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S. SLUTSKY

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SIGN

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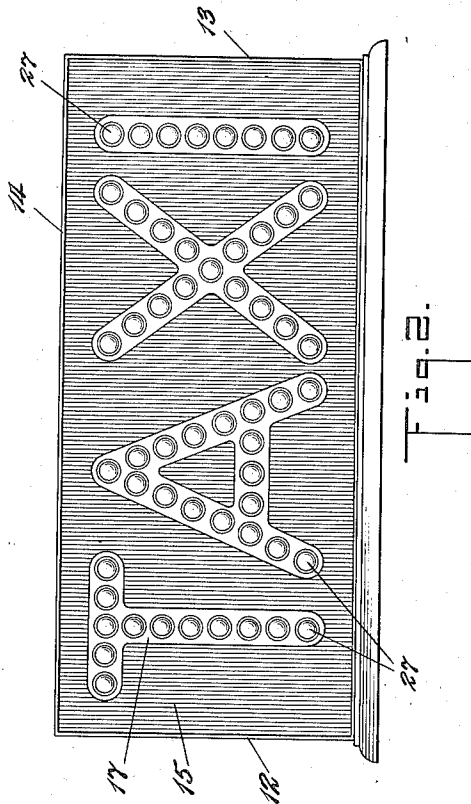


Fig. 1.

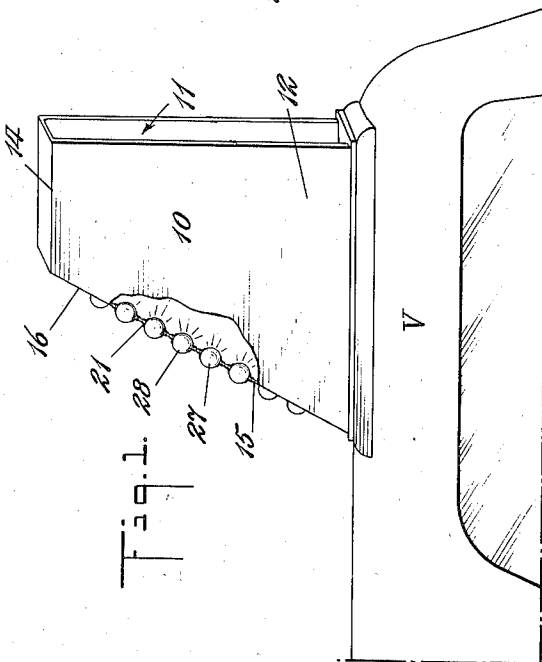


Fig. 2.

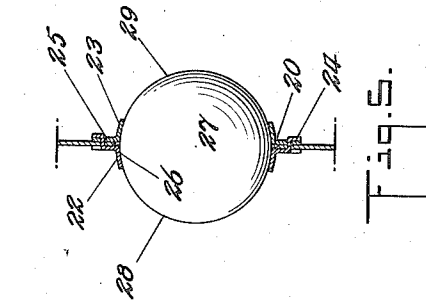


Fig. 3.

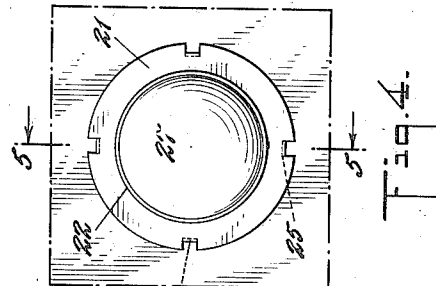


Fig. 4.

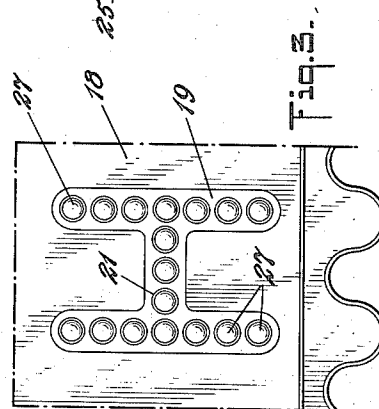


Fig. 5.

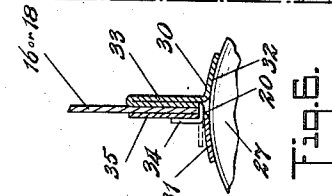


Fig. 6.

INVENTOR
SAMUEL SLUTSKY
BY
Orton and Griswold
ATTORNEYS

UNITED STATES PATENT OFFICE

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SIGN

Samuel Slutsky, New York, N. Y., assignor to
Isidore Sherman, Brooklyn, N. Y.

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15 Claims. (Cl. 40—130)

The invention relates to a light sign of the character in which light, either sunlight or artificial light, is transmitted through openings formed in the sign to cause sign characters to be visible from the front side of the sign either by direct light reflected from the front of the sign character or light transmitted therethrough or by both directly reflected and transmitted light.

It has been known in this art to provide sign characters in awnings and the like formed of flat sheets of glass or some semi-transparent composition material such as celluloid. One objection to these known structures is that they are quite liable to breakage, particularly in the case of those structures formed of flat glass, and in the case of the celluloid letters, they quickly become soiled and shabby and after they have been in use for a while become brittle and easily cracked and become checked especially when exposed to the elements.

The primary object of the invention is to provide a sign of the character outlined which will be unbreakable in ordinary usage and which will be more or less permanent in appearance and maintain its initial brilliant appearance even though subjected to the various climatic changes to which exposed signs such as street and car signs are subjected.

Still another object of the invention and featuring economy in manufacturing costs and thus cheapness in the production of a marketable article is to provide a simplified construction which can be formed primarily from structural parts now easily available on the open market and the invention has for a further objective the providing of a structure which can be readily fabricated without necessity of using experienced labor in forming any desired character of sign.

Various other objects and advantages of the invention will be in part obvious from an inspection of the accompanying drawing and in part will be more fully set forth in the following particular description of one form of sign embodying the invention, and the invention also consists in certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawing:

Fig. 1 is a view in side elevation of the upper portion of an automotive vehicle, such as a truck, having positioned thereon a sign constituting a preferred embodiment of the invention, and with a portion of one side broken away to show de-

tails of arrangement of the optical spheres herein featured;

Fig. 2 is a view in front elevation of the sign shown in Fig. 1 looking at the same from the right hand side of that showing and exposing four letter characters on its rear wall forming a rigid metallic support;

Fig. 3 is a view in front elevation of a portion of an awning showing a modified form of the invention mounted on a canvas forming a slightly flexible support; and

Figs. 4 and 5 are detailed views of the lens or optical sphere mounting shown in the preceding figures, Fig. 4 being a view in rear elevation and Fig. 5 being a vertical sectional view taken on the line 5—5 of Fig. 4 looking in the direction indicated by the arrows; and Fig. 6 is a view similar to the upper portion of Fig. 5 showing a modified form of mounting.

Referring to the form of the invention shown in Figs. 1 and 2, a box-like hood 10 formed of sheet metal is mounted with its open front side 11 facing forwardly of the vehicle V on which it is mounted, as shown in Fig. 1. The hood 11 includes opposite side walls 12 and 13, a top 14 and a rear wall 15. The rear wall 15 is inclined from its top to its bottom downwardly and rearwardly away from the front side in such way that the rear face 16 is inclined to face upwardly and in position to receive light, either sunlight during the day time, or whatever artificially produced light may be along the street during night driving.

It is a feature of this disclosure that the inside of the hood is painted black or some other dark, non-reflecting color, so as to minimize the reflection of light which may enter the hood through the open front side 11. The front side of the rear wall 15 is painted with a color contrasting with its non-reflective background surface to form strokes 17 of sign characters of which four are shown in Fig. 2 to spell the word "Taxi". In the illustrated instance these strokes are narrow white stripes arranged so that they are visible to a person looking into the open front of the hood by direct reflection of light and acts to display letters, words or other similar sign characters independent of the light transmitting features hereinafter described. When used as a vehicle sign, it is suggested that the hood be formed of sheet steel which has the advantages of providing a rugged structure which is not easily damaged and which can be treated conventionally to resist climatic effects. It is within the scope of the disclosure to decorate the

outside of the hood and utilize it for advertising and other purposes, forming no part of the present disclosure. Instead of the metal rear wall 15 disclosed in Figs. 1 and 2, as a support for the light transmitting spheres hereinafter described, it is suggested in Fig. 3 that the support 18 be a drop or opaque sheet formed of canvas and like the support formed by the rear wall 15, is designed to be disposed in or hang in an upright position. Likewise in this canvas awning form of the invention, the sign character may be formed of a white stroke 19 in this case shown to be the letter "H" painted on a dark green canvas or it may be formed as a separate letter cut out of white oilcloth or equivalent fabric preferably waterproof and glued to the canvas or to the metal support 16.

Within the stroke 17 or 19 as the case may be, the support 15 or 18 is provided with a plurality of circular openings 20 extending in line centered between the opposite edges of the several strokes. As a detailed description of any one of the openings will apply equally to any other opening reference is made to Figs. 4 and 5 for such details. Each opening is outlined by a two part circular mounting ring 21, one of the parts 22 (see Fig. 5) is positioned on one side of the support and the other part 23 at the opposite side with four circumferentially spaced apart fingers 24, extending integrally from the part 22 and bent Z-shaped to extend through the support, through slots 25 formed therefore in the part 23 and bent outwardly to interlock the two parts to each other on opposite sides of the support. The inner periphery 26 of the mounting ring forms an annular part of a sphere in which is fitted an optical sphere 27 in one embodiment of the invention formed of red glass. The spheres are centered relative to their supports so as to minimize any leverage effect which the spheres may have on their supports, particularly in the case of the canvas support with its possibility of swinging movement in the wind. The mounting rings are so contoured that they snugly fit about the periphery of the optical spheres and tend to defeat any light leakage across the joint between each sphere and its support. It is within the scope of the disclosure to form the optical spheres as lenses but the spherical configuration is preferred, among other reasons, because the sphere can be purchased in the open market and thus can be purchased cheaper than specially formed lenses and for the further reason that if the spheres should tend to rotate about their contained axes in use, they would continue to function to transmit light therethrough irrespective of whatever position into which they might tend to rotate themselves.

In operation and referring first to the disclosure in Fig. 1, it is apparent that light which may impinge on the rear face 16 at any angle, or even diffused light, will be received by the rearwardly projecting semi-spherical portion 28 of each of the spheres and will be transmitted through the support and become visible as a circular spot of light defined by the forwardly projecting semi-spherical portion 29 of the sphere 27. These several spots of light coact to form the sign character as for instance the twelve spots shown at the left of Fig. 2 forming the "T" in the word "Taxi". Likewise in the showing of the portion of the awning in Fig. 3, the light at the rear of the awning will shine therethrough as seventeen spots of light arranged in the form of an "H". These spots or light bull's-eyes are free

of holding means between their outlining edges and are thus free of obstruction or shadows which might otherwise detract from the brilliancy of the spot showings.

In one embodiment of the invention, the spheres are about one half inch in diameter and are comparatively small with reference to the size of the word character of which each forms a part thus leaving a material amount of the supporting material between adjacent sphere mountings. In the showing in Fig. 1, the spheres are held more or less rigidly in position and in the showing in Fig. 3 where there is the possibility in the canvas support to flex and twist the spheres are so spaced apart as not to interfere with each other while the sign is being blown by the wind in actual use. In this case the mounting rings are particularly effective in reinforcing the canvas in the parts containing the openings and even in the case of the metal structure shown in Fig. 1, the mounting rings tend to reinforce the cut edges of the openings in the thin sheet metal used and in both cases tend to transmit strain over a relatively large area of the support thus tending to avoid tearing strains on the support.

Referring to the modified form of the mounting ring shown in Fig. 6, there are disclosed two annular parts 30 and 31 formed of thin metal pressings, the part 30 includes a lens-engaging flange 32 bent outwardly and then bent back upon itself to form an outstanding circular flange 33 of double thickness of material for engaging one side of the support 16 or 18. The free edge of the flange 33 is provided with a plurality of circumferentially spaced apart outturned fingers of which one is shown at 34 and which extends through the opening 20 and initially projects through apertures provided therefore in the outstanding flange 35 of the part 31. The flange 35 coacts with the flange 33 to clamp the support therebetween when the outer ends of the fingers are bent from their dotted line position outwardly in lapping relation to the flange 35 as indicated in full lines in Fig. 6.

By means of a structure as herein disclosed it is possible to provide a more or less permanent form of sign as the parts are formed largely of metal and the spherical light transmitting means, even when made of glass, do not easily break as would be the case if the openings were simply covered by a flat sheet of glass as in known prior structures.

While there have been shown, described, and pointed out in the annexed claims, certain novel features of the invention, it will be understood that various omissions, substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention.

I claim:

1. A sign construction comprising a box-like metallic hood open at its front side and its interior faced with a dark, non-reflective background surface, said hood including a rear wall inclined downwardly and rearwardly with its outer side facing upwardly, means carried by said rear wall forming a sign visible through the open front side of the hood, said sign comprising a plurality of optical spheres set in, carried by and extending through the rear wall, each sphere having capacity to receive downwardly directed light impinging on the rear side of the wall and acting to transmit it therethrough to form a spot of light visible through the open front of the hood and said spots

of light contrasting vividly with the dark background surface and coacting to form part of a letter or similar sign character forming part of the complete sign.

2. A non-breakable sign construction comprising a box-like hood open at its front side and including an opaque rear wall, means carried by said rear wall forming a sign visible through the open front side, said means including a plurality of optical spheres snugly fitted in the rear wall to prevent light leakage between each sphere and the wall and each sphere extending through the wall and projecting beyond opposite sides of said rear wall to receive light from the outside of the hood and to transmit the light through the wall as a spot of light and said spots of light coacting to form a sign character of the sign.

3. A sign construction comprising a sheet metal support having an inclined non-reflective front side with its rear side facing upwardly, means on the front face of the support forming a sign, said means including a plurality of openings extending through the support, each opening having mounted therein solely an optical solid sphere having a portion of its curved surface at the rear of the support facing upwardly to receive downwardly directed light and acting to conduct light from the rear of the support therethrough so as to be visible from the front of the sign as a clear uninterrupted spot of light and said spots of light coacting to form part of a letter or similar sign character forming part of the complete sign.

4. A sign construction comprising a sheet metal support having a front side with its rear side facing upwardly, means carried on the front face of the support forming a sign, said means including a plurality of openings extending through the support, a plurality of mounting rings, one for each opening outlining the same and tending to reinforce the same, an optical sphere mounted in each ring for conducting light from the rear of the support therethrough so as to be visible from the front of the sign as a spot of light and said spots of light coacting to form part of a letter or similar sign character forming part of the complete sign.

5. A sign construction comprising a non-breakable support provided with a plurality of circular openings extending therethrough, a two-part mounting ring outlining each opening, means for demountably securing the two parts of the ring together, each ring having its inner surface defining an annular part of a sphere, an optical sphere mounted at its periphery in each of said rings and transmitting light through the support as a spot of light and said spots of light coacting to form a sign character.

6. A sign construction comprising an upstanding support provided with a plurality of spaced apart circular openings extending therethrough, a plurality of lens mounting rings, one for each opening and each outlining its associated opening, and the inner periphery of each ring defining a portion of a sphere and forming a lens mounting, an optical lens mounted in each ring for universal articulation about its center, each lens acting to transmit light through the support as a spot of light and said spots of light coacting to form a sign character.

7. In a light sign, the combination of an upstanding support adapted to have a source of light on one side thereof, said support provided with a circular opening extending therethrough, an optical sphere approximately centered in the opening rotatable about all of its axes and dis-

posed to transmit light through the support and become visible as a spot of light, a mounting ring comprising annular parts, each including a flange at its inner perimeter curved to the configuration of a portion of the surface of the optical sphere contained within parallel planes on opposite sides of the support, said flanges being disposed side by side, secured to the support and coacting to encircle the sphere at its perimeter and providing a bearing surface snugly fitted to the portion of the spherical surface of the sphere which it engages, said ring lapping and tending to reinforce the support at the outlining edge of the opening and acting to seal the joint between the support and sphere against the infiltration of light outside of the sphere.

8. In a light sign, the combination of an upstanding support having a front side with a dark non-reflective exposed surface, means forming a sign character including a stroke of a color contrasting with the dark front side of the support thereby to show the character by direct reflected light, said support in the area of said stroke provided with a plurality of openings extending therethrough, a mounting ring outlining each opening and tending to reinforce the portion of the support outlining the opening, the inner surface of said ring between its opposite edges defining the segment of a sphere of prefixed radius, and an optical glass sphere of said predetermined radius and of a color contrasting with the color of the stroke mounted in each opening for transmitting light through the support as a spot of light and said spots of light coacting to disclose the character by transmitted light of the color of the spheres.

9. In a light sign, the combination of a flat support provided with a circular opening extending therethrough, a two-part ring outlining the opening with one part located on one side and with the other part located on the opposite side of the support, a finger extending integrally from one of the parts and in interlocking engagement with the other part, said ring having its inner periphery forming part of a sphere and a spherical light transmitting member fitted in said ring and adapted to transmit light through the support so that it will appear as a circular spot of light.

10. In a device of the class described, the combination of a canvas support, a sign character formed of oil-cloth and secured flatwise to the support, said sign character and the portion of the canvas support covered by the same provided with a plurality of spaced apart openings extending in line along each stroke of the sign character to take the same form as the oil cloth sign character, a plurality of optical spheres, one for each opening and each sphere provided with a ring-mounting for securing its associated sphere in its opening in position to cause opposite sides of the sphere to project beyond the canvas support.

11. In a light sign, the combination of a support, a sign character formed of oil-cloth and of a color contrasting with the color of the support and secured to the support, the sign character and the portion of the support to which it is affixed provided with a plurality of openings extending therethrough and a plurality of light-transmitting spherical members, one for each opening and means for mounting each of said members in its associated opening.

12. In a light sign, the combination of a support, a flat preformed sign character formed of

a flexible water proof material and secured to the support, said sign character provided with a plurality of openings extending therethrough and coacting to display the same letter symbol as the sign character and a plurality of light transmitting spherical elements, one for each opening and each mounted in one of the openings.

13. In a device of the class described, the combination of a support provided with a circular opening, a ring mounting outlining the opening, the inner perimeter of said mounting defining a portion of the surface of a sphere disposed on opposite sides of the plane of the support, a spherical light transmitting element rotatably mounted in said inner perimeter and extending through the opening, and said ring mounting provided with means projecting outwardly from said inner perimeter and engaging opposite sides of the support to secure the mounting ring and its contained element to the support.

14. In a device of the class described, the combination of a support provided with a circular opening extending therethrough, a two part mounting ring outlining the opening, one of said parts including an integral outstanding flange bent back upon itself to form a double thickness of material and provided at its free edge with

a plurality of bendable fingers, the other part including an integral outstanding flange of single thickness of material coacting with the flange of double thickness to form a clamp, said flange of single thickness provided with openings, one for each finger and through which the fingers extend and said fingers being bent outwardly to lap the flange of single thickness to secure together the two parts of the ring with the support clamped therebetween and a light transmitting unit in the opening and secured in place by said ring.

15. In a device of the class described, the combination of a support provided with a circular opening, an annular, sphere-mounting ring outlining the opening, having parts engaging opposite sides of the portion of the support outlining the opening to prevent the ring from moving out of the opening and a solid optical sphere fitted within, encircled by the ring and having opposite sides projecting from the ring, and said ring having a portion of its interior surface of spherical form, substantially conforming to the configuration of the spherical surfaces which it engages, and acting to prevent the sphere from accidentally slipping out of the ring.

SAMUEL SLUTSKY.