

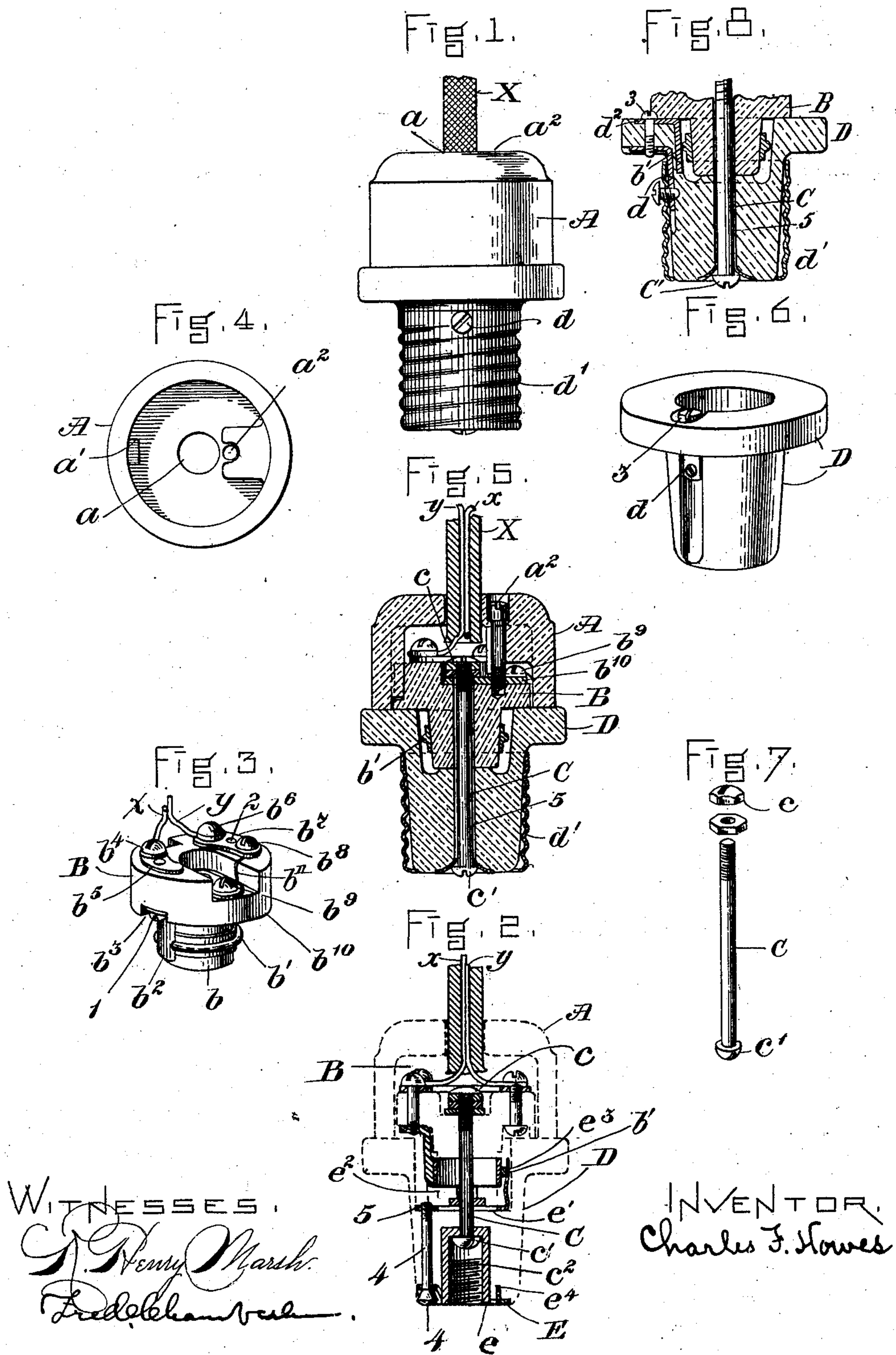
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C. F. HOWES.
ATTACHMENT PLUG.

(Application filed Apr. 28, 1900.)

(No Model.)



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ATTACHMENT-PLUG.

SPECIFICATION forming part of Letters Patent No. 693,864, dated February 25, 1902.

Application filed April 28, 1900. Serial No. 14,735. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. HOWES, of Cambridge, Middlesex county, Massachusetts, have invented a new and useful Electric Coupler or Attachment-Plug, of which the following is a specification.

My invention relates to attachment-plugs for facilitating the connection with a flexible cord or other support carrying the circuit-wires with electrical devices and apparatus, such as incandescent lamps, fans, motors, &c.

My invention consists in a device as a whole and in its parts to be used as a coupler for the purposes aforesaid.

My invention will be understood by reference to the accompanying drawings, in which similar characters refer to like parts, and in which—

Figure 1 is an external elevation of my invention, showing the external threaded shell required for use with Edison sockets. Fig. 2 is a section, partially in outline, of my invention, showing the end contact required for use with Thomson-Houston sockets. Fig. 3 is a detail of one member of the plug. Fig. 4 is an interior view of the plug-cover. Fig. 5 is a sectional view of my invention adapted for use with an Edison socket. Fig. 6 is a detail of the other member of the plug to be used with an Edison socket. Fig. 7 is a detail showing the swivel-rod connecting the two members of the plug. Fig. 8 is a sectional view of part of my invention for use with an Edison socket.

A is a cover, preferably of porcelain or similar insulating material, having a center hole a , through which passes the conductor X, carrying the two circuit-wires x and y , and a lug a' , adapted to fit into a notch or groove in the upper member of the plug, and a hole for the screw a^2 , by which the cover is connected with the member B. (Shown in Fig. 3.)

B is the upper member of the plug, preferably of porcelain and adapted for use in a plug for either a Thomson-Houston or Edison form of socket. About its diminished portion b is the conducting rim, ring, or shell b' , and with this connects a flat angle-shaped metal b^2 , which fits into the shoulder of B at b^3 and is held there by a screw 1. The cir-

cuit-wires x and y are led in through the conductor X, and the wire x connects by binding-screw b^4 with plate b^5 , connected with angle-piece b^3 by screw 1. The circuit-wire y connects by screw b^6 with plate b^7 , held to B by screw 2, and with binding-screw b^8 is connected a safety-fuse b^{11} , making the continuation of the circuit to binding-screw b^9 , connecting with plate b^{10} , which lies in the cut-away portion of member B, all as shown in Fig. 3, while, as will be seen in Figs. 2 and 5, (not shown in Fig. 3,) through the perforated center of B extends a swivel-rod C, held in place by a nut, preferably a spring-nut c , and whose lower head c' forms one of the circuit connections immediately in Fig. 5 and through the interiorly-threaded screw c^2 in Fig. 2. The rod C will be made as shown in Fig. 5 if the plug is for use with an Edison socket or as shown in Fig. 2 if for use with a Thomson-Houston socket. There is also in the plate b^{10} , between the head of the screw b^9 and the top c of the rod C, a screw-hole into which fits the screw-rod a^2 , passing through a hole in the cover, to secure the cover A to the member B.

D is the other member of the plug, and its form is substantially the same whether for use in a plug for the Thomson-Houston or the Edison form of socket, with certain modifications in the circuit connections which will be easily understood. If to be used with the Edison form of socket, this member may have the angle-plate d secured to the under part of the ledge by the screw 3 and a corresponding angle-shaped metal piece d^2 also secured by the screw 3 and passing down into the interior of D, as shown in Fig. 8. Around the small part of D will be placed a screw-shell d' , as shown in Fig. 1, which screw-shell will connect with the circuit at d . This form is also shown in section in Fig. 5, having the metal shell d' and the rod C, terminating in the spring-nut c , which makes the circuit connection with the center terminal. Fig. 5 shows also the spring-nut c and illustrates how the cover A fits down upon the member D, with the screw a^2 passing down to fasten into the member B, as heretofore explained, and it also shows the conductor X and one of the

circuit-wires x already explained. This section does not show, but it will be understood that as the part D revolves upon the swivel-rod C the ring or shell b' will be constantly in contact with the inner circuit-spring d^2 , (shown in Fig. 8,) which connects, through the screw 3, with the metal piece d in Fig. 6, thus securing an unbroken circuit. Whichever form of plug be required, it will be seen from Figs. 2 and 5 that the conductor X, having the circuit-wires x and y and the part B, with its circuit-terminals and screws, as already explained, will not vary, nor will the general form of the member D vary; but the form for the plug with a Thomson-Houston socket will be easily understood from Fig. 2 in comparison with Figs. 5 and 6. In Fig. 2 the parts A and D are shown in dotted lines, and B and its connections are as shown in Fig. 3; but electric connection is made through the rim E instead of through a shell d' , and so instead of the interior spring connected in Fig. 6 through the screw 3 with the part d , and so with the external shell d' , there is in this form, in connection with the rim E, the extension-screw 4, entering the ear 5, connected with the rim e' , which has three upright brushes—one, e^2 , (shown in dotted lines,) another, e^3 , and a third. (Not shown.) The interiorly-threaded screw c^2 will screw over the projection of the Thomson-Houston socket, and the other connection will be made through the rim E, which is held by the catch-piece e^4 in the insulating part of the member D. It will be seen that the member B (which is, as already explained, connected with the cover A and by means of the circuit-wires with the main conductor or suspensory-cord X) will not revolve owing to the free revolution of the second member D in applying the attachment-plug and that the circuits will always be complete in Fig. 2 between the ring or rim b' and the three brushes e^3 and e^2 and a third, (not shown,) and it is evident that this rim and these brushes may also be used in place of the circuit connections d^3 and its opposite metal plate (not shown) of Fig. 6 for use with an Edison socket. It is well known that the circuit-making shell d' for use with the Edison socket, as shown in Fig. 1, may be exchanged for the external rim E, as shown in Fig. 2, for use with the Thomson-Houston socket. I use the Edison and Thomson-Houston sockets in this specification as types, and it will be plain that my invention may, without further aid from me, be easily adapted to other sockets, such as Sawyer-Mann, Westinghouse, and others. In fact, the only difference between my apparatus when adapted to the Thomson-Houston, Edison, or analogous sockets consists merely in the circuit connections. The part e' and the brushes may be always used in place of the inner spring, which by the screw 3 is connected with the external spring d in Fig. 6; but the member D, if to be used with an Edison socket, will have the screw-threaded shell d' , with which the contact will be made, while

if it is to be adapted to the Thomson-Houston the parts E e and the connecting-screw 4 with the part e' will be used, and in the same way with the other varieties of sockets.

The operation of my apparatus is plain from the drawings, as already explained. The conductor X, carrying the circuit-wires x and y , fitting in through the hole in the porcelain cover A, is connected with the member B, as shown in Fig. 3, which fits up tightly into the cover and is held there when the whole apparatus is in position by means of the screw a^2 . The part B with its circuit connections as shown fits down into the interior of the member D and is held in easy connection by means of the screw C whose nut c' either projects beyond D, as shown in Fig. 5, or is elevated therefrom, as shown in Fig. 2, while the nut c , preferably a spring-nut, fits over its top and thereby the rod C becomes an axle for the revolution of the member D which can be placed in the socket of any desired apparatus in case it be of the Thomson-Houston form by the interiorly-threaded screw c^2 , or in case it be of the Edison form by means of the external screw-shell d' . While the part D is revolving the part B and the cover A and the cord or circuit-conductor X will not revolve. My apparatus as thus generally constructed entirely avoids one of the great difficulties and annoyances in the coupling of such apparatus—namely, the twisting, wear, and early destruction of the conductor X or the breaking of the circuit-wires x y .

It will be seen that my invention is not limited to precisely the construction which I have shown, since mechanical ingenuity will very easily vary the construction of some of the parts without departing from the essential principle of my invention and without avoiding the use of merely mechanical equivalents, inasmuch as the entire apparatus invented by me may be generally described as consisting in five members—viz., some variety of conductor for the circuit-wires x and y , a properly-adapted porcelain cover A, one member B of a porcelain plug adapted both to sustain and connect the circuits and to carry also a conducting rim or ring, a second member D of the porcelain plug adapted to maintain its circuit connections with those of B, and finally swivel-rod C, which shall perform the function of holding the members A and D together, so as to furnish an axle upon which the part D may revolve and also the function of a conductor of the current, or I may divide these functions by substituting a tube for the axle and use the screw-rod merely as a conductor.

Having described my invention, I do not limit myself to the particular forms shown; but what I desire to protect by Letters Patent and claim is—

1. In an electrical attachment-plug, the combination of the conductor X for the electric wires, the perforated insulating-cover A, the block B having a slot for a plate b^{10} and a

reduced extension b ; the terminals placed upon the block B for the two circuit-wires x and y ; the conducting ring or rim b' , plate b^2 , screw 1, electrically connected with one of said circuit-wires; the plate b^7 having binding-screws b^6 and b^8 , connected with the other circuit-wire; a plate b^{10} perforated to admit a swivel-rod and to receive a screw a^2 and held by the screw b^9 ; a swiveling block D adapted to encircle the smaller part b of the block B and having circuit connections to constantly maintain an electric continuity of circuit with ring or shell b' ; a swivel-rod for connecting the parts B and D and to form part of the electric circuit and electric terminals for connecting externally with the terminals of the structure to which the same is to be connected; all substantially as described.

2. In an electric coupler, in combination with a revolving member, the metal skeleton piece composed of a rim E on the bottom of the revolving member, the connecting-screw

4, a metal rim e' having ear 5 to be connected with screw 4, and metal brushes struck up from the rim e' ; substantially as described and shown.

3. In an electric coupler, in combination with the circuit-wires and a proper cover, a swivel-rod, an insulating-block B formed with a diminished projection and having a portion cut away to receive a plate, electric connecting-plates provided with proper binding-screws, a central plate in the cut-away portion of the plug perforated as described and having a binding-screw, and a metallic connecting-piece upon the small portion of the plug B connected with the circuit; substantially as described.

In witness whereof I hereunto set my hand this 26th day of April, 1900.

CHAS. F. HOWES.

In presence of—

FRED. C. CHAMBERLIN.

EDW. P. PAYSON.