Dec. 10, 1935. F. RIEBEL, JR., ET AL 2,023,903

ELECTRIC CONDUCTOR CONNECTION

Filed July 8, 1931

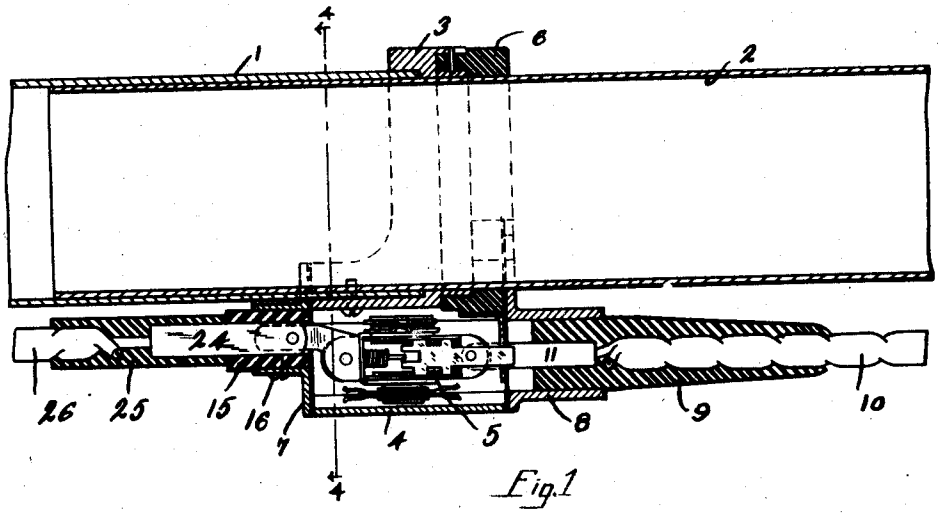


Fig. 1

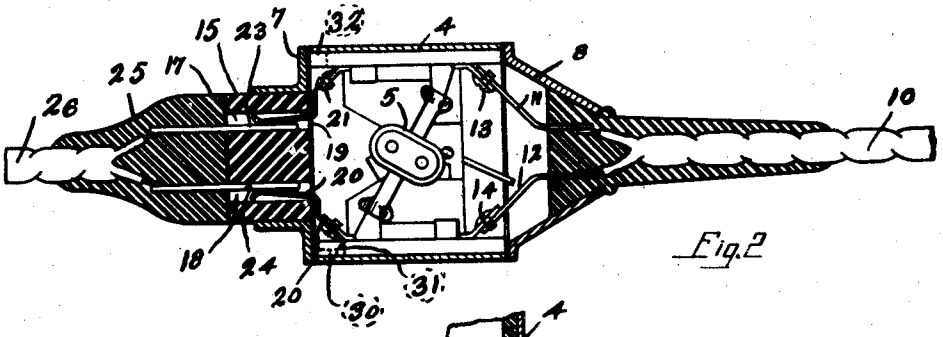


Fig. 2

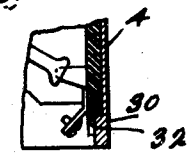


Fig. 5

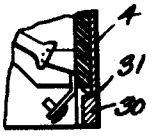


Fig. 6

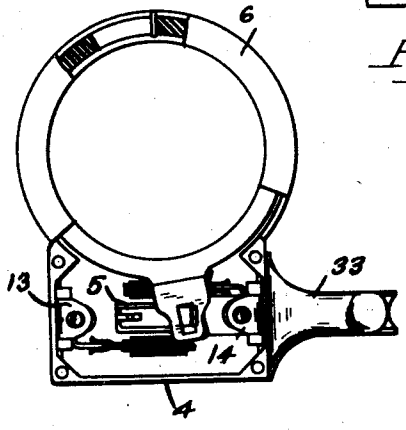


Fig. 3

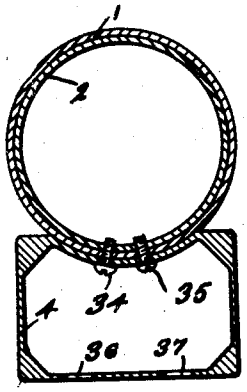


Fig. 4

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ELECTRIC CONDUCTOR CONNECTION

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Application July 8, 1931, Serial No. 549,491

3 Claims. (Cl. 173—324)

The present invention relating as indicated to an electric conductor connection, has more particular reference to a novel construction for a conducting means to be used in conjunction with portable electric appliances. The accompanying illustrated embodiment of the principle of our invention constitutes an improvement of our copending application Serial No. 541,784, filed June 3, 1931 issued as Patent No. 1,901,671, March 14, 1933; and is more precisely intended for installation upon the tubular handle of a well known type of vacuum cleaner.

It is the general object and nature of our invention to provide an arrangement for connecting a switch unit between the current supply conduit and the motor cord of a vacuum cleaner so as to provide a detachable connection including a male element on the motor cord and a female element in the switch assembly, such female element comprising the combination of an insulator formed in one end of the switch housing, and contact fingers forming part of the switch unit which is withdrawably housed within the housing, said fingers projecting into the openings in the insulator from the inside of the housing, when the unit is thus housed, for contact with the contact prongs on the male element when the latter are inserted into the openings in the insulator from the outer side thereof. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanisms embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a longitudinal sectional view taken through the electric switch embodying the principle of our invention; Fig. 2 is another longitudinal view taken through the switch on a plane at right angles to that of Fig. 1; Fig. 3 is an elevational view of one end of the switch housing with the service cord end plate removed; Fig. 4 is a section taken substantially on line 4—4 of Fig. 1; and Figs. 5 and 6 are fragmentary sectional views illustrative of the proper and improper placement of the switch mechanism within the switch housing.

Referring more particularly to the drawing, our electric switch in its illustrated embodiment is intended to be installed at the juncture point of the hollow handle tubes 1 and 2 which constitute a combined air conduit and handle means for a vacuum cleaner. An annular ring 3 integrally cast with the switch housing 4 and enclosing the switch unit indicated generally by the numeral 5 is intended to slip over and suitably engage the tubular handle members 1 and 2.

A pair of end plates 7 and 8 are fastened to the ends of the switch housing 4 by means of suitable screws and are adapted to retain the switch mechanism 5 within said housing. The end plate 8 secures the rubber insulation cord guard 9 for the operating or service cord 10. A pair of bus bars 11 and 12 serve to effect contact for the ends of the service cord 10 with the terminals 13 and 14 of the switch mechanism 5.

The end plate 7 which is intended to be positioned upon the end of the switch housing 4, which is directed toward the motor end (not shown) of the vacuum cleaner, carries the insulating guide block 15. A suitable fastening screw 16 serves to retain the guide block 15 in position relative to the end plate 7. A pair of longitudinal slots 17 and 18 are adapted to receive the resilient contact arms 19 and 20 which project from the terminals 21 and 22 of the switch mechanism 5. The plug contact bars 23 and 24 are adapted to be inserted within the slots 17 and 18 and to make a removable or separable contact with the resilient arms 19 and 20. A plug 25 composed of rubber or similar insulating material serves to suitably secure the plug bars 23 and 24 on the ends of the motor cord 26.

Referring to Figs. 5 and 6, in order to insure against misplacement of the switch unit 5 within the housing 4, an inwardly extending lug 30 is provided in the side of the switch housing. When the switch unit is properly inserted within the housing, as shown in Fig. 6, the recess 31 is of sufficient size so as not to contact with the lug 30 and to permit the switch unit 5 to be completely inserted within the housing 4.

Fig. 5 illustrates the improper inserted position of the switch unit wherein the smaller recess 32 abuts the lug 30.

In order to firmly secure the switch housing in position upon the handle tubes 1 and 2, fastening screws 34 and 35 as shown in Fig. 4 may be threadably inserted through said tubes from the interior of the housing 4. A pair of screw driver holes 36 and 37 are provided in order to give access to the screws 34 and 35.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the

mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

We therefore particularly point out and distinctly claim as our invention:

1. In a device of the class described, a housing, an electrical unit received therein, removable through one end thereof, a socket member of insulating material secured in the other end of the housing, provided with a pair of openings substantially parallel to the axis of removal of said unit, and extending from the interior of the housing to the exterior thereof, a pair of contact brushes loosely received in said openings so as to be removable therefrom as the unit is removed from the housing, and a plug for connecting a conductor to said unit, including a pair of contact prongs, detachably receivable in said openings in contact with said brushes.

2. In a device of the class described, a housing, an electrical unit received therein, removable through one end thereof, a socket member of insulating material secured in the other end of the housing, provided with a pair of openings substantially parallel to the axis of removal of said unit, and extending from the interior of the housing to the exterior thereof, a pair of contact brushes loosely received in said openings so as to be removable therefrom as the unit is removed from the housing, and a plug for connecting a conductor to said unit, including a pair of contact prongs, detachably receivable in said openings in contact with said brushes, the walls of said openings affording support to maintain said brushes and said prongs in contact with each other.

3. In a device of the class described, a housing, an electrical unit received therein, removable through one end thereof, a socket member of insulating material secured in the other end of the housing, provided with a pair of openings substantially parallel to the axis of removal of said unit, and extending from the interior of the housing to the exterior thereof, a pair of resilient contact brushes loosely received in said openings so as to be removable therefrom as the unit is removed from the housing, and a plug for connecting a conductor to said unit, including a pair of contact prongs, detachably receivable in said openings in contact with said brushes.

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