

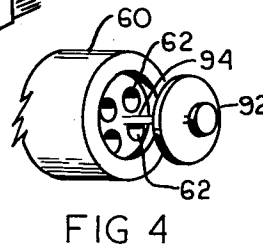
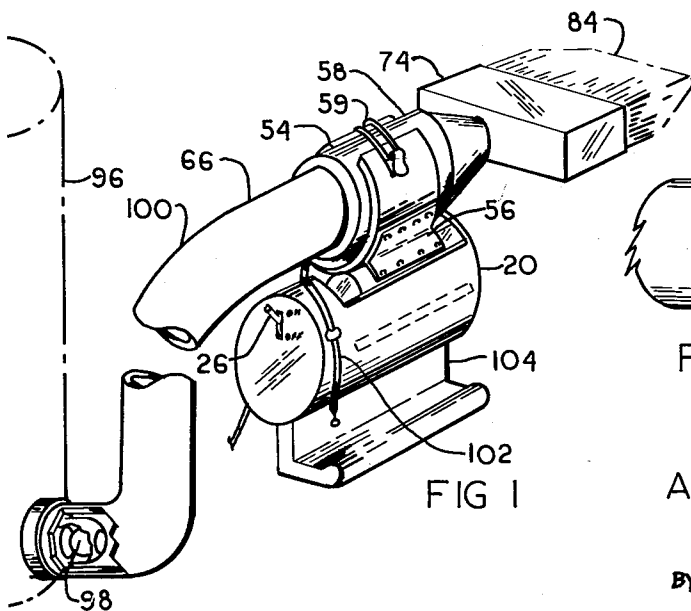
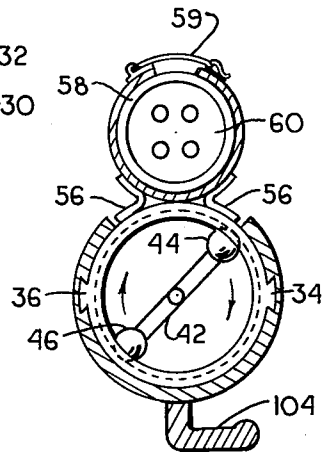
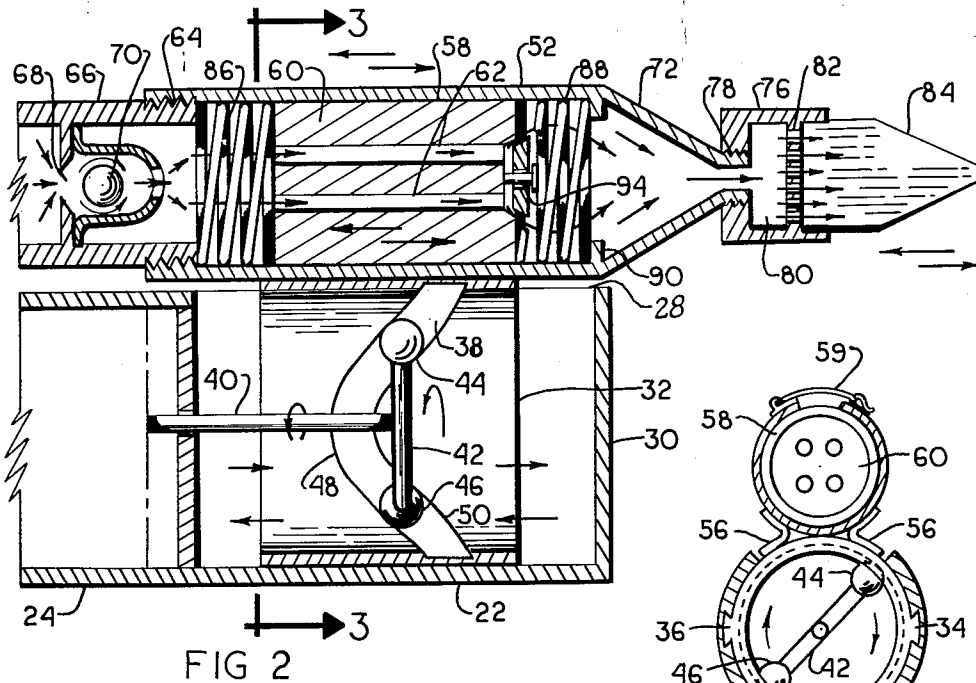
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PAINT MACHINE

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3,072,937

PAINT MACHINE

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7 Claims. (Cl. 15-22)

The present invention relates to a machine for applying paint or the like, and more particularly to a machine which imparts movement to the applicator, such as a brush, independently of the movement imparted to the applicator by the manipulator of the machine.

The machine of the present invention includes a motor driven pump for supplying paint or the like to the receiving end of a porous applicator so as to insure a continuous flow of paint from the dispensing end of the applicator.

The pump of the present invention is of the type including a reciprocating element and the applicator, such as a brush, is carried so as to be reciprocated with the reciprocating element of the pump.

In the preferred embodiment of the invention, the cylinder of the pump is reciprocated and the applicator is attached to the cylinder and reciprocated therewith.

Further objects and advantages will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of the invention is illustrated.

In the drawings:

FIG. 1 is a perspective view of the improved machine showing the paint reservoir in dot and dash lines;

FIG. 2 is a longitudinal sectional view of the paint machine;

FIG. 3 is a sectional view taken substantially along line 3-3 of FIG. 2 but on a somewhat smaller scale; and

FIG. 4 is a fragmentary sectional view of the right end of the plunger and valve at said end of the plunger.

Referring more in detail to the drawings, the paint machine 20 includes a main frame 22, substantially cylindrical in shape. The left end of this frame carries an electric motor 24 which is controlled by an on-and-off switch 26. The right end of the main frame 22 is open at the top as at 28 and functions as a crosshead guide 30 for a sleeve 32. This sleeve is adapted to reciprocate within the right end of the frame. The periphery of the sleeve 32 is provided with a plurality of dovetails 34 which fit within complementing guides 36 in the crosshead 30.

A reciprocating member or sleeve 32 is provided with an internal groove 38. This groove 38. This groove is endless and so cut as to mathematically define a sine wave when projected on a plane. The shaft 40 of the motor carries a driving arm 42 arranged at right angles to the shaft 40 and rotated thereby. The opposite ends of this arm carry two spherically shaped elements 44 and 46, which ride within the groove 38 in the sleeve 32. Obviously then, as the shaft 40 is rotated, the balls 44 and 46 are also rotated. The balls engage the opposite side walls 48 and 50 of the groove 38, and when rotated, cause reciprocating movement to be imparted to the sleeve 32.

A pump, generally indicated at 52, is carried by the top of the sleeve 32 through a flexible strap 54, which strap in turn fastens to the sleeve 32 by two plates 56. This pump 52 includes a cylinder 58 which is clamped to the strap by detachable clamp 59. Reciprocating movement imparted to the sleeve 32 is transmitted to the cylinder 58. The pump 52 also includes a plunger 60 having one or more passages 62 therein for the flow of paint therethrough. As shown in FIG. 2, the left end of the cylinder 58 is threaded as at 64 for receiving a paint inlet fitting 66. This inlet fitting carries a check valve including a valve passage 68 and a cooperating ball 70. As viewed in FIG. 2 the cylinder 58 merges into a conically shaped portion 72 which receives an elongated fitting 74. This

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fitting is preferably threaded as at 76 to the cone shaped end 72 as at 78. The fitting 78 includes a reservoir 80 having a perforated wall 82 through which the paint flows into the applicator herein shown as a bristle type brush 84.

A pair of springs 86 and 88 normally tend to hold the plunger stationary. Spring 86 is interposed between the left end of the plunger 60 and the right end of the fitting 66. Spring 88 is interposed between the right end of the plunger 60 and shoulders 90 at the right end of the cylinder 58. A check valve 92 in the form of a disk controls the outlet through the passages 62. This check valve is guided by a headed pin 94.

From the foregoing it will be seen that as the cylinder 58 is moved to the left, there is a tendency to create a partial vacuum within that portion of the fitting to the right of the check valve and in the left end of the cylinder 58. This causes the atmospheric pressure upon the fluid in the paint tank 96 to force fluid through the check valve 98, the supply tube 100, check valve 70 and into the right end of the fitting 66 and the left end of the cylinder 58. When the cylinder 58 moves to the right, part of the fluid within the left end of the cylinder 58 will be forced through the passage 62 by the check valve 92 and into the conically shaped portion 72, reservoir 80 and the applicator 84. The amount of fluid or paint delivered can be controlled by a hand-operated valve (not shown) which is interposed between the tube 100 and the fitting 66 and which is actuated by a cable 102.

Thus it will be seen from the foregoing that as the motor is actuated, paint is forced out of the reservoir 96 and through the applicator 84 and simultaneously reciprocating movement is imparted to the applicator or brush 84. Preferably the stroke of the cylinder is between one-fourth and one-half inch. The parts of the machine are made of light weight material and it is provided with a handle 104 for manipulating the same. In operation, the operator moves the machine along the path to be painted and simultaneously the brush 84 is reciprocated. This in effect causes a ready penetration and/or application of the paint to the surface being coated, resulting in an even and full coating of the surface at least as wide as the brush 84. The best results were obtained when the motor was operated above 1600 r.p.m. and preferably at 3200 r.p.m.

While the form of embodiment herein shown and described constitutes a preferred form, it is to be understood that other forms may be adopted falling within the scope of the claims that follow.

I claim:

1. A machine for applying paint or the like comprising in combination, a porous applicator having a dispensing surface and having a receiving end; a pump for applying the paint or the like, under pressure to the receiving end and through the applicator, said pump including a cylinder, a plunger within the cylinder, said plunger having a longitudinal passage therethrough, valve means for controlling the flow of paint or the like through the plunger; and a motor for applying reciprocating movement to the cylinder.

2. A machine as defined in claim 1, characterized in that the motor applies reciprocating movement to the cylinder parallelly with the flow of paint through the applicator.

3. A machine as defined in claim 1, characterized to include, means yieldingly tending to maintain the plunger stationary relative to the cylinder when reciprocating movement is imparted to the cylinder.

4. A machine as defined in claim 1, characterized in that the valve means comprises an inlet valve carried by the cylinder.

5. A machine as defined in claim 1, characterized in

that the valve means comprises an outlet valve carried by the plunger.

6. A machine as defined in claim 1, characterized to include means yieldingly tending to maintain the plunger stationary relative to the cylinder when reciprocating movement is imparted to the cylinder and further characterized in that the valve means comprises an inlet valve carried by the cylinder.

7. A machine as defined in claim 1, characterized to include means yieldingly tending to maintain the plunger stationary relative to the cylinder when reciprocating movement is imparted to the cylinder and further characterized in that the valve means comprises an outlet valve carried by the plunger.

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