

June 26, 1934.

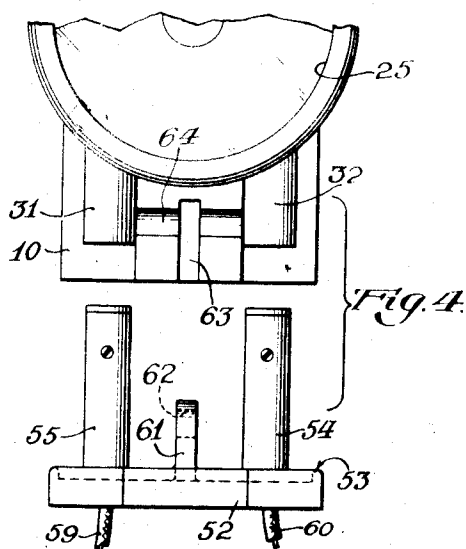
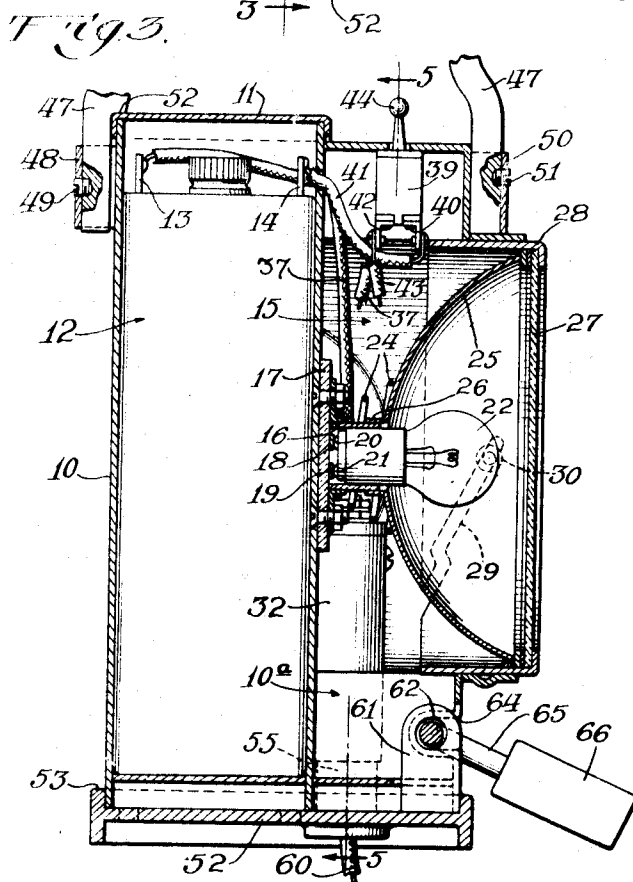
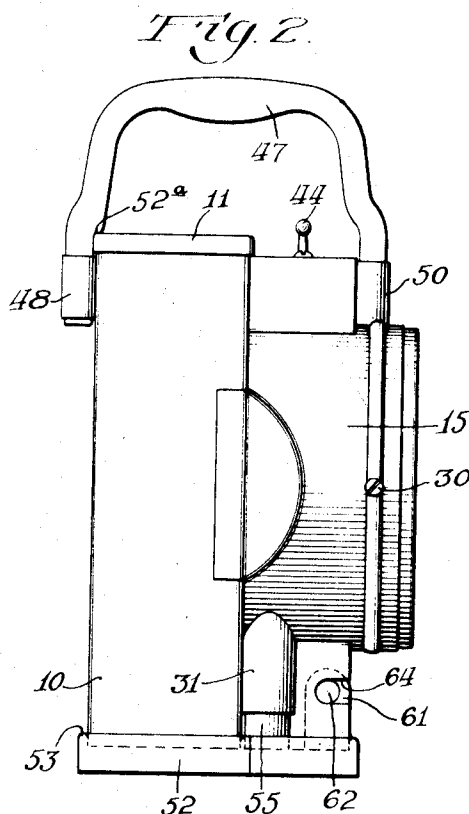
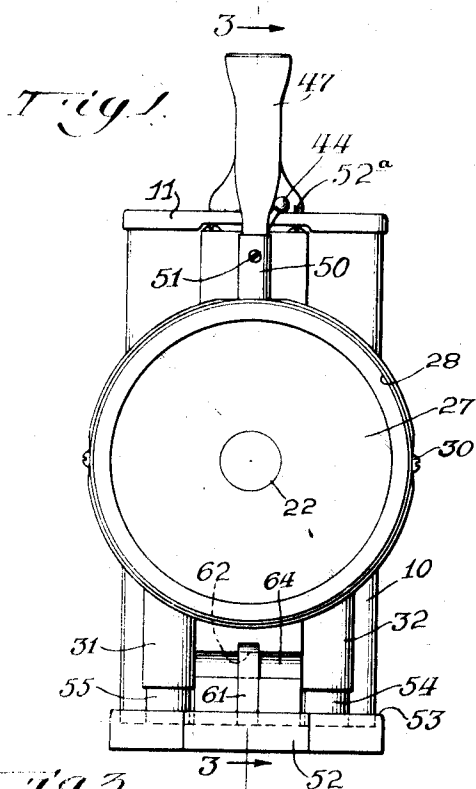
H. H. HARSTED

1,964,201

PORTABLE LAMP AND RECHARGING MEANS

Filed June 24, 1933

2 Sheets-Sheet 1



Inventor:
Harry H. Harsted.

By *[Signature]*
Attorney

UNITED STATES PATENT OFFICE

1,964,201

PORTABLE LAMP AND RECHARGING
MEANS

Harry H. Harsted, Chicago, Ill.

Application June 24, 1933, Serial No. 677,426

6 Claims. (Cl. 240—11.2)

This invention relates to improvements in portable electric lighting devices or lamps, and one of the objects of the invention is to provide an improved lamp of this character in which there is included a battery cell or cells combined with means for recharging the battery.

A further object is to provide an improved support for the lamp upon which the lamp is to be placed when not in use, and at which time the battery may be recharged, the discharge of current from the battery and the recharging of the battery being controlled by means of a switch device, suitable means being provided for locking or securing the lamp against removal from the support.

A further object is to provide an improved support for the lamp provided with contact terminal plugs adapted to enter sockets in the lamp casing to form electrical connections with the battery circuit and whereby the latter may be readily charged.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention, and in which

Figure 1 is a front elevation of a lamp of this character constructed in accordance with the principles of this invention.

Figure 2 is a side elevation of Figure 1.

Figure 3 is a vertical, longitudinal sectional view, on an enlarged scale, and as taken on line 3—3, Figure 1.

Figure 4 is a detail front elevation of a portion of the lamp and a portion of the support for the lamp, showing the parts separated.

Figure 5 is a vertical, sectional view taken on line 5—5, Figure 3.

Figure 6 is a top plan view of the lamp support. Figure 7 is a wiring diagram.

Referring more particularly to the drawings, the numeral 10 designates generally a casing of any desired size and configuration being preferably provided with a closure 11. Within the casing 10 is arranged a battery 12 which is of the size and configuration to substantially fit within and fill the casing, and the battery is provided with the usual terminal plugs 13—14.

Supported by the wall of the casing 10 is a lamp chamber 15 having a lamp socket 16 therein supported by means of suitable insulation 17 upon the wall of the casing 10. At the bottom of the

lamp socket 16 are arranged terminals 18—19 adapted to be contacted respectively by the terminals 20—21 of the lamp 22. The lamp is held in the socket 16 in the ordinary and usual manner such as by means of lugs adapted to enter bayonet slots 23 of the ordinary and well known construction. The terminals 18 and 19 are elastic and serve as a means for holding the lamp against accidental displacement from the socket, well known in this art.

Encompassing the socket 16 is a coil spring 24, one end of which bears against the rear face of a reflector 25, the reflector being provided with an opening surrounded by a circumferential flange 26 adapted to telescope over the socket 16 and within which reflector the lamp 22 stands.

A lens 27 held within a frame 28 forms a closure for the lamp chamber and extends over the reflector 25. The periphery of the lens holder 28 telescopes into an opening in the front of the lamp chamber and is held in position by means of suitable slots 29 in the lens holder, and into which slots lugs 30 secured to the lamp chamber are adapted to project so that when the lens holder is placed in position to cause the openings of the slots 29 to be adjacent the lugs 30 and the lens and holder axially rotated, the parts will be locked together. At the same time the reflector 25 will be forced backwardly against the stress of the spring 24, so that the parts will be held against vibration with respect to each other.

Spaced tubular members 31—32 are supported by the casing 12 to extend into the lamp chamber 15 and to project for any desired distance therebeyond, and plugs 33—34 are respectively supported within the tubular members at one end thereof, being insulated by means of suitable insulation 35. The end of the plug 34 constitutes a terminal to which one end of a conductor 36 is secured, and the conductor 36 is also secured to the battery terminal 13. The contact terminal 19 of the lamp socket 16 is also secured to the conductor 36.

Secured to the end of the plug 33 is one end of a conductor 37, and the other end thereof is secured to a terminal 38 arranged within a switch chamber 39.

A terminal 40 is also arranged within the switch casing 39, and to the terminal 40 is connected one end of a conductor 41, the other end thereof being connected to the battery terminal 14. A third terminal 42 is also provided in the switch casing, and to this terminal 42 is connected one end of a conductor 43, the other end of the conductor be-

ing connected to the terminal 18 at the base of the lamp socket 16.

A switch member 44 is pivotally mounted as at 45, and one end 46 thereof is adapted to co-operate with the respective terminals 42, 40 and 38, according to the position and direction of movement of the switch. The end of the switch projects through the top of the switch chamber 39 and is arranged in a convenient position for the operator to manipulate the same by the same hand with which the operator grasps the handle 47 of the lamp. This handle is preferably of a substantially U shaped configuration, with one end thereof entering a socket 48 to be held by a fastening device 49, while the other end of the handle enters a socket 50 and is held by a fastening device 51. One end of the handle 47 is preferably provided with a shouldered portion 52 adapted to project over the top or closure 11 of the battery chamber so as to hold the closure against accidental displacement.

It will thus be manifest that when the end 46 of the switch 45 is in a position to engage only the terminal 42, the circuit to and from the battery will be cut off. When the switch is in an intermediate position so that the end thereof contacts with the terminals 42 and 40 the circuit will be completed from the battery through the lamp, but when the switch 44 is in the position that the end 46 thereof contacts with the terminals 40 and 38, the light circuit will be cut off, but the charging circuit will be established through the plugs 33 and 34 when the lamp is in position to be charged, in a manner to be set forth.

The numeral 52 designates generally a support for the lamp which is of a configuration to conform to the contour of the base of the lamp, and the support is provided with an upstanding flange 53 therearound, so that when the lamp is placed upon the support, the flange 53 will hold the lamp against accidental displacement.

Projecting above the support 52 are tubular members 54—55, open at both ends, and these tubular members 54—55 are so positioned and are of such a length that when the lamp is placed upon the support 52, the tubular members 54—55 will telescope respectively into the tubular members 31 and 32, and carried by the respective tubular members 54—55 are plug sockets 56—57 suitably insulated by means of insulation 58 from the respective tubular members 55—54. These sockets 56—57 are positioned to receive the extremities of the plugs 33—34 and connected respectively to the sockets 56—57 are conductors 59—60 leading from a source of supply of current.

It will therefore be manifest that whenever the lamp is placed upon the support 52, so that the plugs 33—34 will enter the respective sockets 56—57 and the switch 44 is properly positioned, the lamp 22 will be lighted. When the switch is moved to another position the lamp will be extinguished and when the switch is moved to still another position the current from the source of supply through the conductors 59—60 will flow into and through the battery to recharge the same.

When it is desired to use the lamp it is only necessary to remove the same from the support 52 and the tubular members 31—32 will protect the plugs 33—34.

The flange 53 on the support 52 also serves as a means to protect the respective members 55—31, 54—32, as it will be manifest that the lamp will be held against a sliding movement upon the support.

Any suitable means may be provided for locking the lamp in position, such for instance as a lug 61 having an opening 62 therethrough and which lug is adapted to enter an opening 63 in the bottom of the lamp casing, so that the opening 62 will register with a groove or recess 64, after which the hasp 65 of a lock 66 may be passed through the opening 62. In order to remove the lamp it will be necessary to detach the lock 66.

The source of supply of current for charging the battery may be derived from the ignition and lighting system on an automobile when the lamp is arranged in an automobile, 67 designating the generator on the car.

When the generator operates the current will flow from the brush 68, through the conductor 69 and coil 70 to ground 71. This will energize the magnetic core 72 to attract an armature 73 to close the contacts 74, so that excess current generated by the generator 67 will then flow through conductor 75 to the armature 73 through contacts 74, conductor 76, winding 77, to conductor 78 and thence to battery 79 of the car to charge the car battery.

At the same time current will flow from the generator 67, through the conductor 69, thence through conductor 80, coil 81, conductor 82 to ground 83, which may be the frame of the car or a wire, and may be the same ground as 71.

The current flowing through the winding 81 will energize a magnetic core 84 to attract an armature 85 to close the contacts 86, so that current will also flow through a conductor 87, armature 85, contacts 86, conductor 88, windings 89 and through a resistance 90, to conductor 60, thence through the plug socket 57, plug 34, conductor 36, battery terminal 13 of the lamp, and which battery is grounded through the frame as at 91, and the frame acts as the other conductor to complete the circuit back to the generator, the same as the circuit is completed from the car battery back to the generator.

The resistance 90 is provided to reduce the voltage and amperage from say six to eight volts of the automobile generator down to the required voltage of the battery in the lamp.

The resistance 90 may be eliminated in the event that the voltage of the lamp battery is the same as the cell battery on the car. In other words, the resistance 90 serves as a safety means to the battery of the lamp.

A storage compartment 10^a may be provided which has communication with the lamp chamber 15 and serves as a space for holding an additional lamp for future use.

This compartment 10^a will be concealed by the reflector 25 when the latter is in position and in order to gain access to the compartment it is necessary to remove the reflector.

It will therefore be manifest that with this invention, there is provided an improved lamp with means for recharging the battery and which lamp may be readily positioned to be recharged by simply placing the same upon the support 52 and then manipulating the switch 44 to a position that the current from the generator on the car will be directed to the lamp battery. Obviously, the different or required positions of the switch member 44 will be designated by proper indications on a portion of the lamp casing in proximity to the switch.

When the battery has been sufficiently charged, the switch 44 may be operated to cut out the current and the lamp will then be ready for use when

desired by raising the same from the support 52.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. A portable electric lighting device comprising in combination, an electric lamp, a casing in which the lamp is mounted, battery cells within the casing, said lamp and battery being independently removable from the casing, a circuit in which the lamp and battery are included, a charging circuit whereby the battery may be charged from a source of supply exterior of the lamp casing, and a switch device for selectively controlling the lighting and charging circuits, the said charging circuit embodying a pair of separable contact terminals, one of the terminals of each pair being disposed within a socket in the lamp casing, the said sockets being of substantial depth and opening through the bottom of the casing, and the other terminals of the pairs comprising extended plugs disposed exterior of the lamp casing and telescoping into said sockets.
2. A portable electric light device comprising in combination, an electric lamp, a casing in which the lamp is mounted, battery cells within the casing, said lamp and battery being independently removable from the casing, a circuit in which the lamp and battery are included, a charging circuit whereby the battery may be charged from a source of supply exterior of the lamp casing, a switch device for selectively controlling the lighting and charging circuits, and a support for receiving and holding the lamp casing, said charging circuit embodying a pair of separable contact terminals, one contact of each pair comprising extended plugs stationary with said support, and the other terminal of each pair carried by the lamp casing and disposed within sockets of extended length opening through the lamp casing, the respective said terminals being electrically connected by positioning the lamp upon said support to cause the plugs to telescope into said sockets.
3. A portable electric light device comprising in combination, an electric lamp, a casing in which the lamp is mounted, battery cells within the casing, said lamp and battery being independently removable from the casing, a circuit in which the lamp and battery are included, a charging circuit whereby the battery may be charged from a source of supply exterior of the lamp casing, a switch device for selectively controlling the lighting and charging circuits, a support for receiving and holding the lamp casing, said charging circuit embodying a pair of separable telescoping contact terminals, one terminal of each pair being stationary with said support and the other terminal of each pair carried by the lamp casing, the respective said terminals being telescoped by positioning the lamp casing upon said support, and a wall on said support and encompassing the base

of the lamp for maintaining the lamp against sliding movement upon the support and for protecting said terminals against lateral strain.

4. A portable electric lighting device comprising in combination, an electric lamp, a casing in which the lamp is mounted, battery cells within the casing, said lamp and battery being independently removable from the casing, a circuit in which the lamp and battery are included, a charging circuit whereby the battery may be charged from a source of supply exterior of the lamp casing, a switch device for selectively controlling the lighting and charging circuits, said charging circuit embodying a pair of separable contact terminals, tubular portions on the lamp casing each housing one of the terminals of each pair, a support for the lamp casing, and tubular portions on the support each housing one of the other terminals of the respective pairs, said tubular portions being relatively telescoped to bring the respective terminals into electrical connection as the lamp casing is placed upon said support.

5. A portable electric lighting device comprising in combination, an electric lamp, a casing in which the lamp is mounted, battery cells within the casing, said lamp and battery being independently removable from the casing, a circuit in which the lamp and battery are included, a charging circuit whereby the battery may be charged from a source of supply exterior of the lamp casing, a switch device for selectively controlling the lighting and charging circuits, said charging circuit embodying a pair of separable contact terminals, tubular portions on the lamp casing each housing one of the terminals of each pair, a support for the lamp casing, tubular portions on the support each housing one of the other terminals of the respective pairs, said tubular portions being relatively telescoped to bring the respective terminals into electrical connection as the lamp casing is placed upon said support, an apertured lug on the support, there being a recess in the lamp casing for receiving the lug and provided with a groove or opening with which the aperture in the lug is adapted to register whereby a lock hasp may be inserted through the lug aperture to secure the lamp upon the support.

6. A portable electric lighting device comprising in combination, a lamp casing, an electric lamp in the casing, a battery and a battery circuit in the casing and in which circuit the lamp is included, a charging circuit whereby the battery may be charged from a source of supply exterior of said casing, said charging circuit embodying sockets of substantial depth opening downwardly through the casing, contacts in the sockets, a support for the lamp casing, upwardly projecting plugs of substantial length carried by the support, the said plugs being telescoped into the respective sockets by positioning the lamp casing upon the support, whereby the charging circuit for the battery will be completed, and a switch device for controlling the charging circuit.

HARRY H. HARSTED.