Aug. 10, 1937. D. B. REPLOGLE 2,089,911

COMBINED WAX APPLIER (ELECTRIC), POLISHER, AND CARPET SWEEPER

Filed Jan. 25, 1936 3 Sheets-Sheet 1

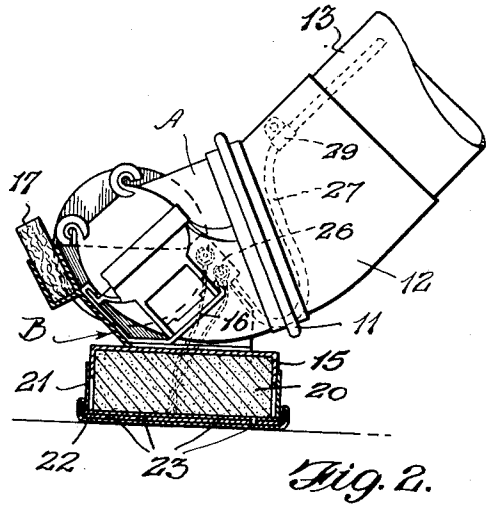


Fig. 2.

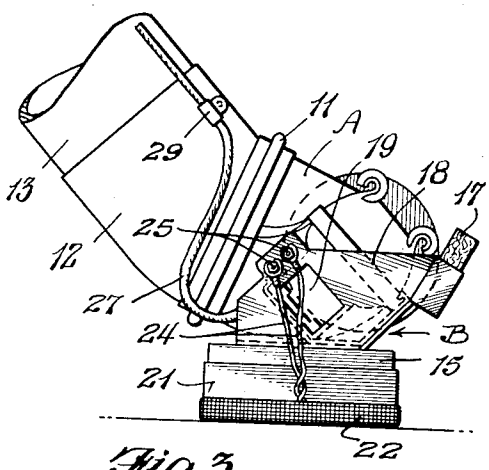


Fig. 3.

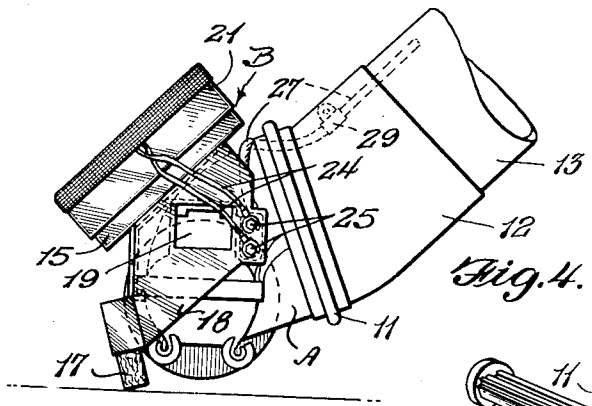


Fig. 4.

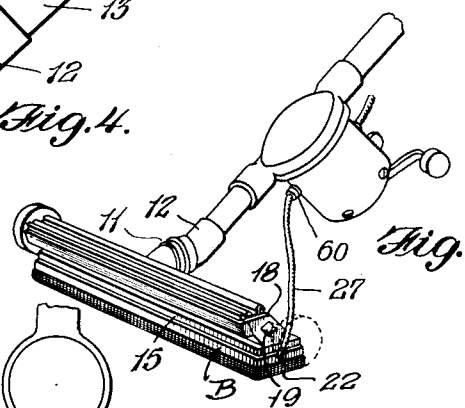


Fig. 12.

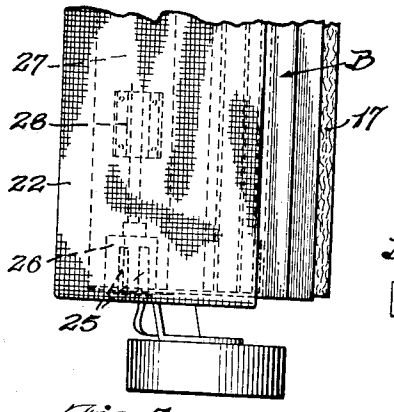


Fig. 5.

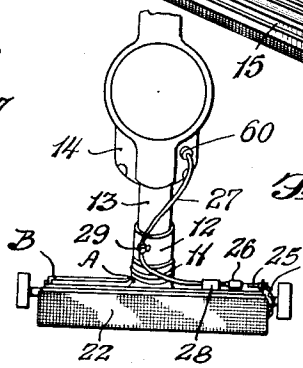


Fig. 1.

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COMBINED WAX APPLIER (ELECTRIC), POLISHER, AND CARPET SWEEPER

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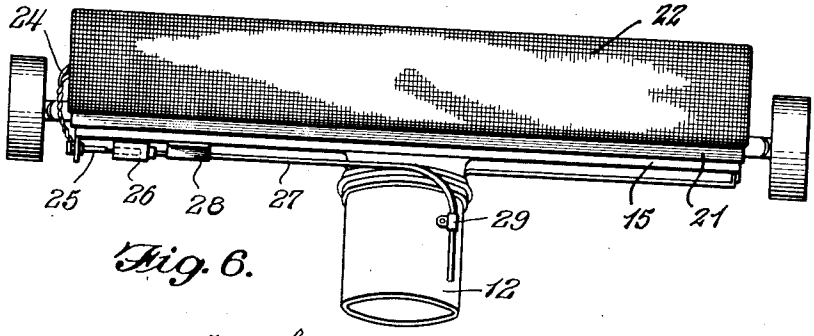


Fig. 6.

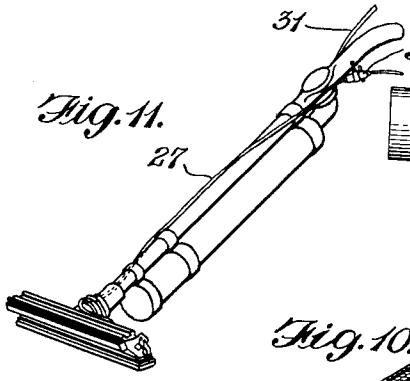


Fig. 11.

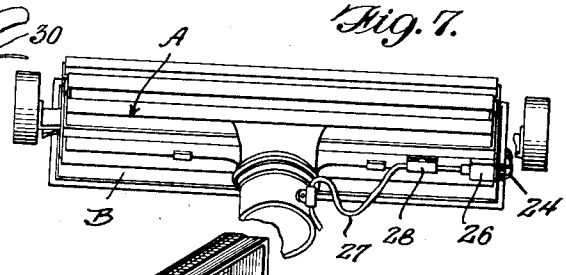


Fig. 7.

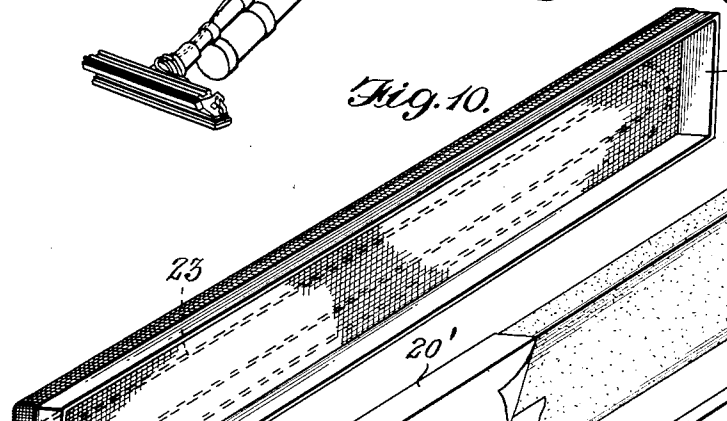


Fig. 10.

Fig. 9.

Fig. 8.

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COMBINED WAX APPLIER (ELECTRIC), POLISHER, AND CARPET SWEEPER

Filed Jan. 25, 1936 3 Sheets-Sheet 3

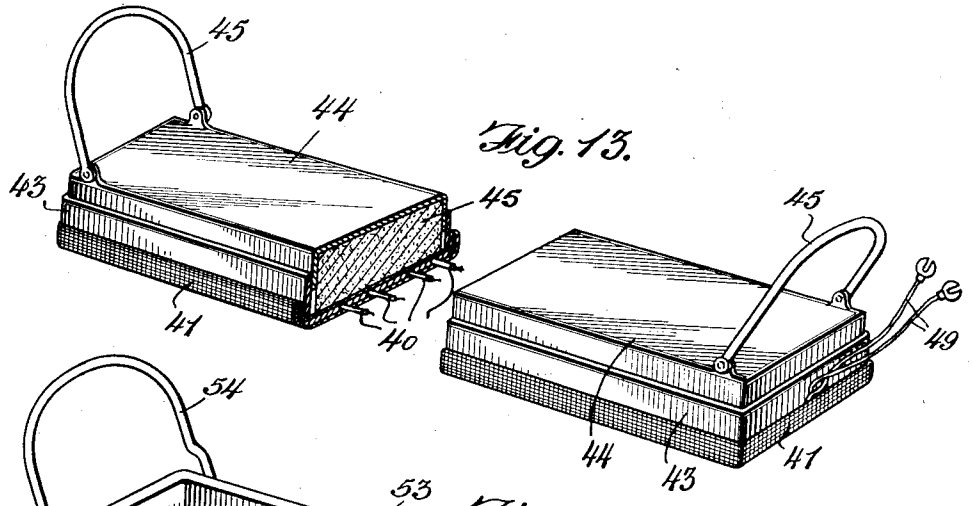


Fig. 13.

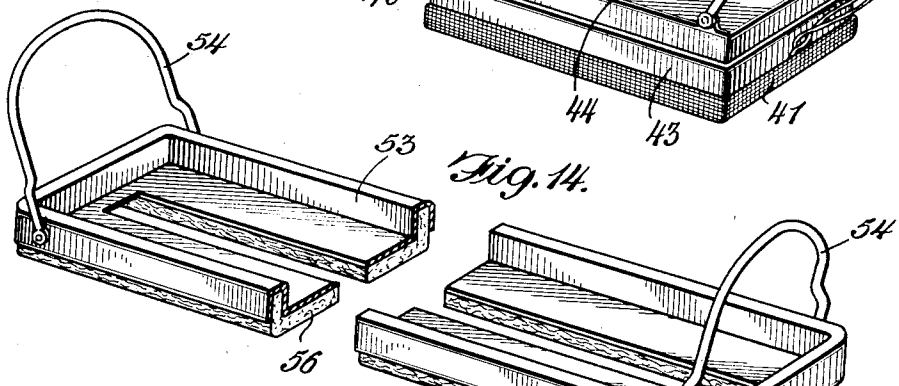


Fig. 14.

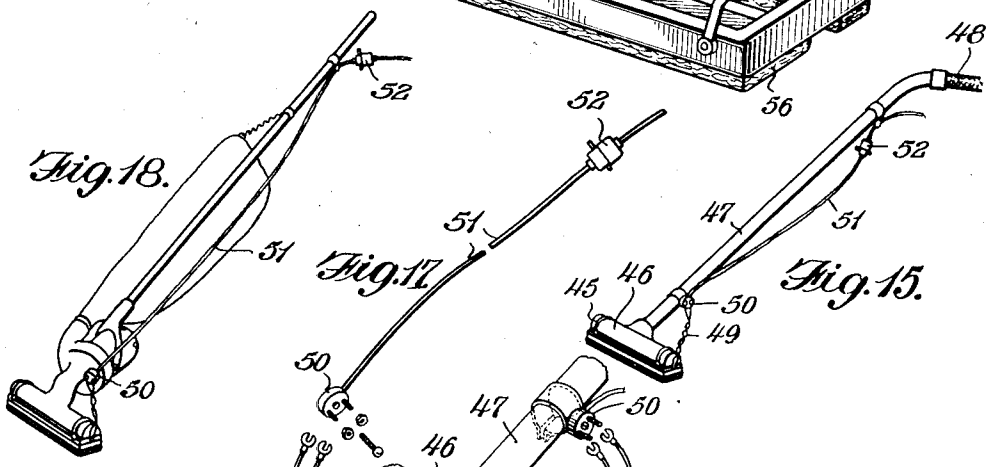


Fig. 18. Fig. 17. Fig. 15. Fig. 16.

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Patented Aug. 10, 1937 2,089,911

UNITED STATES PATENT OFFICE

2,089,911

COMBINED WAX APPLIER (ELECTRIC), POLISHER, AND CARPET SWEEPER

Daniel Benson Replogle, Berkeley, Calif., assignor to Citizens Trust Company of Toledo, Ohio, a corporation of Ohio, as trustee

Application January 25, 1936, Serial No. 60,873

3 Claims. (Cl. 91—39)

The invention relates to cleaning apparatus, and more particularly to apparatus of this type utilizing the cleaning effect of swiftly moving air, and to attachments for such cleaning apparatus, whereby wax may be applied to a surface to be cleaned and after the application of wax the floor may be polished, while at the same time air is being drawn into the tool over the waxed surface, thus drying such surface and picking up such particles of wax and dirt as may be rubbed loose from the floor.

In designing the apparatus, it is my aim to utilize to a large extent standard and interchangeable parts, connections and the like, which are covered by my prior patents and pending applications, and which are included in what is known as the "Air-Way" System, the term "Air-Way" being covered by a registered trade-mark.

The present application is a continuation-in-part of my application Serial No. 20,240, filed May 7, 1935.

One of the objects of the present invention is to provide novel means for electrically heating the wax carried by the waxing attachment. A further object of the invention is to provide improved means for connecting and disconnecting the electric current which supplies the heating element. Still another object of the invention is to provide means for automatically breaking the electrical connection as the cleaning tool equipped with the combined waxing and polishing attachment is moved from the waxing to the polishing position.

Other objects will be apparent from a consideration of the further detailed description and the accompanying drawings in which are set forth various illustrative embodiments of the invention.

In the drawings:—

Fig. 1 is a top plan view on a reduced scale showing a cleaner of the "Air-Way" type equipped with a wax applying and floor polishing attachment, portions of the cleaner being broken away, and the wax applier shown in operative position;

Fig. 2 is an end view on a larger scale than Fig. 1, the attachment being shown in section and the wax applier in working position;

Fig. 3 is a similar view, from the other end of the cleaner, the attachment being shown in elevation;

Fig. 4 is a view similar to Fig. 3, but with the floor tool reversed, the suction nozzle being in operative position and the wax applier in inoperative position;

Fig. 5 is a fragmentary plan view of the attachment looking upward on Fig. 3, parts being shown in dotted lines;

Fig. 6 is a plan view looking down on the apparatus in the position shown in Fig. 4;

Fig. 7 is a plan view on a reduced scale, looking down on the apparatus in the position shown in Fig. 3;

Fig. 8 is a perspective view of the wax carrier attachment shown removed from the cleaner, and with the wax bar and heater separated therefrom;

Fig. 9 is a perspective view of the wax cake or bar;

Fig. 10 is a perspective view of the heater unit and the net covering therefor;

Fig. 11 is a perspective view showing the attachment applied to a cleaner of the "Caddy" type;

Fig. 12 is a perspective view showing a further modification;

Fig. 13 is a perspective view showing a different form of waxing and heating attachment, and equipped with hooks for attaching the same to cleaners of well known types;

Fig. 14 is a perspective view of a modified form of polisher equipped with attaching hooks;

Fig. 15 is a perspective view showing a cleaner of conventional type equipped with the attachment shown in Fig. 13;

Fig. 16 is a fragmentary view on a scale somewhat larger than that employed in Fig. 15, showing details of construction;

Fig. 17 is a detailed view showing the electrical connections; and

Fig. 18 is a view showing the attachment applied to a somewhat different form of cleaner.

Referring particularly to the embodiment of the invention shown in Figs. 1–10 inclusive, A represents a floor tool of the "Air-Way" type and B a waxing and polishing attachment shown shaded in contrast to the tool.

The floor tool may be of the type shown in Patent No. 2,017,770 to Replogle and Queen, dated October 15, 1935, to which reference may be had for further details of construction, and the waxing and polishing attachment is similar to that set forth in my copending application Serial No. 20,240, filed May 7, 1935, except that the waxing attachment is equipped with an electrical wax heating unit. The aforesaid application may be referred to for details of construction common to the two.

The cleaner nozzle is shown as connected by an inclined joint 11 to a hollow stub portion 12 which may be detachably connected to any suit-

able source of suction as the pipe 13. The nozzle is adapted to be reversed about the joint 11 as indicated by Figs. 3 and 4, for example. In the position shown in Fig. 3, the waxing attachment is in operative position with its face flush with the floor, while in Fig. 4, the polisher is in operative position and air may be drawn into the mouth of the nozzle together with rolled-up bits of wax, dirt, etc. In Fig. 1, the nozzle is shown connected to the suction-producing means of a portable type suction cleaner which may be of the general construction shown in my Reissue Patent No. 16,224, dated December 15, 1925. The reference numeral 14 denotes the fan motor casing. The polishing and waxing attachment is shown in detail in Figs. 8, 9, and 10, the same being separated from the cleaner and the parts of the attachment separated one from another to show details of construction. The reference numeral 15 denotes a wax receiving trough which may be composed of sheet metal or any suitable material and which is provided with flexible attaching clips 16 which are adapted to fit over the top of the cleaner nozzle. 17 denotes the polishing attachment or bar which is preferably of felt and which extends at an angle to the plane of the wax receiving trough. Extending from the ends of the trough 15 are members 18 having openings 19 therein to permit roller shanks of the cleaner nozzle to pass therethrough and to hold the attachment in position.

The numeral 20 denotes a suitable wax cake or bar shaped to fit into the trough 15, and 20' denotes a paper covering which is partially or wholly removed from the wax before placing the same in the trough.

The heating unit is incorporated within a telescopic cover 21 which is adapted to fit over the wax cake and the trough 15. The cover is provided with a mesh facing 22 and the heating elements are shown as comprising coils 23 extending lengthwise of the unit. These coils are adapted to heat the wax cake and cause the same to flow readily. The ends of the coils are provided with connectors 24 which are adapted to engage the heads of prongs 25, 25, to which the members 24 are attached. This attachment is shown clearly in Figs. 3, 4, 5, and 6. A socket member 26 is adapted to engage the prongs 25, 25 and complete a circuit through the heating coils. When the socket is removed, the connection is broken. The socket 26 is connected to a conductor cord 27 which is supplied from any suitable source of current. A guide 28 is provided at the rear of the attachment and a further guide 29 is shown on the stub portion 12.

In the arrangement shown in Figs. 5 and 7, the prongs 25 are shown fitted into the socket 26, the waxing attachment being in working position. The arrangement of parts is such that when the tool is reversed so as to place the nozzle in operative position, and the waxer in inoperative position, the current is automatically broken by separating the socket 26 from the prongs 25, as indicated in Figs. 1 and 6. This is due to the fact that the member 29 through which the cord 27 passes is located at one side of the outlet pipe 12 and is accordingly closer to one end of the cleaner than to the other, and to the further fact that the cord 27 is only long enough to permit the socket member to engage the prongs 25—25 when these prongs are on the side adjacent the member 29 but is too short to reach the prongs when the tool is reversed so that they are on the side remote from the member 29.

In Fig. 1, the cord 27 is shown provided with a plug 60 at the end opposite the socket 26 which fits into an outlet 28 on the motor casing 14, the outlet being similar to that described in my Patent No. 1,983,566, dated December 11, 1934.

In Fig. 11, the attachment is shown applied to a cleaner of the "Caddy" type such as illustrated in my Patent No. 1,887,600, where the heater cord 27 is provided with a switch 30 and a separate cord 31 supplies the fan motor. In this construction it is intended that the heater unit be automatically cut off on reversal of the floor tool, just as in the embodiment previously described. In Fig. 12 there is shown a portion of a cleaner similar to that illustrated in Fig. 1, but the connecting cord 27 is of such length that on reversal of the floor tool, the plug 60 comes out of its socket. It will be understood that in all of these arrangements where there is automatic cut-off of the heating means on reversal of the floor tool, it is necessary to manually replace the plug in its socket before the heating unit can again be employed.

It will be apparent that when current is applied to the heating unit, the wax is made softer and passes through the net cover between the loops of the heater. If desired, an attachment such as is shown in Fig. 14 could be provided having a longitudinal slot to permit the wax to pass therethrough, the attachment serving to hold the heater unit in place and protect the net cover.

In Fig. 13, a modified form of wax applier is shown which may be used with conventional types of portable cleaners and may, in fact, be used with the "Air-Way" type as well. It may also be employed with conventional extension pipes from stationary or semi-portable plants. As shown, reference numeral 40 represents a heating unit including the longitudinal elements covered by a netting 41 and carried by a rectangular guide member 43 which tightly fits or telescopes over an inverted trough member 44 carrying a wax cake 45. The fit is sufficiently tight to hold the parts together and prevent accidental removal. The trough member 44 is provided with swinging bails 45 adapted to fit over the ends of a conventional nozzle 46, as shown in Figs. 15 and 16. The nozzle may be connected through a conduit 47 and hose 48 to any suitable source of suction. It will be noted that the attachment is readily removable and the trough 44 may be moved down under pressure applied to the nozzle as the wax is used up. The ends of the heating coil are provided with conductors 49, 49, leading from the heating unit to a connector 50, which in Figs. 15 and 16 is shown as detachably carried by the pipe 47. Current is supplied to the connector 50 through a cord 51 from any suitable source, a switch 52 being preferably in the circuit. When the heating attachment is to be removed, the bails 45 and conductors 49 are easily separated from the cleaner which may then be used in the conventional manner. In Fig. 17 the electrical connector members are shown separated from the cleaner.

In Fig. 18, the attachment is shown applied to a portable type cleaner with the connector 50 detachably secured to a casing of a fan of the centrifugal type. It will be noted that the members 49 correspond with the members 24 shown in the first embodiment of the invention.

In Fig. 14 there is shown an attachment which may be employed as a floor polisher separate from the waxing and heating unit, or may be combined with the heating unit. As shown, the

attachment comprises a trough-shaped member **53** having bails **54** adapted to fit over the nozzle head. A central slot **55** is provided in the bottom of the attachment. The lower face of the attachment is provided with felts **56** or other polishing members. Where the attachment is secured directly over a suction nozzle, the air enters the slot **55** and passes thence to the inlet mouth of the cleaner. In this manner, particles of dirt, wax, etc. may be removed from the floor during the polishing operation.

The attachment shown in Fig. 14 could be arranged to fit over the heating unit shown in Fig. 13, and would in such case, protect the net covering from direct contact with the floor. In such event, the attachment should preferably be made of a non-conducting material such as phenolic condensation products, hard fiber or the like. The slot **55** would then permit wax softened by the heating unit to pass therethrough.

The attachment shown in Fig. 14 could also be applied without material modification to the form of heating unit disclosed in the previously described embodiments of the invention, with the bails of the attachment fitting over the ends of the nozzle or over the roller supports.

It will also be apparent that a polishing unit such as shown in Fig. 14 could be used with any type of pressure head. In such event, the central slot might not be required.

Various modifications of the invention have been described in detail for the purpose of illustration, but it will be understood that further variations may be resorted to without departing from the spirit of the invention.

Under some circumstances it may be desirable to make the trough **15** and the member **21** (Fig. 2) of phenolic condensation products, hard fiber or other suitable material which is a non-conductor for electricity. Similarly, the corresponding members **44** and **43** of Fig. 13 may be of the same material.

I claim:

1. In combination with a reversible suction cleaner nozzle having an inlet mouth, an electrically heated waxing attachment for said nozzle having a surface adapted to engage the floor when the inlet mouth is in inoperative position, and means for automatically cutting off the current to said attachment as the nozzle is reversed to bring the inlet mouth into operative position.

2. An attachment as set forth in claim 1, having a polishing bar extending parallel with the inlet mouth.

3. In a device of the character described, a reversible head, an attachment therefor having an electrical wax heating portion and a floor polishing portion, adapted to be selectively applied to the floor, according to the position of said head, means for supplying current to said wax heating portion when the same is in waxing position, and means for automatically cutting off the current when the device is turned to the polishing position.

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