H. A. DOUGLAS.

CIRCUIT COUPLING.

APPLICATION FILED MAR. 17, 1916.

1,256,665. Patented Feb. 19, 1918.

Fig. 1.

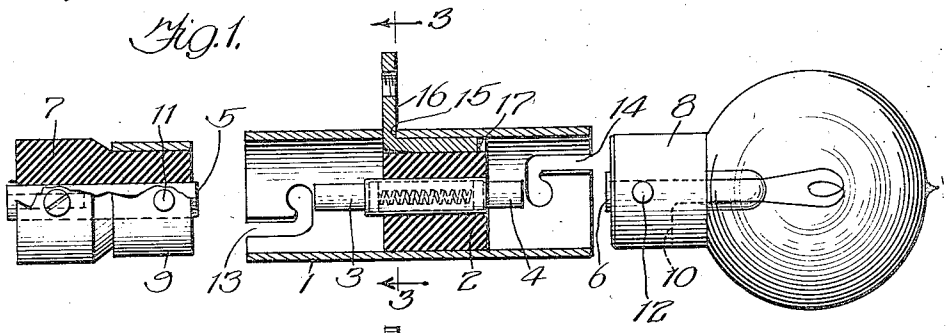


Fig. 2.

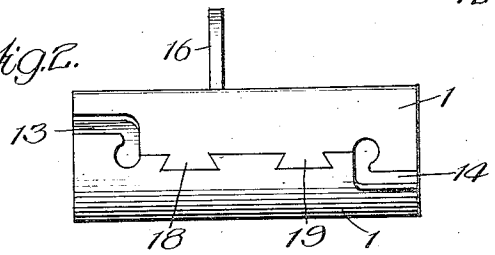


Fig. 3.

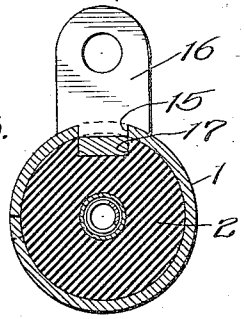
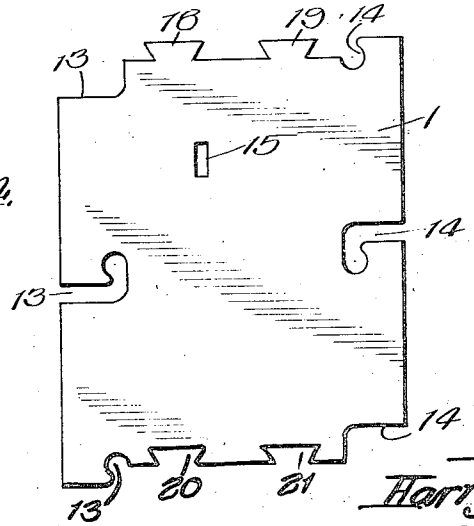


Fig. 4.



Inventor:
Harry A. Douglas.
By L. L. Craig Attorney

UNITED STATES PATENT OFFICE.

HARRY A. DOUGLAS, OF BRONSON, MICHIGAN, ASSIGNOR TO DOUGLAS & RUDD MFG. CO., OF BRONSON, MICHIGAN, A CORPORATION OF MICHIGAN.

CIRCUIT-COUPLING.

Specification of Letters Patent. Patented Feb. 19, 1918.

1,256,665.

Application filed March 17, 1916. Serial No. 84,789.

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 Circuit-Couplings, 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 contact carriers or connectors and has for one of its objects the provision of means whereby tubular metallic shell portions thereof may be formed of sheet metal rather than of tubing.

The invention has for another of its objects an improved union between a coupler or connector and the lug or member which is desirably provided therefor.

I will explain my invention more fully by reference to the accompanying drawing in which Figure 1 shows one form of coupler in longitudinal section and circuit portions in association therewith that are to be electrically connected thereby, the circuit portion at the left being shown in elevation, partially in section and being a connecting plug while the circuit portion at the right is in the form of an incandescent lamp shown in elevation; Fig. 2 is a view in elevation of the circuit coupler shown in Fig. 1; Fig. 3 is a view on line 3 3 of Fig. 1; and Fig. 4 illustrates a blank formed out of flat sheet metal and which is afterward curled into cylindrical shape to produce the couplers shown in Figs. 1, 2 and 3.

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

The circuit coupler or contact carrier illustrated includes a cylindrical metallic shell or tube 1 in which there is tightly inserted a contact carrying plug 2 of insulating material and which carries spring pressed contacts 3 and 4 designed respectively for engagement with contacts 5 and 6 carried respectively by the plug 7 and lamp base 8, the elements 7 and 8 having additional terminals 9 and 10 which are in the form of metallic shells that are electrically connected by the metallic shell 1 when the elements 7 and 8 are received in the ends thereof. The contact carriers 7 and 8 are provided with bayonet pins 11 and 12 which are respectively receivable within bayonet slots 13 and 14 formed in the shell 1, this shell being thus adapted mechanically to couple the carriers 7 and 8 to include their contacts 5 and 6 in circuit by way of the electrically connected contacts 3 and 4 and their contacts 9 and 10 in circuit by way of of the metallic shell 1 itself. The shell 1 has a slot or opening 15 formed therethrough through which one arm of an angular coupler or connector lug or member 16 may be projected, the other arm being overlapped by the shell and surrounded by the shell and held in engagement with the shell 1 upon the interior thereof, whereby unsightly protruding attaching means for the lug located upon the exterior of the shell may be dispensed with.

In the preferred embodiment of the invention the lug securing means resides in the plug 2 itself, there being a recess formed in one or the other of the members 1, 2 for receiving the arm of the lug that is located within the shell. In the embodiment of the invention shown this recess is formed in the plug 2 by providing a channel 17 longitudinally through the plug at its periphery, this channel being of a size snugly to receive the inner arm of the lug.

The remaining feature of my invention resides in the formation of the cylindrical shell or tube 1 itself preferably in conjunction with the plug 2 received within the shell. Initially, a stamping is formed, as illustrated in Fig. 4, which is afterward curled to form a cylinder or tube, the dovetailed tenons 18, 19 being received within correspondingly shaped dovetailed mortises 20 and 21 respectively included in the same zone with said tenons and within the circle or contour of the shell, the formations 18, 19 and 20, 21 constituting interlocking elements at the abutting meeting edges of the seam. The edges of the curled sheet of metal thus meet or abut instead of overlapping whereby no thickened or projecting seam results. The plug is driven under reasonable pressure into the cylinder 1 whereby the tenons are tightly pressed against the mortised portions at the dovetailed faces thereof, whereby tendency to destroy the circle or contour of the tube is guarded against. When the circle of the cylinder has been firmly established by the plug, any enlargement of the circle is obviously guarded against owing to the dove-

tailed formation of the mortises and tenons. The plug acts also to guard against the collapsing of the tube 1 since neither of the portions margining the abutting meeting edges of the curled sheet can be inwardly pressed at the plug.

While the circuit coupler illustrated is one which is adapted to have circuit portions applied to both ends thereof, I do not wish to be limited to such a characteristic, as I broadly claim a contact carrier whether it is employed at an intermediate portion of a circuit or not.

While I have herein shown and particularly described the preferred embodiment of my invention I do not wish to be limited to the precise details of construction shown as changes may readily be made without departing from the spirit of my invention, but having thus described my invention I claim as new and desire to secure by Letters Patent the following:—

1. A contact carrier including a tubular shell having an opening through its tubular wall; an angular lug having one arm passing through said opening; and means within the shell for holding the other arm and shell in assembly, this arm being between the shell and this means.

2. A contact carrier including a tubular shell having an opening through its tubular wall; an angular lug having one arm passing through said opening; and a plug within the shell engaging the other arm and holding it in assembly with the shell, this arm being between the shell and plug.

3. A contact carrier including a tubular shell having an opening through its tubular wall; an angular lug having one arm passing through said opening and the other arm within the shell; and a plug within the shell engaging the latter arm and holding it in assembly with the shell, this plug having a longitudinal groove in which the latter arm is received.

4. A contact carrier including a tubular shell having an opening through its tubular wall; an angular lug having one arm passing through said opening; and a contact carrying plug within the shell engaging the other arm and holding it in assembly with the shell, this arm being between the shell and plug.

5. A contact carrier including a tubular shell having an opening through its tubular wall; an angular lug having one arm passing through said opening and the other arm within the shell; and a contact carrying plug within the shell engaging the latter arm and holding it in assembly with the shell, this plug having a longitudinal groove in which the latter arm is received.

6. A contact carrier including a cylindrical shell formed of sheet metal having abutting meeting edges which are provided with interlocking formations, and a contact carrying plug within and tightly engaging the shell in the region of said interlocking formations and serving to frictionally lock said formations together whereby the plug maintains the shell in its cylindrical shape.

7. A contact carrier including a tubular shell having an opening through its tubular wall; a lug having a portion passing through said opening; and a plug within the shell engaging another portion of the lug and holding it in assembly with the shell, this other portion of the lug lying between the shell and plug.

8. A contact carrier including a tubular shell having an opening through its tubular wall, a plug within the shell, and a connector member disposed in said opening and having a portion thereof located between the plug and shell.

9. A contact carrier including a tubular shell having an opening through its tubular wall, a plug within the shell, and a connector member disposed in said opening and having a portion thereof located between the plug and a portion of the shell overlying the plug.

10. A contact carrier including a tubular shell having an opening through its tubular wall, a connector member disposed in said opening and having a portion thereof overlapped by the shell, and means for holding the connector member in assembly with the shell.

In witness whereof, I hereunto subscribe my name this tenth day of March A. D., 1916.

HARRY A. DOUGLAS.

Witnesses:
G. L. CRAGG,
ETTA L. WHITE.