Sept. 26, 1967 G. D. BROWN 3,344,269

ELECTROLUMINESCENT PANEL DEVICE

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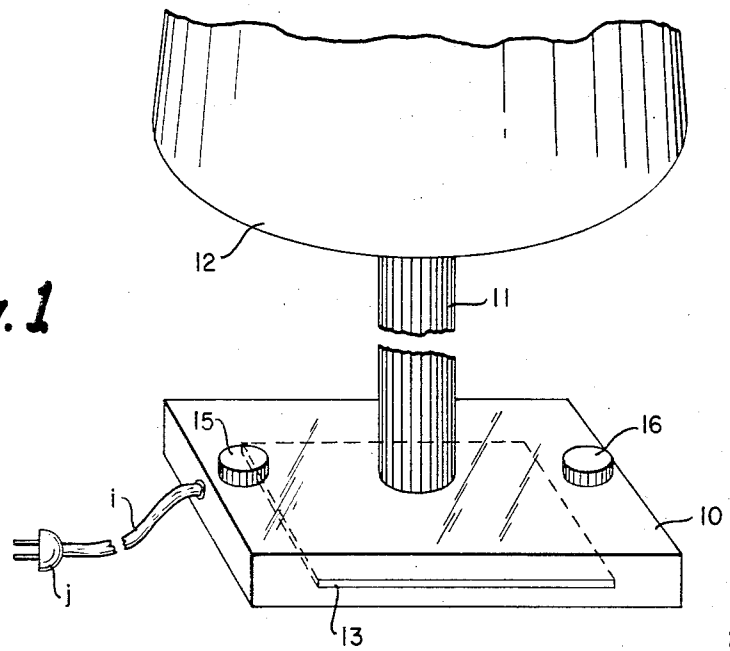


Fig. 1

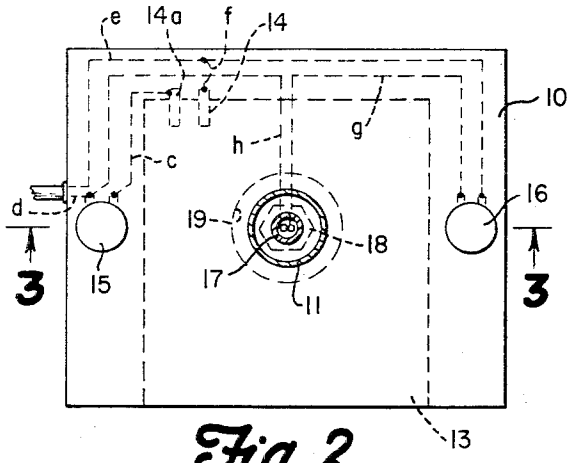


Fig. 2

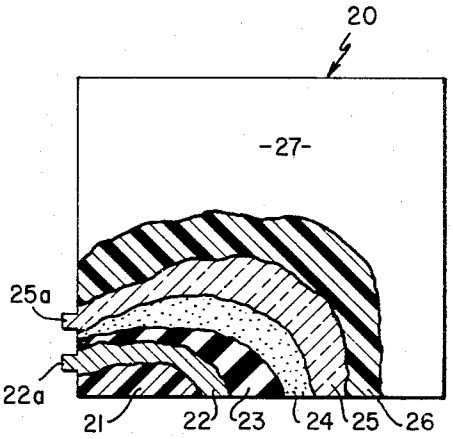


Fig. 4

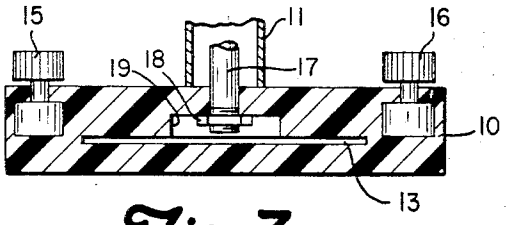


Fig. 3

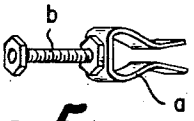


Fig. 5

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ELECTROLUMINESCENT PANEL DEVICE

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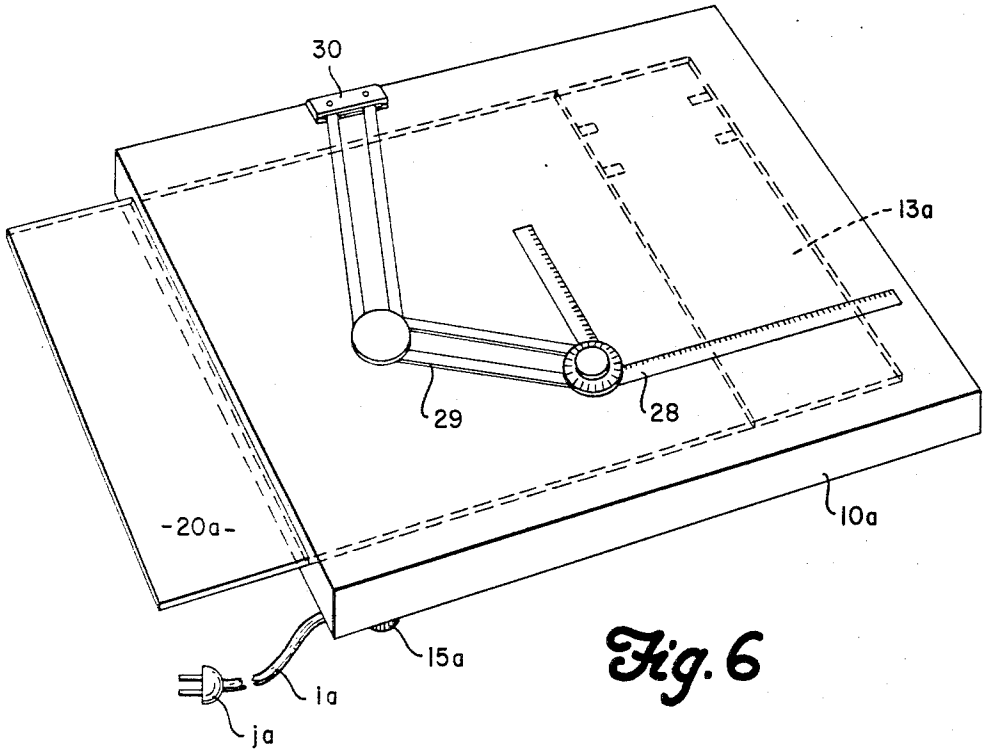


Fig. 6

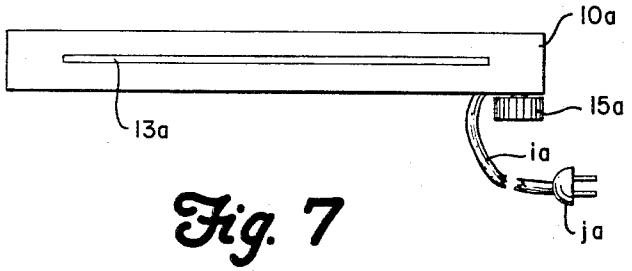


Fig. 7

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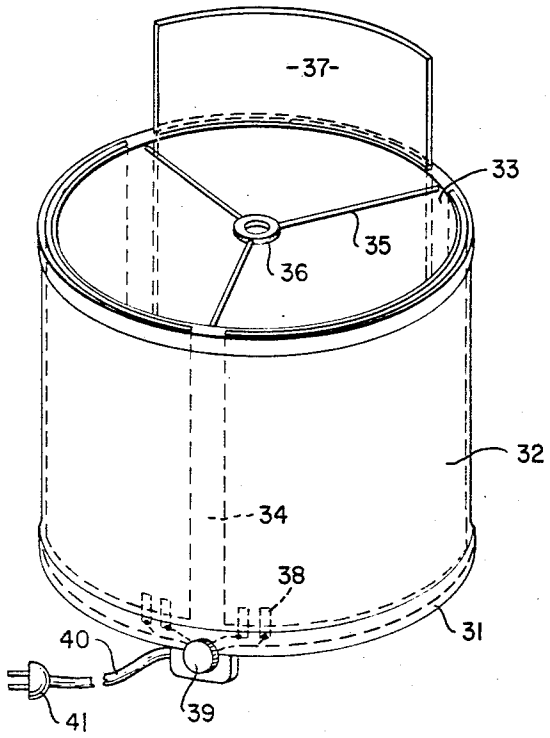


Fig. 8

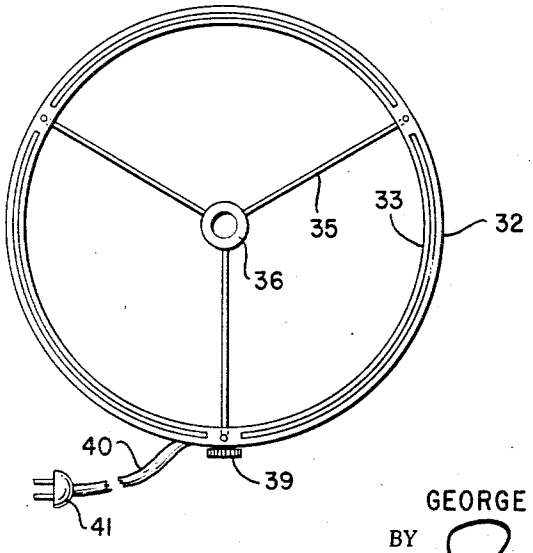


Fig. 9

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ELECTROLUMINESCENT PANEL DEVICE

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ABSTRACT OF THE DISCLOSURE

An electroluminescent panel device for lamps in which a base or shade of transluscent non-metallic plastic material has a cavity or a plurality of pockets for slide panels, in electrical contact therewith, and electric circuit means including switch means to establish illumination thereof.

An object is to produce a unique assembly of a translucent sheath or pocket which may have practical significance in several ways and an electroluminescent panel or slide to be housed or contained within the pocket for illuminating the same and particularly the surface thereof.

Another object is to produce a new and improved table lamp, the base of which is of translucent material within which an electroluminescent slide or panel may be mounted for achieving illumination thereof, control means being provided for the intensity of illumination.

A further object is to produce a novel drawing board of translucent material which is illuminated by an electroluminescent panel inserted into the body of the board.

A still further object is to produce a new and improved lamp shade having one or more electroluminescent panels which may be usefully applied or removed at will for creating illumination of the shade.

A still further object is to provide an electroluminescent slide panel and translucent holder or support for same having wide utility when illumination is required and in which the source of illumination is concealed.

For purposes of illustration but not of limitation embodiments of the invention are shown on the accompanying drawings, in which

FIGURE 1 is a top perspective view of a table lamp, the pedestal and shade thereof being shown in fragment;

FIGURE 2 is a top plan view of the lamp base, the upright pedestal and tube being shown in transverse section;

FIGURE 3 is a transverse sectional view substantially on the line 3—3 of FIGURE 2;

FIGURE 4 is a plan view of the electroluminescent slide panel, portions being broken away to show the various plies;

FIGURE 5 is a perspective view of one of the electrical connectors or clips carried by the lamp base to be electrically contacted by the slide panel;

FIGURE 6 is a top plan view of a drawing board, showing the electroluminescent slide panel partially inserted into its recess or socket;

FIGURE 7 is a front edge elevation of the drawing board with the slide panel removed and the set scale and linkage likewise removed;

FIGURE 8 is a top perspective view of a lamp shade equipped with electroluminescent slide panels, one of which is partially inserted into its recess or socket; and

FIGURE 9 is a top plan view of the lamp shade shown in FIGURE 8 with the electroluminescent slide panels removed.

The illustrated embodiment of the invention shown on FIGURES 1 to 5 of the drawings comprises a table lamp having a base consisting of a rectangular block **10** of glass or other transparent non-metallic plastic, such, for example, as Plexiglass or the like. Suitably mounted centrally

of the top surface of the block **10** is an upright tubular pedestal **11**, on which is suitably supported a lamp shade **12**. Formed in the block **10** about midway of its depth dimension is a relatively narrow cavity or socket **13**, which is of substantial width, closed at its rear end and open at the front of the block **10**. At the rear end of the socket or cavity **13** and at one side thereof is a pair of spaced contact elements **14** and **14***a*. Each of these contact elements consists, as shown on FIGURE 5, of a U-shaped clip having a pair of spring arms *a* and connected to the clip is a screw-threaded binding post *b*. The open ends of the spring arms *a* face outwardly for engagement by an electroluminescent slide panel, as will hereinafter be described.

Extending from the contact element **14***a* is a lead *c*, which extends to a switch-potentiometer **15**, the operating knob of which is accessible on the upper face of the block **10** as shown on FIGURE 1. From the switch-potentiometer **15** extends a lead *d*, which extends to a source of current. The other lead from the source of current is indicated at *e* and from this lead extends a branch lead *f* to the other contact element **14**. The lead *e* continues to a lamp switch **16**, the operating knob for which is accessible on the top of the block **10** on the opposite side of the pedestal **11**. Also connected to the lamp switch **16** is a lead *g*, which also extends to a source of current. It will be observed that the lead *g* also extends to an upright tube **17** disposed within the pedestal for supplying current to a lamp (not shown) arranged within the shade **12**. A lead *h* also extends to the lamp through the tube **17** and joins the current lead *d*. The leads *e* and *d* extend to the outside of the block **10** to form the insulated lead *i*, which has at its free end a terminal plug *j*.

The lower end of the lamp tube extends through a hole in the base block **10** and has a threaded end disposed within a countersunk recess **19**, a nut **18** on the end of the tube **17** holds it in place.

A relatively flat slide panel of multiply electroluminescent structure **20** is adapted to slide in and out of the socket or cavity **13** and is of such dimensions as substantially to fill the cavity **13** and still afford freedom for to and fro sliding movements. The multiply panel comprises an inner ply **21**, which may be of translucent plastic electrically insulating material, such as an oriented polyester film known as Mylar, sold by E. I. du Pont de Nemours & Co. On the outer side of the ply **21** is a ply of sheet material **22**, consisting of aluminum foil or other electrically conductive material serving both as a conductor and a light reflector. At the inner end of the panel the aluminum foil ply **22** has a short extension **22***a*, which, when the panel is fully inserted, engages the contact clip **14***a*. On the outer side of the ply **22** is a ply **23** in the form of a sheet dielectric and above that ply is a coating **24** of phosphor particles, which may constitute a combination of any of the well known electroluminescent phosphors, such for example as zinc sulphide with a suitable activator, such as copper powder held in an appropriate vehicle, such as epoxy resin. Other phosphors, activators and vehicles can be used to effect different degrees of brightness, lamp life and the color. The coating or ply **25** has an extension **25***a* adjacent the extension **22***a*, the extension **25***a* being for the purpose of engaging the contact clip **14** when the slide **20** is shoved fully into its recess or cavity. On the outer side of the ply **25** is a ply **26** of translucent electrically insulating plastic material, such as Mylar as above described. Finally, on the outer side of the ply **26** is a relatively heavy protective transparent plastic ply, which is translucent, the same being of any well known plastic material for this purpose.

From the above description it will be understood that when the panel **20** has been slid fully into its recess or cavity **13** with the extensions **22***a* and **25***a* engaging their

respective contact clips **14***a* and **14**, by manipulation of the potentiometers-switch **15** current can be introduced to the panel for effecting illumination thereof. When the switch is in the "on" position, a pulsing electrical field is set up to cause the phosphor material to glow and cause the illumination. By adjusting the potentiometer the degree of illumination may be controlled. It will be manifest that practically the entire base **10** will be illuminated and produce a light of a controlled intensity. If not desired, the switch **15** may be turned off so that the lamp would be operated and lighted in the usual manner by manipulation of the switch **16**.

In the embodiment of the invention shown on FIGURES 6 and 7 a drawing board is shown consisting of a rectangular block **10***a*, which may be of glass or other suitable transparent or translucent non-metallic plastic. The block **10***a* is also provided with a slide-receiving cavity or recess **13***a* to receive an electroluminescent slide panel **20***a*. There are electrical circuits similar to that above described and including contact members on the block as well as on the inner end of the slide, so that when the slide is moved into the recess **13***a* the respective contacts will be brought into engagement. As shown on the under side of the block **10***a* is a switch-potentiometer **15***a* having an insulated lead *ia* provided with a plug terminal *ja*. Manifestly, when the switch **15***a* is turned on, the surface of the drawing board block **10***a* will be nicely illuminated by means of the electroluminescent panel **20***a*, to enable the draftsman to perform his duties utilizing the set square **28**, which is shown as connected by suitable linkage **29** to a bracket fixed to the block **10***a*.

A further embodiment of the invention shown on FIGURES 8 and 9 consists of a lamp shade having a cylindrical supporting rim **31**, which is U-shaped cross section, and in which is mounted and suitably secured an outer transparent or translucent non-metallic plastic cylindrical shell **32** and spaced from the outer shell **32** and also mounted in the supporting rim **31** is an inner shell **33**, which may be of similar material. To afford stability to the structure there is a plurality of steel frame uprights **34**, to which radially disposed wires **35** are secured at the outer ends. At the inner ends of the wires **35** is a center ring **36**, which is supported on the lamp in a well known manner. Formed intermediate the inner and outer shells **32** and **33** are three curvilinear recesses or cavities to receive similarly curved electroluminescent slide panels **37**, which are similar to the slide panels above described and are equipped with contact elements engaging contact clips carried by the supporting rim **31**. It will be apparent that for each slide panel there is a pair of contact clips, and wires extending to these clips may be embedded in plastic

in the supporting rim **31**. The leads extend from the rim **31** into an insulated wire **40**, having a terminal plug **41**. A switch-potentiometer **39** is carried by a suitable bracket depending from the supporting rim **31** for controlling the illumination of the various slide panels **37**.

It will be understood that a shade of the above structure can be used in the usual manner on a supporting frame. In case it is desired not to employ the electroluminescent slide panels **37**, they may be removed and then the lamp shade will operate in the usual manner.

Numerous changes in details of construction, operation and choice of materials may be effected without departing from the spirit of the invention, especially as defined in the appended claims.

What I claim is:

1. A device of the character described comprising a unitary, horizontal block of transluscent non-metallic plastic material cored between its faces to provide a narrow slide panel receiving pocket and providing a base for a table lamp, a multiply electroluminescent slide panel in said pocket, and electric circuit means in said block cooperating with and in electrical contact with said slide panel for illuminating the latter and including switch means, said electric circuit means additionally including a lamp energizing circuit and a switch for same.

2. A device of the character described comprising means of translucent non-metallic plastic material in the form af a pair of laterally spaced cylindrical shelves, there being a plurality of pockets between said shelves, multiply electroluminescent slide panels in said pockets respectively, said panels being curved to conform to the curvature of said pockets, and electric circuit means cooperating with and in electrical contact with said slide panels and being common to the several panels to establish concomitant illumination thereof and including switch means.

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