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PRESSURE-FED PAINT APPLICATION

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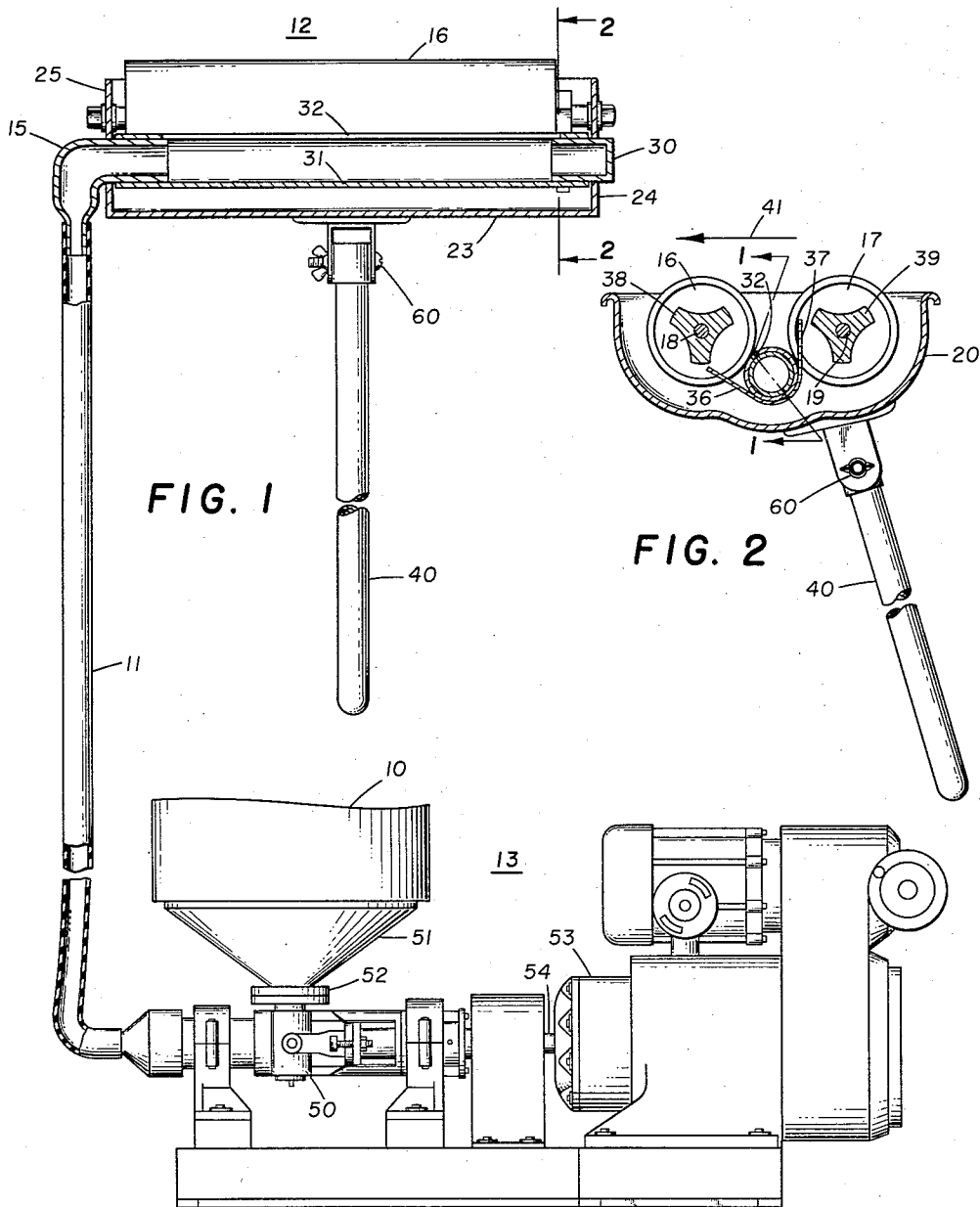
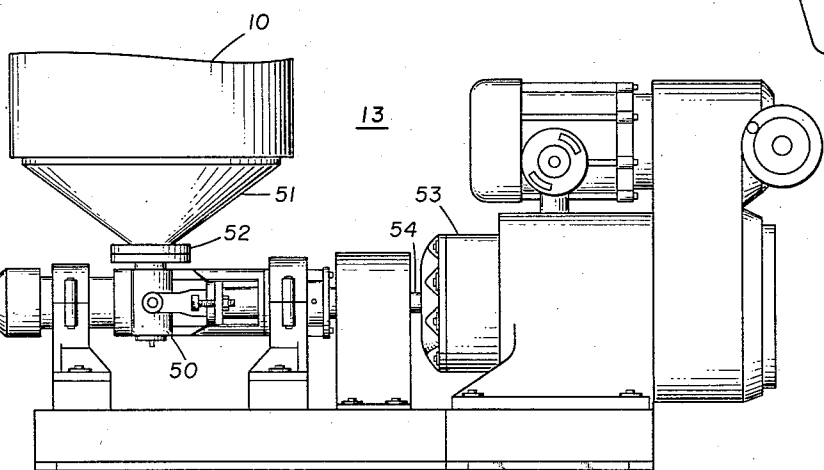


FIG. 1

FIG. 2



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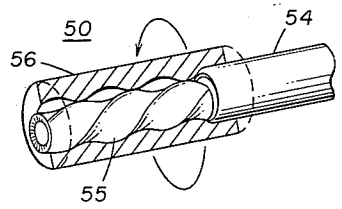


FIG. 3

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PRESSURE-FED PAINT APPLICATION
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This invention relates to paint roller devices and more particularly to a pressure-fed paint roller in which supply is maintained on the lead portion of a roller.

The development of synthetic paints and new wall covering compositions has led to widespread use of rollers for application to flat surfaces. The use of rollers permits substantial increase in the total productivity of a given artisan. Furthermore, there is assured surface coverage through the repeated traverse of a roller over a given surface area.

In all such operations, it is desirable to minimize the various motions necessary on the part of the painter in order to maximize his production. The usual paint roller requires repeated return to a supply tray in order to coat the roller and thereby permit coating or covering of successive relatively small areas.

The present invention is directed to a system in which a supply may be provided continually to a pair of rollers through a low pressure supply system with the supply being provided to the roller surfaces adjacent to the portions thereof approaching the wall surface.

In accordance with the invention, there is provided a roller means for applying a liquid wall covering. Means are provided for delivering the liquid to a face of the roller means together with means operable upon rotation of the roller means to change the point of delivery of the liquid to the roller means. Preferably, the point of delivery is at the leading portion of the roller means. In a two roller system the point of delivery will always be to the lead roller.

For a more complete understanding of the present invention and for further objects and advantages thereof, reference may now be had to the following description taken in conjunction with the accompanying drawings in which:

FIGURE 1 is a diagram partially in section showing a paint system involving the present invention,

FIGURE 2 is a sectional view taken along the lines 2—2 of FIGURE 1, and

FIGURE 3 is a diagrammatic view of one form of pump as may be employed in the system of FIGURE 1.

Referring now to the drawings, there is illustrated a system for maintaining a continuous supply of a wall covering fluid such as paint from a supply bucket 10 which is shown partially cut away. The paint or liquid in the supply container 10 is to be applied by way of the hose 11 to a roller system 12. For the purpose of the present description, it will be understood that a suitable pump system 13 is provided for delivering paint or liquid from the container 10 through the hose 11 to the applicator system. The hose 11 is connected to a feed tube 15 which extends parallel to the axes of two rollers 16 and 17. The rollers 16 and 17 are mounted on shafts 18 and 19 respectively. The shafts are supported by an upfacing trough 20 having a curved wall body portion 23 and vertically oriented side portions 24 and 25. The shafts 18 and 19 are journaled in the end plates 24 and 25 so that they are maintained in a predetermined, spaced-apart, parallel relationship. The tube 15 extends through the end plate 25. A stub or short tube 30 aligned with tube 15 extends through the end plate 24. A slotted casing 31 is mounted on tubes 15 and 30 inside the housing 23. An elongated slot 32 is formed along the length of the casing 31 so that liquid fed from the supply container 10 through the hose 11 is introduced into the casing 32 and may emerge from the casing 32 as to be picked up by rollers 16 and 17.

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The casing 31 has a pair of dogs such as spring arms 36 and 37 mounted thereon. The shaft 18 is provided with a gear 38 at the end adjacent the end plate 24. The gear 38 is keyed to the shaft 18. Similarly, a gear 39 is mounted on the end of shaft 19 and is keyed to the shaft. The ends of the dogs 36 and 37 are adjacent to the gears 38 and 39. They are so adjusted that the casing 31 will be rotated on pivots provided by tube 15 and tube 30, so that the slot 32 will be adjacent to the leading one of the two rollers 16 and 17. By this means the roller may be positioned adjacent the wall or a ceiling by an operator who grasps the handle 40. It may then be moved backwards and forwards. As this movement is progressive, paint is supplied to the lead roller regardless of direction. For example, when the unit is moved in direction of arrow 41, the slot 32 is adjacent the surface of roller 16 so that as the roller is progressed, paint is applied to the lead surface of the roller 16 and thus to the wall or ceiling surface. If the direction is the reverse of arrow 41, then the gear 38 engages the end of the dog 36 to rotate the casing 31 so that the slot 32 is adjacent to the surface of the roller 17. The housing 23 serves to minimize spilling or dripping of the paint material from the roller system and thus assists in the expeditious application of a wall covering.

In accordance with one aspect of the invention, the paint is delivered from container 10 through the use of a low-velocity, low-pressure pump 50 which is fed by way of a funnel 51. The funnel 51 may be connected as at 52 after replacing the lid as to be coupled to a paint bucket. The funnel 51 may be secured to the bucket in the same manner as the lid so that a minimum of time and effort are required in accommodating the system to the conventional supply means. A motor 53 is provided to drive the pump 50. The shaft 54 serves to couple the motor 53 to the pump. The pump may be of the type shown in cut-away form in FIGURE 3, where a worm 55 is operatively positioned within a spiral cavity housing 56. The pump may be of the type known in the art as a Moyno pump.

While the ratchet mechanism illustrated in FIGURES 1 and 2 for changing the point of supply from the casing 31, has been shown in detail, it is to be understood that other forms of shifting mechanisms may be employed. In one embodiment of the invention, however, the gears 38 and 39 were on a plastic section with the dogs 36 and 37 being in the form of a single resilient strip secured to the casing 31. The shafts 18 and 19 as well as the tubes 15 and 30 may be made readily detachable so that the entire system may be disassembled for ready cleaning.

Handle 40 is secured by coupling 60 to the unit 12. The coupling preferably permits swivel action to facilitate long strokes of the unit with minimum change in position of an operator. The coupling may take alternative forms such as shown by U.S. Patent 2,187,585.

The members 15 and 30 may be removable to facilitate cleaning.

Having described the invention in connection with certain specific embodiments thereof, it is to be understood that further modifications may now suggest themselves to those skilled in the art and it is intended to cover such modifications as fall within the scope of the appended claims.

What is claimed is:

1. In roller type coating system with forced fluid delivery, the combination which comprises:
 - (a) a pair of rollers mounted for reciprocation in tandem over a surface to be coated,
 - (b) a fluid delivery member mounted between said rollers having a limited flow port means through which said fluid flows, and
 - (c) means responsive to reversal of movement of said rollers to actuate said delivery member to change the location of said flow port means from a position

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adjacent to the surface of one of said rollers to a position adjacent to the surface of the other of said rollers.

2. In roller type coating system with forced fluid delivery, the combination which comprises:

(a) a pair of rollers mounted for reciprocation in tandem over a surface to be coated,

(b) a fluid delivery member between said rollers having an elongated slot through which said fluid flows, and

(c) means responsive to reversal of movement of said rollers to actuate said delivery member to change the location of said slot from a position adjacent to one of said rollers to a position adjacent to the other of said rollers.

3. In roller type coating system with forced fluid delivery means, the combination which comprises:

(a) a pair of rollers spaced one from the other with their axes parallel,

(b) a fluid delivery tube mounted between and parallel to said rollers having an elongated slot through which said fluid flows, and

(c) means responsive to reversal of movement of said rollers to rotate said tube to change the location of

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said slot from a position adjacent to the surface of one of said rollers to a position adjacent to the surface of the other of said rollers.

4. In roller type coating system having forced fluid delivery means therein, the combination which comprises:

(a) a pair of rollers,

(b) an open faced receptacle supporting said rollers for reciprocation in tandem over a surface to be coated,

(c) a delivery tube having an elongated flow channel means through which said fluid flows,

(d) gear means at the end of each roller, and

(e) resilient means secured to said tube and extending toward said gear means and operable upon reversal of motion of said rollers to move said delivery member to change the location of said flow channel from a position adjacent to the surface of one of said rollers to a position adjacent to the surface of the other of said rollers.

References Cited in the file of this patent

FOREIGN PATENTS

504,824	Italy	Dec. 14, 1954
793,449	Great Britain	Apr. 16, 1958