Jan. 1, 1963 R. G. MARTIN 3,070,824

FOUNTAIN PAINT APPLICATOR

Filed Aug. 3, 1959 2 Sheets-Sheet 1

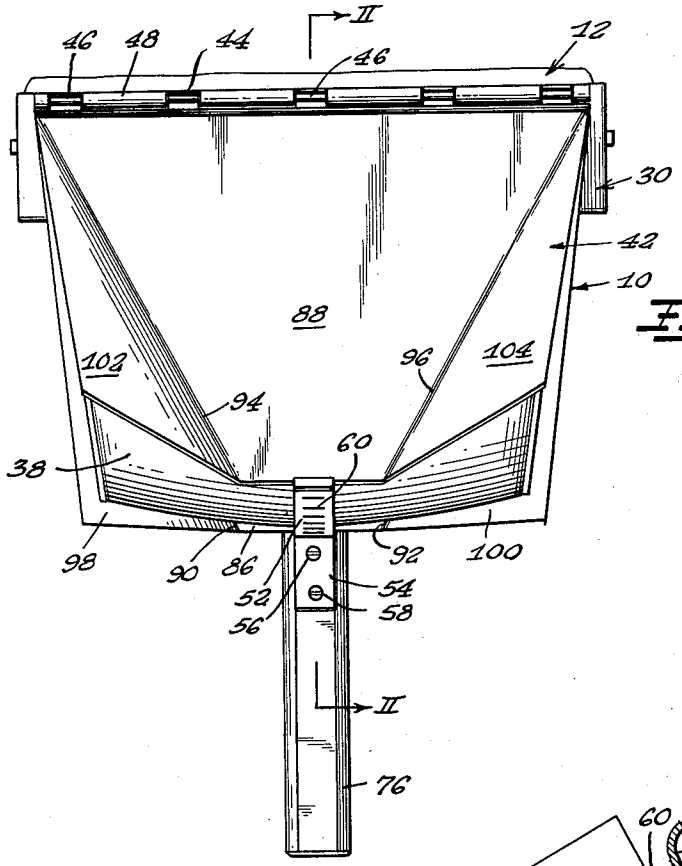
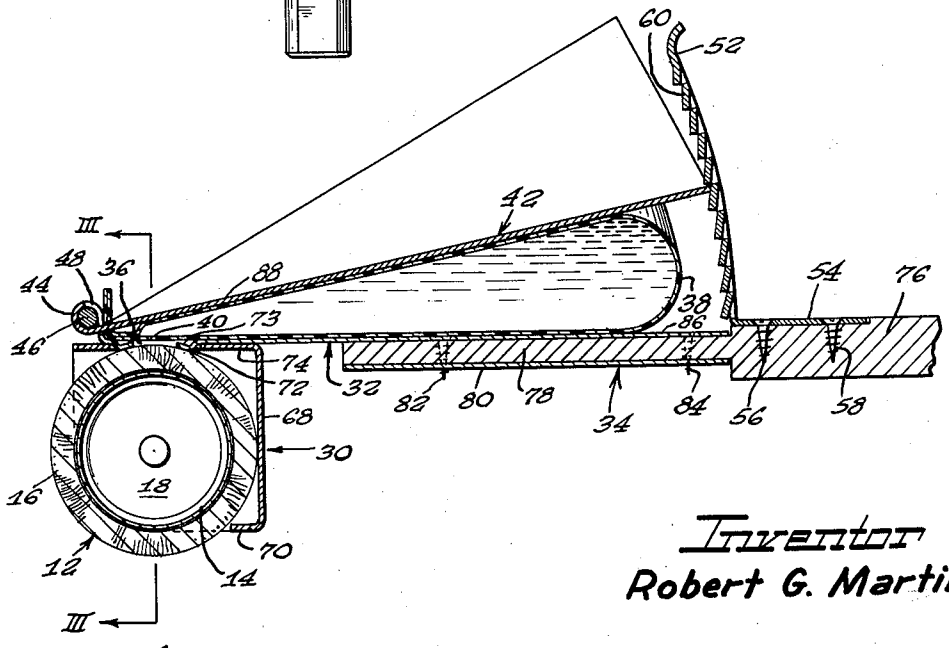


Fig. 1

Fig. 2



Inventor
Robert G. Martin

By Hill, Sherman, Meroni, Gross & Simpson Attys

Jan. 1, 1963 R. G. MARTIN 3,070,824

FOUNTAIN PAINT APPLICATOR

Filed Aug. 3, 1959 2 Sheets-Sheet 2

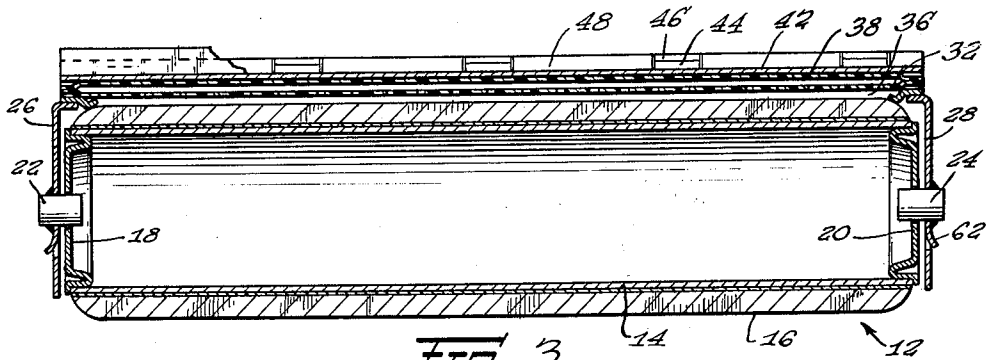


Fig. 3

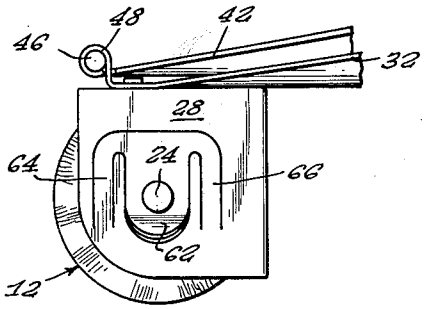


Fig. 4

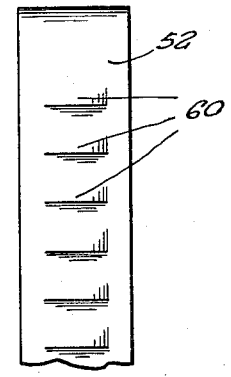


Fig. 5

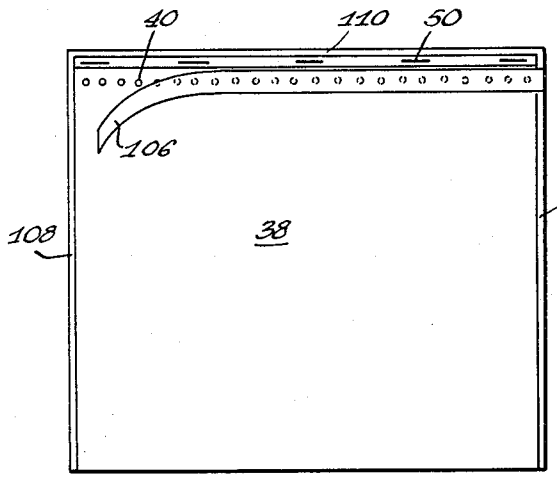


Fig. 6

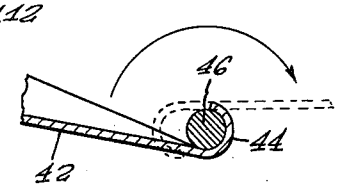


Fig. 7

Inventor
Robert G. Martin

By Hill, Sherman, Meroni, Gross, Simpson Attys

United States Patent Office

3,070,824

Patented Jan. 1, 1963

3,070,824

FOUNTAIN PAINT APPLICATOR

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

Filed Aug. 3, 1959, Ser. No. 831,238

5 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 of the amount of paint applied. Thus, it has been proposed to overcome those difficulties by forming a tank-like compartment on the roller handle with the handle itself being movable to collapse the tank and dispense the paint. This construction has the obvious disadvantage that changes in the force applied to the handle in moving the roller will cause the amount of paint dispensed from the tank to vary considerably. Also, a rather insecure purchase on the applicator is produced, and the pressure on the roller cannot be accurately controlled. It has also been proposed to use as the handle a collapsible bag holding the paint to be dispensed, with the paint being forced through a tubular extension to suitable outlet apertures adjacent the roller. Here again, the difficulty arises that the purchase or grip on the handle structure is not firm and the paint-dispensing pressure exerted on the bag will vary with the pressure used in actuating the roller. A further expedient has been to form a tank in the roller itself, but this unbalances the roller and also leads to unevenness in the application of the paint as a result of the difficulty in providing suitable outlet means in the roller.

The present invention resolves these problems by journalling the roller in fixed relation to the handle structure. A plastic bag containing paint is carried by a support pan mounted on the handle, an edge of the bag being notched or slit to engage over hinge projections of an upper pan pivotally secured to the lower pan in overlying relation to the plastic bag. The bag is also perforated along a surface thereof adjacent the notches therein, the perforations being covered by a removable strip which prevents egress of the paint during shipment and storage. The paint is dispensed by removing the strip and urging the upper pan pivotally downwardly against the bag; and in order to facilitate this operation means are provided for successive downward adjustment of the upper pan to hold the pan in a desired pressure relation to the bag without requiring the operator to apply the pressure except when making an adjustment. These means include an upwardly extending member secured to the handle and defining stepped elements for successive engagement with the rear edge of the upper pan. The upright member is preferably biased forwardly so as to hold the upper pan securely regardless of its angular relation thereto, while permitting a camming action to be effected from one step to the next lower step as the painting progresses.

Also in accordance with the invention, bracket means are provided for retaining the roller in journalled relation on the handle structure which include depending bracket flanges at each end of the roller to hold stub shafts removably received in opposite ends of the roller.

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 which 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 wherein the roller is journalled in a bracket structure fixedly secured to handle means for the applicator.

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 means for dispensing paint to the roller from the container are provided 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 an applicator as described in which the means for dispensing paint from the flexible container include an angularly adjustable pan and a pan carrying the container or bag so that a desired pressure can be applied to the bag by pressure on the adjustable pan.

Yet another object of the invention is to provide a paint applicator as described in which the roller may be releasably secured to the handle in journalled relationship thereto.

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 lines II—II of FIGURE 1;

FIGURE 3 is a vertical sectional view taken along the lines 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 front elevational view of adjustment means for providing a desired pressure on a paint container according to the invention;

FIGURE 6 is a bottom plan view of a flexible paint container according to the invention and showing means for sealing the container; and

FIGURE 7 is a fragmentary vertical sectional view of means for releasably securing pressure plate means to the dispenser.

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 receive coaxial stub-shafts 22 and 24. The stub-shafts 22 and 24 are carried by a pair of depending brackets 26 and 28 formed integrally with a bracket structure 30 which is secured by welding or other suitable means to a support pan or plate 32 fixedly secured to a handle structure 34, as hereinafter described.

The support plate 32 defines a transversely extending opening 36 immediately above the roller 12 and in order to dispense paint to the roller through the opening 36, plate 32 carries a flexible bag-like container 38 of plastic or other suitable material which defines a plurality of flow orifices 40 extending in predetermined speed relation along a front bottom surface thereof. The particular location of the orifices may, however, be varied within the scope of the invention.

In order to exert pressure on the container 38 such as to dispense fluids or paint through the orifices 40 and the opening 36, pressurizing means are provided comprising an upper pan or plate member 42 pivotally and hingedly secured to the front edge of the lower plate 32 by arcuate, axially spaced hinge members 44 releasably engaging a rod 46 carried by interposed hinge members 48 on the plate 32. The hinge members 44 preferably provide means for releasably retaining the bag 38 in position such that the orifices 40 register with the flow openings

36, and to this end, the front marginal edge of the bag 38 defines a plurality of slits 50 spaced to be removably mounted on the hinge members 44 prior to the engagement of the said hinge members on the rod 46, as hereinafter further set forth.

Although the pressure plate 42 may be manually operated in any suitable manner to dispense paint to the roller 12, the invention provides for means to maintain the plate 42 in a desired pressure relationship with the bag 38, comprising an upstanding spring member 52 having a right angularly and rearwardly extending foot portion 54 secured to the handle structure 34 by suitable screw elements or the like 56 and 58. The upright element 52 defines a plurality of holding elements in vertical, laddered arrangement therealong, these elements being designated by reference numeral 60 and preferably stamped or otherwise formed in offset relation to the plane of member 52 so that they extend in stepped, contiguous relationship therealong. The member 52 is preferably inclined slightly forwardly to correspond with the arc of movement of the member 42 as it pivots around the bar 46, so that the plate 42 may be cammed downwardly to be engaged by successive holding elements 60 as the bag 38 is gradually depleted. Adjustment of the plate 42 may be relatively infrequent, and when it is desired to release the plate to substitute a new bag, the member 52 need only be pivoted backwardly to a slight extent.

Desirably, the brackets 26 and 28 are cut out, as shown in FIGURE 4 with respect to bracket 28, to form a central tab 62 whose lower end is deflected outwardly for finger engagement and integral, upwardly extending arms 64 and 66 cooperating with the tab 62 to permit the said tab to be moved outwardly a greater distance than would be possible otherwise. Thus the major flexion upon pulling the tab 62 will occur at the base of the legs 64 and 66, rather than at the top of the tab 62, so that the tab will carry the stub shaft associated therewith outwardly sufficiently to permit the release of the stub shaft from the roller without bending the metal or fatiguing it permanently. Of course, the stub shafts could also be carried by the roller.

The bracket structure 30 also includes means for preventing paint from dripping from the roller inadvertently, comprising a rear wall 68 extending along the back of the roller 12 in contact with the paint retentive structure 16. The rear wall 68 has a forwardly extending flange portion 70 integrally formed therewith and a top wall portion 72 extending beneath the plate 32 and welded thereto or otherwise suitably connected in permanent supported relationship. The wall 72 defines a transverse slot portion 74 to receive the upper portion of the roller 12, while the plate 32 has arcuately upturned marginal flanges 73 on each side of its opening 36 which extends into the opening 74 in contact with the paint retaining structure 16. Thus when paint is extruded through the orifices 40, it will lie in a pool in the opening 36, but if an excessive amount of paint passes into the rear portion of the structure 30, it will be pressed by the rear wall 68 back into the structure 16

The handle structure 34 includes a grip portion 76 and a forwardly extending, relatively flat bracket portion 78, which may be covered on its lower face with suitable metallic material 80 if desired. The lower plate 32 is secured to the bracket portion 78 by suitable screw means or the like 82 and 84, which may also serve to retain the plate material 80 on the bracket portion 78.

The plate 32 and the plate 42 are preferably configured in complementary relationship to one another and are provided with flat central areas 86 and 88 respectively which are defined by inwardly converging fold lines 90 and 92 and 94 and 96 for winged flanges 98, 100, 102 and 104 extending upwardly and outwardly at corresponding angles. Thus the bag structure 38 is securely retained between the flanges 98 and 100 on the lower plate 32, while pressure exerted on the upper plate 42 by selective engagement of the plate in the notches 60 is distributed evenly across the bag and permits an even flow of paint from the orifices 40 at the front of the bag. The orifices 40 have a cross-sectional flow area which is calibrated in relation to the viscosity of the paint, and may, for example, be dimensioned to permit extrusion of paint therethrough only in response to pressure on the bag.

As may be seen in FIGURE 7 insertion and removal of the top plate 42 may be readily accomplished by pivoting the plate 42 forwardly so that the hinge flanges 44 overlie the rod 46. When in the position shown in dotted line in FIGURE 7, therefore the top plate 42 may be readily removed, and thereafter the bag structure 38 may be drawn outwardly from the hinge flanges 44.

In order that the bag structure 38 may be shipped or stored without danger of leakage of the paint therefrom, a flexible sealing strip 106 is provided which may be of plastic or the like and which extends in removably sealing relationship across the orifices 40, the underside of the strip 106 being provided with a suitable pressure-sensitive adhesive material or the like for this purpose. Thus when the bag 38 is to be inserted in the dispenser structure 10, the strip 106 is peeled from the bag, preferably after the bag has been connected to the top plate 42 as described.

The bag 38 may be formed in any suitable manner, and, for example, may be an extruded tube, a sleeve, or the like, but it is here shown as being formed of a rectangular blank which is folded over and heat sealed along the free edges thereof as indicated at 108, 110 and 112 respectively. The forward heat seal seam 110 may be relatively wide for the purpose of accommodating the slits 50 therein.

There has thus been provided a paint dispenser which is exceptionally simple and rugged in construction and is adapted for use in painting surfaces of all types without any limitations on the movement of the dispenser. Paint may be extruded at just the rate desired by placing the plate portion 42 at a position in the retainer member 52 such as to exert the requisite pressure on the bag structure 38, and it will be noted that this arrangement also serves to hold the bag 38 in position regardless of tilting or the like. Thus, the winged flanges 98 through 104 cooperate in holding the bag against lateral slipping. Because the roller 12 is mounted in a bracket structure 30 which is fixedly secured to the handle structure 34, there is a firm and even transferral of force from the handle to the roller during actuation of the applicator so that painting will be uniform and will not be disturbed by variation in the pressure on the roller as has been the case with prior art devices where the handle has been movable relative to the support for the roller. Assembly and disassembly of the device of the invention is accomplished with unusual ease as the result of the wide angle flexing afforded by the cut-out roller bracket portions 26 and 28 carrying the tabs 62, so that the roller 12 may be cleaned and reinserted whenever desired. In addition, the interior of the support structure 30 for the roller may also be readily cleaned, but is constructed to prevent the paint from escaping therefrom and to press it back into the roller during use. Furthermore, when the contents of a bag have been substantially used up, removal of the bag and replacement thereof may be accomplished simply by pivoting the member 42 away from the member 32 as shown in FIGURE 7 and thereafter slipping the bag off of the flanges 44, engaging the slits of a new bag with the flanges and pivotally connecting the plate to member 32 as described.

Although I have herein set forth and described my invention with respect to certain specific details and principles 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 roller, a bracket rotatably supporting said roller, a handle fixedly connected to said bracket, said roller being rotatable to spread paint in response to movement of said handle, a flexible bag defining a plurality of orifices extending therealong, means mounted on said handle for supporting said bag in a position where said orifices are in register with said roller and means having hinge elements hingedly secured to said means mounted on said handle, said bag having slots engaging said hinge elements, said means having said hinge elements being manually moveable for exerting a predetermined pressure on said bag to dispense paint through said orifices to said roller.

2. A paint dispenser comprising a roller, a bracket rotatably supporting said roller, a handle fixedly connected to said bracket, a flexible bag defining orifices extending therealong substantially for the width of said roller, means on said handle for supporting said bag in a position where said orifices are in register with said roller and facing downwardly towards said roller, and means for exerting a predetermined pressure on said bag to dispense paint through said orifices comprising a plate pivotally secured to said bag supporting means in proximate relation to said orifices, and overlying said flexible bag, said plate having a front edge forming a pivot locus, and a retainer comprising an upstanding element fixedly secured to said handle and defining successive holding means affording selective engagement of the rear end edge of said pivotal plate in a desired pressure relation to said bag.

3. A dispenser comprising a roller, a handle, means secured to said handle supporting said roller in journalled relationship thereto, a plate mounted on said handle and defining a marginal, laterally extending opening adjacent a forward edge thereof, a flexible bag mounted on said plate, a second plate pivotally secured to said first plate at the forward edge thereof, and means cooperating with said bag to hold said second plate in successive angularly spaced positions relative to said first plate whereby to afford a desired pressure engagement of said second plate on said bag, said bag defining a plurality of flow orifices adjacent a forward edge thereof for dispensing paint to said roller through said opening in said first plate and having a plurality of slits forwardly of said orifices, said second plate including hinge elements extending through said slits to retain said bag in position.

4. A paint dispenser comprising a roller having a shaft element releasably received in each end thereof, a handle structure supporting a flexible paint container having a paint dispensing opening therein and a flexible sealing strip removably adhering to said bag in sealing relationship to said opening, a bracket structure secured to said handle structure having a depending flange at each end thereof, said bracket flanges each defining a cut out tab having one of said shaft elements secured thereto and a leg element integral with the tab at one end thereof and with the bracket flange at the other end thereof, means on said handle supporting said bag in a position where said opening is in register with said roller, and means for exerting a predetermined pressure on said bag to dispense paint through said opening comprising a plate pivotally secured to said bag supporting means and overlying said flexible bag and a retainer comprising an upstanding element fixedly secured to said handle and defining successive holding means affording selective engagement of the rear end edge of said pivotal plate in a desired pressure relation to said bag.

5. A paint dispenser comprising a roller having a shaft element releasably received in each end thereof, a handle structure, a flexible paint container bag, said handle structure supporting said flexible paint container bag, a bracket structure secured to said handle structure having a depending flange at each end thereof, said bracket flanges each defining a cut out tab having one of said shaft elements secured thereto and a leg element integral with the tab at one end thereof and with the bracket flange at the other end thereof, means on said handle supporting said bag in a position where said opening is in register with said roller, and means for exerting a predetermined pressure on said bag to dispense paint through said opening comprising a plate pivotally secured to said bag supporting means and overlying said flexible bag and a retainer comprising an upstanding element fixedly secured to said handle and defining successive holding means affording selective engagement of the rear end edge of said pivotal plate in a desired pressure relation to said bag.

References Cited in the file of this patent

UNITED STATES PATENTS

840,308	Garrecht	Jan. 1, 1907
922,947	Porter	May 25, 1909
1,242,165	Fitzgerald	Oct. 9, 1917
1,550,052	Anderson	Aug. 18, 1925
1,562,377	Spielman	Nov. 17, 1925
1,744,902	Johnston	Jan. 18, 1930
2,379,475	Campfens et al.	July 3, 1945
2,637,272	Hesson	May 5, 1953
2,758,364	McMillan	Aug. 14, 1956
2,766,473	Thackara	Oct. 16, 1956
2,769,578	Johnson	Nov. 6, 1956
2,789,729	Johnson	Apr. 23, 1957
2,824,326	Ames	Feb. 25, 1958
2,864,108	Johnson	Dec. 16, 1958
2,882,542	Martin	Apr. 21, 1959
2,891,301	Conklin	June 23, 1959
2,903,161	Stahmer	Sept. 8, 1959
2,935,757	Phillips	May 10, 1960

FOREIGN PATENTS

958,422	France	Sept. 12, 1949