April 22, 1947. J. C. DE MARCO 2,419,338

PORTABLE PAINT APPLYING DEVICE

Filed Oct. 4, 1943

Fig. 1

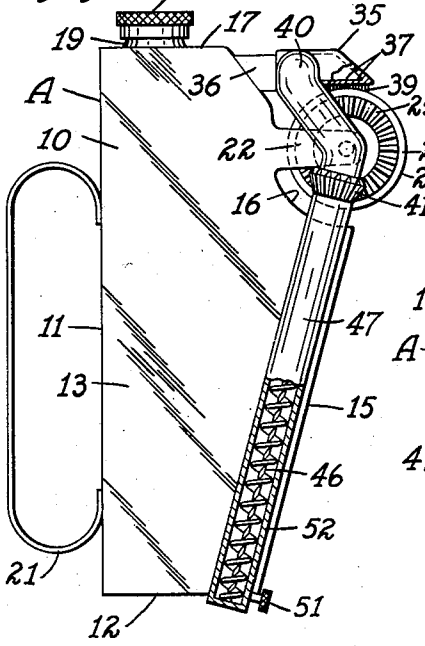


Fig. 2

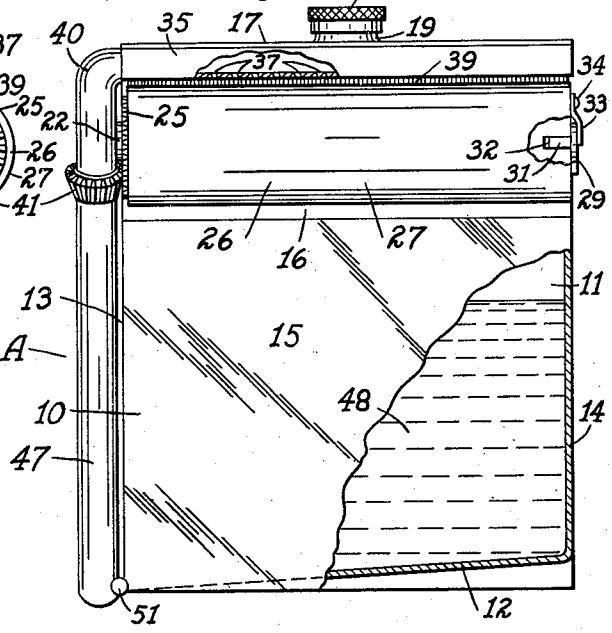


Fig. 3

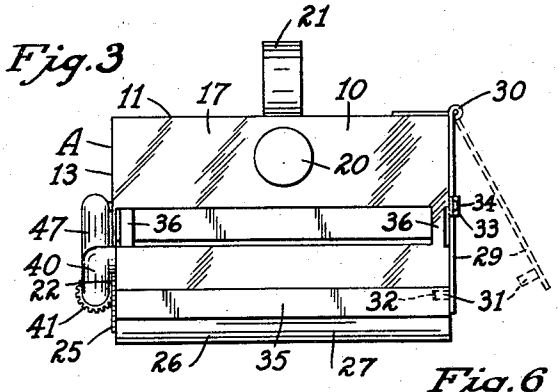


Fig. 4

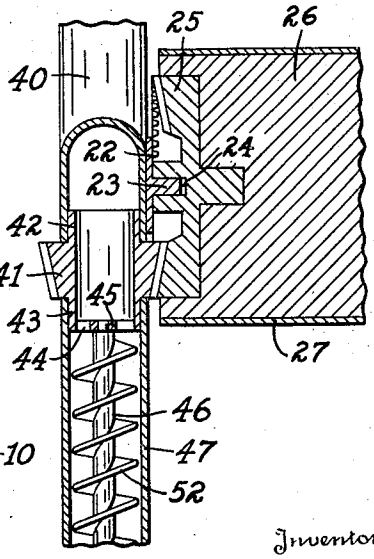


Fig. 5

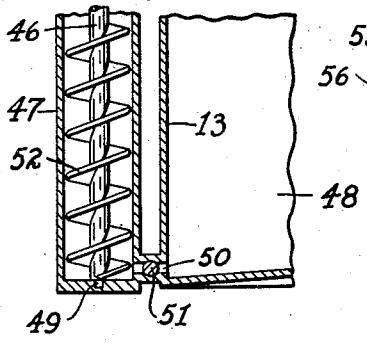
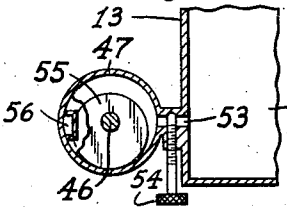


Fig. 6



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PORTABLE PAINT APPLYING DEVICE

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10 Claims. (Cl. 91—62.5)

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My invention relates to an improvement in paint roller, wherein it is desired to provide a roller of the fountain type for use in applying paint or similar material to a flat surface.

In recent years, various types of paint have become popular, which may be effectively applied by means of a roller having a soft surface. In most instances this roller was dipped in an open container of paint and merely rolled upon the wall, the roller spreading the paint into a thin film evenly over the wall surface. The paint is of such a type as to flow evenly when thus applied.

It is an object of the present invention to provide a device arranged to accomplish the same purpose, but without the necessity of constantly dipping the roller into a shallow container of paint. As a result not only is the paint protected from the air, but also considerable time and work are saved.

A feature of the present invention lies in the provision of a roller for applying paint or the like, which is equipped with a pump device capable of lifting paint from a paint reservoir onto the surface of the roller. The pump device is connected with the roller in such a way that the pumping means operates faster when the roller travels at a greater speed. Therefore, the proper supply of paint is at all times delivered to the surface of the roller regardless of the rate of speed at which the roller is operating.

A further feature of the present invention lies in the provision of a roller having a paint supplying mechanism, such as a bristle brush, engaging the exterior surface of the roller so as to spread the paint uniformly on the surface thereof. The paint is fed through this bristle brush onto the surface of the roller.

A further feature of the present invention lies in the provision of a paint roller equipped with a reservoir of sufficient size to contain a supply of paint sufficient to cover a considerable area. Accordingly the reservoir need only be supplied with a fresh supply of paint after an area of some size has been painted.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a side elevational view, partly in section, illustrating the construction of my paint roller.

Figure 2 is a front elevational view of the roller illustrated in Figure 1.

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Figure 3 is a top plan view of the paint applying device illustrated in Figures 1 and 2.

Figure 4 is a sectional view through one end of the paint applying roller, and the connection between this roller and the pumping apparatus showing the construction thereof.

Figure 5 is a sectional view through the lower end of the pumping apparatus showing the arrangement thereof.

Figure 6 is a sectional view of a modified form of construction of pumping apparatus.

The paint applying device or paint roller A comprises in general a reservoir 10 provided with a flat rear wall 11, a bottom wall 12 at substantially right angles to the rear wall and sloping toward one side wall, and side or end walls 13 and 14. An outwardly and upwardly inclined forward wall 15 terminates at a point substantially below the level of the upper edge of the rear wall 11, and a concaved wall 16 connects this sloping forward wall 15 to the top cover wall 17. The top cover wall 17, the rear wall 11, the bottom wall 12, the front walls 15 and 16, and the side walls 13 and 14 are all connected together in any suitable way, such as by soldering, or the like, to form a closed container. A filling sleeve 19 is mounted on the top wall 17 and is normally closed by a cap or plug such as 20.

In order to properly manipulate the paint applying device I provide a handle 21 which may be secured in any suitable manner on the rear wall 11 of the reservoir. By means of this handle the paint applying device may be readily moved along the surface of a wall.

An arm 22, integral with the side wall 13, extends forwardly from the concave portion 16 of the front wall to support one end of the paint applying roller. A pin 23 on the arm 22 engages into a socket 24 in the hub of a beveled gear 25. This beveled gear 25 is supported in the end of the roller 26 which is covered with a soft or resilient covering 27. The beveled gear 25 is shown connected directly to the roller 26, but obviously this roller may be mounted on the pin 23 in such a manner as to be supported permanently thereupon and may be key connected to the roller 26.

The other end of the roller 26 is supported by an arm 29 hinged at 30 to the reservoir. The arm 29 is provided with a pin 31 which is intended to engage in an axial socket 32 in the roller 26. A pivotal clip 33, best illustrated in Figure 3 of the drawings, is pivoted to the reservoir at 34 and engages over the arm 29 to hold

the arm with its pin 31 engaged in the socket 32.

A transverse manifold 35 extends longitudinally of the roller 26 and above the same, this manifold being supported by suitable supports 36 projecting from the concave portion 16 of the reservoir. The manifold 35 is hollow and is provided with an elongated opening or series of openings 37 spaced along its length. Bristles 39 depend downwardly from the manifold 35 to engage the soft surface 27 of the roller 26. Paint is permitted to flow through the opening or openings 37 and through the bristles 39, being spread by the bristles onto the surface 37 of the roller 26.

The manifold 35 is connected by a tubular conduit 40 extending from one end of the manifold to a point adjacent the arm 22. A beveled gear 41 having an upwardly projecting hollow hub or sleeve portion 42 is journaled in the end of the tubular conduit 40. The beveled gear 41 is designed to mesh with the beveled gear 25 and to be rotated thereby upon rotation of the roller 26.

The lower end of the bevel gear 41 is likewise provided with a hollow hub or sleeve 43 in the end of which is provided a spider 44 equipped with a bearing 45, acting as a journal for the upper extremity of a worm shaft 46. The worm shaft 46 operates in an upwardly inclined tubular conduit 47 and the lower end of the shaft 46 is journaled at 49 in the lower end of the conduit 47. The conduit 47 is connected at its lower end by a passage 50 with the interior 48 of the reservoir 10, and the flow of paint or other fluid through the passage 50 is regulated by means of a needle valve 51. By operation of the needle valve 51 the amount of paint flowing through the passage 50 may be regulated.

A worm conveyor 52 is provided on the shaft 46 to rotate therewith. This conveyor may be of the spiral type and operates to elevate the fluid through the hollow hubs of the bevel gear 41 and through the conduit 40 to the manifold 35 from which the paint is allowed to spread onto the roller 26. Rotation of the roller 26 acts through the bevel gears 25 and 41 to rotate the worm conveyor 52 and to thus elevate the paint.

If it is so desired a pressure pump may be used in place of the worm conveyor 52 to elevate the paint. In Figure 6 of the drawings I have disclosed a reservoir 10 having an end wall 13' adjacent which is secured a tubular conduit 47'. A pump chamber is provided at the lowermost extremity of the conduit 47. This pump chamber is connected by the passage 53 to the interior of the reservoir 10. A needle valve 54 is provided in the passage 53 to regulate the flow of paint into the pump chamber.

The shaft 46' driven by a bevel gear similar to the gear 41 extends into the pump chamber, and an eccentric pump 55 is mounted thereupon to rotate in the pump chamber and force fluid from the inlet passage 53 out through the outlet passage 56. Therefore, upon rotation of the roller, fluid is pumped through the conduit 47', the hollow center of the bevel gear 41 and the conduit 40 to the manifold 35.

The sizes of the conduits conveying paint to the manifold may be regulated, depending upon the desired flow. While the conduits are shown of considerable diameter, in the particular form illustrated, so as to accommodate the worm 52, the size of these conduits may be materially reduced, particularly if the pressure pump is used for forcing the paint to the manifold 35.

In accordance with the patent statutes, I have described the principles of construction and operation of my paint applying roller, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A portable paint applying device comprising a reservoir, a roller mounted upon the reservoir adjacent the top thereof, a handle secured to said reservoir by means of which the paint applying device may be manipulated to impart rotary movement to said roller, a manifold for spreading paint upon said roller mounted adjacent said roller, a conduit connecting said manifold to said reservoir, and pump means in said conduit.

2. A paint applying device comprising a reservoir, a roller mounted upon the reservoir transversely with respect thereto near the upper extremity thereof, a manifold secured adjacent said roller for applying paint thereupon, a conduit connecting said manifold to the base of said reservoir, pump means in said conduit, and means connecting said pump means to said roller for actuation by said roller.

3. A paint applying device comprising a reservoir, a roller supported thereby and mounted transversely thereof, a handle secured to said reservoir by means of which the paint applying device may be manipulated to impart rotary movement to said roller, a paint distributing manifold secured adjacent said roller, an upright pipe conduit connecting said paint applying roller to the lower end of said reservoir, a spiral conveyor in said conduit, and means connecting said roller and conveyor for operating said spiral conveyor by said roller.

4. A paint applying device comprising a reservoir, a paint applying roller mounted on the reservoir extending transversely thereof, a paint distributing manifold secured adjacent said roller, an upright pipe conduit connecting said paint applying roller to the lower end of said reservoir, a spiral conveyor in said conduit, and means connecting said spiral conveyor to said roller for actuation thereby.

5. A paint applying device comprising a reservoir, a roller transversely mounted near the upper extremity thereof, a paint distributing manifold secured adjacent said roller, an upright conduit extending from the lower end of said reservoir to said manifold, pump means in said upright conduit, a shaft in said conduit for operating said pump means, a hollow bevel gear through which paint may flow connected to said shaft, and a cooperable bevel gear on said roller engageable with said first named bevel gear to operate the same.

6. A paint applying device comprising a reservoir, a paint applying roller supported thereby and mounted transversely thereof near the upper extremity thereof, a handle secured to said reservoir by means of which the paint applying device may be manipulated to impart rotary movement to said roller, a manifold secured adjacent said roller for applying paint thereto, a conduit connecting said manifold with the lower end of said reservoir, pump means in said conduit, and means for regulating the flow of fluid from said reservoir to said pump means.

7. A paint applying device comprising a reservoir, a roller extending transversely of said

reservoir near the upper extremity thereof, a manifold adjacent said roller for delivering paint thereto, a hollow tubular conduit extending from the lower extremity of said reservoir to a point adjacent one end of said roller, bevel gear means supported in the upper extremity of said conduit, said bevel gear means having an opening therethrough through which paint may flow, a shaft in said conduit operated by said bevel gear, a pump connected to said shaft, a conduit connecting the upper end of said hollow bevel gear to said manifold, and bevel gear means in said roller cooperable with said first named bevel gear to actuate said pump.

8. A paint applying device comprising a reservoir, a roller extending transversely of said reservoir near the upper extremity thereof, a manifold adjacent said roller for delivering paint thereto, a hollow tubular conduit extending from the lower extremity of said reservoir to a point adjacent one end of said roller, a bevel gear means supported in the upper extremity of said conduit, said bevel gear means having an opening therethrough through which paint may flow, a shaft in said conduit operated by said bevel gear, a spiral conveyor on said shaft, a conduit connecting the upper extremity of said hollow bevel gear to said manifold, and cooperable bevel gear means on said roller engageable with said first named bevel gear to actuate said spiral conveyor.

9. A paint applying device comprising a reservoir, a paint applying roller mounted transversely thereof near the upper end thereof, a paint applying manifold secured adjacent said roller, bristles mounted on said manifold engageable with the surface of said roller, said manifold including passages through which paint may flow into said bristles, a conduit connecting said manifold with the lower end of said reservoir, and pump means in said conduit for forcing paint from said reservoir into said manifold.

10. A paint applying device comprising a reservoir, a paint applying roller mounted transversely thereof near the upper end thereof, a paint applying manifold secured adjacent said roller, bristles mounted on said manifold engageable with the surface of said roller, said manifold including passages through which paint may flow into said bristles, a conduit connecting said manifold with the lower end of said reservoir, pump means in said conduit for forcing paint from said reservoir into said manifold, and means connecting said pump to said roller for actuation thereby.

JOSEPH C. DE MARCO.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,028,878	Rider	Jan. 28, 1936
1,594,591	Bettes	Aug. 3, 1926
1,915,419	Hopkins et al.	June 27, 1933