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PATENTED DEC. 17, 1907.

J. DICKENS.
ELECTRIC GAS LIGHTER.
APPLICATION FILED APR. 2, 1907.

2 SHEETS—SHEET 1.

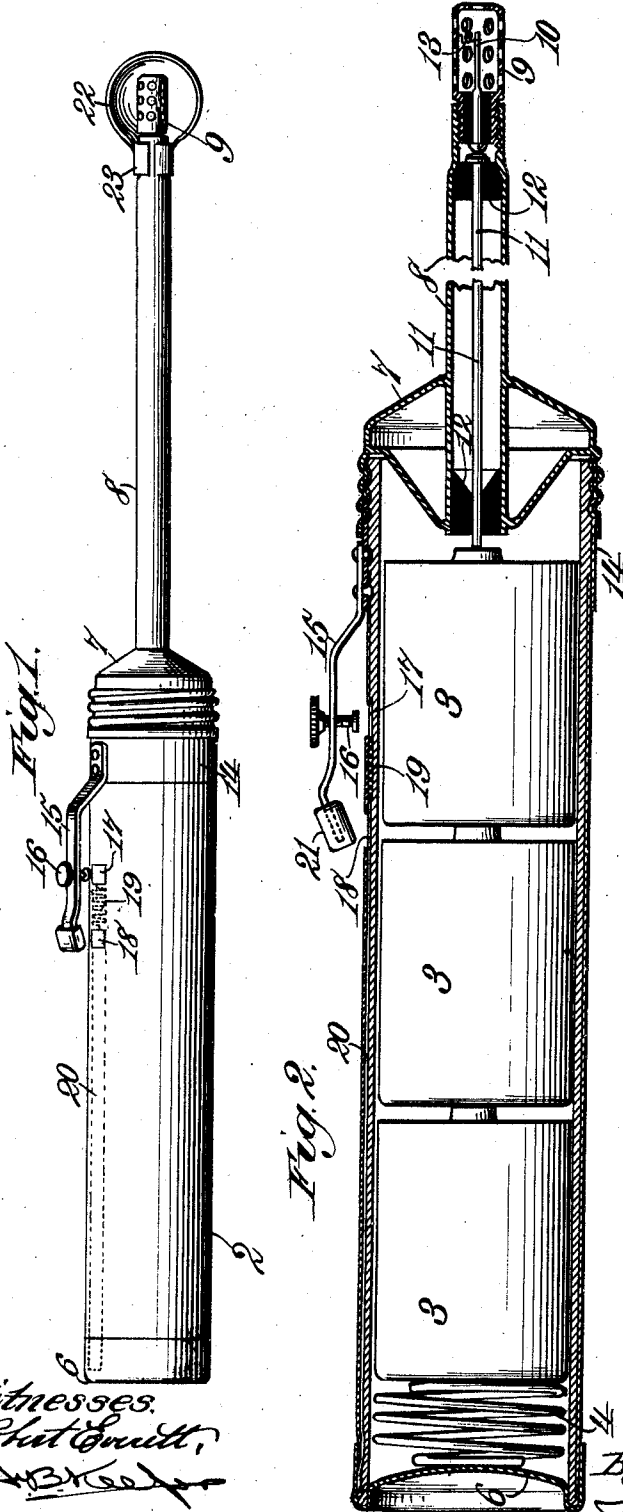


Fig. 4.

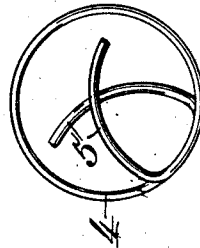
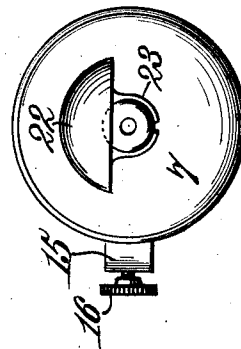


Fig. 3.

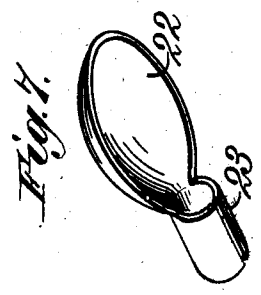
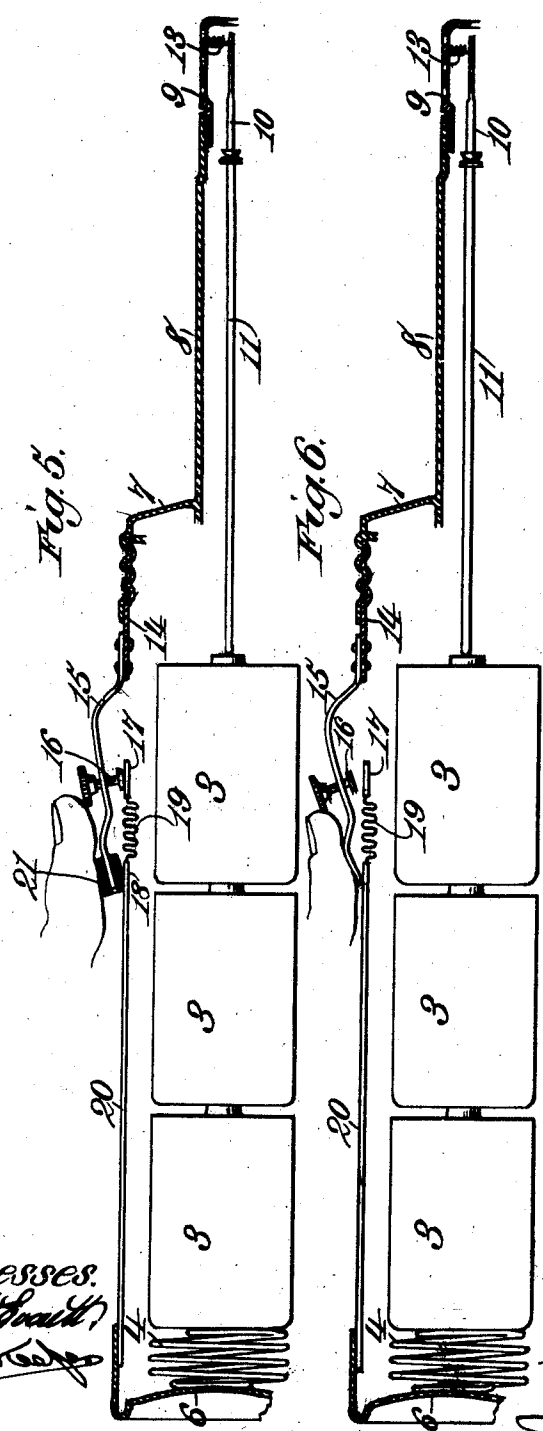


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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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ELECTRIC GAS-LIGHTER.

No. 874,357.

Specification of Letters Patent.

Patented Dec. 17, 1907.

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To all whom it may concern:

Be it known that I, JOHN DICKENS, a citizen of the United States, residing at Passaic, in the county of Passaic and State of New Jersey, have invented new and useful Improvements in Electric Gas-Lighters, of which the following is a specification.

This invention relates to what I shall for convenience term an electric gas lighter as this is the use to which the device is primarily put. It may, however, be employed with utility in other connections.

The article is simple in construction and light, by reason of which it is portable and can be utilized in lieu of matches or other means for igniting gas and the like. It includes a platinum or equivalent body which, when a circuit including the same is closed, is caused to glow or incandesce to obtain the desired object. The circuit includes a generator and a resistance for regulating the strength of the current, and this resistance is of advantage when a dry battery of one or more cells is employed. When the battery is fresh or new its strength may be sufficient to burn out said platinum body. To avoid this possibility I introduce into the circuit the resistance which reduces the pressure to such an extent as to prevent injury to said platinum body. In use the battery, of course, is weakened so that when its strength is not sufficient to cause the platinum body to incandesce I cut out the resistance and secure the same result as before, namely, the incandescing of the platinum body. From this it will be evident that the life of the device is very much longer than would be possible without this relation.

In the drawings accompanying and forming part of this specification I show in detail one advantageous form of embodiment of the invention which, to enable those skilled in the art to practice the same, will be hereinafter fully described, while the novelty of said invention will be included in the claims succeeding said description.

Referring to said drawings: Figure 1 is a diagrammatic elevation of an electric gas lighter involving my invention. Fig. 2 is a longitudinal central sectional view of the same. Fig. 3 is a top plan view of the device. Fig. 4 is a like view of a supporting spring. Fig. 5 is a diagrammatic view of a portion of the device showing the resistance in use. Fig. 6 is a like view with the resistance cut out.

Fig. 7 is a detail view in perspective of a hood.

The figures, as will be clear, are on different scales, for instance, the scale of Fig. 2 is larger than that of Fig. 1, while Figs. 5 and 6 are on a different scale than the other figures.

Like characters refer to like parts throughout the several figures.

The device preferably includes in its make-up a hollow or tubular body as 2 which may be made of any suitable material such as straw-board, paper, or the like ordinarily covered with some fabric. This tubular body 2 constitutes in the present case a handle for the ready manipulation of the instrument, and it incases a suitable generator such as a battery consisting of several dry cells. While I may employ any desired number of cells, I prefer to employ three each being denoted by 3 as they are of similar construction. The cells 3 are suitably superimposed and the lowest one is preferably mounted upon a spring as 4 of coil-form, the terminal whirls of which are transversely offset as at 5, the upper offset portion 5 making electrical contact with the base of the lowermost cell, while the lower offset 5 makes electrical contact with the convexed upper surface of the thimble 6, which closes the lower end of the said tubular body 2 and which is of some conducting material such as sheet metal. This thimble or base cap 6 can be connected with the tubular body 2 in any desirable way. By offsetting the terminal whirls of the spring 4 I insure an effective electrical contact between the same and the lowest battery cell 3 and metal thimble 6. By convexing the upper surface of the latter I prevent the accumulation of foreign matter at the place where the spring and thimble contact so as to insure a proper connection therebetween.

The tubular body 2 is equipped with a removable metal cap or cover 7, which preferably has a threaded engagement with said body so that, by taking off the cap or cover, access can be had to the interior of the said body. The cap or cover 7 is shown as furnished with a tubular extension as 8 represented as provided with a removable perforated tip as 9 preferably in screw-threaded engagement with the tube 8 and in effect forming a part of the same. This tip 9 and tube 8 are of metal, the former inclosing the conducting member 10 while the latter in-

closes the conducting member 11, the two conducting members 10 and 11 being insulated from the tip and tube by insulating material designated in each case by 12.

5 The conducting member 10 contacts when the parts are assembled with the conducting member 11, and the latter in turn contacts with the upper pole of the uppermost cell 3 as indicated clearly in Fig. 2. There is

10 shown as connected with the upper end of the conducting member 10 a coil 13, the coil being also united electrically with the metal tip 9. It should be understood that the cap 7 fits a metallic band as 14 around the upper

15 end of the tubular body 2, and this band 14 is represented as carrying a switch as 15 which may consist of a spring arm riveted or otherwise suitably attached to said metallic band 14. The said switch or circuit-con-

20 troller 15 is shown as furnished with a contact member as 16 consisting of a screw tapped therethrough between the ends thereof and which screw serves to close the electric circuit involving the platinum coil 13

25 when the generator or battery of cells 3 is at its maximum strength, the inner end of the screw for this purpose engaging the contact 17. There is a second contact 18, the function of which will hereinafter be explained.

30 Between the contacts 17 and 18 and connected with each of them there is interposed a resistance 19. The contact 18 may consist simply of the upper end of the strip 20 extending longitudinally of the tubular body

35 2 and connected at its lower end electrically with the thimble 6. This strip 20, except the upper end thereof which presents the contact 18, may be covered by the external fabric of the tubular body 2. When the bat-

40 tery is fresh the resistance 19 should be in circuit, and, to prevent the free end of the switch or spring arm 15 engaging the contact 18 at this time, said free end may be provided with a removable sleeve as 21 of some

45 non-conducting material such as rubber or some suitable composition, for, although under some conditions the free end of said arm 15 should directly engage the contact 18, this is not the normal operation or that

50 which follows when the battery or generator is fresh or new.

The contact member 16, as will be obvious, is adjustable so that the switch arm 15 can be manipulated without carrying said con-

55 tact member 16 against the contact 17, this occurring when the resistance 19 is to be cut out or when the battery is weakened. When the battery is fresh, however, contact member 16 should engage the contact member 17.

60 In Figs. 2 and 5 the contact member or screw 16 is in all the way so that, when the spring arm 15 is pressed in, the inner flattened and enlarged end of the screw can strike the contact 17, thereby closing the circuit involving

65 the battery and the platinum member 13, by

reason of which the latter will be caused to glow. When the strength of the battery has been decreased or the pressure of the current reduced, it will not be possible to light the platinum member 13 when the resistance 19 70 is in the circuit, and in that case it is necessary to cut out the resistance, and I prefer also that at this time the contact member or screw 16 should not engage the contact 17. To obtain this result, therefore, the screw 16 75 is run out or turned in the direction it would be to unscrew it from the spring arm 15 or until the inner enlarged end of the screw is adjacent to the inner surface of the said spring arm, as clearly shown in Fig. 6. The 80 protective non-conducting piece 21 is also removed as shown in said Fig. 6, by reason of which, when the spring arm 15 is pressed in, the free end thereof will engage against the contact 18 or the upper end of the strip 20, 85 while the screw 16 will not engage the contact 17, the result being that the resistance 19 is cut out. The expedient just mentioned is utilized when the battery has been weakened by use. 90

The tip 9 preferably carries a hood 22 which may be furnished with a split collar 23 removably fitting said tip, and said hood confines sufficient gas therein to insure ignition thereof when the incandesced body 13 95 is brought in the range of such gas.

While I may use any desired number of battery cells, I prefer to use three, which are supposed to be initially each of ten amperes and one and one-half volts. While the vol- 100 tage multiplies with a plurality of cells, the amperage does not, so that with the three cells I have four and one-half volts. I therefore get an increased pressure at the start by utilizing three cells. I regulate the higher 105 pressure at the inception by the employment of a rheostat which reduces the pressure to such an extent that no injury can result to the platinum body. In use the batteries decrease in amperage and voltage. The de- 110 creased pressure, then is not sufficient to incandesce the platinum body so that, when this decrease is indicated, I cut out the resistance as in the manner indicated and can still cause the platinum body to glow. 115

What I claim is:

1. In an electric gas lighter, the combination of a hollow body, an electric circuit operatively associated with the body and including a resistance, an incandescible body 120 and a battery, the battery being inclosed by said hollow body, and means also associated with the body for closing the circuit with either the resistance in or out of the same.

2. In an electric gas lighter, the combina- 125 tion of a tubular body, an electric circuit associated with said body and including a resistance, an incandescible body, and a battery, the battery being inclosed by said tubular body, and a switch carried by the body 130

and having means for closing the circuit with either the resistance in or out of the same.

3. In an electric gas lighter, the combination of a tubular body, an electric circuit associated with said body and including a resistance, an incandescible body, and a battery, the battery being inclosed by said tubular body, and a spring switch connected with the body and provided with means for closing the circuit with either the resistance in or out of the same.

4. In an electric gas lighter, the combination of a hollow body, an electric circuit associated with said body and including a resistance, an incandescible body and a battery, the battery being inclosed by said hollow body, and a switch connected with the body exteriorly thereof and provided with a contact member adapted to close said circuit with the resistance therein, said contact member being adjustable to permit the switch to close the circuit without the use of said adjustable contact member and with said resistance cut out.

5. In an electric gas lighter, the combination of a hollow body, an electric circuit including a resistance, two contacts with which the resistance is connected, an incandescible body, and a battery, the battery being inclosed by said hollow body, and a switch supported exteriorly of the body and provided with an adjustable contact member for engaging one of said contacts to close the circuit with the resistance therein, the switch itself serving to engage the other contact to cut out the resistance, and the contact member being adjustable to carry it out of engagement with its cooperative contact member at will.

6. In an electric gas lighter, the combination of a tubular body, a battery in said tubular body, an incandescible member electrically connected with the battery, a switch electrically connected with the incandescible member, a contact, a resistance member connected with said contact, a strip extending longitudinally of the tubular body, electrically connected with the battery at one end and terminating in a contact at the other end elec-

trically connected with said resistance, and a screw constituting a contact member adjustably carried by said switch and adapted when in one adjustment to engage the first mentioned contact on the manipulation of the switch and, when in another adjustment, to not engage said first mentioned contact, the switch on said second adjustment being adapted to engage the second contact.

7. In an electric gas lighter, the combination of a tubular body, a battery in said tubular body, an incandescible member electrically connected with the battery, a switch consisting of a spring arm fastened to said tubular body exteriorly thereof and electrically connected with the incandescible member, a contact, a resistance member connected with said contact, a strip extending longitudinally of the tubular body, electrically connected with the battery at one end and terminating in a contact at the other end electrically connected with said resistance, and a screw constituting a contact member adjustably carried by said switch and adapted when in one adjustment to engage the first mentioned contact on the manipulation of the switch and, when in another adjustment, to not engage said first mentioned contact, the switch on said second adjustment being adapted to engage the second contact.

8. In an electric gas lighter, the combination of a tubular body provided with a metallic thimble constituting a base therefor, the upper side of the thimble being convexed, a battery in the tubular body, a spring between the battery and said thimble, the terminal whirls of the spring being laterally offset and making contact with the battery and thimble respectively, an incandescible body, and electrical connections between the battery and the incandescible body.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN DICKENS.

Witnesses:

JAMES BROWN,
WM. KERZ.