United States Patent [19]

Soffer

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[54] POWER DRIVEN PAINTING DEVICE

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[21] Appl. No.: **85,921**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 842,445, July 16, 1969, abandoned.

[52] **U.S. Cl.**.....**15/98,** 15/24, 15/50 C

[51] **Int. Cl.**.....**B05c 1/10**

[58] **Field of Search**.....15/98, 97 A, 23, 24, 50 C, 15/49 C, 230.11, 97; 401/197, 205; 118/244, 258

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[57] **ABSTRACT**

A paint applicator roller combination comprising an extendable handle, a rotating cylinder having perforations through the cylindrical surface and an absorbent cover, end means closing each end of said cylinder, means within said rotating cylinder to close said perforations, detachable means to mount said rotating cylinder on said extendable handle, a motor mounted on said extendable handle adjacent said rotating cylinder and transmission means connecting said motor and said rotating cylinder whereby said rotating cylinder rotates at a speed of from 75 to 100 rpm.

5 Claims, 8 Drawing Figures

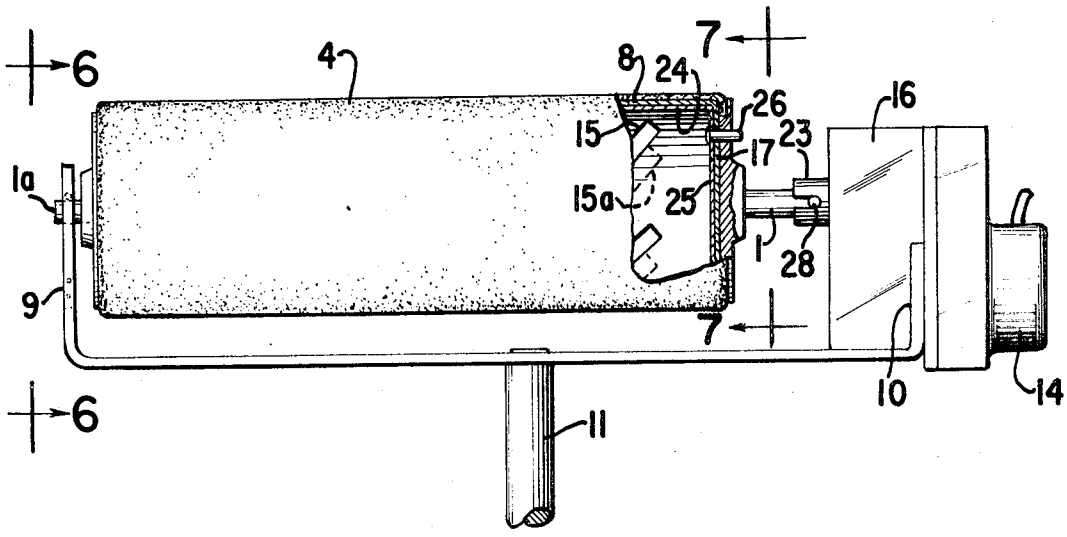


FIG. 1

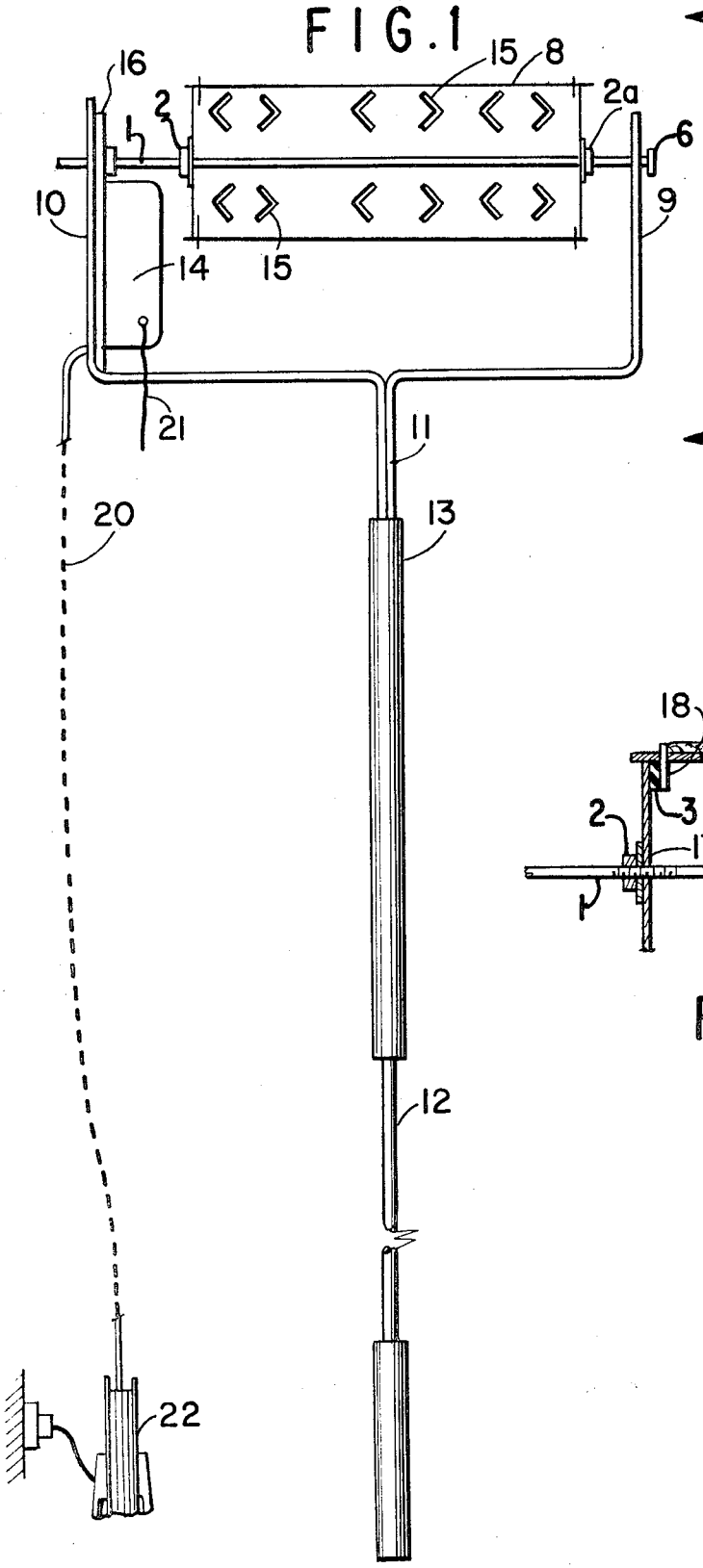
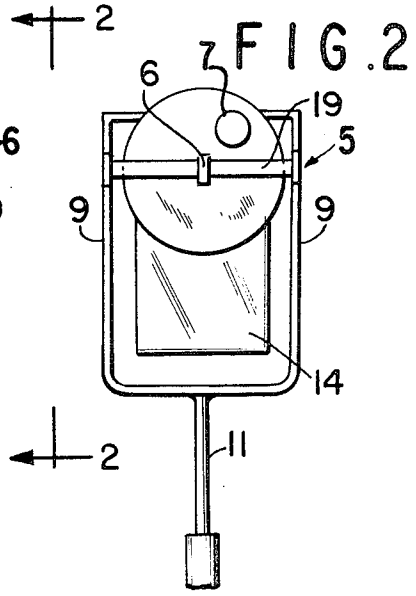


FIG. 2



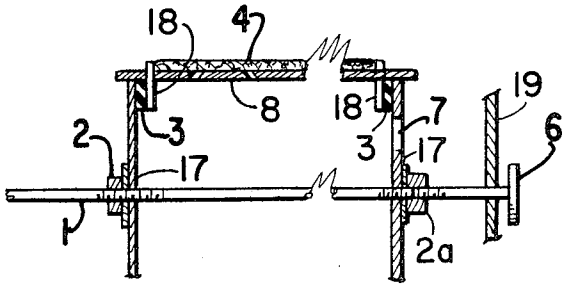


FIG. 3

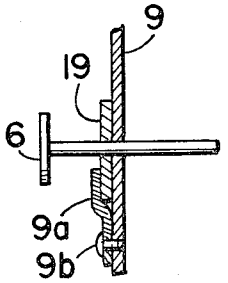
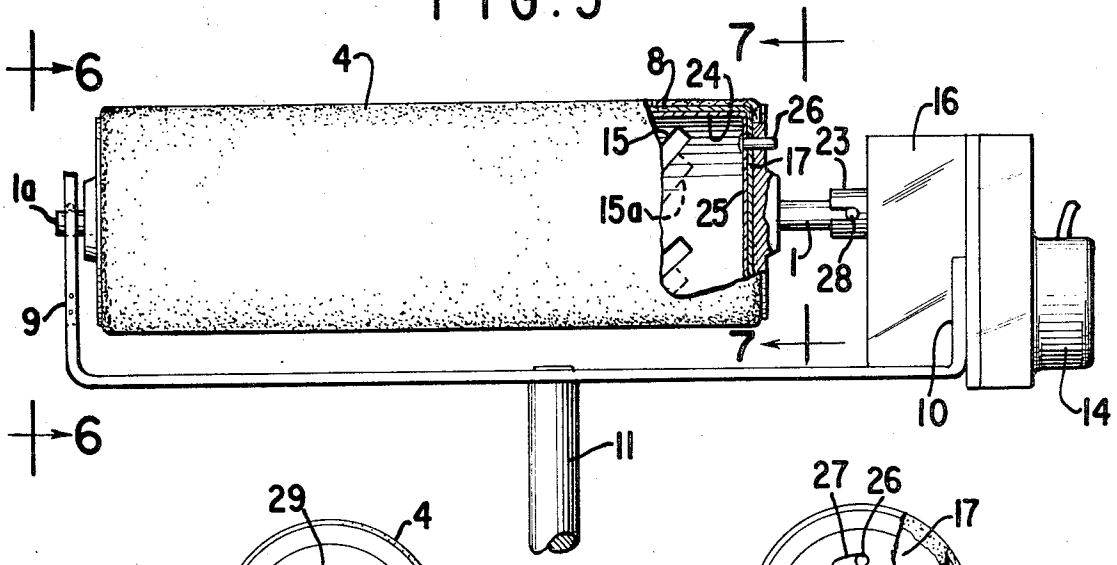


FIG. 4

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FIG. 5



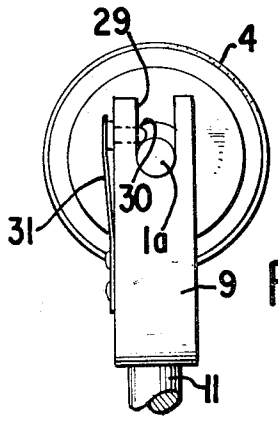


FIG. 6

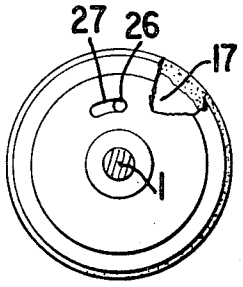


FIG. 7

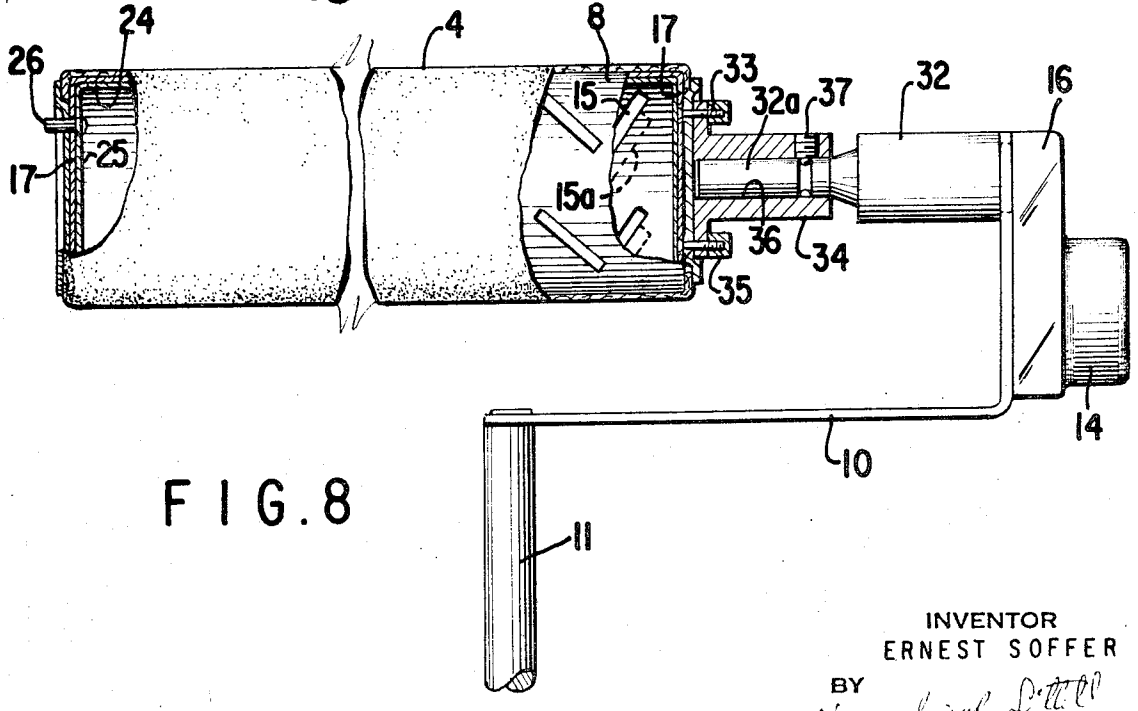


FIG. 8

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POWER DRIVEN PAINTING DEVICE

REFERENCE TO PRIOR APPLICATION

This application is a continuation-in-part of my copending U.S. Patent application Ser. No. 842,445, filed July 16, 1969, now abandoned.

THE PRIOR ART

Many different types of paint applicator rollers have been described in the prior art. Most of these are supplied with paint by dipping the roller into a container of paint. All of them require that the paint be applied by a manual rolling of the applicator surface on the surface to be painted.

OBJECTS OF THE INVENTION

An object of the present invention is the obtention of a light weight paint applicator roller having an internal paint supply and a motorized roller.

Another object of the present invention is the development of a paint applicator roller combination comprising an extendable handle, a rotating cylinder having perforations through the cylindrical surface and an absorbent cover, end means closing each end of said cylinder, means within said rotating cylinder to close said perforations detachable means to mount said rotating cylinder on said extendable handle, a motor mounted on said extendable handle adjacent said rotating cylinder and transmission means connecting said motor and said rotating cylinder whereby said rotating cylinder rotates at a speed of from 75 to 100 rpm.

These and other objects of the present invention will become more apparent as the description thereof proceeds.

THE DRAWINGS

FIG. **1** is a plane view of one embodiment of the motorized speedpainter of the invention.

FIG. **2** is an end view of FIG. **1** along lines **2—2**.

FIG. **3** is a partial cross-sectional view of FIG. **1**.

FIG. **4** is a detail of the mounting of the clip bar **19**.

FIG. **5** is a partially plane, partially cross-sectional view of another embodiment of the motorized speedpainter of the invention.

FIG. **6** is an end view along line **6—6** of FIG. **5**.

FIG. **7** is a cross-sectional view along line **7—7** of FIG. **5**.

FIG. **8** is a partially plane, partially cross-sectional view of another embodiment of the motorized speedpainter of the invention.

DESCRIPTION OF THE INVENTION

A motorized, light-weight paint applicator roller having an internal paint supply has been achieved which meets the above objects. The present invention consists of a paint applicator roller combination comprising an extendable handle, a rotating cylinder having perforations through the cylindrical surface and an absorbent cover, end means closing each end of said cylinder, means within said rotating cylinder to close said perforations, detachable means to mount said rotating cylinder on said extendable handle, a motor mounted on said extendable handle adjacent said rotating cylinder and transmission means connecting said motor and said rotating cylinder whereby said rotating cylinder rotates at a speed of from 75 to 100 rpm.

The paint applicator roller combination of the present invention facilitates painting and saves on labor in applying paint to a surface. The paint is supplied within the rotating cylinder which is of inexpensive construction and can readily be replaced or refilled. This makes painting an easier and cleaner affair as the paint does not have to be applied to the outside of the paint roller, thus avoiding splashing or dripping. The paint filled cylinders can readily be exchanged when a cylinder is exhausted or when the color of the paint is to be changed.

The paint applicator roller combination of the invention or speedpainter can be more readily understood with reference to the drawings. While several embodiments have been shown in the various drawings, the same numbers have been employed for the same elements in the various figures.

With reference to FIG. **1**, a hollow cylinder **8** is mounted on the yokes **9** and **10** of a handle **11**. An extension **12** of the handle **11** may be attached through the adapter **13** if desired for painting ceilings or high walls. On yoke **10** which is solid and of light weight construction, a motor **14** is mounted. This motor **14** is a low speed electrical motor which can be of any conventional speed of rotation. Yoke **9** is of split construction as shown in FIG. **2**.

Hollow cylinder **8**, which may be constructed of sheet metal, plastic or heavy cardboard contains a series of holes or perforations **15** cut therein. These holes **15** allow the paint contained in the hollow cylinder **8** to flow to the outside of the hollow cylinder **8** which is covered with an absorbent paint cloth **4** (shown in FIG. **3**). The holes **15** are adjusted in size so that the proper amount of paint will flow therethrough when the hollow cylinder **8** is rotated at a speed of between 75 and 100 rpm, preferably about 90 rpm. When the size of the holes **15** is properly adjusted and a thixotropic paint is employed, little if any paint will seep through the holes **15** when the hollow cylinder is not rotating. These holes **15** may also be stopped by an internal rotatable shield as will be described with reference to another embodiment. The motor **14** is connected by an appropriate gear train **16** to an axle **1** which is rotatably and detachably mounted on yokes **9** and **10**. The portion of the axle which extends through the gear train **16** and yoke **10** is preferably of square or hexagonal construction and readily removable from its mounting. The gear train **16** is selected in order that the speed of the motor **14** is translated to a speed of rotation of axle **1** of from 75 to 100 rpm., preferably about 75 rpm. in a known manner.

The hollow cylinder **8** is mounted to the axle **1** by means of rigid sides **17** which are pressed against a rubber or plastic washer **3** by means of threaded nuts **2** and **2***a*. The washer **3** lies against a stop **18** which is attached, i.e., by welding, to the inner circumference of the hollow cylinder **8** at both ends. Preferably the stop **18** extends outside the hollow cylinder **8** and serves to hold the absorbent paint cloth **4** on the surface of the cylinder as shown in FIG. **3**. This outer extension of stop **18** is preferably one-sixteenth of an inch and preferably stop **18** protrudes about one-half inch inside of the hollow cylinder **8**.

One or both rigid sides **17** may contain an opening **7** which can be used to fill the hollow cylinder **8** with paint. Opening **7** is closed thereafter in a conventional

way such as by a threaded nut and gasket. The end of axle 1 opposite the motor 14 terminates in a T-shaped extension 6 threaded thereon. Between the split yoke 9, a clip bar 19 is mounted into clip means 5 (shown in detail in FIG. 4), on split yoke 9, and having a hole in the middle adapted to receive axle 1. T-shaped extension 6 is threaded onto axle 1 by means of nut 2a into which T-shaped extension 6 is screwed. To remove the cylinder assembly, the T-shaped extension 6 is removed as shown in FIG. 4 by rotating the spring catch 9*a* attached to each split yoke 9 by connection 9*b*, bar 19 is loosened and removed and the axle 1 is slipped out of its gear train mounting.

An extension wire 20 is connected to the motor and to an aluminum wheel 22 mounted on rollers on the floor for easy moving. A minimum of 30 feet of extension wire 20 can be contained on the wheel 22 in order that the speedpainter can be used where necessary. The motor 14 is controller by an on-and-off switch which can be mounted where desired. Chain 21 can be utilized to operate the on-off switch if the same is attached to motor 14.

It is to be understood that the cylinder assembly can be prefilled by the paint manufacturer or filled on the painting site. The paint cloth 4 is readily removable where another color of paint is to be utilized.

FIG. 5 shows another embodiment of the invention where the motor 14 and gear train 16 drive a notched drive shaft 23. The hollow cylinder 8 contains within the same, a mating hollow cylinder 24 also with holes 15*a*. This cylinder 24 has extended sides 25 and attached thereto is an extension 26 which extends through rigid side 17 at a slot 27 (see FIG. 7). When extension 26 is slid from a closed position to an open position in slot 27, mating hollow cylinder 24 is rotated slightly so that its holes 15*a* coincide with holes 15 in hollow cylinder 8 thus allowing paint to flow from the inside of the cylinder to the absorbent paint cloth 4. With this type of cylinder assembly, the paint can be of various types and is filled in the cylinder assembly by the manufacturer.

It is also possible to have the matching hollow cylinder 24 spring loaded within hollow cylinder 8 in a known manner, whereby when the cylinder assembly is rotated at the speed of 75 to 100 rpm., the torque is sufficient to displace the mating hollow cylinder 24 to a point where its holes 15*a* coincide with the holes 15 of the hollow cylinder 8, thus allowing the paint to be fed to the paintcloth 4. When the cylinder assembly is stopped in its rotation, the spring again displaces the mating hollow cylinder 24 so that its holes 15*a* do not coincide and no paint can pass to the outer surface of the cylinder assembly.

The cylinder assembly is mounted on axle rods 1 and 1a by conventional means such as previously described or by pressed or welded fittings, if metal, or adhesive fittings, if plastic. Axle rod 1 has a small rod 28 therethrough situated at a point close to its end. This rod 28 engages the notched hollow drive shaft 23. The assembly of the other axle rod 1a and its mounting on yoke 9 is shown in FIG. 6. Yoke 9 has a notch 29 of a size sufficient to receive the rounded extension axle rod 1*a*. Within the notch 29 and above the lowest position of axle rod 1*a* is a detent 30 which is held into place by a flat spring 31. Detent 30 and flat ring 31 acts as a clip means. The cylinder assembly is readily removed by lifting the axle rod 1*a*, causing the detent 30 to retract. The axle rod 1 slips readily out of the notched hollow drive shaft 23. However, when the axle rod 1a is in place in notch 29, it is held securely therein by detent 30.

FIG. 8 depicts another embodiment of the speedroller where the cylinder assembly is only mounted on one side to the drive shaft, motor and gear train and handle. From the handle 11 one yoke 10 extends, to which is mounted motor 14 and gear train 16. The gear train 16 drives a drive shaft 32 having an extension 32*a*.

In this embodiment, the hollow cylinder 8 has the same internal construction as in FIG. 5, including holes 15, mating hollow cylinder 24 with holes 15*a*, extended sides 25 and extension 26. On one end of rigid side 17 of hollow cylinder 8 are bolts 33 to which is affixed axle rod 34 by means of clips or nuts 35, acting as a clip means. Axle rod 34 can also be mounted by welding or adhesively, but it is preferably mounted as shown, as in this embodiment only the hollow cylinder 8 need be replaced when another color is desired. Axle rod 34 contains a hollow core 36 into which drive shaft extension 32*a* is inserted. A set screw 37 firmly attaches axle rod 34 to drive shaft extension 32*a*.

The speedpainter of the present invention utilizes the centrifugal force of the motorized rotating cylinder to force the paint from the inside of the cylinder assembly to the paint cloth. Therefore, the holes communicating to the paint reservoir in the interior must be adjusted to the size required for adequate flow of paint at the desired rotation. Ordinarily, this is done by the manufacturer. However, the size of the holes communicating to the interior may be adjusted by the painter if the device of FIGS. 5 to 8 is employed and extension 26 has a wing nut which can be tightened on slot 27 so that extension 26 can be held at any place from a fully open to a fully closed position in slot 27.

The preceding specific embodiments are illustrative of the practice of the invention. It is to be understood, however, that other expedients know to those skilled in the art or described herein may be employed without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A mechanically driven paint applicator roller combination comprising extendable handle, a rotating cylinder adapted to receive paint having perforations through the cylindrical surface and an absorbent cover, and means closing each end of said cylinder, means within said rotating cylinder to adjust the flow of paint through said perforations, detachable means to mount said rotating cylinder on said extendable handle, a motor mounted on said extendable handle adjacent said rotating cylinder and detachable transmission means connecting said motor and said rotating cylinder whereby said rotating cylinder rotates at a speed of from 75 to 100 rpm.

2. The paint applicator roller combination of claim 1 wherein said means within said rotating cylinder to adjust the flow of paint through said perforations is a movable inner cylinder having matching perforations.

3. The paint applicator roller combination of claim 1 wherein said detachable means to mount said rotating

cylinder on said extendable handle comprises an axle extending from both sides of said rotating cylinder, said extendable handle having a bifurcated end with said motor mounted on one of said bifurcated ends, a yoke on one of said bifurcated ends of said extendable handle opposite said motor adapted to cooperate with one side of said axle, said detachable transmission means being adapted to drive the other side of said axle, and clip means mounted on said yoke adapted to retain said one side of said axle in said yoke.

4. The paint applicator roller combination of claim 1 wherein said detachable means to mount said rotating cylinder on said extendable handle comprises an axle driven by said transmission means and at least two clip means attached to said rotating cylinder adapted to engage said axle.

5. A mechanically driven paint applicator roller combination comprising extendable handle, a rotating cylinder adapted to receive paint having an axle extending from both sides and having perforations through the cylindrical surface and an absorbent cover, and means closing each end of said cylinder, means within said rotating cylinder to adjust the flow of paint through said perforations, detachable means to mount said rotating cylinder on said extendable handle, a motor mounted on said extendable handle adjacent said rotating cylinder and detachable transmission means connecting said motor and said rotating cylinder whereby said rotating cylinder rotates at a speed of from **75** to **100** rpm, said detachable means to mount said rotating cylinder on said extendable handle comprising a notch and a clip means on said extendable handle opposite said motor adapted to receive one side of said axle and said detachable transmission means comprising a notched axle driven by said transmission means and a terminal peg on the other side of said axle adapted to be inserted in said notched axle.

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