

July 23, 1935.

R. G. REGESTER

2,009,002

SIGN

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Fig. 1.

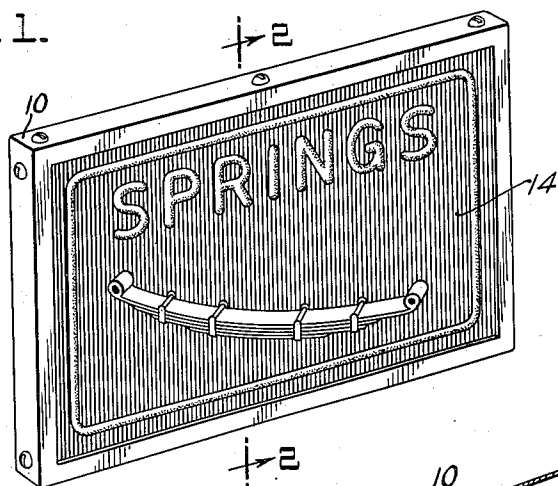


Fig. 2.

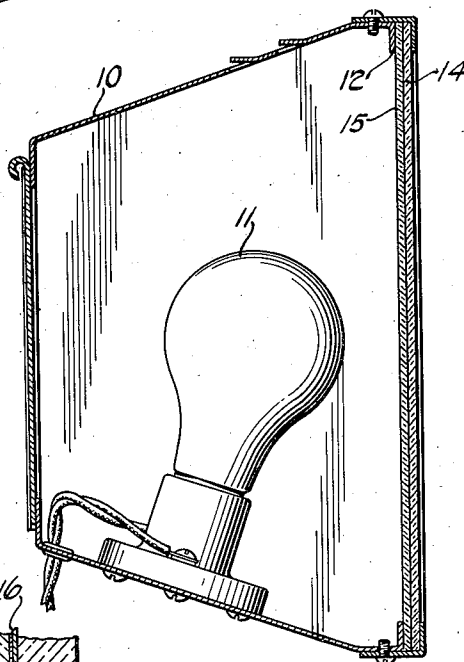


Fig. 4.

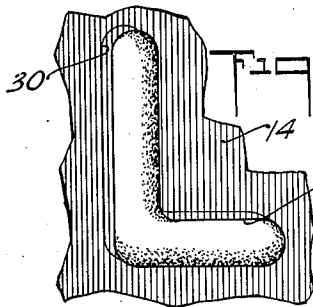
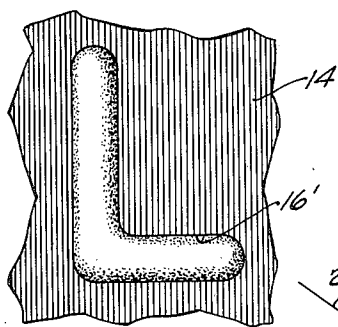


Fig. 5.

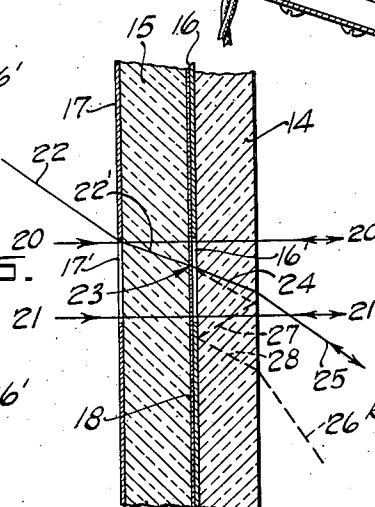


Fig. 3.

INVENTOR
RAMSAY G. REGESTER.

BY *John M. Cole.*
ATTORNEY

UNITED STATES PATENT OFFICE

2,009,002

SIGN

Ramsay G. Regester, Philadelphia, Pa., assignor
to Gill Glass & Fixture Company, a corporation
of Delaware

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9 Claims. (Cl. 40—133)

The present invention relates to signs and is more particularly directed toward illuminated signs.

Signs made out of bent glass tubing and containing neon and other rare gases are in common use and have an appearance which makes them distinctive when compared with the original signs illuminated by means of incandescent lamps. These neon signs, however, are expensive to construct and very fragile. They also require considerable auxiliary apparatus.

An object of the present invention is to produce a sign having the appearance and attractiveness of the neon tube sign, but without special apparatus normally used with it.

According to the present invention the sign is designed to employ ordinary incandescent lamps as a source of illumination and the sign is so constructed that the characters, letters or other indicia on it are illuminated from the rear by light which is controlled in such a way as to produce the illusion of a third dimension in each of the sign characters whereby these characters appear to be round or to have been produced by illuminated tubes.

A further object of the present invention is to provide a sign in which the characters assume the appearance of block letters having a third dimension when viewed at certain angles.

Other and further objects of the invention will appear as the description proceeds.

The accompanying drawing shows, for purposes of illustrating the present invention, one of the many embodiments in which the invention may take form, it being understood that the drawing is illustrative of the invention rather than limiting the same. In the drawing:

Fig. 1 is a perspective view of a portable sign embodying the present design;

Fig. 2 is a vertical sectional view through the sign of Figure 1;

Fig. 3 is an enlarged sectional view through the glass plates forming the sign; and

Figs. 4 and 5 are enlarged front views illustrating the appearance of the sign at different angles of observation.

In the drawing a suitable form of light tight box 10 is indicated. It carries an incandescent lamp 11 and has a front opening 12. The inner walls of this box are preferably painted white so as to increase the reflection of the light.

The front of the box is closed by two glass plates 14 and 15. These glass plates are preferably made of ordinary high quality double thickness window glass. The rear face of the front glass plate 14

is rendered opaque over the entire rear surface of the plate as indicated at 16, except for areas which are left open as indicated at 16' in Figure 3. Mirroring or other highly reflective material may be used. In the form shown in the drawing these openings in the opaque coating or mirroring are designed so as to provide the word "Springs" and a rectangular boarder as is clear from Figure 1. The openings in the mirroring are preferably such as to be defined by parallel, straight or curved lines with substantially semi-circular ends so that the projected area of the letter or other character resembles that of a neon tube character formed by bending a glass tube.

The rear plate 15 is provided with an opaque coating 17 which may be paint, lacquer, asphaltum or any other opaquing material or ceramic fired color. It is preferably then painted white so as to increase the reflection of light inside the box. When the opaque material is placed on the rear face of the glass plate 15, it is provided with openings 17' which register with the openings 16' in the mirroring 16 as indicated clearly in Figure 3. A color medium 18 is placed in front of the front surface of the rear plate 15. This color medium is preferably in the form of a semi-transparent material which can be applied to the surface of the glass. For permanence this material is preferably one which can be fired into the glass. A uniform coating of the coloring material may be employed over the surface of the sign where all the letters or characters are to be the same color, or different colored mediums may be applied in the desired areas of the sign for example, the letters of the word "Springs" may be red and the border blue.

By aligning the openings in the opaque material on both pieces of glass, it is possible to provide a well defined aperture through which the light is to pass and all this light must pass through the translucent diffusing medium. Light rays falling normally on the rear surface of the glass pass directly through as indicated by the rays 20—20 and 21—21. The light ray which falls obliquely on the rear surface of the glass 15 is indicated at 22. This light ray just passes by the edge of the opening 17' and is refracted by the glass as indicated at 22'. It falls on the colored material at a point indicated at 23. The dominant ray then passes through the outer plate and into the air as indicated at 24 and 25.

Rays falling onto the aperture at angles of incidence greater than that of ray 22 will not be able to illuminate the portions of the coloring material between the point 23 and the upper

edge of the aperture. This operation continues throughout the entire region of the aperture so that the marginal areas of the coloring material in the aperture receive less light than the central areas. These central areas present a high light and the marginal areas by contrast are dimmer and appear to be in shadow as indicated by the stippling in Figures 4 and 5.

Owing to the diffusing nature of the medium 18, it becomes a secondary light source of non-uniform brilliancy throughout its area and when this is viewed from the front, the different brilliancies of the elementary areas of the design produce the illusion of a third dimension analogous to that in the tubular sign, and instead of presenting a flat appearance which is customary in signs illuminated by ordinary incandescent lamps, there is obtained the appearance of bold ribs in the front surface of the sign. This illusion is present through very wide angles of observation of the sign.

When one views the sign from angles far removed from normal as for example, in the direction indicated by the line 26, the sign presents a peculiar block letter appearance. The image of the point 23 on the colored medium is reflected back as indicated by the light ray 27. This ray is directed toward the mirroring adjacent the edge of the opening and is reflected by it to the front as indicated at 28 and hence there is produced a supplemental image of the colored medium which is displaced from the main image viewed by directly transmitted light. This supplemental image is illustrated at 30 in Figure 5. The mirroring remote from the openings is not necessary for obtaining this block letter appearance.

It is also possible in the construction of signs of the type above described to utilize other portions of the front of the sign to carry illustrations, pictorials and the like in any number of colors, these designs being provided in the usual ways. In the drawing a spring is indicated as an illustration of such designs which can not be produced by neon tubes.

When the sign herein shown is not illuminated from the rear, it presents a bright mirror face with the sign shown up by light reflected by the coloring material or by the picture.

This type of sign is not necessarily limited to a sign having artificial lighting means, as panels such as have been described, may be employed where suitable natural illumination is available or where there is sufficient intensity of general scattered light.

It is obvious that the invention may be embodied in many forms and constructions within the scope of the claims, and I wish it to be understood that the particular form shown is but one of the many forms. Various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. In a sign, a front transparent plate rendered opaque on its rear face except for areas bearing a design, a rear transparent plate rendered opaque on its rear face except for opposed areas of similar design, and a light diffusing and transmitting color medium in front of the front face of the rear plate to impart color to light transmitted to the front plate, there being mirroring adjacent the edges of the openings forming the design of the front plate for forwardly reflecting the light rays returned toward the same by internal reflection at the front surface of the front

plate to produce the illusion of a third dimension to the design.

2. In a sign, a front transparent plate rendered opaque on its rear face except for areas bearing a design, a rear transparent plate rendered opaque on its rear face except for opposed areas of similar design, and a light diffusing and transmitting color medium in front of the front face of the rear plate to impart color to light transmitted to the front plate, there being mirroring adjacent the edges of the openings forming the design of the front plate for forwardly reflecting the light rays returned toward the same by internal reflection at the front surface of the front plate to produce the illusion of a third dimension to the design, the rear plate being of substantial thickness whereby the edges of the opaque material on its rear face cast shadows onto marginal portions of the colored medium to produce the illusion of roundness in the design.

3. In a sign, a front transparent plate having mirroring on its rear face except for areas bearing a design, a rear transparent plate rendered opaque on its rear face except for opposed areas of similar design, and a light diffusing and transmitting color medium in front of the front face of the rear plate to impart color to light transmitted to the front plate.

4. In a sign, a front transparent plate having mirroring on its rear face except for areas bearing a design, a rear transparent plate rendered opaque on its rear face except for opposed areas of similar design, and a light diffusing and transmitting color medium in front of the front face of the second plate to impart color to light transmitted to the front plate, the front plate being of substantial thickness whereby the image of the colored design produced by multiple reflection at the front and rear surfaces of the front plate appears bodily displaced from the brightly illuminated area of the design when the sign is viewed obliquely.

5. In a sign, a front transparent plate having mirroring on its rear face except for areas bearing a design, a rear transparent plate rendered opaque on its rear face except for opposed areas of similar design, and a light diffusing and transmitting color medium in front of the front face of the second plate to impart color to light transmitted to the front plate, the front plate being of substantial thickness whereby the image of the colored design produced by multiple reflection at the front and rear surfaces of the front plate appears bodily displaced from the brightly illuminated area of the design when the sign is viewed obliquely, the rear plate being of substantial thickness whereby the edges of the opaque material on its rear face cast shadows onto marginal portions of the colored medium to produce the illusion of roundness in the design.

6. In a sign, a transparent plate of crystal glass with smooth parallel faces, the rear face being mirrored except for areas bearing a design, a diffusing coloring medium close behind the rear face of the plate whereby light transmitted through the design produces the appearance of luminous colored sources coextensive with the design, and means for producing shadows of varying density adjacent the edges of the design bearing areas whereby said sources of colored light rays present the illusion of a third dimension.

7. A sign comprising an opaque box open at the front and having diffusely reflecting walls, a light source in the box, and a closure across the front of the box, said closure comprising two glass

plates, each having on the rear surface thereof opaque material except for design areas registering with one another, one of the opposed areas of the plates being semi-translucent so as to become
5 a secondary light source when viewed from the front, the opaque material on the rear surface of the front plate including mirroring adjacent the edges of said areas.

10 8. A sign as claimed in claim 7, wherein the semi-translucency is provided by coloring on the front surface of the rear plate.

9. A sign having a mirrored glass panel with

light openings in the mirroring to form individual characters of a design, said openings having straight parallel sides and substantially semi-circular ends to simulate the projected area of a tube, light transmitting and diffusing color medium directly behind the openings, and means to illuminate the entire area of the openings from the rear at an intensity which decreases from the center of each opening toward its margin, whereby the projected area appears rotund. 5 10

RAMSAY G. REGESTER.