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E. ADAMS

AUTOMATIC LIGHT

Original Filed March 8, 1924

Fig. 1.

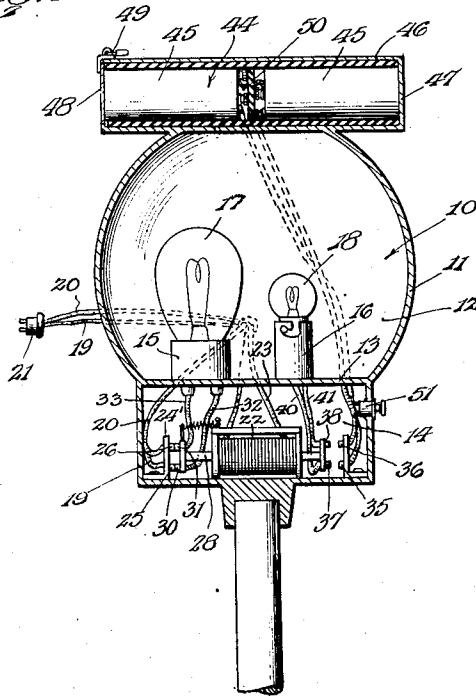
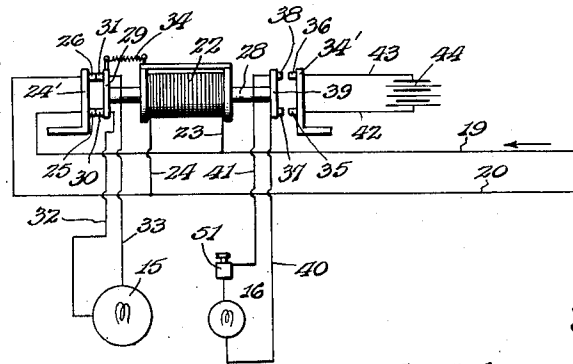


Fig. 2.



Inventor

E. Adams.

By

Lacy Hacey, Attorneys

UNITED STATES PATENT OFFICE.

ERVIN ADAMS, OF NANTY GLO, PENNSYLVANIA, ASSIGNOR OF THREE-TENTHS TO
A. H. McANULTY, OF NANTY GLO, PENNSYLVANIA.

AUTOMATIC LIGHT.

Original application filed March 8, 1924, Serial No. 697,785. Divided and this application filed March 5, 1925. Serial No. 13,279.

This invention relates to electric lamps and more particularly to a lamp which is designed to be normally in circuit with a distant source of supply of current and which embodies a local source of current supply rendering the lamp still useful in the event of failure of the first mentioned source of current supply, and one of the objects of the present invention is to provide means for automatically instantly cutting the local source of current supply into service upon failure of the distant source of current supply.

Another object of the invention is to so construct the lamp that it will be compact in form and may be readily carried about from place to place when dismounted from its support, in the event it is desired to use the lamp as a portable lamp in the event of failure of the main source of current supply.

In the accompanying drawings:

Figure 1 is a view partly in vertical transverse section and partly in elevation, illustrating the lamp embodying the invention.

Figure 2 is a diagrammatic view illustrating the lamp circuits.

This application is a division of my co-pending application for lighting systems for mine trains, filed March 8, 1924, Serial No. 697,785, and while the lamp embodying the invention is designed primarily for use as either the head or tail light of a mine locomotive or car, or a train of cars, it may be employed in motion picture and other theaters, places of amusement, halls, schools, hospitals, and, in fact, any building where total darkness, in the event of failure of the main current supply, would be liable to cause confusion, panic, or be liable to bring about disaster.

The lamp is indicated in general by the numeral 10 and the same comprises a casing 11 having a reflector back 12 of the usual contour, and the body of the casing may likewise be of any desired contour, and the casing may be supported in any desired manner. Preferably, the bottom of the casing, indicated by the numeral 13, is flat and forms the top wall of a compartment 14 which extends transversely beneath the said casing 11. Mounted upon the said bottom 13 are electric lamp sockets 15 and 16, the former being of a size and character to accommodate the base of a lamp bulb 17

capable of consuming current direct from the distant or main source of current supply, which might be the supply either of the building in which the lamps are installed, or the trolley wire in a mine. The socket 16 is of a size and character adapting it to accommodate the base of a smaller lamp or bulb 18, preferably the 3-volt type, and both lamps are arranged within their respective sockets and side by side in front of the reflecting surface 12. Conductor wires 19 and 20 are led into the bottom of the compartment 14 and are electrically connected at their outer ends to a plug 21 which is adapted to be fitted in a socket of the usual type. The numeral 22 indicates a solenoid, to one terminal of the winding of which is connected a conductor wire 23 leading to one of the supply wires, as for example, the wire 19. Another wire 24 is connected to the wire 20 and leads to the other terminal of the solenoid winding. The numerals 24' indicates a stationary block of insulating material which is mounted in the compartment 14, preferably upon the bottom thereof, and carries contacts 25 and 26. The conductor wire 20 leads to the contact 26, and the conductor wire 19 leads to the contact 25. The core of the solenoid is indicated by the numeral 28 and the said core at one end supports a head 29 which is of insulating material and carries contacts 30 and 31 which oppose the contacts 25 and 26 respectively. A wire 32 is electrically connected to the contact 30 and leads to one terminal of the lamp socket 15, and a wire 33 leads from the other terminal of said socket to the contact 31. At this point, it will be evident that when the solenoid winding is energized by the passage of current from the main source of supply, whether said source be the supply for a building or a trolley wire in a mine, the core 28 will be shifted, through energization of the solenoid winding to bring the contacts 30 and 31 into engagement with the contacts 25 and 26 respectively, thereby closing the circuit through the lamp 17. This movement of the core 28 is yieldably resisted by a spring 34 connected at one end to the insulating head 29 and at its other end to one of the insulating heads of the solenoid, the tension exerted by the spring tending to shift the solenoid core 28 in a direction to

separate the contacts 30 and 31 from the contacts 25 and 26. The numeral 34' indicates a fixed block of insulating material also arranged within the compartment 14, and this block carries contacts 35 and 36 which are opposed by contacts 37 and 38 respectively which are supported by a head 39 mounted upon the adjacent end of the solenoid core 28. Wires 40 and 41 lead respectively from the contacts 37 and 38 to the terminals of the lamp socket 16, and wires 42 and 43 lead from the contacts 35 and 36 respectively, to the terminals of a battery 44, which constitutes a local source of electric current supply, as will now be explained.

The battery 44 or local source of current supply, preferably comprises a pair of dry cells 45 which are removably mounted in a cylindrical casing 46 fixed upon the upper side of the casing 11 transversely thereof, the casing 46 being provided with a closed end 47 and having at its other end a hinged closure 48 which may be locked if desired, as indicated by the numeral 49, so as to prevent surreptitious removal of the dry cells. The wires 42 and 43 are, of course, connected to the proper terminals of the cells 45 so that the cells will be in series, and preferably a disc 50 of insulating material will be arranged between the adjacent ends of the said cells so as to prevent any loss of current or any leakage through contact of the binding posts of the cells with one another.

From the foregoing description of the invention, it will be evident that so long as the main source of current supply is available, the solenoid 22 will be energized and the lamp 15 will be illuminated. However, should the main source of current supply be broken or interrupted, for any reason whatsoever, the solenoid will be de-energized and the spring 34 will immediately shift the core 28 of the solenoid so as to bring the contacts 37 and 38 into contact with the contacts 35 and 36, thus immediately automatically closing the circuit in which the local source of current supply 44 and the lamp 18 are located. In order that the light 18 may not be permitted to burn continuously and may be extinguished when its use is not required, a switch 51 of any ordinary type is interposed in the circuit in which the said light 18 and dry cells 45 are located.

Having thus described the invention, what I claim is:

1. In an automatic electric lamp of the class described, independent sources of illumination, spaced sets of contacts, one set of contacts being in circuit with one source

of illumination and the contacts of the other set being in circuit with the other source of illumination, a solenoid arranged between the sets of contacts and including a core, the solenoid winding being in circuit with one source of illumination, contacts carried at each end of the solenoid, the contacts at one end of the solenoid being arranged for engagement with the contacts in circuit with the first mentioned source of illumination and the contacts at the other end of the core being in circuit with the other source of illumination, conductors for connection with a main source of current supply leading to the first mentioned set of contacts, a local source of current supply in circuit with the second mentioned set of contacts, the solenoid being in circuit with the main source of current supply, and means tending to shift the solenoid core to effect coaction of the contacts to close the circuit embracing the second mentioned source of illumination and the local source of current supply.

2. An electric lamp of the class described comprising a casing, electric lamp sockets mounted within the casing in spaced relation to each other, the casing having a compartment, a solenoid mounted within the compartment, spaced contacts at one end of the core of the solenoid, spaced contacts at the other end of the core of the solenoid, conductor wires electrically connected with the terminals of one of the lamp sockets and with the first mentioned contacts, conductor wires electrically connected with the terminals of the other lamp socket and with the second mentioned contacts, fixed contacts within the compartment opposing the first mentioned contacts, flexible conductor wires connected with said fixed contacts and adapted for connection with a source of power current supply, the terminals of the winding of the solenoid being electrically connected with the last mentioned wires, fixed contacts within the compartment opposing the other contacts upon the solenoid core, the casing having a second compartment, a local source of current supply comprising a battery arranged in the second compartment, conductor wires leading from the terminals of the battery to the last mentioned fixed contacts, and means coacting with the solenoid core and urging the same yieldably in a direction to effect mutual engagement of the last mentioned solenoid core contacts with the last mentioned fixed contacts.

In testimony whereof I affix my signature.
ERVIN ADAMS. [L. S.]