Jan. 1, 1963 R. G. MARTIN 3,070,825

FOUNTAIN PAINT APPLICATOR

Filed Feb. 12, 1960 2 Sheets-Sheet 1

Fig. 1

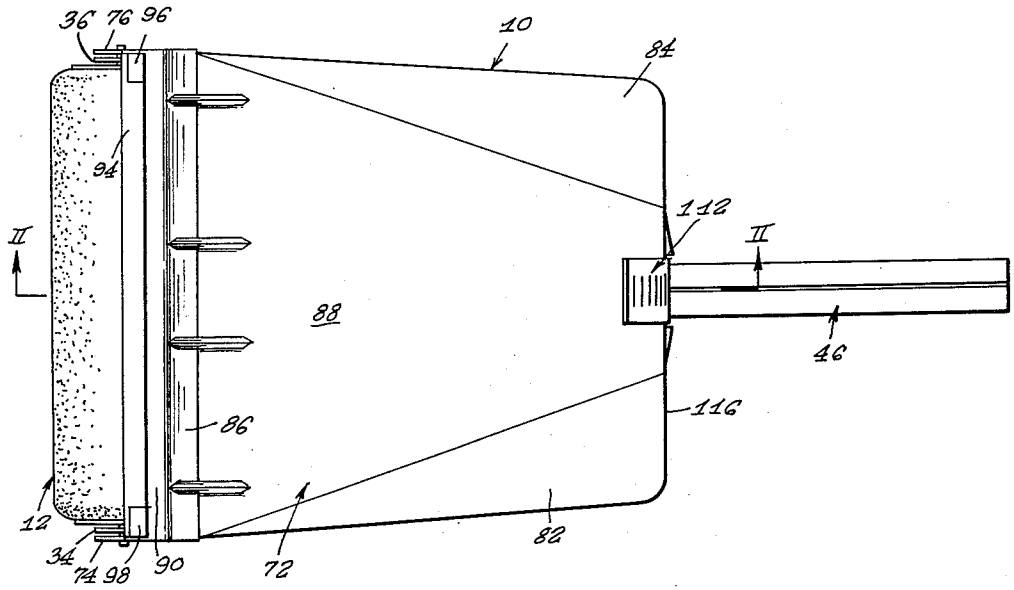
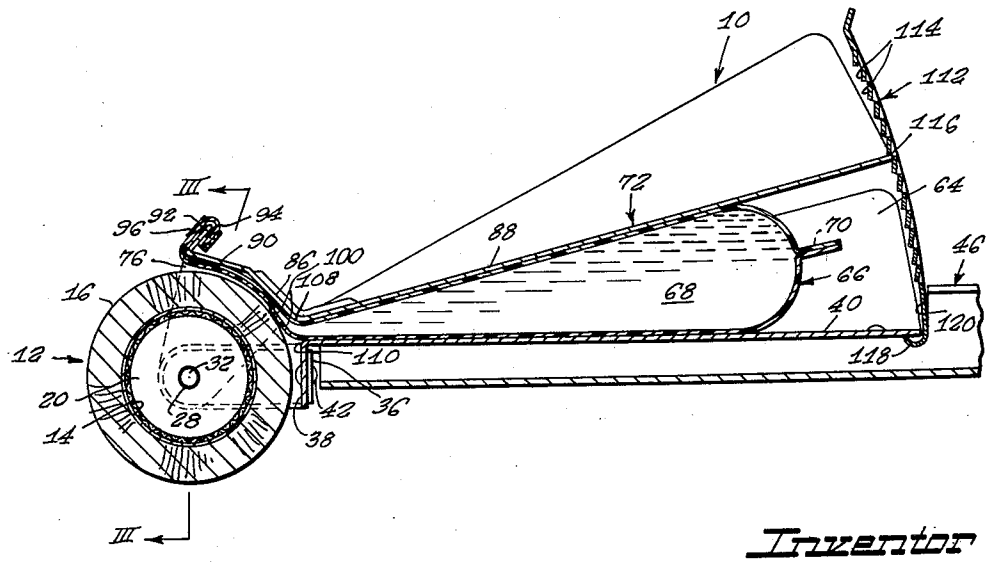


Fig. 2



Inventor

Robert G. Martin

By Hill, Sherman, Meroni, Gross & Simpson Attys

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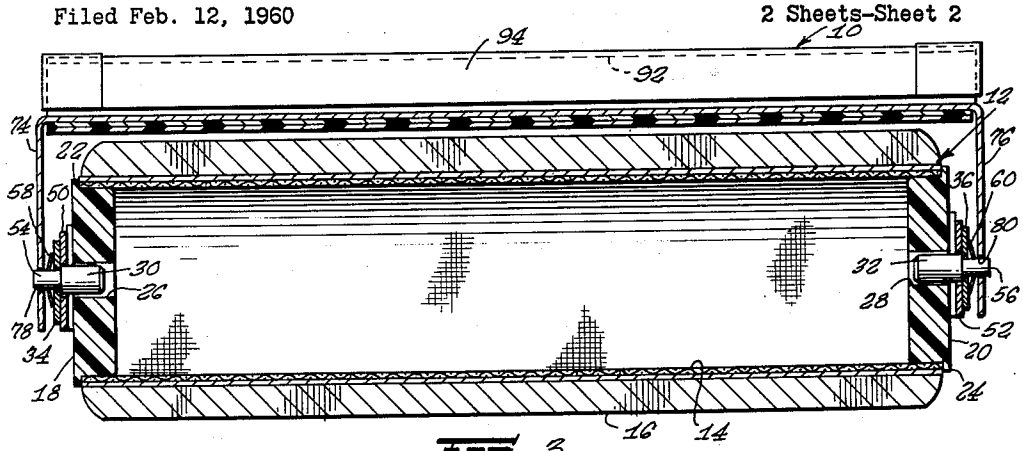


FIG. 3

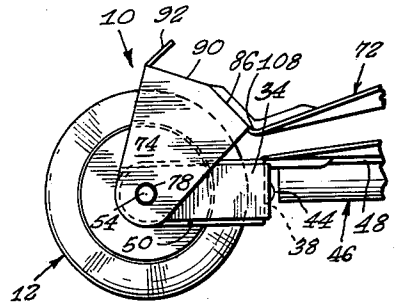


FIG. 4

FIG. 6

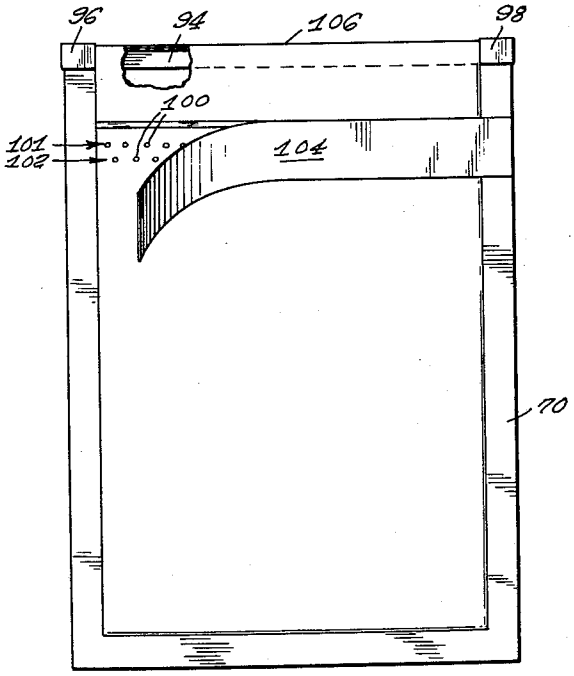
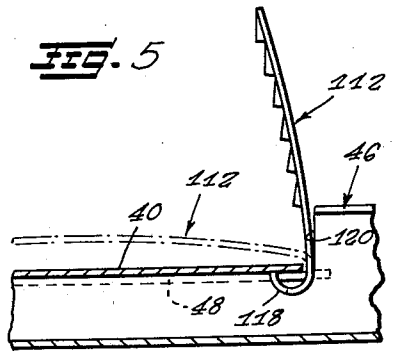


FIG. 5



Inventor

Robert G. Martin

By Hill, Sherman, Meroni, Gross & Simpson Attys

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FOUNTAIN PAINT APPLICATOR

Robert G. Martin, 829 N. Humphrey, Oak Park, Ill.

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6 Claims. (Cl. 15—554)

This invention relates to a paint applicator and more particularly to an applicator of the roller type having means for feeding the paint to the roller during use.

Heretofore, there have been various attempts made to overcome the problems inherent in conventional roller applicators, wherein the roller must be dipped in a paint pan at frequent intervals to replenish the paint carried on the roller, with consequent dripping and unevenness in the amount of paint applied. Among these attempts have been constructions such as a tank-line compartment on the roller handle with the handle itself being movable to collapse the tank and dispense the paint, and the use of a collapsible bag as the handle with the bag holding the paint to be dispensed.

In such constructions, the amount of force used in actuating the roller has caused a variation in the amount of paint dispensed, as well as other difficulties, and where this approach has been eliminated in favor of the use of the roller itself as the tank, an imbalance in the applicator has resulted, which similarly has led to an unevenness in the application of the paint. The present invention provides a solution to these problems by mounting a plastic bag containing the paint to be dispensed on a support pan mounted on the handle, with the roller being journalled in fixed relation to the handle. The bag has flow orifices formed therein along a surface adjacent to the roller which are sealed for shipment or storage by a flexible strip having an adhesive backing. When the strip is removed from the bag, angular movement of an upper pan journalled to means on the support pan element is effective to dispense the paint. Adjustment means are provided to determine the position of the upper pan relative to the lower pan to control the pressure for dispensing the paint.

The present invention permits paint or other fluid to be dispensed continuously and evenly onto a surface to be coated even though the roller is actuated with a high degree of speed. The amount of paint being dispensed to the roller is controlled in a novel manner by a particular alignment of the flow orifices in the flexible bag member and an angular relationship between the upper pan and the bag. The connections between the roller and the pans and the bag also permit effective flow control, as well as ease of assembly and disassembly.

Accordingly, it is an object of the present invention to provide a paint dispenser having means for dispensing paint to a roller without any need for dipping the roller in paint to replenish it, and so as to permit a firm and even pressure to be applied to the roller.

Another object of the invention is to provide a paint dispenser as described having a roller releasably journalled to a handle structure for the applicator for easy engagement and disengagement therewith.

Another object of the invention is to provide a paint applicator as described wherein a flexible paint container is mounted on the handle structure and adjustable means for dispensing paint to the roller from the container are afforded which permit paint to be dispensed from the container without any manual pressure thereon during the painting operation.

Another object of the invention is to provide a device as described wherein the bag has a plurality of rows of apertures with the apertures being staggered with respect to adjacent rows to effect a substantially uniform and even distribution of paint onto the roller from the bag and to permit a continuous rolling action even at relatively high speeds of operation.

Another object of the invention is to provide an applicator as described in which the means for holding the paint dispensing bag include a lower pan, and an upper pan having angled elements engaging the bag to control the hydraulic pressure of dispensing the paint.

Yet another object of the invention is to provide a device as described wherein the said pan means include an upper pan engageable by a stepped bracket element which is pivotable between a lower and an upper position.

Other objects and advantages of the invention will become apparent as the description proceeds in accordance with the drawings in which:

FIGURE 1 is a top plan view of the paint dispenser according to the present invention;

FIGURE 2 is a vertical sectional view, partly broken away and taken along the line II—II of FIGURE 1;

FIGURE 3 is a vertical sectional view taken along the line III—III of FIGURE 2;

FIGURE 4 is an end view, partly broken away, of the dispenser structure shown in FIGURES 1 through 3;

FIGURE 5 is a fragmentary vertical sectional view in enlarged form of bracket means for providing a desired pressure on paint to be dispensed from the dispenser; and

FIGURE 6 is a bottom plan view, partly broken away, of a flexible paint container according to the invention and showing means for sealing the container.

Referring now to the drawings, a dispenser 10 is shown according to the invention which is of the roller type and comprises a roller 12 whose construction may generally be relatively conventional and includes a cylindrical support member 14 and a paint retentive surface material 16. End walls 18 and 20 are telescoped in the cylinder 14 and may include end flanges 22 and 24 respectively seating against the ends of the cylinder 14. Desirably, the end walls 18 and 20 are formed of nylon or other suitable plastic material, although not limited thereto, and define central, axially extending openings 26 and 28 for journalling the roller 12 on the dispenser 10, by means of coaxial stub shafts 30 and 32. The stub shafts 30 and 32 are mounted for relative axial movement to permit easy insertion and removal of the roller 12, by means of resilient, forwardly extending brackets 34 and 36 secured to a depending wall 38 of a support pan or plate 40 by rivets or the like 42 and 44.

The pan 40 may be secured to a handle 46 having coplanar outwardly extending flanges such as indicated at 48, by rivets or the like (not shown), and the depending wall 38 of the pan 40 may have forwardly extending portions 50 and 52 extending within the spring-like brackets 34 and 36 and defining openings for receiving the stub shafts 30 and 32. The brackets 34 and 36 receive reduced end portions 54 and 56 and intermediate shoulders are thus defined on the said stubs 30 and 32 to engage against the brackets 34 and 36, the stub shafts being secured in position by means of locking elements or nuts 58 and 60 coacting with these shoulders. Other means of connecting the stub shafts to the brackets may also be employed, and the wall 38 may, for certain applications, have a forwardly and downwardly extending portion (not shown) to provide a backing element for the roller 12.

The support plate 40 may have wing-like upwardly and outwardly extending side flanges such as indicated at 64, or may have other suitable conformations, and a flexible container or bag 66 containing paint or other flowable material 68 is supported on the surface 40. The container 66 may have marginal edges which are heat sealed together as indicated at 70 so that the container affords a wall forming a receptacle for the paint.

In accordance with the invention, and in order to control flow of paint from the container 68, as hereinafter further described, an upper retaining and pressure inducing pan or plate 72 is pivotally mounted on the shafts

30 and 32 in overlying relationship to the plate 40 by means of depending flange portions 74 and 76 which are apertured as indicated at 78 and 30 to engage in pivotally secured relation to the outer ends 54 and 56 of the stub shafts.

Desirably, the plate 72 has a shape complementary to that of the plate 40, and includes upwardly and outwardly extending side wings 82 and 84, although it will be understood that other constructions are encompassed within the scope of the invention.

The invention provides for paint control means on the plate 72 including an upwardly inclined flange 86 on the plate in proximate parallel relation to the roller 12, the angle between the flange 86 and the planar main portion 88 of the plate being in the neighborhood of 120° to define an elongated juncture edge. An extension of the flange 86 is provided, as indicated by reference numeral 90, which is reversely turned at a corresponding angle such as to conform to the curvature of the roller 12. At the forward end of the plate 72, an upstanding end flange 92 is provided which desirably is at an angle of approximately 90° to the portion 90, although being shown for purposes of illustration at slightly less than such angle.

The portion 92 provides a retention means for the bag structure 66, and as seen in FIGURES 2, 3 and 6, in particular, the bag includes a reversely turned lip 94 secured at the edges of the bag as indicated at 96 and 98 to define a flexible hook or pocket structure which will fit over the flange 92 in snugly engaged relation as shown in FIGURE 2. Accordingly, the bag may be secured to the dispenser 10 simply by telescoping the pocket structure thus provided over the said flange 92, prior to engagement of the flanges 74 and 76 over the stub shafts 30 and 32. The flanges 74 and 76 are formed in the area of the end wall 86 and the extension 90 thereof, and are sufficiently resilient to slip easily onto the said stub shafts, with slight flexing thereof, to provide uniform relation between the flanges 86 and 90 and the roller.

Referring now to FIGURE 6, dispensing means are provided in the container 66 which provide a continuous flow of fluid onto the roller 12 as controlled by the angled construction of the plate 72. These means include a plurality of rows of apertures 100 with the individual apertures in each row being staggered with respect to the apertures in rows adjacent thereto. Thus in the form shown in FIGURE 6, two such rows of apertures are provided, with the individual apertures being preferably spaced laterally by approximately 5/16 of an inch, and having an area calibrated in accordance with the type and viscosity of fluid to be dispensed, as for example, a diameter 1/8 of an inch, it being understood that the invention is not restricted to the particular dimensions indicated. These rows are indicated by reference numerals 101 and 102 respectively. The rows extend substantially across the entire surface of the bag structure 66, to the heat sealed edge 70 thereof, and may be covered by a flexible strip of plastic material 104, which may be vinyl for example, having a suitable adhesive backing for removable seating engagement with the material of the bag. Although the bag is shown as having a heat sealed marginal edge, it will be understood that it may be formed in any other suitable manner, as for example, it may be an extruded tube, a sleeve, or the like. The rows 101 and 102 are spaced from the adjacent transverse edge 106 of the bag by a distance such as to place them preferably in register with the surface 86 when the bag is engaged over the flange 92 as shown in FIGURE 2. Thus rotation of the plate 72 about the pivot shafts 30 and 32 will maintain the apertures 100 in a constant spaced relationship with respect to the roller 12, and will permit fluid to be dispensed in adequate quantities at each of the rows 101 and 102 so that there will be no piling up of the fluid and spattering, even though the roller be actuated at a very high rate, relative to what could be accomplished previously.

To this end, the rows 101 and 102 may be formed in parallel relation and spaced, for example, by a distance of approximately 5/16 of an inch, although it will again be understood that the particular dimensional relationships between the rows, and the individual orifices thereof may be varied in accordance with the construction of the specific dispenser and the type of material to be dispensed.

When the bag has been inserted in the dispenser as described, all that need be done is to manually strip the flexible element 104 from the orifices as shown and the device is thereupon ready for use.

Referring again to FIGURE 2, it will be seen that the juncture 108 between the wall 86 and the base 88 is substantially in register with or slightly in advance of the juncture 110 between the main surface of the base 40 and the wall 38. In any event, the juncture 108, in conjunction with the described angular spacing between the wall 86 and the portion 88 of desirably approximately 120°, permits a pressure control of the paint or other material being dispensed, so that the amount of paint extruded is reduced somewhat and does not flood the roller.

In order to effect a desired angle for the plate 72 proportionate to the amount of paint in the container 66, and a desired pressure to be exerted on the container, a bracket member 112 is provided, including a strip of metal or other suitable material having stamped out steps 114 spaced axially therealong and extending transversely of the strip, against which the outer end 116 of the plate 70 may engage in locking relationship as shown. The steps 114 thus define notches which may be selectively engaged by the upper plate to distribute the pressure evenly across the bag 66. The bracket member 112 is desirably of a resilient construction, and is secured to the handle portion 46 by means of a lower arcuate flange 118 turned inwardly and upwardly so that the extremity thereof is turned 180° from the major portion of the strip 112, the strip being received in a recess 120 in the handle 46 and the flange 118 engaging against the plate structure 72, or against the widened portions 48 of the handle to retain the strip in position. Thus the strip or bracket 112 may be pivoted selectively into overlying relationship with the flat surfaces of the plate 40 for purposes of shipment or the like. The bracket member 112 is preferably inclined slightly forwardly in the normal position thereof or may be bowed to correspond to the arc of movement of the member 72 of the pivots around the stubs 30 and 32. In any case, in whatever angular position the plate 72 may be, the orifices 100 will be evenly spaced from the stub shafts 30 and 32, and in the desired constant relationship to the roller such as to maintain an even spreading action on the roller.

There has thus been provided a paint dispenser which is exceptionally simple and rugged in construction, and may be readily assembled and disassembled as desired. The individual parts thereof may be shipped in nested relation, and the container 66 for use therewith may be stored separately or in combination with the dispenser. When assembled, the dispenser may be used steadily over a period of time and at a rapid rate, with the paint being applied smoothly over all the surfaces to be coated without unevenness or interruptions therein. Because of the relationships between the bracket 112 and the plates 40 and 72, the dispenser may even be used to paint ceilings or the like, with an appropriate amount of pressure being exerted on the container by means of the said bracket structure 112 in holding engagement with the plate 72. The container may be readily removed from the dispenser simply by disengaging the plate 72 from the pivot stubs 30 and 32 and slipping the pocket structure thereof from the flange or lip 92, so that a fresh bag may be substituted and the upper plate again mounted on the said stub shafts.

Thus the dispenser is suitable for use in a wide variety of applications and with a wide variety of materials, and without the need for special skills or techniques.

Although I have herein set forth and described my invention with respect to certain specific principles and details thereof, it will be understood by those skilled in the art that these may be varied without departing from the spirit and scope of the invention as set forth in the hereunto appended claims.

I claim as my invention:

1. A paint dispenser comprising a handle, a support plate on said handle, a roller, means journalling said roller to said support plate, a flexible fluid container having outlet means in register with said roller, a plate pivoted to said means journalling said roller at the axis of said roller and having a planar surface complementary to said support plate and a flange extending from said surface at an angle of approximately 120° to form an elongated juncture edge in proximate parallel relation to said roller, and means connecting said container to said flange so that the container extends beneath said juncture edge and between said plates, said juncture edge cooperating with said plates to control fluid flow through said outlet means.

2. A paint dispenser comprising a handle, a support plate on said handle, a roller, means on said support plate journalling said roller thereto, a flexible fluid container on said support plate having outlet means in register with said roller, a plate pivoted to said means on said support plate and having a surface complementary thereto, a flange extending from said surface at an angle of approximately 120° and defining a juncture edge therewith and means connecting said container to said pivotally mounted plate so that the container passes beneath said juncture edge in supported relation to said support plate and beneath said pivotally mounted plate, said juncture edge extending across said pivotally mounted plate in proximate relation to said roller to control fluid flow through said outlet means, said outlet means including a plurality of parallel proximately spaced rows of uniformly and proximately spaced orifices with the orifices in adjacent rows being mutually staggered for even distribution of fluid onto said roller in response to pressure applied by said pivotally mounted plate.

3. A paint dispenser comprising a handle, a support plate on said handle, a roller, means on said support plate journalling said roller thereto, a flexible fluid container on said support plate having outlet means in register with said roller, a plate pivoted to said means on said support plate having a planar surface adapted to overlie said support plate and a flange extending from said planar surface at an angle of approximately 120° thereto to form a juncture edge, means connecting said container to said pivotally mounted plate so that the container extends beneath said juncture edge in supported relation to said support plate and beneath said pivotally mounted plate, said juncture edge extending across said pivotally mounted plate in proximate relation to said roller and cooperating with said support plate to control fluid flow through said outlet means, and a pressure control member pivotally mounted on said support plate for movement between a substantially upright position and a position overlying said support plate, said pressure control member being stepped to define successive angular positions for said pivotally mounted plate and said pivotally mounted plate being selectively engageable with successive stepped portions of said pressure control member to afford a desired pressure by said pivotally mounted plate on said container.

4. A fluid applicator comprising a handle, a roller, a support member on said handle having means journalling said roller, a flexible fluid container for fluid on said support member having outlet means in register with said roller, a plate overlying said container and said support member, and shaft means on said means journalling said roller, said plate having a pair of depending resilient brackets pivotally and releasably mounted on said shaft means to afford dispensing pressure on said container in accordance with the angular position of said plate, said handle being substantially coplanar with said support member.

5. A fluid dispenser comprising a roller, a handle having a support member, means journalling said roller to said support member, a plate journalled to said means journalling said roller, said plate having an upstanding flange adjacent said roller, a flexible paint container having outlet means in register with said roller and a pocket fitting over said flange to retain the container on said support member and beneath said plate, and said handle being substantially coplanar with said support member.

6. A fluid dispenser comprising a roller, a support member, means on one end of said support member journalling said roller, a handle on said support member coplanar with said support member and at an opposite end of said support member from said roller, said handle being perpendicular to said roller, a plate pivoted to said means journalling said roller, and a flange on one end of said plate and above said roller, and turned upwardly relative to said plate and said roller, said flange affording a connection for a fluid container which may be positioned on said support member and beneath said plate.

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