(No Model.)

G. C. BAILLARD.

INCANDESCENT ELECTRIC LAMP.

No. 472,800. Patented Apr. 12, 1892.

Fig. 1.

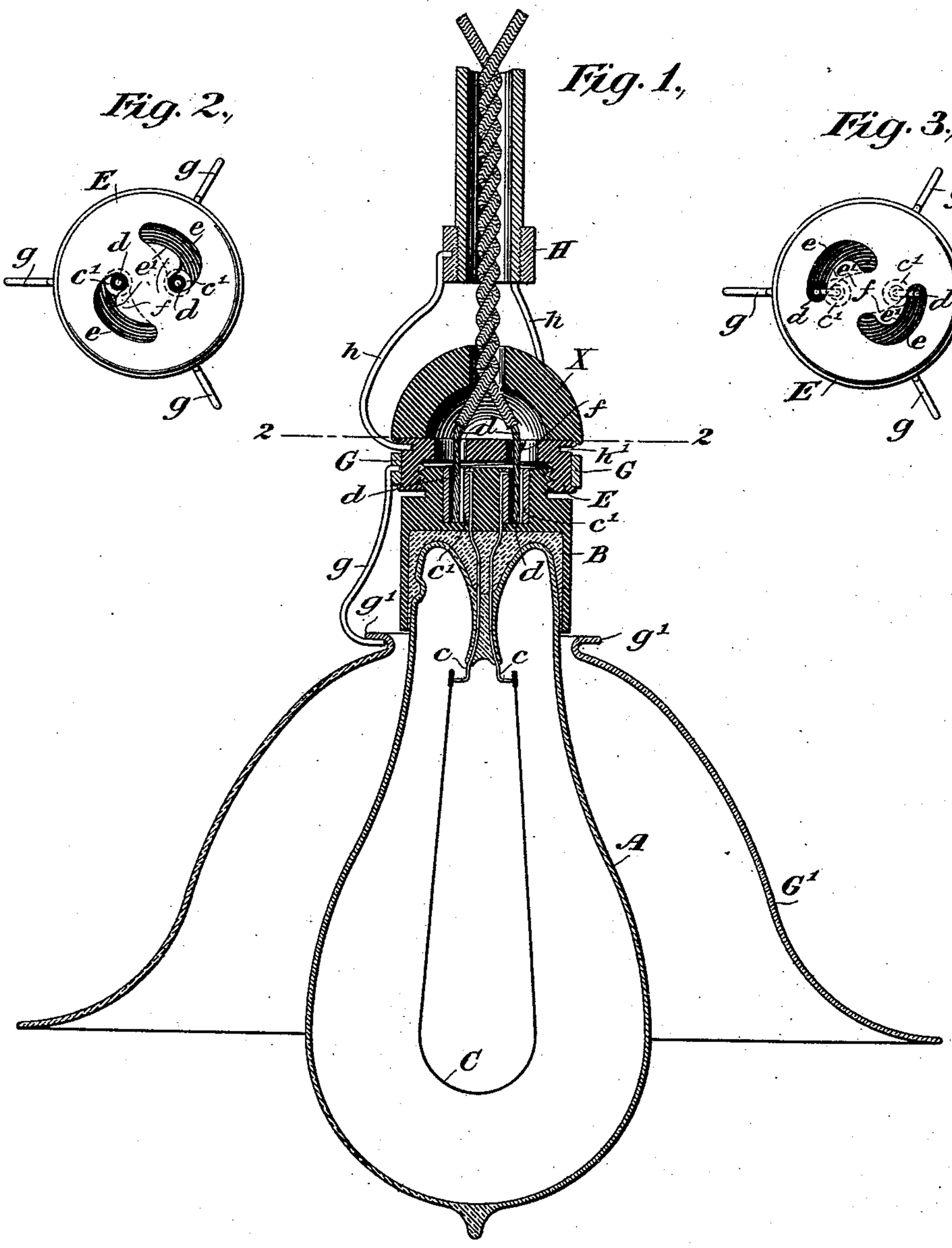

Fig. 2.

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE C. BAILLARD, OF NEW YORK, N. Y.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 472,800, dated April 12, 1892.

Application filed September 22, 1891. Serial No. 406,439. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. BAILLARD, a citizen of the United States, residing in New York city, State of New York, have invented certain new and useful Improvements in Incandescent Electric Lamps, of which the following is a specification.

My invention relates to an electric lamp in which the ordinary lamp-socket is dispensed with, the connections between the terminals of the incandescing filament and the circuit-wires being made upon the base of the lamp, and in which the arrangement is such that both of the circuit-wires may readily be simultaneously coupled or connected with the filament-terminals in a manner to give a good and permanent electrical connection and disconnected therefrom with equal facility. There is no possibility of a cross or short circuit at these connections and the structure is simple and economical. I provide also devices whereby such a lamp may be equipped with a shade or reflector and be connected with any of the ordinary bracket or chandelier fixtures.

In the accompanying drawings, Figure 1 is a longitudinal central section showing my improved lamp, as well as the manner of supporting the shade and attaching the lamp to the fixture. Fig. 2 is a plan view on the line 2 2, showing the means whereby the circuit-wire terminals may be coupled with the terminals of the filament. Fig. 3 is a similar view, the ends of the circuit-wire being indicated therein.

The drawings show a lamp constructed in the form now best known to me and one that I deem particularly efficient and economical in structure; but of course the details may be varied without departing from the invention.

The sealed glass bulb A is secured in the ordinary manner in a depression or socket in a base B of any suitable insulating material.

C indicates the carbon or other filament, the terminal wires *c* of which are carried through the sealed bulb and each electrically connected with a tubular terminal *c'*, embedded in the face of the base B. The base is screw-threaded upon the exterior and is adapted to receive a correspondingly-threaded cap E, having therein two curved slots *e*, the inner projecting wall *e'* of which cover the tubular terminals *c'* when the cap is screwed down. The cap being screwed down, a reverse partial turn exposes the tubular terminals *c'*, they then being seen, as in Fig. 2, at or near the ends of the curved slots. If now the ends *d* of the circuit-wires be each inserted in one of the tubular terminals and the cap or clamping device E be again screwed up, the projecting interior walls of the slots moving across the openings of the terminals come against and press the terminal wires laterally, clamping them against the sides or edges of the tubular terminals and between the under face of the cap and the base, as in Fig. 3. To facilitate this operation the under faces of the projections *e'* are beveled, as indicated at *f*, Fig. 1, and also in Figs. 2 and 3 by the dotted lines. The cap being screwed down tightly, the wires are firmly clamped in and against the tubular terminals and are at the same time securely held away from each other, and being protected by the cap or clamping device there is no danger of their being short-circuited by the accidental contact of a tool or wire. The edges of the cap or plate that clamp the wires, as described, whether they be at right angles to the face of the plate or beveled, as shown, I designate as "vertical clamping-edges." The ends of the circuit-wires extend past these edges when inserted into the exposed terminals, and when the clamping-plate is moved transversely these edges bear upon or exert a strain upon the wires and pinch them against the sides of the tubular terminals. So far as I am aware this manner of connecting a free wire with a fixed terminal is new. For economy of manufacture and convenience in use I provide that both wires shall be simultaneously clamped by a single device in the general manner described. In this construction it will be noted that the bulb is permanentlysecured to the base, that the terminals are permanently fixed upon the base, and that the electrical connections between the terminals and the ends of the filament are fixed permanent connections. In this respect the lamp illustrated and described differs from those lamps employing sockets, in which the lamp-plug or base is removably seated.

By the term "tubular terminal" or "tubular terminals" I mean, of course, to include

equivalent arrangements—as, for instance, the tube socket or aperture in which the end of the circuit-wire is inserted need not have complete metal walls—that is to say, the filament-terminal may form only one side of the socket or aperture and may be either curved or flat in cross-section, the construction, whatever it may be, being such that the end of the circuit-wire is clamped or pinched against the terminal. I much prefer a "tubular terminal" such as shown, and hence have adopted that term.

In the drawings I have shown a loose cap X, resting upon the base of the lamp (the clamping device or cap E forming part of the base as distinguished from a socket) and through which the twisted circuit-wires are passed; but this is merely for an ornamental finish and may be dispensed with.

My invention further comprehends an organization whereby a lamp shade or reflector may be supported directly from the lamp-base, and in the drawings I have illustrated this part of my invention as carried out in the following manner: A ring G, of metal or other suitable material, is secured peripherally around the cap E and has depending spring-arms *g* (three being shown) bent or hooked at the ends to engage the flange *g'* of any ordinary shade G'.

To secure the lamp to a bracket or chandelier fixture, I provide a screw-threaded collar H, adapted to screw upon the tube of the fixture, through which the wires emerge, and having downwardly-projecting arms or clips *h*, (three being indicated,) that snap into recesses or an annular groove *h'* in the cap E. My improved lamp may therefore be equipped with a shade and secured to any ordinary fixture and has all the advantages incident to a socket-lamp.

In Fig. 1 the terminal wires *d* are shown as passing down straight through the slots in the cap into the tubular terminals, the turn or screwing up of the clamp not having been completed. This has been done merely for convenience of illustration.

I claim as my invention—

1. In an incandescent electric lamp, the combination of the base, the bulb permanently secured therein, the filament, the tubular terminals of the filament on the base, fixed permanent electrical connections between the filament and terminals, and a transversely-movable clamping-plate mounted on the base and constructed and having vertical clamping-edges past which the ends of the circuit-wires extend when inserted into the tubular terminals, whereby when the wires are inserted into the exposed terminals the clamping device may be moved transversely and its vertical edges caused to clamp or pinch the wires against the sides or edges of the tubular terminals.

2. The combination of the bulb, the base, the filament, the tubular filament-terminals on the base, and a slotted cap or plate carried by the base, whereby both circuit-wires may be simultaneously connected with the tubular terminals, substantially as set forth.

3. In an incandescent electric lamp, the combination of the base, the bulb, the filament, filament-terminals on the base, and a slotted plate mounted on the base and by means of which both ends of the circuit-wires may be simultaneously connected with the terminals.

4. In an incandescent electric lamp, the combination of the bulb, the base, the filament, the tubular filament-terminals on the base, and a slotted clamping-plate carried by the base and movable transversely to said terminals, the under face of the clamping-plate being beveled at one edge of each slot, substantially as and for the purpose set forth.

5. The combination of the bulb, the base, the tubular filament-terminals on the base, and a clamping device mounted on the base and movable transversely to the open ends of said terminals in proximity thereto, the clamping device having vertical clamping-edges past which the ends of the circuit-wires extend when inserted into the tubular terminals, whereby when the wires are inserted into the exposed terminals the clamping device may be moved transversely and its vertical edges caused to clamp or pinch the wires against the sides or edges of the tubular terminals.

6. The combination of a tubular terminal adapted to receive the free end of a circuit-wire, a clamping-plate movable transversely across the open face of the tubular terminal and having a vertical clamping-edge past which the wire extends when inserted into the terminal, whereby when the wire is inserted the clamping-plate may be moved transversely and its vertical edge caused to clamp or pinch the wire in the terminal.

In testimony whereof I have hereunto subscribed my name.

GEORGE C. BAILLARD.

Witnesses:
FRANK S. OBER,
EDWARD C. DAVIDSON.