Feb. 13, 1940. W. B. WELLS 2,190,526

LIGHT SIGNAL

Filed Aug. 6, 1938

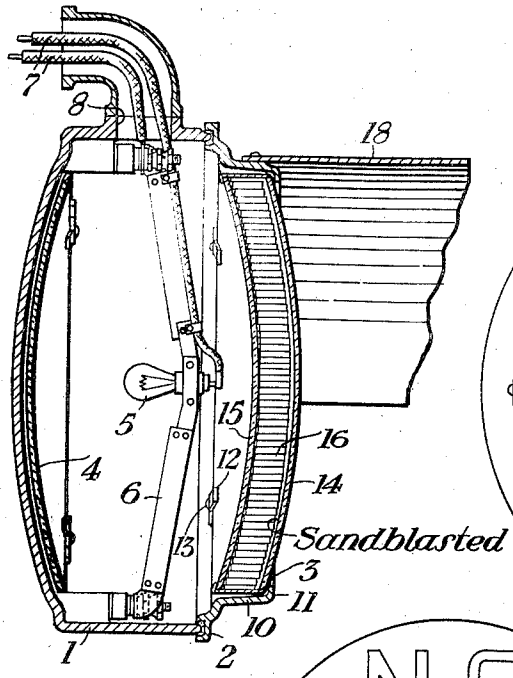


Fig. 1.

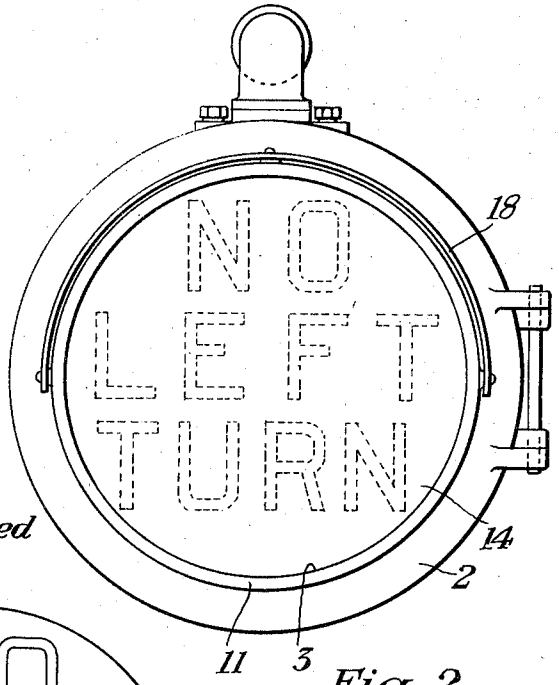


Fig. 2.

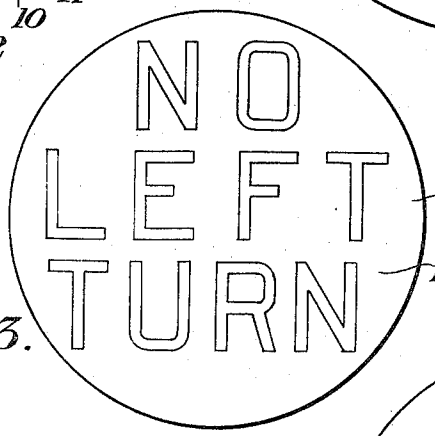


Fig. 3.

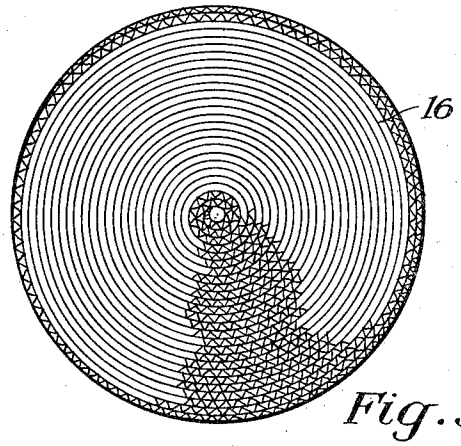


Fig. 5.

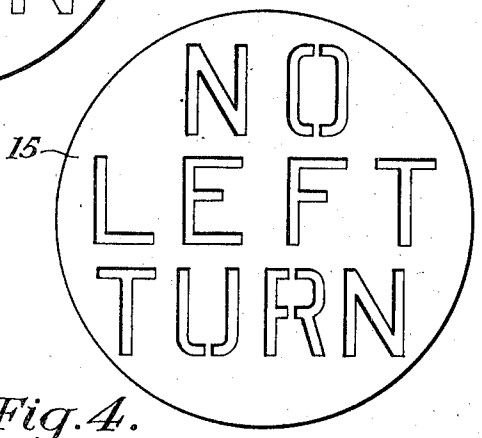


Fig. 4.

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LIGHT SIGNAL

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1 Claim. (Cl. 40—133)

My invention relates to light signals.

One object of my invention is to provide a light signal having a legend or the like which is visible when and only when the signal is illuminated.

Another object of my invention is to provide a light signal the energy requirements of which are a minimum, and which when illuminated is capable of displaying an indication which is clearly visible by daylight under the most unfavorable conditions of light and background.

Other objects and characteristic features of my invention will appear as the description proceeds.

I shall describe one form of light signal embodying my invention, and shall then point out the novel features thereof in claims.

In the accompanying drawing, Fig. 1 is a vertical longitudinal sectional view showing one form of light signal embodying my invention. Fig. 2 is a front view of the signal shown in Fig. 1. Fig. 3 is a front view of a stencil forming part of the signal shown in Figs. 1 and 2. Fig. 4 is a front view of a modified form of stencil which may be used in the signal shown in Figs. 1 and 2. Fig. 5 is a front view of a screen structure forming part of the signal shown in Figs. 1 and 2.

Similar reference characters refer to similar parts in each of the several views.

Referring first to Figs. 1 and 2, the signal comprises a housing 1 provided with a hinged front door 2 having an aperture 3. Located in the housing 1 are light projecting means comprising a parabolic reflector 4 and an electric lamp 5 having its filament located at the focal point of the reflector 4. The lamp 5 is supported by a suitable bracket 6 secured to the housing 1, and the lamp reflector is so arranged that when the lamp is illuminated, a beam of substantially parallel rays will be projected toward the aperture 3. Operating current for the lamp 5 is supplied by a pair of wires 7 which extend into the housing 1 through a suitable aperture 8 formed in the top wall of the housing.

The door 2 is formed with a tubular portion 10 provided at its outer end with an inwardly extending annular flange 11 which defines the aperture 3, and mounted within this tubular portion between the flange 11 and suitable clips 12 which are secured to the door by means of screws 13 are a convex cover glass 14 and a convex stencil 15 separated by a screen structure 16.

The stencil 15 may be formed in a variety of ways to provide the desired signal indicia which, in the particular signal illustrated, constitutes letters grouped into words to form the legend "No left turn". For example, the stencil may be made of sheet metal with the letters cut out as shown in Fig. 4, or it may comprise a piece of glass painted or otherwise coated to form contrasting light and dark areas as shown in Fig. 3. In this latter case, the stencil will preferably be made from clear glass and the area around the letters will preferably be painted white due to the ability of white paint to reflect light back towards the reflector, where it will again be reflected forwardly by the reflector so that a portion of this twice reflected light will find its way through the clear letters of the stencil and thus strengthen the indication. It should be pointed out, however, that colors other than white may be used to provide the contrasting light and dark areas, and that a satisfactory indication can be obtained by painting the letters on either the inner or outer face or both of a clear glass stencil. In cases where the maximum signal efficiency is desired with a minimum expenditure of energy, the stencil may have that portion of its inner surface which surrounds the areas which form the signal indicia coated with a light reflecting medium such as silver, and the stencil may further have the same shape as the reflector and may be positioned in front of the lamp filament the same distance as the reflector, whereby the stencil itself will act as a reflector the focal point of which is disposed at the light filament. With this last mentioned construction which is the construction shown in Fig. 1, the body of the stencil may comprise clear glass or it may consist of metal with areas cut out to form the desired signal indicia. It will be noted that when the stencil is constructed to act as a reflector, a portion of the light from the lamp will pass directly through the letters, and another portion will be reflected by the back reflector in parallel rays some of which will pass through the letters, while still other portions will strike the stencil and will be reflected back through the focal point to the rear reflector where it will again be reflected forwardly in parallel rays to cause a portion of this light to pass through the letters and strengthen the indication. This latter procedure would be repeated until all light had passed through the stencil or had been absorbed by the two reflecting surfaces.

The cover glass 14 serves to close the aperture 3, and has its inner surface sandblasted to provide some spread to the signal indication, and also to assist in obscuring the legend when the signal is not illuminated.

The screen structure 15 may be similar to that

described in Letters Patent of the United States No. 1,806,051, granted to Arthur W. Fisher and myself on May 19, 1931, for Light signals, and comprises briefly a corrugated strip of opaque material spirally wound within a strip of opaque flat material to form a plurality of cells having their axes parallel to the rays of the beam projected by the reflector 4. It follows that the rays of light projected through the stencil will pass through the screen structure 15 without interference, but that rays of light from an exterior source falling upon the screen structure will be absorbed and will be prevented from giving a phantom indication. Without this screen structure, the signal legend is visible when the lamp is not illuminated, even though the rear surface of the front cover glass is sandblasted.

A hood 18 of the usual construction is secured to the door 2 above the cover glass 14 to protect this cover glass from the direct rays of the sun.

It should be particularly pointed out that while in describing my invention I have shown the stencil 15 provided with the legend "No left turn", this stencil may be provided with any other desired signal indicia such as the legend "No right turn", "Two trains", "Stop", "Walk", etc.

Although I have herein shown and described only one form of light signals embodying my invention, it is understood that various changes and modifications may be made therein within the scope of the appended claim without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is:

A light signal comprising a casing provided with a front door having an aperture, a source of light in said casing, a parabolic reflector in said casing for projecting a beam of substantially parallel rays toward said aperture, a cover glass mounted in said door and closing said aperture, a stencil mounted in said door between said cover glass and said source and having light transmitting and non-light transmitting portions arranged to form signal indicia, said stencil having the non-light transmitting portions of its surface on the side adjacent to said source provided with light reflecting means and being shaped similar to said reflector and being so positioned that its focal point will be disposed at said source, whereby said stencil acts partly as a reflector to improve the efficiency of the signal, and a screen structure disposed between said stencil and said cover glass and arranged to permit light rays from said beam to emerge from the signal but to prevent light rays entering the signal through said cover glass from rendering said signal indicia visible, the inner surface of said cover glass being roughened to add some spread to the signal indication and to assist in rendering the signal indicia invisible due to extraneous light.

WESLEY B. WELLS.