

(No Model.)

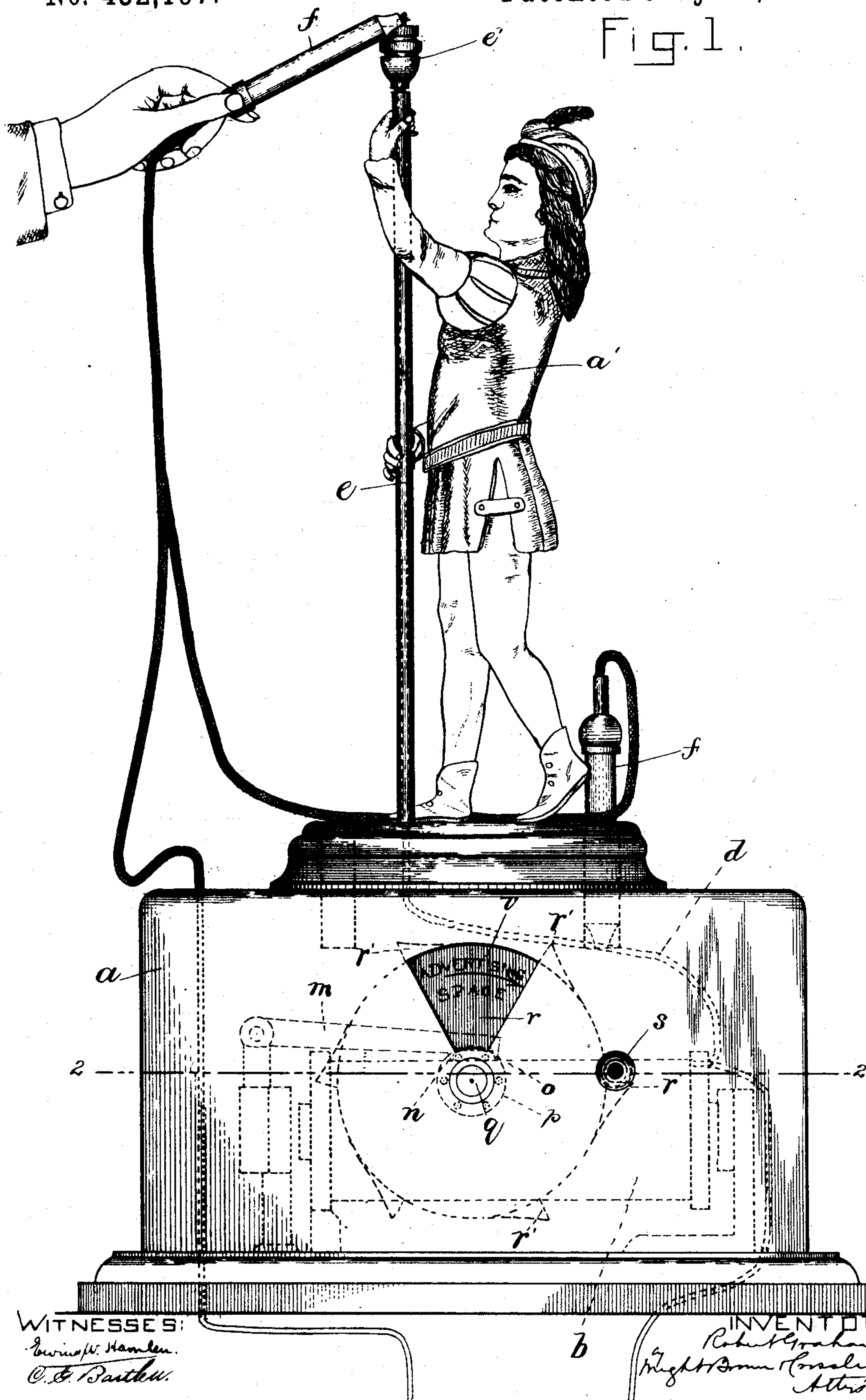
3 Sheets—Sheet 1.

R. GRAHAM.
ELECTRIC CIGAR LIGHTER.

No. 432,197.

Patented July 15, 1890.

Fig. 1.



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Fig. 2.

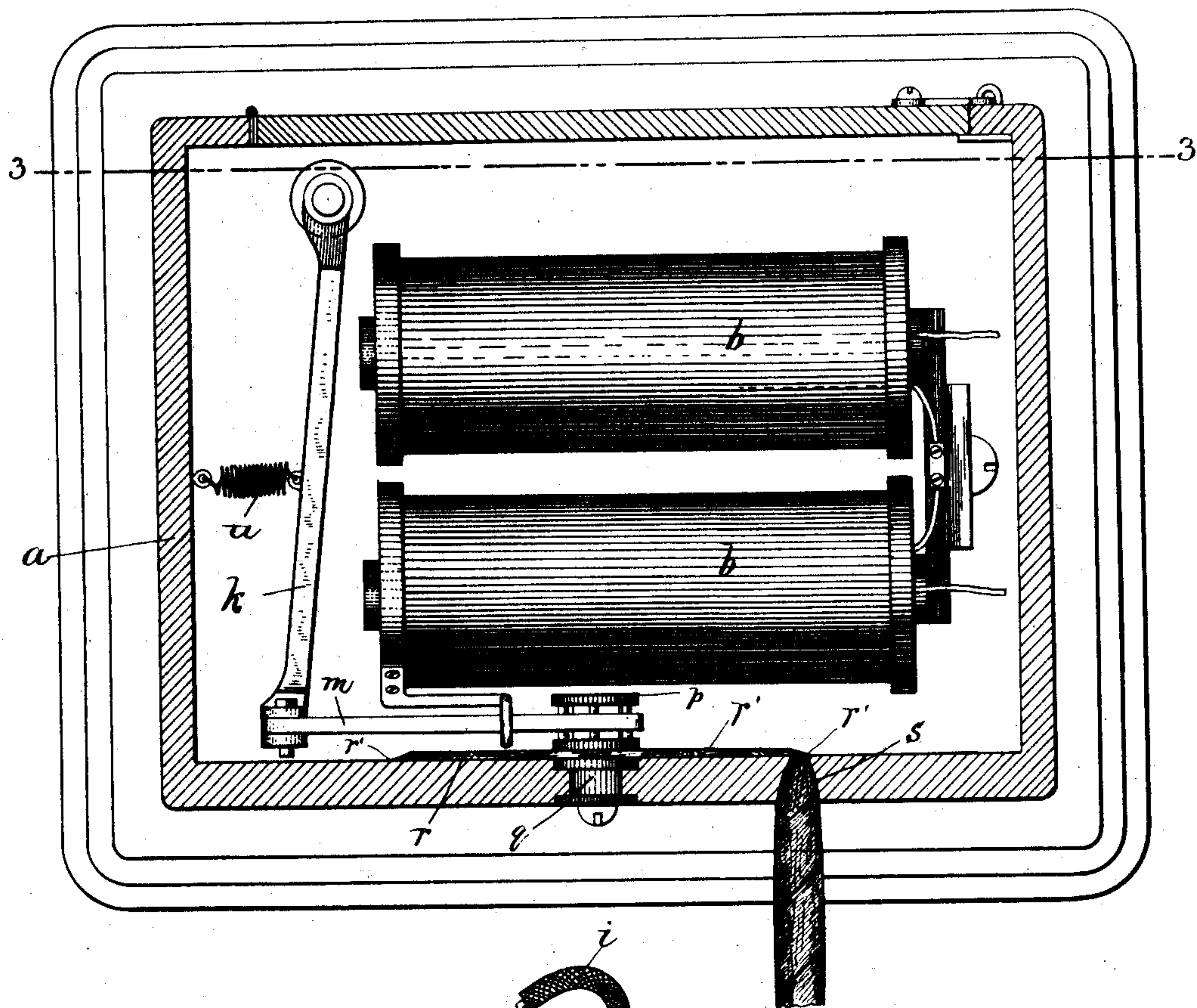
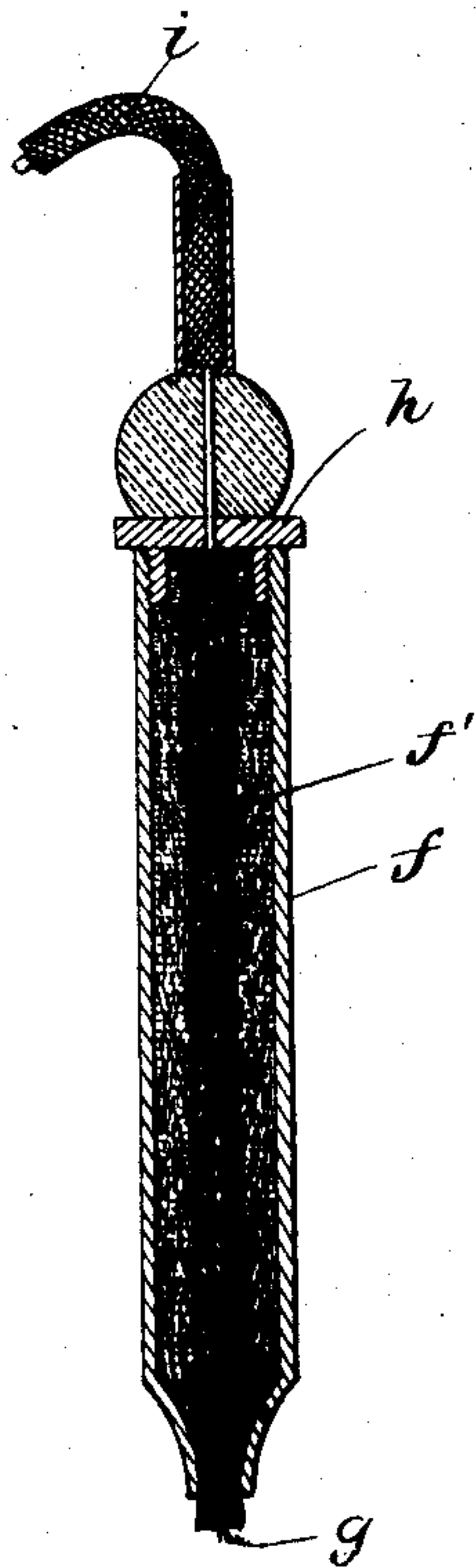


Fig. 4.



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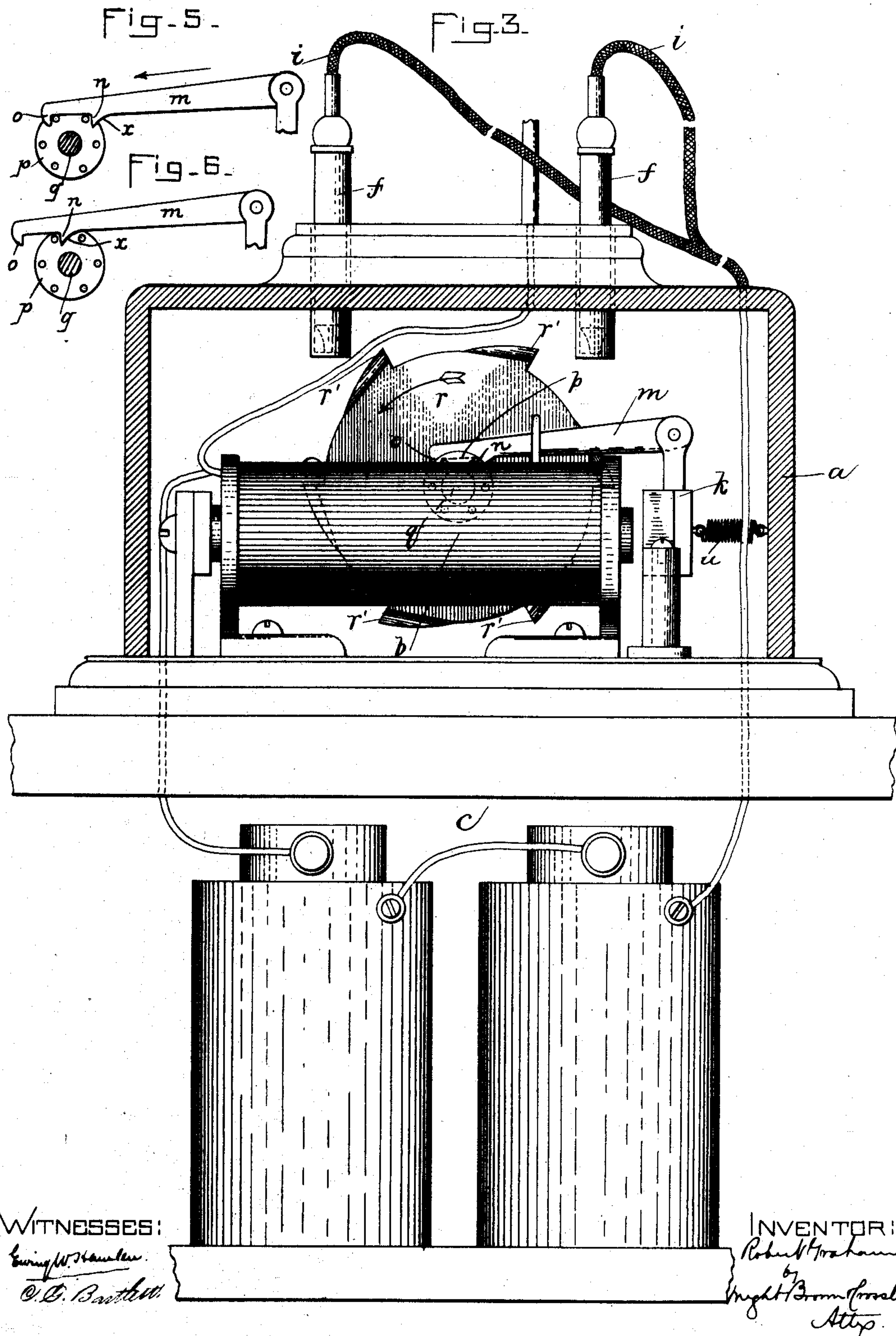
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

ROBERT GRAHAM, OF READING, MASSACHUSETTS.

ELECTRIC CIGAR-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 432,197, dated July 15, 1890.

Application filed April 7, 1890. Serial No. 346,912. (No model.)

To all whom it may concern:

Be it known that I, ROBERT GRAHAM, of Reading, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Electrical Cigar-Lighters, of which the following is a specification.

This invention relates to appliances for igniting the vapors of alcohol or other like combustible fluid by an electric spark created by breaking an electric current; and it has for its object to provide an apparatus of this class in which the combustible fluid shall be inclosed, so that it cannot readily evaporate, and in which the closure of the electric circuit preparatory to forming the igniting-spark shall operate a cigar cutting and advertising device.

To these ends the invention consists in the improvements which I will now proceed to describe and claim.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of my improved cigar lighting, cutting, and advertising apparatus. Fig. 2 represents a section on line 2 2, Fig. 1. Fig. 3 represents a section on line 3 3, Fig. 2. Fig. 4 represents a longitudinal section of the lamp. Figs. 5 and 6 represent sections on line 5 5, Fig. 2, showing the latch in different positions.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a suitable supporting-base, which contains an electro-magnet *b*, one pole of which is connected to a battery *c*. The other pole of said magnet is connected with a conducting-wire *d*, which extends upwardly through a sheath or tube *e*, of insulating material, above the base, the upper end of said wire projecting above the insulating-sheath *e* and constituting a terminal or electrode *e'*.

f represents a portable lamp or reservoir, which consists of a metallic tube adapted to contain a quantity of alcohol, and a wick *f'*, extending from the interior of the tube through a contracted orifice at one end thereof. The wick contains a wire *g*, extending through it to its outer end, said wire passing through a screw-cap *h*, which closes the mouth or alcohol-receiving end of the tube, and be-

ing connected by a flexible conductor with the other pole of the battery *c*, said conductor being provided with a suitable insulating-covering between the lamp and the battery. The end of the wire *g* at the other end of the wick constitutes a terminal which is adapted to make contact with the terminal *e'*, and thereby close an electric circuit when the lamp is held in the position shown in Fig. 1. When the said terminals are separated by the withdrawal of the lamp, a spark is formed, which is adapted to ignite the alcohol vapor from the wick. There may be more than one conducting-wire in the wick, if preferred, all being in electrical connection with the battery.

The base *a* is provided with a recess or socket to receive the wick end of the lamp and extinguish the flame thereof after the lamp has been used.

k represents a pivoted armature in the base, arranged to be attracted by the electro-magnet *b* when the latter is energized by the closure of the circuit, as above described. On the swinging end of the armature *k* is an ear, to which is pivoted a latch *m*, having a tooth *n*, which is arranged to engaged the teeth of a lantern-pinion *p* on a shaft *q*, which is mounted to rotate in a bearing in one side of the base. The rear side *x* of said tooth is inclined or beveled, as shown in Figs. 3, 5, and 6, its front side being vertical. When the latch is moved in the direction of the arrow, Fig. 5, from its normal position (shown in Figs. 1, 2, 3, and 5) to the position shown in Fig. 6, the vertical side of the tooth *n* engages the pinion-tooth before it and gives the pinion a partial rotation. When the latch is moving back from the position shown in Fig. 6 to its normal position, the inclined side *x* slides over the succeeding tooth of the pinion without moving said tooth. To said shaft is affixed a cutter-wheel *r*, on the perimeter of which are formed a series of blades *r'*. Said blades are arranged so that when the wheel is rotated they will move successively across a hole *s*, made in one side of the base for the reception of a cigar-tip. Each blade is eccentric to the axis of the wheel, so that in moving across said hole its edge will exert a shearing cut on the cigar therein. The armature *k* is forced back from the poles of the

electro-magnet by a spring *u*, when the circuit is broken, and at each closure of the circuit is moved far enough to carry one of the blades *r'* across the orifice *s*, the direction of motion of the blades being as indicated by the arrows in Figs. 1 and 3. When the armature is at the end of its forward movement, the blade last acting is in the position shown in Figs. 1 and 3, having just crossed the hole *s*, so that the latter is unobstructed for the insertion of another cigar. When the wheel is next moved forward, the eccentric form of the acting blade causes it to enter the cigar gradually, the blade doing but little work during the first part of the movement of the armature toward the poles of the electro-magnet, and doing its chief work during the latter part of said movement when the magnet is exerting its maximum force on the armature; hence the power of the magnet is utilized to the best advantage in the cutting operation.

The base *a* is provided with an opening *v*, formed to expose a portion of one side of the wheel *r*, so that advertising matter on said wheel will be visible from the outside of the base.

The latch *m* is provided with a second tooth or detent *o*, which, when the armature is in its normal or retracted position, bears on the pinion-tooth in advance of the tooth on which the tooth *n* bears, the two teeth co-operating in holding the wheel *r* in such position that one of its advertising-spaces will register with the display-opening *v*, and one of its blades *r'* will occupy the desired position with relation to the cigar-receiving hole *s*.

The operation of the apparatus is as follows: A smoker, desiring to cut and light his cigar, inserts the tip of the cigar in the hole *s*, and, holding the cigar there with one hand, moves the lamp *f* and brings the terminal *g* in the wick thereof into contact with the fixed terminal *e'*, thereby closing the circuit and causing the operation of the cutter in the manner above described. When the lamp is withdrawn from the fixed terminal, the spark caused by the breaking of the circuit ignites the alcohol vapor about the wick, so that the cut cigar may be lighted. It will be seen, therefore, that the application of the lamp to the fixed terminal causes the electric action that cuts the cigar, while the removal of the lamp from said terminal causes the flame that lights the cigar.

I do not limit myself to the employment of the particular form of cutter here shown, but may employ any suitable cutter that is capable of being operated by the movement of an armature caused by the energizing of an electro-magnet. The cutter may have but one blade and may be arranged to oscillate instead of rotating step by step.

It will be observed that the means for igniting the wick may be adapted to ordinary illuminating-lamps burning kerosene-oil, such lamp having a wick which contains one or

more electric conductors. In such case the terminal *e'*, which is here shown as the fixed terminal, may be arranged on a flexible conductor connecting it with the battery.

In the apparatus as adapted for cigar-lighting purposes I prefer to use two lamps, as shown in Fig. 1, both flexibly connected to one and the same pole of the battery. The fixed terminal is supported by an ornamental figure *a'*, and the conducting-wire *d* is insulated from said figure by the tube or sheath *e*.

The employment of a lamp comprising a reservoir in which the combustible liquid is held and a wick in said reservoir, said wick filling the opening of the reservoir and preventing loss of the liquid by evaporation, enables the apparatus to be used with the minimum consumption of the liquid and more economically than cigar-lighting devices in which the liquid is held in open wells or cavities.

The electro-magnet *b* in the base, besides serving as a motor to operate the cutting devices, also serves as a spark-coil, so that the expense of the apparatus is not materially greater with the cigar cutting and advertising attachment than it would be without, since if the said attachment were not present a spark-coil would necessarily be employed to insure the production of a spark when the circuit is broken. The electro-magnet as employed by me makes a spark-coil unnecessary.

I claim—

1. A lamp comprising a reservoir and a wick having one or more conductors of electricity projecting from the reservoir, combined with a battery, a terminal or electrode independent of the lamp, and connections between said battery and the wick and terminal, whereby when the wick and terminal are brought in contact an electric circuit is closed, and when they are separated a wick-igniting spark is formed, as set forth.

2. The combination of a liquid-fuel holder or wick having one or more conductors of electricity, a fixed terminal or electrode, a battery, connections between the battery and the wick and electrode, whereby an electric circuit is completed when the wick and electrode are in contact with each other and broken when they are separated, an electro-magnet included in said circuit, said magnet having an armature, a cigar-cutter, and connections between said cutter and the armature, whereby the cutter is moved when the circuit is closed, as set forth.

3. The combination of the electro-magnet, the wall or casing having a cigar-receiving orifice, the rotary cutter-wheel beside said wall and having a series of eccentric blades arranged to move across said orifice, the pivoted armature and devices operated by said armature, whereby the wheel is given a partial rotation by each movement of the armature toward the poles of the magnet, as set forth.

4. The combination of the rotary cutter-

wheel having a series of blades, the casing containing said wheel and provided with an aperture arranged to display a portion of the side of the wheel, and the electro-magnet and wheel-rotating devices actuated thereby, as set forth.

5. The combination of the metallic supporting-figure, the insulating tube or sheath bearing thereon, the conducting-wire passing through said sheath and having an electrode projecting above the same, the wick or liquid-fuel holder having one or more conductors of electricity, a battery, one pole of which is connected with said conducting-wire, and a flexible connection between the other pole of the battery and the wick, as set forth.

6. The combination, with the base or casing having the display-opening *v* and cigar-receiving hole *s*, of the wheel in said casing arranged, as described, relatively to said openings, the pinion on the shaft of the wheel, the latch having the tooth *n* and detent *o*, arranged, respectively, to rotate the wheel for-

ward and to retain it in its proper position at the end of each movement, and the electro-magnet and armature adapted to reciprocate said latch, as set forth.

7. In a cigar lighting and cutting apparatus, the combination of a liquid-fuel holder or wick having one or more conductors of electricity, a terminal or electrode, a battery-circuit, connections between the battery and the wick and electrode, an electro-magnet included in the circuit, and cutting devices actuated by said magnet, the latter serving both as a motor and as a spark-coil, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 29th day of March, A. D. 1890.

ROBT. GRAHAM.

Witnesses:

CARRIE S. GRAHAM,
C. F. BROWN.