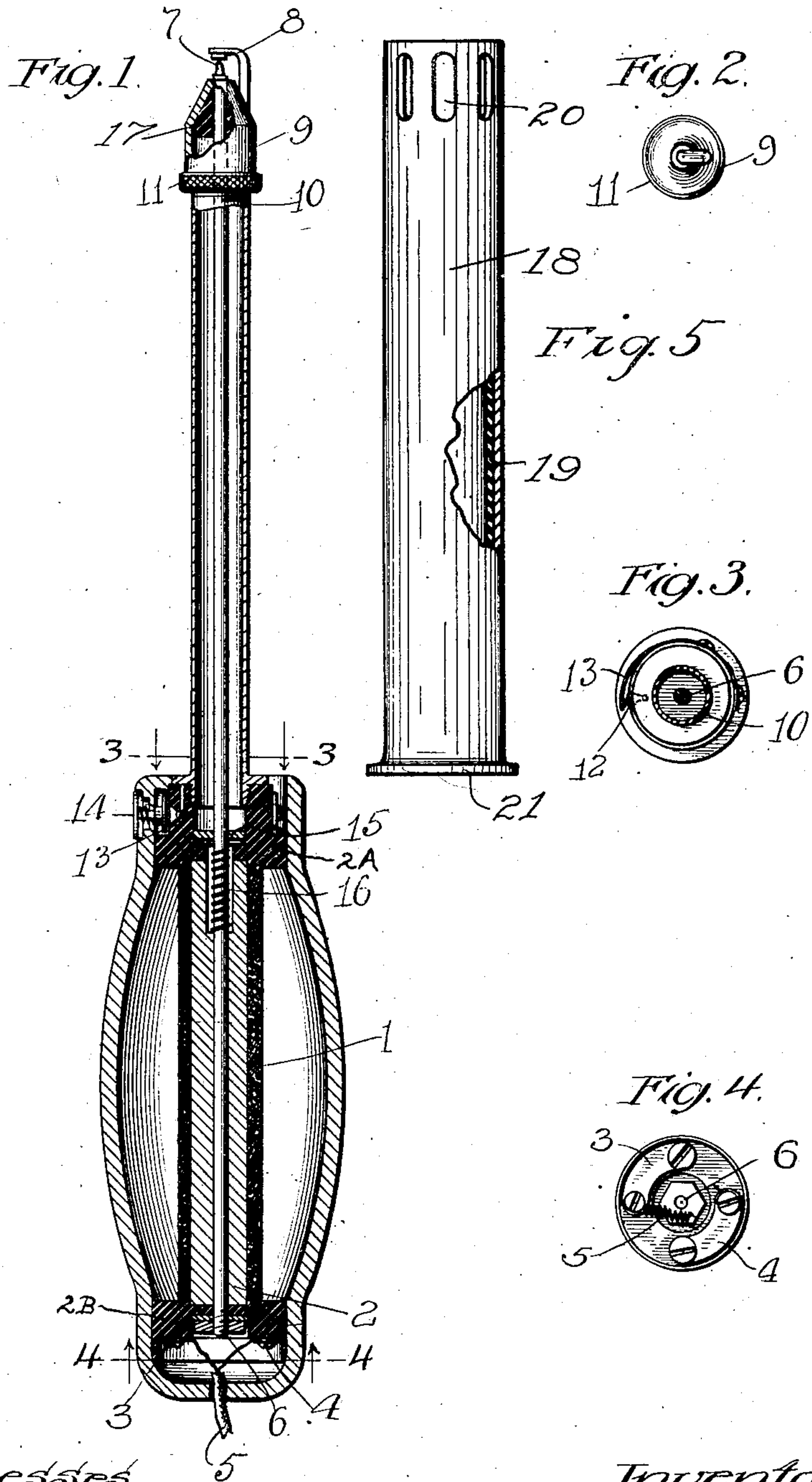


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ELECTRIC LIGHTER:  
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951,159.

Patented Mar. 8, 1910.



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# UNITED STATES PATENT OFFICE.

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ELECTRIC LIGHTER.

951,159.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed July 22, 1909. Serial No. 508,976.

*To all whom it may concern:*

Be it known that I, WILLIAM VOLTZ, a citizen of the United States of America, and a resident of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Electric Lighters, of which the following is a specification.

The main objects of this invention are to provide an improved form of electric lighter adapted to be attached to existing house circuits; to provide improved mechanism for making and breaking the electric circuit; to provide an improved construction of the contact points and means of alinement and adjustment of the moving parts; and to provide improved means for securing the operating mechanism within the casing.

A specific construction embodying this invention is illustrated in the accompanying drawing, in which:

Figure 1 is a sectional view, partly broken away. Fig. 2 is an end elevation of the igniting tip. Fig. 3 is a section on the line 3—3 of Fig. 1, showing details of the operating switch, the outer casing or shell of the handle and the push button being removed. Fig. 4 is a sectional view on the line 4—4 of Fig. 1, showing the terminal blocks, the casing being removed. Fig. 5 shows an insulating hood which will be fastened over the parts projecting from the handle when the device is used with an alternating current.

In the construction shown, the magnet coil 1 is wound on a spool, comprising the core 2 of the magnet and heads 2<sup>A</sup> and 2<sup>B</sup> of insulating material mounted on the ends of the core 2, and is arranged for cord connection with alternating current or direct current house mains, or with a battery, through the terminal blocks 3 and 4. The operating current is led into the coil 1 from the terminal block 3 through a flexible conductor 5 to the bottom end of the non-magnetic rod 6. The extension of the rod 6 is provided with a preferably non-corroding metal tip 7. The end of the rod engages the fixed contact 8 which is located on the metal cap 9. The adjustment of the position of the contact 8 is made by turning the cap 9 on the threads of the neck 10. The cap and fixed contact point is secured in position after adjustment by means of a lock nut, 11. The current passes from the metal tip 7 through the contact 8 to the body of the neck 10. The neck 10 is screwed into the upper head of the head

2<sup>B</sup> of the magnet spool, making metallic contact with the button 12. A spring contact 13 engages an operating switch button 14. The spring contact 13 is also in electrical connection with the upper end of the magnet coil 1, the lower end of the magnet coil 1 being connected to the terminal block 4. A magnetic disk 15 is secured to the rod 6 near one end of the magnet coil, and a restoring spring 16 normally urges the rod to make contact between the points 7 and 8.

In operation, the device is connected to the house mains or to a battery, and the main circuit is closed through the coil 1 by pressing the switch button 14 which is conveniently placed upon the handle. The current passing through the coil actuates the armature disk 15. The armature disk is suspended on the non-magnetic rod 6 near the end of the magnet core. The normal movement of the armature breaks the circuit between the contacts 7 and 8, producing an igniting spark.

One function of the coil 1 is that the self-induction of the coil tends to increase the igniting effect of the spark at the break. After the contact is broken, the rod is returned to the position of contact by the action of the restoring spring 16. If the switch button has not been released, the armature will repeat the make-and-break action in rapid succession, producing at each make and break an igniting spark. The non-magnetic rod 6 is kept in alinement by guides consisting of centered apertures in the heads 2<sup>A</sup> and 2<sup>B</sup> of the magnet spool and in an insulating plug 17 located in the cap.

Although but one specific embodiment of this invention is herein shown, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention.

The device shown in Fig. 1, and hereinbefore described, is suitable for use with a direct current. When used with an alternating current, in order to prevent grounding of the current, the neck 10 and the lighting contacts, 7 and 8, will be covered and protected by a tube or sleeve, 18. This may be lined with insulation 19, or may be of suitable size so as to leave considerable space between it and the neck 10. When used for the alternating current, the neck 10 and cap 9 will both be made of considerably smaller diameter in proportion to the other parts



than is shown in Fig. 1. The cap 18 is preferably open at the top, and provided with perforations 20, to permit free access of gas when the device is used as a gas lighter. 5 The flange 21 provides for securing the cap to the handle.

I claim:

1. In an electric lighter, the combination of a handle containing an electromagnet coil and provided with a lighting tip contact, means for connecting said coil to a source of energy, a non-magnetic rod centered in said coil and extending to the lighting tip contact, an armature secured to said rod, and 15 means for restoring the contact when broken by the action of the armature.

2. An electric lighter, comprising a handle containing an electromagnet coil and having a reduced neck provided with a lighting tip contact, means for connecting said coil to a source of energy, a rod centered in end guides in said coil and extending through said reduced neck to the lighting tip contact, an armature secured to said rod, and means 25 for restoring the contact when broken by the action of the armature.

3. An electric lighter, comprising a handle containing an electromagnet coil, a switch on said handle, means for connecting said coil to a source of energy, an adjustable cap with a contact tip, a rod centered in end guides in said coil and extending to said cap tip, an armature secured to said rod, and means for restoring the contact when broken 35 by the action of the armature.

4. In an electric lighter, the combination of a handle containing an electromagnet coil, and provided with a lighting tip contact, means for connecting said coil to a source of energy, an armature having movement longitudinally of the handle, a contact tip on the armature, and means for restoring the contact between said tips when broken by the armature. 40

5. In an electric lighter, the combination of a handle containing an electromagnet coil, and provided with a lighting tip contact, longitudinally adjusted thereon, means for connecting said coil to a source of energy, a non-magnetic rod centered in said coil and extending to the lighting tip contact, an armature secured to said rod, and means for restoring the contact when broken by the action of the armature. 45 50

6. In an electric lighter, the combination of a handle containing an electromagnet coil, and provided with a lighting tip contact, means for connecting said coil to a source of energy, an armature having movement longitudinally of the handle, a rod extending from the armature to the contact tip on the handle and provided with a contact tip, and means for restoring contact between said tips when broken by the armature. 55 60

Signed at Chicago this 20th day of July 1909. 65

WILLIAM VOLTZ.

Witnesses:

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