No. 879,760. PATENTED FEB. 18, 1908.

H. C. FROELICH.

SWITCH PLUG.

APPLICATION FILED AUG. 12, 1903.

Fig. 1.

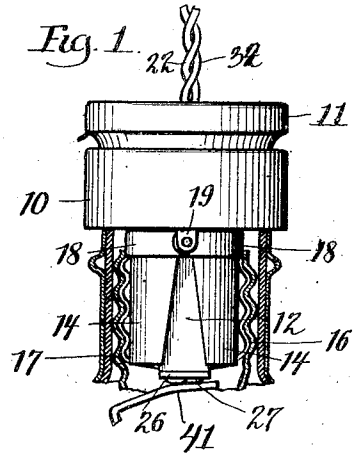


Fig. 2.

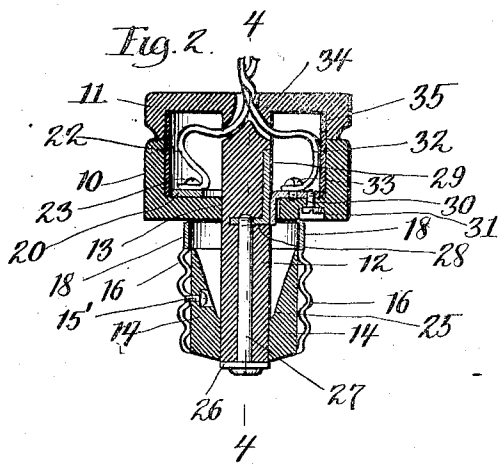


Fig. 3.

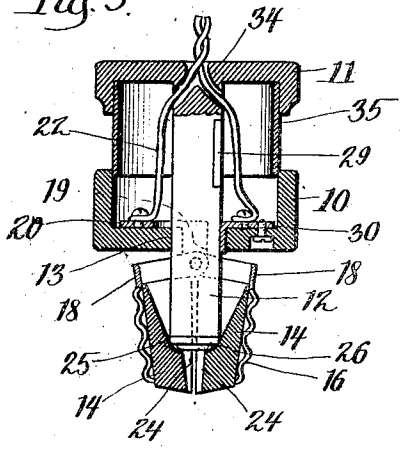


Fig. 4.

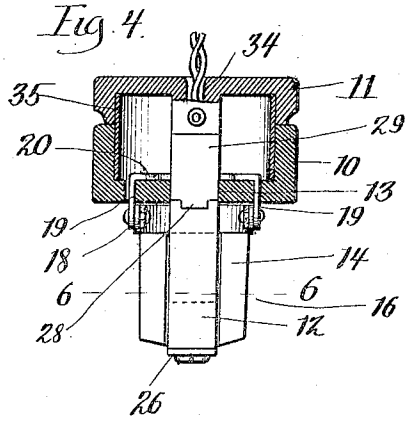


Fig. 5.

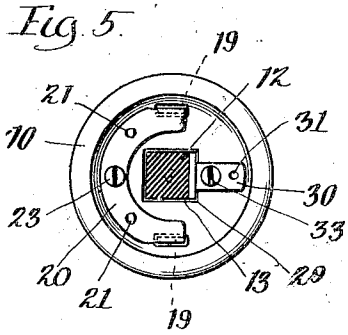
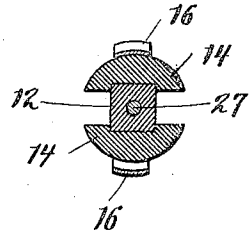


Fig. 6.



Witnesses:
Alberta Adamick.
Lillian Prentice.

Inventor:
Henry C Froelich
By Fred Gerlach
his Attorney.

UNITED STATES PATENT OFFICE.

HENRY C. FROELICH, OF CHICAGO, ILLINOIS, ASSIGNOR TO BENJAMIN ELECTRIC MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

SWITCH-PLUG.

No. 879,760. Specification of Letters Patent. Patented Feb. 18, 1908.

Application filed August 12, 1903. Serial No. 169,173.

To all whom it may concern:

Be it known that I, HENRY C. FROELICH, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Switch-Plugs, of which the following is a specification.

The invention relates to plugs adapted to be inserted into sockets to attach electrical conductors and to establish electrical connections, and designs to provide an improved switch-plug which can be quickly inserted into and secured in a socket.

The invention further designs to provide a plug which can be inserted into a socket having a screw-threaded ring which serves as a conductor-terminal, *e. g.*, those commonly known as "Edison" sockets, this insertion being accomplished without rotation of one of the parts to establish connection therebetween.

The invention consists in the several novel features hereinafter set forth and more particularly pointed out by claim at the conclusion hereof.

In the drawings: Figure 1 is a side elevation of a plug embodying the invention, a portion of a socket being shown in section; Figs. 2 and 3 are central longitudinal sections, showing the parts in different positions respectively; Fig. 4 is a section on the line 4—4 of Fig. 2; Fig. 5 is a plan of the plug-body, the central post being shown in section; and Fig. 6 is a section on the line 6—6 of Fig. 4.

The plug comprises a cup-shaped body 10, a cap 11, having an integral central post 12 guided in an opening 13 formed in the body, and a shank adapted to enter a socket and formed of sections 14 pivotally sustained by the body. The cap and body are formed of insulating material and are slidably connected, so that relative longitudinal movement of one with respect to the other will spread the shank-sections. The shank-sections are pivotally sustained in such manner that they can be spread into engagement with a socket and each comprises a body of insulating material and a corrugated metallic contact-strip 16, adapted to fit snugly against the screw-threaded terminal ring 17 of a socket, and an integral, semicircular strip 18 having its ends pivoted to oppositely arranged depending ears 19 of a terminal-plate 20, secured to the inner face of body 10, by screens 21. Screws 15′ secure sections 14 to strips 16. One of the line-conductors 22 is connected to plate 20 by a screw 23. Each of the shank-sections is cut away as at 24, so that post 12 can pass therebetween, and is curved or inclined as at 25 so that the post will spread the shank-sections. The edges of notches 24 are engaged by post 12 when the post is therebetween and thereby the shank-sections are held in spread relation (Fig. 2). A contact-tip 26, adapted to engage a spring-terminal 41 of a socket, is secured to the end of post 12 by a screw 27 which electrically connects the tip and an inturned extension 28 of a metallic strip 29 which is secured at one side of post 12. Strip 29 is adapted to contact with a terminal plate 30 secured to body 10 by a screw 31, and whereto the other line-conductor 32 is connected by a screw 33. Strip 29 and plate 30 are disengaged when post 12 is withdrawn, and constitute a connection which is broken as soon as the tip has been moved away from socket-terminal 41 to avoid a current arc between the tip and socket terminal. Post 12 and opening 13 are of corresponding non-cylindric contour so that the cap and the body are held relatively non-revoluble. Body 10 is of sufficient size to engage the end of a socket and thus longitudinally positions the shank in the socket. The line-wires 22, 32 enter the pocket formed between the cap and body through a hole 34 centrally formed in the cap. A ring 35 of insulating material is secured to the cap and closes the opening between the body and the cap when these are separated.

When the plug is to be attached to a socket, the cap and the body will be in separated relation, as shown in Fig. 3. The shank is then contracted so that it can readily enter a socket. When the contracted shank has been placed in a socket, the cap is forced inwardly to spread the shank-sections into firm engagement with the socket, and to slide strip 29 into contact with line-terminal plate 30. Friction between the shank-sections and the post, secures the cap in assigned position. The electrical circuit then established extends through conductor 22, plate 20, ears 19, strips 16, 16 to socket-terminal 17 and from socket-terminal 41 through tip 26, screw 27, strip 29, plate 30 to the other line-conductor 32. When the

plug is to be detached, cap 11 is withdrawn. Post 12 will then disconnect strip 29 and plate 30, and leave the shank-sections free to move towards each other and out of contact with the socket. When the shank is free from the socket, the plug-body can be withdrawn. The play of cap 11 is restricted by the twisted portions of the line conductors, so that when the cap has been withdrawn from engagement with the shank, the body will be withdrawn with the cap. Thus by longitudinal inward and outward movement respectively of the cap, attachment and detachment of the plug are quickly effected. The same movement brings the contact-tip into and out of connection with one of the line-conductors.

The invention is not to be understood as restricted to the precise details herein described since these can be modified without departing from the spirit of the invention.

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

1. A switch-plug comprising the combination of a body, a longitudinally movable post, a cap integrally formed with the post, a contact-tip carried by said post, and a contact-strip adapted to engage a socket-terminal and sustained by said body, and shifted laterally into position to engage the socket by longitudinal movement of the post.

2. A switch-plug comprising the combination of a body, a longitudinally movable cap, a post secured to the cap, a contact-tip carried by the post and a shank comprising laterally movable sections connected with the body and having a contact-strip secured thereto, and shifted, by longitudinal movement of the cap in one direction, into position to secure the plug in a socket.

3. A switch-plug comprising the combination of a body, a longitudinally movable member, a shank comprising pivotally sustained sections, a contact-strip for engagement with a socket and secured to the shank, a contact-tip carried by said member and means spreading said sections when said member is moved longitudinally in one direction.

4. A switch-plug comprising the combination of a body, a longitudinally movable cap having a post secured thereto, a terminal-plate secured to said body, and having ears and a shank comprising sections pivotally secured to said ears and a pair of contact-strips secured to the sections, said sections being spread by said post when the post is shifted longitudinally in one direction.

5. A switch-plug comprising the combination of a body, a longitudinally movable post, means operated by longitudinal movement of said post and whereby the body can be attached to a socket, a pair of line-terminals, a pair of contacts one of which is carried by said post, and a make-and-break connection between the tip and one of said terminals, operated by shift of said post.

6. A switch-plug comprising a body, a longitudinally movable post, carrying a contact-tip and a strip connected to said tip, a terminal-plate secured to the body and engaged by said strip when said post is in one position and disengaged when the post is in its other position, and a shank comprising laterally movable sections operated by longitudinal movement of the post.

7. An attachment plug comprising in combination an insulating structure formed in two relatively-movable parts and arranged to provide a chamber therebetween, an expanding outer contact carried by one of said parts, means carried by the other of said parts for expanding said outer contact when said parts are relatively moved, an end contact, and means within said chamber for connecting circuit wires with said contacts.

8. In an attachment plug, the combination of a base, a conducting plate on one side thereof, means arranged on the other side of said base for connecting circuit wires, a movable cap covering said connecting means, and means arranged to shift said plate laterally when said cap is moved toward said base.

9. In an attachment plug, the combination of a base, a laterally-movable contact on one side of said base, binding-screws on the opposite side of said base, a cap covering said binding-screws and movable relatively to said base, and means for shifting said laterally-movable contact by moving the cap and base toward each other.

10. In an attachment plug, the combination of a base, a pair of contact members pivoted thereto, a cap adapted to telescope with said base, and means carried by said cap and adapted when said cap and base are moved toward each other, to be thrust between said contact members and thereby to shift the same laterally.

11. An attachment plug adapted for cooperating with a screw-threaded socket, and comprising contacts to engage the terminals of the socket, an enlarged body portion consisting of two relatively movable members having a chamber formed between the same, binding posts arranged in said chamber, and means operated by the relative movement of said members for moving one of said contacts laterally into engagement with a terminal of the socket.

12. An attachment plug for cooperating with a socket having a ring terminal, comprising an insulating split shank carrying contacts for engagement with the ring terminal of the socket, an enlarged body portion consisting of two relatively movable members having a chamber formed between the same, binding posts mounted on one of said members, and located within the said cham-

ber, and means for separating the parts of said shank, said means being operated by the relative movement of said members.

13. An attachment plug comprising an enlarged body portion consisting of two relatively movable members having a chamber formed between the same, binding posts mounted within said chamber on one of said members, an insulating longitudinally separable shank also mounted upon said member, contact strips arranged upon the exterior of said shank and means operated by the relative movement of said members, for separating said shank.

HENRY C. FROELICH.

Witnesses:
PH. KOEHLER,
JOHN M. LANE.