No. 879,773 PATENTED FEB. 18, 1908.

B. D. HORTON.

EXTENSION PLUG FOR ELECTRIC LIGHTS.

APPLICATION FILED OCT. 2, 1903. RENEWED JAN. 12, 1906.

Fig. 2.

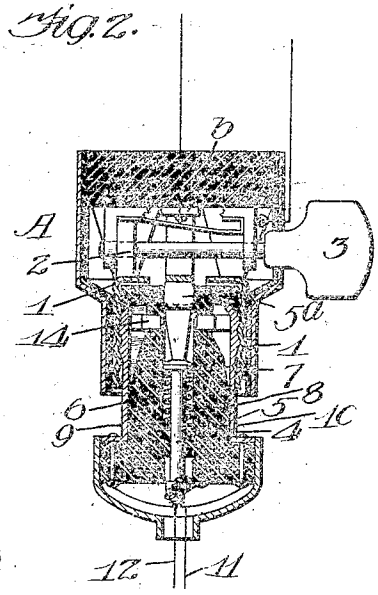


Fig. 3.

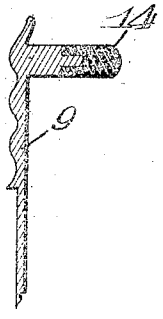
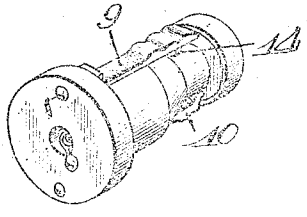


Fig. 1.



Witnesses:
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UNITED STATES PATENT OFFICE.

BRYSON DEXTER HORTON, OF DETROIT, MICHIGAN, ASSIGNOR TO BENJAMIN ELECTRIC MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

EXTENSION-PLUG FOR ELECTRIC LIGHTS.

No. 879,773. Specification of Letters Patent. Patented Feb. 18, 1908.

Application filed October 2, 1903, Serial No. 175,469. Renewed January 12, 1906. Serial No. 295,684.

To all whom it may concern:

Be it known that I, BRYSON DEXTER HORTON, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Extension-Plugs for Electric Lights, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to extension couplings for conductors of electric currents from the ordinary Edison lamp socket, and has for its object the provision of an improved plug coupling which can be quickly inserted and withdrawn from the socket without twisting the pair of conducting cords which are attached to it, and which are used to conduct current from the socket to its place of use.

In the drawings:—Figure 1, is a perspective view of the plug. Fig. 2, is a cross sectional view showing the plug inserted into an ordinary socket. Fig. 3, is a detail section of one of the contacts used in connection with the plug.

A indicates an ordinary Edison socket provided with the screw threaded sleeve 1, into which the screw threaded sleeve of the light bulb is commonly screwed, provided also with the contact spring 2, manipulated by the thumb lever 3, in the ordinary way. The plug which embodies this invention is provided with a body part 4 that is hollow, and through which extends axially a movable pin 5, normally held with the end 5^a, projecting from the body under the force of a spring 6, that is inserted in the bore of the body between the collar 7 on the pin and an abutment 8 within the bore.

A portion of the pin above the collar 7 is coned with the large end of the cone toward the projecting end 5^a of the pin. On the outside of the body are arranged arms 9 and 10, being secured at one end to that end of the body 4 which is the most distant from the projecting end of the pin 5, and are connected electrically with one 11, of a pair of electric conductors of the extension. The pin 5, is connected electrically with the other 12, of said electric conductors. The preferable connection between the pin 5 and the conductor 12 is by means of a short piece of flexible strand of copper wire. Each of the arms 9 of which there may be several, and there are preferably as many as three, is made of resilient metal, preferably phosphor bronze or some metal which is capable of maintaining a resiliency which will throw the arms toward the center of body when the cone shaped pin is forced out by spring 6. Each of these arms 9 is provided with a finger 14, terminated with an insulating substance and extending through a hole in the body 4, which extends at rightangles or substantially at rightangles to the longitudinal bore through the body part 4. The fingers 14 are on the ends of the arms 9 which are otherwise free to vibrate, and each of the arms 9 is preferably terminated with a corrugated part that constitutes a part of a mutilated screw. There may be a single screw terminated arm or several.

The extension plug is used by inserting it in the socket and pushing it forcibly inward with the projecting end of the pin 5 bearing against the contact terminal *b*, in the socket.

When the coupling is pushed into the socket, the pin 5 is driven backward into the body of the plug and the conical part within the plug bears against the fingers 14 and spreads the terminals 9, 10, forcing the corrugated parts of the mutilated screw into the threads of the socket. A slight turn, which may be less than one quarter of a turn will cause the cone of the pin 5 to spread the arms 9 and 10 which form the mutilated screw, sufficiently to secure the device firmly in the socket with the pin 5 in positive electric contact with the terminal *b*, and with the arms 9 and 10 in positive electrical contact with the socket threads, and thus making suitable electric connections for the two conductors.

The arms 9, 10, etc., cannot under any circumstances be brought into contact with any part of the socket which connects electrically with the terminal *b*, and there can be no accidental short circuiting in coupling the plug for use. The coupling is effected

without twisting the cords of the extension coupling, or the fixed cord which supports the socket A, as no more than a quarter turn of one with respect to the other is ever requisite.

An advantage of this construction is that it provides a sliding contact each time the plug is inserted.

What I claim is:—

1. An extension coupling for electric conductors, having in combination a body part, a reciprocatory coned pin, electrically connected to one of a pair of extension conductors, a corrugated arm secured to the body and electrically connected to the other of the pair of conductors and adapted to engage in the screw threads of a socket and provided with a finger engaging the cone of said pin and adapted to be actuated thereby, substantially as described.

2. An extension coupling for threaded electric lamp sockets, said coupling having in combination a body part, a corrugated arm secured to the body part and electrically connected to one of a pair of conductors and adapted to engage the threads of said socket, a reciprocating outwardly-spring-pressed pin connected to the other of the pair of conductors and operated by the insertion of the coupling in the socket, and means actuated by said pin to cause said corrugated arm to engage the screw threads of the socket.

3. An extension coupling for coöperation with a screw-threaded electric socket, said coupling having in combination a body part, a reciprocatory pin electrically connected to one of a pair of extension conductors, a corrugated arm secured to the body and electrically connected to the other of the pair of conductors, and arranged to engage the screw threads of the socket, and provided with a finger engaged by said pin to cause said arm to engage the screw threads of the socket.

4. An extension coupling for coöperation with a socket having a center contact and a side contact, said coupling having a plug portion provided with a central bore, an outwardly-spring-pressed center contact member disposed in said bore, a laterally-movable side contact tending to move toward said plug portion, and means, operated by the inward movement of said center contact member, for moving said side contact away from said plug portion and into engagement with said outer contact of said socket.

5. An extension coupling for coöperation with a socket having a center contact and a side contact disposed in planes at right angles with each other, said coupling having a body portion, a conducting pin slidably arranged within said body portion and tending to move outward with respect thereto, a movable side contact carried by said body portion, and means whereby said side contact is shifted laterally into engagement with the side contact of the socket when said pin engages said center contact of said socket and is thereby moved inward with respect to said body portion.

6. An extension coupling for coöperation with a socket having a center contact and an outer contact disposed in planes at right angles with each other, said extension coupling having a center contact and an outer contact movable in planes at right angles with each other, and operative connection between said center and outer contacts, whereby rearward movement of said center contact causes outward movement of said outer contact.

7. An extension coupling for coöperation with a lamp socket having a threaded outer contact, said coupling having a laterally-movable corrugated contact and a longitudinally movable center contact, and operative connection between said center and outer contacts, whereby inward movement of said center contact causes said outer contact to move laterally.

8. An extension coupling for coöperation with a lamp-receiving socket having a center contact and a ring contact, said coupling comprising an insulating plug having a central bore, a center contact member slidably arranged in said bore, means tending to thrust said center member forward and outward, a laterally-movable contact tending to move toward said plug, and means, operated by the rearward movement of said center contact member, for moving said laterally-movable contact away from said plug and into engagement with the ring contact of said socket.

9. An extension coupling for coöperation with a lamp-receiving socket having a center contact and a ring contact, said coupling comprising an insulating body portion, a longitudinally-movable center contact, a laterally movable side contact, and means, operated by rearward and inward movement of said center contact, for moving said laterally-movable contact into engagement with said ring contact of said socket.

10. An extension coupling for coöperation with a socket having a center contact and an outer contact, of a plug portion having a central bore, a center contact member arranged in said bore and projecting therefrom and yieldable inwardly, a laterally-movable side contact, and operative connection between said center contact and said side contact, whereby when said center contact is moved inwardly, lateral movement is imparted to said side contact.

11. In an extension coupling, the combination of an insulating plug, a plurality of

contact-strips extending longitudinally and exteriorly of said plug and tending to move toward said plug, a spring-pressed spindle extending longitudinally through said plug and forming the center contact of said plug, and operative connection between said contact strips and said spindle so arranged that inward movement of said spindle will cause said contact strips to move away from said plug.

In testimony whereof, I, sign this specification in the presence of two witnesses.

BRYSON DEXTER HORTON.

Witnesses:

CHARLES F. BURTON,

MAY E. KOTT.