Oct. 24, 1944. C. E. WADE 2,360,917

CONNECTOR

Filed Aug. 8, 1939 2 Sheets-Sheet 1

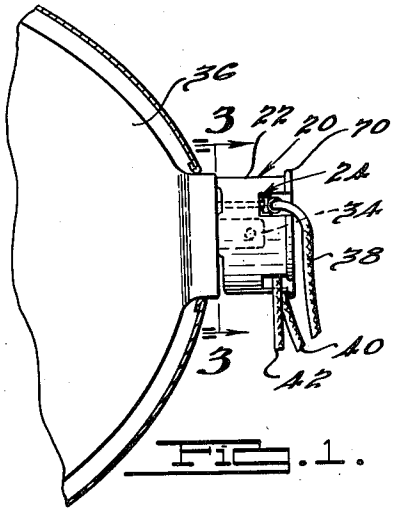


FIG. 1.

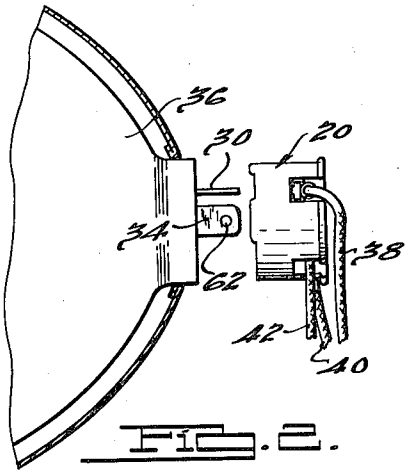


FIG. 2.

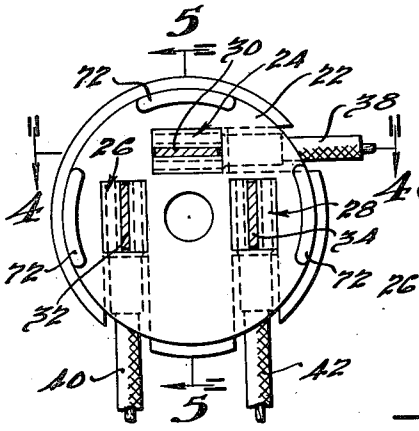


FIG. 3.

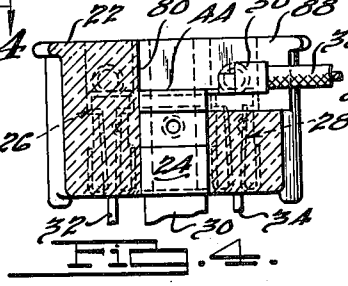


FIG. 4.

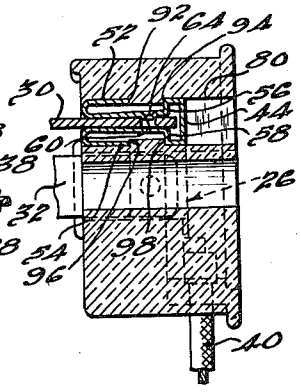


FIG. 5.

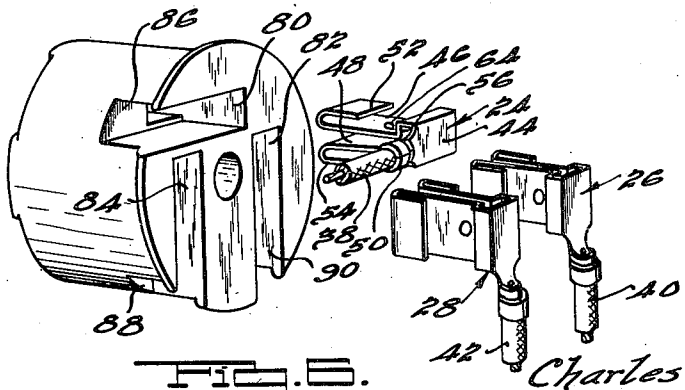


FIG. 6.

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CONNECTOR

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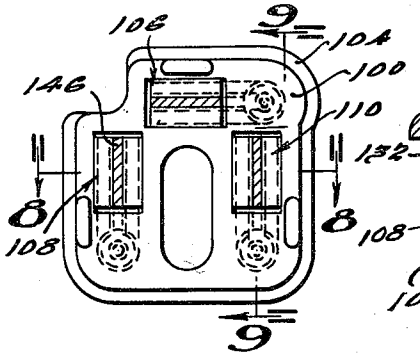


FIG. 7.

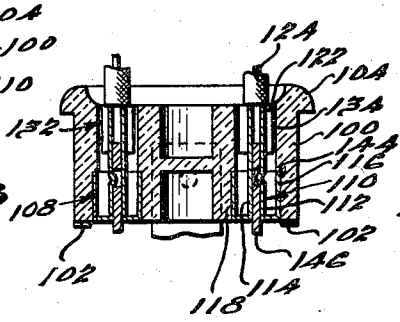


FIG. 8.

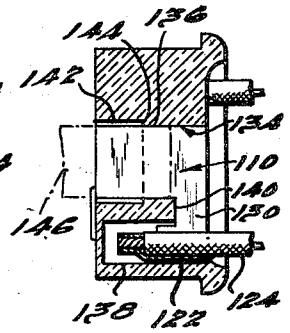
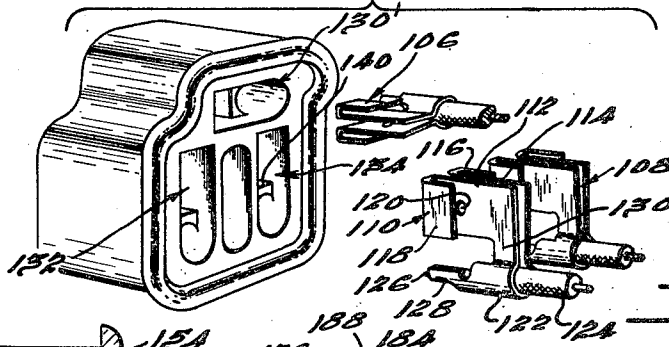


FIG. 9.

FIG. 10.



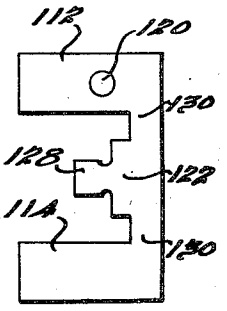


FIG. 11.

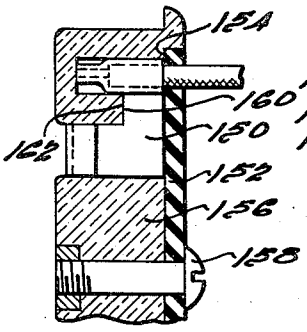


FIG. 12.

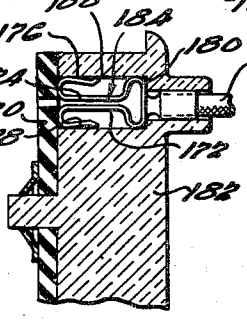


FIG. 13.

FIG. 14.

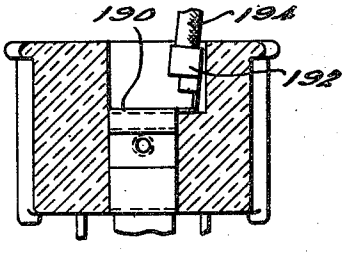


FIG. 16.

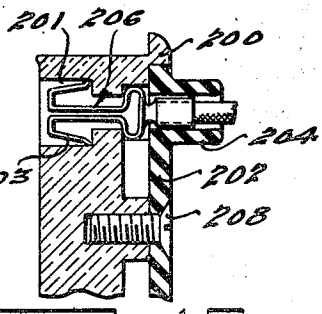
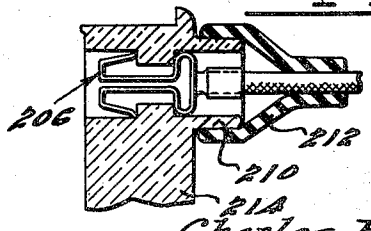


FIG. 15.



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UNITED STATES PATENT OFFICE

2,360,917

CONNECTOR

Charles E. Wade, Sturgis, Mich.

Application August 8, 1939, Serial No. 289,017

14 Claims. (Cl. 173—328)

The present invention relates to electrical connecting devices, and in particular, provides improved constructions of connectors adapted to form efficient separable connections between one or more terminals and one or more wires.

The principal objects of the present invention are to provide devices of the above mentioned character, which are extremely simple in construction, inexpensive of manufacture, and which can be assembled and applied to the cooperating members in a ready and efficient manner; to provide such devices comprising generally an insulating body and one or more electrical terminal structures, known generally in the trade as contacts, received within the body and removably but securely held in place therein; to provide such devices wherein the contacts are readily insertable into the body during the assembly operation, and are efficiently secured in place therein; to provide such constructions wherein each contact is adapted to be snapped into place within the insulating body; to provide such constructions wherein each contact is adapted to be freely slidably inserted into the insulating body and wherein supplemental means are provided to retain it in place therein; to provide such constructions embodying improved connections between an associated wire and each electrical contact member; to provide such constructions wherein each contact is provided with terminal engaging and wire engaging portions, the terminal portions being of spring-like construction, so as to efficiently grip a wire terminal inserted therein; to provide such constructions wherein each spring-like terminal engaging portion serves to hold the contact in place within the insulating body; and to generally improve the construction and arrangement of devices of the above indicated character.

With the above as well as other objects in view, which appear in the following description and in the appended claims, preferred but illustrative embodiments of the invention are shown in the accompanying drawings, throughout the several views of which corresponding reference characters are used to designate corresponding parts, and in which:

Figure 1 is a view in side elevation of an illustrative embodiment of the invention, showing the connector as applied to a vehicle head lamp;

Fig. 2 is a view corresponding generally to Fig. 1, but showing the connector separated from the cooperating head lamp;

Fig. 3 is a view in front elevation, taken along the line 3—3 of Fig. 1;

Fig. 4 is a view in transverse section, taken along the line 4—4 of Fig. 3;

Fig. 5 is a view in transverse section, taken along the line 5—5 of Fig. 3;

Fig. 6 is a view in perspective showing the insulating body and the respective contacts in separated relation;

Fig. 7 is a view in front elevation of a modified embodiment of the invention;

Fig. 8 is a view in vertical section taken along the line 8—8 of Fig. 7;

Fig. 9 is a view in vertical section, taken along the line 9—9 of Fig. 7;

Fig. 10 is a view in perspective of the embodiment shown in Figs. 7, 8, and 9;

Fig. 11 is a view of a blank from which the contacts of Figs. 7, 8, 9, and 10 are preferably made; and

Figs. 12, 13, 14, 15, and 16 are, respectively, views in vertical section of additional modifications of the invention.

It will be appreciated from a complete understanding of the present invention, that the improvements thereof may be embodied in connectors of widely varying constructions, and specifically adapted for widely differing purposes. By way of illustration but not of limitation, the invention is herein disclosed as being especially designed to form a connection between a plurality of terminals carried by and projecting from the body of a vehicle head lamp assembly, and a corresponding plurality of wires. In each of the herein disclosed forms, the connector may be characterized as comprising a readily graspable insulating body, which houses one or more electric contacts, each contact being permanently secured to the end of an associated wire, and being formed to provide a receptacle to receive and resiliently grip a corresponding terminal of head lamp or other cooperating part.

Referring more particularly to Figs. 1 through 6, the connector, designated as a whole as 20, comprises an insulating body 22, and a plurality of metallic contacts, shown as being three in number, and designated respectively as 24, 26, and 28. The connector 20 is adapted to be snapped over the terminals 30, 32, and 34, which project rearwardly from the back of the head lamp assembly 36 (Fig. 1), so as to form a connection between such terminals and the wires 38, 40, and 42, respectively.

As most clearly appears in Fig. 6, the respective contacts 24, 26, and 28 are of identical construction, so that the description of one will serve for all. The contact 24 comprises a back portion

44, a pair of spaced leg portions 46, and 48, which defined between them a terminal receiving receptacle, and a wire engaging portion 50. The outer ends of the legs 46 and 48 are reversely bent to define spring-like fingers 52 and 54, the ends whereof constitute abutments which function as described hereinafter. Also the leg portions adjacent the back portion 44 are provided with offsets to define the additional abutments 56 and 58 (Fig. 5). It will be understood that the wire engaging portion 50 is adapted to surround the insulated portion of the corresponding wire, immediately adjacent the end thereof, and that the bared end of the wire, projecting through the wire engaging portion 50, is soldered or otherwise permanently electrically connected to the back portion 44 adjacent the portion 50.

In the present instance, each of the terminals 30, 32 and 34 is provided with an opening adjacent the outer end thereof, such as the openings designated 60 and 62 in Figs. 5 and 2, respectively, and, in order to provide a snap connection between each terminal and its corresponding contact, each contact is provided with a detent such as 64 which enters the just mentioned opening in the corresponding terminal when the latter is introduced into the contact. The detent 64 is formed, in the present instance, by depressing a small bubble or projection from one side of the leg 46.

It will be understood that the contacts 24, 26, and 28 may be formed of any suitable metal having good electrical conducting properties, and of spring-like characteristics. Each contact is preferably formed from an initially plane sheet of stock, by one or more suitable die forming operations, which bring it from the initially blank form to the finished form shown in the respective figures.

The insulating body 20 is illustrated as being of generally cylindrical form, the back whereof is provided with a slightly radially projecting rim 70, so as to afford a handhold, and the front surface whereof is provided with a series of axially extending circumferentially spaced projections 72, which, in the assembled positions of the parts shown in Fig. 1, bear against the back of the cooperating surface of the headlamp assembly 36. It will be noted that the respective contacts 24, 26, and 28 project through the body of the insulating member 20 to a position substantially flush with the forward face thereof, and the axially projection portions 72 thus serve to minimize likelihood of the respective contacts being shorted together in the event the front face of the connector is brought into contact with a conducting body.

The insulating body 20 is provided with a group of three cavities, which, as shown, are in the form of axially extending apertures 80, 82, and 84, which are individual respectively to the contacts 24, 26, and 28. In the present instance, a so-called side connection is afforded for the wires 38, 40, and 42, and so as to accommodate this relation, the openings 80, 82, and 84 communicate with transverse slots 86, 88, and 90, which open from the side wall of the body and extend through to the corresponding axial opening. As most clearly appears in Fig. 5, the opening 80 is formed to provide a pair of spaced shoulders 92 and 94 at one side thereof, and a corresponding pair of spaced shoulders 96 and 98 at the other side thereof, which shoulders cooperate respectively with the previously mentioned abutments in the associated contact.

With reference to the assembly and to the manner in which the respective contacts are securely retained in place within the insulating body, it will be understood that by virtue of the spring-like character of each contact, the legs, such as 46 and 48 thereof, are normally spread apart a distance such that the spacing between the fingers 52 and 54 is normally in excess of the width of the corresponding opening such as 80. Accordingly, in inserting the contact 24, for example, into the opening 80, the fingers 52 and 54 are forced together slightly so as to admit them to the opening 80, after which the contact 24 may be slid longitudinally into the opening 80 from the rear of the insulating body 20. During such movement, the outer rounded ends of the legs 46 and 48 abut the shoulders 94 and 98. Following such engagement, the shoulders 94 and 98 cam the fingers 52 and 54 and the legs 46 and 48 inwardly toward each other to allow these parts to pass through the restricted part of the opening 80. The continued inward movement of the contact 24 ultimately brings the ends of the fingers 52 and 54 beyond the shoulders 92 and 96, at which time the fingers snap outwardly into the position shown in Fig. 5, in which position the fingers 52 and 54 lie generally flatwise against the sides of the opening 80. Under these conditions the abutments constituted by the ends of the fingers 52 and 54 abut the shoulders 92 and 96 and the abutments 56 and 58 lie in abutting relation to the shoulders 94 and 98. Thus, the contact 24 is securely held in place against movement in either direction through the opening 80. As previously mentioned, the width of the opening 80 is less than the free spacing between the fingers 52 and 54 and the legs 46 and 48, so that the legs 46 and 48 are slightly stressed inwardly when the contact is in place. The proportioning of the contact is also such that the legs 46 and 48 are normally spaced apart a distance slightly less than the thickness of the corresponding terminal 30. Accordingly, when the terminal 30 is introduced into the contact to the position shown in Fig. 5, such action spreads the legs 46 and 48 slightly, stressing the turned ends thereof, so that these legs resiliently grip the terminal between them. The just mentioned gripping action affords an exceedingly good contact between the contacts 24 and terminal 30, and the spreading action of the terminal 30 further wedges the contact in place within the opening 80. A relatively tight and solid connector unit is thus provided. It is herein noted that when the terminal 30 is moved to the position shown in Fig. 5, the detent 64 enters the previously mentioned opening 60 in the end of the terminal so as to afford a positive holding connection between the terminal and the contact. In order to withdraw the contact from the connector, sufficient force must be employed to overcome not only the friction between the legs 46 and 48 and the terminal 30, but to also overcome the detent holding action.

In the form shown in Figs. 7, 8, 9, 10, and 11, the insulating body 100 is of generally rectangular form, having the protective lugs such as 102 spaced around the forward face thereof for the reasons described with reference to the lugs 72, and having an axially and radially extending rim 104 at the rear face thereof to provide a hand hold.

In this instance, the contacts, designated respectively as 106, 108, and 110, are formed up, by a suitable series of die forming operations, from

a blank of the form shown in Fig. 11. Each contact, such as the contact 108, comprises the pair of spaced legs having laterally turned portions 112 and 114, the outer end portions 116 and 118 whereof are reversely turned as in the previously described instance to form abutments, and which leg portions lie in spaced relation so as to receive the corresponding terminal between them. Also, the leg portion 112 is provided with a detent 120, for the previously described purpose.

The mid portion 122 or bight of the contact blank is folded upon itself to define a wire receiving groove, which groove portion embraces an insulated part of the corresponding wire 124, leaving the bared end portion 126 of the wire projecting from the grooved portion 122. The bared end portion 126 is received within a smaller grooved portion 128, and is preferably soldered or otherwise permanently secured therein. With this relation it will be appreciated that the grooved portion 122 may be of substantial length and therefore may afford a very firm support for the end of the wire, any flexing of the wire 124 in service being confined to a portion thereof remote from the bared end connection. The wire receiving portion of the contact is separated from the terminal receiving portion by the intermediate or bridging portions 130 of the contact legs, which lie in slightly spaced relation to each other and which, as hereinafter described, cooperate with the insulating body 100 so as to limit movement of the contact into the body.

The insulating body 100 is provided with a series of three identical cavities designated generally as 130', 132, 134, individual respectively to the contacts 106, 108, and 110. The cavities 130', 132, and 134 each comprise a bore portion, such as 136 (Fig. 9), which extends completely through the body the insulator, and a cooperating bore portion 138, which extends inwardly from the back of the insulator to a point adjacent the forward surface thereof. The two bore portions 136 and 138 of each contact receiving opening are spaced from each other by a rib or saddle portion, the marginal edge 140 whereof is spaced inwardly from the rear face of the insulator by an amount substantially equal to the axial length of the bridge portion 130. In the present instance, each bore portion, such as 136, is counterbored, as indicated at 142, to define a shoulder 144 extending completely therearound, which shoulder cooperates with the contact abutments as hereinafter described.

Considering now the mode of assembling the individual contacts within the insulator 100 and the manner in which they are retained in place therein, each contact, such as 108, may be introduced into the corresponding cavity by slightly contracting the spacing between the fingers 116 and 118, so as to enable the contact to be slid into the associated opening from the rear face of the insulating body. As the contact is advanced into the opening, the abutments at the ends of the fingers 116 and 118 ultimately pass beyond the shoulder 144, at which time they are enabled to snap to the shoulder engaging position shown most clearly in Fig. 8. At this time also the bridge portion 130 occupies a position immediately adjacent the saddle 140. With this relation, the abutments at the ends of the fingers 116 and 118 cooperate with the shoulder 144 so as to prevent withdrawal of the contact from the insulator and at the same time the bridge 130 and the saddle 140 afford a positive limit to further inward movement of the contact into the insulator. As in the previous instance, the free width spacing between the fingers 116 and 118 is somewhat in excess of the width of the counterbored portion 142, so that when the contact is in the assembled position, the legs 112 and 114 are sprung to a spacing slightly less than the thickness of the associated terminal 146. Accordingly, when such terminal is introduced into the contact, it spreads the legs 112 and 114 and causes them to yieldingly and frictionally engage the contact, thus affording a good electrical contact and at the same time securely wedging the abutments at the ends of the fingers 116 and 118 onto the shoulder 144.

In the modified construction shown in Fig. 12, a contact 150 of the same general construction as the previously described contacts 106, 108, and 110 is employed, but in this instance, each contact is retained against being withdrawn from the insulator by means of a holding plate 152, which is secured within a recess 154 in the rear face of the insulator 156, by means of the stud 158. In this instance, also the bridge 160 and the saddle 162 serve to prevent further inward movement of the contact into the insulator and the holding plate 152 serves to hold all of the contacts against outward movement. By employing the holding plate 152, it is possible to dispense with the snap action afforded by the cooperation between the abutments 116 and 118 and the shoulder 144 as described above. Each contact 150 may thus be freely withdrawn from the insulator upon removal of the holding plate 152.

In the construction shown in Fig. 13, the holding plate 170 is applied to the front face of the insulator 182, the arrangement being such that each contact 184 and its wire 186 are introduced into the contact receiving opening or cavity 188 from the front of the contacts. The plate 170 holds the shoulder 180 at the back of the contact in abutting relation to the base of the opening 188, and the legs 172 and 174 and the fingers 176 and 178 cooperate to form a terminal gripping receptacle in the previously described manner. It will be noted that the wire 186 projects through a sleeve-like portion of the insulator, which sleeve-like portion gives guiding support to the wire and minimizes flexing thereof in the region of the point of connection between the wire and the contact.

The arrangement of Fig. 14 corresponds in all respects to the arrangement in Figs. 1 through 6, with the exception that the contact 190 is arranged for end connection rather than side connection and for this purpose the wire holding portion 192 of the contact is bent at substantially a right angle to the relation shown in Figs. 1 through 6 so that the wire 194 may extend inwardly to the insulator from the rear face thereof.

The arrangements of Figs. 15 and 16 employ contact structures of the type described with reference to Fig. 13, but in these embodiments, a snap-in action is provided and, in addition, supplemental means are provided to give guiding support to the portions of each wire immediately adjacent the terminal. In Fig. 15, the contact 206, of the type described with reference to Fig. 13, is received within an opening or cavity formed in the insulator 200, each finger 208 of the contact being adapted to interlock over a shoulder formed at the base of a counterbored portion

201 formed in the insulator, so as to limit movement of the contact relative to the insulator in one direction and so as to also afford the snap-in action and the previously described spring-like reception of an associated terminal (not shown). Movement of the contact relative to the insulator in the other direction is limited by the interengagement between the shoulder at the back of the contact and the insulator, as will be obvious. In this instance, a supplemental insulating plate 202 is secured to the back of the insulator as by means of a stud 208, and this plate is provided with a sleeve-like portion 204, which embraces the wire connected to the contact. With this relation, a firm support for the wire is afforded, so as to minimize flexing thereof in the region of its point of connection to the contact. In the arrangement of Fig. 16, the support for the wire is afforded by a cap-like member 212, which is adapted to be removably fitted over a boss-like portion 210, which projects from the body of the insulator 214. The cap 212 is provided with a restricted wire engaging portion which cooperates with the wire to give guiding support thereto in the just-described manner.

Although only several specific embodiments of the invention have been described, it will be appreciated that various further modifications in the form, number and arrangement of the parts may be made within the spirit and scope of the invention.

What is claimed is:

1. In a device of the character described, the combination of an insulating body having a cavity therein and provided with body abutments, and a contact in said cavity to receive a terminal projected into said cavity lengthwise of the cavity, said contact having a wire holding portion adapted for permanent securement to a wire and having a terminal receptacle portion, said portions being connected together but offset from each other transversely of the length of said cavity so that a wire end secured to said first portion and said second portion lie side by side in said cavity with the wire end and the said portions lying wholly within the cavity, said terminal portion being constituted by spreadable parts adapted to receive between them and yieldingly grip a said terminal, at least one of said spreadable parts providing an abutment means to engage with a corresponding body abutment and limit movement of the contact relative to the cavity in one direction, and said contact having other abutment means to engage with another corresponding body abutment for limiting movement of the contact relative to the body in an opposite direction, said contact being formed in part at least of resilient material so as to enable at least one of said abutment means to yieldingly ride over its corresponding body abutment during insertion of the contact into the body and thereafter snap into holding relation to said corresponding body abutment.

2. The structure of claim 1 wherein one of the body abutments is a shoulder which lies between the said wire holding and terminal receptacle portions and which forms a seat for engagement by the second-mentioned abutment means to limit movement of the contact into the body.

3. The structure of claim 1 wherein certain of said abutment means is an outwardly turned abutment which seats upon a shoulder in the cavity and wherein insertion of a said terminal applies pressure to the said outwardly turned abutment in a direction to increase its holding action with the said shoulder.

4. In a device of the class described, the combination of an insulating body having a cavity therein, a contact adapted to be received within said cavity, and having a wire engaging portion adapted for permanent connection to a wire and having spreadable parts adapted to releasably receive a terminal between them, said cavity having a shoulder formed therein, said contact having an abutment formed on at least one of said parts and adapted to snap past and engage behind said shoulder during insertion of said contact into said cavity, said contact being adapted to be sprung by the introduction of a terminal between said spreadable parts so as to augment the holding relation between said abutment and said shoulder, and said contact having means between said portion and said parts and engageable with said body to limit movement of the contact into the body.

5. In a device of the class described, the combination of an insulating body having a recess therein into which a saddle portion projects so as to divide the recess into two spaced but communicating cavities, a contact adapted to be received within said body and having spaced terminal receiving and wire receiving portions which are connected together by a bridge portion, and which are disposed respectively in said cavities, said terminal receiving portion being constituted by a pair of spreadable parts, the ends whereof are outwardly turned to form resilient fingers which engage the wall of the corresponding opening, said fingers cooperating with shoulders with which the corresponding cavity is provided to prevent movement of the contact outwardly of the body, and said bridge cooperating with the saddle portion to limit movement of the contact inwardly of the body.

6. In a device of the class described, the combination of an insulating body member having a cavity to accommodate a contact and having a shoulder formed within said cavity, a terminal engaging contact positioned in said cavity, said contact having a terminal receptacle portion and a portion adapted for permanent securement to a wire, said portions joined together by an intermediate connecting portion, said receptacle portion being constituted by spreadable parts formed to receive a terminal between them, said connecting portion being seated upon said shoulder to limit movement of the contact into said body, and means carried by one of said legs and engaging shoulder means with which said recess is provided to permit a snap entry of the contact into the body but to prevent movement of the contact out of the body.

7. In a device of the class described, the combination of an insulating body member having a cavity to accommodate a contact and having first and second holding surfaces formed within said cavity, a terminal engaging contact positioned in said cavity, said contact having spaced portions and a bridge portion between said portions, one of said spaced portions comprising a pair of spreadable parts adapted to yieldingly receive an associated terminal between them and the other of said spaced portions being formed for permanent securement to a wire, said spaced portions being arranged side by side in said cavity, said bridge portion being engageable with one of said surfaces to limit movement of the contact relative to the body in one direction, and a holding portion carried by said one spaced

portion and operatively engageable with the other said surface to limit relative movement between the contact and the body in the other direction, said contact being formed in part at least of resilient material so that at least one of said surface engaging portions can yield and snap past and behind its cooperating shoulder so as to permit a snap entering movement of said contact into said body.

8. In a device of the class described, the combination of an insulating body having a cavity therein, and a contact received in said cavity, said contact having wire holding and terminal receiving portions arranged side by side within said pocket, said wire holding portion being arranged to receive and be permanently secured to an end of a wire projecting into said cavity so that said wire end lies wholly within said cavity and said terminal portion being constituted by a pair of spreadable parts arranged to receive a terminal member projected in to said cavity between said spreadable parts, said contact having a connecting part between said portions and said cavity having a shoulder against which said connecting part seats to limit movement of the contact relative to the body in one direction, at least one of said spreadable parts having an abutment part thereon which seats against a shoulder with which the body is provided to limit movement of the contact relative to the body in the other direction, said contact being yieldable to permit at least one of said seating parts to snap past its cooperating shoulder during an entering movement of the contact into the body.

9. In a device of the class described, the combination of an insulating body having a cavity therein, and a contact received in said cavity, said contact having wire holding and terminal receiving portions arranged side by side within said pocket, said wire holding portion being arranged to receive and be permanently secured to an end of a wire projecting into said cavity so that said wire end lies wholly within said cavity and said terminal portion being constituted by a pair of spreadable parts arranged to receive a terminal member projected into said pocket between said parts, said contact having a connecting part between said portions and said cavity having a shoulder against which said connecting part seats to limit movement of the contact into the pocket, at least one of said spreadable parts constituting a yielding abutment which permits snap entry of the contact into the cavity but prevents withdrawal therefrom.

10. In a device of the class described, the combination of an insulated body having a contact receiving cavity therein, and a contact received in said cavity, said contact being of generally U-shaped form having separate spreadable legs joined together at one end by a bight portion, said bight portion being arranged to be clamped about a wire to secure said wire to the contact, and said legs being adapted to receive between them a terminal, at least one of said legs having a reversely turned portion adjacent the other end thereof which cooperates with a wall of the cavity to permit a snap entry of the contact into the cavity but prevents withdrawal of the contact from the cavity, said turned portion holding the terminal engaging portion of said one leg in spaced relation to the wall of said cavity so that when a terminal is inserted between said legs at least one said leg can be sprung toward said wall by said terminal.

11. In a device of the class described, the combination of an insulated body having a contact receiving cavity therein, and a contact received in said cavity, said contact being of generally U-shaped form having separate spreadable legs joined together at one end by a bight portion, said bight portion being arranged to be clamped about a wire to secure said wire to the contact, said legs being adapted to receive between them a terminal, at least one of said legs having an outwardly turned portion at the other end thereof which engages a wall of the cavity and cooperates therewith to hold the contact in place within the cavity, said turned portion holding the terminal engaging portion of said one leg in spaced relation to the wall of said cavity so that when a terminal is inserted between said legs at least one said leg can be sprung toward said wall by said terminal, and said contact having a saddle portion intermediate the ends of said legs for additionally cooperating with the insulating body to secure the contact in place within the cavity.

12. In a device of the class described, the combination of an insulating body having a cavity therein and being provided with holding surfaces, a contact received in said cavity to accommodate a terminal, said contact being constituted by a single piece of metal folded upon itself so that it defines a wire receiving part for securement of a wire and a receptacle to receive said terminal, said receptacle consisting of a pair of spreadable metal strips corresponding ends whereof are integrally joined together and which receive said terminal between them, said strips extending from said wire receiving part and having areas intermediate the ends thereof for engagement by said terminal, at least one said strip having adjacent the end thereof remote from its junction with the other strip an outwardly turned portion engageable with one said holding surface to limit movement of the contact relative to the body in one direction, said contact further defining a portion engageable with another said holding surface to limit movement of the contact relative to the body in another direction, at least one of said portions being yieldable so as to enable said contact to be inserted into said body with a snap action during which insertion said one portion snaps over and behind its said holding surface, said outwardly turned portion by its engagement with said one holding surface being effective to hold the terminal receiving area of the corresponding strip in spaced relation to the wall of said opening so as to enable such area to be sprung toward such wall upon insertion of a terminal between said strips.

13. In a device of the class described, the combination of an insulated body having a contact receiving cavity therein, and a contact received in said cavity, said contact being of generally U-shaped form having separate legs joined together at one end by a bight portion, said bight portion being arranged to be clamped about a wire to secure said wire to the contact, said legs having lateral extensions adjacent the ends thereof which extend generally parallel to said bight, said extensions being adapted to receive between them a blade-like terminal, at least one of said extensions having at its outer end an outwardly turned part which engages the wall of the cavity and holds the terminal engaging portion of the corresponding extension in spaced relation to such wall so that upon insertion of a said terminal such portion may be sprung to-

ward the wall, and means comprising abutment means on said body for engagement by said contact for securing said contact in place within said cavity.

14. In a device of the class described, the combination of an insulated body having a recess therein into which a saddle portion projects so as to divide the recess into two spaced cavities, a contact of generally U-shaped form having separate legs joined together at the inner ends by a bight portion, said bight portion being received in one said cavity and being arranged to be clamped about a wire to secure said wire to the contact, said legs having outer end portions received in said other cavity and adapted to receive between them a blade-like terminal, at least one of said legs having an outwardly turned part on its said outer end portion which engages a wall of the cavity and cooperates therewith to limit movement of the contact relative to the body in one direction, and the intermediate portion of at least one said leg being seated on said saddle portion to limit movement of the contact relative to the body in the other direction.

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