G. A. HARTER.

SOCKET FOR INCANDESCENT ELECTRIC LAMPS.

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1,172,704.

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Fig. 1.

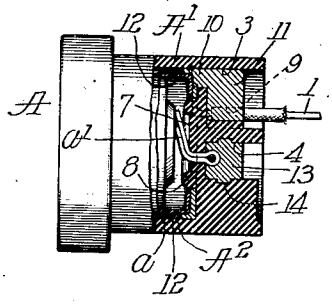


Fig. 2.

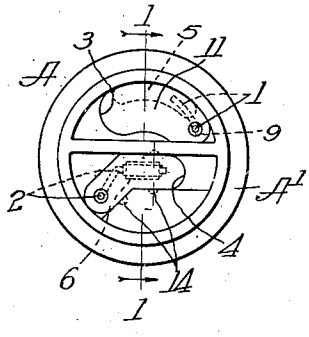


Fig. 3.

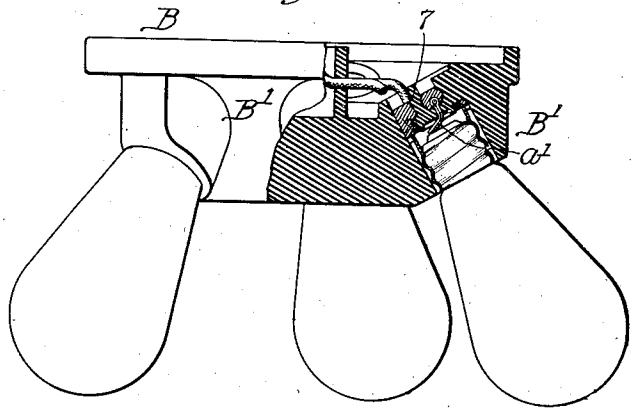


Fig. 4.

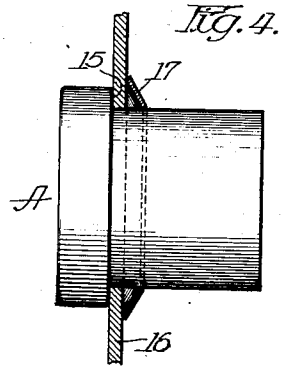
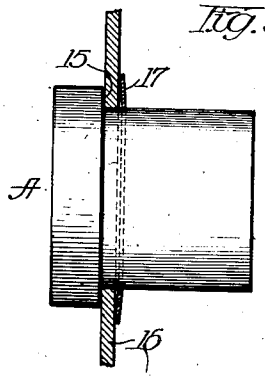


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SOCKET FOR INCANDESCENT ELECTRIC LAMPS.

1,172,704. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed May 13, 1912. Serial No. 696,894.

To all whom it may concern:

Be it known that I, GUSTAV A. HARTER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Sockets for Incandescent Electric Lamps, of which the following is a specification.

This invention relates to sockets for incandescent electric lamps.

A principal object of the invention is to provide means for securing the shells of the sockets which receive the lamps into the bores of the body portions of the sockets and for making electrical connections thereto, and also the securing and making electrical connections to the center contact of the socket, which will be simple, strong and durable, and comparatively inexpensive.

A further object of the invention is to provide simple and inexpensive means for securing such sockets to the base plates on which they are to be supported or mounted.

To effect the foregoing objects, my invention comprises the various features and details of construction hereinafter described and claimed.

In the accompanying drawings, in which my invention is fully illustrated, Figure 1 is a side view, partly in section, of a lamp socket of my invention on the line 1—1 of Fig. 2. Fig. 2 is a rear end view thereof. Fig. 3 is a side view, partly in section, illustrating the application of my invention to a cluster socket; and Figs. 4 and 5 are side views of a lamp socket embodying my invention, illustrating means for attaching the same to a supporting base, Fig. 4 showing the same before and Fig. 5 after said connection is made.

Referring now particularly to the drawings, A designates a socket as a whole, which is of a usual type, comprising a body portion A′ made of insulating material, preferably porcelain or the like, said body portion being provided with a bore *a* secured in which is a shell A^2, made of suitable sheet metal, preferably copper, adapted to receive the lamp and which forms one of the terminals therefor. Said socket also comprises a center terminal *a′* and conductor wires 1 and 2, connected to the shell A′ and the center terminal *a′*, respectively.

To effect the objects of my invention as they relate to means for securing the shell A^2 in the bore of the body portion A′ of the socket, the construction of said socket is as follows:—Formed in the rear end of the body portion A′ of the socket are recesses 3 and 4, which are respectively connected with the rear end of the bore *a* of said socket by holes 5 and 6, of which the hole 5 is relatively small as compared with the recess 3 and opens into the bore *a* of the socket adjacent to the side wall thereof, and the hole 6 is relatively small as compared with the recess 4 and opens through a centrally located raised portion 7 at the bottom of the bore *a* formed around which is a bead 8, which extends through a hole or opening formed in the inner end of the shell A^2 and projects above the same. The recess 3 is also connected with the bore *a* of the socket by a hole 9, formed through the bottom of said recess preferably at a short distance from one end of the hole 5.

The shell A^2 is adapted to be secured in the bore *a* of the socket and the conductor wires electrically connected to said shell by means of a metal abutment 10 cast on the rear end of said shell, which extends through the opening 5 and comprises a section 11 which practically fills the recess 3, the end of the conductor wire 1 being embedded in said abutment.

In practice, I prefer to use solder or the like for forming the abutment 10, the molten metal being poured into the open rear end of said recess 3, whence it flows through the hole 5 into the rear end of the bore *a* of the socket around the inner end of the shell A^2, said shell preferably comprisng sections at its inner end which are tinned or otherwise treated to insure adhesion of the solder to said shell. The flow of the solder outward around said shell A^2 is limited as desired by means of a packing 12, which may conveniently be made of a strip of paper wound around said shell at a desired distance from its inner end.

To insure a strong physical as well as a close electrical connection of the conductor wire 1 with the abutment 10, the stripped end of said conductor wire is preferably inserted through the hole 9 into the rear end of the bore *a* of the socket, and is bent, substantially at right angles, over the hole 5. Thus, as the metal forming the abutment 10 hardens and sets, the end of said conductor wire 1 will be firmly embedded therein, in

such manner and position as to best withstand a strain tending to detach said wire, said abutment being relieved from practically all strain by the wall of the socket A′ between said holes 5 and 9, over which the end of said conductor wire 1 is bent. Said abutment also forms a desired close electrical connection between said conductor wire and shell.

In accordance with my invention, the center terminal a' preferably consists of a strip of suitable sheet metal, preferably copper, bent around and firmly compressed upon the stripped end of the conductor wire 2. Said terminal a' is inserted through the opening 6 so as to project beyond the bottom of the socket bore a, and is then bent over the edge of said hole 6 in position to contact with the center terminal of the lamp. In accordance with my invention, a strong mechanical and electrical connection between the conductor wire 2 and the terminal a' is obtained by means of a metal inlay 13 cast around said terminal and conductor wire within the recess 4, the side walls of said recess being preferably undercut or notched, as shown at 14, to provide for firmly securing said inlay in said socket. The socket is preferably rendered weatherproof by filling the recesses 3 and 4 outside of the abutment 10 and inlay 13 with insulating compound, in a usual manner.

With the described construction, it is obvious that the shell A^2 will be firmly secured in the shell in the body portion A′ of the socket, and that the conductor wires 1 and 2 will be firmly connected both mechanically and electrically with their respective terminals and to the body portion A′ of the socket in the manner desired.

In Fig. 3 of the drawing, I have shown sockets of my invention embodied in a cluster socket, the body portion of said socket forming a single integral piece B, formed in which are any desired number of sockets, each designated, as a whole, B′. The construction of said sockets, considered separately, is substantially identical with the construction of the socket shown in Figs. 1–2 inclusive, and will be readily understood without a further detailed description thereof.

To effect the object of the invention as it relates to providing improved and simplified means for connecting incandescent electric light sockets to supporting bases, my improved securing means are as follows, particular reference being had to Figs. 4 and 5. Formed on the socket A is an exterior shoulder 15. The socket A is inserted through a hole or opening formed in the supporting base 16, formed, as shown, by a suitable piece of sheet metal, until the shoulder 15 bears against one side of said supporting base. A dished washer 17 is then inserted over the socket A until it bears against the side of the supporting base 16 opposite to that against which the shoulder 15 bears. The hole through the washer 17 is made of such size that it fits the socket quite closely, but may, at the same time, be moved lengthwise thereof, into the position shown in Fig. 4. By means of a suitable tool, said washer 17 is then flattened, as shown in Fig. 5, which will operate to contract the hole therein, and to cause the edges of said washer around said hole to firmly grip the outer surface of the socket.

I claim:—

1. In an electric lamp socket, the combination with a body portion of insulating material formed with a bore and a recess connecting therewith through a smaller hole, a metallic shell in said bore, and a metal abutment cast upon said shell and extending through the hole into the recess for securing the shell in the bore of the socket.

2. In an electric lamp socket, the combination with an insulating body portion formed with a bore and a recess connecting therewith, a metallic shell in the bore forming one of the terminals of the socket, a conductor, and a metal abutment cast upon the shell and extending into the communicating recess for securing the shell in the bore of the socket and in which metal abutment the end of the conductor is cast for securing the conductor to the shell.

3. In an electric lamp socket, the combination with a body portion of insulating material provided with a bore and a recess connecting therewith through a smaller hole, a metallic shell disposed in said bore, a washer disposed between the shell and the body portion near the base of the shell, and a metal abutment cast upon the shell and extending into the recess for holding the shell in the bore of the socket, the washer confining the metal to the base of the shell when it is cast thereon.

4. In an incandescent lamp socket, the combination with an insulating body portion having a bore at one end, a recess at the other end and a smaller hole connecting the bore with the recess and still another separate hole connecting the bore with this recess, a conductor extending from the recess side of the body portion through the last named small hole and bent therefrom into the other small hole, and means for securing the shell in the bore of the socket and for connecting the conducting wire thereto, consisting of a metal abutment cast upon the shell and extending into the said recess, the extremity of the conductor being cast in the metal abutment.

5. In an electric lamp socket, the combination of an insulating body portion formed with a bore for receiving the lamp, a recess at the bottom of the bore with a hole con-

necting the recess and the bore, a conductor, a strip of metal folded over the conductor and inserted from the recess through the said hole into the bore, and a metal inlay cast in the recess to hold the strip in the bore to constitute an electric lamp terminal and to hold the conductor in contact with the strip.

6. In an electric lamp socket, the combination with an insulating body portion having a bore for receiving an electric lamp and a recess connected with the bore through a smaller hole, the edges of the recess being undercut, a conductor, a metal contact strip bent over the conductor and adapted to be inserted through the said hole into the bore to constitute an end terminal therein for an electric lamp, and a metal inlay cast in the recess and filling the undercut portions for holding the said strip in position and for sealing the conductor in contact with the said strip.

7. In an electric lamp socket, an insulating body portion having a bore for receiving the lamp and having recesses at the end opposite the bore connected with the bore by holes smaller than the recesses, a shell adapted to be inserted in the bore, a terminal disposed within the shell at the bottom of the bore but out of contact with the shell, and means for holding the terminal and shell in position, said means comprising metal inlays cast in the recesses and cast on the terminal and shell respectively.

8. An incandescent electric lamp socket comprising an insulating body portion with a bore for receiving a lamp at one end and recesses at the other end one of which is undercut and each communicating with the bore separately by means of a relatively small hole, the recesses being separated from each other by a partition, a center contact inserted through one of said holes consisting of a strip of metal, a shell disposed in the bore surrounding the said strip but out of contact with it, a conductor wire for the said strip and for the shell, and means comprising metal inlays for the said recesses one connected the shell with one of the wires and the other connecting the said strip with the other wire for holding the said parts in the insulating body portion.

In testimony that I claim the foregoing as my invention, I affix my signature in presence of two subscribing witnesses this 8th day of May, A. D., 1912.

GUSTAV A. HARTER.

Witnesses:

MAURICE EPSTEIN,

EMMA LAYMON.