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F. C. DE REAMER

2,053,136

CONNECTER

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Fig.1.

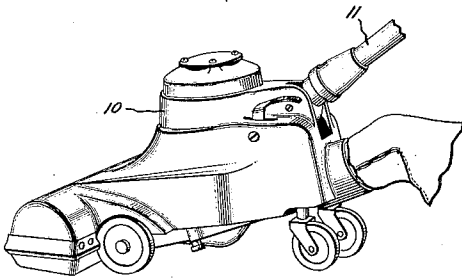


Fig.2.

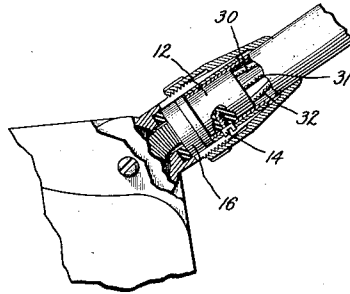


Fig.3.

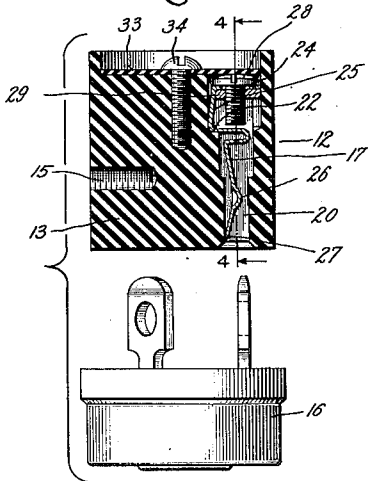


Fig.4.

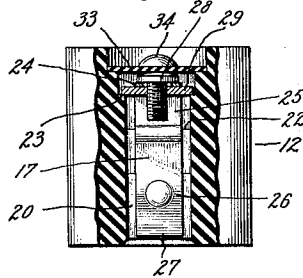


Fig.5.

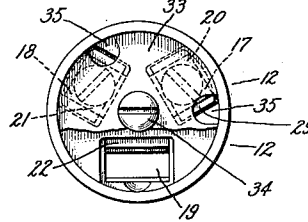


Fig.7.

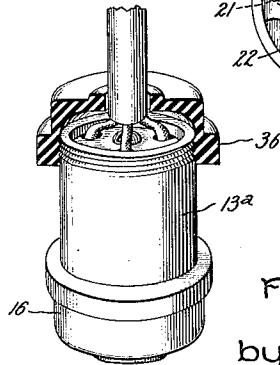
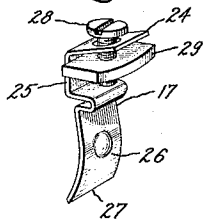


Fig.6.



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UNITED STATES PATENT OFFICE

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CONNECTER

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Application January 5, 1935, Serial No. 548

3 Claims. (Cl. 173—332)

My invention relates to an electric wiring device and more particularly to a connecter.

An object of my invention is to provide an improved connecter of small size having a minimum of parts which may be manufactured and assembled at a relatively low cost.

What I consider to be novel and my invention may be better understood by reference to the following specification and accompanying drawing in which Fig. 1 is a perspective view of a portion of a vacuum cleaner in which my invention is adapted to be used; Fig. 2 is a detail view of a portion of the vacuum cleaner showing my improved connecter mounted in the handle; Fig. 3 is a sectional view of the connecter with an attachment cap shown in a position to be connected to said connecter; Fig. 4 is a detail view showing a section along lines 4—4 of Fig. 3; Fig. 5 is an end view with a part of the device cut away; and Fig. 6 is an enlarged perspective view of a contact member; and Fig. 7 is a perspective view of a modified form of connecter.

Referring to the drawing 10 indicates a vacuum cleaner provided with a handle 11 in which is secured my connecter 12 as better indicated in Fig. 2. Connecter 12 consists of a cylindrical body member 13 of insulating material which is adapted to be secured in the handle 11 by means of a screw 14 threaded into an aperture 15 in the side of body 13. Connecter 12 provides a separable connection between the switch (not shown) located in the handle 11 and the motor mounted in the vacuum cleaner 11 adjacent to the nozzle. An attachment cap 16 is connected to the motor leads and has detachable connection with the connecter 12. Body member 13 is provided with three chambers 17, 18, and 19 which extend longitudinally from end to end of the body member 13. Chambers 17, 18, and 19 are provided with openings at both ends. Contact members 20 and 21 are provided located in chambers 17 and 18, respectively. A similar contact member is adapted to be located in chamber 19, but has been removed in order to show the construction of the chamber. Each chamber 17, 18, and 19 is provided with a shoulder 22 in the inner wall of the chambers intermediate their ends. A second shoulder 23 is provided in each chamber adjacent one end and extending around the outside and adjacent side walls of said chambers. The contact members 17 and 18 are identical and an enlarged view of member 17 is shown in Fig. 6. A terminal 24 is provided integral with the contact member 17 and extending

at an obtuse angle from an adjacent flat portion 25. A spring contact finger 26 is integrally connected with the flat portion 25 with its free end 27 offset from the portion 25 as better indicated in Fig. 3. Connected to terminal 24 is a binding screw 28 and a cooperating nut 29. Contact member 17 is adapted to be inserted in the body member 13 from one end with the part adjacent to portion 25 which is offset from the free end 27 of spring member 26 resting on shoulder 22 and the free end 27 resting against the inner wall of chamber 20. Conductors 30, 31, and 32 are adapted to be connected to the contact members by means of the binding screws. A disc 33 is provided and adapted to cover the openings of chambers 17, 18, and 19 at one end of the body member 13. Disc 33 is secured to the body member 13 by means of the screw 34. Disc 33 is provided with the plurality of openings 35 corresponding to the number of conductors connected to the connecter 12. Disc 33 when secured in position after the conductors are connected to the contact members is adapted to closely engage the heads of the binding screw 28, forcing the nut 29 into engagement with shoulder 23 as better indicated in Fig. 4. This causes the contact member 17 to pivot about shoulder 22 compressing the spring finger 26 and holding its free end 27 tightly in engagement with the wall of chamber 20. This prevents the contact prongs of an attachment cap from passing between the inner wall of the chamber 20 and the spring contact finger 26. In addition it increases the spring tension and resultant contact pressure between the spring contact 26 and the prongs of an attachment cap. Disc 33 in addition to holding the contact members in position in the body member 13 also serves as a strain relief, as better indicated in Fig. 7. The conductors passing through the openings 35 engage the edge of the openings so that any strain placed on the conductors is passed directly to the disc 33 and is not transmitted to the contact members. The modification of the invention shown in Fig. 7 is identical with the construction of the connecter shown in Figs. 3 and 4 except that the open end of the body member 13a is provided with a cap 36. The cap 36 is in threaded engagement with the body member 13a. In the embodiments of the invention shown three contact members are provided, but obviously the invention is not limited to any specific number of contact members and only two may be provided for the reception of the standard two-prong attachment cap. From the foregoing description it may be

seen that the contact members are loosely assembled in the chambers in the body member, and are secured in position by engagement with the disc 33 which is held in position by a single screw 34. Thus, the parts of the connector 12 are all secured and held in position by a single screw. This greatly reduces the cost of assembly of the device. In addition the contact member 17 is formed of a single piece of sheet material which may be stamped out and formed in a single operation. Thus, an improved connector is provided which may be made of very small size and is simple in construction, of low cost of manufacture, and easy to assemble.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. An electric connector comprising a body member of insulating material, chambers extending longitudinally of said body member and having openings at both ends, a plurality of shoulders in said chambers intermediate the ends, contact members located in said chambers having terminals extending at an obtuse angle from one end and intermediate offset portions resting on one of said shoulders, binding screws and nuts connected to said terminals, a disc of insulating material covering the openings of the chambers at one end of said body member and a screw securing the disc to said body member in engagement with the binding screws, forcing the nuts against the other of said shoulders, pivoting the contact members on the offset portions and holding the opposite free ends of said contact members against the side walls of said chambers.

2. An electrical connector comprising a body

member of insulating material, a chamber extending longitudinally of said body member and having openings at both ends, a shoulder intermediate the ends of said chamber, a second shoulder adjacent the opening at one end of said chamber, a contact member located in said chamber having a terminal extending at an obtuse angle from one end and an intermediate offset portion resting on said first named shoulder, a binding screw and nut connected to said terminal, a disc of insulating material secured to said body member and covering the openings of the chambers at one end and adapted to engage the head of said binding screw to force the nut against said second named shoulder and pivoting the contact member about the offset portion, forcing the opposite free end of said contact member in engagement with the side wall of said chamber.

3. An electric connector comprising a body member of insulating material, a chamber located in said body member and having openings at both ends, a contact member having a terminal at one end and an adjacent flat portion, and a spring contact finger integrally connected with and offset from said flat portion, a part adjacent to said flat portion of said contact member resting on a shoulder in said chamber, a binding screw connected to the terminal of said contact member, means to secure said contact member in said body member and pivot the contact member on said shoulder with its free end in close engagement with a wall of said chamber.

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