

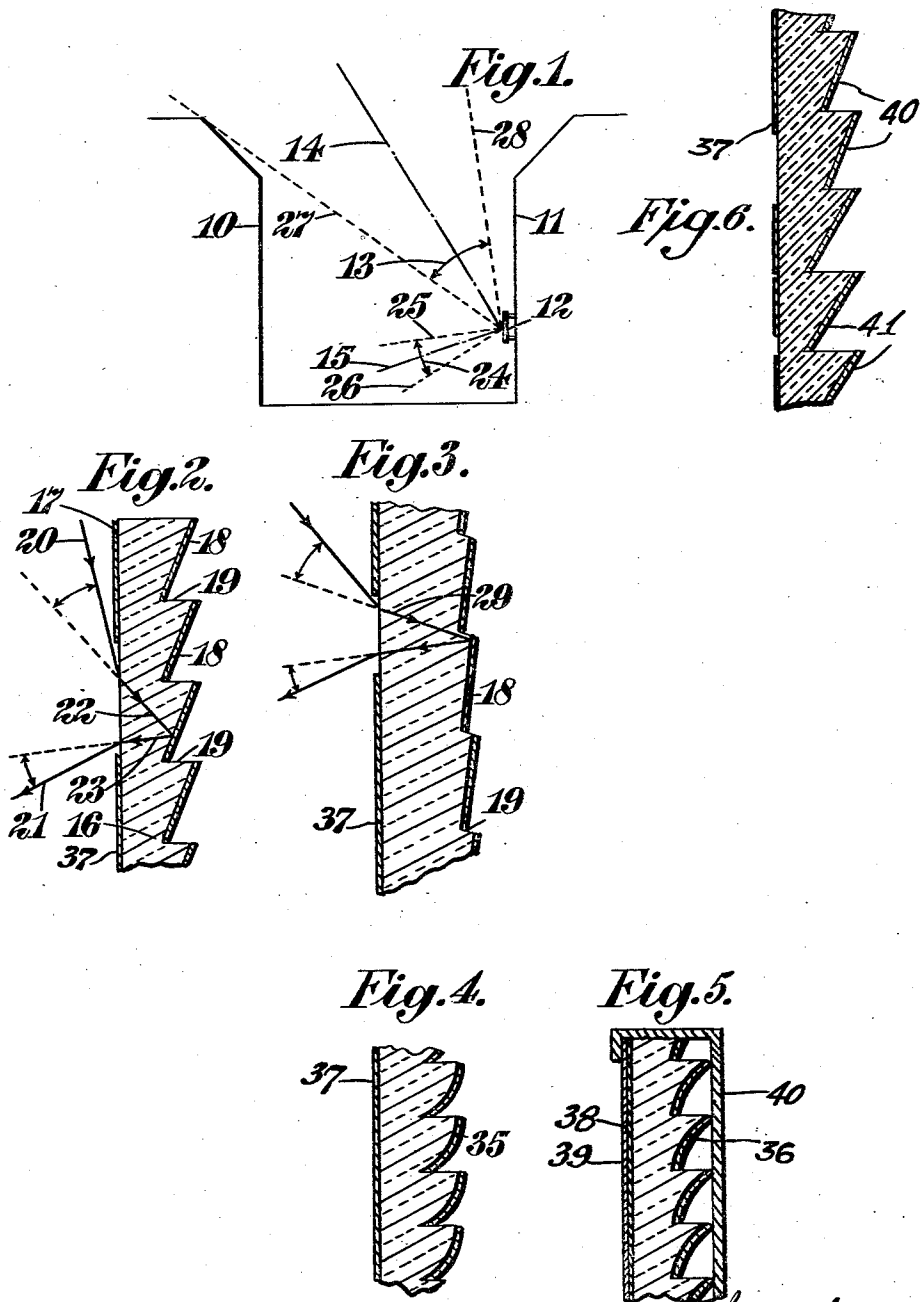
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ADVERTISING SIGN

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UNITED STATES PATENT OFFICE

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ADVERTISING SIGN

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This invention relates to advertising and display signs and is principally concerned with improvements in the construction of so-called "daylight" signs, wherein daylight is the source by which a stencil, transparency or the like is illuminated.

Many of such signs are constructed as box-like casings of substantially triangular section having one wall formed as a reflecting surface on its inner side, and the other two walls (with one or other of which a stencil is associated) open or transparent, the light entering by one and leaving by the other.

The present invention deals with a display sign of a different type, namely one which is so arranged that the light enters and leaves it through the same surface. A sign of this type (which is less bulky than the box-like construction referred to above) may comprise a sheet of glass the front of which bears a stencil and constitutes the display surface of the sign and the rear of which is silvered (and has sometimes been corrugated, dimpled or embossed) and constitutes the reflecting surface from which light is reflected towards the stencil.

One of the objects of the present invention is to provide an arrangement such that a substantially uninterrupted illumination of the display front is obtained.

In the accompanying drawings—

Figure 1 is a diagram illustrating the situation of a daylight sign and its mode of illumination; and

Figures 2 to 6 show various forms of reflector in accordance with this invention.

Referring first to Figure 1, a daylight display sign is usually exhibited in a street, or in some location in which the amount of sky visible as a source of light is limited by surrounding buildings. Figure 1 is a diagrammatic representation of a street in cross-section having buildings 10, 11 on each side thereof, and a display sign at 12 in or on one of the buildings. The area of the sky providing light which is available for the sign is defined by the angle 13, and the middle of this area supplies light along the line 14; this may be regarded as the direction of maximum brilliance of light falling on the sign.

Since the line 14 will usually be inclined at a substantial angle away from the vertical, a brilliant reflection can be obtained by admitting the light through the front or display surface of the sign 12 and reflecting it by a suitable reflecting surface or surfaces so as to be visible in the direction indicated by the line 15 to an observer.

Figure 2 illustrates diagrammatically one construction of sign in accordance with the present invention. A sheet of glass 16 which is plain on one side 17 is ribbed on the opposite side, as shown at 18, 19. This ribbed surface is silvered or treated in any desired manner to render it a reflecting surface to light entering through the surface 17. The precise shaping of the ribbed surface 18, 19 is determined according to the conditions in which the sign is to be used. If the sign is to be vertical and the incident light comes in the direction indicated by the line 20 (this being, for example, the direction from the centre of the available sky surface), the surfaces 18 are set at such an angle as to reflect the light along the line 21 which is determined by the position of the sign relatively to the observer. It will be appreciated that the light entering the sheet 16 is refracted so that it follows a path somewhat as indicated by the line 22 and after reflection along the line 23 it is again refracted when issuing from the front surface along the line 21. In general the light incident on the sign will be inclined more obliquely to the front surface 17 than will be the reflected light the effect of the refraction in these circumstances is that the divergence of the emergent beam produced by light incident from the whole of the available sky area is less than the angle of the incident beam, thereby tending to make the luminous effect of the sign greater than it would be if there were no refraction. This difference is exemplified in Figure 1, in which the angle 13 subtended by the available sky area is greater than the angle of divergence 24 of the reflected beam. The angle 24 is the angle between the lines 25 and 26, the line 25 being the direction in which light along the line 27 is reflected, and

the line 26 being that along which light entering along the line 28 is reflected.

The surface 12 is not a plain mirror but is a display sign made in accordance with the present invention. Consequently, the line 28 should not be reflected from the surface 12 as though it were a plain mirror. This ray of light passes in through the front of the glass, for example, in the same manner as the ray 20 illustrated in Fig. 2 is refracted on to a rear reflecting surface, and emerges from the sign along the line 26 or in a similar manner along the line 21 of Fig. 2. The sign 12 of Fig. 1 may be made in accordance with any of the figures of the drawings.

Referring again to Figure 2, the disposition of the surfaces 18 is determined as above described, and the disposition of the surfaces 19 connecting them may be horizontal, as shown in Figure 2, or they may be inclined downwardly from the horizontal, as shown in Figure 3.

Figs. 4 and 5 show modifications of the construction of Fig. 2, in which the reflecting surfaces 35, 36 are curved, either convexly or concavely, as may be desired.

With all the constructions of reflector above mentioned, the stencil, design or legend 37 to be displayed may be formed on the front surface 17 of the sheet as by painting it thereon. Alternatively, (as shown in Fig. 5) a separate sheet 38 bearing the stencil may be placed in front of the reflecting sheet, this being either an opaque perforated plate or a transparent plate with the design painted or otherwise formed on it. A sheet of coloured glass 39 may be interposed between the stencil 38 and reflecting surface 36, or in front of the stencil to produce coloured effects, and the whole is mounted in a suitable frame 40.

A sign as above described may be constructed to operate as a flashing or intermittent sign by causing or permitting movement of the sign so as to vary the direction of the reflected beam. If the sign is used in the open air, it may be made pendulous and allowed to oscillate in the wind, or any desired mechanism such as clockwork, or an electric motor, or electromagnets may be used to rotate or oscillate or otherwise move the sign. A particular feature of this invention (as shown in Fig. 6) is that the sign may be constructed with two sets of reflecting surfaces 40, 41, which are set at different angles for different sections 42, 43 of the sign so that each section is visible to an observer only when the sign moves or is moved into the appropriate position. With this arrangement, a set of reflecting surfaces arranged as above described may be used in combination with a second similar set at a different angle, or in combination with a plain reflecting surface associated with its appropriate stencil. Such a sign need not be maintained in movement, for it may be used whilst stationary, and then

has the novel feature of displaying different legends or designs according to the point of view of the observer.

It will be appreciated that signs of this type are not necessarily used only with daylight, for artificial lighting may be used with the source of light situated in any suitable place. Preferably it would be situated above and in front of the sign so that the incident light comes in the same direction as daylight, so that a single sign can be used both by day and night.

It also lies within the scope of this invention to apply the improved construction of reflector to individual characters or letters, the plate bearing the reflecting surface being shaped in accordance with the character or letter. Also, it is sometimes desirable that the reflecting surfaces should be slightly ribbed either lengthwise or transversely to their length in order to insure a more uniform distribution of the illumination over the sign, and to render it visible over a wider angle. For this reason, it may also be advantageous to stipple or roughen the front or back surface of the sheet, or to use with it a thin opal or ground glass sheet. Also, instead of providing a ribbed surface to constitute the reflecting surfaces, those can be built up from a series of separate strips of suitable mirror or reflecting surface; and finally, any desired colour effects may be obtained by suitable colouring of the reflecting sheet of glass, or a separate stencil sheet if such be used.

It will be seen that this invention provides a reflecting sign which simulates an illuminated sign, but differs from many existing signs of this kind in that it can be constructed as a flat sheet instead of as a box. It is thereby rendered more convenient for use, owing to its small depth from the front to the back, and can be conveniently constructed as a single- or double-sided sign; having no horizontal or substantially horizontal surface it is not liable to accumulate dust, snow, etc., and can be used in many situations where a box-type of sign is not practicable.

I claim:

1. In a display sign, the combination of a sheet of translucent material having a plane face and a ribbed face, a plurality of stencil designs applied to said plane face, a reflecting material on said ribbed face, said ribs being shaped to provide a plurality of sets of parallel reflecting strips appropriate to the number of designs, each set extending across its respective design, said strips being equidistant from and inclined to said plane face at different angles for the different sets so that different designs are displayed according to the point of view of the observer.

2. For use as a reflecting display sign, a sheet of glass whereof one face is plain, display matter in front of said plain surface,

the rear surface being corrugated and having a silvered coating forming a row of reflecting strips extending across and behind said sheet and being inclined to the display front in the same general direction forming surfaces which intercept the incident light reflecting it all through the front of the sign thereby preventing shadow effects, the said row being parallel to the sheet front in its general direction.

3. For use as a reflecting display sign, a sheet of glass whereof one face is plain, display matter in front of said plain surface, the rear face being corrugated and having a silvered coating forming a row of reflecting strips extending across and behind said sheet in substantially parallel planes and being inclined to the display front in the same general direction forming surfaces which intercept the incident light reflecting it all through the front of the sign thereby preventing shadow effects, the said row being parallel to said sheet in its general direction.

4. For use as a reflecting display sign, a sheet of glass whereof one face is plain, display matter in front of said plain surface, the rear surface being corrugated and having a silvered coating forming a row of reflecting strips extending across and behind the sheet and being inclined to the sheet at oblique angles differing from the oblique angle at which the strips in the adjacent sections are inclined, the said strips having surfaces which are inclined to the display front in the same general direction which surfaces intercept the incident light reflecting it all through the front of the sign thereby preventing shadow effects.

In testimony whereof I affix my signature.
PERCIVAL LEO TA'BOIS.