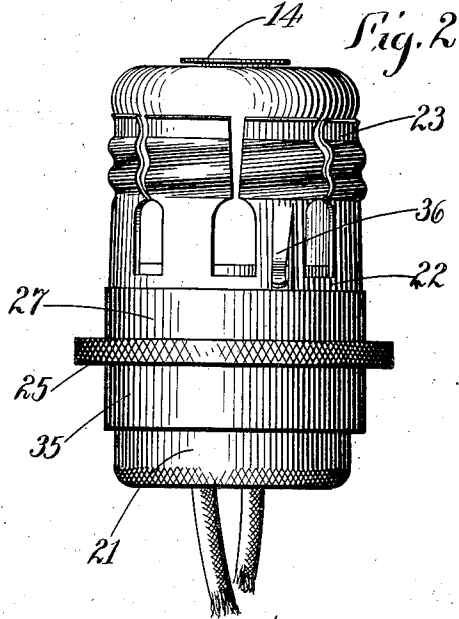
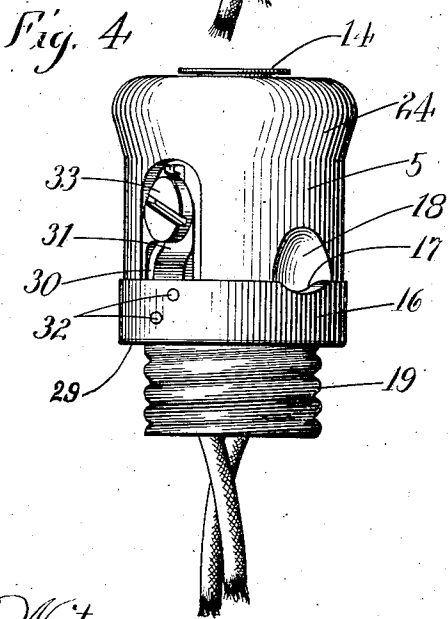
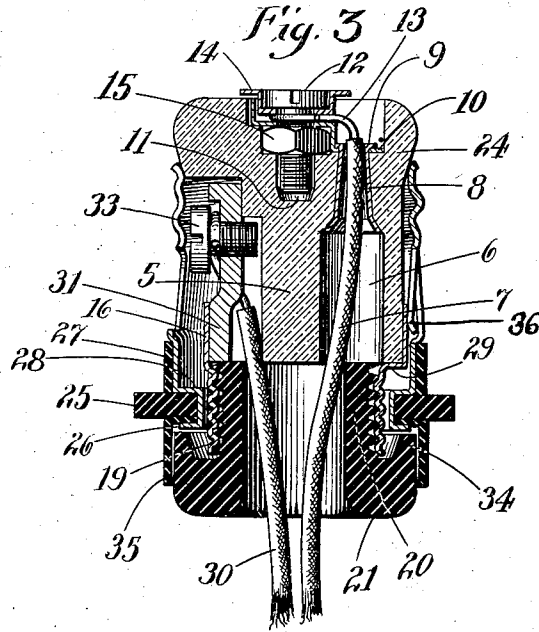
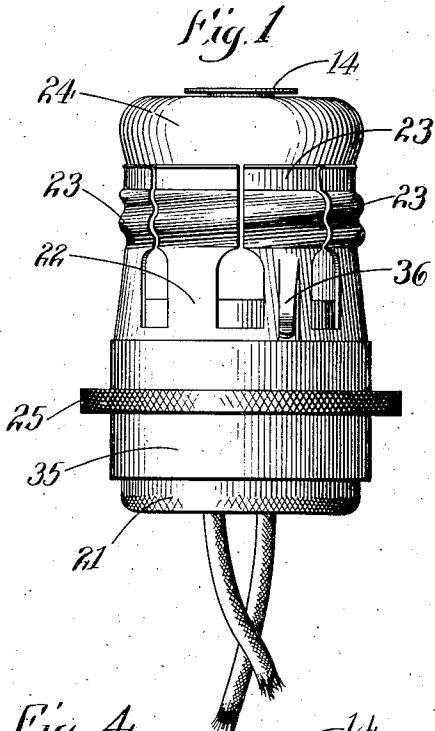


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ATTACHMENT PLUG.
APPLICATION FILED MAR. 13, 1908.

988,298.

Patented Apr. 4, 1911.



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UNITED STATES PATENT OFFICE.

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ATTACHMENT-PLUG.

988,298.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed March 13, 1908. Serial No. 420,916.

To all whom it may concern:

Be it known that I, REUBEN B. BENJAMIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Attachment-Plugs, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to improvements in attachment plugs adapted for coöperation with sockets which are designed for the reception of incandescent electric lamps. As ordinarily constructed, a device of this class, when adapted for Edison sockets, comprises an insulating plug having a contact upon its end for engagement with the center contact of the socket and provided with a side contact consisting of a threaded metallic shell, the device as a whole being arranged to be screwed into the socket. With such an attachment plug the operation of attaching the same to a socket results in the twisting and kinking of the flexible conductors carried thereby.

The object of the present invention is to provide an attachment plug for attachment to electric lamp sockets, which is adapted to coöperate with and be secured in place in the socket without rotation of the conductor-carrying part, whereby twisting of the conductors, which results from such rotation in the use of the ordinary attachment plug, is avoided.

In the carrying out of my invention I provide a base or body portion preferably of insulating material, carrying binding terminals for the attachment thereto of the ends of the conductors, and a threaded or corrugated member adapted for engagement with the threaded interior of the socket, this corrugated member being movable longitudinally of the plug and arranged to expand when thrust forward on the body and toward the bottom of the socket. In the use of this device, when it is desired to attach the same to the socket, the movable contact of the attachment plug will be at its rearward position. The device as a whole is thrust into the socket until the center contact thereon engages the center contact of the socket, after which operation the expanding outer contact will be thrust forward, or toward the bottom of the socket,

and will thereupon expand into engagement with the threaded interior thereof, thus locking the device in place. If desired, the outer contact may then be given a slight rotation on the base to more firmly secure the device to the socket.

In the accompanying drawings, in which I have illustrated an embodiment of the invention, Figure 1 is a side elevational view of the attachment plug ready for insertion into a socket; Fig. 2 is a similar view showing the device with the movable outer contact moved forward on the plug and thus expanded; Fig. 3 is a central longitudinal sectional view of the device; and Fig. 4 is an elevational side view of the device with some of the external parts removed to expose to view features of construction.

In the several figures of the drawings, 5 is the insulating base or body of the plug, this part being formed preferably of porcelain or similar non-conducting material. This base or body portion 5 is formed with a passage 6 which extends longitudinally there-through for the passage of a conductor 7. The forward portion of this passage is restricted and preferably tapered as shown, a metallic bushing 8 occupying this portion of the passage and having its forward end expanded over a metallic plate 10 to hold the same in place. Extending through this plate, and into a cavity 11 in the insulating base portion 5, is a screw or bolt 12 which serves as a contact member for engagement with the center contact of the socket when the device is inserted into the same. This bolt 12 serves also as a binding screw for the reception of the bared end 13 of the conductor 7. A dished washer 14 is arranged under the head of the screw, and between this washer and the plate 10 the conductor is securely clamped when the screw 12 is tightened. The nut 15 on the screw 12 occupies a cavity in the insulating body of the same form as the nut, whereby the nut is prevented from turning with the screw.

Surrounding the rearward end of the base 5 is a metallic ring 16, this ring being held in place on the base by being bent inwardly at one or more points as at 17, the indented portions occupying suitable depressions 18 in the material of the base 5. At the end of the base 5 the ring is drawn in at 19 and threaded to receive the threaded end 20 of an insulating bushing 21, this bushing

screwing in until its inner end abuts the end of the base 5.

The outer contact member of the device consists of a threaded or corrugated shell 22, surrounding the base and formed of metal which is slightly resilient. This shell is slitted for a portion of its length, to form strips 23 which tend to move inwardly and toward each other. The forward end of the base 5 is expanded at 24, being thereby made somewhat cone-shaped. Movement of the threaded shell 22 forward on the base causes the strips 23 to be spread away from each other by their engagement with the diverging sides of the cone-shaped portion of the base. To afford means for manually moving the corrugated shell 22 forward on the plug, and for revolving the same relatively to the plug, an insulating collar 25, formed of hard rubber or other suitable insulating material, is provided to constitute a hand-piece, this collar being secured to the shell 22 by flanging the inner end 26 thereof around the collar. Extending forwardly from the collar 25, and surrounding the unslitted portion of the metallic shell 22, is a thin insulating ring 27 of rubber, fiber or the like.

The shell 22 is provided with an inwardly extending shoulder 28 which engages, when the shell is moved forward, the shoulder 29 between the larger and smaller portions of the ring 16, thus limiting the forward movement of the shell 22. The ring 16 is provided with means for electrically connecting the other conductor 30 therewith, such means comprising a plate 31 suitably secured, as by rivets 32, to the ring 16 and carrying a binding screw 33 for the reception of the wire. The space that would otherwise be left between the upwardly-extending flange 34 on the bushing 21 and the collar 25, when the outer contact is moved forward, is covered by an insulating ring 35 which is carried by the movable contact member and forms a skirt extending around the bushing. To maintain electrical connection between the outer contact member 22 and the ring 16, the member 22 is slitted to form one or more inwardly-extending spring tongues 36, which engage at all times the ring 16.

In the use of this device, when it is desired to secure the plug to a socket and thereby extend the circuit to the translating device to which the conductors 7 and 30 extend, the attachment plug will be grasped by the bushing 21, or by the wires, and thrust into the socket until the end contact 12 engages the center or inner contact of the socket. The outer contact 22 will then be thrust toward the bottom of the socket by grasping the insulating collar 25 carried thereby. As the forward movement thus imparted to the outer contact causes the ends of the resilient strips 23 to pass on to the

inclined sides of the enlarged portion 24 of the base, these strips will be made to spread away from each other. The outer contact member is thus expanded into engagement with the threaded interior of the socket by a forward thrust imparted thereto after the body of the device has been inserted into the socket as far as it will go. To insure firm connection between the contacts of the device and the contacts of the socket, and to prevent the device being accidentally pulled from the socket, a slight rotation may now be given to the outer contact by revolving the collar 25. This causes the threads on the outer contact to advance slightly in the threads of the socket. It is not necessary to rotate the conductor-carrying portion of the device, and a very slight rotation of the rotatable part is sufficient in all cases. Twisting and kinking of the wires, which occur in the use of the ordinary attachment plug, are thus avoided.

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

1. The combination of a base having an enlarged forward end, a center contact at said end, and a side contact movable around said base and toward and away from said enlarged end, said side contact being arranged to pass on to said enlarged end when moved forward with respect to said base and to be thereby expanded.

2. The combination of a base having an enlargement, an end contact carried thereby, a side contact movable around said base and also movable along said base, said side contact being adapted to pass on to said enlargement and thereby to be expanded when moved forward on said base.

3. The combination of a substantially cylindrical insulating base having its end enlarged to form a substantially conical inclined surface, an expansible side contact mounted on said base so as to surround the same and be capable of forward and rearward movement with respect thereto, said contact being arranged to engage said inclined surface and be thereby expanded when moved forward, and binding terminals carried by said base and in electrical connection with said contact.

4. The combination with a base, of a binding terminal carried thereby, and a rotatable and longitudinally movable contact carried by said base, said base having an incline with which said movable contact engages when moved forward, whereby said movable contact is expanded.

5. The combination of a base having an enlarged forward end, a metallic ring surrounding the rearward end of said base, a binding terminal electrically connected with said ring, a side contact rotatable and longitudinally movable with respect to said

base, and means for maintaining electrical connection between said side contact and said ring.

5 6. The combination of a base having an enlarged forward end, a metallic ring surrounding the rearward end of said base, a binding terminal electrically connected with said ring, a side contact rotatable and longitudinally movable with respect to said
10 base, and a resilient tongue for maintaining

electrical connection between said side contact and said ring.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

REUBEN B. BENJAMIN.

Witnesses:

M. L. FARRAR,
C. L. HOPKINS.