Dec. 3, 1968 R. W. CABE 3,413,745

BLANKOUT SIGN

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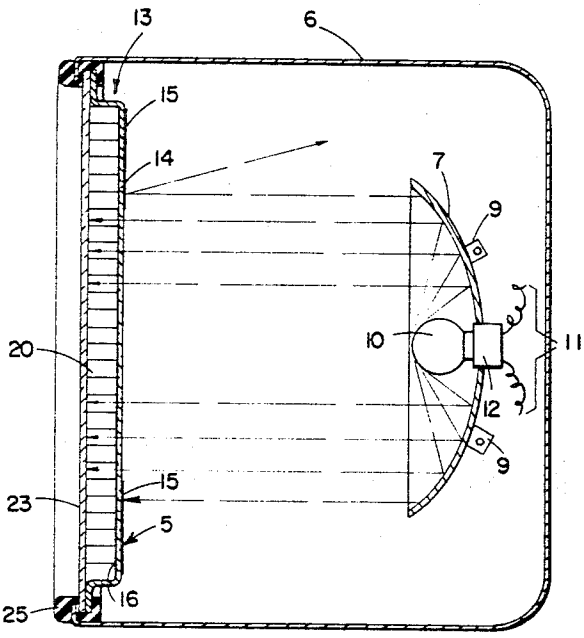


FIG. 1

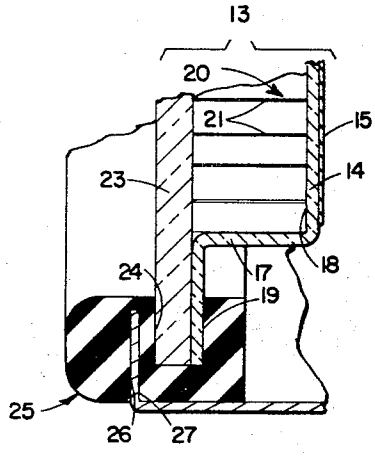


FIG. 3

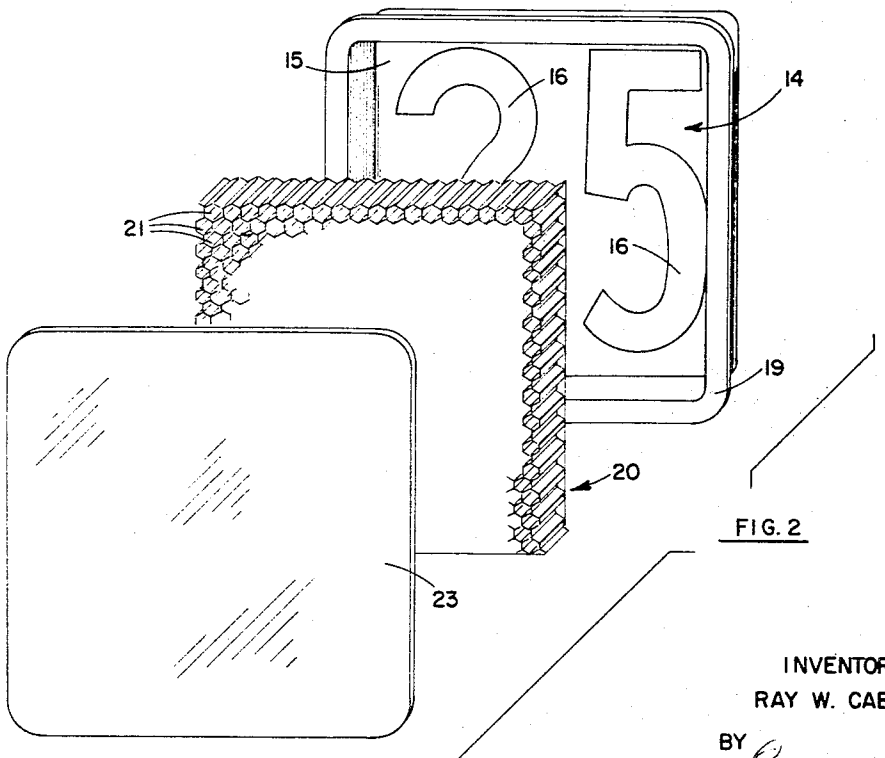


FIG. 2

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BLANKOUT SIGN

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ABSTRACT OF THE DISCLOSURE

An illuminated sign is in the form of a sandwich structure, a message to be displayed being delineated in clear areas on a rear illuminated opaque panel, a central panel of honeycomb structure being sandwiched between the opaque panel and a front panel of translucent material.

In the control of vehicular and pedestrian traffic it is necessary at certain locations to temporarily display certain predetermined messages to warn that ice or flooded conditions prevail on a thoroughfare, or that a drawbridge is in operation, or to restrict the speed of vehicles during certain hours or conditions, for example, where it is practical to locate a permanent sign which can be illuminated to display the message for the duration of the emergency or condition. At all other times, of course, the message should be blanked out, i.e., invisible.

Prior known signs for displaying messages of the foregoing character generally employ a message plate on which the message is spelled out in letters defined by opaque areas on a clear plate, or in letters defined by clear areas on an opaque plate; the message plate being illuminated by a switch controlled light source located behind the message plate when it is desired to display the message. When it is not desired to display the message, the light source is deenergized.

It has been found, however, that when the light source is off the message becomes visible in the beam of oncoming automobile headlights at night, and during daylight hours by the reflection of the sun off automobile windshields and by direct sunlight as well. Thus, it has been necessary to mount louvered screens or baffles over the message plate in an attempt to reduce spurious display of the message plate due to the accidental incidence of light thereon.

However, louvered or baffles have not been satisfactory since any light directed through the louvers or baffles normally upon the surface of the message plate will still render the message visible. Moreover, the louvered screen or baffles tend to obscure the message plate when viewed from the side, i.e., at a substantially acute angle, when the message is being intentionally illuminated to warn of an emergency or condition.

It is therefore a primary object of my invention to provide an electrically illuminated message sign of the character described above which cannot be spuriously displayed by accidental incident light.

It is another object of my invention to provide a message sign of the character described above which is entirely free from obstruction of any kind.

The sign of my invention comprises a conventional message plate, a source of light behind the message plate, a translucent or light diffusing plate positioned in front of the message plate, and light directing means interposed between the message plate and the light-diffusing plate, which light directing means internally reflects and disperses accidental incoming light to effectively prevent spurious display of the message when the light source is deenergized, and which light directing means also directs the light from the light source, when energized, through the message defining areas and onto the reverse side of the light diffusing plate to clearly display the message.

My invention will be more clearly understood by reference to the detailed description and drawings wherein:

FIG. 1 is a side elevational view in cross-section showing a preferred embodiment of my invention,

FIG. 2 is an exploded view in perspective showing the essential elements of the preferred embodiment, and

FIG. 3 is a fragmentary side elevational view in cross-section of the assembled elements of the sign.

In FIG. 1, sign assembly **5** is mounted over the open side of a weatherproof housing **6** which can be mounted on any suitable support (not shown), such as a standard or wall for example. In the housing **6** rearwardly of the sign assembly **5**, a generally parabolic reflector **7** is provided which is supported within housing **6** by wall clips **9**, and contains a light source such as incandescent lamp **10**. Conductor leads **11** extend from the lamp socket **13** through a switch (not shown) to a source of electricity (not shown) provided in the well known manner.

The sign assembly, in accordance with my invention, is in the form of a sandwich structure **13** which sandwich includes a message plate **14** preferably made of durable clear plastic, such as acrylic resin for example, masked with an opaque maskant **15**, i.e., coating or paint, having clear areas **16** cut from the mask in the form of letters (not shown) which spell out a message such as "ICE" or "STOP," or numerals as shown in FIG. 2, designating a speed limit such as "25" for example.

Alternatively, the message plate may be an ordinary stencil, i.e., a sheet or panel of opaque material having alphabetical or numeral shaped perforations spelling out a predetermined message.

The message plate **14** is formed with a shallow flat recess **18** surrounded by flanges **17** and **19**, the outermost flange **19** being parallel with the recess **18** on which surface the message is defined.

The light directing means, preferably formed of a panel **20** of honeycomb structure fabricated of aluminum foil or other highly reflective material, is dimensioned to fit within the shallow recess **18** formed in the message plate **14**, the inner surface of the honeycomb panel **20** abutting the obverse side of the message plate **14**, and the outer surface of the honeycomb panel **20** extending parallel with flange **19** of the message plate **14**. The axes of the elongated cells **21** of the honeycomb panel must, of course, be positioned normal to the surface of the message plate **14**, and define a plurality of light passages as best shown in FIG. 3. I have found that a honeycomb panel from ½" to ⅝" in thickness provides an effective light directing element.

A front plate **23** of translucent glass or plastic, or glass or plastic material having at least one translucent surface, which may be frosted, for example, is mounted over the forward surface of the honeycomb panel **20** to complete the sandwich assembly **13**, the assembly being mounted and retained within the internal groove **24** of a shock-resistant flexible molded frame **25** fabricated of neoprene or vinyl, for example, as best shown in FIG. 3. The frame **25** has an external peripheral groove **26** fitting over an inwardly extending flange **27** formed around the open side of housing **6**, to firmly fasten the frame **25** and sign assembly therein.

In FIG. 1, the sign is shown with the lamp **10** energized to display the message. The reflector **7** focuses the light rays emanating from lamp **10** through the clear areas **16** of message plate **14** along the axes of the honeycomb panel cells **21** onto the reverse side of translucent plate **23** where a substantial portion of the light is diffused and scattered by reflection to produce in effect a bright glow or halation delineating the letter or numeral spelling out

the message at the interface on the obverse side of the front plate substantially as shown.

It will readily be seen that when the lamp **10** is off, i.e., deenergized, most of any light incident to the obverse side of front plate **23** will be diffused and scattered by the well known principle of light interference at an interface, any remaining light transmitted through front plate **23** and passages **21** being internally reflected and dissipated through attenuation so that no returning light rays remain to backlight the message plate to produce a spurious display of the message.

With the sign assembly of my present invention, it is not possible for light from the most intense source to backlight the message. It will further be appreciated that the diffused glow produced by the front plate will appear on the obverse surface of the front plate and thus be visible from any acute angle thereto.

While I have described and illustrated a preferred form of my invention using aluminum honeycomb material, many alternate cellular structures of the same general character, e.g., egg-crate structures, tubular assemblies, etc., will occur to those skilled in the art, all equivalent structures being deemed to fall within the spirit of my invention.

I claim:

1. A blankout sign comprising

a message display element defined by an opaque panel having light transmitting areas providing a message,

light diffusing means in the form of a translucent panel disposed adjacent to and parallel with the front surface of said message display element to cover said light transmitting areas thereof,

light directing means interposed between said message display element and said light diffusing means, said means comprising a plurality of discrete parallel elongated passages, the axes of said passages being disposed normal to the adjacent surfaces of said message display element and said light diffusing means, and

a light source and reflector therefor adjacent to said message display element and aligned to direct light through said light transmitting areas and said passages parallel to the axes of said elongated passages onto said light diffusing means when said source is energized to display said message, said light diffusing means and said light directing passages reflecting and diffusing accidental random light incident to said light diffusing means to prevent said accidental light from spurious display of said message when said light source is deenergized.

2. The blankout sign of claim **1** wherein said light directing means is a panel of honeycomb structure fabricated of highly reflective material.

3. The blankout sign of claim **1** wherein said light directing means is a panel of honeycomb structure fabricated of aluminum foil.

4. The blankout sign of claim **1** wherein said message display means is a panel of transparent material masked with opaque material and having clear areas in the shape of alphabetical or numerical characters spelling out a predetermined message cut out of said opaque material.

5. The blankout sign of claim **1** wherein said message display means is a stencil formed of opaque material, the perforations being alphabetically or numerically shaped to spell out a predetermined message.

6. A blankout sign comprising

a message display panel formed of a transparent material,

an opaque mask mounted over said display panel, said mask being perforated with areas in the shape of alphabetical or numerical characters exposing said transparent material to spell out a predetermined message,

said display panel being formed with a peripheral double flange extending therearound to define a shallow flat central depression,

a light diffusing panel having a translucent surface, said panel being disposed parallel with said display panel and abutting the outermost flange thereof,

a light directing panel of highly reflective honeycomb structure dimensioned to fit into said depression, the passages formed by the cells of said honeycomb panel being oriented with their axes normal to the translucent surface of said light diffusing panel and said message display panel, and in abutting relationship therewith,

substantially flexible frame means surrounding said message display panel, light diffusing panel and light directing panel and retaining said panels together in the form of a sandwich,

a housing having an opening to receive and retain said flexible frame,

a light source and reflector mounted in said housing rearwardly of said panel sandwich, said reflector formed to direct the light rays emanating from said light through said message panel parallel to the axes of said honeycomb structure, and

means for energizing and deenergizing said light source.

References Cited

UNITED STATES PATENTS

2,616,957	11/1952	Thiem.	
3,358,394	12/1967	Braude	40—132 X

EUGENE R. CAPOZIO, *Primary Examiner.*

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