

May 3, 1938.

E. C. SMALLY

2,116,162

ELECTRIC DEVICE

Filed Jan. 21, 1937

2 Sheets-Sheet 1

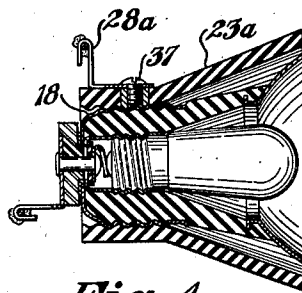
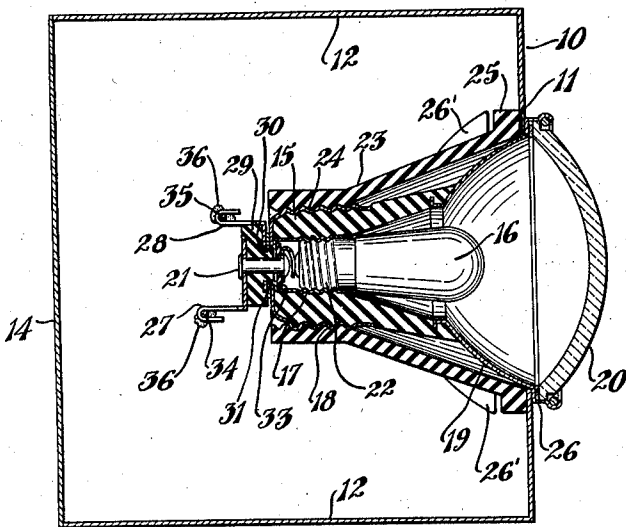
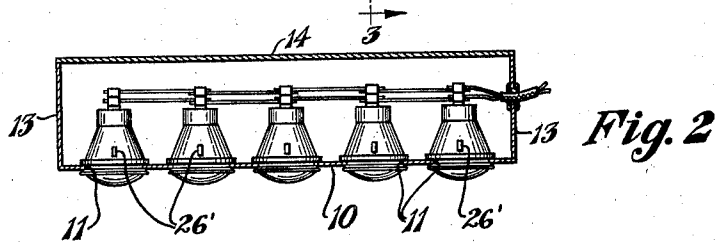
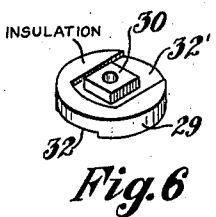
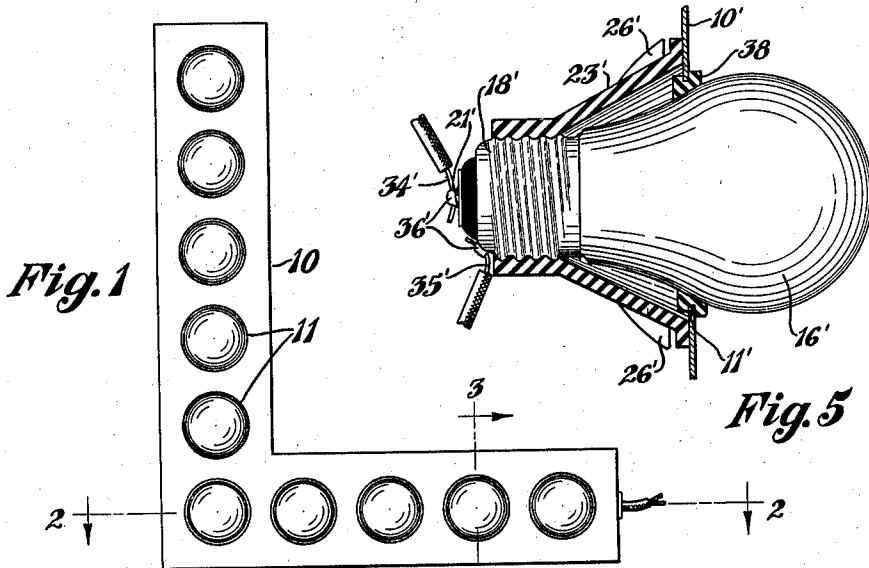


Fig. 3

Fig. 4

Inventor
Emanuel C. Smally

334
Frest and Bishop
Attorneys

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E. C. SMALLY

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2 Sheets-Sheet 2

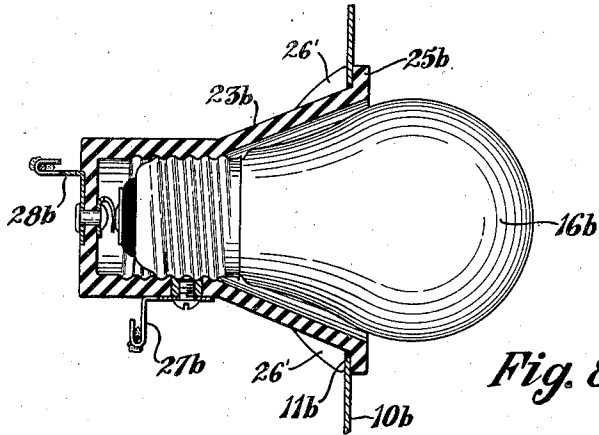


Fig. 8

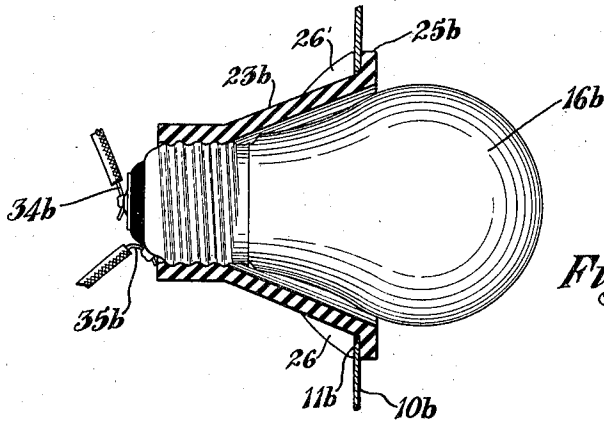


Fig. 7

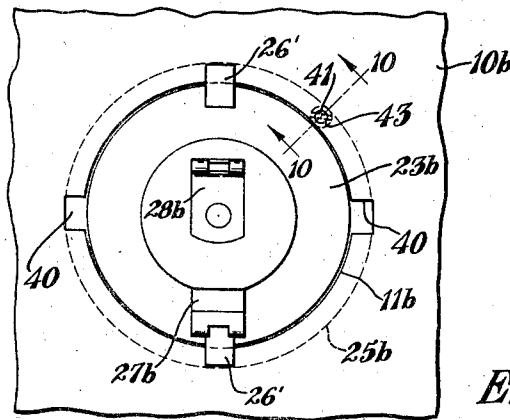


Fig. 9

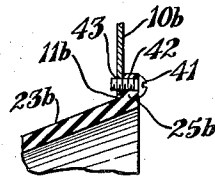


Fig. 10

Inventor
Emanuel C. Smally

334

Trust and Bishop
Attorneys

UNITED STATES PATENT OFFICE

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ELECTRIC DEVICE

Emanuel C. Smally, Canton, Ohio

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9 Claims. (Cl. 40—130)

The invention relates to electric devices and more particularly to a sign or display device utilizing electric lamps or lighting units.

The object of the invention is to provide a device comprising a sheet metal support having openings therein to receive the lamps or lighting units and means for attaching the lamps to the support, the usual sockets for the lamps being dispensed with.

Another object is to provide a novel clamping collar for attachment to the base of each lamp for clamping the lamp within an opening of the support wall.

A further object is to provide a device of the character referred to in which each lamp is provided with a reflector and lens.

A still further object of the improvement is to provide means for supporting the lamps within openings in the sheet metal support and means for electrically connecting the usual circuit wires directly to the bases of the lamps or lighting units.

The above objects, together with others which may be apparent from the drawings and following description, or which may be later pointed out, may be attained by constructing the improved electric sign in the manner illustrated in the accompanying drawings, in which

Figure 1 is a front elevation of a sign embodying the invention;

Fig. 2, a section on the line 2—2, Fig. 1;

Fig. 3, an enlarged section on the line 3—3, Fig. 1;

Fig. 4, a detail sectional view of a slightly modified form of the invention;

Fig. 5, a large scale section showing a lamp without a reflector;

Fig. 6, a perspective view of the insulation washer for attachment of the contact clips to the base;

Fig. 7, an enlarged section through a modified, simple form of the invention in which the insulation clamping collar itself is locked within a bayonet opening in the sheet metal supporting member;

Fig. 8, a view similar to Fig. 7, showing the form of insulation clamping collar illustrated in Fig. 7, and provided with electrical contacts for the lamp or lighting unit, whereby the lamp may be removed and replaced from the front side of the sheet metal support;

Fig. 9, a fragmentary rear elevation of a portion of a sign or display device as illustrated in Fig. 8; and

Fig. 10, a fragmentary detail section, taken as on the line 10—10, Fig. 9, showing one means for

locking the insulation collar against turning movement in the sheet metal support.

Similar numerals refer to similar parts throughout the drawings.

In carrying out the invention a sheet metal support is provided, which may be made in the form of letters or other desired shapes, indicated in the drawings at 10, and provided with a plurality of apertures 11, arranged in any desired design and corresponding in number to the incandescent bulbs to be used in the sign.

Especially when the display device is designed for outside use as a sign, the entire sign, or each unit thereof, as shown in Figs. 2 and 3, may be made in the form of a box to protect the electrical connections from the weather. This may be accomplished by providing top and bottom walls 12, and side walls 13, connected to the edge portions of the front or support wall 10, and a back wall 14, preferably removable so as to permit access to the electrical connections in order to make repairs or replacements.

As shown in Figs. 1 to 3, each incandescent bulb may be provided with a reflector and a lens, forming a unit of the general character disclosed in my prior patent Reissue No. 18,974 of October 24, 1933.

In this form of the invention a standard base 15 is provided with a socket to receive a small lamp bulb 16, said socket being lined by a sheet metal socket shell 17, electrically connected to the sheet metal base shell 18, which may be screw threaded in the manner of standard lamp bases.

A reflector 19 is carried by the base 15 and has a lens 20 connected to its peripheral portion. These lenses may be of clear glass or of any desired color to carry out various color schemes in the construction of electric signs in which they are used.

A rivet 21 or the like may be located through the rear end of the base shell 18, and insulated therefrom, for providing a contact for the rear end of the base 22 of the small lamp bulb 16, while the other contact is through the side of the small base to the socket shell 17 and then to the standard base shell 18.

In assembling the sign one of the lamp units above described may be located through each opening 11 of the support 10, as shown in the drawings, and a clamping collar 23, formed of bakelite or other suitable insulation or insulated material is then placed in position to clamp the lamp unit in place.

This clamping collar may be of conical form and provided with the internal screw threads 24

at its reduced end for engagement upon the threaded base shell 18, and provided at its larger end with the rim portion 25 for contact with the inner surface of the support wall 10, to draw the lamp unit tightly through the aperture 11 and hold the rim portion 26 thereof tightly against the front surface of the wall 10. Lugs 26' may be formed upon the collar 23 to assist in turning the same.

Electric connections to the lamps may be made by soldering the circuit wire to the rivet 21 and base shell 18 of each unit in usual and well known manner, or if desired, spring clips 27 and 28 may be electrically connected to the rivet 21 and base shell 18 respectively.

This attachment may be made through an insulation washer 29 having a squared portion 30 fitting through a squared opening 31 in the end of the shell 18. The washer 29 has oppositely disposed recesses 32 and 32' on opposite sides to receive the end portions of the clips 27 and 28 respectively. Thus when the rivet 21 is located through the washer 29, clips 27 and 28 and inside washer 33, the clips are rigidly held against movement relative to each other and to the base, thereby preventing any possibility of short circuit by contact of the clips with each other.

The circuit wires 34 and 35 may be attached to the clips 27 and 28 respectively in usual and well known manner. Where the sign is designed for outdoor use the wires may be soldered to the clips as indicated at 36. For convenience, a drop of solder, as indicated at 36, may be placed upon each clip before the unit is sent out into the field for use, thus requiring only the touch of a hot soldering iron to form the soldered joint after the wire is attached to the clip. In the same manner a drop of solder may be placed upon the rivet and shell of each unit when it is desired to solder the wires directly thereto as above described.

In Fig. 4 is shown a slight modification of the invention in which all parts may be as above described except that the clip 28a is attached to the insulation collar 23a as by a binding screw 37 which makes contact with the base shell 18.

The invention in a simple form is illustrated in Fig. 5, in which an ordinary lamp bulb 16' may be located through each opening 11' in the support wall 10', a ring 38, of soft rubber or the like, being located around the bulb to protect the same from breakage by pressure against the edges of the opening 11'. The insulation collar 23' is screwed upon the base shell 18' of the lamp bulb and draws the bulb tightly into the opening 11', in the manner above described. The wires 34' and 35' may be connected to the shell 18' and the rivet 21' as by drops of solder 36', or if desired, clips such as shown in Figs. 3 and 4 may be connected to the lamp base for the attachment of the circuit wires.

In Figs. 7 to 10 inclusive is shown a slightly different form of the invention in which the insulation collar 23b is adapted to be locked within the opening 11b of the sheet metal support 10b as by a bayonet lock.

This may be accomplished by providing a diametrically opposite pair of notches 40, in the opening 11b of the sheet metal support, to receive the diametrically opposed lugs 26' upon the collar 23b, which may be inserted from the front side of the support and then given a partial turn to bring said lugs out of register with the notches, as shown in Fig. 9.

For the purpose of locking the collar in this

position, a screw 41 may be located through a suitable aperture 42 in the flange 25b of the collar and into a tapped bore 43 in the sheet metal support.

The collar is thus held locked in position upon the sheet metal support, the lugs 26' and flange 25b of the collar being spaced sufficiently, as shown in the drawings, to receive the edge portion of said sheet metal support surrounding the opening 11b therein.

The circuit wires 34b and 35b, as shown in Fig. 7, may be attached to the base of the lamp, or lighting unit, in the same manner as is shown and described with reference to Fig. 5; or if desired, as shown in Figs. 8 and 9, the electrical connections may be carried in the collar itself so that the lamp or lighting unit may be removed and replaced entirely from the front of the support 10b.

In this case spring clamps 27b and 28b, or other suitable and well known forms of electrical contacts may be carried in the insulation collar and adapted to make contact respectively with the side and end of the base of the lamp or lighting unit.

Although an incandescent lamp 16b is shown in Figs. 7 and 8, it should be understood that the lighting unit, such as shown in Figs. 1 to 4 inclusive, may be mounted in the collar 23b without in any manner departing from the invention.

It is further pointed out that although the drawings illustrate the insulation clamping collar in the different views, as adapted to receive a screw threaded base of a lamp or lighting unit, it is not the intention to limit the invention to such a screw threaded structure, as the collar may be as readily adapted for use with any other common and well known form of base, without limiting the invention within the scope of the appended claims.

From the above it will be seen that a very simple and inexpensive electric display or sign is provided, eliminating the usual sockets, thus materially reducing the cost of production and installation of the device.

I claim:

1. An electric device of the character described including a support wall having an opening therein, an electric lighting unit having a maximum diameter greater than said opening and provided with a base, a member screw-threaded at its inner end portion secured to said base flaring outwardly from the base with its terminal portion bearing against the rear surface of said support wall and coacting with the lighting unit engaging the outside edge of the opening for holding said lighting unit tightly within said opening, and means for electrically connecting circuit wires to the base.

2. An electric device of the character described including a support wall having an opening therein, an electric lighting unit having a maximum diameter greater than said opening and provided with a base, a screw-threaded collar secured to the base outwardly flaring from the base and its threaded portion to its outer terminal portion, said terminal portion bearing against the inner face of said support wall and coacting with the lighting unit in contact with the outside edge of the opening for holding said lighting unit tightly within said opening, and means for electrically connecting circuit wires to the base independently of said collar.

3. An electric device including a support wall having an opening therein, an electric lamp having a reflector of greater maximum diameter than

said opening and having a base, means for holding said reflector tightly within said opening, and means for electrically connecting circuit wires to said base.

5 4. An electric device including a support wall having an opening therein, an electric lamp having a reflector of greater maximum diameter than said opening and having a base, means upon said base and bearing against the rear surface
10 of said support wall for holding said reflector tightly within said opening, and means for electrically connecting circuit wires to said base.

15 5. An electric device including a support wall having an opening therein, an electric lamp having a reflector of greater maximum diameter than said opening and having a base, an insulation collar upon said base and bearing against the rear surface of said support wall for holding said reflector tightly within said opening, and means
20 for electrically connecting circuit wires to said base.

25 6. An electric device having a base, an outer conducting shell around the base, a conductor located through the rear end of the base and insulated from said shell, an electrical connection attached to the base shell, an electrical connection attached to said conductor, and an insulation washer located between said electrical connections and having shoulders on opposite sides
30 for contact with said electrical connections to prevent

relative movement of the electrical connections.

7. An electric device having a base, an outer conducting shell around the base, a conductor located through the rear end of the base and insulated from said shell, an electrical connection attached to the base shell, an electrical connection attached to said conductor, an insulation washer located between said electrical connections and having shoulders on opposite sides for contact with said electrical connections to prevent relative movement of the electrical connections, and means upon the washer for preventing movement of the washer relative to the base.

8. An electric device including a wall having an opening therein, an electric lamp having a reflector provided with an annular rim of greater diameter than said opening and having a base, and means engaging said base for holding said reflector within said opening with the rim thereof surrounding the opening on the front side of said wall.

9. An electric device including a wall having an opening therein, an electric lamp having a reflector of maximum diameter at least as large as said opening, and having a base, and means engaging said base for holding said reflector within said opening with the largest portion of said reflector substantially flush with said wall.

EMANUEL C. SMALLY.