(No Model.)

F. C. ROCKWELL.

INCANDESCENT LAMP.

No. 430,437. Patented June 17, 1890.

Fig. 1

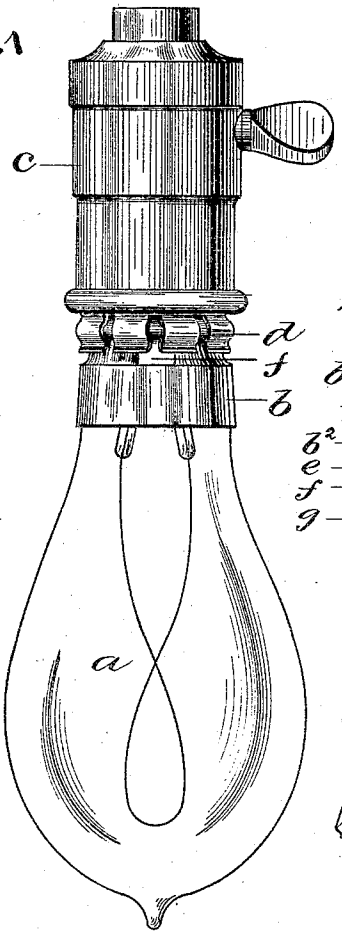


Fig. 2

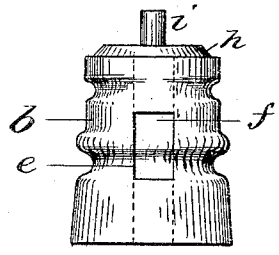


Fig. 4

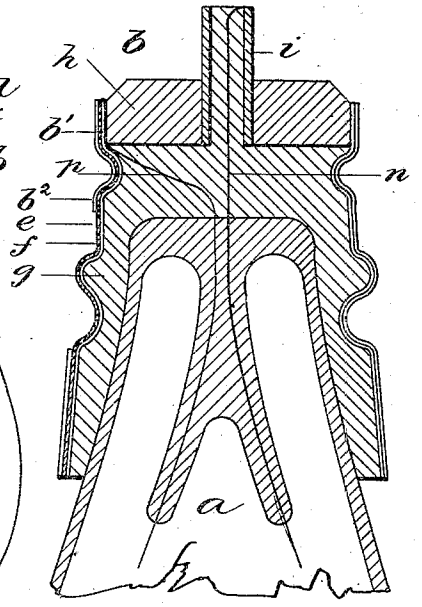


Fig. 5

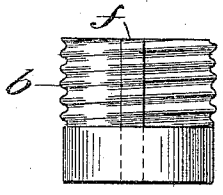
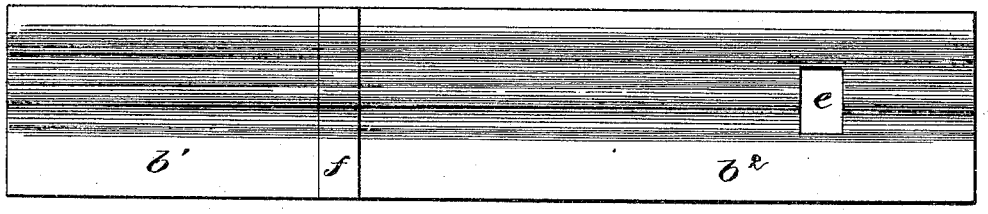


Fig. 3



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UNITED STATES PATENT OFFICE.

FREDERICK C. ROCKWELL, OF HARTFORD, CONNECTICUT.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 430,437, dated June 17, 1890.

Application filed March 4, 1890. Serial No. 342,581. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK C. ROCKWELL, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Incandescent Lamps, of which the following is a full, clear, and exact specification.

The invention relates to the class of incandescent electric lamps in which the current traverses the base in passing from the socket to the filament, and the object is to so form the base of such a lamp that it may be made from a cheap and easily-manipulated material which is especially adapted for this purpose on account of its insulating heat-non-conducting and non-expansible qualities and to which the cementing compound that joins the base to the end of the globe will more firmly adhere than it does to the material now used for such bases.

Referring to the accompanying drawings, Figure 1 is a side view of one form of lamp embodying my improvement. Fig. 2 is a side view of the base. Fig. 3 is a diagram view of the blank from which the base is formed. Fig. 4 is a central vertical sectional enlarged view of the base and the end of the globe. Fig. 5 is a side view of the base adapted to another form of socket.

In the views the letter *a* indicates the globe, *b* the base, and *c* the key-socket, which is held to the base by the grasp of the spring-fingers *d*. In lamps of this class one of the leads to the filament is joined to the metallic base and the current passes through the base from the spring-fingers to this lead, and previously this base has been formed by first drawing a disk of sheet metal to cup shape by the successive action of dies, or by spinning it to cup shape over a mandrel and then cutting out the closed end. This manipulation is expensive on account of the waste of material, the dulling and the wearing of the tools, and the necessarily numerous handlings of the base during the operations.

In forming my improved base *b* a strip of the desired size is cut from a roll or sheet of paper or a similar thin non-conducting material, an opening *e* is made or a small portion is cut away near one end of this strip, and a piece of conducting material *f*, usually a piece of copper, is laid upon and attached to the paper a distance from the opening *e* about equal to the circumference of the finished base, so that when the strip is rolled into a cylindrical form, with the conducting-piece *f* between the layers, a portion of the latter will be exposed through the opening *e*. This blank, which is properly sized, is passed between rollers, which are usually heated, or it may be pressed to form the interior and exterior beads, the former being provided to project into the cementing material and aid in retaining the base in position, while the latter is grasped by the spring-fingers that hold the socket in place. When thus formed, the blank is rolled on a suitable former or by rolls into a cylinder the size of the base, a portion of the conducting-strip *f* being exposed through the opening *e*, while the ends are securely held between the wraps *b' b''* of the base. The paper or other thin non-conducting material may have been coated or treated with a stiffening and cementing material, which is preferably an insulating compound containing a gum, so as to harden under the pressure of the formers that roll the base to shape; or the base may be coated or dipped with this material after it has been rolled to shape and stiffened by the hardening of the compound under heat-pressure.

In one end of the base a piece of insulating material *h*, bearing a central conducting-tube *i*, is inserted and the whole secured to the end of a globe by any suitable cementing material, as plaster-of-paris, which is molded into the base in a moistened condition. One of the leads *p* to the filament passes through the cementing material and is joined to the conducting-strip *f*, which is embedded between the layers of the base, and the other *n* passes into and is joined to the tube *i*, which comes in contact with a conductor in the interior of the socket. The strip from which the base is rolled may be of any desired length, so that the layers may be wrapped about each other to give the desired thickness, the outside wraps being of course perforated to properly expose a portion of the conducting-piece *f*, which is held between the layers, or the base may be made of two separate cylinders of paper or the like material, which may be placed one within the other,

with the conducting-piece *f* between the separate cylinders, the exterior cylinder being provided with the proper opening to expose the conducting-piece, as above described, so that at least one of the spring-fingers *d* may come in contact with it and make a good electrical connection when the socket is in place.

In Fig. 5 the base is shown as formed to receive the sockets of lamps of this class that are provided with threaded couplings that are adapted to screw onto the base. The strip of material from which this base is formed is partially cut away at one end, so that when rolled up the last layer will cover only one end of the conducting-piece *f*, enough being covered to firmly hold the piece in place and enough being exposed to make a good electrical connection with the threaded coupling in the socket through which the current is passed.

My improved base is light, firm, and is formed in an inexpensive manner from a cheap material which possesses high insulating qualities, is heat-non-conducting, and does not expand or contract under the varying temperatures to which such parts are subjected, does not corrode or oxidize, and more firmly adheres to the cementing material that joins the base with the globe than do the prior bases.

All danger of short-circuiting or diverting the current by any accidental contact between the base and a conductor is eliminated, as the conducting part of the base is concealed and protected, the exposed parts of the base being of insulating material.

I claim as my invention—

1. A base for an incandescent lamp, consisting of superimposed layers of a thin non-conducting material with a conducting-strip embedded between, a portion of the exterior layers being cut away to expose a part of the conducting-strip, substantially as specified.

2. A base for an incandescent lamp, consisting of a number of layers of thin non-conducting material wrapped about each other and holding a conducting-strip, the exterior layers being perforated to expose a portion of the conducting-strip, substantially as specified.

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