F. CONRAD.

CONNECTOR.

APPLICATION FILED DEC. 26, 1913.

1,318,728. Patented Oct. 14, 1919.

Fig. 1.

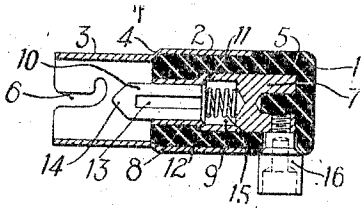



Fig. 2.

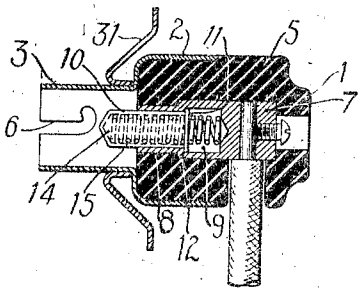



Fig. 3.

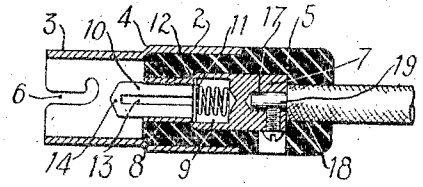



Fig. 4.

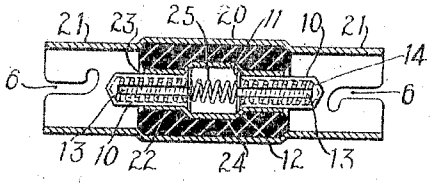
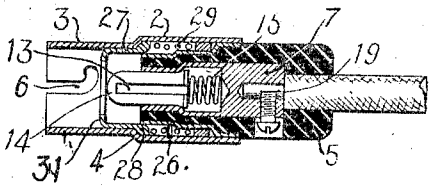



Fig 5.




WITNESSES:

R. J. Fitzgerald

J. R. Langley

INVENTOR

Frank Conrad

BY

Wesley G. Carr

ATTORNEY

# UNITED STATES PATENT OFFICE.

FRANK CONRAD, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

## CONNECTOR.

1,318,728. Specification of Letters Patent. Patented Oct. 14, 1919.

Application filed December 26, 1913. Serial No. 808,782.

*To all whom it may concern:*

Be it known that I, FRANK CONRAD, a citizen of the United States, and a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Connectors, of which the following is a specification.

My invention relates to connectors such as are employed in connection with incandescent lamps for automobiles, or other motor vehicles, and it has for its object to provide such a device that shall comprise few and simple parts which may be assembled easily to produce a neat and compact structure.

Another object of my invention is to provide a connector having means whereby a lamp socket, or other coöperating device is securely held in position.

In practising my invention, I provide a connector that comprises a slidably mounted hollow contact member within which is a spring of such length that an approximately uniform tension is applied to the contact member throughout its range of movement. The contact member is so constructed as to be readily inserted in place and to be retained in position in engagement with the spring.

The details of my invention will be described in connection with the accompanying drawing in which Figure 1 is a view, in longitudinal section, of a connector constructed in accordance with my invention and Figs. 2, 3, 4 and 5 are similar views of modifications.

Referring particularly to Fig. 1, a connector 1 comprises a cylindrical shell or casing 2 having a reduced portion 3 to form an annular shoulder 4 approximately midway between the ends of the casing. A body member 5 of insulating material, such as bakelite, or similar material, is inclosed, for a portion of its length, by that portion of the casing 2 which has the larger diameter. The reduced portion 3 of the casing 2 is provided with a slot 6 to receive a suitable coacting member of an incandescent lamp which, with the slot 6, forms the well known bayonet joint. An axially disposed member 7, of brass or other suitable metal, is provided with a bore 8, the inner portion 9 of which has a diameter larger than that of its outer portion. A hollow contact member 10, which is slidably mounted within the bore 8, is provided, at its inner end, with a flange portion 11 which projects into the portion 9 of the bore 8 and coacts with a shoulder portion 12 to limit the outward movement of the contact member.

The contact member 10 is also provided with a slit 13 which is sufficiently wide to permit the insertion of the flange portion 11 within the bore 8 when the slit 13 is wholly or partially closed by pressure upon opposite sides of the contact member. The outer end portion 14 of the contact member 10 is pointed for engagement with a coacting contact member of an incandescent lamp. A spring 15, which is inclosed by the contact member 10, normally retains the latter in the position illustrated, with the flange portion 11 engaging the shoulder portion 12 of the member 7. A contact terminal 16 provides a means for connecting the member 5 to one terminal of a source of current, the other terminal of the lamp being grounded through the casing 2.

In the construction of the connector, the member 7 is provided with the bore 8 which is, at first, of uniform diameter. Then the inner portion 9 of the bore 8 is enlarged by a suitable tool. The member 7 is then placed in a suitable mold and surrounded by the insulating material while the latter is in a liquid or plastic state. The spring 15 is then inserted in the bore 8. The inner end of the contact member 10 is compressed to close the slit 13 and is then inserted in the bore 8.

The contact member 10 is sufficiently resilient to cause the end portions to separate when the flange portion 11 has passed the shoulder portion 12 and thus retain the contact member 10 in position with the spring 15 compressed between the outer end of the contact member and the member 7. This construction also serves to provide radial pressing engagement between the members 7 and 10 and in conjunction with the large area of engaging surface between.

The contact member 10 and the member 7 insure good electrical contact between them. The engaging parts are of a sufficient length to provide guide surfaces for the contact member 10 which prevent binding as the latter moves relatively to the member 7. By providing a tubular contact member, the spring 15 may be of sufficient length to insure an approximately uniform tension as it is compressed upon the insertion of the

incandescent lamp, and at the same time, a neat and compact structure is secured.

A modification is illustrated in Fig. 2 in which like numerals designate corresponding parts. The construction differs in no material respect from that of the connector illustrated in Fig. 1, the parts having slightly different shapes and relative dimensions. A mounting ring 31, which is soldered to the reduced portion 3 of the casing 2, serves to limit the movement of the connector in one direction after it has been placed in its operative position.

The modification illustrated in Fig. 3 is practically identical with the device of Fig. 1 except that the member 7 and the body member 5 are respectively provided with axial openings 17 and 18 to receive a conductor terminal 19 for endwise connection instead of lateral connection, as in Fig. 1.

In the modification illustrated in Fig. 4, the casing 20 is provided with reduced end portions 21 each of which is provided with a slot 6. A conductor member 22 is provided with a bore 23 having a central enlarged portion 24. Contact members 10 are oppositely disposed in the bore 23 and are normally retained in the positions illustrated by a spring 25 that bears, at its ends, against the outer ends of the contact members 10. The contact members 10 are thus movable relatively and simultaneously. Since the connector is symmetrical with respect to a central transverse plane, the ends are interchangeable, each being adapted for connection to a lamp or to a conductor terminal that is constructed to coact therewith.

A fourth modification is shown in Fig. 5. The casing 2 is similar in shape to that shown in Figs. 1 and 3, while the body member 5 is reduced at the end within the casing 2 and is incased by a sleeve 26. A sleeve 27, which is slidably mounted within the casing 2, is provided, at its inner end, with a flange portion 28 which is normally held in engagement with the shoulder portion 4 of the casing 2 by a spring 29. The sleeve 27 is provided, at its outer end, with an inwardly extending flange portion 31 that is adapted to engage the end of the lamp to hold the latter firmly in position. The connector differs materially in no other respect from the modification shown in Fig. 3.

I claim as my invention:

1. The combination with a connector having an opening and a shoulder portion within the opening, a contact member slidably mounted in the opening and adapted to normally bear against the shoulder in the connector, of an insulating member disposed around the connector for insulating the connector and having a shoulder at one end thereof, a casing disposed around the insulating member at the shoulder, a second casing disposed around the insulating member, and a resiliently mounted sleeve adapted to be slidably mounted between the casings.

2. A lamp socket comprising a connector having an opening and a shoulder portion within the opening, a resiliently mounted contact member disposed in the opening in the connector, an insulating member molded around the connector and having a shoulder at one end thereof, a casing disposed around the insulating member at the shoulder, a second casing disposed around the insulating member and a resiliently mounted sleeve adapted to be slidably mounted between the casings.

In testimony whereof, I have hereunto subscribed my name this 19th day of Dec. 1913.

FRANK CONRAD.

Witnesses:
F. H. PATTEN,
B. B. HINES.