(No Model.)

C. A. LIEB.

SOCKET FOR ELECTRIC LAMPS.

No. 443,530. Patented Dec. 30, 1890.

Fig. 1.

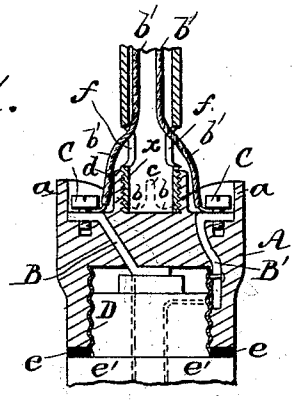


Fig. 2.

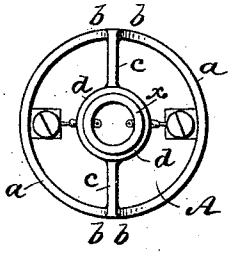


Fig. 3.

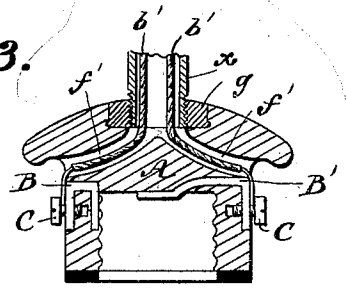


Fig. 4.

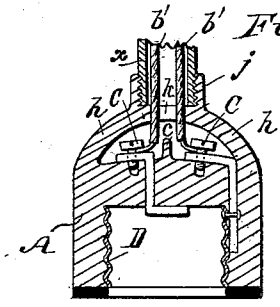


Fig. 5.

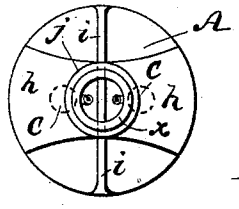


Fig. 6.

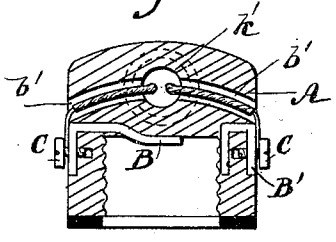
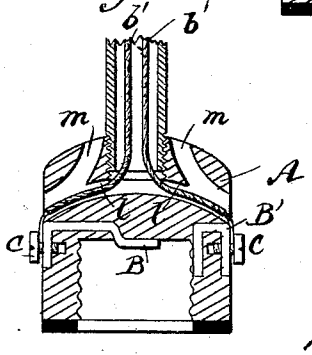


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES A. LIEB, OF NEW YORK, N. Y.

SOCKET FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 443,530, dated December 30, 1890.

Application filed September 24, 1890. Serial No. 365,994. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. LIEB, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Lamp-Sockets for Electric Lamps, of which the following is a specification.

My invention relates to lamp-sockets for electric lamps; and it is an improvement upon the socket for which I applied for Letters Patent of the United States on the 16th day of July, 1890, Serial No. 358,940.

Briefly described, my present invention consists in making the socket in one piece of non-conducting material, which shall also be water-proof, and in casting or otherwise embedding the conductors in the body of the socket so that they will be held in place without the aid of screws or other fastening devices, and also in so constructing the parts that there shall be no short-circuiting by reason of water, snow, or ice making contact between the conductors or the wires, and also in locating the conductors within a hermetically-sealed chamber, so that gas, vapors, or moisture will be excluded, and at the same time I supply means whereby the socket may be vertically or horizontally attached to a bracket or other desired support, or it may be suspended by the wires, and the wires may be arranged to pass through ordinary gas-pipes or other conduits to the socket, or they may be conducted along the outside of the pipes or other support for the sockets, as preferred. I also provide means whereby danger of shock consequent on handling the lamps will be avoided.

In the drawings the same reference-letters indicate the same parts in all the figures.

Figure 1 illustrates a vertical section of one form of my socket, in which I provide protection against shock. Fig. 2 illustrates a plan of the socket shown in Fig. 1. Fig. 3 illustrates a vertical section of a socket, in which the wires are conducted through the body of the socket to the interior of the pipe which supports it. Fig. 4 illustrates a vertical section of a socket, in which I employ a bridge by means of which to attach it to the bracket or gas-pipe. Fig. 5 illustrates a plan of the socket shown in Fig. 4. Fig. 6 illustrates a socket adapted to sidewise attachment to the bracket, so that the lamp may have a horizontal disposition, assuming the threaded end of the pipe or bracket to be vertical. Fig. 7 illustrates a vertical section of a lamp-socket having wireways made through it, so that they may be conducted to the interior of the pipe or support for the socket or to the exterior thereof, as preferred.

In each of the figures I show means whereby the sockets may be attached to a gas-pipe, bracket, or other support for the socket and lamp.

A is a mass of non-conducting water-proof, and preferably gas-proof, material—such as glass, vulca-beston, porcelain, hard rubber, or any other suitable material.

B B′ are the two conductors. They are of metal, preferably brass, and are permanently embedded in the non-conducting material. C C are the two binding-screws for the attachment of the wires *b′* and *b′*.

D is an interior metallic lining given the form of a screw, on its inner surface at least, which is also preferably embedded in the non-conducting body during manufacture. By it the lamp may be attached to the socket. I show it in Figs. 1 and 4 only. It is not always necessary. The thread may be pressed or otherwise made in the body of the insulating material, as shown in the other figures, if preferred.

The above-described features are common to all forms of my invention, and in manufacture I place all the metal parts in a suitable mold, and while they are sustained in proper relative position I pour, mold, press, or otherwise cause the non-conducting material to surround and embed these metallic parts in itself and to assume the desired shape. Heat may be employed in the process if desired.

In Figs. 1 and 2, *a* is a flange or rim of non-conducting material, which projects upwardly from the top of the socket. It is depressed, as at *b b*, at opposite sides of a central portion or rib C, which extends across the entire top of the socket. *d* is an upwardly-extending hollow boss threaded on its interior, into

which the bracket may be screwed. *e* is the usual packing-ring, which hermetically seals the joint between the lower edge of the socket and the lamp. *f f* are two holes or ducts made in the sides of the gas-pipe or bracket through which the wires may pass to its interior and down through which any water of condensation or which may otherwise arise within the pipes, and also rust, iron filings, and other foreign matter which is apt to short-circuit may escape from the interior of the pipe, whereby short-circuiting is prevented. It will be seen that any water which may accumulate on the top of the socket will be prevented from making continuous contact between the wires, because of the partition or rib *c*, and that it will flow out over the depressed parts *b b* before it can rise over the top of the partition. The flange or rim *a* prevents contact between the fingers and the wires.

In Fig. 3 I show a form in which the wires pass upwardly through holes or ducts *f' f'*, made in the body of the socket, and in which I cast or mold a nut *g*, together with the other metallic parts, during the construction of the socket into which the gas-pipe or bracket X is threaded. Any moisture which comes through the pipe by reason of its sweating or from other causes will flow down and out through these ducts *f f* and will not short-circuit the wires.

In Figs. 4 and 5 I show a "bridge," so called, at *h*, beneath which is a raised ledge *i*, which divides the top of the socket into at least two depressed areas, in each of which one of the binding-screws C C is placed. Thus water cannot flow or extend from one of the binding-screws to the other to short-circuit the wires, and the threaded boss *j* for the reception of the end of the pipe or bracket is entirely separated from the socket, being supported on the bridge, and it has a hole or duct *k* in the lower end of the boss, which is preferably smaller than the bore of the pipe or bracket, so that the wires will be held away from the end of the pipe should it be metal, and the duct also allows any moisture which may collect in the pipe to flow away before accumulating sufficiently to short-circuit the wires within the pipe.

In Fig. 6 I show a form of my socket in which the threaded hole *k'* for engagement with the pipe or bracket is made at the side of the socket and the wires extend laterally through it. In this form of course the lamp will be vertical or horizontal, depending on the presentation of the end of the pipe or bracket.

In Fig. 7 I show a form of socket made somewhat as that shown in Fig. 3, but having double passages or ducts for the wire, those lettered *l l* being substantially the same as those lettered *f' f'* in Fig. 3 leading to the interior of the pipe or bracket, and two additional ones lettered *m m*, which lead to the outside of the pipe or bracket, so that if for any reason the wires, one or both, cannot be passed through the pipe they may be conducted along its exterior surface. Any water, dust, rust, filings, or the like coming through the pipe may escape through the ducts L L.

It will be seen that, although I prefer to embed the metallic parts of the sockets in the non-conducting material, it is not absolutely essential that they should be, because certain features of my invention are new irrespective of this preferred method of making the socket attachments. Also, it will be observed that when the lamps are applied to my sockets the packing ring *e* hermetically seals the chamber in the interior of the socket in which the contact-points are located, and further, that in no case is there any communication between the exterior of the lamp or the socket and this chamber, because the walls of the socket all about the chamber are intact and the hole into which the pipe or bracket X is screwed or fastened does not in any instance extend to the interior of the socket.

I do not limit myself to the details of construction shown and described, because it will be obvious to those who are familiar with the art that many modified forms may be made and still the gist of my invention be employed.

I claim—

1. A lamp-socket having passages for the wires made through its body leading both to the interior and to the exterior of the bracket or pipe which supports it, substantially as set forth.

2. A complete lamp-socket made of a single piece of non-conducting material having conductors and binding-screws, passages for the introduction of the wires, and a threaded recess or hole which does not connect with the interior of the socket, whereby water, gas, &c., is excluded from the interior or contact chamber of the socket, substantially as set forth.

3. A complete lamp-socket made of a single piece of non-conducting material, the conductors whereof are inclosed in a sealed chamber, means integral with the socket for attaching it to a pipe or bracket, and ducts or openings adjacent to the said chamber, whereby moisture or other foreign matter may escape from the pipe without entering the sealed chamber, substantially as set forth.

4. A complete lamp-socket made of a single piece of non-conducting material the conductors whereof are embedded in it, means integral with the socket whereby it may be attached to a bracket or pipe, and passages through the socket for the insertion of the wires which do not communicate with the interior or contact chamber of the socket, substantially as set forth.

5. A lamp-socket made of a single piece of insulating material and having a ridge or rib integral therewith which separates the two binding-screws on the exterior of the socket,

and means whereby water accumulating on the socket adjacent to the rib may escape, substantially as set forth.

6. A complete lamp-socket made of a single piece of non-conducting material having binding-screws for the adjustment of the wires, and holes or ducts made through the body of the socket for the passage of the wires which do not connect with the interior or connection chamber of the socket, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 22d day of September, A. D. 1890.

CHARLES A. LIEB.

Witnesses:

PHILLIPS ABBOTT,

FREDERICK SMITH.