United States Patent

[11] 3,603,694

[72] Inventor **Ronald D. Hamm**
26 Chester Ave., Fairfax, Calif. 94930

[21] Appl. No. **875,438**
[22] Filed **Nov. 10, 1969**
[45] Patented **Sept. 7, 1971**

[54] **DEVICE FOR FEEDING PAINT TO A PAINTING BRUSH**
4 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **401/150,** 401/270
[51] **Int. Cl.** **A46b 11/06**
[50] **Field of Search** 401/146–150, 27, 281, 186, 187, 270

[56] **References Cited**

UNITED STATES PATENTS

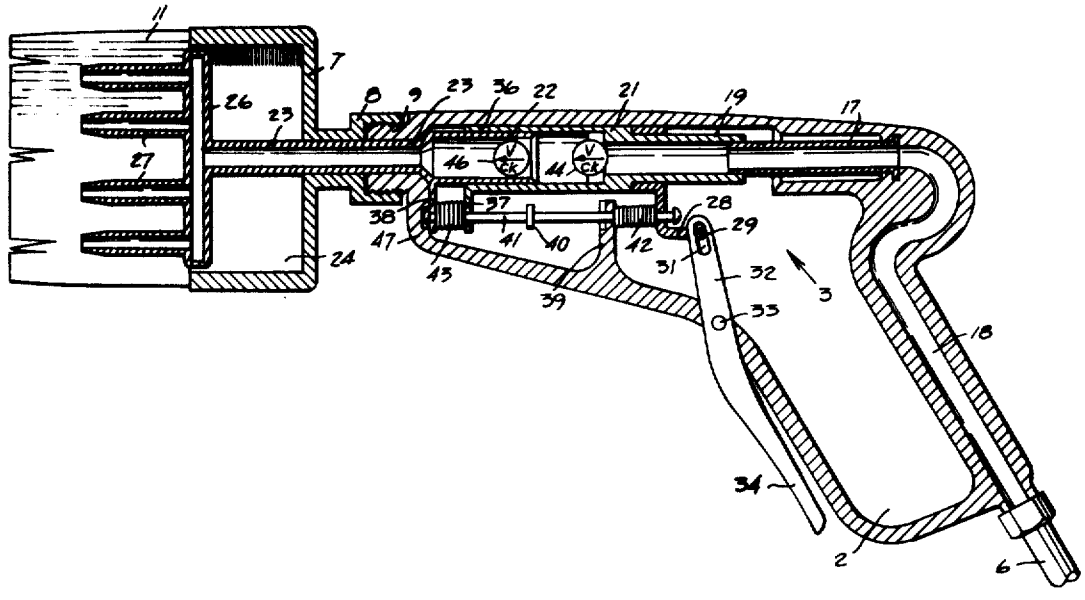
2,227,792	1/1941	Norton	401/281
2,517,152	8/1950	Wilson	401/27
2,785,425	3/1957	Lenk	401/146
3,088,159	5/1963	Ralph	401/186 X
3,197,800	8/1965	Karkut	401/149
3,304,573	2/1967	Stefely	401/187

FOREIGN PATENTS

480,873	3/1938	Great Britain	401/150
860,102	2/1961	Great Britain	401/150

Primary Examiner—Lawrence Charles
Attorney—George B. White

ABSTRACT: A pistol-type handle on the end of which is a hollow hub to which are fixed the bristles of a paint brush; in the hollow handle is a trigger actuated mechanism to pump paint between the bristles of the paint brush; another point is that the pumping mechanism simultaneously with the pumping advances the paint feeding nozzles to feed the paint at the point nearer to the tips of the bristles and after each feeding the nozzles are withdrawn from the bristles into the hollow hub so as not to interfere with the flexing of the bristles in painting; the hollow handle and the pumping device are connected by a flexible hose to a portable paint container which can be carried on the shoulders or back of the person using the device.



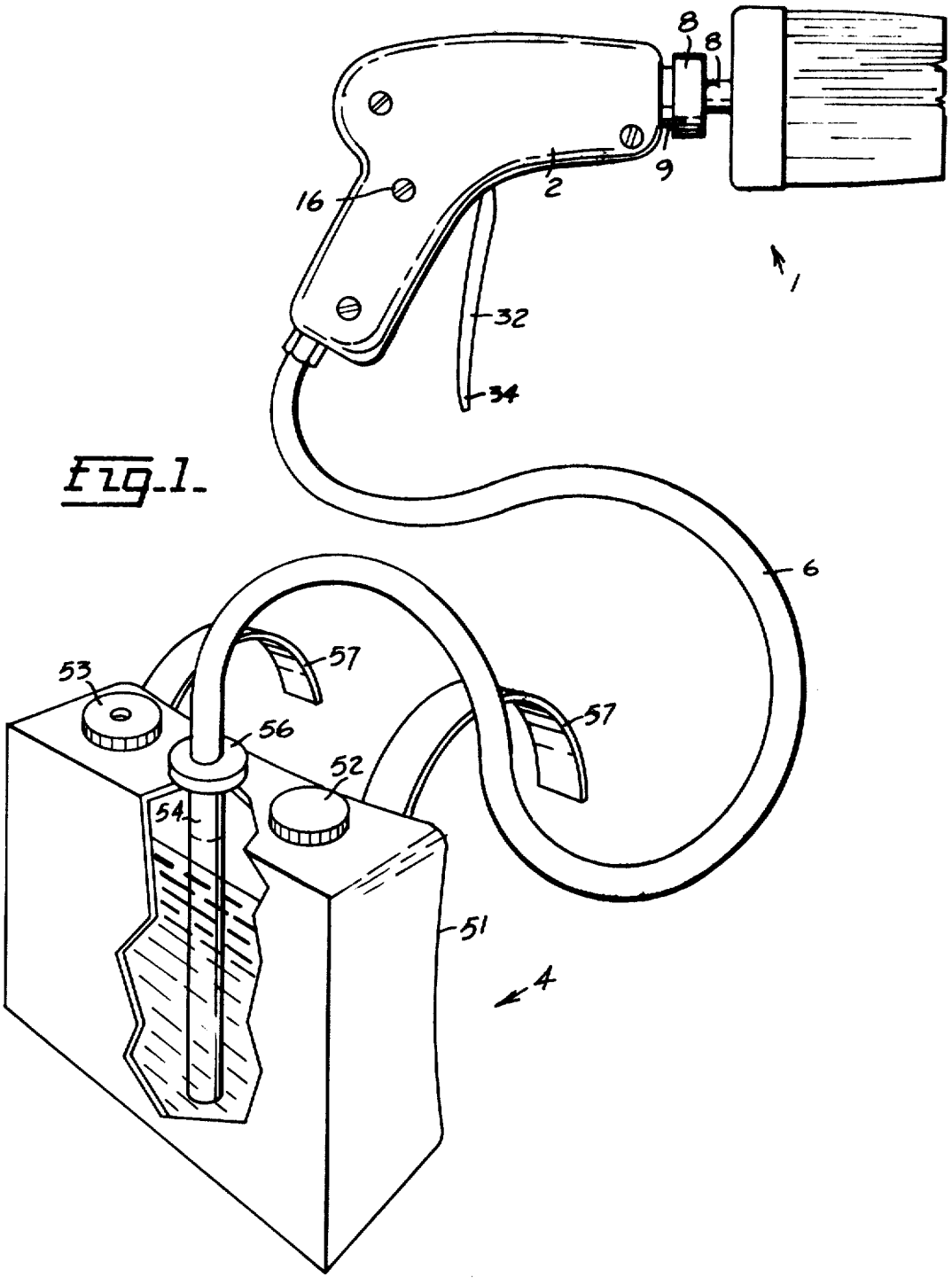


Fig. 1.

INVENTOR.
RONALD D. HAMM
BY George B. White
ATTORNEY

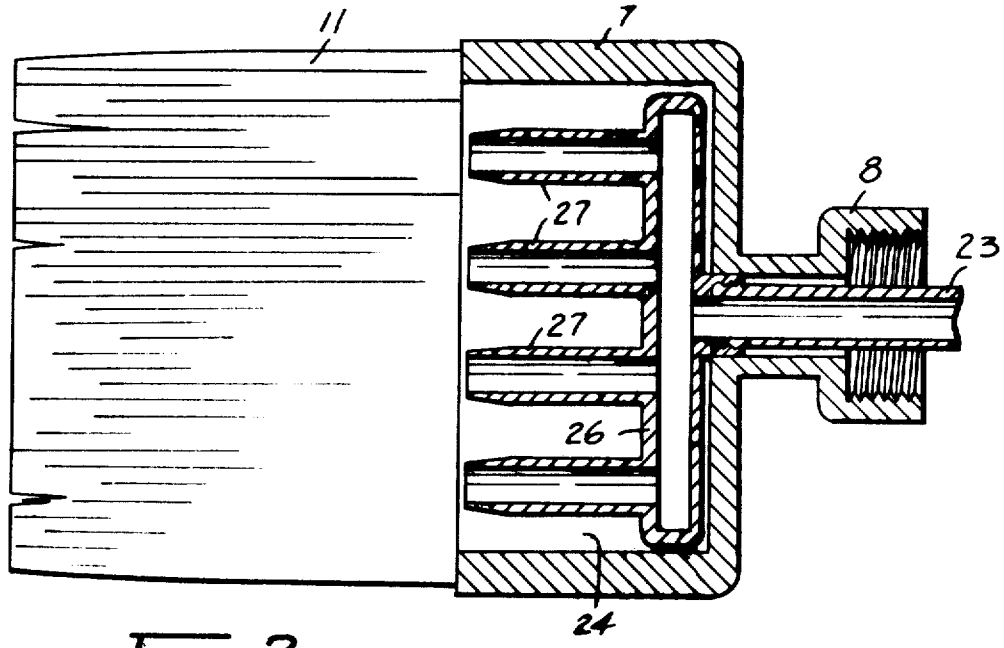


Fig. 2.

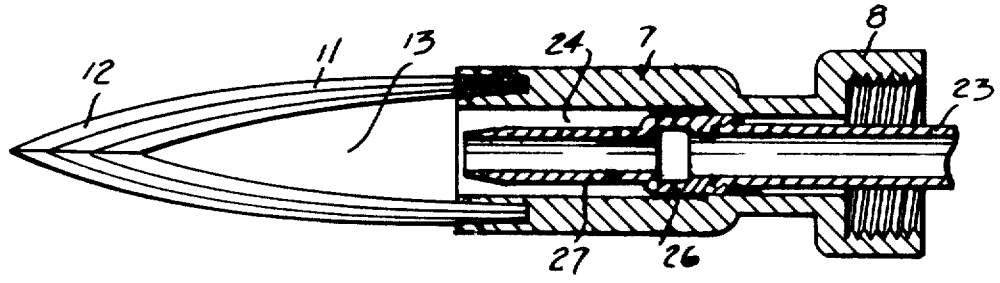


Fig. 3.

INVENTOR.
RONALD D. HAMM
BY
George B. White
ATTORNEY

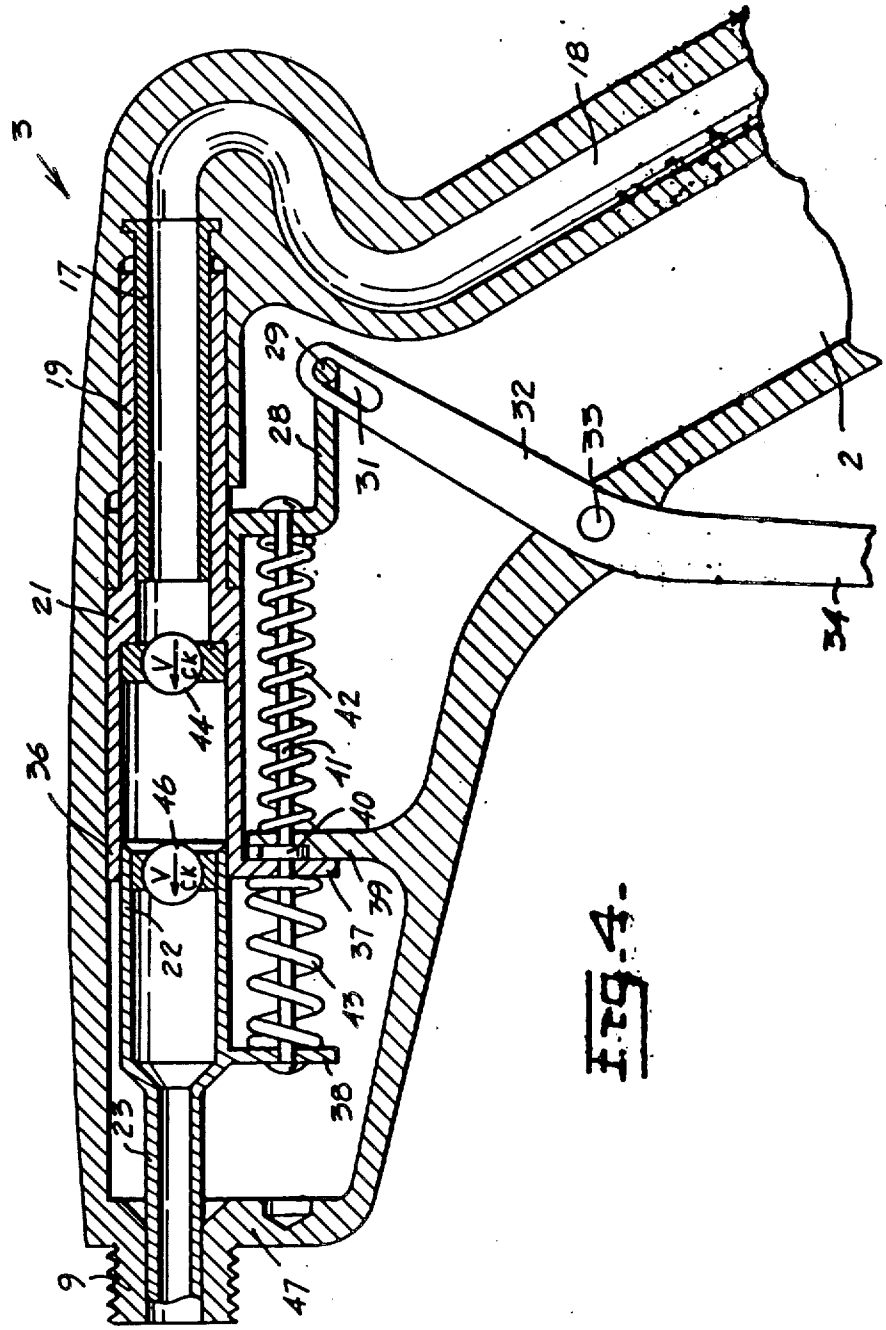


Fig. 4.

INVENTOR.
RONALD D. HAMM
BY George B. White
ATTORNEY

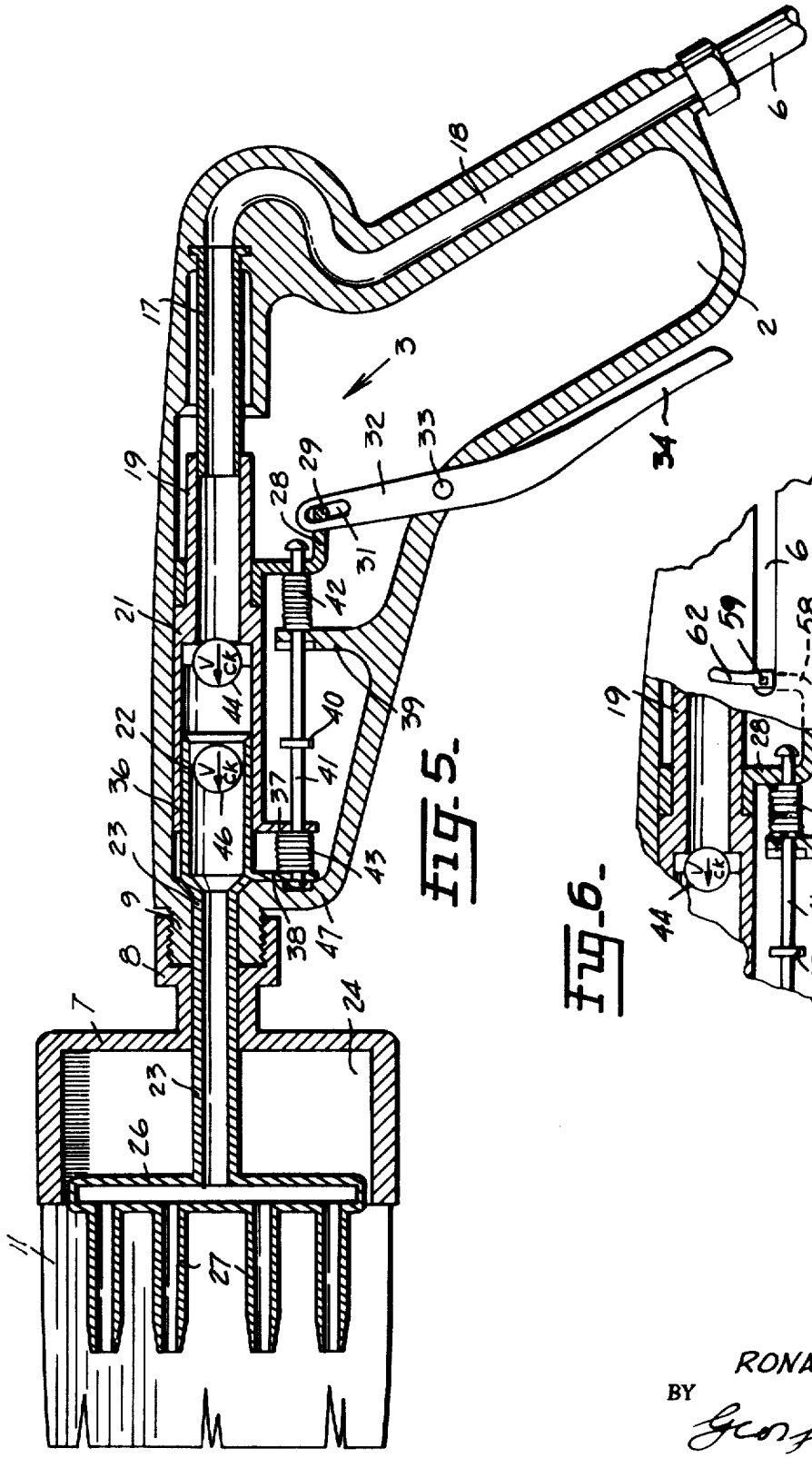


Fig. 5.

Fig. 6.

INVENTOR.
RONALD D. HAMM
BY
ATTORNEY

DEVICE FOR FEEDING PAINT TO A PAINTING BRUSH

BACKGROUND OF THE INVENTION

Fountain rollers and paint applicators including handle pumps are old in the art, however in previous devices for feeding the paint to the bristles of the brush either the feeding occurred at the base of the bristles and did not flow toward the tip, or if the feeder extended into the bristles, then she feeder interferred with the usual painting action of the bristles of the brush.

The primary object of the invention is to provide a device whereby the paint can be fed to the bristles slightly beyond the middle of their length and the pumping action itself operates to withdraw the feeding means from the bristles after each operation.

Another object of the invention is to provide a convenient pumping mechanism in a hollow handle which on one stroke advances the feeding nozzles into the bristles of the brush and the feeds the paint, and at its return stroke withdraws the feeding means from the bristles and also sucks further paint into the pumping device through a suitable conduit.

Another object of the invention is to provide a portable combination of a pumping device supporting a painting brush introducing the paint into the painting brush and upon its return stroke withdrawing the feeding elements from the brush and replentishing the paint supply in the brush from a portable paint container carried by the person using the device.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of the brush showing the portable paint container partly broken away.

FIG. 2 is a sectional view of the painting brush with the feeding nozzles at retracted position.

FIG. 3 is a cross sectional view of the brush shown in FIG. 2.

FIG. 4 is a fragmental sectional view of the hollow handle and the pumping mechanism in retracted position.

FIG. 5 is a sectional view of the handle and the brush thereon with the feeding device in feeding position.

FIG. 6 is a fragmental view of the device with a thumb operated trigger.

DETAILED DESCRIPTION

The illustrative embodiment of the device, as shown in FIG. 1, including a painting brush 1, a handle 2 containing the feeding mechanism 3 and a portable container 4 connected by a flexible hose 6 to the feeding mechanism 3.

The painting brush 1 has a hollow base 7 with a tubular connection 8 to a threaded tip 9. Brush bristles 11 are imbedded in the walls of the base 7, for instance, as shown in FIG. 3. In the usual painting brush the bristles 11 are imbedded on opposite walls of the base and converge toward the tip 12 of the brush so as to leave a converging pocket 13 between the bristles extending substantially half way between the middle and the tip of the brush.

The handle 2 is generally shaped in the form of a convenient pistol grip to facilitate the handling of the brush and the manipulation of the feeding mechanism 3. The handle 2 is preferably made of matching halves held together by screws 16, shown in FIG. 1.

The feeding mechanism 3 includes a tube 17 fixed in the handle, A passage 18 in the grip of the handle connects the hose 6 with the tube 17. A pump sleeve 19 is a slideable on the tube 17. An enlarged sleeve 21 on the end of the pump sleeve 19 extends toward the tip 9 of the handle. An inner sleeve 22 is slideable in the enlarged sleeve 21 and has an extension tube 23 slideable through the handle tip 9 and through the neck of the base connection 8 into the chamber 24 in the base 7. On the end of the extension tube 23 is a hollow head 26 which is slideable axially in the chamber from the retracted position shown in FIG. 2 into the feeding position shown in FIG. 5.

From the head 26 extend a plurality of nozzles 27 of such length as to project, in the feeding position, into the pocket 13 toward the tip 12 of the bristles 11. The pump sleeve 19 has a drive projection 28, an end 29 of which is slideable in a slot 31 in the upper end of a trigger 32 which is pivoted on a pivot 33 in the grip portion of the handle 2 as shown in FIG. 5 so that as the free end 34 of the trigger 32 is pressed toward the handle 2, the inner end of the trigger 32 pushes the drive projection 28 into the pump sleeve 19 toward the brush into the position shown in FIG. 5.

On the forward end 36 of the enlarged sleeve 21 is a downwardly extending flange 37. On the forward end of the inner sleeve 22 is a downwardly extending flange 38 inside the handle 2. Perpendicular portions of the drive projection 28 and the flanges 37 and 38 are in registry with each other and with a rib 39 in the handle 2 extended between the drive projection 28 and the flange 37 as shown in FIGS. 4 and 5. A guide rod 41 extends through aligned holes in the perpendicular part of the drive projection 28 the rib 29 and the flanges 37 and 38. The guide rod 41 has a fixed collar 40 thereon spaced from the rib 39 at a distance corresponding to the length of the nozzles 27 so that when she flange 37 on the return stroke engages she collar 40 it pulls the rod 40 and thereby pulls the flange 38 and the inner sleeve 22, the extension tube 23 the chamber 26 and nozzles 27 into the retracted position. The guide rod 41 has a suitable head 42 at each end respectively engaged with the drive projection 28 and flange 38 as shown in FIG. 4. A coil spring 42 is positioned around the guide rod 41 between the drive projection 28 and the rib 29 normally to retract the drive projection 28. A heavier coil spring 43 is positioned around the guide rod 41 between the flanges 37 and 38 also to urge the enlarged sleeve 21 and pumping sleeve 19 toward retracted position. A check valve 44 is provided in the passage between the pump sleeve 19 and the enlarged sleeve 21 openable toward the enlarged sleeve 21 so that when the enlarged sleeve 21 together with the pump sleeve 19 is retracted then the check valve 44 opens to admit paint from the pump sleeve 19 into the enlarged sleeve 21. Another check valve 46 is provide at the intake end of the inner sleeve 22 within the enlarged sleeve 21 also openable toward the paint brush.

As the operator squeezes the trigger 34 against the handle 2 first a spring 42 is compressed. Both check valves 44 and 46 are closed. The enlarged sleeve 21 through spring 43 transmits the force to flange 38 and moves the inner sleeve 22 and the extension tube 23 toward the brush 1. In the initial position the flange 38 of the inner sleeve 22 is spaced from the end wall 47 of the handle 2 substantially the same distance as the length of the nozzles 27. The length of the nozzles 27 and the height of the hollow head 26 together are less than the depth of the chamber 24 in the base 7, so that as the flange 38 moves from the position shown in FIG. 4 into the position shown in FIG. 5, the nozzles 27 are advanced from the position shown in FIG. 2 into the position shown in FIG. 5. Further squeezing of the handle 34 advances the enlarged sleeve 21 and the pump sleeve 19 over the stopped inner sleeve 22 thereby compressing the heavier spring 43 as shown in FIG. 5. As the enlarged sleeve 21 is thus moved over the inner sleeve 22 the paint in the enlarged sleeve 22 under the pressure so exerted opens the check valve 26 and presses the paint into the inner sleeve 22 and ultimately through the extension tube 23 into the hollow head 26 and out through the nozzles 27. When the trigger 34 is released the spring 43 pushes the enlarged sleeve 21 to retracted position thereby creating a suction closing the check valve 46 and opening the check valve 44 whereby the paint from pump sleeve 19 is sucked into the enlarged sleeve 21 and this operation continues while the spring 42 is also expanded to completely retract the pump sleeve 19 and the enlarged sleeve 21 into the position shown in FIG. 4. Repeated manipulation of the trigger in the aforesaid manner will suck the paint into the enlarged sleeve 21 and then pump it through the inner sleeve 22 into the brush, and after each pumping stroke the nozzles 27 are retracted out of the bristles 11.

The container 4 may be of any suitable type such as shown in FIG. 1. The container has a concave wall 51 to fit on the back or body of a person. On the top of the container there is a filling hole covered by a suitable screw cap 52 and a check valve vent 53. A suitable tube 54 has a securing cap 56 to which is suitably screwed the hose 6 for connection with the passage 18 in the handle 2 as shown in FIGS. 1 and 5. The container 4 is provided with suitable straps 57 whereby the tank can be secured over the shoulder of the user.

In operation the user straps the container on his back and then repeatedly squeezes and releases the trigger 34 and thereby sucks the paint from the container through the hose 6 and passage 18 and tube 17 into the pump sleeve 19, then during the suction stroke through the check valve 44 into the enlarged sleeve 21, and during the pumping stroke through the check valve 46 into the inner sleeve 22 and then through the extension tube 23 and hollow head 26 out through the nozzles 27. Whenever the trigger 34 is squeezed against the handle 32 the lighter spring 42 is first compressed advancing the enlarged sleeve 21 toward the brush, and over the inner sleeve 22 and the force exerted on the spring 43 not only compresses the heavier spring 43 but also advances the inner sleeve 22 until its flange 38 reaches the wall 47 of the handle, whereupon the heavier spring 43 is completely compressed and the paint is transferred through the check valve 46 into the inner sleeve 22. Whenever the trigger 34 is released the heavier spring 43 pushes she flange 37 and the enlarged sleeve 21 toward retracted position and when the flange 37 reaches a fixed collar 40 on the guide rod 41 the spring action will retract the inner sleeve 22 the extension tube 23 the head 26 and the nozzles 27, until the fixed collar 40 abuts the rib 39.

The modified form shown in FIG. 6 operates as the form shown in FIG. 5, except that the drive projection 28 has an upward extension 58, the free end 59 of which extends horizontally through an elongated slot 61 in the adjacent wall of the handle 2, and has thereon along the outside of said wall an upwardly extending dished thumb trigger 62, engageable by the thumb of the operator for pushing forward the projection 28 and the pump sleeve 19 for the operation of the device as heretofore described.

I claim:

1. In a device for feeding paint into a paint brush,
a hollow handle
a hand grip portion on the handle,
a hollow brush base of said paint brush secured on the handle,
a paint discharging device normally retracted into said hollow base,
a paint pumping device in said handle,
means to connect said pumping device to said paint discharging device for transmitting paint and for simultaneous pumping action and reciprocation of said paint pumping device and said paint discharging device together to a paint discharging position and back to a retracted position thereby to leave the brush bristles unobstructed after each feeding operation,
manipulatable means on said handle connected to said pumping device for reciprocating said pumping device at will,
means to transfer paint from a paint supply to said pumping device,
a hollow nozzle base supporting said nozzles, said nozzle base fitting into said hollow brush base, and
the height of said nozzle base and the length of said nozzles being such as to be substantially completely withdrawn into said hollow brush base when retracted.

2. The device specified in claim 1, and
said hollow handle having a nose, said brush base being secured to said nose,
said connecting means being a conduit extended from said nozzle base slidably through said brush base and through said nose and being connected to said paint pumping device in said handle.

3. In a device for feeding paint brush,
a hollow handle,
a hand grip portion on the handle,
a hollow brush base of said paint brush secured on the handle,
a paint discharging device normally retracted into said hollow base,
a paint pumping device in said handle,
means to connect said pumping device to said paint discharging device for transmitting paint and for simultaneous pumping action and reciprocation of said paint pumping device and said paint discharging device together to a paint discharging position and back to a retracted position thereby to leave the brush bristles unobstructed after each feeding operation,
manipulatable means on said handle connected to said pumping device for reciprocating said pumping device at will,
means to transfer paint from a paint supply to said pumping device,
said paint pumping device including a cylinder reciprocable in said handle,
said connecting means including a conduit connecting said cylinder to said paint discharging device and transmitting reciprocating movement of said cylinder to said paint discharging device respectively to project said paint discharging device into the bristles of said paint brush and to retract said device into the brush base,
said paint transfer means including a pump sleeve slideable over said cylinder, means in said cylinder and in said pump sleeve to prevent back flow of the paint during movement of the cylinder and the pump sleeve toward the paint brush,
said backflow preventing means in said sleeve being openable during the retracting stroke of movement of said sleeve by the suction created by the retracting movement of said sleeve relatively to said cylinder thereby to draw paint into said sleeve,
said backflow preventing means in said cylinder being openable by the pressure created by movement of said pump sleeve toward and over said cylinder thereby to press the paint from said sleeve into said cylinder,
means to connect said sleeve to a paint supply,
said manipulatable means including a trigger on the handle,
connecting means between the trigger and said pump sleeve for moving said sleeve toward said cylinder when said trigger is manipulated,
resilient means in the handle for retracting said sleeve,
and coacting elements on said pump sleeve and on said cylinder to transmit movement from said sleeve to said cylinder after predetermined initial movement of said sleeve toward said paint brush and after predetermined movement of said sleeve during retracting movement.

4. The device specified in claim 3, and
a tube in said handle,
an intake portion of said pump sleeve being slidable relatively to said tube for paint transmission during reciprocation of said pump sleeve,
a portable paint container,
and a conduit connecting said tube in the handle to said paint container.