No. 808,096. PATENTED DEC. 26, 1905.

A. N. LAWRENCE, Jr.

DETACHABLE ELECTRICAL CONNECTION.

APPLICATION FILED OCT. 3, 1903.

Fig. 1.

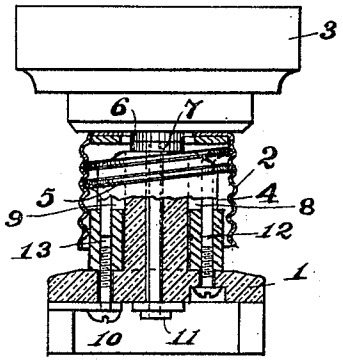


Fig. 2.

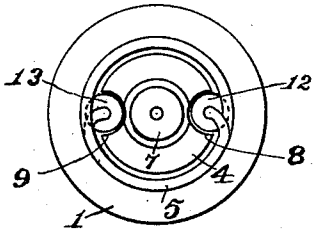


Fig. 3.

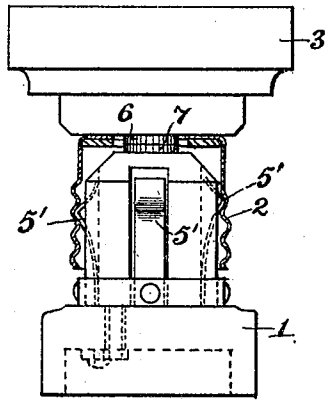
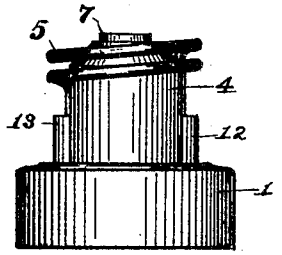


Fig. 4.



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DETACHABLE ELECTRICAL CONNECTION.

No. 808,096. Specification of Letters Patent. Patented Dec. 26, 1905.

Application filed October 3, 1903. Serial No. 175,627.

To all whom it may concern:

Be it known that I, AUGUSTINE N. LAWRENCE, Jr., a citizen of the United States, residing at New York city, New York, have invented certain new and useful Improvements in Detachable Electrical Connections, of which the following is a clear, full, and exact description.

My invention relates to a detachable electrical connection and is capable of a variety of applications.

The object of my invention is to improve and simplify such connections; and one object of my invention is to provide an electric plug which may be easily inserted in or removed from a socket. The ordinary plug in order to be inserted in a screw-socket must be given several revolutions in order to seat the same, and if an electric wire is attached to the plug the necessary revolution of the plug is likely to form kinks in the wire.

One object of my invention is to provide a plug which may be pushed directly into the socket and which will avoid the objections above noted to the ordinary screw-plug.

My invention will be defined in the claims.

In the drawings, which show preferred forms of my invention, Figure 1 is a side elevation, partly in section, the lower portion of the socket being also shown in section. Fig. 2 is a plan view of the plug alone, and Fig. 3 is a side elevation of a modification. Fig. 4 is a side elevation of the plug alone.

In the preferred embodiment shown in the drawings, 1 is a plug, which may be made of porcelain or other insulating material and is adapted to be inserted in an ordinary screw-socket 2, carried by the base 3. The plug has a portion 4, which is smaller in diameter than the internal diameter of the socket. 5 is a spring carried by the plug and projecting from the outer surface of this portion 4, so that it may enter the recesses in the socket. This spring is preferably in the form of a coiled wire of a size sufficient to carry the current, and it may form one pole of the plug. As seen in Fig. 2, the wire is coiled around the portion 4 of the plug and stands at a slight distance from the outer surface thereof, so that the spring may be compressed inwardly—that is, toward the surface of the plug. When the plug is to be inserted in the socket, it may be shoved directly in, and the spring will be compressed toward the surface of the plug and will therefore pass by the corrugations formed by the screw-threads of the socket until the plug is seated, and the wire will then spring outward and engage with the threads and hold the plug in place, at the same time forming a good electrical connection between the two.

6 is a terminal carried by the socket, and 7 is a terminal carried by the plug, and in case it is desired to make a closer contact between the two it is only necessary to give the plug part of a turn to screw the two terminals tightly together. The two ends of the wire 5 may be soldered in brass sleeves 12 and 13 on the plug, and one of these sleeves may be secured in place by a screw binding-post 10.

11 is a binding-post serving to hold the terminal 7 in place and also forming another pole of the plug.

8 and 9 are vertical recesses in the surface of the plug, which may be provided, if desired, for the reception of the vertical ends of the wire 5.

In Fig. 3 is shown a modification of the spring in which the springs 5′ (constituting in this case also a spring member) have their ends located in the recesses in the plug, and a portion of the spring projects from the surface of the plug for the same purpose as above specified. It will be observed that in this construction also the spring portions 5′ are compressible toward the outer surface of the plug—that is, they are compressible inward—so as to reduce their projection beyond the outer surface of the plug.

It will be observed that in my construction the plug may be shoved directly into the socket to its seating position, and the springs are protected from injury by being below the top of the plug and located around the outer surface of the plug. The plug may be easily and quickly attached to or removed from the socket and avoids the objections above specified to the ordinary screw-plug.

I am aware that many variations may be made from the constructions heretofore illustrated and described without departing from my invention as claimed, and I therefore do not limit myself to the particular constructions shown and described.

Although I have shown and not specifically claimed in Fig. 3 of this application a modified form of plug, I do not thereby abandon my right to such invention, for which I expect in due time to file a division application.

What I claim is—

1. In combination, a plug of insulating material adapted to enter a socket, and a

spring member projecting beyond the outer surface of said plug and compressible toward the surface thereof and adapted to engage the inside of a socket and having helically-arranged contact-surfaces whereby the helically-arranged contact-surfaces may be rotated within a socket or longitudinally withdrawn therefrom and a central contact upon said member, the central contact forming one terminal and the contact-surfaces another terminal.

2. The combination with a socket having a threaded or helically-grooved inner surface constituting one pole, and a contact member at the bottom of said socket constituting the other pole, of a plug smaller than the threads on said socket whereby the same may be pushed directly into said socket, and a spring member carried by said plug and having helically-arranged contact-surfaces projecting beyond said smaller portion, and adapted to be compressed toward the plug when inserted in said socket, said spring member forming one pole of said plug, and a contact member at the top of said plug constituting the other pole of said plug and adapted to engage with the contact member located at the bottom of said socket.

3. In combination, a plain-faced plug of insulating material adapted to enter a socket, a spring-wire coiled around and projecting beyond the outer surface of said plug and below the top thereof and compressible toward the surface thereof, and adapted to engage the inside of a socket.

4. In combination, a plug of insulating material adapted to enter a socket, a spring-wire coiled around and projecting beyond the outer surface of said plug and below the top thereof and compressible toward the surface thereof, and adapted to engage the inside of a socket, the two ends of said wire being attached to said plug.

5. In combination, a plain-faced plug of insulating material adapted to enter a socket, and a spring-wire conductor having both ends connected with said plug, said spring being coiled around and slightly separated from the surface of said plug and compressible toward the surface thereof, and adapted to engage the inside of a socket.

6. In combination, a threaded socket, a plug of insulating material less in diameter than said socket, and means for holding said plug in place comprising a spring-wire coiled around and projecting beyond the outer surface of said smaller portion of said plug and compressible toward the same by engagement with the inside of said socket when inserted therein, said wire forming one pole of said plug.

7. An attachment-plug having a portion provided with terminals for the attachment of conducting-wires, a substantially cylindrical portion having on its end a contact-plate in electrical connection with one terminal, a resilient piece connected to the other terminal and formed to engage screw-threads, said piece normally projecting beyond the surface of said cylindrical portion of the plug, substantially as described.

8. A socket-shell in combination with an attachment-plug of insulation having a diameter less than the socket-shell, a contact at one end of the plug, and a resilient contact member carried at the outer side of said plug and adapted to contact with the shell of the socket and means for electrically connecting conducting-wires to the specified contacts.

Signed at New York, N. Y., this 1st day of October, 1903.

AUGUSTINE N. LAWRENCE, JR.

Witnesses:
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