Feb. 15, 1927. 1,617,344

J. R. O'NEIL

ELECTRIC CIGAR LIGHTER

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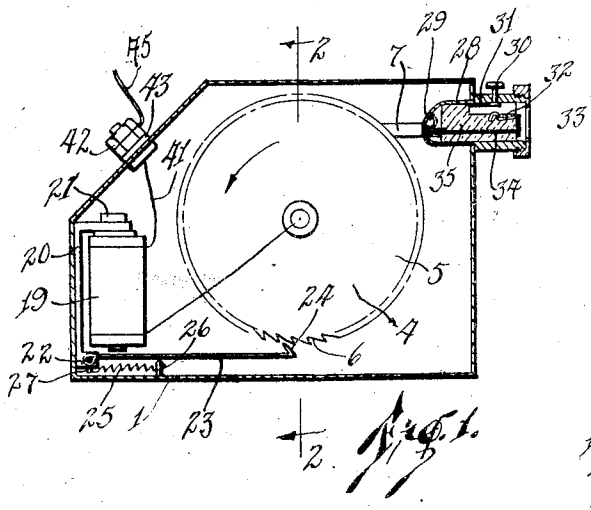


Fig. 1.

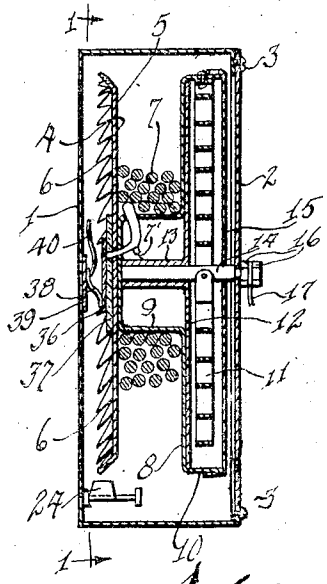


Fig. 2.

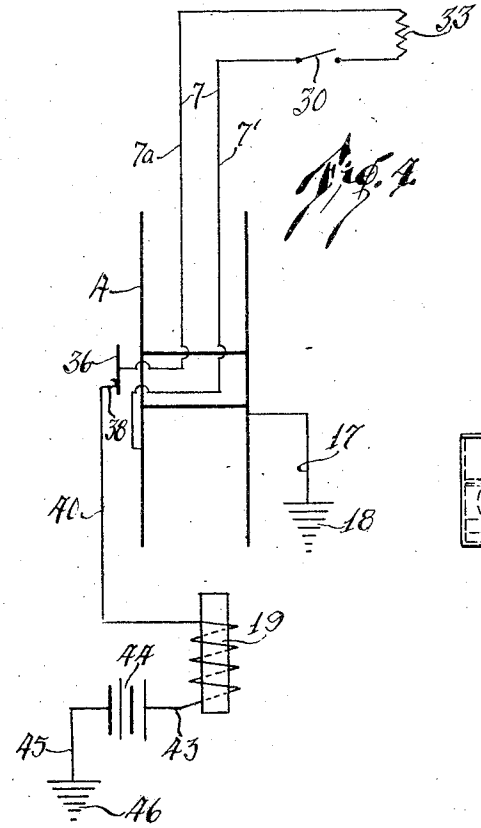


Fig. 4.

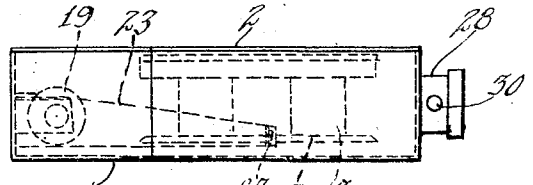


Fig. 3.

INVENTOR

J. R. O'Neil

BY Munn & Co

ATTORNEYS

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UNITED STATES PATENT OFFICE.

JAMES R. O'NEIL, OF CHICAGO, ILLINOIS.

ELECTRIC CIGAR LIGHTER.

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My invention relates to improvements in electric cigar lighters, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide an electric cigar lighter which makes use of novel means for locking the reel from winding the cable thereupon after the cable has been unwound from the reel during use, whereby the strain upon the cable is relieved.

A further object of my invention is to provide a device of the type described in which the reel-locking means is released when the cable is slightly pulled and then released, this movement being very similar to the releasing of a window shade to permit it to wind up upon the roller.

A further object of my invention is to provide a device of the type described in which the reel-locking means is energized by the current in the circuit that energizes the heating element, this circuit being controlled by a push button.

A further object of my invention is to provide a device of the type described which is simple in construction, durable and efficient for the purpose intended.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a section along the line 1—1 of Figure 2.

Figure 2 is a section along the line 2—2 of Figure 1.

Figure 3 is a top plan view of the device, and

Figure 4 is a wiring diagram of the device.

In carrying out my invention, I provide a casing 1 having a cover 2, this cover being secured to the casing 1 by means of screws 3, or other like fastening means. In the casing, I mount a reel 4. This reel has a side 5 provided with ratchet teeth 6 of the shape shown in Figures 1 and 2. It will be noted from Figure 2 that the teeth are bent at an angle. This construction prevents the teeth from striking the cable 7 and fraying the latter.

The other side 8 of the reel 4 is fashioned with a hub portion 9 and with a flange 10, the flange 10 and the side 8 forming a recess for receiving a coil spring 11. A partition 12 is disposed adjacent to the side 8 and carries a sleeve 13 in which a shaft 14 is disposed. One end of the spring 11 is connected to the shaft 14, while the other end is connected to the flange 10, see Figure 2. The spring is coiled in a manner to create a tension for rotating the reel in the direction of the arrow shown in Figure 1.

The shaft 14 is passed through a cover plate 15 and also through the cover 2. Lock nuts 16 rigidly secure the shaft 14 to the cover 2 and prevent rotation of the shaft 14 with respect to the cover. The lock nuts 16 also provide one of the terminals from which a wire 17 leads. This wire is grounded to the chassis of the automobile, as indicated at 18 in Figure 4.

The cover plate 15 and the sides 5 and 8 rotate upon the shaft 14, and due to the action of the spring 11 are adapted to wind the cable 7 upon the reel 4. I will now describe the novel means for locking the reel against return movement.

This means is clearly shown in Figures 1 and 3. In Figure 1, I show a magnet 19 which is carried by a bracket 20, this bracket being secured to the casing 1. The bracket is secured to one end of the magnet by a nut 21 and has its other end disposed adjacent to the opposite end of the magnet whereby the bracket acts as a path for the magnetic flux. The bracket 20 carries a pin 22 upon which a pawl 23 is pivotally secured. The pawl has a tooth portion for engaging with the ratchet teeth 6. The shape of the teeth 6 and the inclination of the tooth 24 causes the pawl 23 to remain in engagement with the teeth 6 until the cable 7 is given a slight pull to permit the pawl to drop free of the teeth. When the magnet 19 is energized, it will draw the pawl 23 toward it, thus causing the tooth 24 to engage with the ratchet teeth 6. The pawl 23 is moved into disengagement by means of a compression spring 25. The spring bears against a lug 26 struck up from the casing 1 and against the end 27 of the pawl 23.

I will now describe the heating element. As shown in Figure 1, the cable 7 passes into a casing 28 and one of the wires of the cable is grounded to the casing at 29. A push button 30 is adapted to move a spring terminal 31 into contact with a stationary terminal 32. The terminal 32 is connected to

the heating element 33, which in the present instance, is in the shape of a coil, the other end 34 of the coil passing through a fiber cylinder 35 and being connected to the second wire in the cable 7 and insulated from the casing 28. It is obvious that any type of heating element other than that specifically described may be employed in the device without departing from the spirit and scope of the invention. The principal object is to provide a heating element which may be controlled by a push button.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. In Figure 4, I show a wiring diagram of the circuit. It will be noted that one of the wires in the cable 7 is grounded to the reel 4, whereby the wire 17 is electrically connected to the wire 7'. In Figure 2, I show how the wire 7' is grounded to the sleeve 13.

When the switch 30 is closed, the wire 7' is connected to the wire 7ª, the current passing from the wire 7' through the heating element 33 and then through the wire 7ª. In Figure 4, I show the wire 7ª grounded to a terminal plate 36. Figure 2 also shows the wire as being grounded to the terminal plate 36. The plate is insulated from the reel 4 by means of a fiber disc 37. In Figure 2, I show a spring contact 38 as bearing against the disc 36 and as being secured to a fiber disc 39, the fiber disc 39 in turn being secured to the casing 1. A wire 40 leads from the spring contact 38 to the magnet 19. From the magnet 19, a wire 41 leads to an insulated terminal 42. From this point, a wire 43 electrically connects the magnet 19 with a source of current 44, preferably the storage battery of the automobile. The other terminal of the source of current 44 is connected by a wire 45 to the chassis of the car, which is shown as ground 46.

When now the operator wishes to use the device, he grasps the casing 28 and pulls upon the casing, thus unwinding the cable 7 from the reel 4. Upon depressing the push button 30, the circuit is closed through the heating element 33 and through the magnet 19 in the manner heretofore described. This causes the pawl 23 to lock the reel against return movement, whereby the cable 7 may be held slack without any danger of having the reel wind the cable thereupon. It will be obvious that the casing 28 may be passed from person to person in the car if desired, the push button 30 being actuated each time it is desired to cause the current to flow through the heating element 33. When through, it is merely necessary to give a slight pull upon the cable 7, whereupon the compression spring 25 will swing the pawl 23 out of engagement with the teeth 6, and the coil spring 11 will quickly wind the cable 7 upon the reel 4. The device is extremely simple in construction and provides novel means for relieving the strain upon the cable 7 when the device is in use.

I claim:

1. An electric cigar lighter comprising a casing, a reel mounted in said casing, a cable adapted to be mounted upon said reel, a heating element carried by said cable, ratchet teeth cut in said reel, an electrically-controlled pawl for locking said reel against return movement, and a switch for closing a circuit connected with said heating element and with said electrically-controlled pawl.

2. In a device of the type described, a spring-actuated reel having ratchet teeth therein, an electrically-controlled pawl for locking the reel against return movement, a cable adapted to be wound upon said reel, a heating element carried by said cable, and a switch for electrically connecting said heating element and said electrically controlled pawl with a source of current.

3. A device of the type described comprising a casing, a reel rotatably mounted in said casing and having ratchet teeth, a magnet mounted in said casing, a pawl adapted to be swung into engagement with said ratchet teeth when said magnet is energized, the ratchet teeth and said pawl being shaped for causing the pawl to remain in engagement with said ratchet teeth until the reel is moved, spring means for returning the pawl into inoperative position, a cable adapted to be wound upon said reel, a heating element carried by said cable, and a switch carried by said cable for electrically connecting said heating element and said magnet with a source of current.

JAMES R. O'NEIL.