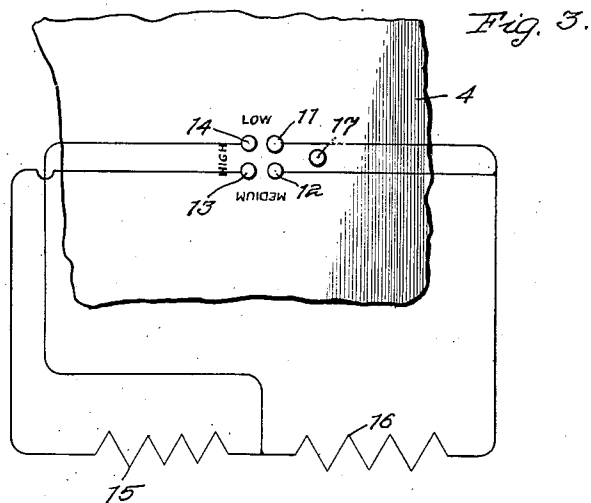
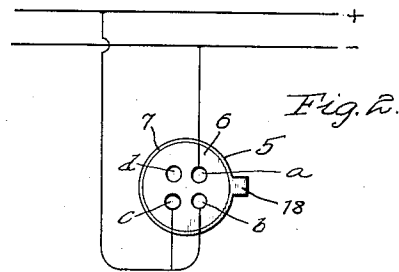
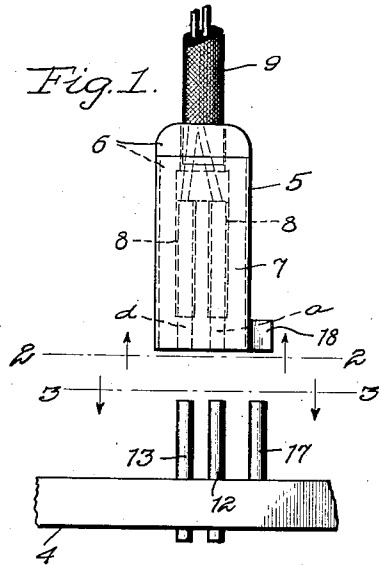


C. R. WASSELL.
ELECTRICAL CONNECTOR.
APPLICATION FILED MAY 4, 1916.

1,336,801.

Patented Apr. 13, 1920.



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UNITED STATES PATENT OFFICE.

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ELECTRICAL CONNECTOR.

1,336,801.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CLIFFORD R. WASSELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electrical Connectors, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to electrical connectors and is directed toward the provision of a device comprising two separable elements whereby circuit changes may be secured depending upon the particular position of one element relative to the other.

My invention is adapted for use wherein a permanent load circuit is desired to be variously connected with the source of power so as to produce different results, for instance, a heating coil circuit wherein it may be desired to connect but one coil to the source of power, or both coils in series, or both coils in multiple.

To the ends above pointed out, I have provided a structure comprising two separable elements, one of which is provided with a plurality of sockets and the other of which is provided with a corresponding plurality of terminal pins, the arrangement being such that different circuit conditions are secured for different angular positions of one element relative to the other.

In the accompanying drawings,

Figure 1 illustrates in elevation the connector of my invention, the two members thereof being disposed in juxtaposition;

Fig. 2 is a view taken on the plane of the line 2, 2, of Fig. 1, and looking in the direction indicated by the arrows; and

Fig. 3 is a view taken on the plane of the line 3, 3, of Fig. 1, and looking in the direction indicated by the arrows.

In each of these views, I have supplemented the representations above referred to with diagrammatic representations of the circuits, which, for instance, may be employed.

For the purpose of description, let it be assumed that the member 4 is stationary, while the member 5 is movable. In other words, the member 4 is analogous to the ordinary wall socket, while the member 5 is analogous to the ordinary attachment plug, both familiar to those skilled in the art. The

member 5 comprises the core 6 of insulating material and of cylindrical formation, surrounded by a metallic shell 7. Extending upwardly into the core 6 from the lower face thereof are four elongated sockets *a*, *b*, *c* and *d*, arranged parallel to the axis of the core and equidistantly therefrom and from each other. Within each of these sockets is a terminal member 8, except in the case of the socket *d*, as will be explained presently. A lead extends from the terminal member in the socket *a* and another lead extends from both the terminal members in the sockets *c* and *b*, these leads passing off in the shape of a double flexible conductor 9. As illustrated in Fig. 2, one of these leads is adapted for connection with one side of a line leading from a source of current, as indicated by the plus and minus signs, and the other lead is connected with the other side of the line.

It will also be seen that the stationary member 4 is provided with four terminal pins 11, 12, 13 and 14, which are set firmly in a piece of insulating material and are disposed parallel to a common axis from which they are equidistant, these terminal pins being also equidistant from each other and being so arranged as to correspond exactly with the arrangement of the sockets *a*, *b*, *c*, and *d*, so that all four pins may simultaneously engage in all four sockets.

In Fig. 3 I have shown an example of a load circuit. I have shown, for instance, two resistant elements 15 and 16, one terminal of each of these elements being connected with the other element, and the remaining terminal being connected with one of the terminal pins, as shown. It will be seen that in the case of the element 16, the terminal is connected with the two pins 11 and 12, while in the case of the element 15 the terminal is connected with the terminal pin 13. The pin 14 is connected between the elements 15 and 16.

If it is desired to connect the two elements 15 and 16 in multiple, the member 5 is slipped over the pins in such a way that the pin 14 will be in the socket *a*. This means that the pin 11 will be in the socket *d*, the pin 12 will be in the socket *c*, and the pin 13 will be in the socket *b*, thus bringing both elements 15 and 16 in multiple across the line.

If it is desired to connect the two elements

15 and 16 in series, the pins are so inserted in the sockets that the pin 14 is in the socket *d*. This means that the pin 13 will be in the socket *a*, the pin 11 will be in the socket *c*, and the pin 12 will be in the socket *b*, whereby the two elements 15 and 16 will be seen to be connected across the line in series.

If it is desired that only one of the elements shall be connected in circuit, the pins are so inserted in the sockets that the pin 11 lies in the socket *a*. This means that the pin 12 will be in the socket *d*, the pin 13 in the socket *c* and the pin 14 in the socket *b*. This shunts the element 15 and connects the element 16 across the line.

In order to prevent the insertion of the pins in the sockets in such position as to cause a short circuit between the terminal members in the sockets *a* and *b*, by the bridge connecting the pins 11 and 12, I provide a stud 17 on the member 4, which, when the socket *a* registers with the pin 12, engages with a lug 18 on the shell 7, thus preventing electrical engagement in that position. It will be seen of course that in no other position do the members 17 and 18 interfere and that therefore the desired circuit may be established by choosing the proper angular position of the member 5. It is desirable to provide markings to show the results for different positions. Thus, using the lug 18 as an indicator the relation may be shown by the markings on the member 4, as shown in Fig. 3.

I claim:

1. In an electrical connector, two separable elements, and a plurality of contact members on each element, the contact members of one element being arranged to engage the contact members of the other element in various angular relations and means to prevent a particular electrical relationship of the contact members.

2. In an electrical connector, two separable elements, a plurality of contact members similarly arranged on each element, said contact members being equidistant from a common axis, and means for preventing a particular electrical relationship, but permitting other electrical relationships.

3. In an electrical connector, a pair of separable elements, a plurality of sockets in one of the elements and terminals in all but one of said sockets, a plurality of projecting contact members on the other element adapted for insertion into said sockets in various axial relations to produce different electrical connections, said socket and contact members being equidistant from each other and from a common axis, and a projection on the contact carrying element to engage the socket element for preventing electrical engagement in a certain position but permitting electrical engagement in other positions.

In witness whereof I hereunto subscribe my name this 29th day of April, A. D. 1916.

CLIFFORD R. WASSELL.