July 24, 1928. 1,678,467

A. W. HEBB

CONNECTING DEVICE

Filed June 16, 1925

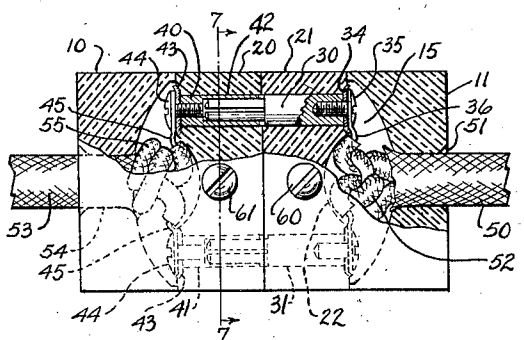


Fig 1

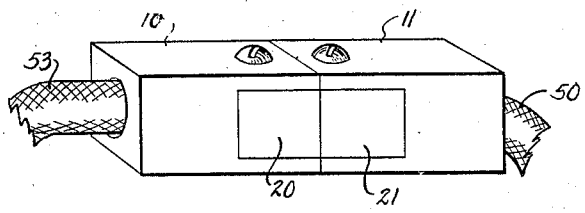


Fig 2

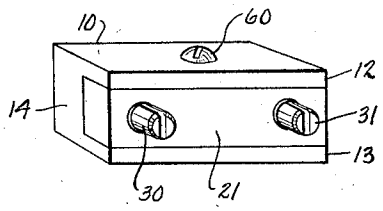


Fig 3

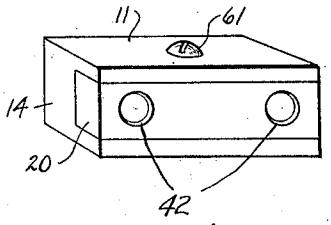


Fig 4

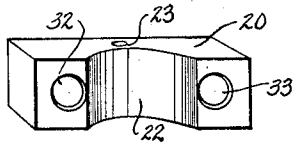


Fig 5

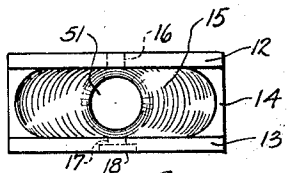


Fig 6

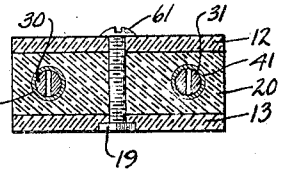


Fig 7

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UNITED STATES PATENT OFFICE.

AMMON W. HEBB, OF NEW YORK, N. Y.

CONNECTING DEVICE.

Application filed June 16, 1925. Serial No. 37,444.

This application relates to improvements in connecting devices for interconnecting electric conductors.

In order to extend an electric circuit so as to provide for the energization of a utility such as an electric light bulb in desired position, it is sometimes desirable to include in the circuit an additional length of flexible cable or cord, and it is one object of the invention to provide improved means for interconnecting different parts of the circuit when such circuits are to be extended by means of a length of flexible cable.

The invention has a particular field of usefulness in garages, where it may be desired to extend an electric light circuit from the wall of the room to a point near a car which is to be inspected and which may be remote from the wall. It is understood, however, that the invention may be employed for any desired purpose, or electrical utility which is to be energized.

In carrying out the invention in practice, I provide a readily separable connector, formed of a plurality of parts, the parts being interchangeable and of such simple construction as to be cheaply and efficiently manufactured. The parts are particularly rugged to withstand rough usage and careless handling, and the electrical contacts made thereby are reliable and not easily broken.

A feature of the improved connector relates to the provision of two opposed body portions of like construction, each having a channel cut therein longitudinally. The channel is recessed, and an aperture extends through the device into communication with the channel, so that the electrical conductors may be readily carried into the connector, with a knot in the channel recess to retain the conductor and relieve the electrical connections from strain.

Another feature relates to the provision of a terminal block of simple construction, having electric terminals mounted thereon, and fitted into the channels of the other parts. Thus the channel forms a pocket for the respective terminal block and the whole forms a compact and simple device.

Other objects will appear from the following description taken in connection with the accompanying drawings in which

Figure 1 is a side elevation, partly in section, of a connector embodying features of the invention;

Figure 2 is an isometric view of the connector in joined position;

Figures 3 and 4 are isometric views of the connector parts in separated position;

Figure 5 is an isometric view of one of the terminal blocks with the terminals removed therefrom;

Figure 6 is an elevation of the body portion of one of the connector parts; and

Figure 7 is a section of the assembled connector taken on the line 7—7 of Figure 1.

Like reference characters refer to like parts in the several figures of the drawings.

In the following description and claims, parts will be identified by specific names for convenience of expression, but they are intended to be as generic in their application to similar parts or equivalent construction as the art will permit.

Referring to the drawings, there is provided a separable connector having the part 10 and the co-operating part 11. These parts are of like construction and a detailed description of one will accordingly suffice for both. Each consists of a mass of insulating material, such as hard rubber, or the like, and in the embodiment illustrated, rectangular in form. A channel is cut longitudinally thereof to define two bifurcations or tines designated 12 and 13 respectively, and joined by the main body portion 14. The depth of the channel with respect to the outermost ends of the tines is progressively increased from the edges of the channel towards the center as shown in Figures 1 and 6, to form a recess 15. The tines 11, 12 are provided with alined apertures 16, 17, one of the apertures 17 being provided with a concentric recess 18 on the outer face of the tine for the reception of a retaining nut 19 (see Figure 7).

A pair of terminal blocks is provided, and as these are of similar construction, a description of one will suffice for both. Each consists of a mass of insulating material, designated 20 and 21 respectively, such as hard rubber or the like, and constructed to fit snugly in the space between the tines 12 and 13. A shallow groove 22 is cut into one transverse face and an aperture 23 is provided in position to register with the apertures 16 and 17 of the tines 12 and 13.

Each of the terminal blocks 20 and 21 is provided with a terminal for each branch of the circuit to be extended by means of the connector. In the drawings two terminals are shown, but it is understood that any desired number may be employed. One terminal block 21 is provided with metal contacts 30, 31 of the plug type extending through the terminal block. One end of each terminal is provided with an enlarged flattened head 34 preferably countersunk into the terminal block, and has a screw threaded drill hole for the reception of a screw 35, the head of which maintains a conducting wire 36 in electrical engagement with the respective contact. The protruding end of the plug contact, as shown in Figure 3, is split, so as to make reliable electrical contact with the cooperating terminal as will subsequently appear. The remaining plug contacts of the terminal block 20 are of like construction, and a description of one will suffice for all.

The other terminal block 20 is provided with metal contacts 40, 41 of the socket type, extending through the holes 42 of the respective block. One end of each socket contact is provided with an enlarged flattened head 43 preferably countersunk into the terminal block, and has a screw threaded drill hole for a screw 44. A conducting wire 45 is maintained in electrical contact with each connector by means of the respective screw 44.

The conducting wires 36 of the terminal block 21 are insulated electrical conductors the insulation being "skinned" near the ends to make electrical contact with the connectors. The conductors are preferably formed into a cable 50 which is passed through an aperture 51 extending transversely through the body of the part 11. The structure is assembled by passing the end portion of the cable 50 through the aperture 51, then tying a knot 52 in the conductors near the ends thereof, and then attaching the bare ends of the wires under the screws 35. Similarly the conducting wires 45 of the block 20 are formed into a cable 53 of conventional type, which is passed through a transverse aperture 54 of the part 10. The end portion of the cable 53 is passed through the aperture 54, and a knot 55 is tied in the conductors of the cable. The ends of the conductors are "skinned" of insulation and fastened under the screws 44.

The block 21 is drawn into position within the bifurcations of the part 11, the cable 50 being pulled so that the knot 52 is positioned within the confines of the recess 15, and so that the hole 23 of the terminal block registers with the holes 16 and 17. A machine screw 60 is then passed through these holes and fastened to the nut 19. Similarly the block 20 is positioned in the part 10 so that the corresponding holes are in alignment, a machine screw 61 being passed therethrough to hold the parts together. The knot 55 is then positioned within the confines of the recess 15 of the part 10.

The structure may then be used to unite the cable 50 electrically with the cable 53, the electric circuit being completed by engagement of the contact 30 with the cooperating contact 40, and by contact 31 with contact 41, as illustrated particularly in Figure 7. The two parts 10, and 11, with their associated terminal blocks and cables, are readily separable when desired as the construction of the plug connectors 30, 31 is such as to maintain the parts together during use, but permits separation by means of a slight pull on the parts.

Thus it will be seen that I have provided a connecting device which is simple and inexpensive to make, and which efficiently serves the purpose of interconnecting parts of an electrical circuit together. The insulating parts are of like construction, so that processes of manufacture of my improved connector are greatly simplified. The electric contacts are positioned so as to support the respective connecting cables in position within the channels, and so that when assembled, the device has a smooth, even exterior.

The invention upon which this application is based is broader than the specific embodiment shown and described for the purpose of illustrating at least one of the ways in which it may be employed. The scope of the invention is therefore to be understood as not being limited by the present specific description. I intend no limitations other than those imposed by the claims.

What I claim is:

1. An electric connecting device for electrical conductors, comprising two opposed elements of like construction, each having a rectangular cross section and having a channel cut in the contiguous faces thereof, and having an aperture extending through each of said elements into communication with the channel, and a pair of terminal blocks of like construction fitted into the channels of said opposed elements respectively and each having electric contacts positioned thereon, the conductors extending through said apertures and fastened to said contactors.

2. An electrical connecting device comprising two opposed rectangular body portions of like construction each having a channel cut longitudinally thereof and having a transverse aperture for a conducting cable, each channel being open at its ends, a pair of terminal blocks of like construction fitted in said channels respectively, and electric terminals positioned on said blocks said ter-

minals having means on the side contiguous to the respective aperture for securing the cable thereto.

3. An electric connecting device comprising two opposed rectangular body portions of like construction each comprising a bifurcated member having tines to form a rectangular pocket open at its ends and having an aperture extending therethrough into communication with the pocket, and a pair of terminal blocks of like construction, each having at least one of its dimensions substantially coextensive with said pocket.

4. An electric connecting device comprising two opposed rectangular body portions of like construction each comprising a bifurcated member having tines to form a rectangular pocket open at its ends and having an aperture extending therethrough into communication with the pocket, a pair of terminal blocks of like construction each mounted upon one of said members, respectively, between the tines of said member, and electric connectors in said terminal block.

5. An electric connecting device comprising two opposed rectangular body portions of like construction each comprising a bifurcated member having tines to form a rectangular pocket open at its ends and having an aperture extending therethrough into communication with the pocket, a terminal block mounted upon said member between said tines, and means for fastening said blocks in the respective pockets.

6. An electric connecting device comprising two opposed rectangular body portions of like construction each comprising a bifurcated member having tines to form a rectangular pocket open at its ends and having an aperture extending therethrough into communication with the pocket, a pair of terminal blocks of like construction, each mounted upon one of said members, respectively, between the tines of said member and each having a screw extending between said tines and through the terminal block for fastening the respective block in said pocket.

7. As an article of manufacture, a connecting device for electric conductors comprising two bifurcated elements of like construction formed of insulating material, each having a block of insulated material fitted snugly between the bifurcations of the respective element, the blocks of each element being of like construction and a plurality of electric contacts formed of conducting material positioned on each of said blocks.

Signed at New York city in the county of Bronx and State of New York this 12th day of June A. D. 1925.

AMMON W. HEBB.