Sept. 22, 1953 R. POPP 2,653,219

HANDLE WITH OUTLET AND SWITCH FOR PORTABLE LAMPS

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Fig. 1.

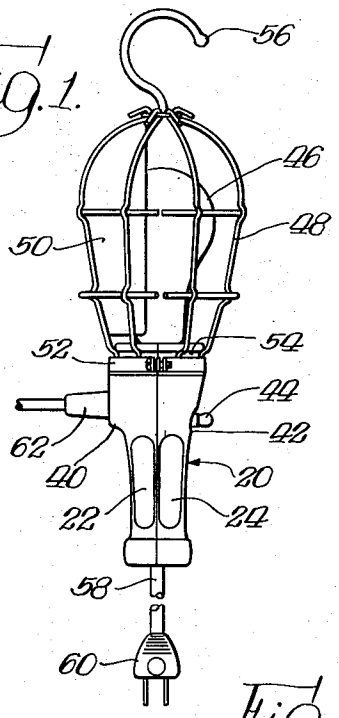


Fig. 2.

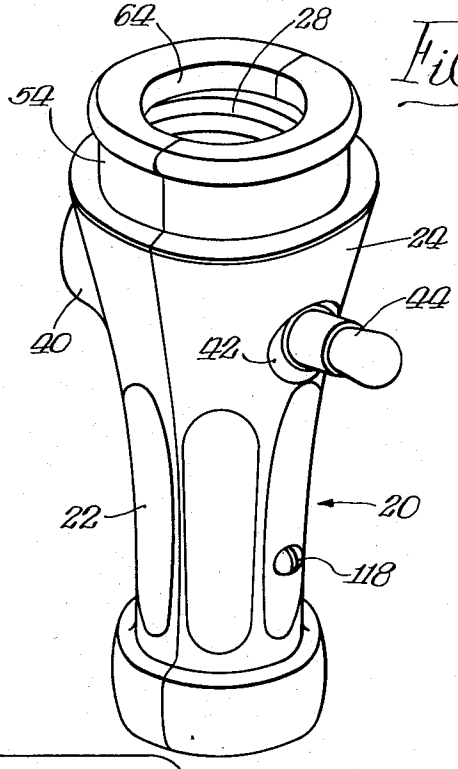


Fig. 3.

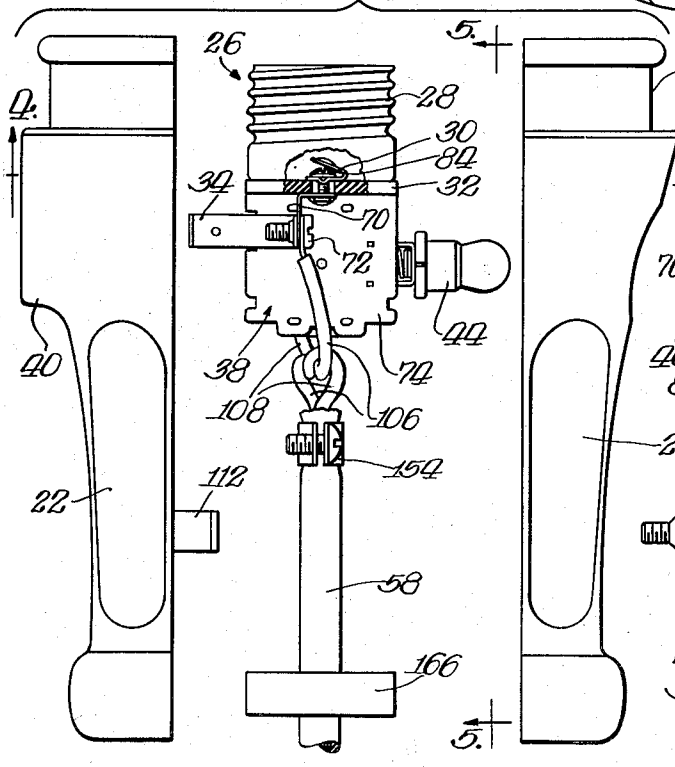
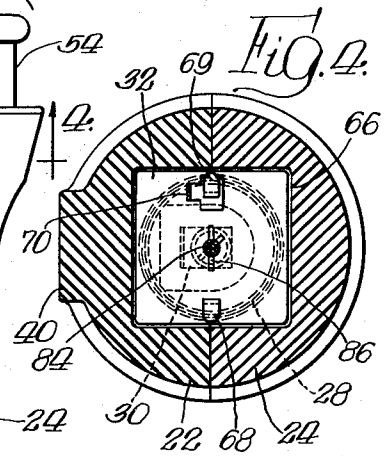


Fig. 4.



INVENTOR.
Rudolf Popp,
BY
Foorman L. Mueller
Atty.

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Fig. 5.

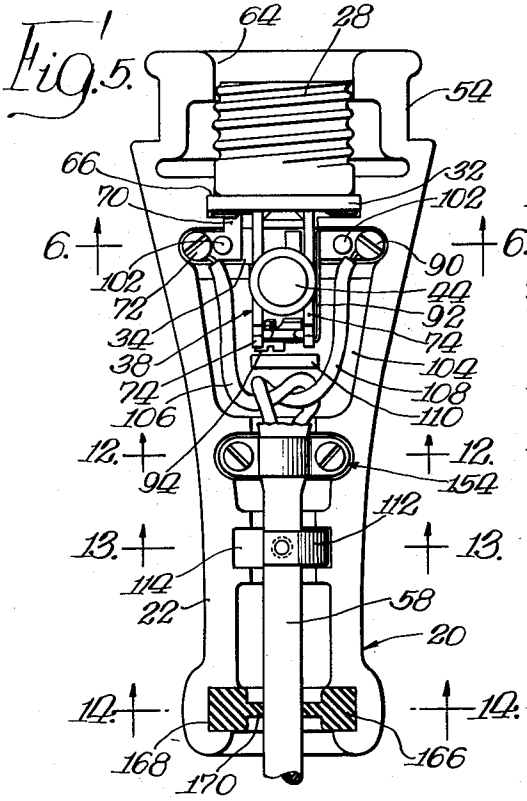


Fig. 6.

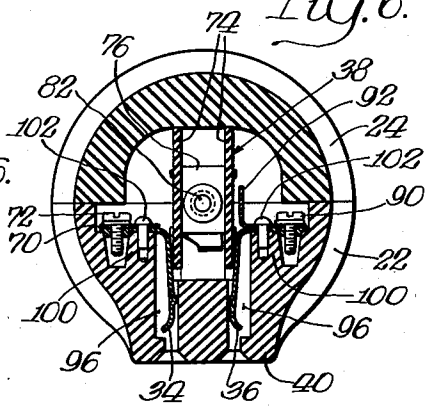


Fig. 8.

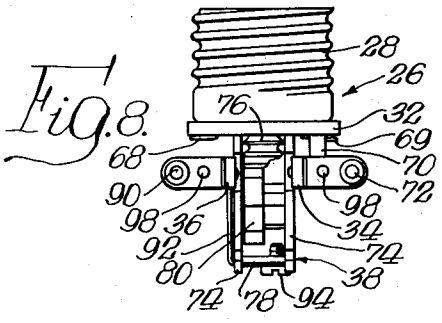


Fig. 9.

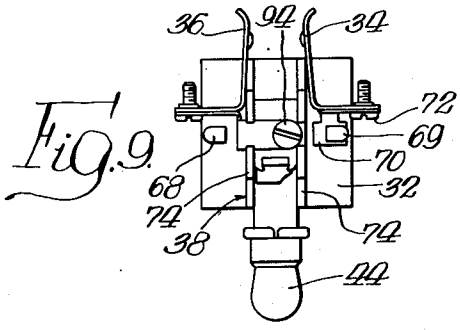
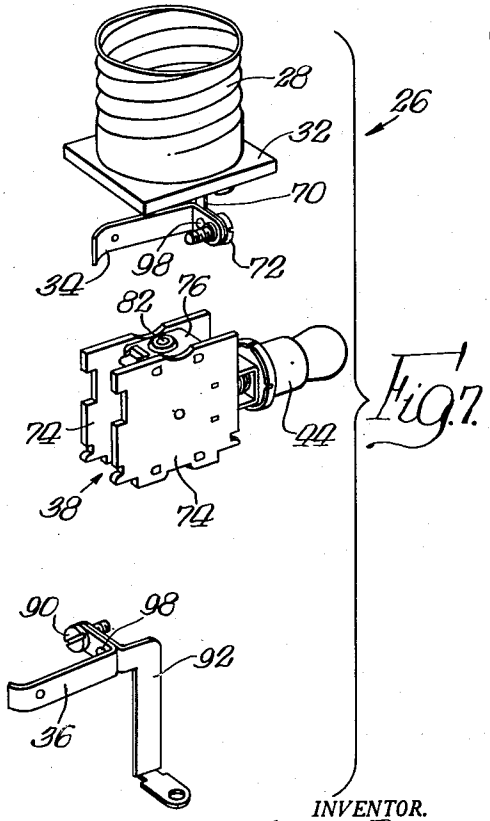


Fig. 7.



INVENTOR.
Rudolf Popp,
BY
Foorman L. Mueller
Atty.

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Fig. 10.

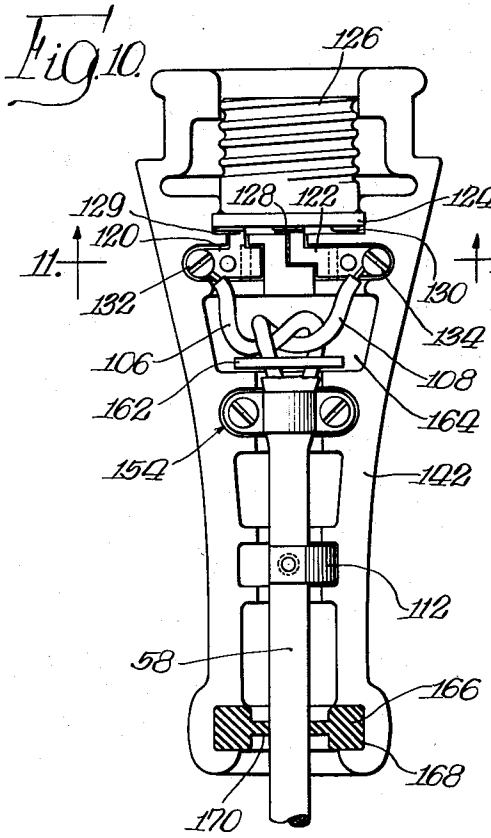


Fig. 11.

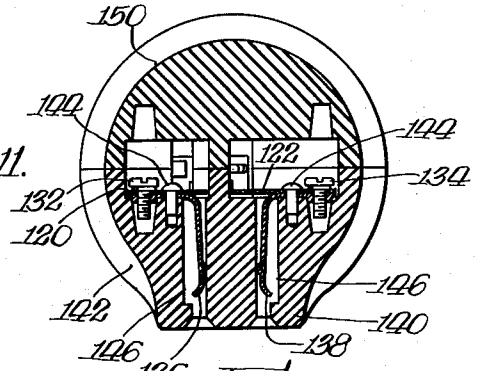


Fig. 12.

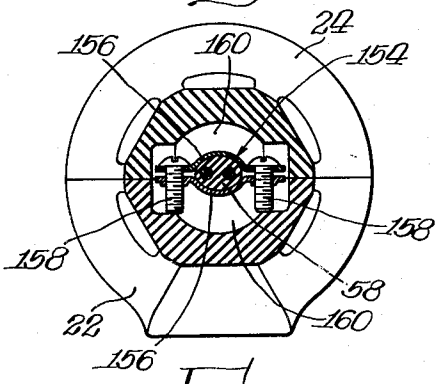


Fig. 13.

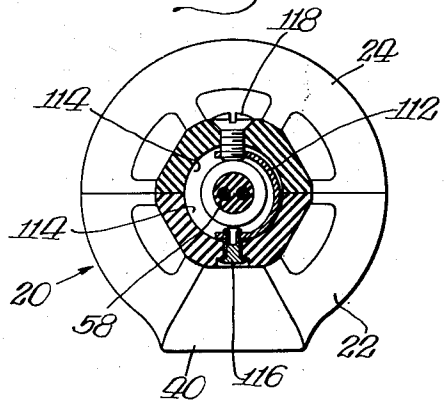
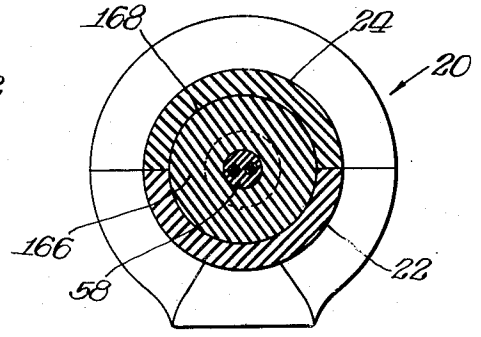


Fig. 14.



INVENTOR.
Rudolf Popp,
BY
Foorman L. Mueller
Atty.

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HANDLE WITH OUTLET AND SWITCH FOR PORTABLE LAMPS

Rudolf Popp, Valparaiso, Ind., assignor to McGill Manufacturing Company, Inc., Valparaiso, Ind., a corporation of Indiana

Application June 14, 1949, Serial No. 99,001

2 Claims. (Cl. 240—54)

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This invention relates to portable hand lamps adapted for connection to electric cords, and it relates particularly to lamps of the type having rigid handle structures with convenience outlets or switches therein.

Where a convenience outlet or switch is included in a rigid handle structure for a portable lamp, the handle is split lengthwise into two parts in order that the outlet or switch may be installed therein, and the two handle parts then are secured together by screw fasteners. Heretofore such handle structures have not complied with underwriters' safety requirements and have not been accepted generally by the trade. For the user's protection, the current-carrying parts of the switch or outlet must be held securely in the handle, and the two parts of the handle must be prevented from separating while the lamp is in use. For this reason it is customary to use a large number of screw fasteners for holding the parts of the rigid handle together. This is inconvenient when assembling and disassembling the lamp, and there is always the likelihood that some of the screw fasteners may be lost or intentionally eliminated. As presently designed, such handle structures are unsafe if any of the screw fasteners are missing. Another disadvantage is the frequent failure of the current-carrying parts connecting the lamp socket to the terminals of the outlet or switch under the stresses placed upon these parts in the normal usage of the lamp. Efforts have been made to overcome all of the foregoing disadvantages, but up to the present time such improvements in design have not been commercially feasible.

An object of the present invention is to provide an improved handle structure for a portable lamp which includes a convenience outlet or switch, or both.

Another object is to provide an improved lamp socket assembly including a switch or convenience outlet contacts, or both, which assembly is adapted to be mounted as a complete unit in the handle.

A further object is to provide a rigid two-part handle structure for a portable lamp requiring only one screw fastener to hold the parts of the handle together with safety to the user.

A still further object is to provide an improved portable lamp having all of the foregoing features and which complies fully with underwriters' safety requirements.

Still another object is to provide a portable lamp having improved outlet and switch facilities therein, and which is priced well within the means of persons having need therefor.

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A feature of the invention is the provision of a novel socket subassembly comprising a screw shell and a center contact which are mounted upon a square insulating plate of thin, rigid material having corner portions which project beyond the shell. The handle members are internally recessed and slotted to receive the shell and the corner portions of the insulating plate, the plate being snugly held in the slots which receive the corner portion thereof when the two halves of the handle are secured together.

Another feature is the provision of novel means for holding the two parts of the handle together, such means involving the use of a C-shaped holding element and a single screw fastener.

Another feature is the provision of an improved socket assembly in which the above-described subassembly may be combined with convenience outlet terminals or a switch, or both. Both the switch and the convenience outlet terminals can be mounted on the insulating plate which carries the lamp socket, with appropriate jumper connections being made among the various current-carrying parts.

A still further feature is the versatility of the invention. The same general form of handle structure is used for a number of different combinations, namely, lamp socket with convenience outlet and switch, lamp socket with convenience outlet only, lamp socket with switch only, and lamp socket alone. For all of these forms the handle members have similar configurations, both interior and exterior, and are of substantially identical external dimensions. The socket assemblies used in the different forms have many similar features, permitting a high degree of standardization among the parts.

The foregoing and other objects, features and advantages of the invention will be understood in greater detail from a study of the following description thereof taken in connection with the accompanying drawings, wherein:

Fig. 1 is an elevational view showing a complete portable lamp (including lamp guard), in which the principles of the present invention are embodied;

Fig. 2 is a perspective view of a lamp handle embodying the invention, said handle being of the type having both a convenience outlet and a switch therein;

Fig. 3 is a disassembled elevational view of the handle structure;

Fig. 4 is a cross section of the handle structure, taken on the line 4—4 of Fig. 3;

Fig. 5 is a longitudinal section through the handle structure, taken on the line 5—5 of Fig. 3;

Fig. 6 is a cross section on the line 6—6 of Fig. 5;

Fig. 7 is a disassembled perspective view of the lamp socket assembly, including switch and convenience outlet contacts;

Figs. 8 and 9, respectively, are elevational and bottom views of this socket assembly;

Fig. 10 is a longitudinal sectional view showing a modified form of handle structure which omits the switch;

Fig. 11 is a cross section of the modified handle structure taken on the line 11—11 of Fig. 10; and

Figs. 12, 13 and 14 are cross sections taken on the lines 12—12, 13—13 and 14—14 of Fig. 5, these views also being identical with like sections on the structure shown in Fig. 10.

Referring to the embodiment of the invention illustrated in Figs. 1 to 9, inclusive, the various parts of the handle structure 20 illustrated therein comprise the two complementary handle members 22 and 24 and the socket assembly generally designated 26. The assembly 26 includes a screw shell 28, center contact 30, square insulating plate 32, convenience outlet terminals or spring contacts 34 and 36, and a switch 38. The handle members 22 and 24 are of rigid insulating material internally hollowed to receive and enclose the socket assembly 26. The handle member 22 has a convenience outlet portion 40 thereon, and the handle member 24 has an opening 42 therein through which the switch operating member or key 44 projects.

Fig. 1 illustrates a complete portable lamp assembly in which the foregoing parts are included. The lamp bulb 46 is screwed into the socket 28 (Fig. 3) at one end of the handle 20. A lamp guard 48 consisting of a wire cage with a reflector 50 attached thereto encloses the bulb 46. A split band 52 at one end of the cage is clamped onto a grooved portion 54 (Fig. 2) of the handle 20 at the end thereof in which the screw shell 28 is disposed. A hook 56 extends from the other end of the guard 48 for a well known purpose.

The lamp handle 20 is connected to an electric cord 58 which terminates in a conventional plug 60. The switch key 44 turns the bulb 46 on and off but has no effect upon the convenience outlet 40. The outlet 40 is designed to receive the plug 62 of an electric appliance such as a power drill.

The forward end of each handle member 22 and 24 has a recess 64 therein, Figs. 2 and 5, for receiving the screw shell 28. Extending transversely to the axis of this recess in each handle member is a narrow recess or slot 66, Figs. 4 and 5, for receiving the corner portions of the square insulating plate 32 which is secured to the screw shell 28. The walls of the slot 66 grip the corner portions of the plate 32 with a snug fit.

The screw shell 28 is secured to one side of the insulating plate 32 by rivets 68 and 69, Fig. 4. Secured to the opposite side of the plate 32 by the rivet 69 is a terminal piece or jumper 70, Figs. 3, 8 and 9. The contact spring 34 of the convenience outlet 40 is secured to this jumper 70 by a terminal screw 72. The screw 72 passes through a clearance opening in the jumper 70 and is threaded into a tapped opening in the heel of the contact piece 34. If desired, the edge of the clearance opening in the jumper 70 may be burred or slit to form a lock washer for the screw 72.

The switch 38 is of a well-known universal

lever type having a pair of flat, rigid, insulating frame members 74 which are disposed in parallel, spaced relation. Terminals 76 and 78, Figs. 7 and 8, are positioned between and are secured to the frame members 74 at the upper and lower edges, respectively, of the switch 38. These terminals are electrically connected to the stationary contacts (not shown) of the switch 38. A rotary bridging contact 80, Fig. 8, is journaled in the frame member 74 and is disposed between the stationary contacts in cooperation therewith for alternately making and breaking a circuit between the terminals 78 and 80 as the rotary contact 80 moves. The key of the switch 38 is actually a universal lever for operating the rotary contact of the switch. The details of the mechanical connections between the key 44 and the rotary switch contacts are not illustrated herein inasmuch as they are familiar to those skilled in the art. The key 44 of the switch 38 projects laterally from the side edges of the frame members 74.

The terminal 76 at the upper edge of the switch 38 has a tapped opening 82 therein. A screw 84, Figs. 3 and 4, passes through a hole in the base of the center contact 30 and through a corresponding aperture 86 in the insulating plate 32 and is threaded into the tapped opening 82 in the switch terminal 76, thereby securing the subassembly comprising the screw shell 28, center contact 30 and plate 32 to the switch 38. Preferably, the aperture 86 in the plate 32 through which the screw 84 passes is elongated into a keyhole configuration, as shown in Fig. 4, and a corresponding embossure is formed in the base of the center contact 30 to fit in this slot 86. This prevents any tendency for the contact 30 to turn and loosen the screw 84 as lamp bulbs are inserted in and removed from the screw shell socket 28.

The contact spring 36, Figs. 7, 8 and 9, of the convenience outlet 40 is secured by a terminal screw 90 to a jumper or terminal piece 92 which extends to the bottom of the switch 38 and is there secured by a screw 94 to the bottom terminal 78 of the switch 38. The clearance opening in the contact piece 36 through which the screw 90 passes may be burred or slit to form a lock washer so as to prevent the terminal screw 90 from loosening. Thus, by the use of two screw fasteners 84 and 94, the three parts of the socket assembly shown in Fig. 7 are united. This assembly is made up as a unit before being inserted into the handle 20.

As mentioned above, the screw shell 28 and the square insulating plate 32 fit into complementary recesses and slots 64 and 66 in the handle members 22 and 24 when the lamp handle 20 is assembled. The convenience outlet contacts 34 and 36 extend into corresponding apertures 96 in the handle member 22. The switch operating key 44 extends through the aperture 42 in the handle member 24. As shown in Figs. 7 and 8, small holes 98 are punched through adjoining portions of the contact spring 34 and associated jumper 70, and the contact spring 36 and associated jumper 92. These apertured portions of the contact springs 34 and 36 are positioned adjacent small bosses 100, Fig. 6, on the inside of the handle member 22. Drive screws or pins 102, Figs. 5 and 6, are forced through the holes 98 and into corresponding holes in the bosses 100, thereby securing the convenience outlet terminals 34 and 36 to the interior of the handle member 22. This

also serves to hold the entire socket assembly 26 in place.

The electric cord 58 extends through the center of the handle 20 to the cavity 104, Fig. 5, in which the switch mechanism 38 is located. The conductors 106 and 108 of the cord 58 then are knotted and are led respectively up to the terminal screws 72 and 90. The terminal screws are loosened to permit insertion of the wires, and are then tightened again. In order to prevent the inadvertent connection of a conductor to the terminal screw 94 at the bottom of the switch 38, a small apron 110, Fig. 5, is provided on the inside of the handle member 22. This apron 110 underlies the screw 94 and prevents the attachment of a wire thereto.

For securing the two handle members 22 and 24 together, there is provided a C-shaped holding element 112, Figs. 3, 5 and 13, which is received in arcuate recesses 114 that are formed in the interior of each handle member 22 and 24. The holding element 112 is made of suitable material such as brass and is slightly resilient. Approximately one-half of this holding element 112 is disposed adjacent each handle member 22 and 24. One end of the element 112 is permanently secured to the handle member 22 by a rivet 116. The electric cord 58 is partially embraced by the element 112 and may be slipped into or out of this element without disconnecting the conductors 106 and 108 from the terminal screws 72 and 90.

The other end of the holding element 112 has a tapped opening therein to receive a screw fastener 118 which passes through an opening in the handle member 24 and is threaded into the holding element 112. This is the only screw fastener employed to hold the two parts of the handle 20 together. The holding element 112 has a snug fit within the corresponding recess 114 in the handle member 24. The holding element 112 and the plate 32 both tend to prevent any relative sliding motion of the handle members 22 and 24. The screw 118, when tightened, serves to clamp the handle members 22 and 24 together with their edges in mating engagement.

Figs. 10 and 11 partially illustrate a modification which omits the above described switch 38. In this case both of the jumpers or terminal pieces 120 and 122 are secured directly to the square insulating plate 124 on which the screw shell 126 is mounted. The jumper 112 is permanently secured to the plate 124 and to the center contact (not shown) of the screw shell socket by a rivet 128. The screw shell 126 is secured to the plate 124 by rivets 129 and 130, rivet 129 also serving to secure the jumper 120 to the plate 124 and to the shell 126. Terminal screws 132 and 134 respectively secure the jumpers 120 and 122 to the spring contacts or terminal pieces 136 and 138 of the convenience outlet 140 in the handle member 142. The contacts 136 and 138 and the jumpers 120 and 122 are secured to the handle member 142 by drive screws or pins 144, with the contacts 136 and 138 extending into apertures 146 in the outlet portion 140 of the handle member 142. The handle member 142 mates with a complementary handle member 150, and the two are held together by a C-shaped holding element 112, just as in the first-described embodiment of the invention. The terminal screws 132 and 134 are connected respectively to the conductors 106 and 108 of the cord 58.

From the above description it is evident that the handle structure of the switch may be modified for use in many situations. Where a switch and lamp socket without the convenience outlet are desired, the contact springs 34 and 36 are omitted from the socket assembly 26, Fig. 7. Where neither a convenience outlet nor a switch is needed, the contact springs 136 and 138 are omitted from the socket assembly shown in Figs. 10 and 11. In all of these embodiments, the same general configuration of the handle is maintained, and the handle members have approximately the same exterior dimensions. The lamp is assembled in the same general manner in every instance. That is, the preassembled socket unit is inserted in one handle member and is secured thereto. The cord is attached to the terminals of this unit, and the other handle member then is secured to the first handle member by a single screw fastener as 118.

Various strain relief devices may be employed on the cord 58. One form of such device is indicated at 154 in Figs. 5 and 12. Two clamping members 156 embrace the cord 58 on opposite sides thereof and are secured together by screws 158. The strain relief device 154 is received in cavities 160 which are formed in the interiors of the handle members 22 and 24. A strain relief device 154 is included also in the embodiment of Fig. 10. There is likewise shown a different type of strain relief device in this latter view, comprising a fiber disc 162 which is disposed in the cavity 164. This disc 162 has a pair of holes therein through which the conductors 106 and 108 of the cord 58 are passed and are knotted in back of the disc 162 before being secured to the terminal screws 132 and 134. In practice it probably would not be necessary to use both of the strain relief devices 154 and 162, either one alone being sufficient for the purpose.

At the lower end of the handle 20, as shown in Figs. 5 and 14, there is a seal or gasket 166 of rubber, neoprene or other suitable material received in a cavity 168 specially provided therefor in each handle member 22 and 24. The central portion of the seal 166 consists of a thin diaphragm 170 which readily accommodates itself to various thicknesses of cord.

From the foregoing description it is apparent that I have provided a portable lamp structure which fulfills the above-stated objects of the invention. Modifications can be effected therein without departing from the principles of the invention, and it is intended that all such modifications shall be included within the scope of the appended claims.

I claim:

1. In combination in a portable electric lamp, a handle comprising a pair of one-piece molded complementary handle sections each with a lower gripping portion, one of said sections having receptacle openings therein above the aforesaid gripping portion for receiving an electric plug and said handle having an opening for an electric switch actuator above the aforesaid gripping portion displaced angularly from the aforesaid receptacle openings; a unitary assembly including a lamp socket, a switch, a rectangular mounting plate interposed between said socket and switch, receptacle prongs, and a switch actuator; said handle sections together providing an internal cavity portion for receiving said rectangular mounting plate and of such a configuration as to prevent any longitudinal and rotational movement of said plate in said handle; and said switch actuator and receptacle prongs being positioned in said assembly respectively to

extend through the aforesaid switch-actuator opening in said handle and into the receptacle openings in the aforesaid handle section, whereby said switch actuator and receptacle openings are disposed contiguous one another above the aforesaid gripping portion of said handle for convenient use in the utilization of the portable lamp.

2. In combination in a portable lamp, a unitary assembly including a lamp socket, a switch, a rectangular mounting plate interposed between said socket and switch, receptacle prongs, and a switch actuator; a handle comprising a pair of one-piece molded complementary handle sections each with a lower gripping portion and together providing an internal cavity portion for receiving said rectangular mounting plate and of such a configuration as to prevent longitudinal and rotational movement of said plate in said handle; one of said sections having receptacle openings therein above the aforesaid gripping portion and aligned with said receptacle prongs for receiving and supporting said prongs; said handle having a further opening above the aforesaid gripping portion angularly displaced from the receptacle openings and aligned with said switch actuator for receiving

and supporting said actuator; and a single fastening device disposed adjacent the gripping portion of said handle for holding together said handle sections; whereby said switch actuator and receptacle openings are disposed contiguous one another above the aforesaid gripping portion of said handle for convenient use in the utilization of the portable lamp.

RUDOLF POPP.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
Re. 20,585	Kollath	Dec. 14, 1937
988,507	Beeve	Apr. 4, 1911
1,076,943	Berg	Oct. 28, 1913
1,382,800	Purple	June 28, 1921
1,460,394	Tweedy	July 3, 1923
1,516,158	Seaman	Nov. 18, 1924
1,687,569	Ile	Oct. 16, 1928
1,797,607	Despard et al.	Mar. 24, 1931
1,882,791	Ferris	Oct. 18, 1932
2,049,224	Ribble et al.	July 28, 1936
2,085,683	McGill	June 29, 1937
2,272,040	Muldoon	Feb. 3, 1942