Jan. 27, 1948. A. D. SOBEL 2,435,164

FLUORESCENT HAND LAMP

Filed May 8, 1946

FIG. 1

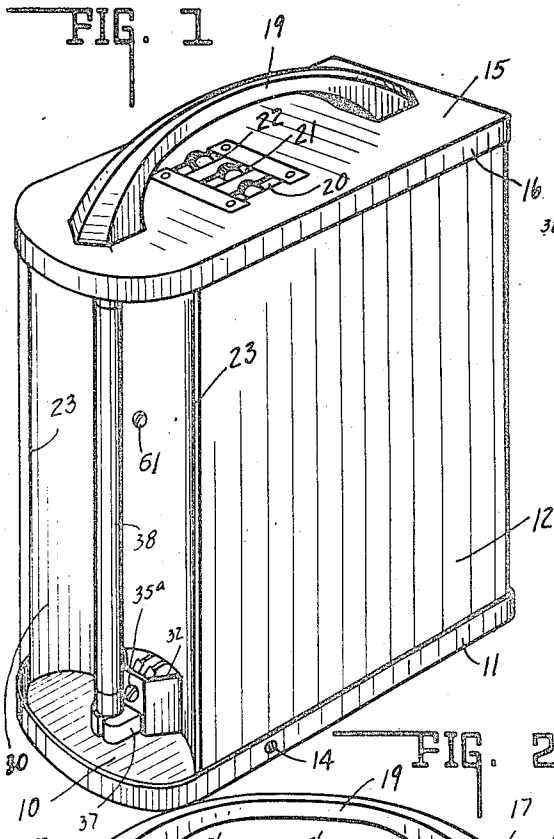


FIG. 3

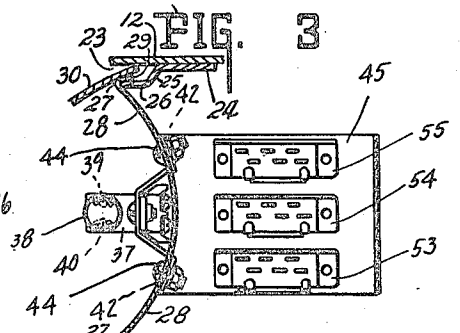


FIG. 4

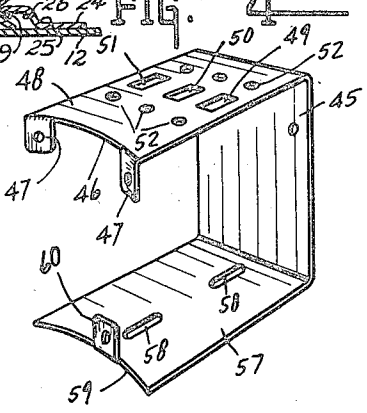


FIG. 2

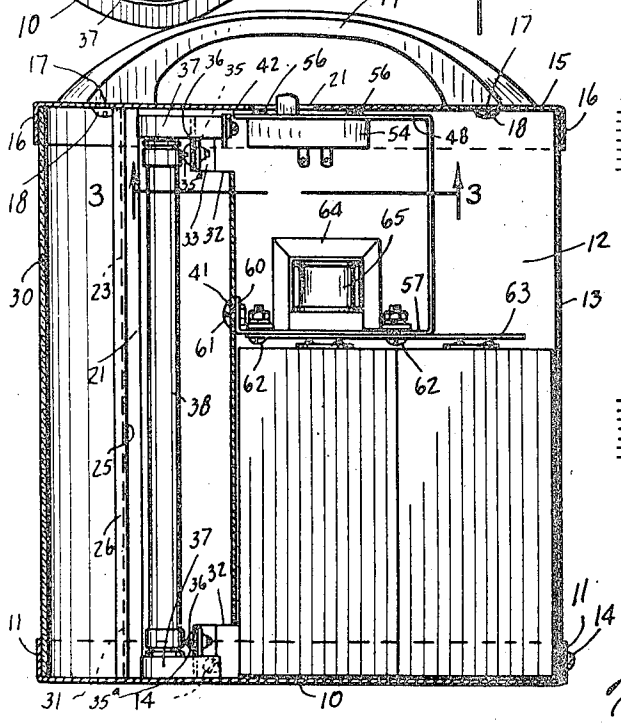


FIG. 5

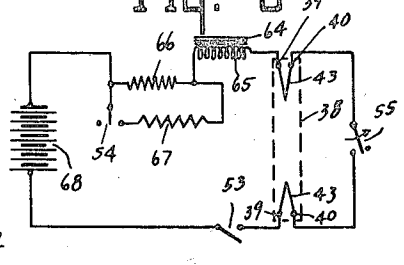
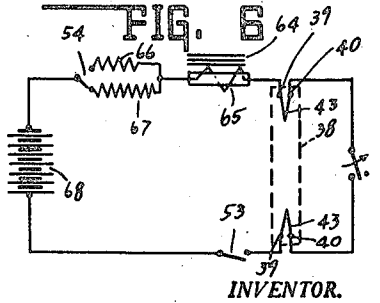


FIG. 6



INVENTOR.
ALFONSE D. SOBEL.

BY Lockwood, Goldsmith & Galt.
ATTORNEYS.

Patented Jan. 27, 1948

2,435,164

UNITED STATES PATENT OFFICE

2,435,164

FLUORESCENT HAND LAMP

Alfonse D. Sobel, Brooklyn, N. Y., assignor to Paramount Industries, Inc., New York, N. Y.

Application May 8, 1946, Serial No. 668,103

4 Claims. (Cl. 240—10.65)

1

This invention relates to portable fluorescent hand lamps and particularly to such lamps of simplified type and improved construction which materially facilitates the assembly process.

Heretofore there have been proposed a number of portable fluorescent hand lamps including self-contained power sources, such as dry batteries. While such lamps have not been entirely unsatisfactory from a performance standpoint, they have left much to be desired in the way of simplicity of construction and ease of assembly. For example, one such lamp comprises a number of unitary sub-assemblies fitted into a compartmented housing, the sub-assemblies being provided with circuit connectors which register with each other when the several assemblies are properly disposed in the housing. Such a construction is not only costly but requires some care in assembly and, moreover, requires a substantially complete dis-assembly in order to replace the batteries when discharged.

It is an object of the invention, therefore, to provide a new and improved portable fluorescent hand lamp which obviates one or more of the above-mentioned disadvantages of similar devices of the prior art.

It is another object of the invention to provide a new and improved portable fluorescent hand lamp which is of simplified construction and, therefore, of low cost and which can be readily assembled.

It is a further object of the invention to provide a new and improved portable fluorescent hand lamp in which the batteries providing energy for the lamp can be readily replaced without substantial dis-assembly.

In accordance with the invention, a portable fluorescent lamp comprises an elongated open U-shaped wall member having a seating groove extending longitudinally of each open edge, top and bottom flanged closure members engaging opposite ends of the wall member and adapted to be secured thereto, and a translucent front member retained in position by the seating grooves and the closure members. The lamp also includes an elongated unitary fluorescent tube support and reflector assembly having longitudinal edges terminating in the grooves and retained in position by the translucent front member and the closure members.

For a better understanding of the present invention, together with other and further objects thereof, reference is had to the following description taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claims.

2

In the drawings:

Fig. 1 is a perspective view of a portable lamp embodying the invention.

Fig. 2 is a central sectional view.

Fig 3 is a transverse sectional view taken on line 3—3 of Fig. 2 and in the direction of the arrows.

Fig. 4 is a perspective view of the main bracket element.

Fig. 5 is a wiring diagram of the preferred electrical circuit.

Fig. 6 is a wiring diagram of a modified electrical circuit.

In Figs. 1 and 2, 10 indicates a base plate with upwardly directed integral peripheral flange 11. This plate flange has two side portions, a back portion and a curved front portion, and the aforesaid is suitably secured to a generally U-shaped member having sides 12 and back 13 with the lower ends nested in the resulting base well. crews 14 may constitute this connection or positive snap locks may be provided.

Rigid with the upper ends of the sides and back as by spot welding and the like is the top 15 having downwardly directed integral peripheral flange 16. To this extent the top and base are complements. Accordingly it is preferred that the upper ends of the sides and back be nested in the top.

The top 15, however, is apertured at 17 to accommodate anchors 18, such as screws, secured to opposite ends of handle 19. The top therebetween is further slotted as at 20, 21 and 22 to pass the insulation finger pieces of the three switches hereinafter to be described, one being a normal on and off master switch, one being a normally open biased starting switch and the other a so-called emergency switch normally biased to non-emergency (in Fig. 5 to open) position.

At the forward edges of sides 12 and preferably substantially coextensive with said edges are means comprising grooves 23, 23. Each of these means comprises a Z sectioned strap with the wider portion 24 suitably secured, as by spot welding, to the side 12 and intermediate portion 25 and an offset portion 26. Portion 26 with side 12 forms the said groove 23. If desired the aforesaid may be formed integral with the side by a reverse bend equal in amount to portion 26, then a transverse portion equal to portion 25 and finally a portion equal to portion 26. This being a conventional metal bending equivalent, illustration of same is believed unnecessary.

Seatable in the two parallel grooves 23 are the side edges 27 of a reflector having an arcuate

sectioned formation 28. Preferably the side edges are provided with exterior rearwardly directed flanges 29 which constitute resilient elements to prevent rattling of the reflector when groove seated.

A slightly curved or flat sheet of plastic 30 (transparent) has its side edges 31 seated in grooves 23. Its upper and lower ends are nested within the flanges 16 and 11 respectively and since the edges 31 are groove stopped (confined) this sheet of necessity conforms to the forward curvature of the top and base as defined by said flanges. The sheet 30 being non-metallic and being interposed between the flanges 29 of reflector 28 and the side walls 12, it also serves as a silencing member for the reflector. Conversely, the flanges 29 of reflector 28 maintain the sheet against sides 12 and the upper and lower edges of the sheet against the curved portions of the flanges.

The reflector, which can be white enameled, porcelain covered or the like is slit near the top and bottom and centrally as at 32. The resulting end strip 33 is provided with an elongated slot 35 and a wider median notch 36. Screw 35a in aperture 35 mounts the tube terminal socket 37 upon the reflector.

The tube 38 has two terminals 39 and 40 at each end and connected to a filament 43 in said tube which contains a gas that becomes luminescent when heated and a current conductor. The two terminals at opposite ends engage in the terminal sockets 37.

The reflector is further apertured at 41 and 42. Screws 44 therethrough secure to the reflector the U-shaped bracket and support 45. The upper portion 48 has a forward curved edge 46 conforming to the reflector curvature. A pair of spaced ears 47 straddle the adjacent terminal socket and are secured to the reflector by screws 44 seated in apertures 42.

The upper portion 48 of said bracket is slotted at 49—50 and 51, same registering with slots 20, 21 and 22 of the cover. Adjacent the first mentioned slots and in alignment with each are apertures 52 by which the three switches 53, 54 and 55 are mounted upon the bracket by means of screws 56.

The lower portion 57 of the bracket 45 is dual apertured at 58. The forward edge 59 is similarly curved and an upwardly extending median tongue 60 is arranged for connection to the reflector by screw 61 at aperture 41.

Screws 62 secure retainer bar 63 to the bracket portion 57 and said screws also mount the laminated closed core 64 of the impedance having winding 65. Two dry cell batteries 68 for supplying energy to the lamp are supported in base 11 below the bracket 45 and are held in place by retainer bar 63.

In assembling the portable lamp of the invention, the batteries are placed on the base and the assembled reflector and bracket, with tube attached, is applied to the top and integral side and cover. Then the front is applied and snapped in place and the unit lowered into the base and secured together by the screws 14. Obviously in replacing the batteries when discharged, it is only necessary to remove the screws 14, lift the unit described from the base 11, replace the batteries, and again lower the unit into the base and fasten the screws 14.

Thus, there is provided by the invention a portable fluorescent lamp of extremely simple and

inexpensive construction and one which is readily assembled and in which the batteries may be readily replaced when discharged without substantial dis-assembly.

The lamp of the invention also includes suitable wiring and connectors, connected in circuit, as shown in Fig. 5 or Fig. 6, but not illustrated physically for the sake of clarity and since they are entirely conventional. For example, in Fig. 5 there is a single series circuit including the batteries 68, the normal stabilizing resistor 66, the starting inductor 64, 65, the lamp filament 43, the normally open starting-switch 55, the lamp filament 43, and the normally closed off-switch 53.

In operation, when the lamp and batteries 68 are new the switch 54 is left open as illustrated, the switch 53 is normally closed, and switch 55 is closed momentarily to heat the lamp filaments 43, 43, each of these switches being controlled by the respective one of the push buttons 21, 22. When the lamp filaments are heated, the switch 55 is released and the starting inductor 64, 65 tends to maintain a constant current and builds up a voltage sufficient to cause a discharge between the lamp filaments 43, 43 in parallel with the switch 55. The lamp then operates normally with the resistor 66 tending to maintain a uniform current flow through the lamp and, therefore, uniform illumination. The lamp is extinguished by opening the switch 53 momentarily and allowing it to reclose, whereupon the lamp circuit is in its initial condition and ready for re-lighting. When the batteries become partially discharged, the switch 54 is operated momentarily simultaneously with the switch 55 connecting the resistor 67 in parallel with the normal resistor 66, thereby lowering the resultant resistance in the lamp circuit and thereby, at least in part, compensating for the lower voltage of the partially discharged battery. In other respects, the operation is similar when the battery is partially discharged.

Referring to Figs. 5 and 6 the only difference noted therein is that in Fig. 5 resistor 66 is always included in the circuit while resistor 67 is only included therein when switch 54 is closed. In Fig. 6 either resistor 67 or resistor 66 is included in the circuit depending upon which way switch 54 is closed.

Note that if in Fig. 5 resistor 66 be of 300 ohms and resistor 67 be of 300 ohms the circuit includes an effective resistance of 300 ohms or 150 ohms respectively. In Fig. 6 the circuit includes the normal resistance of 300 ohms and the emergency resistance is of 150 ohms.

Preferably switch 54 is spring constrained to open position in Fig. 5 and to high resistance contact inclusion in Fig. 6.

Fig. 5 circuit is preferred over the Fig. 6 circuit for reason that for normal use the so-called booster switch 54 is not in circuit, hence eliminating a variable resistance contact, such variation being due to vibration and shock incident to transporting or carrying or to a dirty switch contact.

While the invention has been illustrated and described in great detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character.

The several modifications described herein as well as others which will readily suggest themselves to persons skilled in this art, all are considered to be within the broad scope of the in-

vention, reference being had to the appended claims.

The invention claimed is:

1. A portable fluorescent lamp comprising: an elongated open U-shaped wall member having a seating groove extending longitudinally of each open edge, top and bottom flanged closure members engaging opposite ends of said wall member and adapted to be secured thereto, a translucent front member retained in position by said seating grooves and said closure members, an elongated unitary fluorescent tube support and reflector assembly having longitudinal edges terminating in said grooves and retained in position by said front member and said closure members.

2. A portable fluorescent lamp comprising: an elongated open U-shaped wall member having an open rearwardly extending seating groove extending longitudinally of each open edge, top and bottom flanged closure members engaging opposite ends of said wall member and adapted to be secured thereto, a translucent front member retained in position by said seating grooves and said closure members, an elongated unitary fluorescent tube support and reflector assembly having longitudinal edges with rearwardly extending flanges terminating in said grooves and retained in position by said front member and said closure members.

3. A portable fluorescent lamp comprising: an elongated open U-shaped wall member having a seating groove extending longitudinally of each open edge, top and bottom flanged closure members engaging opposite ends of said wall member and adapted to be secured thereto, a forwardly convex resilient translucent front member retained in position by said seating grooves and said closure members, an elongated unitary fluorescent tube support and forwardly concave reflector assembly having longitudinal edges terminating in said grooves and retained in position by said front member and said closure members.

4. A portable fluorescent lamp comprising: an elongated open U-shaped wall member having a seating groove extending longitudinally of each open edge, top and bottom flanged closure members engaging opposite ends of said wall member and adapted to be secured thereto, a translucent front member retained in position by said seating grooves and said closure members, an elongated unitary fluorescent tube support, said support comprising a reflector assembly having longitudinal edges terminating in said grooves and retained in position by said front member and said closure members, and a switch bracket and control element assembly mounted on said reflector assembly.

ALFONSE D. SOBEL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,090,239	Strang	Aug. 17, 1937
2,239,343	Rumbaugh	Apr. 22, 1941
2,348,617	Furedy	May 9, 1944
2,391,325	Maurette	Dec. 18, 1945
2 413,599	Beck	Dec. 31, 1946