Nov. 5, 1940. L. R. TSCHOPP 2,220,618

ILLUMINATED SIGN

Original Filed Sept. 9, 1938 2 Sheets-Sheet 1

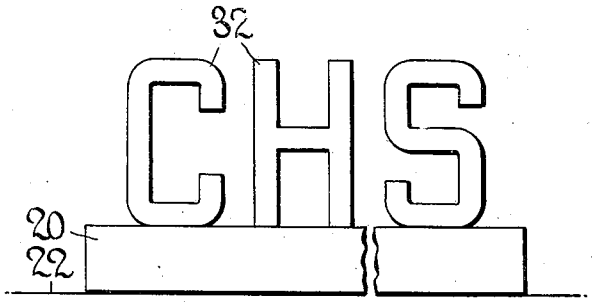
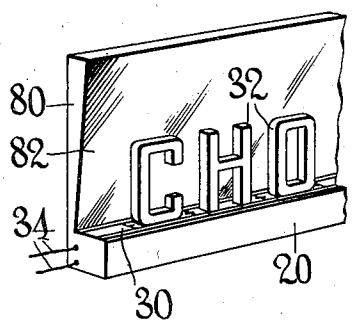


Fig. 1.

Fig. 5.



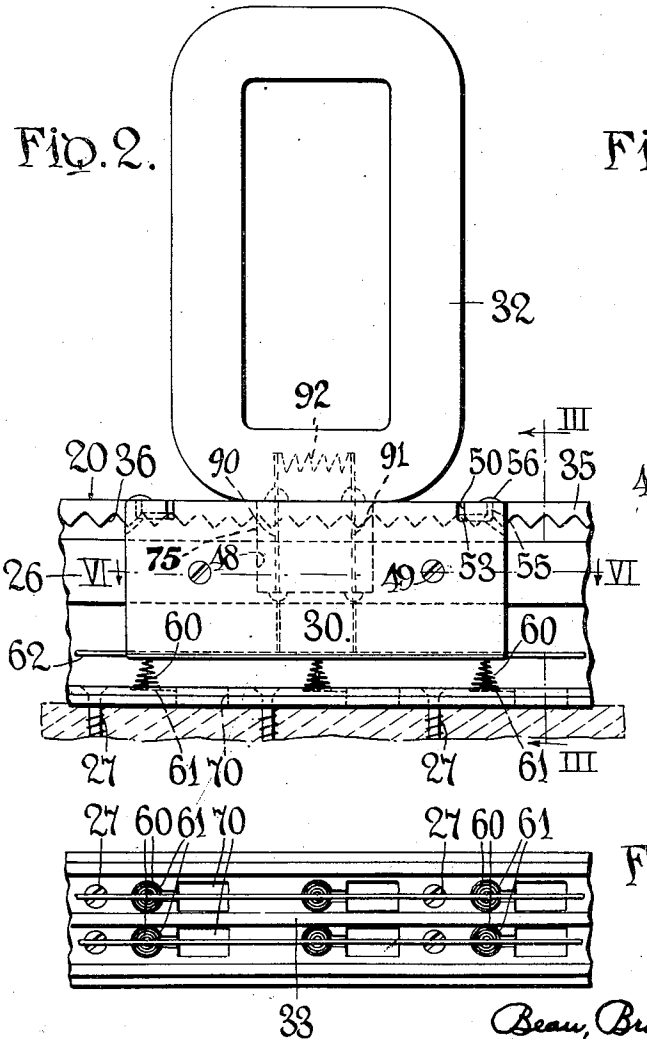


Fig. 2.

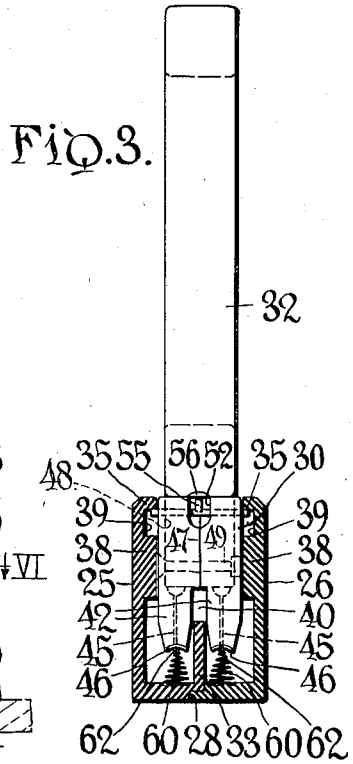


Fig. 3.

Fig. 4.

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Fig. 8.

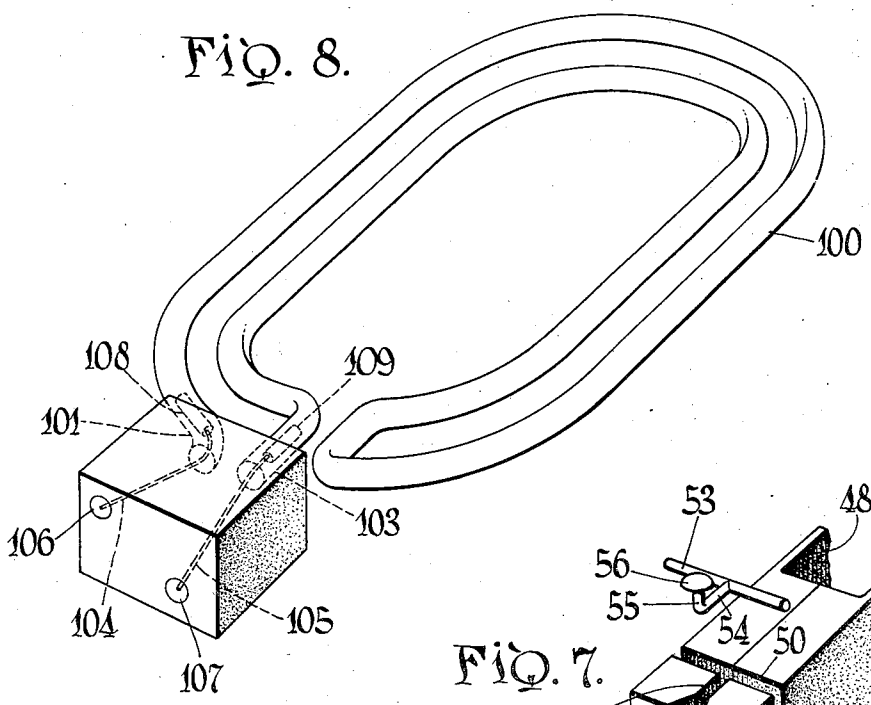


Fig. 7.

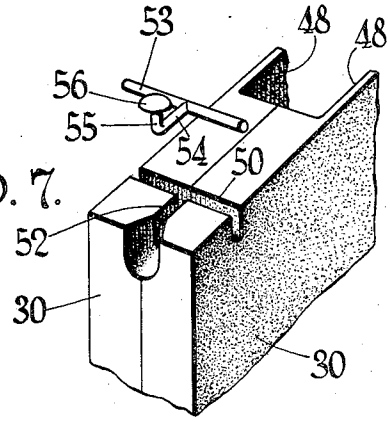
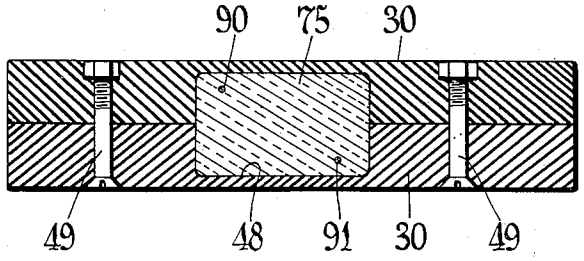


Fig. 6.



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UNITED STATES PATENT OFFICE

2,220,618

ILLUMINATED SIGN

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Application September 9, 1938, Serial No. 229,137
Renewed March 15, 1940

9 Claims. (Cl. 40—130)

This invention relates to signs and it has particular relation to illuminated signs in which replaceable and interchangeable characters are included.

One object of the invention is to provide an improved sign adapted either for illumination by reflection or by direct illumination of the characters of the sign.

Another object of the invention is to provide an improved sign having replaceable characters and adapted to be used either indoors or outdoors and in which each character comprises a lighting unit adapted to be plugged into contact with an electric circuit.

Another object of the invention is to provide an improved sign in which individual characters thereof are replaceable and interchangeable, and in which each character comprises a unit in which a neon tube or other lighting medium is installed.

Another object of the invention is to provide an improved structure for supporting and displaying characters of an advertising or like sign.

In one form of the invention a series of characters are provided each of which has a base portion that is adapted to fit into a trough or channel holder in such manner that the characters are held resiliently along a predetermined line and each base is provided with a latch which is engageable at various locations along the channel holder in order that the character may be disposed at any location therein and held against displacement therefrom. Resilient means are provided for maintaining the characters in their proper positions and these means also serve to yieldably press wiring for making electrical contacts for the characters into their proper contacting relation. Regardless of the location at which any character is inserted in the trough or channel holder, the electric contact will be automatically made to complete a circuit in such character, and the resilient means maintains firm contact until the character is removed.

In the drawings:

Fig. 1 is a fragmentary elevation showing a channel holder with sign characters installed therein;

Fig. 2 is a fragmentary elevation, on a larger scale, illustrating in detail the mounting of a sign character in a holder;

Fig. 3 is a cross section taken substantially along the line III—III of Fig. 2;

Fig. 4 is a fragmentary plan of a character supporting channel holder, together with wiring included therein;

Fig. 5 is a fragmentary perspective of another form of sign in which a reflecting back section is included;

Fig. 6 is a horizontal cross sectional view taken on the line VI—VI of Fig. 2;

Fig. 7 is a fragmentary perspective view of one end of a character base with the symbol portion of the character removed; and

Fig. 8 is a perspective view of a modified form of sign character of the luminous tube type.

In practicing the invention a channel carrier or holder **20** of insulating material, such as hard rubber, Bakelite, or the like, is adapted to be mounted upon a building or other suitable support **22**, and is composed of two sections **25** and **26** which are secured rigidly upon the support by means of suitable screws **27**, or the like. These sections are manufactured as separate units and are jointed together, as indicated at **28**, to form a channel like structure in which base portions **30** of illuminated characters **32** are adapted to be inserted for displaying such characters.

A lamp of the incandescent type is shown at **32** in Fig. 2 and in such case a glass envelope in the form of a letter or symbol is provided with a rectangular block-like projection **75** formed of insulating material. A pair of electrical conductors **90** and **91** are embedded in the block-like projection **75** and at the outer end of the projection **75** the conductors are adapted, when in assembled position with respect to the elements **30**, each to have contact with one of the conductors **45**. The conductors **90** and **91** extend to within the glass envelope where they support opposite ends of a suitable filament **92** of tungsten or the like.

In the alternative, luminous tube symbols may be employed and Fig. 8 illustrates a specimen symbol which is of the type disclosed in the patent to Bruijnes et al., No. 1,914,074, dated June 13, 1933. In Fig. 8 the tube **100** is shaped to represent the letter O and has its opposite terminal portions **101** and **102** secured to one face of a block **103** of insulating material, the block **103** being the equivalent of the block **75** of the embodiment of Fig. 2. Conductors **104** and **105** are embedded in the block **103** and lead from a pair of contacts **106** and **107** respectively which are adapted, when the block **103** is in assembled position with respect to a holder **30**, to engage the contacts **45**. The other ends of the contacts **104** and **105** enter the ends **101** and **102** of the tube **100** and engage and support conventional luminous tube electrodes **108** and **109** respectively.

The bases **30** are composed of insulating ma-

terial, such as hard rubber, Bakelite, or the like. One of the sections of the carrier 20 has an upright flange 33 which constitutes a central partition for the channel carrier and which prevents rain or other moisture, which might otherwise cause short circuiting, from flowing from one side of the channel to the other.

The upper portion of each section is provided with an inwardly turned flange 35 which has its lower side formed with a series of serrations or corrugations 36. When the sections 25 and 26 are assembled in the arrangement shown in Figs. 1 to 3, the corrugations are disposed directly opposite one another in the opposing sides of the sections. Intermediate inner sides of the sections are formed with wall portions 38, the vertical surfaces of which are substantially aligned with the inner edges of the corrugated flanges 35. Thus a groove 39 is formed in each section adjacent the upper edge thereof, and the wall portions 38 snugly and frictionally receive the bases 30 therebetween.

Each character base 30 of the several characters is provided with a lower central channel 40 which defines two lower legs 42 that are normally disposed in the carrier and extend toward the bottom thereof on opposite sides of the upwardly extending partition 33. Each character 32 can be substantially in the form of a neon tube having electric contacts or terminals 45, each of which is directly connected to an electric conductor strip or plate 46 that is arcuate in cross section and is rigidly secured along the lower extremity of the base 30; that is, a strip 46 is secured to the lower surface of each leg 42. These conductor strips present concave surfaces facing downwardly.

Each character base 30 is divided into two substantially equal sections disposed in opposed relation to receive between them the lower terminal portion 75 of the character 32. The line of division of the base 30 is substantially vertical, as indicated at 47 in Fig. 3, and the opposed faces of the sections are provided with registerable recesses 48. Before the sections constituting the base 30 are assembled, the lower portions 75 of the characters 32 are placed in the recesses and then the sections are clamped together about the characters to hold the latter in their proper position therein. Suitable securing means 49, such as stove bolts, or the like, are disposed through the sections to hold them assembled rigidly with the lower ends of the characters 32. In an arrangement of this kind, all of the bases are adapted to be manufactured according to the same pattern and in the event one of the neon tube characters becomes broken, it can be replaced without requiring replacement of the base 30. This replacement is accomplished merely by removing the fastening means 49 and installing another character in the manner described above. The character 32 need not be placed in the same location in the base 30 as that indicated in the drawings, but it is to be understood that the positioning of the character shall be according to the relative size and spacing of the characters of the sign to which the invention is applied.

Opposite end portions of the upper surface of each base 30 are provided with transverse grooves 50 and communicating grooves 52 extend longitudinally from the ends of the base 30 to the transverse grooves 50, the grooves 50 and 52 forming T-shaped grooves as seen in plan view. Each such T-shaped groove is provided with latching means comprising a latch 53 which extends along each transverse groove 50 and an extension 54 which is normal to the latch 53 and connects medially therewith. The extension 54 is disposed in the longitudinal groove 52 and terminates in an upwardly bent manipulating portion 55 which is provided with an enlarged head 56 to facilitate manual grasping thereof.

When the latching means is in the position shown in Figs. 2 and 3 the opposite ends of the latch 53 are engaged under the flanges 35 formed upon the members 25 and 26 which form the channel 20. In this position the base 30 is urged upwardly by resilient means which will be hereinafter described but such upward movement is limited by engagement of the medial portion of the latch 53 in the bottom of the groove 50 while its terminal portions are in engagement with the under side of the flanges 35.

To effect removal of the character 32 the head 56 is manually grasped and the latch means is pivoted about the axis of the latch 53 until the extension 54 of the latch extends vertically in the groove 50, whereupon the entire latch means may be removed transversely of the channel 20 in either direction until one end of the latch 53 is wholly out of the groove 39 of its associated channel element 25 or 26. It is obvious that from such position the free end of the latch may be lifted clear of the channel 20 and the base 30 and the other end of the latch 53 withdrawn from its associated groove 39.

Each section 25 is provided with a row of upwardly projecting coil springs 60 firmly secured to the bottom wall of the section in sockets 61 formed therein, and a conductor 62 in the form of conventional wire, is connected horizontally along the upper extremities of each row of springs. Connection of the wire and spring can be effected by soldering or welding, at the locations where the wire traverses the upper ends of the springs.

When the base 30 of each character is placed in the channel carrier the concave face of each conductor strip 46 engages the upper ends of a row of springs 60 and, at the same time, engages the adjacent conductor 62. In placing the base in the channel carrier 20, the springs 60 are subjected to compression, and hence, while the character remains in the carrier the springs exert force upwardly upon each base and press the latches 53 against the corrugated flanges 36. In this way the characters are always held firmly at the same level and are readily removable when it is desired to change the sign. There is sufficient space between the ends of the latch 53 and the ends of the corrugations 36 to provide for proper lengthwise movement of the latch in releasing and inserting it with reference to the corrugations.

Suitable openings 70 are formed in the bottom of each section of the carrier 20 on both sides of the partition 40 for draining moisture from the carrier, and the sockets 61 in which the lower ends of the springs 60 are mounted communicate with the openings 70 for the purpose of insuring proper drainage.

Referring to the construction shown in Fig. 5, the characters 32 are supported in the channel holder 20 and the bases 30 of the characters are held frictionally therein. In this form of construction the neon tubes and electrical connections therefor are omitted from the characters 32 and suitable electric connections 34 are provided for lighting conventional lamps in the space

behind the channel holder at the lower portion of a back board **80**, and light is reflected from an inclined surface **82** rising from behind the channel carrier. The same type of latch **53** as that shown in the other figures is provided for holding the several characters of Fig. 5 in place, and the springs **60** can be provided as shown and described previously for the purpose of maintaining the characters properly aligned and always urged in an upward direction. Thus, in all of the constructions shown the characters always are aligned both horizontally and vertically and any tendency toward disalignment is resisted by the springs and latches.

Although practical arrangements including the invention have been shown and described in detail, it will be apparent to those skilled in the art that the invention is not so limited but that various changes can be made therein without departing from the spirit of the invention or from the scope of the appended claims.

I claim:

1. A sign structure comprising a carrier of channel form, an electrically insulating partition extending upwardly from the channel bottom of the carrier, electrical conductors in said carrier at opposite sides of said partition, and a sign character having a lamp portion and a base portion supporting it removably in the carrier, the base portion of the character having downwardly extending portions disposed on opposite sides of the partition, and opposed terminal contact elements on each of the downwardly extending portions, said partition serving to electrically isolate said contact elements and to assist in positioning the sign character.

2. A sign structure comprising a channel shaped carrier having an electrically insulating partition disposed centrally therein, electrical conductors in said carrier at opposite sides of said partition, and a sign character having a lamp portion and a base portion including parts disposed on opposite sides of the partition and removably mounted in the channel carrier, said base having opposed terminal contact elements on the parts which are disposed on opposite sides of the partition whereby said contact elements are electrically isolated by the partition.

3. A sign structure comprising a channel shaped carrier, a sign character having a base portion disposed in said carrier, resilient means disposed in the carrier and normally contacting and urging the character in a direction outwardly of the carrier, latching means mounted on the sign character and engageable at various locations along the channel shaped carrier to hold the character in the carrier against the force exerted by the resilient means.

4. A sign structure comprising a channel shaped carrier, a sign character having a base portion disposed in said carrier, resilient means disposed in the carrier and normally contacting and urging the character in a direction outwardly of the carrier, latching means mounted on said character and engageable with opposite side portions of the carrier, the opposite side portions of the carrier being formed with a plurality of recesses for receiving the latching means at various locations along the carrier.

5. A sign structure comprising a channel shaped carrier, a sign character having a base portion disposed in said carrier, resilient means disposed in the carrier and normally contacting and urging the character in a direction outwardly of the carrier, the upper side of the base portion of the character having transverse grooves formed therein, opposite side portions of the carrier having inwardly projecting corrugated portions registerable with the grooves in the base portion, and latching means disposed transversely in said grooves and movable into engagement with the corrugated portions at various locations along the carrier, said grooves having communicating groove sections, said latching means having intermediate handle means extending therefrom and engageable in said groove sections to hold the latching means in latched position.

6. In a sign structure, a pair of angular sections engageable to form a channel shaped character support, a removable sign character having longitudinally bifurcated base means, a vertical flange on one of the sections disposed centrally of the channel form of the assembled sections, means on said character for locking engagement with said support, and resilient means on each of said sections on opposite sides of the flange to urge said character to locked position in the assembled sections.

7. In a sign structure, a pair of angular sections engageable with each other to form a channel shaped character support, a flange on one of the sections disposed centrally of the channel form of the assembled sections, means on said support for locking engagement with sign characters having lamp portions and electrical contact portions, resilient means on each of the sections on opposite sides of the flange to assist in positioning characters in the assembled sections, and a source of electrical energy comprising a continuous conductor and contact element extending longitudinally in said channel and supported by the resilient means on each side of the flange, whereby characters may be placed in such structure in any longitudinal position and still be in communication with said source of electrical energy.

8. A sign structure comprising a channel shaped carrier, a sign character including a base portion and a neon tube having a connecting terminal portion, said base portion being divided into a pair of opposed sections demovably holding the terminal portion of the neon tube therebetween and adapted to be inserted in the carrier, means holding the sections of the base portion together, electric conductors supported in the channel carrier and connected to the neon tube when the base is disposed in the channel carrier, means for holding said base portion in the channel member adjacent the electric conductors.

9. A sign structure comprising a channel shaped carrier, a sign character including a base portion and a neon tube having a connecting terminal portion, said base portion being divided into a pair of opposed sections removably holding the terminal portion of the neon tube therebetween and adapted to be inserted in the carrier, means holding the sections of the base portion together, downwardly extending conductors in said base portion, resilient means mounted in the channel carrier, and electric conductors mounted on the resilient means and normally pressed by the springs into contact with the downwardly extending conductors, and means for holding the base portion in the carrier against the resiliency of the resilient means.

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