June 4, 1957 H. A. SCHUELER 2,794,199

PAINTING EQUIPMENT

Filed Feb. 26, 1952 2 Sheets-Sheet 1

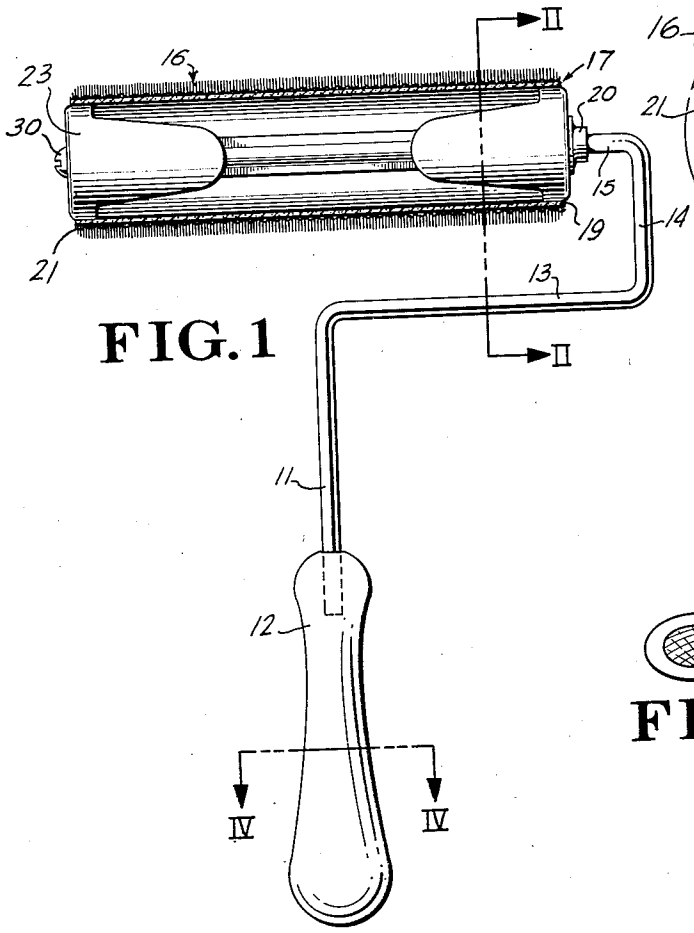


FIG. 1

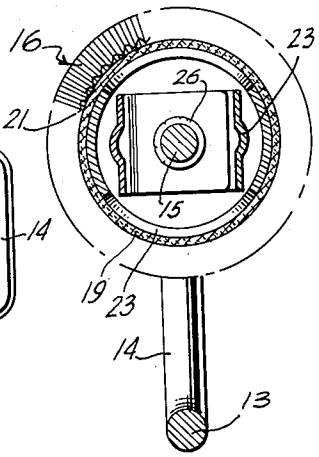


FIG. 2

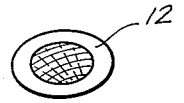


FIG. 4

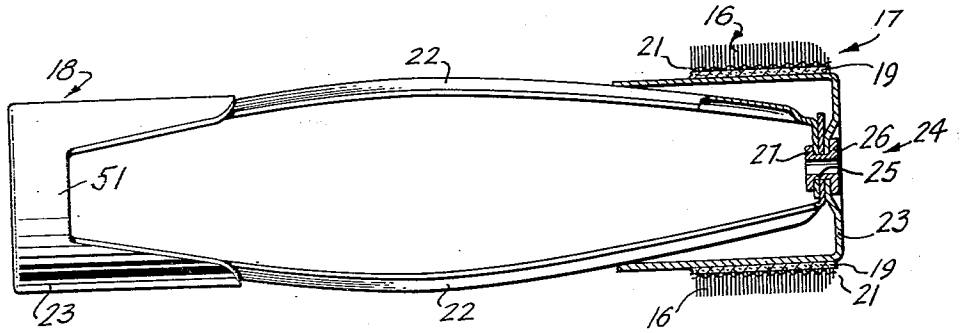


FIG. 3

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PAINTING EQUIPMENT

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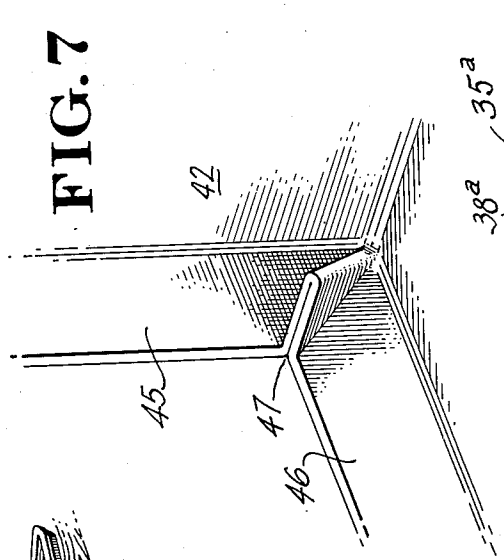


FIG. 7

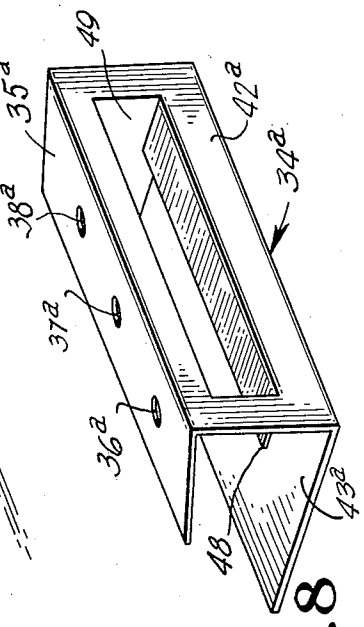


FIG. 8

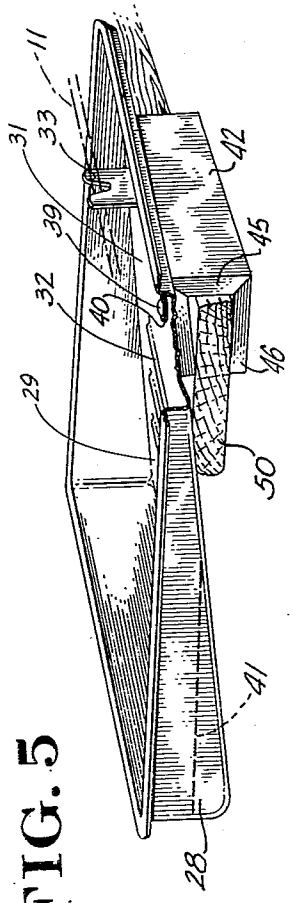


FIG. 5

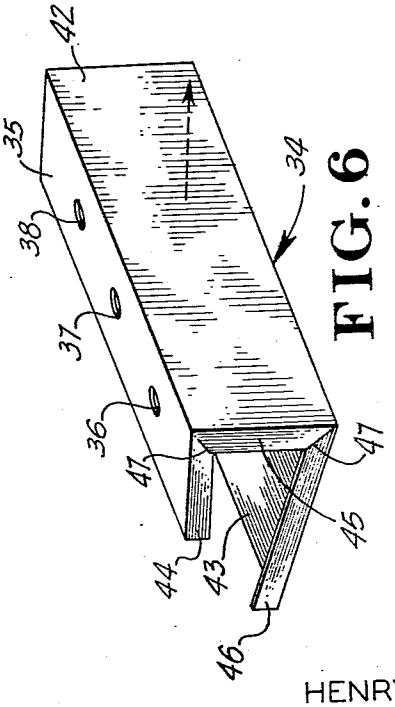


FIG. 6

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2,794,199

PAINTING EQUIPMENT

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Application February 26, 1952, Serial No. 273,397

5 Claims. (Cl. 15—121.3)

This invention relates to painting and decorating equipment, and has particular reference to a roller for spreading paint or other coating liquid, or semi liquid, or impressing or stippling a design upon a flat surface, and a pan or tray for applying such liquid to said roller.

The principal object of my invention, generally considered, is to provide painting equipment comprising an improved paint roller applicator, and a pan for spreading paint evenly over the entire peripheral surface of the roller, thereby avoiding undesired dripping during operation.

Another object of my invention is to provide a paint roller comprising a rod formed wtih a handle portion, an axle portion disposed at an angle thereto, a roller with a paint-absorbent cover mounted by bearing members for rotation on said axle portion, cap members and a pair of resilient spacer bars bowed away from each other, the ends of which are respectively secured to each other and to said cap members by said bearing members riveted thereover, said roller being internally engaged and resiliently held in place between its ends by said bowed spacer bars.

A further object of my invention is to provide for use with a roller, such as above described, a metal pan for holding and applying paint to the absorbent cover of said roller, said pan comprising a bottom wall from which upstand side and end walls defining a reservoir, the side walls being spaced apart only slightly more than the length of the roller, the end walls being spaced a greater distance apart, and a device for elevating one end of the bottom wall above the other end, comprising a channel-shaped metal member with a web to stand upright at one end of said bottom wall, a relatively narrow flange to directly underlie and connect with said wall, a relatively wide flange to engage the top of a support, and a relatively short flange extending directly from, and at right angles to, at least one of the web and the relatively wide flange, to form an element engageable with the bottom of the support.

A still further object of my invention is to provide a paint roller with resilient members extending longitudinally thereof and arranged to frictionally engage its internal surface between its ends so as to hold it in position.

Other objects and advantages of the invention will become apparent as the description proceeds.

Referring to the drawing:

Figure 1 is an axial sectional view, with parts in elevation, of a paint roller embodying my invention.

Figure 2 is a transverse sectional view on the line II—II of Fig. 1, in the direction of the arrows.

Figure 3 is an elevational view, with parts in axial section, of the roller head comprising end caps and spacer bars which resiliently hold the roller cover or hollow cylindrical paint-carrying portion, a fragmentary part of which is shown in axial section.

Figure 4 is a transverse sectional view on the line IV—IV of Figure 1, in the direction of the arrows.

Figure 5 is a perspective view of the paint tray or pan, with the near corner broken away to more clearly illustrate the structure, and also showing a supporting device or foot associated therewith for holding it in position, either on a table or on a step ladder or similar support.

Figure 6 is an enlarged diametric view of the foot separate from the pan of Fig. 5.

Figure 7 is a further enlarged inside corner detail diametric view of the foot, generally in the direction of the dotted arrow in Fig. 6.

Figure 8 is an enlarged diametric view of a modified form of foot or device for holding a paint pan in position.

The invention to be subsequently described in detail involves structural refinements in a paint roller and accompanying pan or tray used for the application of paint or other coating liquid and/or for impressing or stippling of a design upon a flat surface.

The roller of my invention is so constructed that the head may carry a removable pile roller cover. That is, the cover is easily removed for cleaning or discarding purposes. The ease of replaceability, in combination with a spring tension feature hereinafter described, are important features of the invention.

Referring now to the drawings in detail, like parts being designated by like reference characters, and first considering the roller device illustrated in Figs. 1 to 4, inclusive, there is shown a rod **11**, one end of the main or hand-adjacent portion of which is provided with a desirably wooden handle **12**, of a shape oval or elliptical in section, as shown in Fig. 4, which comfortably fits the user's hand, and from which the rod **11** extends, a convenient distance. It is then bent at a right angle as indicated at **13**, again at a right angle to form a portion **14** parallel to the handle-connected portion, and then at a right angle to form a portion **15** parallel to the portion **13**. This portion **15** provides an axle or journal on which is mounted a paint roller, generally designated **16**. The axle portion is provided with a stop member or portion **20**, which may be a hollow cylinder fitting the axle and fastened thereto. The member **20** desirably has an end flange facing the associated roller **16**.

The paint roller **16** has a paint-dispersing hollow cylindrical cover portion **17** which may be formed of a convenient length and diameter, depending upon the area to be painted and the depth of the pile thereon. This cover portion **17** slides over and is resiliently held on the roller head **18**. It is desirably formed as a core **19** covered with a fabric **21** possessing a pile of Dynel, nylon, Orlon, or similar synthetic or natural material which holds the desired amount of paint or other coating material. The depth of this pile may be short or long depending on the type of coating material used.

The core **19** of the roller cover is desirably formed of resin plastic-impregnated heavy paper tubing that will not absorb or be affected by paint, and will not disintegrate, crack, rust or dissolve throughout a normal life. A suitable material is that sold under the name "Clevelite" grade EE tubes. The fabric **21** is cut to a desired size and fastened to the core portion in any desired manner, as by means of a suitable adhesive, preferably in a spiral fashion. The spiral winding of the fabric is employed to eliminate undesirable breaks in its continuity.

The roller head **18** comprises a pair of oppositely arched spacer bars **22**, desirably straight or flat transversely except for a central strengthening rib or channel, as illustrated, the ends of which are bent toward one another and connected to end caps **23** by means of bearing members **24**. The bearing members are each desirably initially formed as hollow cylindrical portions **25** functioning also as rivet shanks, and a relatively-wide flange or

head **26** at the outer end. They are assembled with the end caps **23** and the spacer bars **22** by passing them through registering apertures thereof and having the ends of the cylindrical portions **25**, opposite the flange portions **26**, riveted over as indicated at **27**, thereby simultaneously connecting the spacer bars to one another and to the end caps. These spacer bars, before or after assembly, are desirably formed so that when stress-free or in normal position they are bowed away from each other to normal spacing distance, as shown in Fig. 3, so that they are compressed to an adjustable desired extent upon application of the roller member **16**, thereby holding said roller member frictionally in position. This frictional holding effect is augmented by making each spacer bar wide enough as viewed in Figure 2, to subtend nearly 90°, so that its side edges may bite into the inner surface of the hollow cylindrical paint-dispensing portion at four approximately evenly spaced positions around the periphery. The central strengthening rib of each bar **22** is desirably sufficiently shallow, as illustrated, to not interfere with such edge engagement.

The end caps **23**, however, are formed to exert no pressure outwardly on the roller member, merely serving to prevent entry of paint thereinto, as guides for application of said roller member, and as protection for the enclosed ends of the spacer bars. The inner ends of said caps **23** are each formed with two laterally-spaced tongues desirably extending inwardly beyond the cap flange **51** into respective engagement wtih the spacer bars **22**, as shown most clearly in Fig. 3. These spacer bars are desirably formed of resilient material, such as steel, preferably the stainless variety to avoid rusting, or spring brass. However, I do not wish to be limited to the material as other metals, including aluminum, may be employed. The end caps are desirably formed of aluminum for lightness, as no resiliency thereof for holding the cover portion in place is relied on. The bearing members **24** are desirably formed of bronze or brass, and the rod **11** of steel, desirably plated or galvanized if not formed of a non-rusting material. The assembled roller **16** may be held in place on the axle portion **15** against the stop **20**, by a screw **30** threaded into the end of said axle portion.

The pan or tray **28**, illustrated in Fig. 5, is formed of sheet metal, desirably of light material such as aluminum, and of a width to just accommodate the roller and its axle portion without unnecessary clearance. It is of a shape to provide a reservoir or well, to contain the paint or coating material, with its bottom extending from a deep portion **29** to a shallow portion **31**. The bottom wall at the shallow portion **31** is desirably formed with corrugations or embossments **32** of desired depth, serving the purpose of extruding excess amounts of coating material from the roller cover, and to better distribute said material thereover. At the shallow end, I desirably provide an upstanding lip **33**, with bifurcations defining a V-shaped notch of such size and acute angularity as to bitingly receive and frictionally grip the rod **11** (shown in dot-dash lines) of the roller **16** and adjustably hold it in a desired position on the sloping bottom of the tray, when said roller is in a position of rest.

In order to perform the double function of holding the tray with the upper edges of its side walls horizontal and the bottom wall or floor sloping at a desired angle, when resting on a support such as a table, as well as for holding such a tray in similar position from the top of a step ladder by having a portion engaging the under surface of the top step **50** thereof, I provide a foot or inclining device **34**, also shown separate from the pan in Fig. 6, U-shaped in cross-section. The foot **34** comprises an upper flange **35**, normally inclined like the bottom of the pan **28**, apertured as indicated at **36**, **37** and **38** to receive connecting means or bolts **39** which pass through corresponding apertures in the bottom of the tray **28** adjacent its shallow end, for holding said foot thereon. Associated with the bolts **39** may be washers or gaskets **40** to prevent leakage through the pan apertures, although it will be understood that these apertures are generally above a normal paint level, indicated at **41**.

Depending from the flange **35** is a normally vertical web **42** and extending from the bottom edge thereof is a normally horizontal flange **43**, desirably wider than the flange **35**. For stiffening the angles between the web **42** and its flanges, the ends of all of said portions are desirably bent over to provide flanges **44**, **45** and **46** at each end of the foot member. The flange **46** has a normally horizontal top edge. These flanges are desirably connected together, as by having overlapping portions spot welded, or by having the portions at the meeting points upset inwardly, as indicated by the diagonal lines **47**, and as shown in detail in Fig. 7 to take care of the excess material at such places. As an alternative, the flanges may be cut apart before bending the foot to U-shape, and a tab on one flange, formed to fit a slit in the adjacent flange, inserted in said slit and bent over, to thereby hold the parts rigidly in position, after bending to the illustrated shape.

Referring now to Fig. 8, there is shown an alternative form of foot or support **34a** comprising an upper flange **35a**, normally sloping like the bottom of a pan to be supported, provided with apertures **36a**, **37a** and **38a** like the foot of the preceding embodiment for connection with a pan, such as that designated **28**, in a simliar manner. In the present embodiment however, the foot **34a** although having a lower, relatively-wide normally-horizontal flange **43a**, is not provided with end flanges, the desired supporting function being taken care of by slitting and bending from the normally-vertical web **42a** a flange **48**, to normally-horizontal position, which leaves a corresponding aperture **49** in the web. In the present embodiment the upper surface of the flange **48** is disposed at the proper distance below the flange **35a**, corresponding with the distance between the upper edge of the flanges **46** and the flange **35** of the preceding embodiment, so as to engage the under surface of a support, such as the top **50** of a step ladder, for holding a connected pan in desired position.

Although I have disclosed a special form of pan **28** for use in applying paint to a roller and a foot for holding the pan with its bottom inclined and the top edges of its side walls horizontal, yet as an alternative I may use such a foot with an ordinary baking pan, of the proper size for receiving the roller, but with rectangular, rather than tapering side walls, and end walls of equal depth. In such a case, however, the pan when in use would be desirably connected at one end to a foot of one of the forms disclosed, to have one end elevated above the other so as to provide the desired sloping bottom. Such a pan could conveniently be one of the well-known commercial type in which the metal forming the walls and bottom is dimpled or rippled over its entire surface and tin plated, whereby rusting would be avoided.

From the foregoing disclosure it will be seen that I have devised improved painting or coating apparatus, involving a paint roller having a head comprising spring members with sufficient resiliency to frictionally engage and hold the roller cover in desired position, while not interfering with ease of application and removal, "mushroom" type bearings being provided which perform the additional function of rivets holding the ends of the spring spacer members to the desirably aluminum end caps which prevent entry of paint or coating material inside of the roller cover. For use with such a roller I provide a desirably light metal or aluminum tray with U-shaped means of sheet metal, light but strong enough to hold its bottom wall in a sloping position, either when resting on a flat surface such as a table, or when sup-

ported by engaging the under surface of the top of a step ladder.

Although preferred embodiments of my invention have been disclosed, it will be understood that further modifications are contemplated. It will also be understood that although I have mentioned tubes manufactured by the Cleveland Container Corp., of Cleveland, Ohio, under the trademark "Clevelite" grade EE, as desirable for use in the manufacture of my roller, I do not wish to be limited to the use of such material.

I claim:

1. In equipment of the character described, in combination, a rod comprising a handle portion and an axle portion disposed at an angle thereto, a roller mounted for rotation on said axle portion, said roller consisting of a tubular member covered with paint-holding material, a cap member adjacent each end of said axle portion and each formed with a cylindrical flange terminating in a pair of laterally-spaced tongues extending inwardly toward the other cap, a bearing journalled on said axle portion for each cap member, and a pair of resilient spacer bars, generally flat transversely but each provided with a longitudinally-extending rib for strengthening purposes, normally bowed away from each other an adjusted distance into engagement with said tongues so as to be bent toward one another for exerting the desired expansive action as said tubular member is applied thereover, the spacer bars being wide enough to subtend nearly 90° so that their edges may bite into the inner surface of the paint-holding portion at four approximately evenly spaced positions around the periphery, the ends of which bars are respectively secured to said cap members by said bearing members riveted thereover, said tubular member being thus internally engaged and resiliently held in place at portions between its ends by said bowed spacer bars.

2. A roller device adapted for the application of paint and the like, comprising a rod shaped to form a handle portion and an axle portion disposed at an angle thereto, a roller frame structure mounted for rotation on said axle portion, said structure consisting of a cap member adjacent each end of said axle portion and each formed with a cylindrical flange terminating in a pair of laterally-spaced tongues extending inwardly toward the other cap, a bearing journalled on said axle portion for each cap member, and a pair of resilient spacer bars, generally flat transversely but each provided with a longitudinally-extending rib for strengthening purposes, normally bowed away from each other an adjusted distance into engagement with said tongues, so as to be bent toward one another for exerting the desired gripping action on a cooperating paint-holding portion when applied thereover, said spacer bars being wide enough to subtend nearly 90° so that their edges may bite into the inner surface of the paint-holding portion at four approximately evenly spaced positions around the periphery, the ends of said bars being respectively secured to said cap members by said bearing members riveted thereover.

3. In equipment of the character described, in combination; a roller comprising a metal rod formed as a handle portion of appreciable length and an axle portion disposed substantially at right angles to one another, a roller head mounted for rotation on said axle portion, and a paint-absorbent cover therefor; and a metal pan for holding and applying paint to said roller, said pan comprising a sloping bottom wall on which said roller head is adapted to rest, the upper end of said bottom wall terminating in a bifurcated portion defining a V-shaped notch, the angle of which is so acute that said handle portion is bitingly receivable therein at a plurality of positions, and undesired slippage from a selected position thereby prevented in spite of the bottom wall slope.

4. The invention as defined in claim 3, in which the slope of the bottom wall is effected by a channel-shaped member with a web to stand upright under the top end of said sloping bottom wall and of a width corresponding with the superelevation desired, and a relatively short flange extending directly from, and at right angles to, one portion of said channel-shaped member to form an element to engage the bottom of a support.

5. The invention as defined in claim 3, in which side and end walls upstand from the bottom wall for defining a reservoir, the side walls being spaced apart only slightly more than the length of the roller head, the end walls being spaced a greater distance apart, and a device for sloping said bottom wall comprising a channel-shaped metal member with a web to stand upright under one end of said bottom wall, a relatively narrow flange to directly underlie and connect with said wall, a relatively wide flange to engage the top of a support, and a relatively short flange extending directly from and at right angles to at least one of the web and relatively wide flange, to form an element to engage the bottom of a support.

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