MATERIAL APPLYING APPARATUS
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This invention relates to a metal finishing and more particularly to a device for automatically applying a liquid buffing compound directly to a buffing wheel.

In hand buffing operations the solid bar type buffing compound has generally been used primarily due to a lack of an adequate means of applying a liquid type compound. The use of the solid bar type buffing compound suffers from several inherent disadvantages which can be alleviated by the use of a liquid buffing compound. The solid bar type buffing compound, for example, is more expensive per pound than is the liquid type buffing compound. Moreover, the solid type compound is usually more difficult to clean from buffed articles than is the liquid type compound. Adequate cleaning is a necessity for buffed articles which are to be electroplated.

Moreover, the whole bar of solid buffing compound is not usable since it is necessary to hold some portion of the bar while applying it to the buffing wheel. Generally about ¾ of the bar, that amount held in the hand, is unusable until remelted and cast into larger bars. In addition, the bar type compound being relatively dry does not stick to the wheel as well as the liquid type, resulting in a large waste and dirt problem.

Heretofore, the only useful means for applying a liquid buffing compound to a hand wheel was by an air operated spray gun. The use of the spray technique in applying the liquid compound to the wheel involves the purchase of costly spray guns and an elaborate gun control apparatus. Additionally, numerous operating problems, such as plugged nozzles, replacement of worn nozzles, leaky packings, etc. complicate the operation. Moreover, the relatively low cost of the used compound and the wasted compound which was oversprayed and not picked up by the wheel make this type of application impractical and undesirable.

It is an object of the present invention to eliminate the problems involved in previous methods of applying a buffing compound to a hand buffing wheel. My invention alleviates these problems by providing a new means for applying a liquid buffing compound to the buffing wheel.

My invention comprehends a liquid buffing compound applicator which places a quantity of liquid buffing compound directly onto the surface of a buffing wheel without atomization. The applicator involves a generally tubular body member having a supply head which is placed directly against a buffing wheel. Liquid buffing compound from a pressure reservoir is conveyed to the applicator which has suitable regulatory means to both control flow from the reservoir and also residual flow from the applicator. The liquid compound issuing from apertures in the supply head is picked up and worked into the surface of the buffing wheel so as to obtain maximum utilization of the compound.

My invention provides a means of applying a liquid buffing compound to a hand buffing wheel with a minimum of loss such as heretofore achieved. It provides advantages inherent in the use of a liquid buffing compound without the numerous operating problems, such as compound waste and messy working conditions, that existed with the spray gun technique of applying a liquid buffing compound. In addition, a central source of supply can be utilized without the high cost and elaborate control systems required for spray gun application. Other objects, features and advantages of the present invention will become more apparent from the following description of a specific example thereof and from the drawing, in which:

FIGURE 1 shows an elevational view of a liquid buffing compound applicator comprehended by my invention;

FIGURE 2 shows a longitudinal sectional view of the applicator shown in FIGURE 1; and

FIGURE 3 is an enlarged fragmentary view of the applicator shown in FIGURE 2.

Referring now to the drawing, FIGURE 2 shows a liquid buffing compound applicator such as comprehended by the invention. The applicator has a generally tubular body member or barrel 10 and a T-shaped tubular supply head 12. One end 14 of the body member is internally threaded to receive an externally threaded coupling member 16 which connects a liquid buffing compound conduit 18 to the body member 10. The opposite end of the body member 10 is externally threaded at 20 for attachment of a supply T 22 by means of an adapter 24. The supply T 22 has its ends closed to form a chamber 28 therein. The body member has a chamber 26 therein which is in communication with the chamber 28 by means of an interconnecting passage 30. The supply T 22 has a shield 32 thereon which conforms to the external radial contour of the supply T.

Rods 34 are secured to the shield 32 to lock the shield on the supply T 22 and yet permit the shield to rotate around the supply T. The edges of the shield are crimped at 36 to inhibit lateral movement of the shield on the supply T. The supply T has a plurality of apertures 38 therein. Corresponding apertures 40 in the shield member 22 register with the apertures 38 in the supply T when the shield is rotated about the supply T.

A passage 42 connects the buffing compound conduit 18 with a plunger valve 44 in the body member 10. The body member has a transverse bore 46 which is internally threaded at 48 to receive a valve member 50. The valve port member, in turn, has a bore 52 which is internally relieved at 54 to receive a control button 56. The plunger valve 44 has a vertical extension 58 projecting upwardly through the bore 52 in the valve port member into engagement with the control button 56. The plunger valve is biased upwardly into a closed position by a supporting spring 60. The valve port member 50 has a multiplicity of ports 62 therein which communicate the bore 52 of the valve port member 50 with an adjacent annular collection chamber 64.

The collection chamber, in turn, communicates with the body chamber 26 through the interconnecting passage 66.

An extension 68 of the shield 32 functions as a trigger for the applicator. The extension 68 projects back along the body member 10 from the supply head 12 to the plunger valve 44. A boss 70 on the lower surface 72 of this extension or trigger is brought into engagement with the plunger valve control button 56 by depression of the trigger. This action, of course, simultaneously rotates the shield 32 about the supply T 22. The trigger 68 is biased upwardly by a spring 74, which is secured by soldering or the like to the lower surface 72 of the trigger and the upper surface 76 of the body member.

A liquid buffing compound contained in a suitable pressure reservoir 78 is conveyed to the applicator by means of the conduit 18. The compound flows from the conduit 18 through the passage 42 to the plunger valve 44. When the trigger 68 is depressed the plunger valve 44 is opened and the apertures 40 in the shield are registered with corresponding holes 38 in the supply T 22. The liquid buffing compound flows through the plunger valve and the valve
ports 62 into the annular collection chamber 64. From the collection chamber the buffering compound passes through the passage 66 into the relatively large body chamber 26. The buffering compound then flows from the relatively large body chamber into the supply T 22 through the interconnecting passage 30. The buffering compound exits the supply T through the apertures 38 therein and the registering apertures 40 in the shield 32.

With the release of the plunger valve 44, the pressure supply of liquid buffering compound is stopped. The first movement of the trigger 65 permits the plunger valve to close. Further movement of the trigger rotates the shield 32 to such an extent as to cause the apertures 40 in the shield to be removed from coincidence with the apertures 38 in the supply T, thus inhibiting any residual flow of buffering compound from the applicator after closure of the plunger valve. The transfer of the compound from the conduit to the relatively large chambers 26 and 28 in the applicator additionally tends to inhibit residual flow of the compound from the applicator.

In operation the applicator is placed in contact with a rotating buffing wheel 80 so that the buffering compound which is dispensed is immediately taken up and worked into the surface of the wheel. Since this contact with the buffing wheel may tend to wear the surface of the shield, I prefer to coat the shield with a layer of a wear-resistant material. A relatively heavy layer of chromium metal has proved to be satisfactory. Electrodeposited chromium coatings having a thickness of approximately 0.0015 inch have been used. In general any suitable wear-resistant material can be employed provided it is of sufficient thickness and adherence to withstand use of the applicator for a satisfactory duration without exposing the base metal.

Although this invention has been described in connection with certain specific examples thereof, no limitation is intended thereby except as defined in the appended claims.

I claim:

1. A device for applying a liquid buffering compound directly onto a buffing wheel comprising a barrel member, means for supplying a liquid buffering compound under pressure to said barrel, means for regulating the flow of buffering compound from a reservoir to said barrel, a supply head on said barrel adapted for direct contact with a buffing wheel, said supply head having at least one opening therein for dispensing said buffering compound, and means for simultaneously registering said openings.

2. A device for applying a liquid buffering compound to a buffing wheel comprising a reservoir of liquid buffering compound, a barrel, means for supplying liquid buffering compound under pressure from said reservoir to said barrel, first means for regulating flow of buffering compound from said reservoir to said barrel, a supply head on said barrel adapted for direct contact with a buffing wheel, a supply head having at least one opening therein for dispensing said buffering compound, a second means coating said first means and associated with said opening for adjusting the flow of liquid buffering compound therefrom.

3. A device for applying a liquid buffering compound to a buffing wheel comprising a barrel, means for supplying a liquid buffering compound under pressure to said barrel, regulating means associated with said barrel for controlling the flow of said buffering compound through said barrel, a supply head on said barrel adapted for direct contact with a buffing wheel, said supply head having a movable shield, said supply head having at least one opening therein for dispensing said buffering compound, said shield having at least one opening therein corresponding to said opening in said supply head so that relative movement therebetween generally registers said openings, and means for simultaneously generally registering said openings and actuating said regulatory means.

4. A device for applying a liquid buffering compound comprising a barrel, means for supplying a liquid buffering compound under pressure to said barrel, valve means in said barrel for controlling the flow of buffering compound into said barrel, a supply head on said barrel adapted for direct contact with a buffing wheel, said supply head having a movably mounted shield member, a coating of a wear-resistant material on said shield member, said supply head having at least one opening therein corresponding to said opening in said supply head so that relative movement therebetween generally registers said openings, and an extension on said shield for actuating said valve so that movement of said shield causes said valve and generally registers said openings.

5. An article of manufacture for dispensing a viscous material comprising a barrel, means for supplying a viscous material under pressure to said barrel, regulatory means associated with said barrel for controlling the flow of said material through said barrel, a supply head on said barrel, said supply head having a member movably mounted thereon, said supply head having at least one opening therein for dispensing said material, said member having at least one opening therein corresponding to said opening in said supply head for dispensing said material, and means and simultaneously generally registering said openings.

6. An article of manufacture for dispensing a viscous material comprising a barrel, means for supplying a viscous material under pressure to said barrel, valve means associated with said barrel for controlling the flow of said material through said barrel, a supply head on said barrel, said supply head having a movable shield thereon, said supply head having at least one opening therein for dispensing said material, said shield having at least one opening therein corresponding to said opening in said supply head so that relative movement therebetween generally registers said openings, and an extension on said shield for actuating said valve and simultaneously generally registering said openings.

7. An article of manufacture for dispensing a viscous material comprising a barrel, means for supplying a viscous material under pressure to said barrel, regulatory means associated with said barrel for controlling the flow of said material through said barrel, a nozzle on said barrel having a generally tubular, lateral extension, said nozzle having a rotatably mounted shield thereon conforming to the external radial contour of said nozzle, said nozzle having at least one opening therein for dispensing said material, said shield having at least one opening therein corresponding to said opening in said nozzle so that relative rotation therebetween generally registers said openings, and an extension on said shield for actuating said regulatory means and simultaneously generally registering said openings.

8. An article of manufacture for dispensing a viscous material comprising a barrel, means for supplying a viscous material under pressure to said barrel, regulatory means associated with said barrel for controlling the flow of said material through said barrel, a nozzle on said barrel having a generally tubular, lateral extension, a rotatable shield on said nozzle conforming to the external radial contour of said nozzle, a coating of a wear-resistant material on said shield for contact with said buffing wheel, said nozzle having at least one opening therein for dispensing said material, said shield having at least one opening therein corresponding to said opening in said nozzle so that relative rotation therebetween generally registers said openings, and an extension on said shield for actuating said regulatory means and simultaneously generally registering said openings.

9. An article of manufacture for applying a liquid buff-
ing compound to a buffing wheel comprising a barrel, a nozzle on said barrel having a lateral extension, a chamber in said barrel communicating with a chamber in said nozzle, means for supplying a liquid buffing compound under pressure to said chamber in said barrel, valve means in said barrel for controlling the flow of a buffing compound into said barrel chamber, a shield member movably mounted on said nozzle, said nozzle having a plurality of apertures therein for dispensing said buffing compound from said nozzle chamber, said shield member having a plurality of apertures therein corresponding to said apertures in said nozzle so that relative movement therebetween generally registers said apertures, and an extension on said shield for actuating said valve so that movement of said extension simultaneously actuates said valve and generally registers said openings.

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