Jan. 27, 1925. 1,524,446

W. MEACHER

ILLUMINATED SIGN

Filed Feb. 4, 1924

Fig. 1.

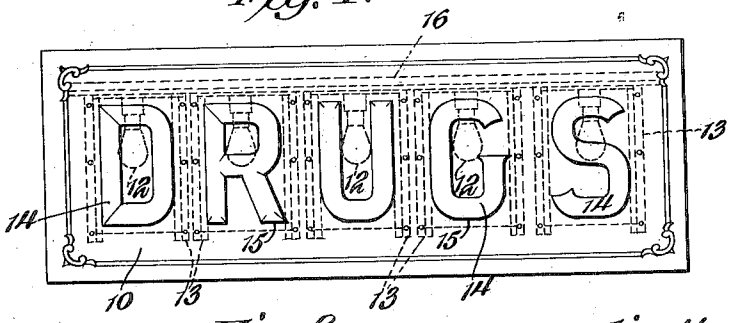



Fig. 2.

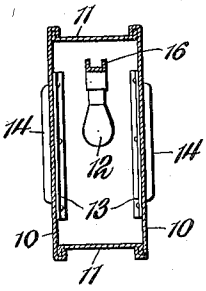



Fig. 3.

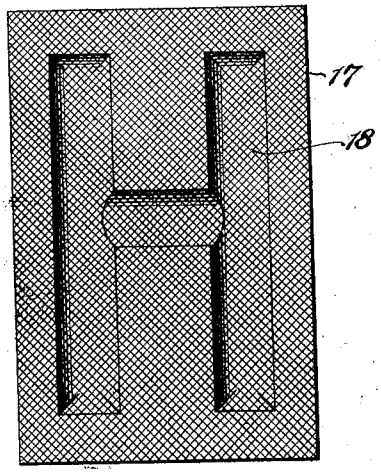



Fig. 4.

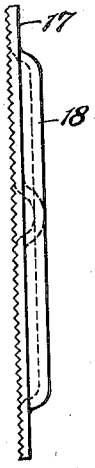



Fig. 5.

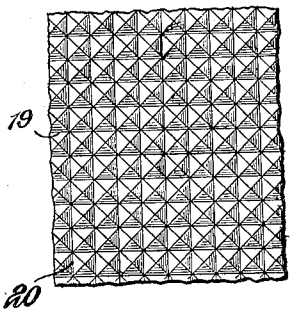



Fig. 6.

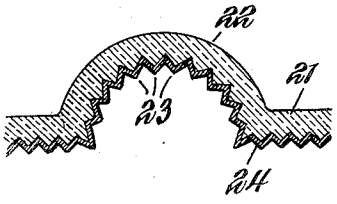



Fig. 7.

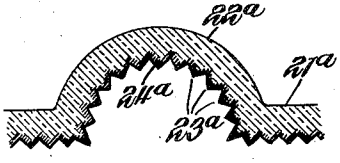
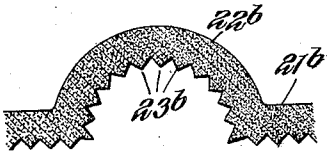



Fig. 8.




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WITNESSES

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# UNITED STATES PATENT OFFICE.

WALTER MEACHER, OF ST. CATHARINES, ONTARIO, CANADA.

## ILLUMINATED SIGN.

Application filed February 4, 1924. Serial No. 690,568.

*To all whom it may concern:*

Be it known that I, WALTER MEACHER, a citizen of Canada, residing at St. Catharines, in the Province of Ontario and Dominion of Canada, have invented a new and useful Illuminated Sign, of which the following is a specification.

This invention relates to illuminated signs of the double face type, in which the light emitting units are arranged between two sign plates, each having a series of letters or other characters formed of opalescent glass, or the like, secured to their inner faces with raised portions forming the character strokes, which project through corresponding stenciled openings in the plates, so that they may be visible from any angle.

One of the important objects of the invention is to form the opalescent characters in such a manner that in addition to the diffusion of the light as it passes therethrough, that portion of the light, which is reflected from the inner surface of the glass, is completely diffused, so that the entire space within the sign plates is filled with light of substantially uniform intensity, and as a consequence all of the character strokes on both faces of the sign are uniformly lighted throughout, and there are no spots or regions thereon brighter than other regions. In other words, the light reflected by the glass on one side is not prevented from shining through the letters on the other side, but all the reflected light is so diffused that in addition to increasing the illumination obtained from a light of given intensity, the uniformity of the effect is enhanced.

Another important object of the invention is to provide sign characters, which in the day time appear white from reflected sunlight, but which have an inner facing or coating tinged with blue, whereby at night to neutralize the yellow rays produced by the usual lamp with a clear glass bulb, without the necessity of using expensive blue glass bulbs.

The distinctive features of my invention will be better understood from the following detailed description, which is to be read in connection with the accompanying drawing, and which explains the principles upon which the invention is based.

In the drawing:

Figure 1 is a front elevation of a sign constructed in accordance with my invention.

Figure 2 is a transverse section thereof.

Figure 3 is a rear elevation of one of the characters which may be used.

Figure 4 is a side elevation of the character shown in Figure 3.

Figure 5 is a magnified view of a portion of the rear surface of a character, such as is shown in Figure 3.

Figure 6 is a magnified sectional view through one of the character strokes, illustrating one way of forming the inner surface tinged with blue.

Figure 7 is a view similar to Figure 6, but showing a modified construction.

Figure 8 is a view similar to Figures 6 and 7, but illustrating another modification.

The sign in which my invention is embodied includes spaced face plates 10 of sheet metal, or other opaque material, having their edges connected by strips 11, so as to form a rectangular enclosed space, within which a series of electric lamps 12 are supported. A series of letters or other characters of rectangular formation are secured to the rear side of each face plate 10 by means of suitable cleats 13. The character strokes 14 on the several characters are in relief, and when the characters are secured in the manner indicated, these character strokes project through corresponding stenciled openings 15, so that they are clearly visible from any angle, while the remaining portions of the characters are hidden from view by the opaque face plates 10.

In Figures 3 and 4 I have indicated by the numeral 17 one of the characters, which may be used in connection with the sign plates illustrated in Figures 1 and 2. This character, as shown, is formed with its character strokes 18 in relief, and the rear of the inner face of the entire character is corrugated in two directions, at right angles to each other. This peculiar formation is best shown in Figure 5, where the horizontal lines 19 and vertical lines 20 denote the respective corrugations.

By reason of these corrugations, as described, the rays of light which are reflected from the inner faces of the characters are diffused in all directions, so that the entire space between the plates 10 is filled with light of substantially uniform intensity, and

the character strokes throughout their entire extent will appear uniform. The lights 12 are preferably supported from a bar 16 extending from end to end of the sign midway between the plates 10, and the light bulb is preferably located between each pair of opposed characters, as illustrated in Figures 1 and 2. To a spectator looking at the sign from either side, however, the portion of the letter immediately in line with the bulb 12 will appear no brighter than the rest.

It is desirable that the character strokes should appear in the daytime as pure white, in order to be most plainly visible against a dark background in reflected sunlight. All electric light, however, which is produced by the passage of an electric current through a filament, contains an excess of yellow rays, so that in order to cause the sign to appear pure white at night, light bulbs of blue glass have heretofore been used. These bulbs are comparatively expensive, and must be frequently replaced. In accordance with my invention, however, an ordinary bulb with clear glass is used, and the excess of yellow rays is neutralized by the use of blue glass in the character strokes, or the entire character is tinged with blue.

In Figure 6, the character 21 is represented as having a character stroke 22. The inner face of the character is covered with corrugations 23, and the inner face of the character is lined with a blue flash. This form of character is produced by gathering a ball of opal glass on the end of a glass-blower's rod. This is dipped into a pot of molten blue glass, which puts a thin coating of blue glass on the outside of the opal glass. Next the glass is blown into large cylinders, the same as window glass, and the cylinders are then split and rolled into sheets with the opal glass on one side, and a thin coating of blue glass on the other side. The sheet glass is then corrugated in any suitable manner, and formed into characters, keeping the blue on the inside of the character plates.

In the modification shown in Figure 7, the character plate $21^a$ is formed with character strokes $22^a$ and is corrugated on the inside, as indicated at $23^a$, and is lined with a coating of blue glass $24^a$, which is formed by a spray while the glass is still in a partially molten state. This form, if the spraying is carefully done, will give substantially the same effect as the form shown in Figure 6.

In the form shown in Figure 8, the character plate $21^b$ is formed with the character stroke $22^b$, and the inner face is corrugated, as shown at $23^b$, while blue coloring matter is introduced into and forms a constituent part of the opal glass itself.

As a result of the corrugations, the light is uniformly diffused, and the maximum illuminating effect is obtained, while the excess of yellow rays is neutralized by the blue color within the sign characters themselves, and an ordinary tungsten bulb may be used for the illumination.

While I have shown and described the preferred arrangement of the various constituent parts of the sign, and the preferred methods of manufacturing the sign characters from which the sign is made up, it is to be understood that these are merely for the purpose of illustration, and that various modifications may be made therein without departing from the salient features of the invention as expressed in the claims.

What is claimed is:

1. An illuminated sign, comprising, in combination, a stenciled face plate, a glass character plate having character strokes projecting through the stencil, and a source of light behind the character plate, said character plate having an outer layer of opalescent glass with its inner face corrugated in two directions and overlaid by a uniform inner layer of blue tinted glass.

2. An illuminated sign, comprising, in combination, a stenciled face plate, a glass character plate having character strokes projecting through the stencil, said character strokes having a smooth outer face of opalescent glass, and an inner face of glass corrugated in two directions substantially at right angles to each other and having a blue tinge.

3. An illuminated sign, comprising, in combination, a pair of stenciled face plates having their edges connected to form a closed space, character plates behind each face plate and having character strokes projecting through the stencil, each character stroke having a smooth outer face of opalescent glass and a corrugated inner face composed of glass having a blue tinge, and means for supporting a light within said closed space.

4. A character plate for illuminated signs having character strokes in relief, each of said character strokes being composed of an outer layer of opalescent glass, with its inner face concave and corrugated in two directions and overlaid by a uniform layer of blue tinted glass.

5. A character plate for illuminated signs having character strokes in relief, each of said strokes having a smooth outer face of opalescent glass, and having its inner face corrugated in two directions substantially at right angles to each other and composed of blue tinted glass.

6. An illuminated sign, comprising, in combination, a pair of stenciled face plates having their edges connected to form a closed space, character plates behind each face plate, each character plate having character strokes in relief projecting through the stencil, the outer face being smooth and the

inner face being corrugated in two directions substantially at right angles to each other, and a source of light located in the space between the plates, said character plates having blue coloring matter to neutralize the excess of yellow rays in the light passing therethrough.

7. An illuminated sign, comprising, in combination, a pair of stenciled face plates having their edges connected to form a closed space, character plates behind each face plate and having character strokes in relief projecting through the stencil, the character plate of one face being opposite to a corresponding character plate on the other face, each character plate having a smooth outer face and an inner face corrugated in two directions substantially at right angles to each other, the inner face of each character plate being lined with a blue flash and a source of light substantially midway between each pair of opposed character plates and on a line drawn between the centers thereof.

8. An illuminated sign, comprising, in combination, a pair of stenciled face plates having their edges connected to form a closed space, character plates behind each face plate and arranged opposite to each other, each character plate having on its outer face a layer of opalescent glass and having its inner face corrugated in two directions substantially at right angles to each other and formed of blue tinted glass, and a source of light substantially midway between each pair of opposed character plates and on a line drawn between the centers thereof.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

WALTER MEACHER.