

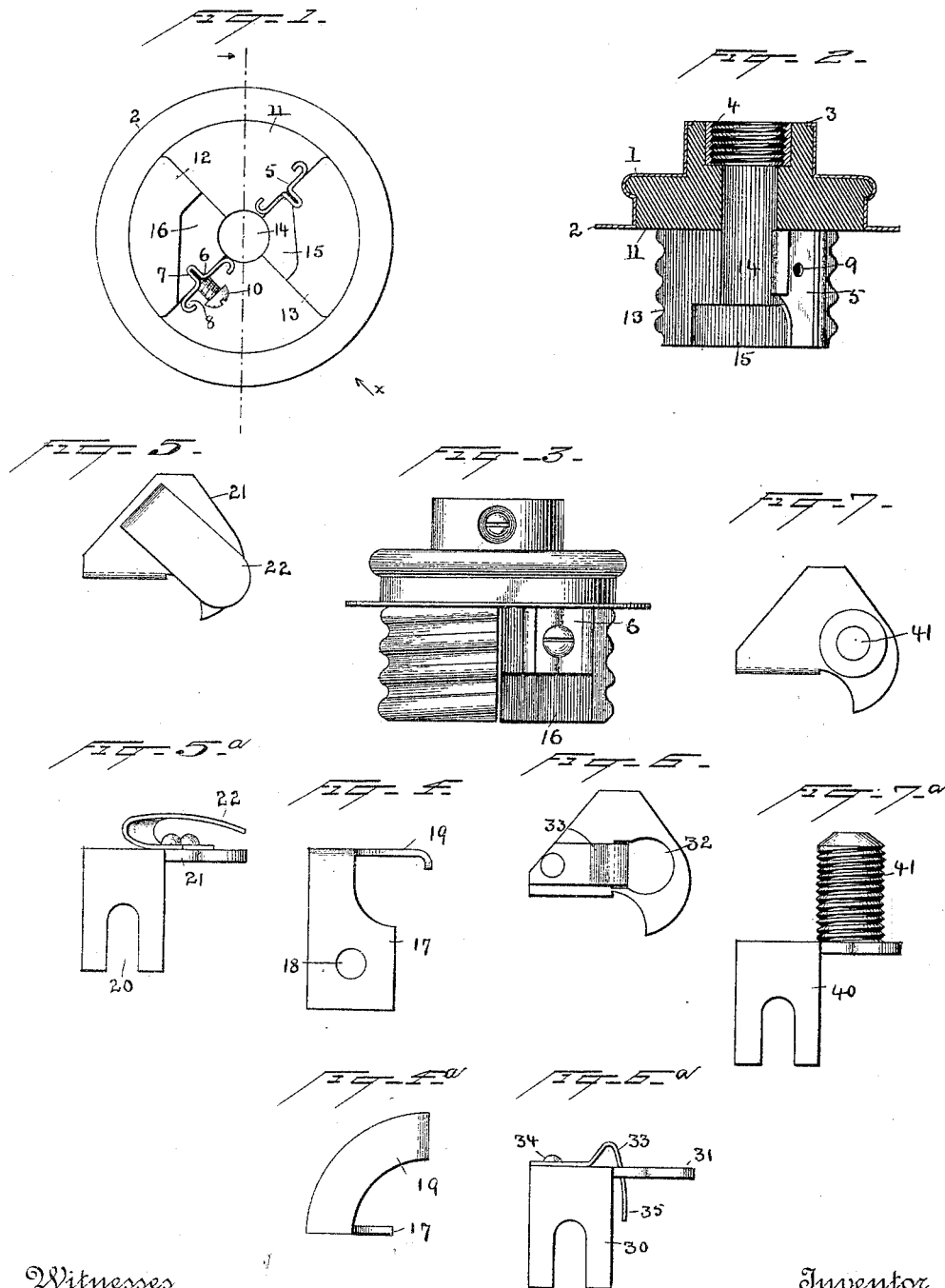
(No Model.)

2 Sheets—Sheet 1.

J. HUTCHINSON.
INCANDESCENT LAMP SOCKET.

No. 491,561.

Patented Feb. 14, 1893.



Witnesses
Morris A. Clark,
W. F. Clark

Inventor
J. Hutchinson,
By his Attorneys
Dyer & Seely.

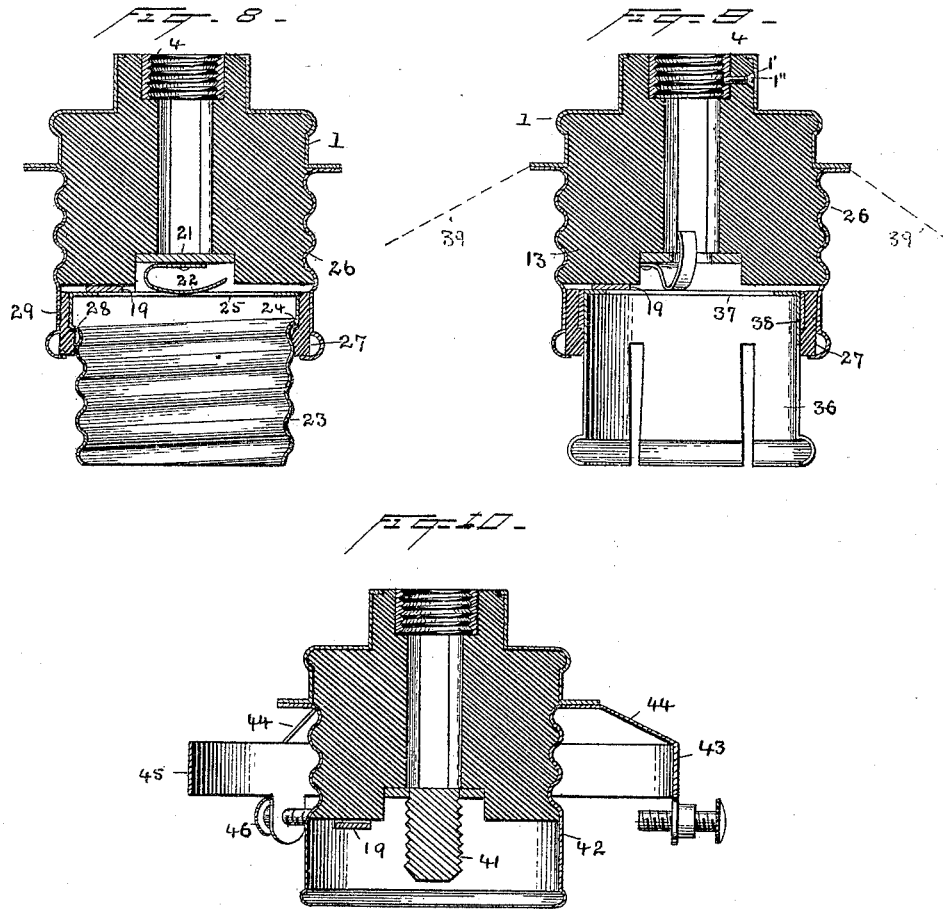
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INCANDESCENT LAMP SOCKET.

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H. F. Oberly

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UNITED STATES PATENT OFFICE.

JOSEPH HUTCHINSON, OF NEW YORK, N. Y., ASSIGNOR TO THE EDISON
GENERAL ELECTRIC COMPANY, OF SAME PLACE.

INCANDESCENT-LAMP SOCKET.

SPECIFICATION forming part of Letters Patent No. 491,561, dated February 14, 1893.

Application filed June 11, 1891. Serial No. 395,876. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HUTCHINSON, a citizen of the United States, residing at New York city, county and State of New York, have invented a certain new and useful Improvement in Lamp-Sockets, of which the following is a specification.

The present invention relates to sockets adapted to receive and support incandescent lamps, and to connect the two ends of the incandescent filaments of such lamps to the supply circuit.

The main objects of the invention are to reduce the cost of manufacture, and to provide a socket with which incandescent lamps of either of the usual forms can be readily employed; and the invention consists in the improved socket, and in the several combinations hereinafter set forth and specified in the claims.

The socket as a whole consists of a base portion supporting terminals to which the two wires of a circuit are to be connected, and a sleeve adapted to receive the neck of an incandescent lamp in such position as to connect the lamp filament with the circuit terminals.

The invention is illustrated in the accompanying drawings, in which,

Figure 1 represents an end view of the base of the socket; Fig. 2 is a section on the dotted line shown in Fig. 1; Fig. 3 is a side view of the base looking in the direction of the arrow *x* Fig. 1; Figs. 4, 4^a to 7, 7^a inclusive show plan and side views, respectively, of the removable contact devices adapted to be connected with the terminals supported on the socket base; on Sheet 2, Fig. 8, is a central section, on a line at right angles to the dotted line shown in Fig. 1, of a complete Edison socket; Fig. 9 is a similar view of a Sawyer and Mann or Westinghouse socket; and Fig. 10 is a similar view of a Thomson-Houston socket.

The construction of the base will be seen in the first three figures.

1 is a thin sheet metal cap spun into form and having at its outer edge a flange 2; the inner edge 3 is preferably turned in slightly.

4 is a brass or other metal ring of sufficient thickness to receive screw-threads, as shown.

This ring is adapted to be screwed onto a bracket or fixture forming a support for the socket.

5, 6, are two terminal plates which are so bent or formed as to provide an extension 7 on one side, and grooves or dovetails 8 on the opposite side. These plates are also provided with screw-holes 9 for the reception of screws 10, by means of which circuit wires may be connected to said plates. These screws also serve to clamp the removable contact devices hereinafter described and to prevent their slipping out of the grooves 8. A face view of the plate 5 is shown in Fig. 2, and a face view of plate 6 is shown in Fig. 3.

In making the base part of the socket, I support cap 1, ring 4, and terminals 5, 6 in a suitable mold in the same relative position that they are designed to occupy in the completed socket. Plastic bonislate, or other suitable insulating material, which preferably is capable of withstanding a high degree of heat, is molded into and around said parts into the form shown in the drawings. It will be seen that the insulating body is formed with a central opening 14, and screw-threaded pillars or extensions 12, 13, and that in the upper part of said extensions are depressions or cut-away portions 15, 16. The insulating body entirely fills the cap 1, and extends between the neck thereof and the screw-threaded ring 4. The insulating material also is formed around the rear extensions 7 of the terminals 5, 6, thereby permanently connecting said terminals with the base of the socket. In the neck of the sleeve 1 is a hole 1' a little larger than the head of screw 1'', which is inserted through the insulating body and through the screw-threaded ring 4 to secure the latter in place. By making the hole 1' large so that the screw will not touch the metal of the cap, there will be no electrical connection between the ring 4 and the sleeve 1, and hence there will be no danger of persons receiving a shock on touching the latter even if there should be a connection between the circuit wires and the ring 4, or the metal pipe on which it is secured.

Figs. 4 and 4^a illustrate a contact device which is designed to be used in connection with the terminal 5. The end 17 is adapted

to be slipped into the grooves 8, until the hole 18 comes in line with the hole 9, and the horizontal arm 19 stands near the outer face of the projection 13. The position of this arm is shown in Figs. 8, 9 and 10, in each of which said arm is shown in section. This contact 17 is the same for each of the three forms of socket named; it is therefore evident that in making the socket it is not essential to form the contact arm 19 in a separate piece from the terminal 5, although this is preferable.

Figs. 5 and 5^a illustrate the contact vice adapted for use with the terminal 6, when the socket is to be used with an Edison lamp. This contact device consists of a metal plate a portion of which is adapted to be slipped into the grooves 8 of the terminal 6, the slot 20 accommodating the screw 10. A portion 21 of the device is so formed as to occupy the space formed by the two depressions 15, 16, as indicated most clearly in Fig. 8. On the upper side of this part is a contact spring 22, secured to the body of the device by rivets or in any other suitable manner. When the base is to be used in a socket for an Edison lamp the two contact devices just described are put in place. A screw-threaded sleeve having a shoulder 24 and a flange 25, which is adapted to rest against the arm 19, is secured to the base by means of a second screw-threaded metal sleeve 26 and an interposed insulating ring 27. This ring is preferably provided with a shoulder 28, so that when the sleeve 26 is screwed onto the base it locks the several parts together. An Edison lamp can then be screwed into the sleeve 23, and one end of the lamp filament will be connected to said sleeve while the other end will be connected to the spring 22. Ring 27 is preferably broken at one side so that it will tend to open out and will thus hold itself in the sleeve 26 when the parts of the socket are separate. This is indicated at 29, Fig. 8, where the ring is not shown in section, since the section of the figure is supposed to be through the ring at the point of the break.

When the base is to be used in a Westinghouse system the contact device shown in Figs. 6, 6^a, instead of that shown in Figs. 5, 5^a, is used in connection with terminal 6. The general shape of the vertical leg 30, and of the top portion 31, is the same as that of the contact device already described, but in the latter part is a hole 32, and instead of the spring 22 lying directly over the body of the device, is a spring 33 secured at 34 and having the end 35 bent down through the opening 32. In this socket I use the sleeve 26, as already described, also the ring 27, but instead of the screw-threaded sleeve 23 I use a sleeve 36 having a series of spring fingers adapted to clamp the neck of the lamp. This sleeve is provided with an inner flange 37, and an exterior shoulder 38 adapted to rest behind the shoulder on the insulating ring, whereby when the sleeve 26 is screwed onto the base the parts are held together. When a lamp is inserted in the

socket one terminal of the filament enters the hole 32 making contact with spring 33, and the other terminal makes contact with arm 19 through the sleeve 36. It is evident that in either of the sockets above described a shade or shade-holder may be supported by clamping it between the cap 1 and the inner end of sleeve 26, that is, the end farthest from the lamp. The position of such a shade or shade-holder is indicated by dotted lines 39 in Fig. 9. This arrangement lessens the distance between the end of the fixture arm and the shade and gives a more compact and artistic appearance, compared with the usual way of supporting the shade from the mouth of the socket.

When the base is to be used with sockets in a Thomson-Houston system, the contact device shown in Figs. 7, 7^a is used in connection with the terminal 6. This device also has an upper part of the shape already described, and a vertical part 40 adapted to enter the grooves 8. On the upper part is supported a screw 41, which when the lamp is inserted makes contact with one terminal of the lamp, the other terminal of the lamp being directly against arm 19. This contact device is shown in place in Fig. 10. In said figure instead of showing the sleeve 26 on the base of the socket as might be done, I have shown a sleeve 42 of substantially the same form as sleeve 26, except that a shade holder 43, consisting of arms 44 bent at an angle to the sleeve and a ring 45, is made integral with the body and flange of the sleeve. This shade-holder is especially advantageous on account of its simplicity, and because it does not require many extra parts, and since it possesses the advantage above mentioned of shortening the distance between the support for the socket and the shade. The sleeve 42 and its shade-holder may be used in either of the other sockets in place of the ring 26.

From the description already given, it will be clear that the several parts of which the sockets are made are interchangeable in the sockets designed for the different systems, except that different contact devices are required, owing to the form of the co-operating terminals on the lamps. I can therefore make up the parts in large quantities and keep them in stock, and when sockets are required for any particular system, all that is necessary to do is to take the main portions of the sockets, which are alike for all systems, and connect with them the special form of contact device required. Should it be desired at any time to change the system all that it is necessary to do is to remove the contact devices first applied to the sockets, and to substitute the desired form of contact devices.

What I claim is,

1. The combination, in a lamp socket, of a socket base having an insulating body, a metal terminal thereon having means for connecting it to an external supply circuit, a removable metal contact piece fitted to said terminal, and

having an extension projecting into the path of one terminal of a lamp, and a second contact for the other terminal of the lamp, substantially as described.

5 2. The combination, in a socket, of a body, a central socket contact suitably supported, means for connecting a supply wire thereto, a sleeve socket contact, and a spring or contact device to which a wire of a supply circuit may also be connected, said contact device being formed to make contact with said sleeve contact and being of such shape as to be adapted also to make contact with an edge terminal on a lamp base when the sleeve contact is removed, whereby by changing the central contact and by removing the sleeve contact, the socket is adapted for a different style of lamp, substantially as described.

3. The combination, in a lamp socket, of the insulating body, the body being provided with a grooved or socketed part and a contact device fitting or adapted to fit the same, and a second contact device, substantially as described.

25 4. The combination, in a lamp socket, of the insulating body, a metal terminal secured to the body and having a groove at each edge, a contact piece fitting into said groove, and a second contact device, substantially as described.

5. A lamp socket base the body of which is of molded insulating material and which has an opening through it for the passage of wires, and extensions formed integrally with the body of the base, in combination with terminals partially embedded in the extensions, whereby said terminals are held in place and detachable contacts connected to said terminals and means for connecting an external supply circuit thereto, substantially as described.

6. The combination, in a lamp socket base, of a metal cap, a metal sleeve within it, a molded body of insulating material in the cap, and having integral screw-threaded extensions, terminals supported on said extensions, and a screw-threaded sleeve fitting onto the said extensions, substantially as described.

7. The combination, in a lamp socket, of a base of insulating material and having screw-

threaded extensions, and a screw-threaded sleeve fitting onto said extensions and projecting beyond said extensions, substantially as described.

8. The combination, in a lamp socket, of a metal cap, an insulating body therein, and having screw-threaded extensions rising above the cap, contacts adapted to co-operate with the terminals of an incandescent lamp supported on the extensions of the insulating body, a screw-threaded metal sleeve supported by said extensions, said sleeve having a shoulder at its outer end, an insulating ring within the sleeve and resting against the shoulder, and a metal sleeve within the insulating ring and adapted to receive a lamp, substantially as described.

9. The combination with the body of a socket, of a sheet metal sleeve on said body and having an end bent at an angle to the body and provided with retaining devices for a shade, substantially as described.

10. A shade supporting device consisting of a sheet metal sleeve adapted to form a part of a lamp socket and having an end bent at an angle to the body and provided at the outer end of the bent portion with retaining devices for a shade, substantially as described.

11. The combination of the socket base, the metal sleeve supported thereon and having a shoulder at one end, an insulating ring within the sleeve and resting against the shoulder, and a second metal sleeve having a shoulder, said sleeve passing through the insulating ring and the shoulder bearing against it, substantially as described.

12. The combination of the metal sleeve having a shoulder at one end forming a part of a lamp socket, an insulating ring within the sleeve and resting against the shoulder, and a second metal sleeve having a shoulder, said sleeve passing through the ring and having its shoulder also resting against the ring, substantially as described.

This specification signed and witnessed this 9th day of June, 1891.

JOSEPH HUTCHINSON.

Witnesses:

CHARLES M. CATLIN,
J. A. YOUNG.