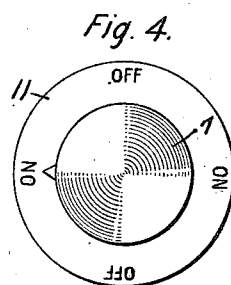
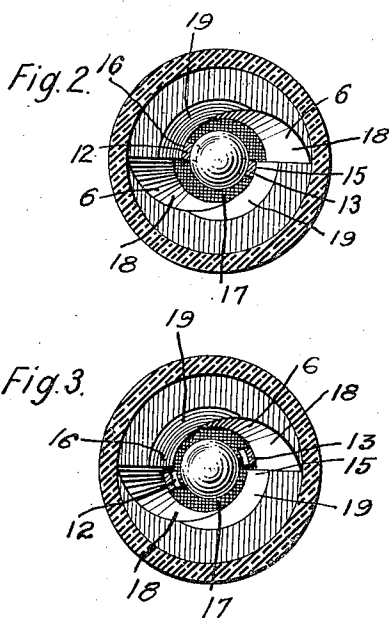
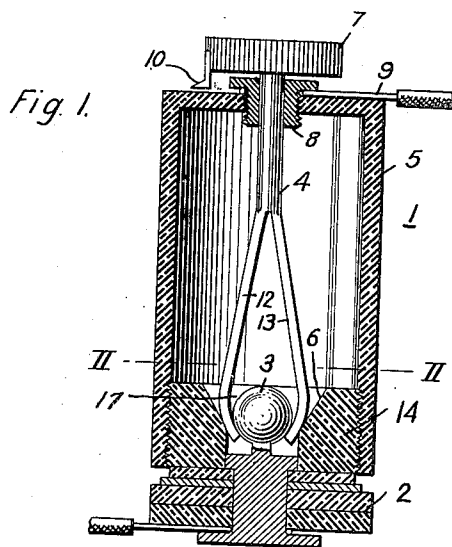


1,432,029.

C. E. MYERS.
CONNECTOR,
APPLICATION FILED MAR. 2, 1917.

Patented Oct. 17, 1922.



WITNESSES:
Frederick Miller
J. A. Proctor

INVENTOR
Clarence E. Myers
BY
Charles E. Myers
ATTORNEY

UNITED STATES PATENT OFFICE.

CLARENCE E. MYERS, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

CONNECTOR.

Application filed March 2, 1917. Serial No. 151,976.

To all whom it may concern:

Be it known that I, CLARENCE E. MYERS, a citizen of the United States, and a resident of Wilksburg, 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 electrical connectors and particularly to separable connectors of the plug-and-socket type.

One object of my invention is to provide a connector of the above indicated character that shall have means for precluding an unexpected interruption of the circuit because of an accidental pull on the connector.

Another object of my invention is to provide a connector of the above indicated character that shall have means for quickly interrupting the circuit before the two parts of the connector can be separated.

A further object of my invention is to provide a connector that shall be inexpensive in construction and effective in operation.

In practicing my invention, I provide a stationary contact member, a movable contact member having two resiliently mounted parts, a housing for the movable contact member having an inwardly inclined substantially spiral surface that is adapted to engage the resiliently mounted parts of the movable contact member, under all conditions, and means for turning the movable contact member with respect to the housing for the purpose of causing the resiliently mounted parts to co-operate with the inclined surface to grip the stationary contact member into both electrical and mechanical engagement and to effect a relatively quick disengagement between the resiliently mounted parts and the stationary contact member before the housing can be moved relatively to the stationary contact member.

In the accompanying drawings, Figure 1 is a view, partially in section and partially in elevation, of a connector embodying my invention; Fig. 2 is a view, taken along the line II—II of Fig. 1 and illustrating the position of the contact members when the same are in engagement; Fig. 3 is a view, taken along the line II—II of Fig. 1 and illustrating the position of the contact members after they have been quickly disengag-

ed and before the housing is moved relatively with respect to the stationary contact member, and Fig. 4 is a top plan view of the movable portion of the connector shown in Fig. 1.

A plug connector 1 comprises, in general, a stationary insulating member 2, having a stationary contact member 3 thereon, a movable contact member 4, a housing 5 for the movable contact member having an inwardly inclined substantially spiral surface 6, and means 7 for turning the movable contact member 4 with respect to the housing 5.

The housing 5 is provided with a conducting bushing 8 in the upper portion thereof to which a conductor 9 may be connected. The movable contact member 4 is adapted to project through the bushing 8 and is provided, at one end, with the member 7 that may consist of a knurled head member having an indicator 10 at one edge thereof which is adapted to co-operate with the upper portion 11 of the housing 5 to indicate the "off" and "on" positions of the connector. The inner portion of the movable contact member 4 is provided with two resiliently mounted contact arms 12 and 13 that are adapted to engage the inclined surface 6 under all conditions. The inclined surface 6 is provided in a block 14 having an opening through which the stationary contact member 3 extends. The block 14, forming a part of the housing 5, may be screw threaded to the latter or secured thereto by any other suitable means.

The block 14 has a central aperture 17 which, in longitudinal cross section, as viewed in Fig. 1, is of substantially funnel shape and around which the surface 6 is disposed. The upper or tapered portion of the aperture 17 has substantially the shape that would be produced by longitudinally halving a frusto cone along a central plane and displacing the halves along this plane. This provides shoulders 15 and 16 in the block 14. Portions 18 of the surface 6 are eccentrically related with respect to the contact member 3, and portions 19, which merge into, and are substantially continuations of, the portions 18, are concentrically related to the contact member 3.

When the movable contact member 4 is to be engaged with the stationary contact mem-

ber 3, the arms 12 and 13 are placed on opposite sides of the contact member 3 substantially on the greatest diameter of the aperture 17, as viewed in Fig. 3, and turned, in the counter-clockwise direction by means of the member 7. When thus turned, the arms 12 and 13 next engage the surface 6 which, by reason of its eccentric relation to the contact member 3, gradually presses the arms inwardly until they engage the member 3 at a position where the portions 18 of the surface 6 merge into the portions 19. The portions 19, being concentrically related to the contact member 3, provide a final closed position of the contact members 3 and 4 where the arms 12 and 13 receive uniform pressure against their outer surfaces. When the arms 12 and 13 are in this position, the member 7 is in such position that the indicator 10 is adjacent the correct marking on the top portion 11 of the housing 5, and the curved lower ends of the arms 12 and 13 are so interlockingly held between the stationary contact member 3 and the block 14 that they connect.

If it is desired to interrupt the circuit, the member 7 is turned until the arms 12 and 13 become disengaged from the shoulder portions 15 and 16 of the surface 6 and assume the positions shown in Fig. 3 of the drawings. Since the arms 12 and 13 are adapted to engage the surface 6, under all conditions, it will be understood that when the shoulder portions 15 and 16 are reached, the arms 12 and 13 will quickly snap out of engagement with the stationary contact member 3. When the arms 12 and 13 assume the positions shown in Fig. 3 of the drawings, the housing 5 may be mechanically disengaged from the stationary portion 2.

I do not limit my invention to the particular structure illustrated, as it may be variously modified without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim as my invention:

1. In a separable connector, a plug member having a contact member projecting therefrom, a socket member having a perforation into which the contact member projects, and a yielding contact member rotatably mounted in the socket member and movable axially into overlapped relation to the first contact member, the wall of the perforation being provided with a cam surface disposed in spiral relation to the axis of rotation of the yielding contact member, for engaging the yielding contact member and for moving it into engagement with the

first contact member when the yielding contact member is rotated.

2. In a separable connector, a plug member having a contact member provided with an undercut surface and projecting therefrom, a socket member having a perforation into which the said contact member projects, and a yielding contact member rotatably mounted in the socket member and movable axially into overlapped relation to the first contact member and provided with a portion adapted to engage the undercut surface of the first contact member and prevent axial displacement of the plug and socket members, the wall of the perforation in the perforate member being provided with a cam surface disposed in spiral relation to the axis of rotation of the yielding contact member, for engaging the yielding contact member and for moving it into engagement with the first contact member when the yielding contact member is rotated.

3. In a separable connector, a plug member having a contact member projecting therefrom, a socket member having a perforation into which the contact member projects, and a yielding contact member rotatably mounted in the socket member and movable axially into overlapped relation to the first contact member and normally yieldingly retained in spaced relation to the first contact member, the wall of the perforation being provided with a cam having an interrupted surface disposed in spiral relation to the axis of rotation of the yielding contact member for engaging the yielding contact member and for moving it into engagement with the first contact member and permitting it to snap away therefrom when the yielding member is turned a predetermined distance.

4. In a separable connector, a plug member having a contact member projecting therefrom, a socket member having a perforation into which the contact member projects, and a yielding contact member mounted in the socket for rotation about the first contact member and yieldingly retained out of engagement therewith, the wall of the perforation being provided with a cam surface having a curvature eccentric to the axis of rotation of the yielding contact member for engaging the yielding contact member and for moving it into engagement with the first contact member when the yielding contact member is rotated.

In testimony whereof, I have hereunto subscribed my name this 27th day of February, 1917.

CLARENCE E. MYERS.