May 16, 1950 S. M. GOFFSTEIN 2,508,250

LUMINANT SIGN

Filed July 23, 1945

Fig. 1

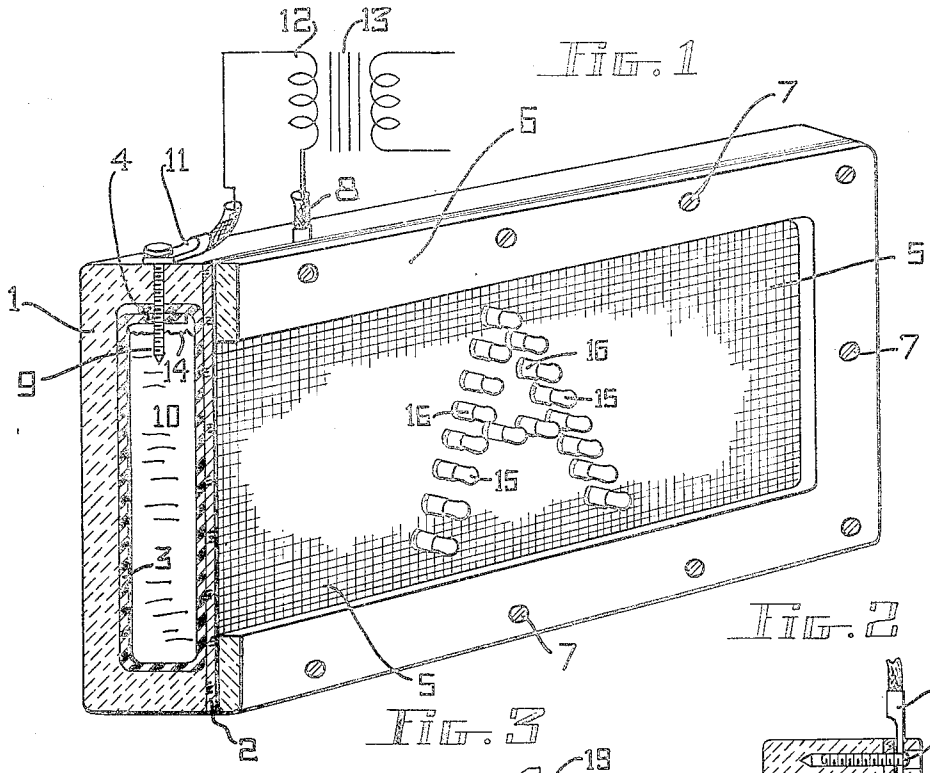


Fig. 2

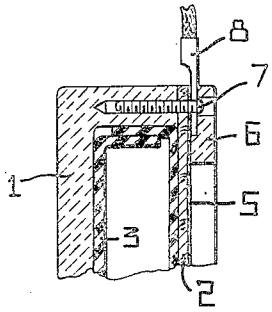


Fig. 3

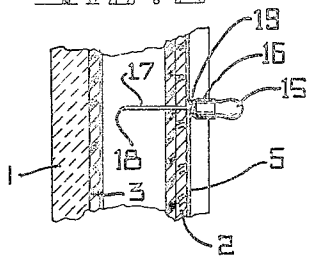


Fig. 4

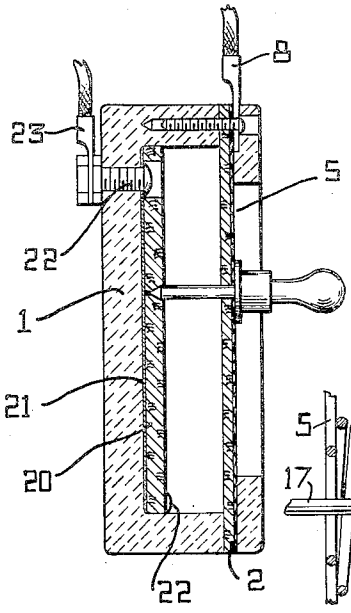
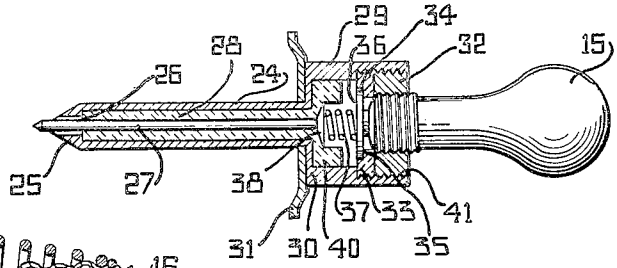


Fig. 5



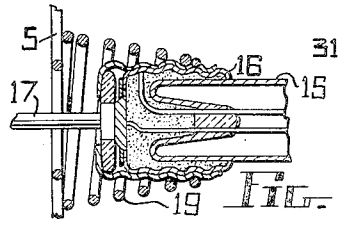


Fig. 6

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LUMINANT SIGN

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7 Claims. (Cl. 40—130)

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The present invention relates to electric signs and illuminated letters or words used primarily for advertising purposes.

In certain types of business, such as grocery and merchandise stores, it is desirable to advertise the wares and prices by relatively small signs. Illuminated signs of the neon or argon type take on set shapes and for this reason do not lend themselves to changes in words or letters. Theater advertising such as is used in connection with marquees is also not adapted to small stores because the lamps are screwed into sockets which are positioned according to a predetermined design and it would be wholly impractical to change the design from time to time since it would involve changing the positions of the lamp sockets. The translucent form of letter plate used in theater and other commercial house advertising is equally unsuited to conditions in which the character of the sign must be changed quickly and frequently. In the case of groceries and merchandising stores, sales might have to be announced and the sale of a given article may last only a day or even less so that the illuminated sign must lend itself to a condition in which it can be changed from day to day and sometimes during the day.

The primary object of the invention is to provide an improved sign in which the word forming elements can be readily shifted at will.

Another object is to provide an improved lighted sign in which the word forming lamps can be moved anywhere within the frame of the sign without being constrained to any particular position or positions and immediately make electrical contact in the new position.

Still another object is to provide an improved sign of the incandescent lamp type in which the individual lamps can be arranged over the surface of the sign to quickly form any character or word or sentence and make the necessary electrical contacts regardless of the position of the lamps in the frame.

The invention will be better understood when reference is made to the following description and the accompanying drawings in which:

Figure 1 is a perspective view of the improved luminous sign with the front portion broken away and shown in section to expose the interior parts.

Figure 2 is a fragmentary view showing the

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manner in which an electrical contact is made with one of the electrodes of the sign.

Figure 3 is a fragmentary sectional view taken at a lamp position in the frame of Fig. 1 and depicting the manner in which the lamps are placed and held in position while still making the necessary electrical contacts.

Figure 4 is a transverse sectional view of a modified form of the improved sign and Figure 5 is an enlarged view of the bulb carrying unit in the modified form of sign.

Figure 6 is a fragmentary view showing the structural relationship between each lamp socket and the conducting screen, particularly the spring contact member between these elements.

Referring more particularly to Figures 1, 2 and 3, numeral 1 designates a casing of substantial thickness and made of an insulating material, preferably a plastic. The casing is closed on three sides and at the ends but is open at the front face. A layer of cork or sponge rubber 2 is laid against the open side of the casing 1 in order to completely close the case. A heavy lining 3 of synthetic or natural rubber is provided within the casing, having upper edges of the lining overlapping, as indicated at 4. Thus the entire inner surface of the casing elements 1 and 2 except the ends is rendered liquidproof by the rubber lining. A copper wire screen 5 is secured to the outer surface of the cork or sponge rubber layer 2 in any suitable and well-known manner, for example, by a frame 6 which extends around the outside edges of the screen and is secured to the layer 2 by screws 7. One of the screws 7 is employed to connect an electric terminal 8 (Fig. 2) to the screen so that the latter can be charged. A screw 9 is threaded through the casing at its upper wall, this screw projecting for a considerable distance into the interior compartment 10 for reasons which will be explained presently. A terminal 11 is held in position by the screw 9 and a secondary winding 12 of an A. C. transformer 13 is connected between the terminals 8 and 11. The primary winding of the transformer may be connected to a suitable source of alternating current energy.

The interior 10 of the hollow sign frame is filled with a liquid conducting mass, preferably mercury, as indicated at 14.

The illuminated sign elements comprising a

bulb 15 inserted in a metal socket 16 of the usual type, i. e. in which the metal casing forms one of the contacts for the lamp and a centrally positioned button constitutes the other contact. A steel rod 17, sharpened at its end 18, is secured in any suitable manner to the contact button of the socket, this rod having considerable length.

A spiral spring 19 surrounds the rod 17 but is out of contact therewith, this spring being secured to the casing 16 as is clearly seen in Figure 6.

In operation, each lamp element 15 is grasped at the casing 16 and the rod 17 is pressed against the cork or rubber lining, puncturing the same and causing the rod to enter the compartment 10 containing mercury. It is apparent that inasmuch as the cork or sponge layer 2 is of a self-sealing character, none of the mercury leaves the compartment 10 regardless of how many times the lamp element 15 is pulled out of the casing and reinserted. By reason of the fact that the compression spring 19 is inserted between the casing 16 and the screen 5, contact is established to the other side of the transformer secondary through the screen 5. Thus, it is possible to position the lamp element 15 anywhere within the frame 6 and the lamp will be caused to light.

Any character, letter, word or sentence can be formed by arranging the lamps 15 in a predetermined manner, the letter "A" being shown on the drawing for illustrative purposes. Thus, the grocer or proprietor of other small stores can make his own signs and readily move the lamps to any position on the sign. It has been found that the double layer of material formed by the rubber lining 3 and the heavy cork or sponge layer 2 is sufficient to hold the rod in the horizontal direction at the place selected by the operator of the sign so that the lamps maintain their predetermined positions over long periods of time. In view of the fact that the casing is entirely liquid proof, there is no danger of the mercury leaving the compartment 10 so that the sign as a whole has a relatively long operating life.

In Figures 4 and 5 I have shown a modification which requires no liquid conductor. As shown, the rubber lining 3 is entirely removed and a heavy backing plate of cork or sponge rubber 20 is employed. A thin copper plate 21 is inserted between the cork layer 20 and the back member of the casing 1. The plate may be secured into position by means of a plurality of bolts 22 to one of which a conductor 23 is taken. This conductor forms one side of the line and is connected with the transformer 12. The other side of the line is represented by the conductor 8 which is secured to a copper wire screen 5, as was explained in connection with Figs. 1 to 3. For making contact with the copper screen 5 and the copper plate 21, an adapter shown in Fig. 5 may be used. A thin metal tubing 24, tapered as indicated at 25, may be employed for puncturing and for insertion into the cork layers 2, 20. This tubing has an opening 26 at its pointed end which loosely receives a steel pin or rod 27, the size of the opening being such that the rod does not contact the tubing or cylinder 24. The latter is insulated from the pin 27 by means of a Bakelite sleeve 28 which holds the pin 27 rigidly in place. The steel tubing 24 terminates at the end opposite the point in a hollow metal casing 29 of larger diameter than the tubing so as to leave a shoulder, as indicated at 30. A spiral spring 31 fits tightly

over the tubing 24 and abuts the casing 29 at the shoulder 30. The interior of the casing 29 is threaded as indicated at 41 to engage the threads of a metal plug 32 in which the lamp 15 is threadedly mounted. A shoulder 33 is provided within the casing 29 and against this shoulder rests a washer 34 of Bakelite which engages the threads 41 so that the washer is effectively interposed between the screw plug 32 and the thick portion of the casing 29. This washer is provided with a countersunk recess 35 for receiving a metal washer 36 which is held against the central plug of the lamp base by means of a compression spring 37. This spring is received by a recess in an enlarged portion 40 of the Bakelite member 28, this portion fitting snugly within the casing 29. The pin 27 is provided with an up-set tapered head 38 which when pressed by the spring 37 is forced toward a conical surface formed at the bottom of the recess in the enlarged portion 40 of the Bakelite member and also electrically connects pin 27 with the central terminal of the lamp.

Referring now to Figure 4, it will be seen that as the casing 29 is grasped by the hand the metal tubing 24 can be caused to penetrate the cork or sponge rubber lining 2 and to pass completely across the chamber within the casing 1, finally to penetrate the cork or sponge rubber lining 20. Due to the fact that when the tubing 24 is being forced through the layers 2 and 21 the spring 37 is under compression, this compressive action is available to continuously exert a longitudinal force on the pin or rod 27 to hold the latter rigidly against the copper plate 21. Thus, a firm contact is established at this point and assuming that the terminals 8 and 23 are charged with alternating voltage, the lamp 15 becomes electrically connected in series with the transformer winding 12. It is apparent that all of the various lamps, in Figs. 1 and 4, are connected in parallel to one another since in each case the spring connection directly under the tubing or casing makes electrical contact with the copper screen and the button terminal of the lamp makes connection through the pin or rod extension either with the mercury contained within the casing (Fig. 1) or the copper plate 21 (Fig. 4).

While I have disclosed my invention in connection with a lighted sign in which the various elements comprise incandescent lamps readily movable over electrically charged screen, it is apparent that the invention could be applied with little or no changes for use as a dart game. For example, pockets of mercury 10 corresponding to selected positions on the screen 19 may be used so that as a dart with an extension 17 was caused to penetrate the cork layer 2 and to be embedded in one of the mercury pockets an enunciator or bell could ring indicating the position of the dart in terms of the score points. Darts could also be made in the forms of lamps which when the rod 17 has been caused to penetrate the outer layer at a predetermined position or positions the lamp would immediately light.

However, the greatest use for my invention would be in the sign field in which a grocer, for example, wanted quickly to change the wording of his sign for advertising purposes so he could place the lamps in any position or arrangement that he desired. A certain amount of use of the improved sign may be found in limited theater advertising, announcing the showing of a movie picture and the sign is particularly bene-

ficial in case it is desired to change the sign over for another picture during the same day.

It will be understood that I desire to comprehend within my invention such modifications as come within the scope of the claims and the invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A sign comprising a casing hollow having a puncturable but self-sealing covering, a flowable conducting material in said casing, a sign lamp having a pair of terminals, a conducting sheet on one wall of the casing adapted to be contacted by one of said terminals, a conductor secured to the other of said terminals and adapted to be inserted through said covering to contact said fluid conducting material, the latter and said conducting sheet being adapted to be electrically charged.

2. A sign comprising a casing, a portion of which is formed of a puncturable self-sealing material, flowable electrical conducting material in said casing. a lamp having a plurality of terminals, one of which is provided with an extension, the extended terminal being adapted to be forced through said puncturable material to contact said fluid conducting material within the casing and the other of the terminals being adapted to contact the puncturable conducting material in order that a circuit may be established through the lamp regardless of the position of the lamp with respect to the casing, and resilient means continuously urging said other terminal into engagement with said puncturable conducting material.

3. A device of the class described comprising a casing, a fluidtight compartment in said casing, a puncturable but self-sealing covering for one wall of said compartment, said compartment being filled with mercury, an indicating lamp having a pair of terminals, a wire screen over said covering and electrically connected to one side of a source of energy, one of said terminals being adapted to contact the wire screen and the other thereof being provided with an extension to pass through the screen and the covering to make contact with the mercury within the compartment, said mercury being connected to the other side of said source of energy, and resilient means between said screen and said one terminal.

4. A sign comprising a hollow casing of closed permieter except for an open front, a puncturable fluidtight covering over said open front and an electrically conductive fluid in the casing behind said covering, a screen of conducting material clamped over said covering, a sign lamp having a pair of concentric terminals, one of which is relatively thin and pointed and is thus adapted to extend through the screen and covering to contact said fluid, and the other of which is of substantial area whereby it makes contact with said screen regardless of the location of said lamp on the surface of said covering, and means for supplying electrical energy to said screen and fluid.

5. A sign comprising a hollow casing open on one side, a rubberlike bag in said casing, an electrically conductive flowable material in said bag, a puncturable cover member over the open side of said casing enclosing the bag therein, a clamping ring clamped to the open side of said casing to retain said cover member in position, a wire screen over said cover member and also clamped

in position by said ring, means to supply electrical energy to said fluid and screen, and lamp means adapted to receive illuminating energy from said fluid and screen and each comprising concentric terminals the center one of which is thin and pointed so as to be able to penetrate said cover and bag through one of the interstices of said screen, and the other of which covers a substantial area thereby to make contact with said screen regardless of the place where said one terminal penetrates said cover.

6. A sign comprising a hollow casing open on one side, a rubberlike bag in said casing, an electrically conductive flowable material in said bag, a puncturable cover member over the open side of said casing enclosing the bag therein, a clamping ring clamped to the open side of said casing to retain said cover member in position, a wire screen over said cover member and also clamped in position by said ring, means to supply electrical energy to said fluid and screen, and lamp socket means adapted to receive energy from said fluid and screen and each comprising a socket for detachably receiving a lamp and also comprising a pair of concentric terminals the center one of which is thin and pointed so as to be able to penetrate said cover and bag through one of the interstices of said screen, and the other of which surrounds the said one terminal and covers a substantial area thereby to make contact with said screen regardless of the place where said one terminal penetrates said cover.

7. A sign comprising a hollow casing open on one side, a rubberlike bag in said casing, an electrically conductive flowable material in said bag, a puncturable cover member over the open side of said casing enclosing the bag therein, a clamping ring clamped to the open side of said casing to retain said cover member in position, a wire screen over said cover member and also clamped in position by said ring, means to supply electrical energy to said fluid and screen, and lamp socket means adapted to receive energy from said fluid and screen and each comprising a socket for detachably receiving a lamp and also comprising a pair of concentric terminals the center one of which is thin and pointed so as to be able to penetrate said cover and bag through one of the interstices of said screen, and the other of which surrounds the said one terminal and covers a substantial area thereby to make contact with said screen regardless of the place where said one terminal penetrates said cover, and said other terminal comprising a spring for effecting yielding engagement with said screen.

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