Aug. 27, 1935. C. P. SORENSEN ET AL 2,012,696

ELECTRICAL CONNECTER

Filed Nov. 12, 1934

Fig. 1.

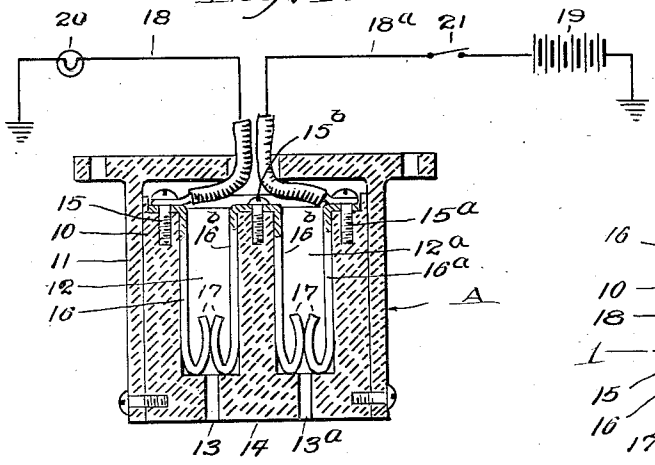


Fig. 3.

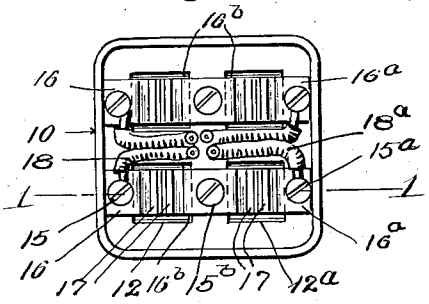


Fig. 2.

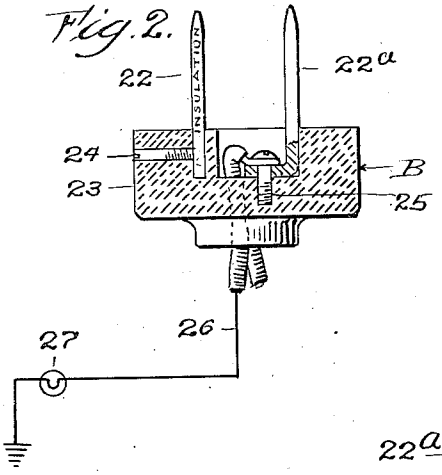


Fig. 4.

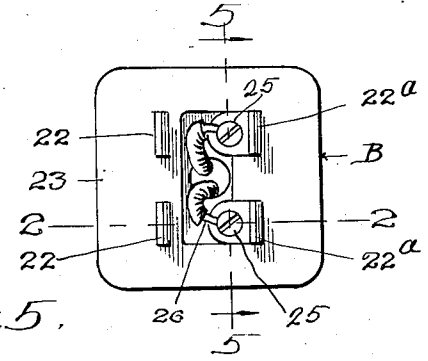
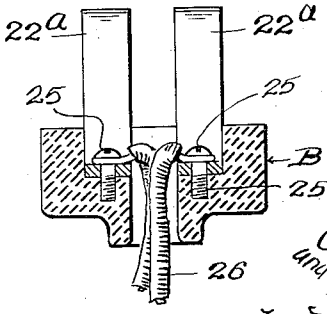


Fig. 5.



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ELECTRICAL CONNECTER

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4 Claims. (Cl. 173—332)

This invention relates to electrical connecters, and its principal object is to provide an electrical connecter comprising a receptacle through which the circuit for one or more electrical devices or appliances is normally closed, and a plug, which when plugged into the receptacle, opens the normally closed circuit and closes another circuit for other electrical devices or appliances.

Although the invention is not limited thereto, it has particular reference to tail lights or rear signaling lights of motor vehicles, particularly motor trucks and trailers. As is well known, motor trucks are provided with tail lights and usually with rear signaling lights, and the trailers are also equipped with similar appliances. Obviously when a trailer is coupled to a truck, it is unnecessary for the rear lights on the truck to function since those on the trailer serve the purpose. With the present electrical connecter, an electrical receptacle is provided, usually on the truck, which is in series with the rear lights, and the lamp circuit for the rear lights on the trailer is provided with a plug, which, when inserted into the receptacle, opens the circuit for the rear lights on the truck and establishes a circuit for the rear lights on the trailer. It is to be understood, however, that the electrical connecters, forming the subject matter of this specification, may be used in any situation where it is desired to open any electrical circuit and close the circuit of an extension without the use of switches.

The invention consists in the several novel features hereinafter fully set forth and claimed.

One embodiment of the invention is clearly illustrated in the drawing accompanying this specification, in which:

Fig. 1 is a longitudinal section through the receptacle of the electrical connecter and showing its application diagrammatically to a lamp circuit, the line of section being indicated at 1—1 of Fig. 3;

Fig. 2 is a longitudinal section of the plug, the line of section being indicated at 2—2 of Fig. 4;

Fig. 3 is a plan of the interior of the receptacle with the shell removed;

Fig. 4 is a plan of the plug, and

Fig. 5 is a vertical cross-section of the plug taken on the line 5—5 of Fig. 4.

Referring to said drawing, the reference character 10 designates the body of the receptacle A, which body is usually contained wtihin a shell or casing 11. The body 10 is composed of non-conducting material and is formed with one or more pairs of sockets 12, 12a, extending inward from one end, and one or more pairs of slots 13, 13a extending from the outer face 14 of the body to said sockets.

Secured in the sockets of the body, by screws 15, 15a, 15b, are associated pairs of contact members 16, 16b, and 16a, 16b, the ends 17 of each pair normally contacting with each other. The adjacent contact members 16b are electrically connected with each other, and as shown, may be formed from the same strip of material. The contact members are composed of resilient conducting material.

In the application of the invention, as illustrated in the drawing, the end contact members 16, 16a are connected to electric wires 18, 18a that form part of a lamp circuit, of which the battery is seen at 19 and an incandescent electric lamp at 20. The battery and lamp may be grounded, and an electric switch 21 is usually employed in the circuit as shown. The receptacle and lamp circuit described may be incorporated in a motor truck or other vehicle, with the receptacle located at the rear thereof. The circuit can be traced from the grounded battery 19 through wire 18a, contact member 16a, contact members 16b, 16b, contact member 16, wire 18 and lamp 20 to ground.

The plug B is provided with one or more pairs of associated fingers 22, 22a, one of which 22 is composed of non-conducting material rigidly fastened in the body 23 of the plug by a screw or other fastening element 24. The finger 22a is composed of conducting material and is fastened to the body 23 by a screw 25. An electric wire 26 is connected to the finger 22a, and in the embodiment of the invention illustrated runs to an incandescent electric lamp 27 which is grounded.

The lamp 27 may represent the tail light or signaling lamp on the rear of a trailer, and the plug may be located at the front of the trailer in convenient position to be plugged into the receptacle. It is to be understood that there may be as many pairs of fingers 22, 22a on the plug as there are associated pairs of contact members in the receptacle, or separate plugs may be provided, one for each associated pair of contact members in the receptacle as is found desirable. Two pairs of contact members and two pairs of fingers are illustrated in the drawing.

With the circuit closed through the lamp 20, and assuming that said lamp represents the tail light or signaling lamp at the rear of a truck or other vehicle and assuming that the lamp 27 represents the tail light or signaling lamp on a trailer, it will be seen that so long as the plug re-

mains disconnected from the receptacle, the lamp circuit to the lamp 20 is closed through the contact members in the receptacle. When a trailer, equipped with the present invention, is attached to the truck or other vehicle, the plug B is plugged into the receptacle A. The fingers, when inserted into the receptacle, spread apart the ends 17 of the contact members 16, 16b and 16a, 16b, and the finger 22 being composed of non-conducting material, it opens the circuit between the contact members 16, 16b, thereby breaking the circuit for the lamp 20, while the finger 22a, being composed of conducting material, it establishes a circuit from the battery through contact member 16a, finger 22a, and wire 26, to the lamp 27, thereby extinguishing the signaling lamp on the truck and illuminating the signaling lamp on the trailer. Obviously when the plug is disconnected from the receptacle, the circuit for the lamp 20 is re-established and the circuit for the lamp 27 is opened.

It will be observed that the fingers having wiping contacts with the contact members, consequently all the contact members are cleaned at the contacting places each time a plug is inserted in the receptacle and as a result good electrical connections are always maintained between the contact members.

We claim as new and desire to secure by Letters Patent:

1. An electrical conductor comprising a receptacle having a body formed of non-conducting material and two pairs of contact members therein, those of each pair being normally in contact for closing a circuit, and a plug having a pair of fingers insertable between the contact members of the two pairs, one of said fingers being composed of non-conducting material, whereby to break contact between the contact members of one pair, and the other finger being composed of conducting material, whereby to make contact with one contact member of the other pair.

2. An electrical conductor comprising a receptacle having a body formed of non-conducting material and having a pair of sockets therein, a contact member contained in each socket, and a contact piece entering each socket and common to and normally in contact with said two contact members, and a plug having two fingers insertable between the two contact members and the common contact piece, one of said fingers being composed of non-conducting material and one of conducting material.

3. An electrical conductor comprising a receptacle having a body therein formed of non-conducting material and having a pair of sockets therein and slots aligned with said sockets and opening out through the face of the body, there being two pairs of contacting contact members extending into said sockets with one contact member of both pairs in electrical contact with each other, and a plug having two fingers insertable through said slots into contact with the two pairs of contact members, one of said fingers being composed of non-conducting material and one of conducting material.

4. An electrical connecter comprising two associated pairs of contact members, those of each pair normally being in contact and one member of each pair having electrical connection with a corresponding contact member of the other pair, the other contact members of each pair being adapted for electrical connection with a wire of an electric circuit, and a plug having a pair of fingers, one composed of non-conducting material and one composed of conducting material, the latter finger having means for connection with a wire of an electric circuit, the fingers of the plug being adapted for insertion between the pairs of electric contact members, whereby the circuit through said contact members is opened at one place and a second circuit is established.

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