Nov. 1, 1955 W. C. VAN CLIEF, JR 2,722,030

ROLLING RESERVOIR PAINT APPLICATOR

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FIG. 1

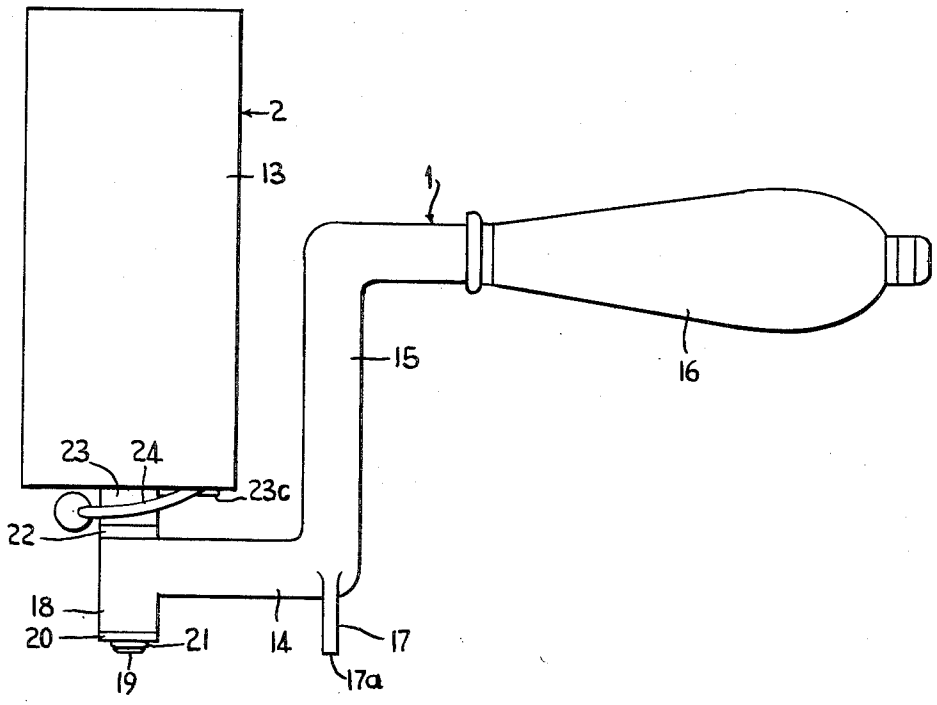
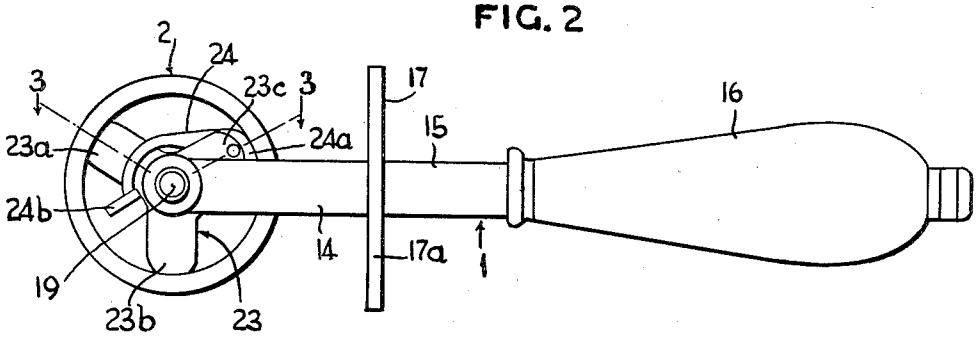


FIG. 2



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FIG. 3

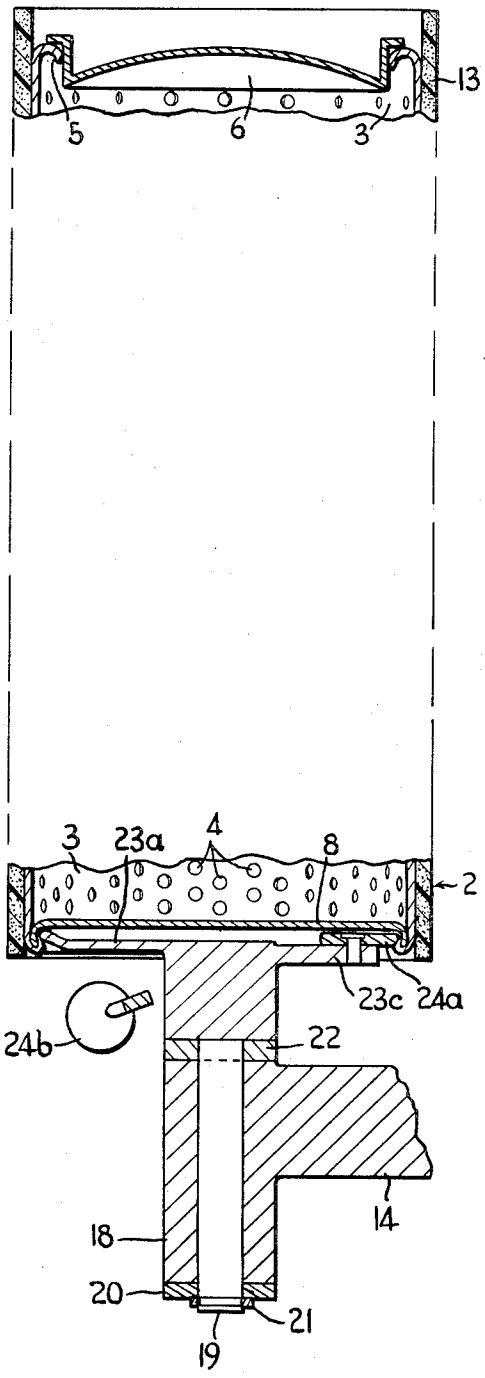
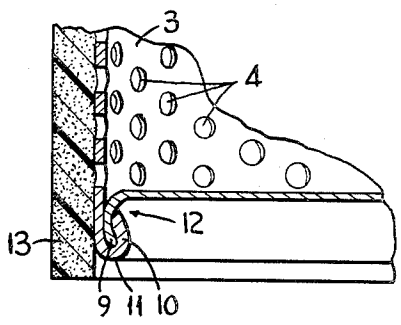


FIG. 4



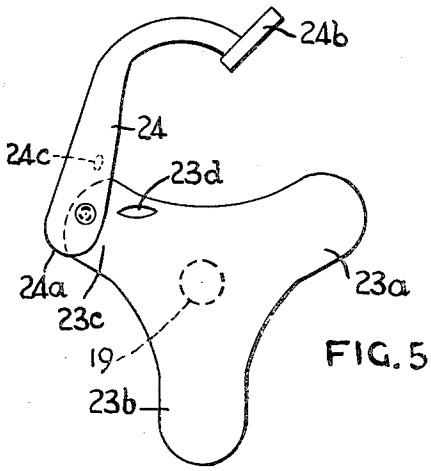


FIG. 5

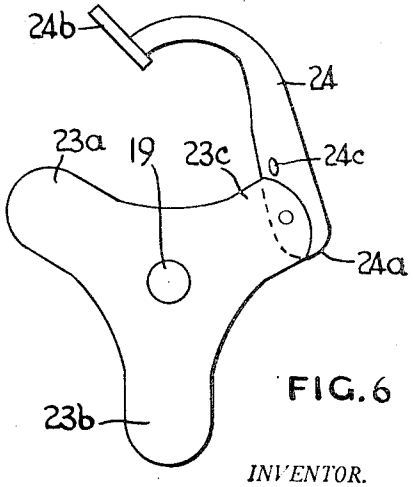


FIG. 6

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ROLLING RESERVOIR PAINT APPLICATOR

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5 Claims. (Cl. 15—132.5)

This invention relates to a coating apparatus or applicator of the roller type for applying paint or other coating materials to various surfaces. More particularly, this invention relates to a roller type coating apparatus having a quick-detachable coating roller comprising a rotary reservoir having an improved coating surface.

There have been numerous attempts to produce coating devices employing a rotary reservoir or roller but, in all such prior coating devices, the coating rollers employed have been complicated and expensive to manufacture. Thus, because of their high cost, it has not been possible to consider the coating rollers of prior devices as being disposable. Another objection to the coating rollers of prior coating devices has been that the materials employed on the surfaces of such rollers were incapable of forming level, crater-free films of paint.

The foregoing disadvantages of rotary reservoir or roller type coating devices now available are overcome by the coating apparatus comprising this invention which, briefly, includes a coating roller or rotary reservoir and a supporting frame therefor. The coating roller is a cylindrical container having a pervious or perforated wall. One end of this container is provided with a snap-on closure which may be removed to permit the container to be filled with paint or other coating material. The other end of this container is provided with an end closure wall which is formed with an outwardly extending peripheral flange over which the end of the cylindrical container is bent and crimped to provide an outwardly extending annular rim. The projecting annular rim is bent or inclined toward the center of the end closure so as to overlie the outer face thereof and thus provide an annular recess. The supporting frame for the coating roller comprises a bracket member provided, at one end thereof, with a hand grip; and, at the other end thereof, with a bushing adapted to support a shaft which is rotatably secured therein. One end of the shaft is provided with a Y-shaped spider member, the ends of two of the legs of which are adapted to extend into the annular recess provided in the end of the coating roller. At least one leg of the spider member is provided with a retractable locking means for engaging the wall of the annular recess at the end of the container. The locking means, when thus engaged, retains the spider member in the annular recess at the end of the container in a manner such that the axes of rotation of the shaft and the cylindrical container are aligned. The locking means permits quick removal of the roller from the spider member or attachment thereto. The outer face of the coating roller has a relatively thick sheet of a porous resinous material secured thereto. This porous resinous sheet material contains many minute interstices or passages which extend from the pervious wall of the cylindrical container to the outermost or coating surface of the resinous sheet.

It is, therefore, the principal object of this invention to provide a rotary reservoir or roller type coating apparatus comprising a supporting frame and a pervious walled cylindrical container forming a coating roller that

may be quickly detached from or secured to the supporting frame.

Another object of this invention is to provide a rotary reservoir or coating roller comprising a cylindrical container having a pervious wall and having one end thereof provided with a projecting portion, or portions adapted to be engaged by a rotatable member associated with a supporting frame.

A further object of this invention is to provide a coating roller supporting frame comprising a bracket provided with a stub-shaft rotatably mounted adjacent one end thereof and a coating roller mounting means secured to one end of the stub-shaft.

A still further object of this invention is to provide a coating roller supporting frame comprising a plurality of radially extending members for engaging a portion or portions extending from the end of a rotary reservoir or roller, the radially extending members being rotatably mounted on a bracket member.

It is also an object of this invention to provide a coating apparatus comprising a supporting frame and a rotary reservoir or roller detachably secured to the supporting frame whereby the coating roller may be easily removed and stored or disposed of, or replaced with another roller.

The foregoing and other objects of this invention will be apparent from the following description and the accompanying drawings wherein;

Figure 1 is a side elevational view of the coating apparatus comprising this invention;

Figure 2 is a bottom end view of the coating apparatus shown in Figure 1;

Figure 3 is a sectional view taken on line 3—3 of Figure 2;

Figure 4 is an enlarged fragmentary sectional view showing the structural details of the end of the rotary reservoir or coating roller;

Figure 5 is an enlarged fragmentary rear elevational view of the coating roller supporting member; and

Figure 6 is an enlarged fragmentary front elevational view of the member shown in Figure 5.

Referring to the drawings in detail, the coating apparatus shown comprises, in general, a supporting member **1** and a rotary reservoir or roller **2** mounted thereon. The coating roller **2** comprises a cylindrical container **3** having a pervious wall having a plurality of perforations **4** formed therein. One end of the container **3** has an annular rim **5** providing an opening for filling the container **3** with paint or other coating material. A snap-on friction cover **6** is provided for this end of the container **3** as a closure for the filling opening. The opposite end of the cylindrical container **3** is provided with an end closure member **8**, axially inwardly inset to provide an axially outwardly extending peripheral flange **9**. The end of the container **3** adjacent the flange **9** is bent thereover as shown at **10**. The flange **9** and the portions of the end of the container **3** bent thereover may be crimped together to form a circumferentially extending bead **11**. this bead is bent inwardly toward the center of the end closure **8** so that it overlies the end closure and provides an annular recess **12**.

The outer wall of the cylindrical container **3** is covered with a sheet of a porous resinous material **13**. The resinous material is highly porous and sponge-like in character. The body of the resinous material contains many minute passageways which extend between the faces of the sheet and are interconnected. This highly porous structure is produced by expanding gases present in the body of the resin during the polymerization thereof. There are several methods available for producing such sponge-like resinous material.

The supporting frame member **1** for the coating roller

2 comprises a die-cast metal arm having a roller supporting portion 14 which is positioned adjacent the end closure 8 of the container 3 and a handle supporting portion 15 which extends over the surface of the coating roller and is spaced therefrom. The portion 15 is bent rearwardly to provide a shank upon which a hand grip 16 is mounted. A supporting foot member 17 is formed in the roller supporting portion 14 of the metal arm adjacent the point the portion 14 is joined to the handle supporting portion 15. The support 17 has a flat surface 17*a* at the lowermost edge thereof. The support 17 extends a substantial distance beyond each side of the roller supporting portion 14 to provide a stable support for the coating apparatus.

The roller supporting portion 14 of the supporting frame member 1 has a bushing 18 formed therein adjacent the end thereof. A stub-shaft 19 is rotatably mounted in this bushing and is provided, at one end thereof with a washer 20 which is secured to the shaft by a snap-ring 21. The opposite end of the stub-shaft 19 is provided with a washer 22; and, on the outermost end thereof, there is mounted a substantially Y-shaped spider member 23. The legs 23*a*, 23*b*, and 23*c* of the spider member extend radially with respect to the axis of rotation of the stub-shaft 19. The legs 23*a* and 23*b* of the spider are the same in length and each terminates in outwardly offset portions. A lever 24, or other retractable latch means, is pivotally mounted on the outer face of the leg 23*c* which is shorter in length, than legs 23*a* and 23*b*. The lever 24 terminates in a cam portion 24*a* at the end thereof attached the outer end of the leg 23*c*. An operating arm 24*b* is formed in the other end of the lever 24, which arm extends inwardly toward the bushing 18 of the roller supporting portion 14. The face of the lever 14 adjacent the spider member 24 is provided with detent member 24*c* which is adapted to engage a recess 23*d* formed in the opposed face of the spider member 23.

The rotary reservoir or roller 2 is secured to the supporting member 1 by inserting the terminal offset portions of the legs 23*a* and 23*b* of the spider member in the annular recess 12 at the end of the coating roller. The lever 24 is then rotated until the terminal cam portion 24*a* thereof is engaged in the annular recess 12 of the coating roller and the detent 24*c* is engaged in the recess 23*d*. The coating roller 2 is thus rotatably secured to the supporting member 1 by a single extremity and the axes of rotation of the roller and the stub-shaft 19 are in alignment. The coating roller 2 may be detached by unlatching and rotating the lever 24. In using this coating apparatus, it may be positioned to rest upon one end of the stub-shaft 19 and the supporting foot 17. The closure 6 may be removed to fill the cylindrical container 3 with paint or other coating material and then replaced. The coating apparatus may thereupon be used in the customary manner to apply a coating to a surface. The coating roller 2 may be removed from the supporting member 1 in the manner described above by retracting the latch 24 when the coating operation is completed and the roller may then be discarded. It is also possible, if desired, to remove the coating roller and store it for a period of time ranging from several days to several weeks, after which it may again be mounted on the supporting member 1 and the use thereof resumed. In this coating apparatus it is feasible to replace one coating roller with another in the supporting member 1; and, in this manner, the operator may employ the apparatus using a plurality of coating rollers 2, separately, each containing coating compositions of different types or colors. It will be apparent from the above descritpion that the coating roller, per se, employed in this coating apparatus is very simply and inexpensively constructed. Because of the low cost of these coating rollers they may be discarded after use as are paint cans and other containers for coating materials.

I claim:

1. A paint applicator comprising a rotary reservoir which comprises a cylindrical container having a plurality of perforations in the wall thereof and having a covering of yieldable, pervious material designed to deposit coating material from the reservoir on a surface to be coated, said reservoir having closure members at the opposite ends thereof whereby to retain coating material therein, one of said closure members being axially inset to provide an axially outwardly extending flange at the corresponding end of the reservoir, said end portion of the reservoir being bent and crimped over said flange to form an annular bead, a stub shaft terminating in a spider having means releasably engaging the bead to hold said reservoir by a single extremity, said stub shaft being journalled in a bearing in a reservoir supporting portion of a frame, said frame having a handle supporting portion secured to the reservoir supporting portion in parallel relationship with respect to the reservoir and a rearwardly extending handle secured to the latter portion.

2. A paint applicator as defined in claim 1 in which said spider is provided with arms engaging between the bead and the end closure contiguous thereto, one of said arms being provided with a latch element releasably engaging said bead to admit of removal of the rotary reservoir.

3. A paint applicator as defined in claim 1 in which said spider has a plurality of arms, one of which is shorter than the others and is provided with a latch element, extensible releasably to engage said bead.

4. A paint applicator as defined in claim 1 in which the remaining closure member constitutes a lid, removable to admit of filling of the reservoir.

5. A paint applicator as defined in claim 4 in which said lid is of the snap-on type.

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