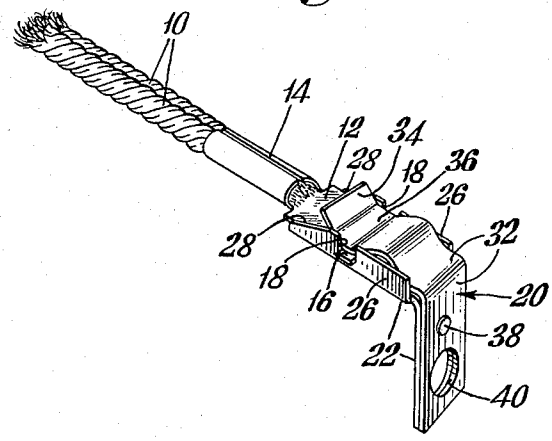
Nov. 29, 1960 H. G. OTT 2,962,693

QUICK DISCONNECT TYPE BRUSH TERMINAL

Filed March 28, 1958

Fig. 1.



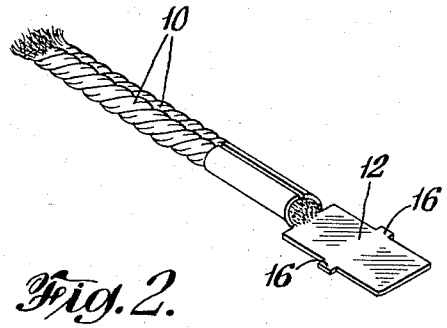


Fig. 2.

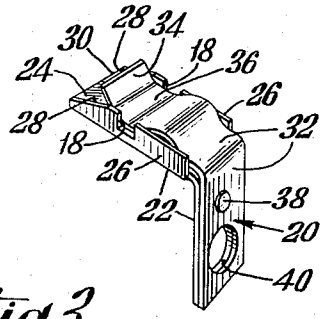


Fig. 3.

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QUICK DISCONNECT TYPE BRUSH TERMINAL

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2 Claims. (Cl. 339—258)

The invention relates to a connector for connecting and disconnecting shunted electrical contact brushes to and from electrical machines, and, more particularly, relates to a connector which allows the removal and replacement of a shunted electrical contact brush with the minimum amount of shutdown time.

It is a well known fact in the field of electrical machinery, that shunted electrical contact brushes need to be replaced after a period of use in an electrical machine because they are worn out or for other various reasons. In many applications where electrical machines are used, it is highly desirable that brushes be replaceable, when necessary, within the minimum amount of time when the machines are stopped for repair.

The prior art has recognized these needs, but the present invention is an improvement over any means which have yet been put forward to solve them.

One of the principal objects of the present invention is to provide an improved connector which permits the replacement of shunted electrical contact brushes easily and rapidly.

Another object of the present invention is to provide an improved connector that permits the replacement of shunted electrical contact brushes within the minimum amount of time after shutting down the machine.

Still another object of the present invention is to provide an improved connector characterized by improved interfacial contact to reduce the electrical resistance of the connector.

A further object of the present invention is to provide an improved connector characterized by economy of manufacture.

In the accompanying drawings:

Fig. 1 is an isometric view of a connector showing the preferred embodiment of the invention;

Fig. 2 is an isometric view of one element of the connector of Fig. 1; and

Fig. 3 is an isometric view of another element of the connector of Fig. 1.

Referring now to the drawings and in particular to Fig. 1, a male connecting element **12** has joined to it, in electrical contact, a wire or cable conductor **10**, which leads from a shunted electrical contact brush (not shown), by having its extended section **14** crimped onto the conductor **10** and soldered thereto. This male connecting element **12**, as shown in Fig. 2, has two projecting lugs **16**, one on each outer edge, which are adapted to engage notches **18** in a female element **20**. This engagement is shown in Fig. 1.

Fig. 3 as well as Fig. 1 may be referred to for the principal parts of the female element **20**. Female element **20** is preferably comprised of a pair of substantially L-shaped electrically conductive members **22** and **32**, although they may be flat or of any other suitable physical shape. These members are of such relative shape to one another so that when they are mechanically joined together at a common point, a receptacle is formed to receive the male element **12** which will be held there firmly by the spring-like action between the two members **22** and **32**. The members **22** and **32** may be mechanically joined together prior to mounting the female element **20** in a desired place, as shown, or at the time of such mounting.

One member of the female element **20** is the member **22** which has on its contacting surface **24** paralleled upturned edges **26** extending the length of said contacting surface **24**, and gradually tapering at **28** to meet said contacting surface **24** at its lip **30**. The parallel upturned edges **26** have notches **18** cut therein on both sides to receive the projecting lugs **16** on the male element **12** and to hold the male element **12** in position. The other member of the female element **20** is member **32** which abuts the outer surface of said member **22** and has an upturned lip **34** whose base **36** presses against said lip **30** of said member **22**. The members **22** and **32** are joined together by a rivet **38**. The joined members, making up female element **20** have a terminal eyelet **40** cut through them so that the female element can be electrically mounted in a desired place.

By following the foregoing description of the drawings, it can be seen that the manner in which electrical contact is made between the male element **12** and the female element **20** is to take the male element **12**, which is a relatively flat piece adapted to fit the female element **20**, and insert it between the lips **30** and **34** of the two members **22** and **32** respectively which make up female element **20**, and then push the male element **12** forward, which will cause it to slide easily up the tapered edges **28** of member **22** until it enters the receptacle formed by the manner in which the members **22** and **32** are shaped and joined until, finally, its projecting lugs **16** fall into the notches **18** of member **22**. Once in that position the male element **12** will be held there firmly by the spring-like action between the two members **22** and **32**. The male element **12** may be quickly and easily removed from female element **20** by simply lifting it up so that the projecting lugs **16** will no longer be engaged in notches **18** and then pulling it out from within the lips **30** and **34** of female element **20**.

It is now apparent that the improved connector of the invention permits the rapid replacement of the male element, which is connected to the shunted electrical contact brush which is to be replaced, with a new male element and brush assembly by any relatively unskilled person, and without the use of tools.

Overall resistance readings taken between the points where the electrical wire or cable conductor leading from the shunted electrical contact brush joins the male element and the terminal eyelet when a **10** ampere current was passed through the connector of the invention, wherein the connector of the invention was made of silver plated beryllium copper, gave an average reading of .15 milli-ohm.

This represents an insignificantly small resistance when compared with the resistance of other elements in the circuit such as the resistance within the brush and shunt connection and at the commutator face.

What I claim is:

1. A disengageable electrical connector comprising a male and a female element, said female element consisting of an electrically conductive bottom member and an electrically conductive top member resiliently joined thereto, said bottom member having a flat contact surface provided with integral parallel upturned edges extending at least part of the length of said contact surface and tapering downwardly toward said contact surface at its forward end, each of said upturned edges being provided with a notch therein, said top member of said female element terminating in a resilient generally S-shaped portion, said S-shaped portion at its intermediate point bearing in a spring-like manner against said contact surface

of said bottom member between said notches in said upturned edges, and the top curved portion of said S-shaped portion extending away from said contact surface of said bottom member thereby forming an opening which readily permits insertion of said male element between said top member and said bottom member of said female element; said male element being a flat sheet provided on each outer side with a projecting lug corresponding to said notches in said upturned edges, said male element being held firmly in place between said upper and lower members of said female element by said lugs of said male element in engagement with said notches in said upturned edges and by said spring-like action of said resilient S-shaped portion bearing on said male element, but being rapidly removable from said female element by exerting a force in the upward direction followed by a force in an outward direction therefrom.

2. The disengageable electrical connector of claim 1 wherein said female element is substantially L-shaped and has a terminal eyelet therein which permits said female element to be electrically mounted in a desired place and said male element has a flexible conductor secured thereto.

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