Sept. 5, 1944. D. C. PRATT 2,357,763

PAINT APPLICATOR AND STIPPLER

Filed April 15, 1942

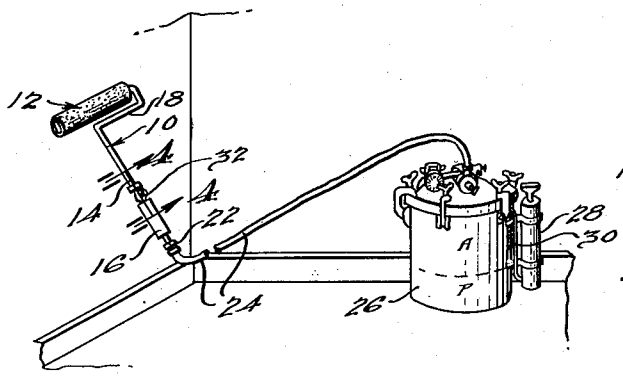

Fig. 1.

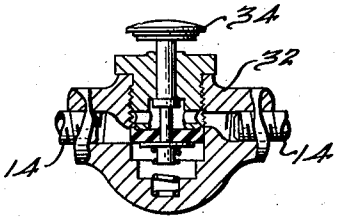

Fig. 4.

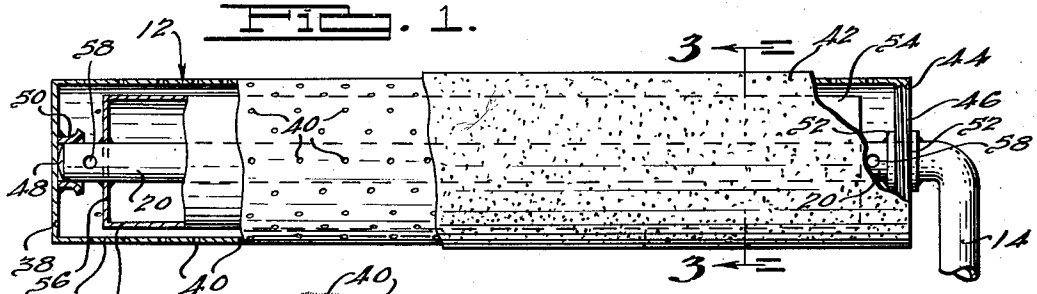

Fig. 2.

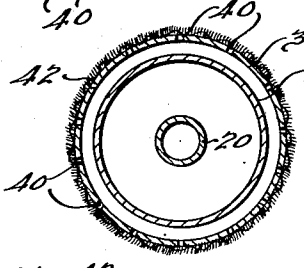

Fig. 3.

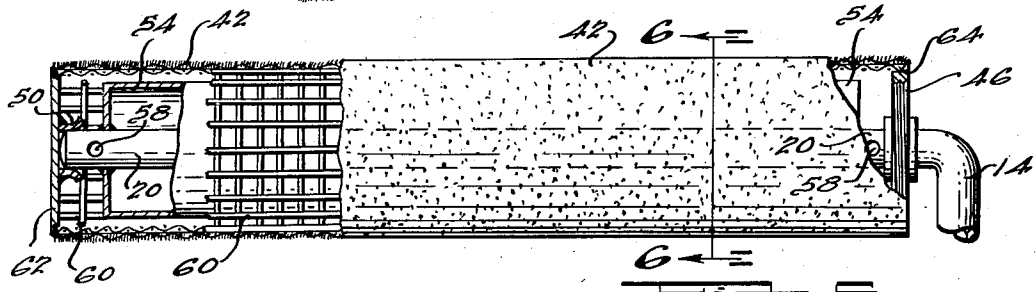

Fig. 5.

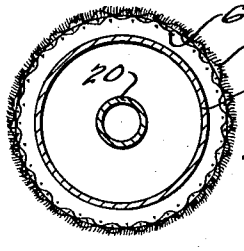

Fig. 6.

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PAINT APPLICATOR AND STIPPLER

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6 Claims. (Cl. 91—49)

The present invention relates to a hand tool adapted to apply paint, or the like, to surfaces.

One of the primary objects of the present invention is to provide an improved paint applying tool by which paint may be applied to surfaces quickly and properly.

Another object of the invention is to provide an improved, portable hand tool by which paint may be quickly and properly applied to surfaces and to which paint may be constantly supplied under pressure to the applying surface, and in which the supply may be easily regulated by the operator.

Another object of the invention is to provide an improved, portable hand tool which is a combined paint applicator and stippler, and by the use of which considerable time is saved in painting and finishing wall and ceiling surfaces.

Other objects of the invention will become apparent from the following specification, drawing relating thereto and from the claims hereinafter set forth.

In the drawing, in which like numerals are used to designate like parts in the several views throughout:

Fig. 1 is a perspective view illustrating a hand tool of the present invention and diagrammatically illustrating the manner in which such tool is used and its connection to a source of liquid paint;

Fig. 2 is an enlarged view with parts broken away and parts in cross-section and elevation of the applicating end of the tool shown in Fig. 1;

Fig. 3 is a cross-sectional view taken substantially along the line 3—3 of Fig. 2;

Fig. 4 is an enlarged, cross-sectional view taken substantially along the line 4—4 of Fig. 1 and showing the means for controlling the flow of liquid paint under pressure through the tool;

Fig. 5 is a view similar to Fig. 2 and illustrating a modified form of the present invention;

Fig. 6 is a cross-sectional view taken substantially along the line 6—6 of Fig. 5.

According to the present invention a hand tool is provided by which liquid paint may be applied to surfaces, such as wall and ceiling surfaces. The hand tool is in the form of a cylindrical roller which is applied to and rolled over the surface to be painted and a constant flow of liquid paint under pressure is supplied to the roller under the control of the operator. Such liquid paint is supplied to the interior of the roller and passes outwardly to the surface thereof which is formed of a porous, pile fabric so that the paint is evenly and constantly applied to the pile fabric for application to the surface.

While the present invention is useful at all times in that it provides an improved means for the application of paint to wall surfaces and at the same time can be used as a stippler, it has particular utility at the present time since the materials used in the manufacture of the conventional paint brushes are scarce and may not be available at all in the near future.

For a better understanding of the invention reference may be had to the drawing, and referring to Fig. 1, a hand tool, generally indicated at 10, is provided. Such tool 10 has a cylindrical roller means generally indicated at 12 and a tubular member 14 which has a handle portion substantially normal to the axis of the roller 12 and which has a handle grip 16 concentrically disposed thereon. The tubular member is bent to provide a portion 18 which is reversely bent to provide another portion 20 which extends within the roller means 12.

The handle end of the tubular member 14 is provided with a suitable fitting 22 which is adapted to be connected to a cooperating fitting on the end of a flexible hose 24. Such flexible hose 24 is connected to the outlet of a conventional paint pressure tank indicated at 26. Such paint pressure tank 26 may be of suitable capacity, for example—5 gallon capacity, and has a removable top which may be sealed to the top of the main receptacle. A hand pump 28 is mounted upon the side of the pressure tank 26 and has a pressure hose 30 which passes through a suitable aperture in the wall of the tank 26 adjacent the top thereof for communication with the interior of the tank. It will thus be understood that the tank 26 may be partially filled with paint and with the top thereof closed, a suitable pressure may be built up within the tank by the operation of the pump 28. It will be understood that while a hand pump 28 is illustrated, any other suitable means for introducing air under pressure to the tank 26 may be utilized within the present invention.

A conventional thumb valve 32 is interposed in the tubular member 14 and is disposed adjacent the handle 16 so that it is in convenient location for operation by the operator. The details of the valve 32 are shown in Fig. 4 for the purpose of illustration, and since it is the conventional valve element, it is not believed necessary to describe its elements in detail. It will be understood that by depressing the thumb button 34 the flow of liquid through the conduit 14

may be controlled. With the button 34 in its upper position, the flow of liquid is stopped off and by depressing the button, passage of the liquid under pressure is permitted.

Referring to Figs. 2 and 3 the details of construction of one form of cylindrical roller means 12 are illustrated. It will be seen that the roller means comprises an outer, cylindrical member 36 having one end thereof closed by an end wall 38. Such member 36 is provided with a plurality of apertures 40 therethrough, which may be provided in the desired or suitable number and which may be formed by a simple drilling or piercing operation. It is preferable that the openings 40 be evenly distributed over the peripheral surface of the member 36 so that an even supply of the liquid paint is provided.

An outer cylindrical sleeve 42 of a porous, pile fabric is disposed over the cylindrical member 36 in tight engagement with the peripheral surface thereof. Such member 42 is disposed so that the pile is disposed on the outer surface thereof for engagement with the wall to be painted. The end of the member 36 opposite the wall 38 is internally threaded, as indicated at 44, and is adapted to have threaded thereto a disc shaped member 46. Such member 46 has the peripheral surface thereof threaded to cooperate with the internal threads 44, so that such end of the cylindrical member 36 is closed. The tubular member 36, together with the pile fabric member 42, is mounted upon the tubular portion 20 for rotation thereon. The end of the tubular portion 20 is closed as indicated at 48 and such end is adapted to be received within a bearing seat 50 which is fixed to the inner surface of the end wall 38 and which is axially aligned with the axis of member 36. The member 50 is peripherally slightly flared adjacent its inner end so as to assist in seating the end of portion 20 when such portion is inserted within the member 36. To rotatably mount the opposite end of the member 36, the member 46 is provided with a central opening therethrough which is adapted to be rotatably received on the tubular portion 20. To prevent axial displacement of the member 46 a pair of spaced collars 52 are fixed to the tubular portion 20 by welding, for example.

An inner cylindrical member 54 is concentrically disposed within the member 36 and is provided with an end wall 56 at each end thereof. The end walls 56 are provided with axially aligned apertures therethrough, through which the tubular portion 20 extends. The end walls 56 may then be fixed to the member 20 by welding, for example, so that the member 54 is fixedly mounted on the tubular portion 20. The member 54 is of such a size that its peripheral wall is spaced from the inner peripheral wall of the member 36 a suitable distance and the end walls are suitably spaced from the end walls 38 and 46 so as to provide a liquid paint chamber in such space. The paint from the tubular member 14 is discharged into such space through apertures 58 which are formed in the tubular portion 20 in the paint chamber spaces adjacent the end walls 56. The paint discharged from the apertures 58 may thus pass freely into the paint chamber between members 54 and 36. By providing this relatively small paint chamber within the member 36, a better control of the paint flow through the apertures 40 to the pile fabric member 42 is made possible than would be the case if the member 54 were dispensed with and the entire space within the member 36 filled with paint.

Furthermore, by the use of the member 54 the operating weight of the tool is reduced, and this is an important feature when it is considered that the tool 10 is held by hand by the operator for considerable periods of time and often in rather awkward positions. The member 54 thus serves a double purpose in reducing the operating weight of the tool, and also, in providing for better paint flow control.

In the operation of the device above described, the paint from the tank 26 passes through the flexible conduit 24 into the tubular member 14 under control of the operator through actuation of the thumb valve 32. The paint passes through the tubular member 14 and out of the apertures 58 into the space between the members 54 and 36. The paint under pressure then passes through the apertures 40 onto and through the pile fabric member 42. By rolling the pile fabric member 42, together with the cylindrical member 36, over the surface to be painted it will be seen that the paint is transferred from the pile fabric member 42 to such surface and a constant flow of paint is supplied to the member 42.

In Figs. 5 and 6 a modified form of applicator roller means is provided. Otherwise the structure is the same as that described above, as indicated by the same numerals. In this embodiment of the invention, the apertured cylindrical member is in the form of a wire mesh 60 which is rolled into cylindrical form. An end wall member 62, which corresponds to the end wall 38, above described, is welded to one of the ends of the mesh cylindrical member 60, and an internally threaded metal ring member 64 is welded to the opposite end thereof. The member 46 is thus threadably connected to the member 64. The internal diameter of the ring member 64 is, of course, larger than the external diameter of the member 54 so that the member 60 may be slipped over the member 54 in assembly. The pile fabric 42 is received over the member 60 in the same manner as it is received over the member 36, above described. In this embodiment, the member 42 may be permanently attached to the member 60 in a suitable way, by stitching, for example.

The members 60, 62, 64 and 42 may thus form a unit which may be readily applied to the tubular portion 20 in a manner similar to the way in which the member 36, above described, is applied.

The use and operation of the embodiment here described is similar to that described above. The spaces between the wires provide the apertures through which the paint from the paint chamber passes to the pile fabric covering.

I claim:

1. A portable hand tool adapted for the application of liquid paint to surfaces comprising an applicator roller means including an apertured, cylindrical member and a pile fabric sleeve element disposed over said cylindrical member in engagement therewith, tubular means providing a liquid passageway, said tubular means having a handle portion and having another portion shaped to extend within said cylindrical member longitudinally thereof, means rotatably mounting said cylindrical member on said another portion of said tubular means, an imperforate cylindrical member having closed ends disposed within said apertured cylindrical member in spaced relation to the walls thereof and mounted on said another portion of said tubular means to provide a liquid chamber in said space, said another portion of said tubular means being provided with a discharge aperture communicating

with said chamber for the supply of liquid under pressure to said chamber, and means to control the flow of liquid through said passageway.

2. A portable hand tool adapted for the application of liquid paint to surfaces comprising an applicator roller means including an apertured, cylindrical member having end walls and a pile fabric sleeve element disposed over said cylindrical member in engagement therewith, tubular means providing a liquid passageway, said tubular means having a handle portion and having another portion shaped to extend within said cylindrical member longitudinally thereof, means rotatably mounting said cylindrical member on said another portion of said tubular means, an imperforate cylindrical member having closed ends concentrically disposed within said apertured cylindrical member in spaced relation to the peripheral and end walls thereof and mounted on said another portion of said tubular means to provide a liquid chamber in said space, said another portion of said tubular means being provided with a discharge aperture adjacent each end of said imperforate cylindrical member communicating with said chamber for the supply of liquid under pressure to said chamber, and means to control the flow of liquid through said passageway.

3. A portable hand tool adapted for the application of liquid paint to surfaces comprising an applicator roller means including an apertured, cylindrical member having end walls and a pile fabric sleeve element disposed over said cylindrical member in engagement therewith, tubular means providing a liquid passageway, said tubular means having a handle portion and having another portion shaped to extend within said cylindrical member longitudinally thereof, means rotatably mounting said cylinldrical member on said another portion of said tubular means, an imperforate cylindrical member having closed ends disposed within said apertured cylindrical member in spaced relation to the peripheral and end walls thereof and fixedly mounted on said another portion of said tubular means to provide a liquid chamber in said space, said another portion of said tubular means being provided with a discharge aperture adjacent each end of said imperforate cylindrical member communicating with said chamber for the supply of liquid under pressure to said chamber, and means disposed adjacent said handle portion to control the flow of liquid through said passageway.

4. A portable hand tool adapted for the application of liquid paint to surfaces comprising an applicator roller means including an apertured, cylindrical member formed of wire mesh and having end walls and a pile fabric sleeve element disposed over said cylindrical member in engagement therewith, tubular means providing a liquid passageway, said tubular means having a handle portion and having another portion shaped to extend within said cylindrical member longitudinally thereof, means rotatably mounting said cylindrical member on said another portion of said tubular means, an imperforate cylindrical member having closed ends disposed within said apertured cylindrical member in spaced relation to the walls thereof and mounted on said another portion of said tubular means to provide a liquid chamber in said space, said another portion of said tubular means being provided with a discharge aperture communicating with said chamber for the supply of liquid under pressure to said chamber, and means to control the flow of liquid through said passageway.

5. A portable hand tool adapted for the application of liquid paint to surfaces comprising an applicator roller means including an apertured, cylindrical member formed of wire mesh and having end walls and a pile fabric sleeve element disposed over said cylindrical member in engagement therewith, tubular means providing a liquid passageway, said tubular means having a handle portion and having another portion shaped to extend within said cylindrical member longitudinally thereof, means rotatably mounting said cylindrical member on said another portion of said tubular means, an imperforate cylindrical member having closed ends concentrically disposed within said apertured cylindrical member in spaced relation to the peripheral and end walls thereof and mounted on said another portion of said tubular means to provide a liquid chamber in said space, said another portion of said tubular means being provided with a discharge aperture adjacent each end of said imperforate cylindrical member communicating with said chamber for the supply of liquid under pressure to said chamber, and means to control the flow of liquid through said passageway.

6. A portable hand tool adapted for the application of liquid paint to surfaces comprising an applicator roller means including an apertured, cylindrical member formed of wire mesh and having end walls and a pile fabric sleeve element disposed over said cylindrical member in engagement therewith, tubular means providing a liquid passageway, said tubular means having a handle portion and having another portion substantially normal to said handle portion shaped to extend within said cylindrical member longitudinally thereof, means rotatably mounting said cylindrical member on said another portion of said tubular means, an imperforate cylindrical member having closed ends concentrically disposed within said apertured cylindrical member in spaced relation to the peripheral and end walls thereof and mounted on said another portion of said tubular means to provide a liquid chamber in said space, said another portion of said tubular means being provided with a discharge aperture adjacent each end of said imperforate cylindrical member communicating with said chamber for the supply of liquid under pressure to said chamber, and means disposed adjacent said handle portion to control the flow of liquid through said passageway.

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