April 22, 1930. F. E. BEIDLER 1,755,385

COMBINATION ELECTRIC LIGHTING APPARATUS

Filed May 31, 1928

Fig. 1.

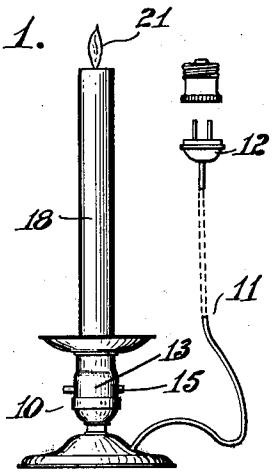


Fig. 2.

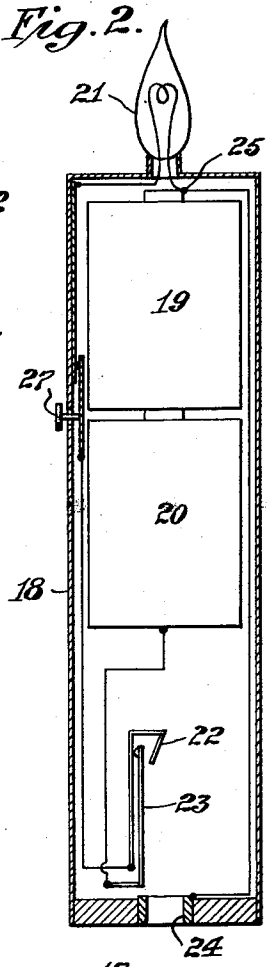


Fig. 5.

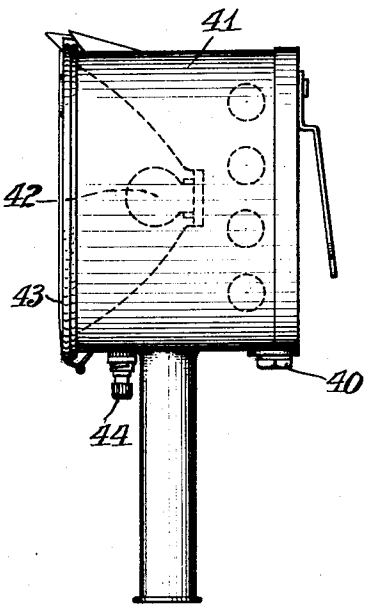


Fig. 4.

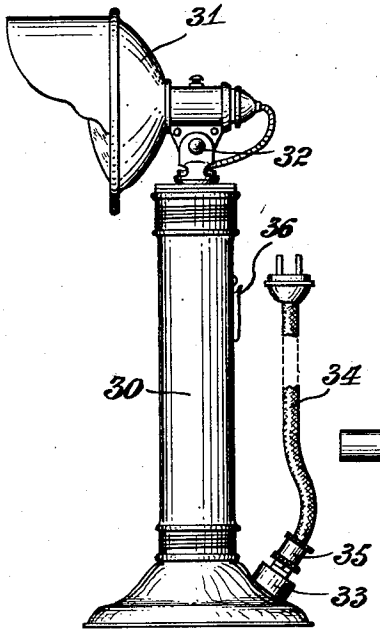


Fig. 3.

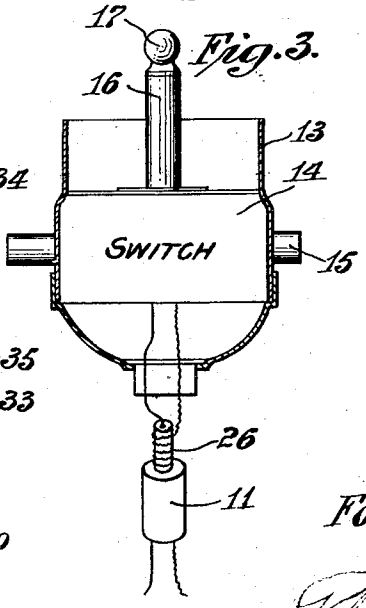


Fig. 6.

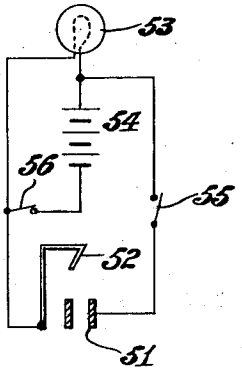
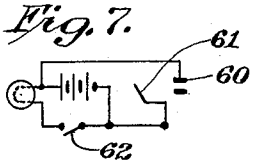


Fig. 7.



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Patented Apr. 22, 1930 1,755,385

UNITED STATES PATENT OFFICE

FORD E. BEIDLER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-THIRD TO SAMUEL ALSOP, ONE-THIRD TO CHARLES E. CROWLEY, AND ONE-THIRD TO FRANK E. CHESTER, ALL OF NEW YORK, N. Y.

COMBINATION ELECTRIC-LIGHTING APPARATUS

Application filed May 31, 1928. Serial No. 281,714.

The main object of my invention is to provide an electric lamp which can be lighted either from an ordinary house lighting system or from dry batteries or the like.

Another object is to provide a simple form of device in which the lamp is portable and will automatically be turned on when the lamp is picked up.

The invention is capable of embodiment in a number of different forms, three of which are illustrated herein.

Fig. 1 is a side view of what may be termed a table form with a removable candle and cable attachment.

Fig. 2 is a longitudinal sectional view on a larger scale showing the candle portion of the lamp with batteries and switches mounted within the casing.

Fig. 3 is a longitudinal sectional view of the lamp showing the switch mechanism with the connecting cable and contact plug.

Fig. 4 is a side view showing another form of standard type lamp with attaching cable.

Fig. 5 is a side view of another portable form of lamp without the cable attachment.

Fig. 6 is a diagram of a modified circuit arrangement.

Fig. 7 is a diagram of another circuit arrangement for the portable device.

Dry cells and semi-dry cells are commonly employed for flash lights and in some cases even for more prolonged lighting but the difficulty is that the batteries are relatively short lived unless made of such size as to be very cumbersome and expensive. For permanent lighting systems such as ordinary house, store lighting and farm or vehicle lighting systers, the current is provided at a much higher voltage but of course the lamps are stationary or only movable to a slight extent as distinguished from being portable. I have sought by my invention to combine the advantages of the two types of lighting. In the form shown in Fig. 1 the base 10 has a cable or cord attachment 11 with some convenient means such as the plug 12 for connecting it to a power line. This base carries a socket 13 with a suitable switch which may be mounted in the insulating body 14 and provided with an operating member 15. The plug has its contacts 16 and 17 connected to the switch and line.

The portable part of the lamp consists of the casing 18 containing a number of battery cells such as 19 and 20 and provided with a socket at the outer end for a lamp plug 21. The base of the casing is provided with two contact members 22 and 23 connected respectively to the filament of the lamp and to the bottom of the lower cell 20 so that when the switch is in the position shown in Fig. 2 the lamp is on or lighted. The base of the casing is also provided with a guide tube 24 which is electrically connected to the terminal 25 of the lamp bulb which is also electrically connected to the center pole of the battery 19. When the casing 18 is set down on to the plug of the socket 13, the tip contact 17 engages the inclined end of the spring contact 22 and breaks the circuit between 22 and 23 thus cutting out the batteries 19 and 20.

The continued downward movement of the lamp casing into the socket brings the ring 24 into contact with the tubular contact 16 and closes the circuit around the batteries thus lighting the lamp from the main instead of from the batteries.

In order to adjust the voltage to correspond with the approximate voltage of the batteries, I prefer to provide a resistance 26 which may be embodied as one of the conductors in the cord 11. This resistance will be designed to reduce the voltage to a safe amount and will of course be different for a 110 volt house line from what would be necessary for a 32 volt farm lighting system or the like.

A separate hand switch or push button 27 may be provided for opening the battery circuit if desired.

With such a construction the lamp may be lighted from the house lighting line at a minimum expense and may be turned off by the switch 15 whenever desired. As above mentioned the casing 18 is removable and readily portable. As soon as it is lifted from the socket the switch in the base of the casing automatically turns on the battery circuit and lights the lamp for as long a time as desired. It will thus be seen that most of the time the light will be furnished from the

power line and there will be only a slight demand on the dry cells when the lamp is being carried around. By embodying the necessary resistance in the flexible cord or cable, which is of considerable length, it is possible to dissipate the heat rapidly so that no part of the apparatus becomes sufficiently hot to be either uncomfortable or dangerous.

In the form of construction shown in Fig. 4 the batteries are mounted in the standard 30 and the lamp mounted in the reflector 31 which is hinged at 32 for convenience in adjusting the angle. In this case the automatic switch corresponding to contacts 22 and 23 is mounted in the base at 33. The conductor cable 34 carries the plug tip 35 with the contacts corresponding to 16 and 17, above described. This form may be provided with a hand switch 36 such as is commonly employed for flash lights.

The form shown in Fig. 5 is intended particularly to be employed with power boats. In this case the connecting cable or cord is not shown but the receptacle part 40 is adapted to receive the plug contacts. The casing 41 contains suitable batteries and the lamp 42. This may also be provided with a hinged front member 43 for protecting the lens and shutting off the light if desired. The switch 44 may control the lamp circuit.

Although this invention is primarily intended for use with what are commonly termed dry cells, it should be understood that rechargeable cells such as are sometimes termed "jelly" cells may be employed in which event the batteries might be left in circuit all the time so that they would be charged whenever the lamp was in its socket. Such an arrangement is illustrated diagrammatically in Fig. 6. The ring 51 in this case and contact 52 correspond with elements 24 and 22, respectively, in Fig. 2, and are adapted to be engaged by the tip and sleeve contacts of the plug. Contact 51 is connected to one terminal of the bulb 53 and contact 52 is connected to the other terminal of the bulb.

The battery 54 is connected between these two lines so that the lamp can be lighted by either source of power. Switch 55 may be provided in the main line and switch 56 may be provided in the battery line if desired, to control the respective circuits. By this arrangement the battery life can be prolonged.

In the arrangement of Fig. 7 the contacts 60 and 61 are intended to receive the sleeve and tip contacts of the plug. The switch 62 controls both the battery and the line circuits so that the light is controlled by the switch 62 as well as by the plug. In this case the light would go out when the portable device is separated from the plug unless the switch 62 is closed.

The form of construction illustrated in Figs. 2 and 3 obviously may be used on either A. C. or D. C.

The form illustrated in Fig. 6 can also be used on A. C. when the switch 56 is left open but obviously D. C. must be used when the batteries are to be charged. Care must be had to make the proper connections for D. C. installation by the use of a polarity indicator or other suitable means.

In case A. C. is the only available current it may be rectified so as to make it possible to charge the battery as well as light the lamp.

Such resistance as may be necessary to bring the line current down to a safe limit for the light may be embodied in the socket 13 or base of the lamp if desired. The line voltage may in some cases be stepped down by a transformer instead of the resistance. In some cases it may be possible to utilize a battery of the same voltage as the line so that neither extra resistance nor transformer will be needed.

I claim:

1. A combination electric lamp comprising a flexible cable having a plurality of high voltage conductors one of which is of high resistance, a pair of switch contacts electrically connected to said conductors, a portable construction comprising dry cells of low voltage and a lamp in combination with a normally closed switch with contacts adapted to be engaged by and detachably supported by said switch contacts whereby said switch is opened and said lamp is automatically included in said high voltage circuit.

2. A combination electric lamp comprising, a socket having stationary contacts, conductors connected to said contacts, and a portable detachable casing having lamp terminals, a battery and an automatic switch, one of the elements being adapted to open the automatic switch when the casing is applied to the socket, and means for connecting one of said contacts to a lamp terminal when the casing is attached to the socket.

3. An electric lamp comprising a portable self-contained unit, comprising a casing having a lamp included in a normally closed circuit, a support for said unit and means associated with said support whereby when the unit is positioned on said support the lamp of said unit is excluded from said first mentioned circuit and included in another circuit.

4. An electric lamp comprising a portable self-contained unit, a casing having a lamp included in a normally closed circuit, a support for said unit and means associated with said support whereby when the unit is positioned on said support the lamp of said unit is excluded from said first mentioned circuit and included in another circuit, and a switch included in said latter circuit.

5. An electric lamp comprising a portable self-contained unit having a lamp included in a normally closed circuit, a switch in said circuit, a support for said unit, and a plug carried by said support and included in a

second circuit, said plug and unit coacting whereby when the latter is on the support the plug opens the switch in said first mentioned circuit and includes the lamp of said unit in said second mentioned circuit.

6. An electric lamp comprising a portable self-contained unit having a lamp included in a normally closed circuit, a switch in said circuit, a support for said unit, a plug carried by said support and included in a second circuit, said plug and unit coacting whereby when the latter is on the support the plug opens the switch in said first mentioned circuit and includes the lamp of said unit in said second mentioned circuit, and a switch in said second mentioned circuit.

7. An electric lamp including base, a contact member carried by said base included in a circuit connected to a suitable source of electricity, a casing detachably mounted on said base, a lamp carried by said casing, and included in a normally closed circuit connected to another source of electricity, said casing, lamp and source of electricity forming a portable self contained unit, said contact member and casing coacting whereby when the casing is on the base said contact member opens said second mentioned circuit and includes said lamp in said first mentioned circuit and a switch in said first mentioned circuit.

8. An electric lamp including a base, a casing detachably mounted on said base, a lamp carried by said casing, said lamp being connected through said base to a suitable source of electricity when mounted thereon, a battery carried by said casing and electrically connected to said lamp and means for automatically closing said battery circuit upon detachment of the casing from the base.

9. An electric lamp including a base, a casing detachably mounted on said base, a lamp carried by said casing, said lamp being connected through said base to a suitable source of electricity when mounted thereon, a battery carried by said casing and electrically connected to said lamp and common means for automatically closing said battery circuit and opening the circuit to the first mentioned source of electricity upon detachment of the casing from the base.

10. The combination with a lamp socket and plug attachment included in a circuit of high voltage provided with a high resistance conductor, of a portable self contained unit adapted to be detachably mounted on said socket, said unit comprising a casing, a plurality of batteries of low voltage mounted therein, and a lamp in circuit with said batteries, said latter circuit being normally closed, and a switch carried by said unit and adapted when the unit is attached to coact with said plug whereby said normally closed circuit is opened and said lamp is automatically included in said first mentioned circuit.

11. The combination with an electric socket and plug mounted in a circuit of high voltage, of a portable self contained unit adapted to be detachably mounted on said socket having a lamp included in a normally closed circuit of lower voltage than the first mentioned circuit, means carried by said unit and coacting with said plug whereby when said unit is attached to said socket said normally closed circuit is opened and said lamp is automatically included in said second circuit and a resistance included in one of the conductors of said high voltage circuit whereby the voltage of the lamp circuit when the unit is attached is the same as the voltage of the normally closed circuit.

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