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CONTROL DEVICE

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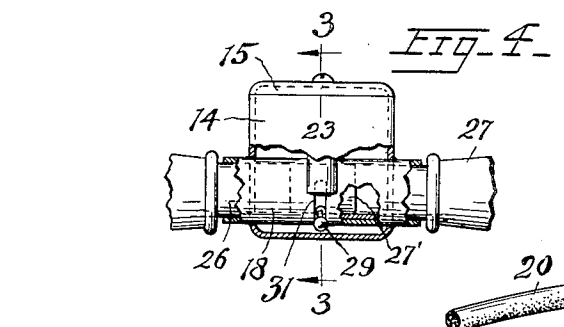


Fig. 4.

Fig. 2.

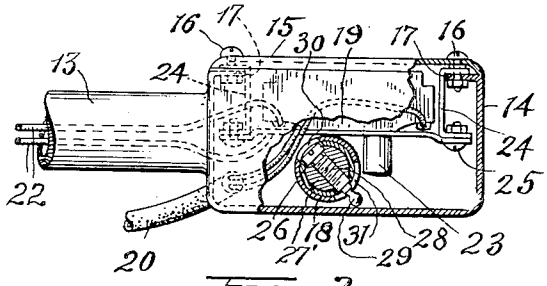


Fig. 3.

Fig. 1.

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CONTROL DEVICE

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7 Claims. (Cl. 200—157)

This invention relates to electrical devices and, more particularly, to the control means therefor.

It is one of the objects of the invention to provide an improved construction of control means for a portable electrical device, such as a floor-finishing machine, that will automatically shut off the current when the operator releases the control handle and that will also be convenient and efficient in operation.

A further object of the invention is to provide a device of the character described that will embody a rugged construction that will stand the severe use that such devices as floor-finishing machines are subjected to.

Another object of the invention is to provide a construction, embodying the above characteristics and which, nevertheless, may be manufactured at a comparatively low cost.

Other objects of the invention and the features of novelty will be apparent from the following description, taken in conection with the accompanying drawing in which one form of the invention, as applied to a floor-finishing machine, is illustrated.

In the drawing,

Figure 1 is a side elevation of a common form of floor-finishing machine;

Fig. 2 is an enlarged plan of the upper portion of the control handle in which my invention is incorporated;

Fig. 3 is a side elevation thereof, with certain parts broken away and other parts shown in section on the line 3—3 of Fig. 4; and

Fig. 4 is a fragmentary end elevation with a portion of the housing broken away to expose some of the internal parts.

Referring to the drawing, 10 indicates the frame of a floor-finishing machine which comprises a rotatable annular brush 11 that is driven by a motor 12. A handle 13, for guiding and controlling the movements of the machine, is attached to the frame 10 and extends in an upwardly inclined direction therefrom, as shown in Fig. 1. The handle 13 is preferably tubular and the wires 22 for supplying current to the motor 12 extend through the handle from the switch box or housing 14, which is welded or otherwise secured to the upper end of the handle 13.

The switch box or housing 14 is preferably of rectangular form, as illustrated in the drawing, and the upper side thereof has an opening which is normally closed by a cover plate 15 that is secured in position by means of the screws 16 which engage lugs 17 on the housing 14. Extending transversely through the housing 14 and preferably near the bottom wall thereof, is a sleeve 18 which projects from the opposite sides of the housing 14, as best shown in Figs. 2 and 4. The sleeve 18 may be welded or otherwise secured to the housing 14 so as to constitute a substantially permanent part thereof.

Arranged within the housing 14, between the sleeve 18 and the upper open side of the housing, is a switch 19 for controlling the supply of current to the motor 12. A two-wire cable 20 enters the housing 14 at 21 and the free end of this cable may be provided with an ordinary attachment plug, not shown, for connecting the cable with a source of supply of current. The cable 20 is connected with the proper terminals of the switch 19 and the wires 22 lead from the switch to the motor.

The switch 19 is preferably a common form of commercial switch of the type known as a double pole, momentary contact, push button switch, having a push button 23 which is manually actuated to close the switch but automatically actuated by a suitable spring, not shown, to open the switch. In this type of switch the button, or actuating member 23, is pushed to close the switch and then held so long as it is desired to keep the switch closed but, as soon as the pressure on the button 23 is released, the latter automatically returns and opens the switch and cuts off the supply of current to the motor 12. As this type of switch is a common article of commerce and well known to those skilled in this art, it is considered to be unnecessary to illustrate and describe the details of construction of the switch.

In order to hold the switch 19 in its proper position, a pair of U-shaped brackets 24 are arranged at its opposite ends and secured to the frame of the switch by screws 25. The brackets 24 are carried by the lugs 17, as illustrated in Fig. 3, and are secured thereto by the screws 16.

Extending through the sleeve 18 and rotatably mounted therein, is a tubular handle bar 26, which is preferably provided with rubber handle grips 27 at its opposite ends. A metal plug 27′ is driven into the handle bar 26 and arranged at the middle thereof, and a transverse hole is drilled through the handle bar 26 and plug 27′ and suitably tapped to receive the screw 28 which has an exposed ball end 29 that is adapted to engage with the push button or actuating member 23 to push it upwardly to

close the switch 19, when the handle bar 26 is rotated, as will be best seen from Fig. 3. The sleeve 18 has an opening 30 through which the screw 28 may be inserted in the plug 27' and this sleeve is also provided with a circumferentially extending slot 31, through which the ball end 29 of the screw projects, the edges of this slot cooperating with the screw to hold the handle bar 26 from shifting endwise. As will be seen from Fig. 3, the rotation of the handle bar 26 in either direction is limited by the engagement of the screw 28 with the ends of the slot 31 and by thus limiting the rotation of the handle bar when the switch is closed there is no possibility of damaging the switch by excessive pressure on the button 23.

In the operation of the control mechanism, the switch 19 is normally open but when the operator seizes the grips 27 he is in position to control the machine and, by turning the handle bar 26 in the counter-clockwise direction (as seen in Fig. 3), the switch may be closed and, so long as the operator holds the handle bar in the position to which it has been turned, the switch will remain closed. However, when the operator releases the grips 27 the automatic spring-return of the push button 23 will rotate the handle bar 26 in the clockwise direction, thereby returning it to its normal inoperative position in which the switch 19 is open. One of the advantages of the invention is that the switch 19 will always be opened, when the operator releases the handle bar 26, thus insuring that the motor 12 will not operate unless the operator of the machine holds the handle bar and is, therefore, in position to control the movements of the machine.

Having thus described my invention, I claim:

1. In apparatus of the class described, the combination of a handle, a housing attached to said handle, a switch mounted in said housing and having an actuating member, a handle bar rotatably mounted in said housing, and a finger carried by said handle bar and cooperating with said member to actuate the latter when said handle bar is rotated.

2. In apparatus of the class described, the combination of a handle, a housing attached to said handle, a manually closable automatically opening switch mounted in said housing and having an actuating member, a handle bar rotatably mounted in said housing, and a finger carried by said handle bar and cooperating with said member to actuate the latter when said handle bar is rotated.

3. In apparatus of the class described, the combination of a handle, a housing attached to said handle, a sleeve extending through said housing and secured thereto, said housing having an open side and a detachable cover therefor, a switch mounted in said housing between said sleeve and said cover and having an actuating member, a handle bar rotatably mounted in said sleeve and projecting laterally from said housing, said sleeve having a slot in its wall, and a finger carried by said handle bar and projecting through said slot into cooperating relation with said member and whereby said member may be actuated by rotation of said handle bar.

4. In apparatus of the class described, the combination of a handle, a housing attached to said handle, a sleeve extending through said housing and secured thereto, said housing having an open side and a detachable cover therefor, a switch mounted in said housing between said sleeve and said cover and having an actuating member, a handle bar rotatably mounted in said sleeve and projecting laterally from said housing, said sleeve having a slot in its wall, and a screw removably mounted in said handle bar with one end projecting through said slot into cooperating relation with said member and whereby said member may be actuated by rotation of said handle bar, said screw also cooperating with the sides of said slot to retain said handle bar in said sleeve.

5. In apparatus of the class described, the combination of a housing, a handle bar extending through said housing and rotatably supported therein, a manually closable automatically opening switch mounted in said housing and having an actuating member, and a part detachably secured to said handle bar and adapted to cooperate with said actuating member to close said switch by the rotation of said handle bar.

6. In apparatus of the class described, the combination of a housing, a handle bar extending through said housing and rotatably supported therein, a manually closable automatically opening switch mounted in said housing and having an actuating member, and a part detachably secured to said handle bar and cooperating with surfaces within said housing to retain said handle bar in position, said part also being adapted to engage said actuating member and actuate the latter upon rotation of said handle bar.

7. In apparatus of the class described, the combination of a housing, a sleeve extending through said housing and secured to opposite sides thereof, said sleeve having a circumferentially extending slot, a tubular handle bar rotatably arranged in said sleeve, a manually closable automatically opening switch secured in said housing and having an actuating member, a finger secured in said handle bar and projecting through said slot into actuating relation with said actuating member, said finger serving to retain said handle bar in said sleeve by engagement with opposite edges of said slot, and said housing having an open side and a removable cover therefor.

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