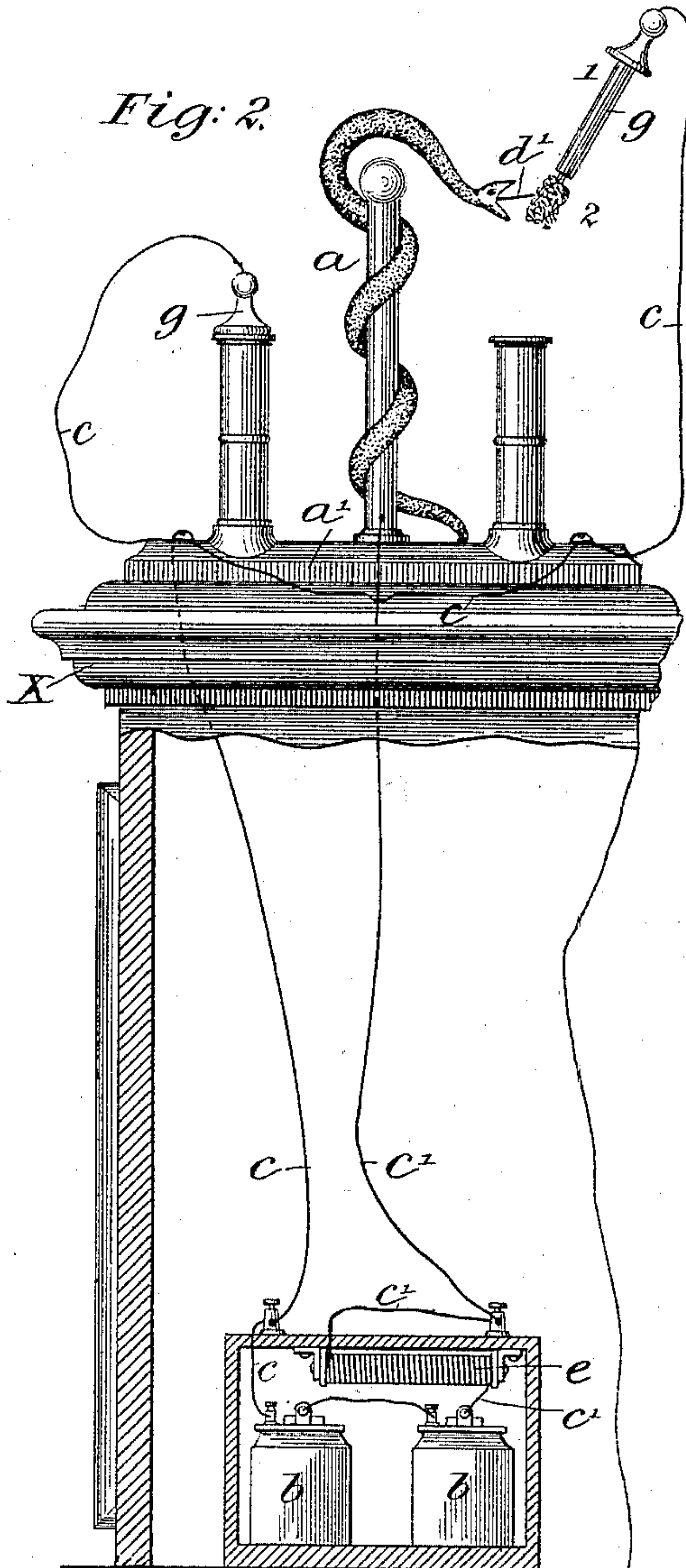
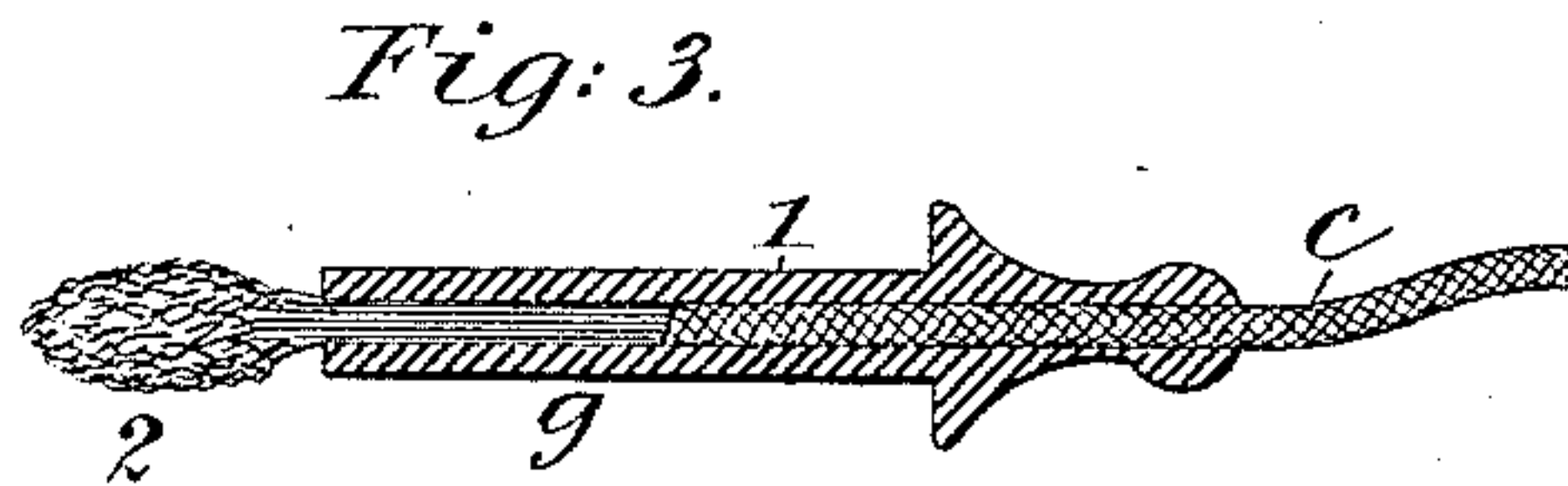
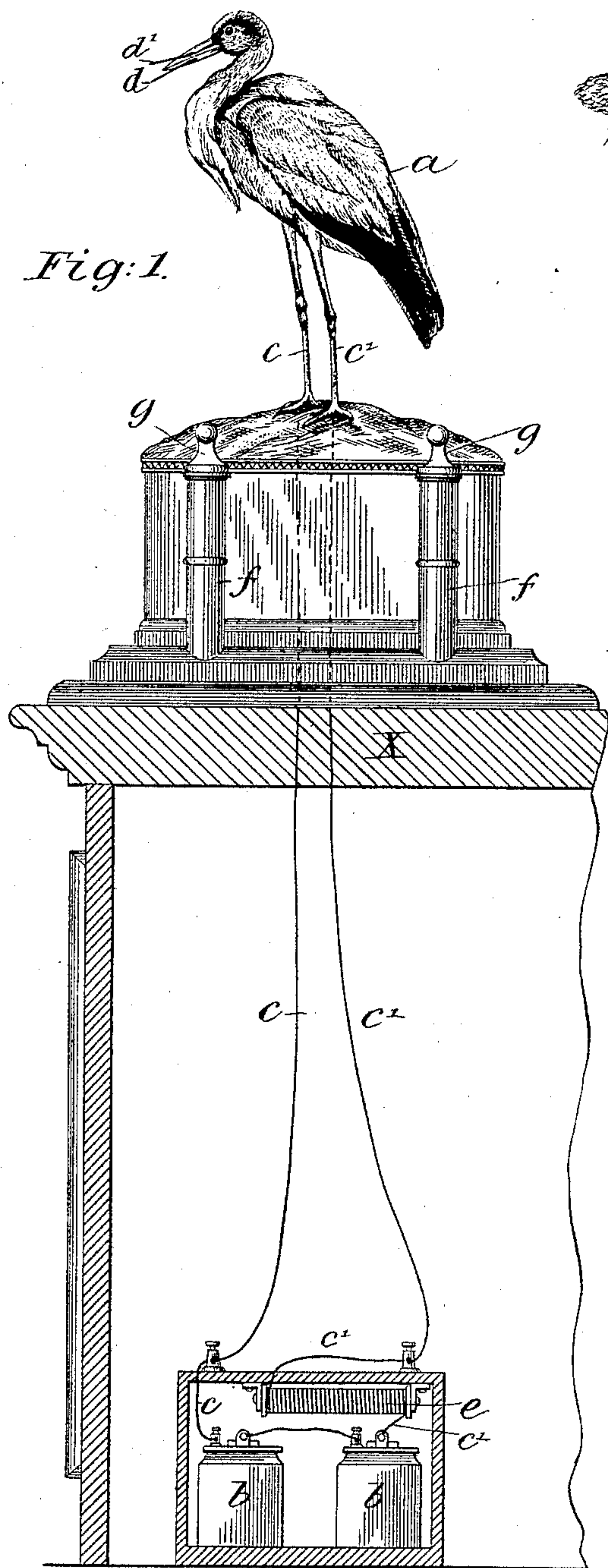


(No Model.)

E. E. FLORA & P. R. HOY.  
ELECTRIC LIGHTING DEVICE.

No. 422,196

Patented Feb. 25, 1890.



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# UNITED STATES PATENT OFFICE

ELLSWORTH E. FLORA AND PHILO R. HOY, OF CHICAGO, ILLINOIS.

## ELECTRIC-LIGHTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 422,196, dated February 25, 1890.

Application filed April 10, 1889. Serial No. 306,712. (No model.)

*To all whom it may concern:*

Be it known that we, ELLSWORTH E. FLORA and PHILO R. HOY, both citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Electric-Lighting Devices, of which the following is a specification.

Our invention relates to that class of lighting devices wherein a spark is produced by the breaking of an electric circuit; and the object of our invention is to produce a lighter suitable for use as a cigar or gas lighter.

Our invention will be fully described hereinafter, and its novel features carefully defined in the claims.

In the accompanying drawings, illustrative of our invention, Figure 1 is a sectional elevation of an electric lighter embodying our invention in one of its forms; and Fig. 2 is a similar elevation illustrating a lighter also embodying our improvements, but in a slightly different form. Fig. 3 is an enlarged sectional view of the dip used with the second form of our apparatus.

We will first describe the lighter as illustrated in Fig. 1.

On any suitable stand or support X is mounted an image *a* of any kind. From the opposite poles of an electric battery or other generator *b* conductors *c* *c'* lead, the former *c* to a contact-piece *d* at the beak of the image and the latter to a spark-coil *e* and thence to another contact-piece *d'* at the beak of the image. These contact-pieces will be arranged quite close together, and they will be of platinum, by preference. On the stand X near the image *a* will be mounted one or more cups *f* for the reception of alcohol, and these cups will be provided with dips *g*. These alcohol-cups and dips are very common devices at cigar stores and stands, and ordinarily the dip is merely a piece of wire with some suitable material on its tip to absorb and retain the alcohol. The peculiar feature of our dip is that the handle thereof is of non-conducting material. The absorbent material may be, in whole or in part, of metal, preferably in the form of tinsel, the metallic filaments being so massed or matted together as to produce capillary interstices, which will allow it to absorb alcohol and hold it.

In using the lighting device it is only necessary to withdraw the dip *f* from the cup charged with alcohol and apply it to the two contiguous contact-pieces *d* and *d'*. This will close the electric circuit, which, when again broken, will produce a spark which will instantly ignite the alcohol on the dip.

In Fig. 2 is shown another form of the device, which differs from that last described only in this, that there is but one contact-piece *d'* on the image *a*, the other terminal of the circuit being the tuft of the dip itself. The wire *c'* leads to the spark-coil and thence to the contact-piece *d'*, as before; but the wire *c*, which may be a conductor in the form of an ordinary "tinsel cord," leads to the dip *g*, and is connected electrically with the absorbent tuft on the end thereof. It is only necessary to touch this tuft to the contact-piece *d'* and withdraw it in order to produce the necessary spark and consequent ignition of the alcohol on the dip.

In Fig. 3 we have shown how the dip *g* may be constructed. The handle 1 of the dip may be of hard rubber with a passage through it for the tinsel-cord conductor *c*, to which is electrically connected at its end the tuft of tinsel 2, which takes up the alcohol from the holder. The dip may be made in various ways, and where used with the device as illustrated in Fig. 1 it may be constructed as represented in Fig. 3, except that the conductor *c* will not be connected with it.

In Fig. 2 we have shown two dips *g*, connected each with a branch of the conductor *c*. If more than one dip be connected with this conductor, care must be taken that the dips not in use shall be insulated. This will be readily understood by those skilled in the art. Insulation may be effected by insulating the base *a'*, upon which the image and alcohol-cups are mounted. The image may be of metal, in which case the wire *c'* need only be electrically connected with some part of it, the image itself forming a part of the circuit.

The image may represent a bird, as in Fig. 1, or any other animal or thing, or a serpent, as in Fig. 2. This choice of images relates to design and is immaterial to our application. This image or the contact fixed to it forms one of the electrodes of the device.



Our spark-coil is not an induction-coil, but a simple coil of rather heavy wire for the purpose of imparting intensity to the current. The alcohol on the dip does not interfere in the least with the production of the spark and the instant ignition of the liquid.

Heretofore, so far as we are aware, the only cigar-lighter wherein the alcohol taken up by the dip is ignited electrically employs a hollow dip with a fine platinum wire in its hollow and the vapor of alcohol is ignited by closing an electric circuit of which this wire forms a part. The wire becomes incandescent and ignites the vapor. This device necessitates the keeping of the platinum wire free from the adjacent parts of the dip and in keeping the circuit closed until the wire becomes incandescent. Our device obviates this. The dip is simple in construction, will last indefinitely, and may be used by any one, as the breaking of the circuit produces the spark.

We are aware that the production of an electric spark in lighting devices is well known, and we make no claim to this. The characteristic feature of our device is the use, in connection with the terminal or terminals of an electric circuit containing a generator, of a circuit closer or breaker having a tip constructed to absorb and retain an inflammable liquid, whereby the spark is produced in the presence of said liquid. Alcohol is much preferred; but benzine or other readily-inflammable liquids may be used.

Having thus described our invention, we claim—

1. A cigar-lighter whereby the ignition of an inflammable liquid is effected by a spark produced by the breaking of an electric circuit, said lighter consisting of the combination of an open electric circuit including a generator and a circuit-closing dip having a tip composed in whole or in part of metal and capable of taking up and holding an inflammable liquid, whereby when the circuit is broken the spark is produced in the presence of said liquid.

2. An electric cigar-lighter wherein the ignition is effected by a spark, said lighter consisting of an open electric circuit including a generator and spark-coil and having a contact-piece at one of its terminals, and a circuit-closing dip which forms the other terminal of the circuit, all combined and arranged to operate substantially as set forth.

3. In a device for igniting an inflammable liquid by an electric spark, the combination of a battery or generator, a spark-coil, a conductor leading from one pole of the battery through said coil to a terminal contact-piece, a conductor leading from the other pole of the battery to a dip, and the said dip having its tip composed of metallic filaments, as set forth.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

ELLSWORTH E. FLORA.  
PHILO R. HOY.

Witnesses:

LAWRENCE NELSON,  
E. J. SUDDARD.