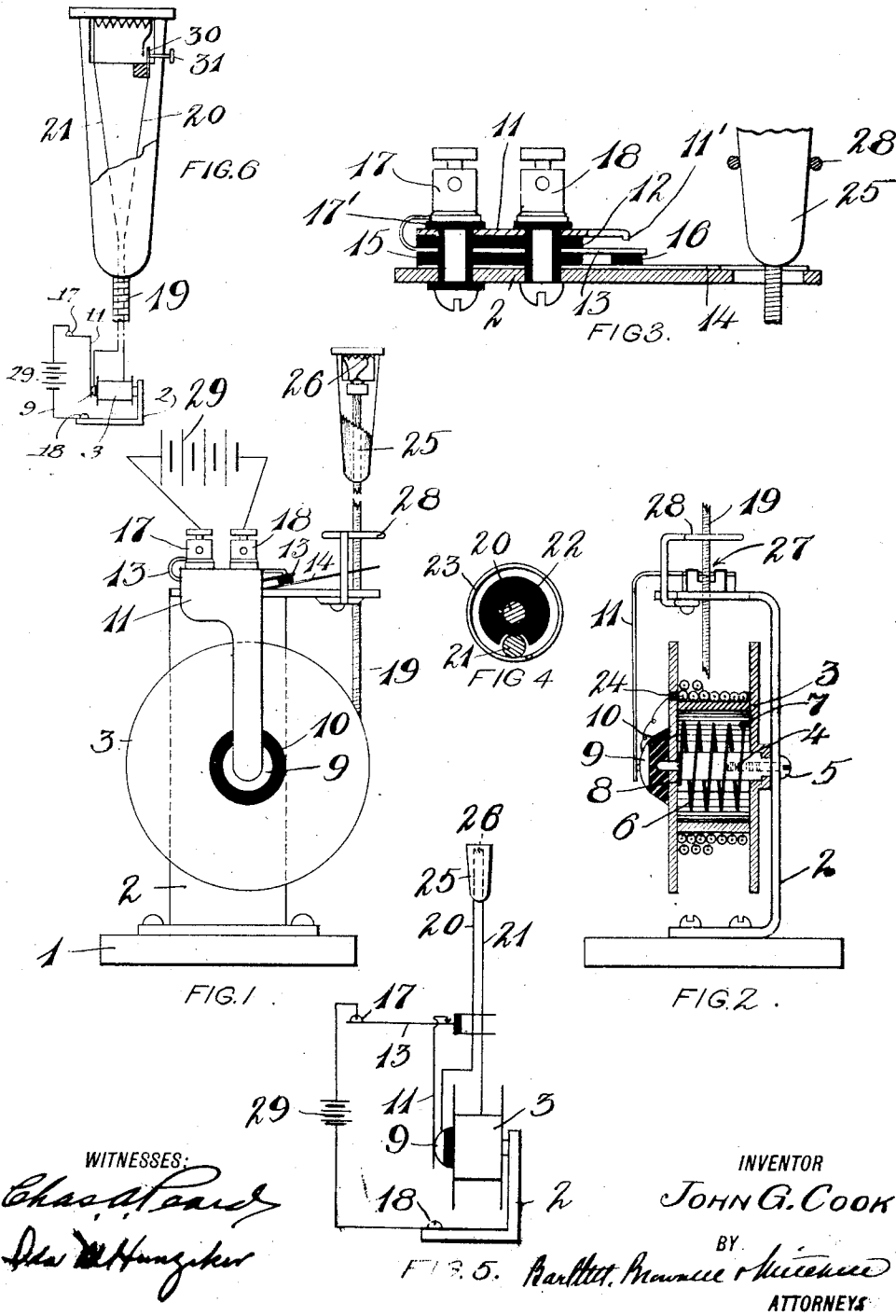


J. G. COOK.
ELECTRIC IGNITER.
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JOHN G. COOK, OF BROOKLYN, NEW YORK.

ELECTRIC IGNITER.

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To all whom it may concern:

Be it known that I, JOHN G. COOK, a citizen of the United States, residing at Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Electric Igniters, of which the following is a full, clear, and exact description.

My invention relates to improvements in electric igniters, and has for its object to provide an igniter in which a resistance at the end of an automatically reeling cable is heated for the purpose of igniting or burning, and is automatically cut out of circuit when the cable is released.

An object of my invention, in its preferred form, is to provide an igniter which is connected to the circuit through a reel on which a cable containing the conductors is automatically wound by a spring, and in which the circuit will be automatically closed when the cable is unreeled, as well as automatically opened when the cable is released.

The following is a description of an embodiment of my invention, reference being had to the accompanying drawings, in which—

Figure 1 shows in side elevation a cigar lighter embodying my invention. Fig. 2 shows the same partly in end elevation and with the reel in section. Fig. 3 shows a detail of the automatic circuit controller of Fig. 1. Fig. 4 shows an enlarged detail of the cable leading to the igniter glowler. Fig. 5 is a diagram of circuits. Fig. 6 shows a modification partly in diagram.

Referring more particularly to the drawings, 1 is a base, 2 is a metallic standard connected thereto, 3 is a reel mounted on a bearing 4 secured to the standard 2 by the screw 5.

6 is the winding spring connected to the reel at 7 and to the bearing at 8. This spring, while conventionally shown, may be of any ordinary form suitable for causing the reel to revolve.

9 is a contact mounted on the reel and separated therefrom by insulation 10. A brush 11 secured to the upper end of the frame makes contact with this contact 9 so as to maintain an electrical connection therewith as the reel is revolved. The upper portion of the brush 11 is provided with a contact point 11'.

When it is desired to automatically control the circuit through the cable hereinafter referred to, I provide below this contact point and separated from the brush 11 by insulation 12, a metallic spring 13. Below the spring 13 is a second spring arm 14 separated from the body of the spring 13 by insulation 15, and also separated from the other end of the spring 13 by insulation 16. The spring 14 tends to rise into the position shown in Fig. 1. The spring 13 is so related to the arm 14 that it follows the movements of the arm 14, so as to be moved into and out of engagement with the contact 12 as the arm 14 moves up and down. The springs 13 and 14 constitute a contact which tends to make engagement with the surface 11'. 14 being an arm for controlling the spring 13, the effect is the same as though the spring 13 itself normally tended to make contact with the surface 11' and had an actuating arm rigidly connected thereto but insulated therefrom, as shown in the diagram, Fig. 5. The spring 13 is connected to the binding post 17, which is insulated from the frame 2 and the plates 11 and 14. A second binding post 18 is provided, which is electrically connected with the frame 2, but is insulated from the plates 11 and 13.

Wound upon the reel 3 is a cable 19, having two flexible conductors 20 and 21 separated from one another by insulation 22. The outer surface of the cable is provided with a metallic helix 23, which preferably, although not necessarily, is in electrical contact with the flexible conductor 21 so as to reduce the resistance of the circuit formed by the conductors of the cable to a minimum. One end of the conductor 20 passes through an insulating bushing 24 in the side of the reel 3, and is connected to the contact 9. The corresponding end of the conductor 21 is electrically connected to the body of the reel 3. The reel 3, together with the bearing 4 and frame 2, being of metal, the end of the conductor 21, which is connected to the reel, is thus electrically connected with the binding post 18, while the end of the conductor 20, which is connected to the insulated brush 11, so that when the spring 13 is moved into engagement with the contact 11', the end of the conductor 20, which is connected with the contact 9, will

be electrically connected to the binding post 17. At the outer end of the cable 19 a resistance carrier 25, insulated from the conductor 20, is provided, within which the ends of the conductors 20 and 21 are connected to a resistance 26, this resistance being any suitable form of electric glower used for cigar lighters, such, for instance, as a small coil of high resistance platinum wire.

The outer end of the spring 14 is provided with a notch or opening 27, and above this opening is provided a circular guide 28, which, when the spring 6 winds the cable upon the reel, guides the carrier 25, which forms a shoulder adjacent to the outer end of the cable, so that its lower end engages the outer end of the spring 14 and forces it into the position shown in Fig. 3.

Fig. 5 shows a diagram of circuits. Referring to this diagram and also to the other figures, it will be seen that the carrier 25 may, on account of its flexible cable, be carried from point to point within a radius of several feet, and that whenever it is moved so as to unwind the cable, the spring 13 is brought into engagement with the contact 11', so that a circuit is formed from the battery 29 connected to the binding post 17 through the spring 13, brush 11, contact 9, conductor 20, resistance 26, conductor 21, reel 3, support 2, to binding post 18, and back to battery 29. The parts of this circuit, with the exception of the resistance 26, being of low resistance, the battery current is sufficient to heat the resistance 26 to an igniting heat. When the carrier 25 is released, the cable passing through the guide 28 is automatically wound upon the reel 3 by the spring 6 until the carrier 25 passes partially through the guide 28 and engages the outer end of the spring 14, forcing it downward so as to permit the contact 13 to separate from the contact 11', thus automatically opening the battery circuit. The mere movement of the carrier necessary for lighting, therefore, automatically completes the circuit, and upon the release of the carrier the circuit is automatically interrupted by the action of the winding spring through the cable 19, the cable at the same time being wound up so as to be stored in very compact form.

In a modified form, a normally open switch 30 is provided in the carrier, having contacts forced into engagement by a push-button 31, in which case the brush 11 may be permanently connected to the binding post 17 in any suitable manner, as shown in Fig. 6 where the control of the circuit is effected entirely through the switch 30. In this construction, also, the circuit is automatically opened when the cable is manually released.

While the embodiment shown in Figs. 1 to 5 is the preferred embodiment of my in-

vention, it will be evident to those skilled in the art that various modifications can be made without departing from the spirit of my invention or the scope of the appended claims.

What I claim is:

1. In an igniting apparatus, the combination of a reel, a support therefor, a cable having two flexible conductors and adapted to be spring wound on said reel, a spring tending to wind said cable on said reel, a resistance at the end of said cable in series with said conductors, contacts in series with said cable for controlling said contacts so that said circuit will be automatically opened when said cable is manually released.

2. In an igniting apparatus, the combination of a reel, a support therefor, a cable having two flexible conductors and adapted to be wound on said reel, a spring tending to wind said cable on said reel, a resistance at the end of said cable in series with said conductors, contacts in series with said resistance, and means carried by said cable and actuated by said spring so as to open said contacts when said cable is wound upon said reel.

3. In an igniting apparatus, the combination of a reel, a support therefor, a cable having two flexible conductors and adapted to be wound on said reel, a spring tending to wind said cable on said reel, a resistance at the free end of said cable in series with said conductors, a carrier for said resistance, contacts in series with said conductors, said contacts normally tending to engage one another, said spring acting through said cable and carrier to separate said contacts when said cable is fully wound upon said reel.

4. In an igniting apparatus, the combination of a reel, a support therefor, a cable having two flexible conductors adapted to be wound upon said reel, one of said conductors being electrically connected to said reel and through it with its support, and the other conductor being connected to an insulated contact carried by said reel, a resistance at the end of said cable in series with said conductors, a brush engaging said contact, a controlling contact electrically connected to said brush, a second controlling contact, and binding posts electrically connected with said reel and said second controlling contact respectively, said controlling contacts normally tending to engage one another and means actuated by said spring through said cable for disconnecting said controlling contacts.

5. In an igniting apparatus, the combination of a reel, a support therefor, a cable having two flexible conductors and adapted to be wound on said reel, a spring tending to wind said cable on said reel, a resistance at the end of said cable in series with said con-

ductors, contacts in series with said resistance and controlled by said spring through said cable so as to be opened when said cable is wound upon said reel, one of said contacts having an actuating arm and said cable having a shoulder near its outer end acting on said cable, and means for guiding

said shoulder into operative relation with said actuating arm.

JOHN G. COOK.

Witnesses:

E. E. MORSE,
L. S. JAMES.