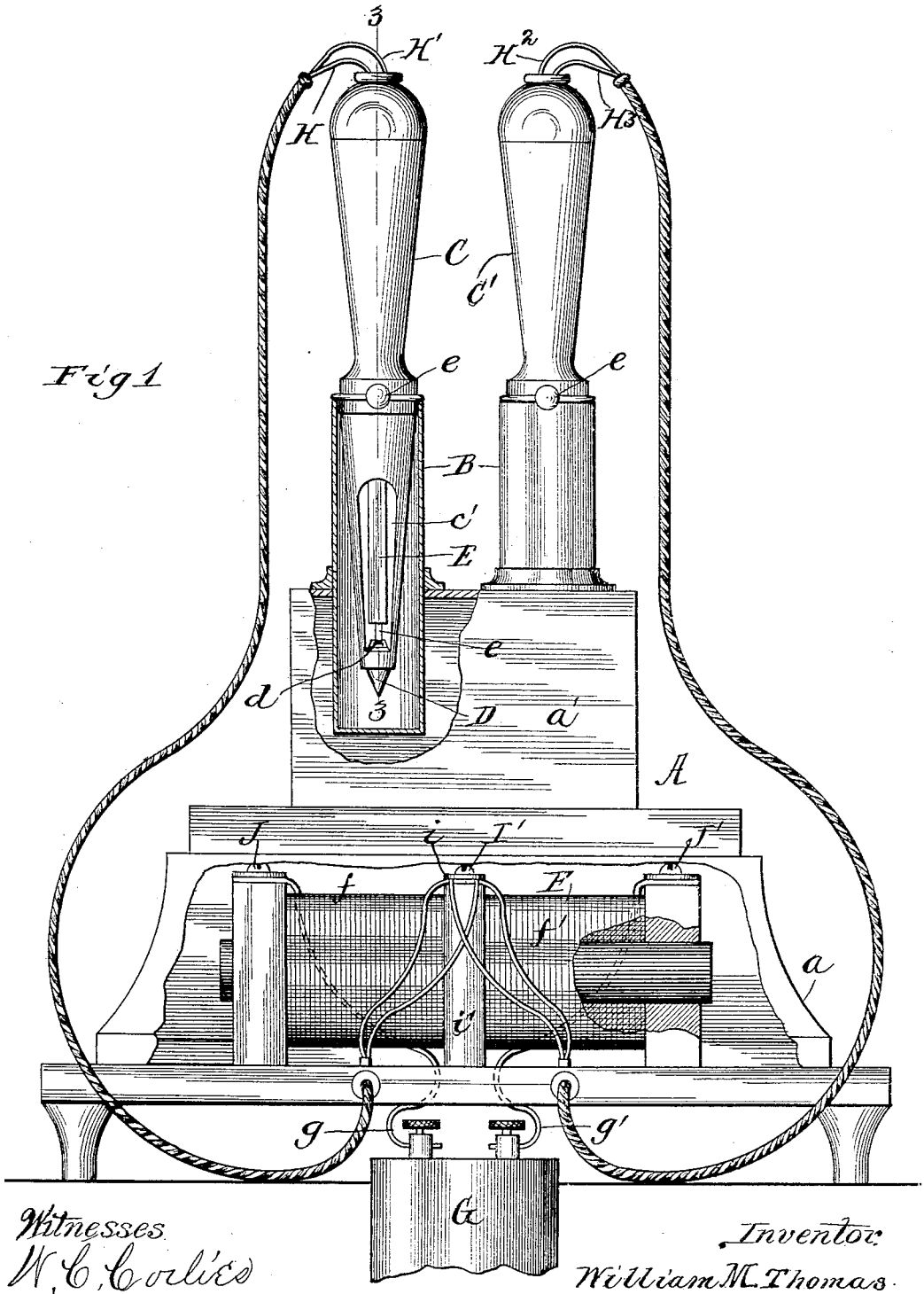
(No Model.) 2 Sheets—Sheet 1.

# W. M. THOMAS.

## ELECTRIC CIGAR LIGHTER.

No. 494,091. Patented Mar. 21, 1893.

Fig 1

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(No Model.) 2 Sheets—Sheet 2.

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## ELECTRIC CIGAR LIGHTER.

No. 494,091. Patented Mar. 21, 1893.

Fig 2

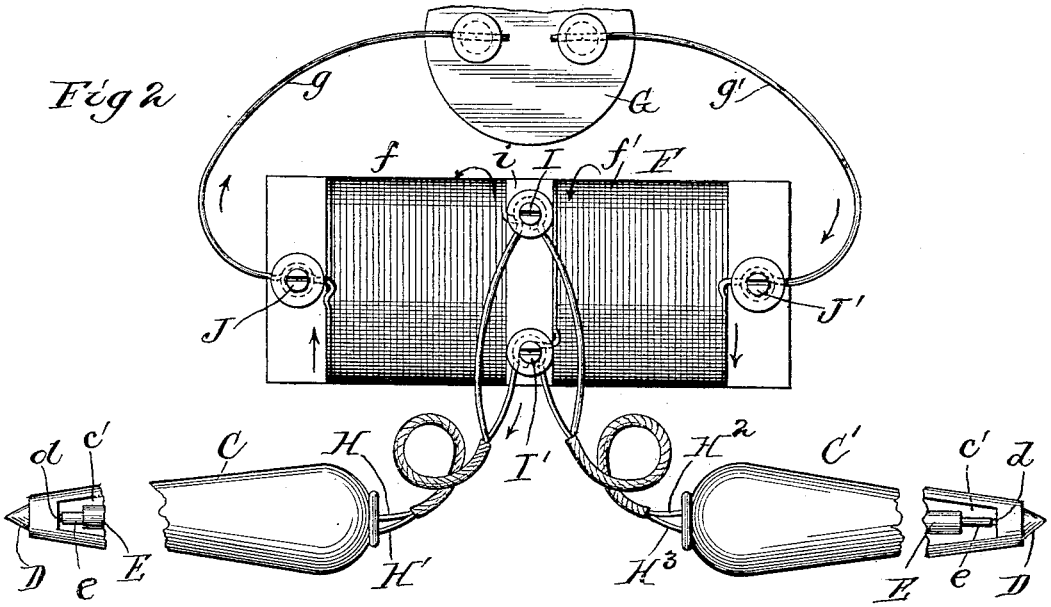
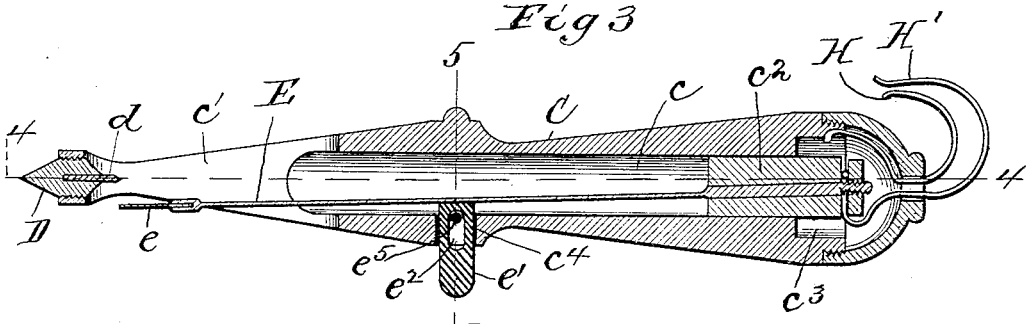



Fig 3



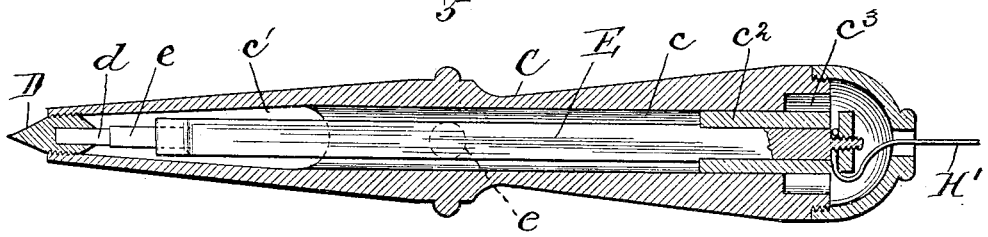
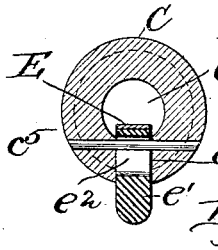




Fig 4

Fig 5

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# UNITED STATES PATENT OFFICE.

WILLIAM M. THOMAS, OF CHICAGO, ILLINOIS, ASSIGNOR TO LOUIS WARFIELD, OF DETROIT, MICHIGAN.

## ELECTRIC CIGAR-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 494,091, dated March 21, 1893.

Application filed October 26, 1892. Serial No. 450,086. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. THOMAS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electric Cigar-Lighters, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a front elevation, partly broken away, of a cigar lighter, embodying my invention; Fig. 2, a diagrammatic plan of the electric devices and their connections. Fig. 3 is a longitudinal section of one of the lighter handles detached, taken on the line 3—3 of Fig. 1; Fig. 4, a similar section taken on the line 4—4 of Fig. 3; Fig. 5, a cross section taken on the line 5—5 of Fig. 3.

Figs. 1 and 2 are upon one scale, but the remaining figures are upon a larger scale, though the same in each.

My invention relates to that type of cigar lighter in which the light is produced in a movable handle, or piece, adapted to be grasped by the hand and moved about thereby, as required; and the object of the invention is to provide an efficient device whereby the alcohol, or other inflammable material, on the handle may be ignited by an electric spark.

I will describe in detail the construction and operation of a lighter in which I have carried out my invention in a practical way, and will then point out more definitely in claims the particular improvements which I believe to be new, and wish to secure by Letters Patent.

In the drawings A represents a kind of stand which serves as a support to the lighting devices, and may be either stationary or movable. In general terms, this stand, as here shown, consists of a base $a$ surmounted by a smaller structure $a'$, which latter forms the well known receptacle for tubular reservoirs B set therein and containing alcohol, or other highly inflammable material, the number of these reservoirs being a matter of choice. A hand piece, or handle, C, C′ is supplied to each of these reservoirs, being constructed in the usual way, with one end adapted to be grasped by the hand, while the other is tapering, and adapted to be inserted in one of the tubular reservoirs; these hand pieces are hollow, being provided with a large central perforation $c$, and a tip piece D is inserted in the outer or smaller end of this handle, back of which the latter is cut away somewhat on each side to provide long, wide, side openings $c'$. At the inner end of the tip piece there is a short thin strip of metal $d$ which is mounted in the end of the tip, and extends inward therefrom a little way, as seen in Figs. 3 and 4; it constitutes the contact point for making and breaking an electric circuit, as will be described presently. At the opposite, or handle end, of this piece there is mounted a plug $c^2$, which is of any good insulating material, and is inserted in the central opening in the handle, as seen in Fig. 3, while the latter is cut away somewhat, around the outer end of the plug, so as to provide a small annular chamber $c^3$ around the plug, as seen in the same figure. A lever is mounted at one end in this insulated plug, and is extended thence through the central opening in the handle near to the contact point $d$, being provided at its outer or free end with a thin tip, or point, $e$, which just overlaps the point $d$, and so is adapted to make contact therewith upon the proper vibration of the lever. This lever may be, as shown in the drawings, a single strip of elastic metal, the vibration thereof being permitted by the elasticity of the metal, though this particular construction is immaterial, provided it is mounted so as to permit vibration and also provide for a normal position of rest out of connection with the point $d$; in the drawings, this latter result is accomplished by mounting the lever in a slightly diagonal or inclined position through the insulating block, as seen in Fig. 3, so that normally the lever will stand at one side of the axis of the handle, and so out of contact with the point $d$. This contact lever E is provided at some suitable point between its extremities with a stud, or button, $e'$, also of insulating material, which projects out through a side opening $c^4$ in the handle and provides means for vibrating the lever, this movement being regulated by a slot $e^2$ in the button, through which passes a pin $c^5$ set in the handle, as seen in Fig. 3, the

range being sufficient to throw the lever from the position seen in said figure, entirely across and beyond the contact point *d*.

In the base *a* of the standard there is mounted a spark coil F which, as shown in the drawings, is connected up in the well known way by means of wires *g*, *g'* with an electric battery G, conveniently arranged for the purpose, but any other suitable source of electric current may be employed instead of the battery, suitable connection of the coil therewith being made. The spark coil itself may be of any ordinary construction, but I have shown in the drawings a peculiar construction, which is preferable for this particular purpose.

As here shown, there are two additional binding posts I, I' set on a suitable plate *i* mounted on standards *i'* about midway between the end supports of the coil; these binding posts are in addition to the binding posts J, J' at the respective ends of the coil, with the former of which the battery wire *g* is connected and with the latter the battery wire *g'*. The wire which forms the coil is divided; one section *f* is connected at its outer end to the binding post J, and this wire terminates about the middle of the coil where its inner end is brought out and connected to the binding post I. The wire *f'* composing the section at the other end of the coil is in like manner connected at its outer end to J', and at its inner end to the binding post I'.

The handles C, C' are connected up with the coil in the following way. The wires H, H' of the handle C, are connected respectively to the body of the handle and the insulated lever, and thence run to the central binding posts I, I' to which they are respectively connected. In like manner the wires $H^2$, $H^3$ of the handle C' are connected to the body and insulated lever of said handle, and the binding posts I, I' respectively. This mode of connecting up the handles and coil is shown in Figs. 1 and 2 of the drawings.

The operation is as follows: Normally the contact lever is held away from the contact point, when, of course, there is no current through the handle, which is the position of the parts as the latter stands in the reservoirs of inflammable material. When it is desired to use one of the lighters, the handle is removed from its receptacle, and, of course, the tip will be covered with the inflammable substance; the person holding the lighter will then press upon the lever button thereby moving the lever tip into contact with the point *d* and then beyond the same out of contact therewith. Releasing the button immediately, the elasticity of the spring throws the lever back again into its normal position, which produces a second contact and break with the point *d*. With each vibration of the lever the making and breaking of the circuit will, therefore, be twice effected; and it will be understood, of course, that at each contact with the point, the current is expected to ignite the alcohol, and so with each vibration of the lever, two conditions for lighting occur, and the certainty of the operation is thus increased. Owing to the division of the wire coil and the peculiar connection of the handles therewith, described above, it will be seen that the full force of the current coming from the battery or other source, is not felt in any one lighter, the circuit to each lighter being from the middle of the coil around through the lighter, back to and through the other section of the coil. This connection is desirable, especially in cases where the coil is connected with a powerful source of current, which with the full coil of wire would produce a large spark, that would be somewhat startling, especially, if contact should be made accidentally by the accidental pressing inward of the button on the spring. It, also, prevents the fusing of the metal, which would sometimes occur with a full wire coil connected up with a high voltage circuit.

It is evident that changes may be made in the precise details of construction and arrangement of the parts herein shown and described, without losing the characteristic features of my device, as explained above, and such changes I contemplate in the practical manufacture of the lighter.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an electric cigar lighter, a tubular handle in combination with a spring lever E mounted in an insulated plug $c^2$, a contact point *d* at the tip end of the handle, conducting wires connecting the handle and lever, respectively, with a spark coil and an insulated button *e'* attached to said spring and extending through the handle, whereby the spring may be pushed into contact with the point and to the outer side of the same, substantially as described.

2. In an electric cigar lighter, a tubular handle, in combination with a contact point *d* mounted therein, the elastic lever E mounted in an insulating plug $c^2$ and arranged to stand normally in a plane inclined from the contact point, the insulating button *e'* provided with slot $e^2$, the pin $c^5$ passing through said slot, and electric conductors connecting said handle and lever, respectively, with the spark coil F, substantially as described.

3. In an electric cigar lighter, a spark coil F, the wire of which is divided into sections *f*, *f'*, in combination with the binding posts I, I' to which the inner ends of said wire sections are, respectively, connected, tubular handles provided with contact points and insulated vibratable contact levers, and circuit wires connecting said handles and levers, respectively, with the central binding posts I, I', substantially as described.

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