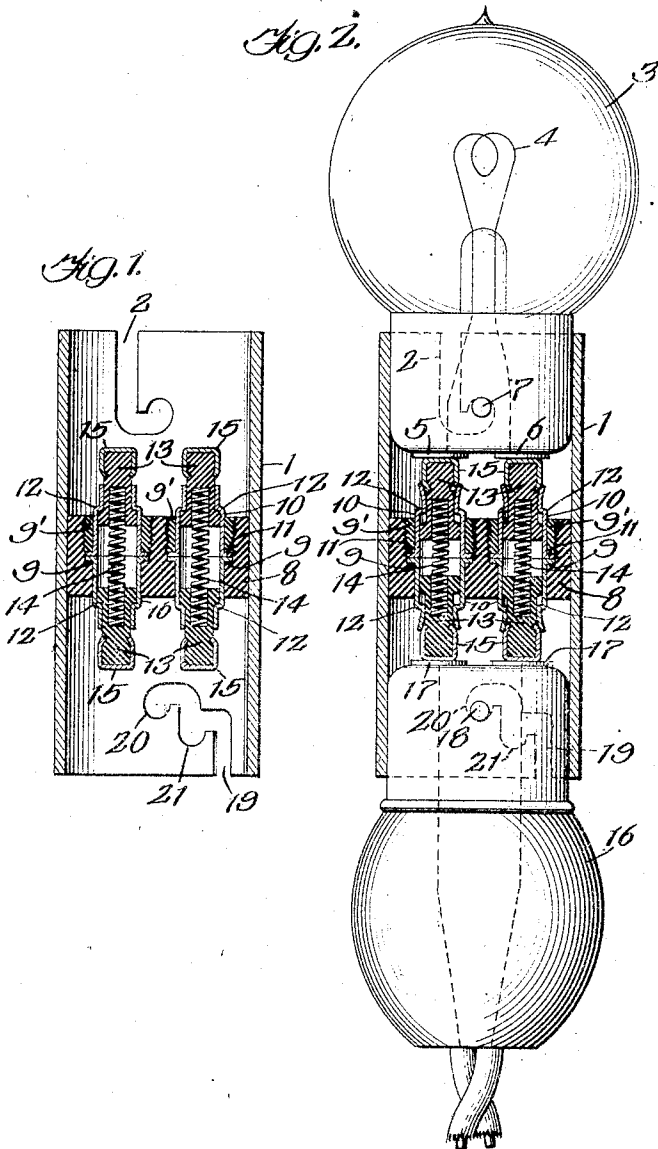
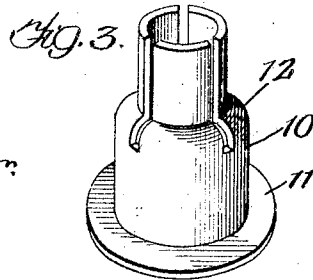


H. A. DOUGLAS.
ELECTRICAL CONNECTOR.
APPLICATION FILED MAY 11, 1915.

1,224,907

Patented May 8, 1917.



Witnesses:
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UNITED STATES PATENT OFFICE.

HARRY A. DOUGLAS, OF BRONSON, MICHIGAN, ASSIGNOR TO DOUGLAS & RUDD MANUFACTURING COMPANY, OF BRONSON, MICHIGAN, A CORPORATION OF MICHIGAN.

ELECTRICAL CONNECTOR.

1,224,907.

Specification of Letters Patent.

Patented May 8, 1917.

Application filed May 11, 1915. Serial No. 27,455.

To all whom it may concern:

Be it known that I, HARRY A. DOUGLAS, citizen of the United States, residing at Bronson, in the county of Branch and State of Michigan, 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 circuit connectors and has for its object the provision of improved means for assembling contacts with carriers, other novel features of construction herein disclosed being claimed in my co-pending application Serial No. 27,456, filed May 11, 1915.

I will explain my invention more fully by reference to the accompanying drawing showing the preferred embodiment thereof, and in which Figure 1 is a sectional elevation showing two members of a double connector made in accordance with the invention; Fig. 2 shows the elements of Fig. 1 coupled with complementary members in a manner to establish circuit; and Fig. 3 is a perspective view of one of the contacts.

Like parts are indicated by similar characters of reference throughout the different figures.

The type of structure to which I have applied my invention is broadly claimed in my co-pending application Serial No. 27,456, filed May 19, 1915, claims being contained in that application which broadly cover the structures disclosed in both applications.

The structure includes a cylindrical metallic shell 1 provided with bayonet slots 2 at one end, there to afford means for the attachment of some circuit continuing device which is shown as being a small incandescent lamp 3, whose filament 4 is provided with terminals 5 and 6 carried by the base of the lamp, this base being herein termed a contact carrier. Pins 7 project from the base of the lamp to constitute with the slots 2 bayonet catches for maintaining the lamp and shell together.

The shell 1 is in axial alinement with a plug of insulating material 8, that is also herein termed a contact carrier, this plug being here shown as being centrally within the shell and in rigid relation thereto.

The plug is apertured longitudinally of

the shell, one end of each aperture being larger than the other to afford shoulders 9. Two cylindrical contacts 10 are received in each of said apertures, the bases of these contacts being provided with flanges 11 which are placed face to face, and are together clamped against the shoulder 9 by a ring 9' received in the larger end of the aperture and there having threaded engagement with the plug 8, the upper contact 10 passing through the bore of the ring that thus constitutes a ring nut. The outer end of each contact 10 is reduced to form a shoulder 12. A contact carrying plunger of insulating material 13 projects through the outer and contracted end of the bore of each contact 10, the base of each plunger being enlarged to limit the extent of its outward movement by engaging the contiguous shoulder 12. A coiled spring 14 is inclosed within each pair of aligned contacts 10 that together constitute a spring barrel. The ends of this spring are seated within recesses provided in the inner ends of the plungers 13, the spring being under such compression as to force the plungers 13 outwardly when the ends of the shell 1 are not sufficiently occupied by circuit continuing elements. The outer ends of the plungers 13 are provided with metallic caps 15 which are out of engagement with the contact elements 10 when the plungers are placed in their outermost positions by the springs 14, as indicated in Fig. 1, but which caps or circuit closers 15 are brought into engagement with the contacts 10 contiguous thereto when a circuit continuing element is fully within the adjacent end of the shell, as indicated in Fig. 2.

Thus, when lamp 3 is removed from the shell 1, the upper plungers 13 are in their outermost positions in which the circuit is not only discontinued at the base of the lamp, but is further interrupted by the separation of the upper circuit closers 15 from the contiguous contacts 10. Generally it is not desirable to have facility for adjusting the lamp to in and out of circuit positions while mechanically interconnected with the shell 1. I therefore provide some suitable connecting plug at the other end of the shell, the plug shown having a body or contact carrier of insulating material 16 that carries circuit terminals 17 connected with a suitable source of current. Means are afforded whereby this plug may have

two distinct positions with respect to the shell while coupled therewith, and that are spaced apart longitudinally of the shell. In the outermost position of the plug 16 the springs 14 project the lower plungers 13 to their outermost positions in which the lower circuit closers 15 are out of engagement with the contiguous contacts 10, whereby the circuit is then opened. When the plug 16 is in its inner position, the lower caps 15 are forced into engagement with the lower contacts 10 to close the circuit. The outer ends of the contacts 10 are desirably longitudinally slotted to provide spring contact fingers for affording firm electrical connection with the caps 15. The springs 14 are never in circuit, so that their resiliency is not reduced. The means which I employ for adjusting the member 16 longitudinally of the structure resides in a pair of bayonet pins 18, carried by said member; and a pair of bayonet slots 19 in the lower end of shell 1, and so formed as to provide an inner pair of seats 20 and an outer pair of seats 21, the two pairs of seats thus being spaced apart longitudinally of the shell. When the pins 18 are received by the inner seats 20, the circuit is closed, and when received by the outer seats 21, the circuit is opened. By means of my invention, the angular displacement of one pair of seats from the other may be disregarded, slight angular displacement being desired only to permit of the ready transfer of the pins 18 from one pair of seats to the other. This advantage is secured, since

the contacts 17 may remain in engagement with the lower contacts 15 irrespective of the position of the plug 16.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not wish to be limited thereto, as changes may readily be made without departing from the spirit of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:—

1. A circuit connector including a contact carrier having an aperture there-through, formed to provide a shoulder therein; a contact provided with a flange that is seated on said shoulder; and a ring nut within the aperture and through which said flanged contact projects, and which nut is in threaded engagement with the carrier and clamping engagement with the contact flange.

2. A circuit connector including a contact carrier having an aperture there-through, formed to provide a shoulder therein; a contact provided with a flange that is seated on said shoulder; and a ring within the aperture and engaging the contact flange to maintain said flange in engagement with said shoulder.

In witness whereof, I hereunto subscribe my name this 8th day of August A. D. 1914.

HARRY A. DOUGLAS.

Witnesses:

HENRY C. BOWKER,
WILL M. FOSTER.