

Oct. 2, 1934.

H. A. DOUGLAS

1,975,355

MOUNTING MEANS

Filed July 30, 1932

2 Sheets-Sheet 1

Fig. 1

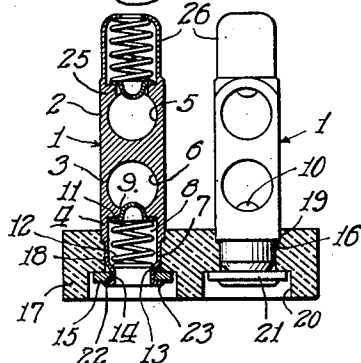


Fig. 2

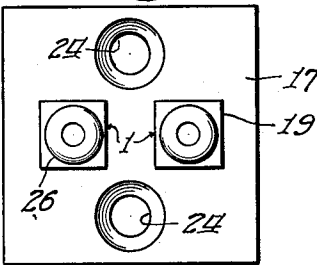


Fig. 3

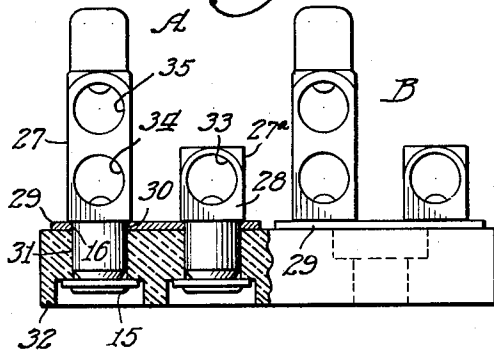


Fig. 4

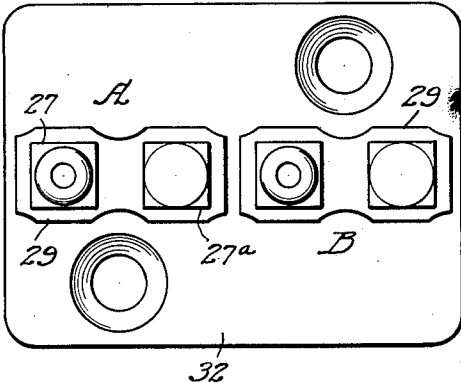
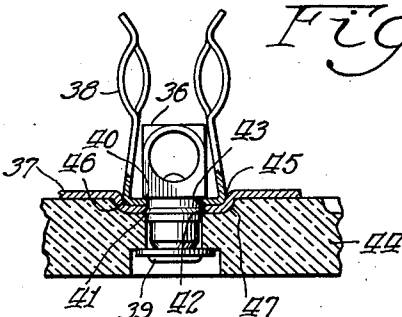


Fig. 5



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2 Sheets-Sheet 2

Fig. 6

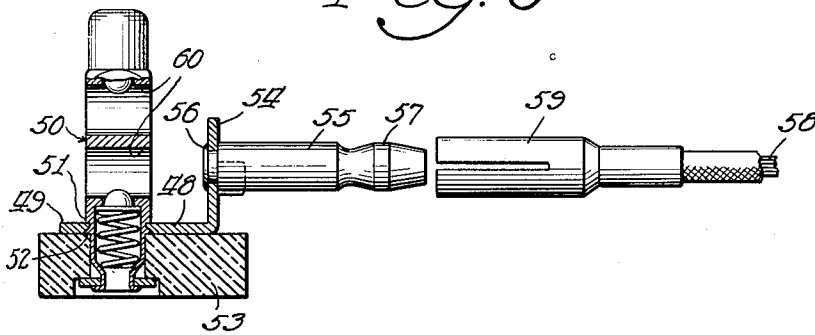


Fig. 7

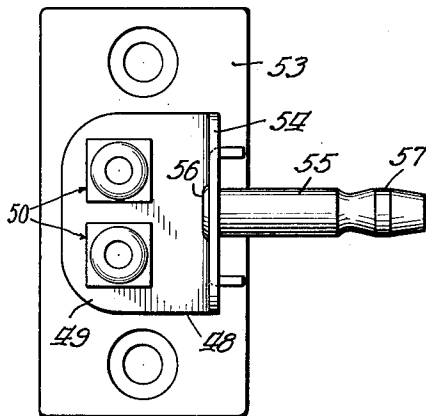
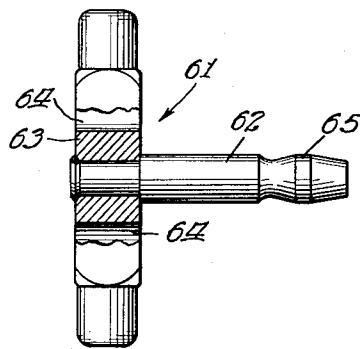


Fig. 8



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UNITED STATES PATENT OFFICE

1,975,355

MOUNTING MEANS

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Application July 30, 1932, Serial No. 626,633

3 Claims. (Cl. 173—328)

This invention relates to mounting means for electrical connectors and, among other objects, aims to provide an improved and simplified construction whereby an integral metallic member provides both a receptacle portion adapted to receive an electrical conductor and an attaching portion for securing the member to an insulating mounting.

The invention is also desirably inclusive of a cup-like attaching portion providing a housing for a detent spring and a double flange formed upon the mouth of the attaching portion which serves the double purpose of providing a bearing for the spring and a clamping flange for securing the member to its mounting, said double flange being received entirely within the mounting.

Another object of the invention is to provide external shoulders on the attaching portion for clamping thereto an electrical conductor.

Other objects and advantages will be readily apparent to those skilled in the art.

The invention will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a cross-section through a mounting and a connector secured thereto, another connector being shown in elevation;

Figure 2 is a plan view of the structure of Figure 1;

Figure 3 is a side elevational view of another mounting with my improved connectors applied thereto in groups, parts being shown in section and adapted to provide a two-way connector;

Figure 4 is a plan view of the structure of Figure 3;

Figure 5 is a modified form of connector with provision for permanently securing a conductor thereto;

Figures 6 and 7 show a still further modified form grouped to provide a four-way connector; and

Figure 8 is an adapter which may be used with the connectors in Figure 1 to constitute a two-way connector.

The illustrative connector embodies an integral member 1. As shown in Figure 1, this member comprises two receptacle portions 2 and 3 and an attaching portion 4. Each of the receptacle portions 2 and 3 is hollow and has its interior in the form of cylindrical passages 5 and 6, respectively, which are open at both sides of the member 1. The receptacle portions 2 and 3 are desirably of rectangular cross-section, as indicated at Figure 2.

The attaching portion 4 has a portion 7 which is desirably cylindrical and the interior 8 of the attaching portion 4 is also hollow and cup-like in formation and is directed transversely of the cylindrical passage 6 in the receptacle portion 3. An aperture 9 communicates with both the in-

teriors 6 and 8 and a dome shaped detent 10 is shown projected through this aperture 9 into the interior 6. The detent 10 has an annular lug 11 thereon which by abutment with the margins of the aperture 9 limits movement of the detent into the passage 6. The interior 8 of the attaching portion 4 houses a compression coil spring 12 which bears at one end against the annular lug 11 of the detent and at its other end against an annular internal shoulder 13.

The annular shoulder 13 is provided in this instance by forming a double flange 14 at the end of the cylindrical portion 7 of the attaching portion 4. The double flange 14 provides not only the internal shoulder 13 but an annular external shoulder 15. Another annular external shoulder 16 is provided overhanging the cylindrical portion 7, and by cooperation of the external shoulders 15 and 16 the attaching portion 4 of the member 1, and thus the member itself, is clamped to an insulating tablet constituting the mounting 17. The mounting 17 is shown provided with a cylindrical aperture 18 through which the cylindrical portion 7 is passed. The aperture 18 in the mounting is enlarged preferably rectangularly, as indicated at 19, to receive the rectangular portion of the member 1, and at its other end the aperture 18 is counterbored as at 20 to receive a metallic washer 21 and the double flange 14. The washer 21 is received in the annular space 22 formed by the double flange 14, the portion 23 of this double flange being riveted over the washer. Thus the margins of the aperture 18 in the mounting 17 are clamped between the external shoulders 15 and 16 through the intermediation of the washer 21, and the member 1 and mounting 17 are firmly secured together. The mounting 17 may be attached to a suitable support (not shown) which may be the frame of an automotive vehicle, for example, by holes 24 passing through the mounting and adapted to receive fastening screws also not shown. Thus the attaching portion of the connector terminates short of the face of the mounting adjacent the counterbore 20 to be spaced from said face.

The receptacle portion 2 of the member 1 may also have its interior 5 intersected by an aperture 25 through which is projected one of the detents 10 by another coil spring 12 barreled in a cylindrical housing 26.

The cylindrical passages 5 and 6 are adapted to receive by a snap action the usual bulbous metallic terminals of insulated wires (not shown) and each of the members 1 thereby provides an electrical connector between two such wires. As shown in Figures 1 and 2, two or more of such members 1 may be assembled on a mounting 17 insulated from each other.

As shown in Figures 3 and 4, the member 27 similar to the member 1 and another member 27a similar to the member 27, but having but one receptacle portion 28 may be assembled to afford a group A of connectors electrically connected by a conductor 29 which is here shown in the form of a flat metallic plate having apertures 30 therein registering with the apertures 31 in the mounting 32. In the exemplification shown in Figures 3 and 4, the distance between the shoulders 15 and 16 is somewhat greater than Figure 1, providing space for receiving the conductor 29 and clamping the margins of its aperture 30 between the margins of the aperture 31 of the mounting 32 and the shoulder 16. One or more other groups of connectors such as the group B may be also mounted on the mounting 32, each of these groups being insulated from the other. Each of these groups may provide a two-way connection for parallel electric circuits one wire terminal being inserted in each of the cylindrical passages 33, 34 and 35 and a circuit thus being completed between the wire terminal received in the passage 33 and each of the wire terminals received in the wire passages 34 and 35.

In the exemplification shown in Figure 5, the member 36 similar to the member 27a may be provided with means for permanently clamping thereto a metallic conductor 37 and a conventional fuse clip 38 constituting a receptacle of modified form. The member 36 in addition to the external shoulders 39 and 40 being provided with another annular external shoulder 41. Between the shoulders 40 and 41 may be clamped the margins of apertures 42 and 43 provided in the conductor 37 and clip 38, respectively. The conductor 37 may be a flat strip of metal of sufficient length to have connected thereto any convenient number of members 36 and clips 38, thus constituting the insulating mounting 44 a fuse block of well known character. To prevent rotation of the clips 38 on the connector 37, the connector may have a rectangular depression 45 formed therein which snugly receives the rectangular base 46 of the clip 38. To permit the conductor 37 to still lie flush upon the mounting 44, the mounting itself may be recessed as at 47 to receive the conductor where the depression 45 is formed therein.

In Figures 6 and 7 I have shown a modified conductor 48 which provides for a four-way connector assembly. The conductor 48 may be in the form of a metallic bracket member having a flat plate portion 49 which has appropriate apertures therein receiving therethrough two of the members 50 similar to the member 1 each of which is clamped to the plate portion 49 between the external shoulders 51 and 52 on the members 50. In other respects, the members 50 are clamped to the insulating mounting 53 similarly to the members 1 and the conductor 48 is also clamped to the insulating mounting 53. Advantageously right angularly related to the plate portion 49 conductor 48 has the support portion 54 supporting a rigid metallic plug 55, which may be riveted to the support portion 54 as at 56. The plug 55 may have the usual bulbous tip 57 adapted to be electrically connected with the insulated wire 58 as by having the split sleeve terminal 59 of the wire slipped over the bulbous tip 57. Thus four circuits may be established including the wire 58 and through wires which may have their termi-

nals received one in each of the four passages 60 in the member 50 similar to the passages 5 and 6 in the member 1, these wires having their terminals received in the passages 50 being all in electrical connection with each other and with the wire 58 by means of the conductor 48.

In Figure 8 I have shown an adapter 61 by which one of the members 1 may be constituted a two-way terminal similar to the assemblies A and B heretofore referred to. The plug 62 which is riveted to the member 63 may be inserted in one of the passages 5 or 6 in a member 1 and the terminals of a wire received in each of the passages 64 of the member 63, these passages being similar to the passages 5 and 6 already described. If, for example, the plug 62 has its bulbous tip 65 inserted in the passage 5 from one side of the member 1 and a wire has its terminal inserted in the passage 6 from the other side of the member 1, these three wires will be in electrical connection and a two-way circuit can be established.

Since the wires referred to as being receivable in the passages of the members 1, 27, 36, 50 and 63 are well known to the art and are no part of the present invention, it is not believed that it is necessary to illustrate them or to describe them further.

Having described exemplary embodiments of my invention, I claim:

1. An electric terminal structure including an insulating mounting having an aperture therethrough provided with a counterbore at one face of the mounting; a metallic connector having a portion provided with a receptacle and having a hollow attaching portion, the attaching portion being received in the said aperture and provided with external shoulders between which the mounting is clamped to secure the connector thereto, the external shoulder at the counterbore being in the form of a double flange afforded by annularly contracting an intermediate portion of the attaching portion to provide an internal shoulder and terminating said portion in an outwardly flaring flange, said double flange being received entirely within the mounting, an annular member between the double flange abutting the said mounting; and a detent projecting into said receptacle and a detent spring housed in said attaching portion and bottomed on the intermediate contracted portion.

2. The structure of claim 1 wherein a second similar connector is similarly secured in spaced apart relation to the first connector upon the insulating mounting, and wherein said connectors are joined by a current continuing plate through which the respective attaching portions pass with the shoulder thereof in engagement with the exterior of the plate to hold said plate upon the upper surface of said mounting.

3. The structure of claim 1 wherein a second similar connector is similarly secured in spaced apart relation to the first connector upon the insulating mounting, and wherein said connectors are joined by a current continuing plate through which the respective attaching portions pass with the shoulder thereof in engagement with the exterior of the plate to hold said plate upon the upper surface of said mounting, and wherein said circuit continuing plate is in the form of a bracket with a terminal plug attached upon one arm thereof.

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