleeve, said fingers having transversely extending projections, or arcuate form if desired for engagement with the cover sleeve.

Further objects of the present invention, and certain of its practical advantages, will be referred to in or will be evident from the following description of one embodiment of the invention, as illustrated in the accompanying drawing, in which

Fig. 1 is a fragmentary longitudinal sectional view of a paint roller having cover sleeve supporting and retaining chucks or mandrels constructed in accordance with one embodiment of the present invention;

Fig. 2 is a side elevational view of the outer chuck or mandrel for the support and releasable retention of the outer or free end portion of the cover sleeve;

Fig. 3 is an elevational view of the inner end of said outer chuck or mandrel, the cover sleeve and its cover being fragmentarily and diagrammatically shown thereon;

Fig. 4 is a side elevational view of the inner chuck or mandrel; and

Fig. 5 is an elevational view of the inner end of said inner chuck or mandrel.

Before describing in detail the paint roller here illustrated for the disclosure of one embodiment of the present invention, it is to be understood that said invention may take various other forms. It also is to be understood that the terminology and the phraseology herein used is for purposes of illustration and not of limitation, as the scope of the present invention is denoted by the appended claims.

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For the disclosure of one embodiment of the present invention, there is here illustrated a paint roller having a handle 10 for the manual manipulation of the roller in use thereof, an axle or shaft portion 11 suitably connected to the handle and here shown as extending at right angles thereto, a pair of longitudinally spaced chucks or mandrels 12 and 13 constructed in accordance with one embodiment of the present invention and rotatably mounted on said axle or shaft portion, and a cylindrical sleeve 14, of cardboard, plastic or the like, supported on and releasably retained by said chucks or mandrels and provided with a suitable covering 15, such as a pile material, for the application of the paint, by rolling action, to walls, ceilings and other surfaces.

As shown in Fig. 1, the two chucks or mandrels 12 and 13 are mounted on the axle or shaft portion 11 in such longitudinally spaced relationship as to cause them to lie within the end portions of the cover sleeve 14. Preferably and as here shown, bearing members, of nylon or other suitable materials, may be interposed between the axle or shaft portion 11 and the hub portions of the two chucks or mandrels. In the present paint roller, the bearing members are shown (Fig. 1) as having tubular body portions 16 which surround and snugly grip the axle or shaft portion 11 for their frictional retention thereon and right end annular flange portions 17 which extend radially outwardly for engagement by the right ends of the hub portions of the two chucks or mandrels.

In the paint roller here illustrated, movement to the right, Fig. 1, of the inner chuck or mandrel 13 along the axle or shaft portion 11 is prevented by the engagement of the hub portion 18 of such chuck or mandrel and the end flange 17 of its bearing member with suitable abutment means on said axle or shaft portion, such as the struck-up lugs 19 here shown. In a like manner, the outer chuck or mandrel 12 is prevented from movement to the right, Fig. 1, along the axle or shaft portion 11 by the engagement of its hub portion 20, and the end flange 17 of its bearing member, with suitable abutment means, again here shown as lugs 21 struck from the axle or shaft portion. For the releasable retention of the outer chuck or mandrel on said axle or shaft portion, with its hub portion 20 and bearing member flange 17 in engagement with the abutment means 21, a headed stud 22 is here threaded into the free end of the axle or shaft portion, the head of said stud being of sufficient diametral size as to engage said hub portion, as clearly shown in Fig. 1.

For the support and the releasable retention of the cover sleeve 14 on the two longitudinally spaced chucks or mandrels 12 and 13, said chucks or mandrels are not only formed to properly support the end portions of said cover sleeve but also, at least one of said chucks or mandrels is so formed as to frictionally grip said sleeve with sufficient pressure or force for its normal but releasable retention on the chucks or mandrels. Moreover, the diametral size of the two chucks or mandrels is such as to make them suitable for use with cover sleeves of various sizes, as will hereinafter more fully appear.

In the present embodiment of the invention, the two chucks or mandrels 12 and 13 are of differing construction, and the inner chuck or mandrel for the right end portion of the cover sleeve will first be described.

As shown in Figs. 1, 4 and 5, the inner chuck or mandrel 13 comprises, in addition to its hub portion 18, a rim portion 24 and an end face portion 25 connecting the hub and rim portions and which is here shown as being of recessed form.

The rim portion 24 is longitudinally slotted, as at 26, to provide a plurality of circumferentially spaced fingers 27, four as here shown, which are formed with

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cover sleeve engaging projections 28, and although said projections may be of any suitable nature, they are here shown as being of elongated character and of transverse disposition.

The outward radial extent of these projections 28 of the rim fingers 27 is such as to enable said projections to properly engage a cover sleeve of the largest diametral size likely to be encountered, but if the chuck or mandrel is to be used with a sleeve of somewhat smaller diametral size, the yieldability of the rim fingers 27 permits such fingers to be moved radially inwardly for proper supporting engagement of the finger projections 28 with said sleeve, all as will be readily understood.

For increased strength and rigidity, the rim portion and the hub portion of the inner chuck or mandrel may be connected, if desired, by circumferentially arranged partitions, there being four such partitions 29, at ninety degree intervals, in the chuck or mandrel here illustrated, with said partitions being here located in alignment with the slots 26 between the rim fingers 27.

In order to provide a stop or thrust shoulder for the inner end of the cover sleeve, the end face portion 25 of the inner chuck or mandrel is here extended radially outwardly beyond the rim portion 24, with the consequent provision of an annular flange 30 against which the inner end of the sleeve abuts, as shown in Fig. 1.

With respect to the outer chuck or mandrel 12, it also includes, in addition to its hub portion 20, a rim portion 32 and a connecting end face portion 33 which also is of recessed form.

For the positive but releasable retention of the cover sleeve on the rim portion of this outer chuck or mandrel, said rim portion is provided with a series of longitudinally disposed and circumferentially arranged slots 34 which extend through the free end of said rim. As best shown in Figs. 2 and 3, the slots 34 are here arranged in pairs, at ninety degree intervals, to provide four circumferentially spaced rim fingers 35 and a corresponding number of intervening rim portions 36 which, as here shown, are considerably wider or of greater arcuate extent than the rim fingers 35.

The outer chuck or mandrel is so formed that its rim fingers 35 normally project radially outwardly, as in Figs. 2 and 3, for supporting engagement with and releasable retention of the outer end portion of the cover sleeve, as in Fig. 1.

To yieldingly resist radially inward movement of the rim fingers 35, which preferably are of increasing thickness toward their free ends, a spring ring 37, of split form, is arranged within the rim portion 32 for engagement with the rim fingers 35, as shown. For convenient manipulation of the ring in effecting its disposition within the rim portion 32, the end portions 38 of the ring, which are normally spaced apart, are turned inwardly, as best shown in Fig. 3, and to prevent any liability of accidental escape of the ring, the rim fingers 35 are here shown as being provided with beads or ridges 39 along their inside surfaces at the free ends thereof.

For increased strength and rigidity, the hub portion 20 and the intervening rim portion 36 of the outer chuck or mandrel may be connected by radial partitions 40, there being eight such partitions, at each end of each intervening rim portion, in the present embodiment of the invention. As best shown in Fig. 1, the width or lateral extent of the partitions 39 is such that the ring 37 lies alongside their inner edges, and also alongside the rim finger beads or ribs 39.

Because of their normal radially outward inclination, the rim fingers 35 of the outer chuck or mandrel are suitable for proper support and releasable retention of cover sleeves of the largest diametral size likely to be encountered, but because of their ability to move radially inwardly against the resistance of the split ring 37, said

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rim fingers are equally useful with cover sleeves of somewhat smaller diametral size, as will be readily understood.

Although the present chucks or mandrels may be made of any suitable material, they are preferably made of plastic material by a molding operation, material and a type of operation which enable them to be accurately and inexpensively formed.

To those skilled in the art to which the present invention relates, other features and advantages of chucks or mandrels embodying the present invention will be evident from the foregoing description of one embodiment of the invention.

Having described my invention, I claim:

1. A chuck or mandrel for the rotatable mounting on a paint roller axle of the cover sleeve of the paint roller, said chuck or mandrel having a hub portion bored to receive said axle and also having a rim portion of generally tubular form and having a free end section and a non-slotted end section for the removable mounting thereon of an end portion of the cover sleeve, the free end section of said rim portion being provided with longitudinally disposed and circumferentially arranged slots extending through the free end of said rim portion, with the consequent provision of longitudinally disposed and circumferentially arranged rim fingers radially outwardly extending projections on said rim fingers for supporting and releasable retaining engagement with said cover sleeve, and re-enforcing webs radially connecting said non-slotted section of said rim portion and said hub portion.

2. A chuck or mandrel for the rotatable mounting on a paint roller axle of the cover sleeve of the paint roller, said chuck or mandrel having a hub portion bored to receive said axle and also having a rim portion of generally tubular form and having a free end portion for the removable mounting thereon of an end portion of the cover sleeve, said rim portion being provided with longitudinally disposed and circumferentially arranged slots extending through the free end of said rim portion, with the consequent provision of longitudinally disposed and circumferentially arranged rim fingers and intervening rim portions for supporting and releasable retaining engagement with said cover sleeve, said rim fingers being capable of radial movement toward and from said hub portion and said intervening rim portions being substantially immovable relative to said hub portion, and a resilient ring arranged within and carried by said rim fingers and said intervening rim portions, said rim fingers being of increased thickness toward their free ends so that radial inward movement thereof is yieldingly resisted by said resilient ring.

3. A chuck or mandrel for the rotatable mounting on a paint roller axle of the cover sleeve of the paint roller, said chuck or mandrel having a hub portion bored to receive said axle and also having a rim portion of generally tubular form and having a free end for the removable mounting thereon of an end portion of the cover sleeve, said rim portion being integral with the hub portion and being of relative short length, said rim portion being provided with longitudinally disposed and circumferentially arranged slots extending through the free end of said rim portion, with the consequent provision of longitudinally disposed and circumferentially arranged rim fingers and intervening rim parts, said rim fingers being capable of radial movement toward and from said hub portion, a resilient split ring arranged within and carried by said rim fingers and said intervening rim parts, means on said rim fingers providing a portion thereof to extend radially outwardly beyond the circumference of said rim parts for maintaining said rim fingers in supporting the releasable retaining engagement with said cover sleeve, and re-inforcing webs radially connecting said intervening rim parts and said hub portion, whereby

said intervening rim parts are immovable relative to said
hub portion.

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