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C. HUBERT.

ELECTRIC LIGHTER.

APPLICATION FILED MAY 8, 1902.

NO MODEL.

Fig.1

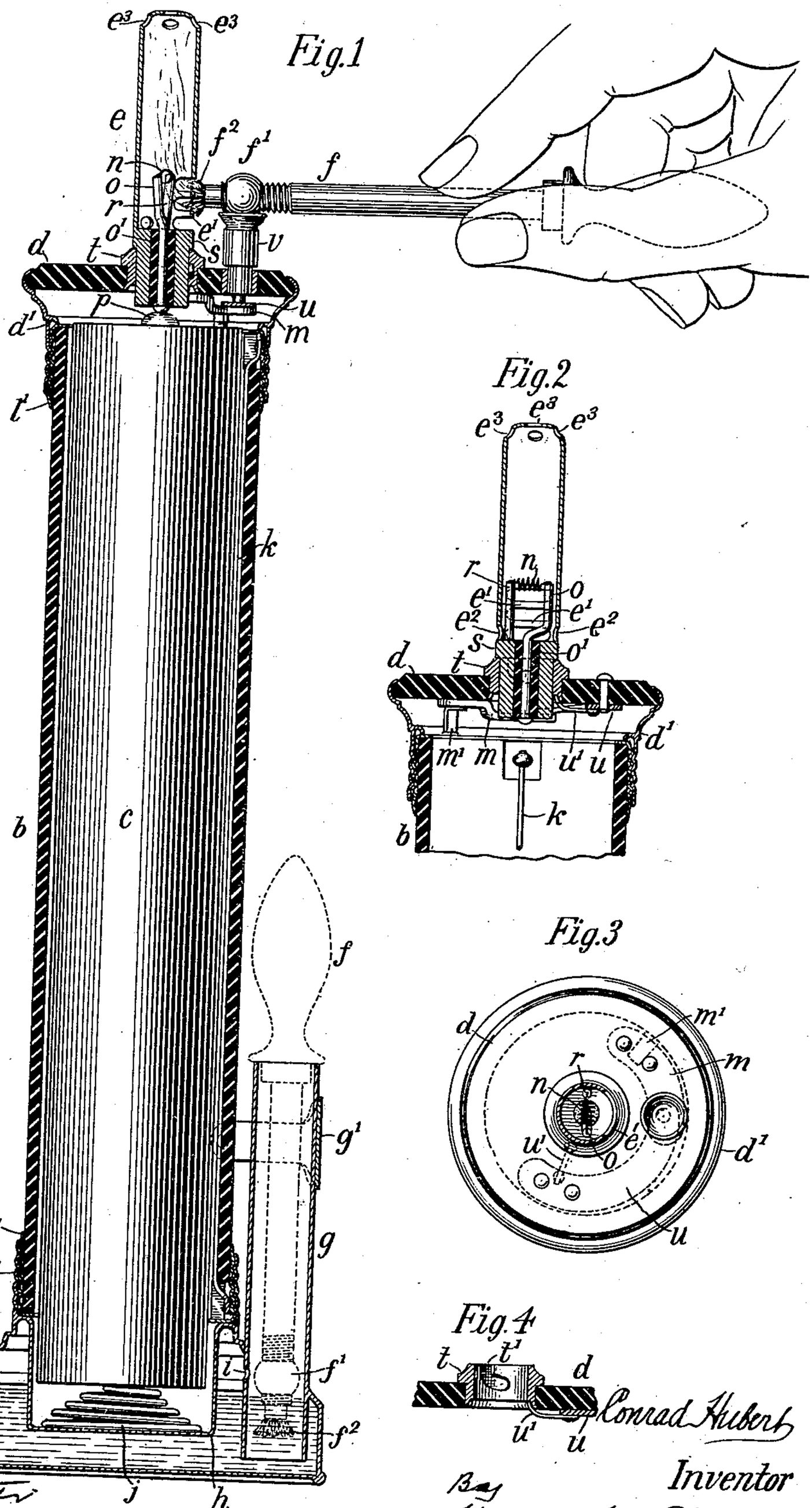

Fig.2

Fig.3

Fig.4

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UNITED STATES PATENT OFFICE.

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ELECTRIC LIGHTER.

SPECIFICATION forming part of Letters Patent No. 742,661, dated October 27, 1903.

Application filed May 8, 1902. Serial No. 106,432. (No model.)

To all whom it may concern:

Be it known that I, CONRAD HUBERT, a citizen of the United States, residing in the borough of Manhattan, city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Electric Lighters, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to electric lighters or igniters, and the means embodying my invention hereinafter described are more particularly adapted for use as a cigar-lighter.

One of the objects of my invention is to provide for the lighting of a torch by an operation effected by the torch itself and accompanying the act of placing the torch in igniting position.

Other objects of my invention are to provide improved means for inclosing the igniting-coil or other igniting means in a protecting or inclosing envelop or dome and to provide for a suitable draft through such envelop or dome and a grated igniting-opening at which the wick or inflammable part of the torch may be held for ignition thereof.

My invention has other objects and advantageous features, all of which will appear from the following description of the electric lighter embodying my invention shown in the accompanying drawings, and I will thereafter point out my invention in claims.

Figure 1 is a transverse vertical central section of a lighter embodying my invention. Fig. 2 is a detail section of the upper part thereof, looking toward the front of the device, with the battery-cell removed. Fig. 3 is a plan view with the igniting-envelop in section. Fig. 4 is a detail vertical section of the socket for the igniting-envelop.

The casing of the lighter is shown as comprising a hollow base *a*, the interior of which forms the reservoir for inflammable fluid, and a column *b*, which forms the receptacle for a battery-cell *c* and has a removable cap provided with a top plate *d* and an igniting-envelop *e*, secured upon the top plate *d*. The base may be made of sheet metal and is provided with a holder *g* for the torch *f*, this holder comprising a tube open at its upper and lower ends and extending above the base and braced at its upper end by the loop *g'*, secured to the column *b*, and at its lower end terminating above the bottom of the fluid-reservoir formed in the base *a* and adapted to contain in the lower part of this tube a sufficient amount of inflammable fluid to properly saturate the torch. I have provided for filling the reservoir through the torch-holder *g*, and to that end I provide an opening *i* from the torch-holder to the upper part of the fluid-reservoir, so as to permit the displacement of air by the entering fluid in filling the reservoir. The base *a* also has formed therein a pocket *h*, which is the lower end of the battery-receptacle, and a metallic spring *j* is located between the bottom of the battery *c* and the bottom of this pocket *h* for the purpose of establishing good electrical contact with the terminals of the battery, the bottom of the battery being one of such terminals and the knob *p* at the top thereof the other terminal, and by this spring *j* the electric current is conducted from the bottom of the battery-cell to the metallic or conductive base.

The lower end of the column *b* is shown as having a threaded metallic thimble *l* thereon, which engages with a counterpart threaded portion *a'* of the base *a* and by means of this threaded engagement establishes electrical contact between the base *a* and the threaded thimble *l* of the column *b*. The upper end of the column *b* is also provided with a metallic thimble *l'*, which is connected by a wire *k* with the lower metallic thimble *l*, this wire *k* extending from the bottom to the top of the column *b* along the inner surface thereof, and the thimble *l'* by screw engagement with the metallic thimble *d'* of the cap establishes electrical contact with such metallic thimble, the body of the column *b* being shown as of insulating material. The contact-stop *m* of the circuit-closing device is secured to the lower face of the top plate *d* and metallically connected by a conductor *m'* to the metallic thimble *d'* of the cap, and by the conductors described the electric current is conveyed from the casing of the battery-cell to this contact-stop *m* of the circuit controlling or closing device.

The igniting envelop or dome *e* contains within it an igniting-coil *n*, which may be of fine platinum wire and is supported at one end on a post *o*, which extends down into

contact with the upper terminal p of the battery, passing through an insulating-sleeve o' in the base of the igniting-envelop, and the igniting-coil is supported at its other end on a post r, which extends up from the metallic part or outer sleeve s of the base of the igniting-envelop, and this outer sleeve s enters a socket in the metallic socket-piece t, secured in the top plate d, engaging therewith by a pin entering a bayonet-slot t' in such socket-piece (see Fig. 4) and establishing electrical connection between the outer sleeve s and the socket-piece t, with the parts held tightly together by the upward pressure exerted by the spring j against the lower end of the battery c.

The socket-piece t is connected by a conductor u' to the spring u of the circuit controlling or closing device, and by the means above described the current is conveyed from the terminal p of the battery through the igniting-coil n to the circuit-closing spring u.

The push-button v of the circuit controlling or closing device is shown as extending down through a socket in the top plate d and secured to the circuit-closing spring u, and the upper surface of this push-button is concave and located in such position relatively to the igniting part of the device that when the torch f is held as shown in full lines in Fig. 1, with the knob f' thereon engaged with the push-button, the wick end of the torch is in proper position for ignition.

The igniting-envelop e is provided with openings for admission of air in proper quantities and for igniting the torch, the igniting-opening being shown as consisting of a barred or grated orifice in the front thereof, having bars or guards e' extending across it to prevent contact of the wick f^2 of the torch with the igniting-coil n and has draft-openings arranged above and below the igniting-coil, these openings being shown as the lower draft-openings e^2 e^2 and upper draft-openings e^3 e^3.

In the operation of igniting the torch the knob f' of the torch is engaged with the concave top of the push-button v, and by downward pressure the electric circuit is closed between the spring u and contact-stop m, with the wick f^2 of the torch in proximity to or against the bars e', as shown, and the heat radiated from the igniting-coil n vaporizes the inflammable liquid with which the wick is saturated, and a current of mixed gas and air is set up in the igniting-envelop, which is quickly ignited and ignites the torch. After the ignited torch has been used it may be returned to the holder g and will be extinguished therein. The torch is shown within the holder in broken lines in Fig. 1.

The inflammable part or wick f^2 of the torch is of suitable absorptive material, as asbestos, and the inflammable fluid may be wood-alcohol or other alcohol. As the igniting means does not depend upon a momentary spark, but permits the subjection of the inflammable fluid to an igniting heat for as long an interval as may be necessary for igniting and is not exposed, but is confined within an envelop or dome wherein the heating action is concentrated, inflammable fluids which are not easily ignited may be employed. With wood-alcohol as the inflammable liquid the ignition requires an appreciable interval of time, but is rapid and very nearly instantaneous, so that the consumption of battery-power is slight.

The cap is readily removable by unscrewing the thimble d' to permit the removal of the battery and the insertion of a new battery, and the connections are made with the terminals of the battery as soon as the cap is screwed down by the means above described.

In the construction shown I have, as above described, provided for holding a cell of dry battery within the casing and its ready removal when exhausted and the substitution of a new battery therefor, and the apparatus is thus self-contained and yet of small bulk and acceptable appearance. It is of course obvious that the electric-current supply may be obtained from any suitable source, and it is obvious that various modifications may be made in the construction shown and above particularly described within the spirit and scope of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. An electric lighter comprising igniting means and a circuit therefor, an independently-movable torch having an inflammable part and a contact-actuating part, and circuit-controlling means controlling the circuit of the igniting means and including a contact device, the contact device being located in such proximity to the igniting means that the contact-actuating part of the torch will be in actuating contact with the contact device when the inflammable part of the torch is in igniting position.

2. An electric lighter comprising an igniting-envelop and igniting means located within such envelop, the igniting-envelop having draft-openings above and below the igniting means and a grated igniting-opening, a circuit for the igniting means, and circuit-controlling means controlling the circuit of the igniting means.

3. An electric lighter comprising an igniting-envelop and igniting means located within such envelop, the igniting-envelop having openings therein, a circuit for the igniting means, an independently-movable torch having an inflammable part, and circuit-controlling means controlling the circuit of the igniting means and including a contact device, the contact device being located in such proximity to the igniting means that the torch will be in actuating contact with the contact device when the inflammable part of the torch is in igniting position.

4. An electric lighter comprising an igniting-envelop and igniting means therein, the

igniting-envelop having a grated igniting-opening, a circuit for the igniting means, a torch having an inflammable part, and circuit-controlling means controlling the circuit of the igniting means and adapted to be actuated by the torch to close such circuit and located so as to be actuated by the torch with the inflammable part of the torch in igniting position.

5. An electric lighter comprising an igniting-envelop and igniting means located within such envelop, the igniting-envelop having draft-openings above and below the igniting means and a grated igniting-opening, a circuit for the igniting means, a torch having an inflammable part, and circuit-controlling means controlling the circuit of the igniting means and adapted to be actuated by the torch to close such circuit and located so as to be actuated by the torch with the inflammable part of the torch in igniting position.

6. In an electric lighter, in combination, a casing comprising a body and cap and having a battery-receptacle therein, the cap being removable from the body, an igniting-envelop and igniting means located within such envelop, a plug carrying the igniting-envelop and igniting means, a conductive socket on the cap adapted to receive the plug and connected with one terminal of the battery, lateral conductive projections and depressions on the plug and cap for affording a detachable connection between the plug and cap, a conductor extending from the igniting means through such plug and adapted to make contact with the other terminal of the battery, and resilient means for exerting a pressure at such terminal against such plug.

7. In an electric lighter, in combination, a casing comprising a body and cap and having a battery-receptacle therein, the cap being removable from the body and having an electrically-conductive engagement therewith, means for connecting one terminal of the battery with such conductive engagement of the cap, electric igniting means carried by the cap, circuit-controlling means electrically connected with the igniting means and with the conductive engagement of the cap and body, and a conductor extending from the igniting means and adapted to make contact with the other terminal of the battery.

8. In an electric lighter, in combination, the base a having a fluid-reservoir therein and the torch-holder g extending into such fluid-reservoir, the column b extending upward from the base a, the casing comprising the base and column having a battery-receptacle therein, and a spring for electrically connecting the lower terminal of the battery with the bottom of such receptacle, the conductive thimble l' on the column b electrically connected to the bottom of such receptacle, the removable cap d, d', having an electrically-conductive engagement with such thimble, electric igniting means carried by the cap, circuit-controlling means electrically connected with the igniting means and the conductive engagement of the cap and the thimble, and a conductor extending from the igniting means, and adapted to make contact with a terminal at the top of the battery, substantially as set forth.

9. In an electric lighter, in combination, an igniting-coil, and means for connecting the same in an electric circuit, and the dome e incasing such igniting-coil and having lower draft-openings e^2 and upper draft-openings e^3 and an igniting-opening, substantially as set forth.

10. In an electric lighter, in combination, an igniting-coil and means for connecting the same in an electric circuit, and the dome e incasing such igniting-coil and having lower draft-openings e^2 and upper draft-openings e^3 and the igniting-opening having a grating composed of bars e', substantially as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

CONRAD HUBERT.

Witnesses:
HENRY D. WILLIAMS,
JOHN H. BARNES.