Aug. 18, 1936. T. J. CURTIS, JR 2,051,288

ILLUMINATED SIGN ELEMENT

Filed March 11, 1935

Fig. 1.

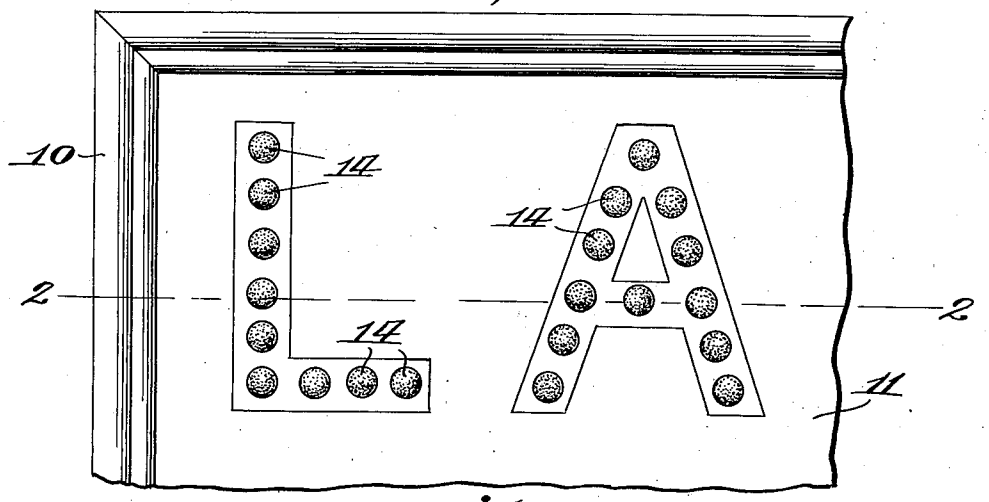


Fig. 2.

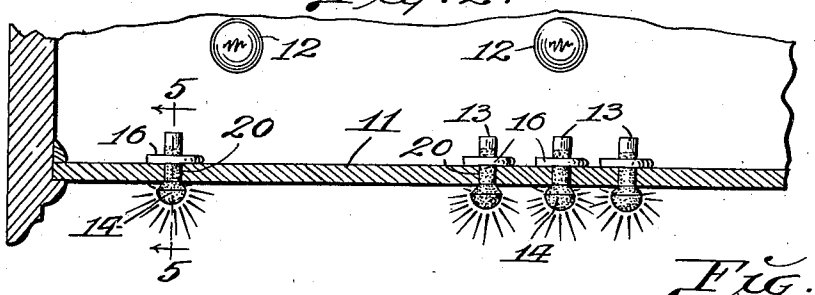


Fig. 3

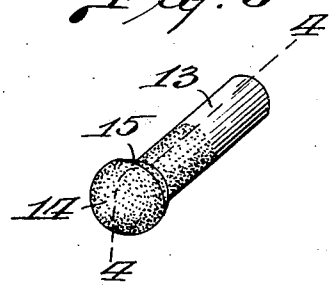


Fig. 4.

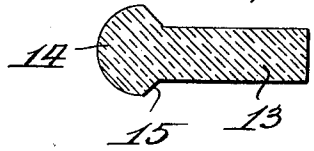


Fig. 5.

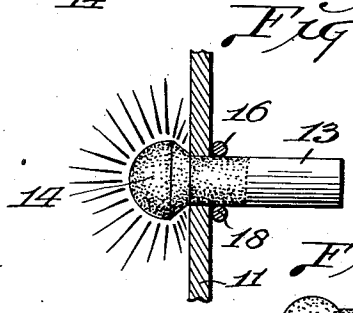


Fig. 7

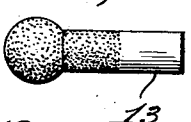
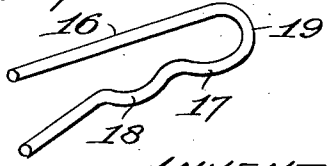


Fig. 6.



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ILLUMINATED SIGN ELEMENT

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Application March 11, 1935, Serial No. 10,444

2 Claims. (Cl. 40—133)

My invention relates generally to illuminated signs and more particularly to a light ray transmitting element and the means for securing the same in position upon a panel, and the principal object of my invention is, to provide a relatively simple, practical and inexpensive light ray transmitting element that is highly effective in diffusing all of the light rays transmitted through the element so that the sign or characters produced by the elements will appear with equal brilliancy from all points above, below or to the sides of the sign.

A further object of my invention is, to provide an illuminating sign light ray transmitting and diffusing element that is formed of transparent material and which comprises a body portion adapted to be inserted through one of the walls or panels of the sign and said body being provided at one end with a head which when the element is properly applied to the panel, occupies a position adjacent the face of the panel and said head being constructed so as to diffuse and radiate light rays in all directions, thereby increasing the illuminated effect of the sign and eliminating any dead or partially illuminated areas adjacent that portion of the element that projects in front of the face of the panel.

A further object of my invention is, to provide an illuminated sign light ray transmitting and diffusing element having the forward portion of its surface treated so as to cause all of the light rays that pass lengthwise through the element to be diffused radially in all directions from the head on the forward end of the element or that portion of the element that is visible in front of the panel, such diffusion of light rays materially increasing the visibility of the sign, particularly from points above, below and to the sides thereof.

A further object of my invention is, to provide an illuminated sign wherein the heads of the light ray transmitting and diffusing elements that form the letters and characters of the sign, assume the appearance of small electric lamps having frosted or etched bulbs when the electric lamps or other source of light within the sign are lighted.

A further object of my invention is, to provide simple and efficient means for firmly holding the light ray transmitting and diffusing elements in proper position on the panel of the sign.

With the foregoing and other objects in view my invention consists in certain novel features of construction and arrangements of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawing in which:

Fig. 1 is a front elevational view of a portion of an illuminated sign wherein the letters or characters are formed of my improved light ray transmitting and diffusing elements.

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1.

Fig. 3 is a perspective view of one of the light ray transmitting and diffusing elements.

Fig. 4 is a longitudinal section taken on the line 4—4 of Fig. 3.

Fig. 5 is an enlarged detail section taken on the line 5—5 of Fig. 2.

Fig. 6 is a perspective view of the clip that is utilized for firmly holding the element in the wall or panel of the sign.

Fig. 7 is an elevational view of a modified form of the light ray transmitting and diffusing element.

Referring by numerals to the accompanying drawing which illustrates a preferred embodiment of my invention, 10 designates the housing that forms the body of the sign and which may be of any desired size and shape and constructed of wood or metal or a combination thereof.

The housing includes a panel 11, the front or outer face of which bears the letters or characters formed by the light ray transmitting elements and behind this panel is arranged one or more electric lamps 12 or other suitable source of light.

The light ray transmitting and diffusing elements that are seated in the panel and arranged to form the letters or characters, are formed of glass produced under a special formula and said glass during production is treated so as to eliminate insofar as possible all elements that would otherwise tend to counteract the passage of light rays through the transparent bodies.

Each element comprises a substantially cylindrical body 13, preferably of uniform diameter throughout its length and formed on the forward end of said body, is a substantially hemispherical head 14.

The diameter of the head is somewhat larger than the diameter of the cylindrical body 13 and formed between the head and body 13, is a circumferential inclined face or shoulder 15.

In some instances this inclined face or shoulder may be eliminated and the head may be substantially spherical in shape, as illustrated in Fig. 7.

The hemispherical shape of the head 14, together with the circumferential inclined face 15, provide a double magnifying lens that is highly effective in producing a uniform diffusion of all of the light rays that are transmitted through the cylinder body.

The forward portion of the cylindrical body 13 and the head 14 have their external surfaces etched or frosted after the manner of an ordinary frosted electric lamp globe. This etching or frosting may be accomplished through the use of acid, by sand blasting or by being dipped into a self-hardening solution which when dry produces the etched or frosted effect.

The clip utilized for firmly holding the element in the panel of the sign is illustrated in Fig. 6 and such clip consists of a hairpin-shaped member formed of suitable material, preferably rust-proof resilient metal and said clip comprises a straight leg 16 and a leg 17, the latter having its intermediate portion bent away from the intermediate portion of the straight leg 16 to form a curved portion 18.

That portion of the leg 17 beyond the curved portion 18 is bent slightly away from the terminal portion of the straight leg 16.

The yoke 19 that connects the legs at one end provides sufficient resiliency to yieldingly oppose movement of the legs away from each other.

The cylindrical bodies 13 of the elements are inserted through apertures 20 that are formed in panel 11 and said elements are arranged so as to form the outlines of letters, figures or other characters of which the sign is composed.

In order to increase the effectiveness and visibility of the sign, the outer face of the panel 11 immediately adjacent the heads of the element may be painted white or other light color so as to more effectively define the letters or characters produced by the arrangement of the elements in the panel.

The cylindrical bodies 13 are positioned in the apertures 20 so that the circumferential line between the inner edge of the inclined face 15 and the forward end of the cylindrical body 13 is positioned directly against the outer face of the panel and to firmly hold the element in such position, the clip is positioned upon the cylindrical body so that said clip lies directly against the inner face of the panel. The size of the clip and the spacing between the intermediate portions of the legs is such that said legs engage the cylindrical body with pressure, thereby firmly holding the element in proper position on the panel.

The clip engages on the etched or frosted portion of the cylindrical body 13 and as a result of the frictional engagement of the metal with the etched surface on the body, the latter is securely held against movement on the panel after the parts have been properly assembled.

When the sign is in service and the lamp or lamps 12 to the rear of the panel are lighted, light rays from said lamps will pass into and lengthwise through the cylindrical bodies 13 of the transparent elements and through the heads 14 on the outer ends of said bodies.

The transmitted light rays will be radiated and diffused in all directions from the heads of the element and due to the etching or frosting of the surfaces of said heads the diffusion of the light rays will be uniform so that a brilliant corona or aura of light surrounds each head and such illumination will be uniform when viewed from any direction in front of or to the sides of the sign.

The brilliancy of the sign is materially increased, particularly where the letters or characters are formed on the outer surface of the panel with white or light colored paint and an especially attractive effect may be produced by either using colored electric lamps 12 to the rear of the panel or by forming the elements of tinted or slightly colored glass.

Tests and experiments have shown that the light rays that pass through the cylindrical bodies 13 are greatly multiplied as they pass through and are diffused by the heads 14 and due to the creation of the uniform corona of light that immediately surrounds each head, the latter appears to be much larger than the actual diameter of the head.

By painting the interior of the sign housing a brilliant white or by arranging on the inner faces of the walls of the housing, panels of white enamel or polished metal, the brilliancy of the sign may be materially increased due to the fact that practically all of the light rays emanating from the electric lamps within the housing will be received by the light ray transmitting elements and pass therethrough and through the heads on the outer surface of the sign panel.

The inclined face or shoulder 15 formed between the head 14 and cylindrical body 13, causes light rays to be directed rearwardly toward the face of the panel and particularly the painted portion thereof and as the surface of this shoulder is etched or frosted the radiated light rays will have the same strength or degree of brilliancy as the rays that radiate from the convex surface of the head 14. The head 14 having a convex outer face and the continuous circumferential inclined or beveled face 15 constitutes in effect a double or bi-convex lens that is effective in diffusing the light rays radially used in all directions from the front convex surface and outwardly and rearwardly from the continuous beveled or inclined rear face.

Thus it will be seen that I have provided an illuminated sign element that is relatively simple in construction, inexpensive of manufacture, economical of operation and very effective in performing the functions for which it is intended, particularly for the uniform diffusion of light rays from the head of the element so that the degree of illumination is uniform throughout the entire area immediately surrounding the head.

It will be understood that minor changes in the size, form and construction of the various parts of my illuminated sign light ray transmitting element may be made and substituted for those herein shown and described without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. The combination with an illuminated sign panel provided with an aperture, of a light ray transmitting and diffusing element seated in said aperture and comprising a substantially cylindrical body, one end of which is enlarged to form a bi-convex lens which normally occupies a position immediately in front of the front face of the panel, the surfaces of which lens and a portion of the surface of the cylindrical body adjacent said lens being etched and means removably seated on the etched portion of the cylindrical body and bearing against the rear face of said panel for retaining the element in the panel.

2. The combination with an illuminated sign panel provided with an aperture, of a light ray transmitting and diffusing element seated in said aperture and comprising a substantially cylindrical body, one end of which is enlarged to form a bi-convex lens which normally occupies a position immediately in front of the front face of the panel, the surface of which lens and a portion of the surface of the cylindrical body adjacent said lens being etched and a hairpin shaped clip of resilient material removably seated on the etched portion of the cylindrical body and bearing against the rear face of said panel for retaining the element in the panel.

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