

Apr. 17, 1923.

1,452,455

L. G. BELL ET AL

SIGNAL

Filed Dec. 27, 1921

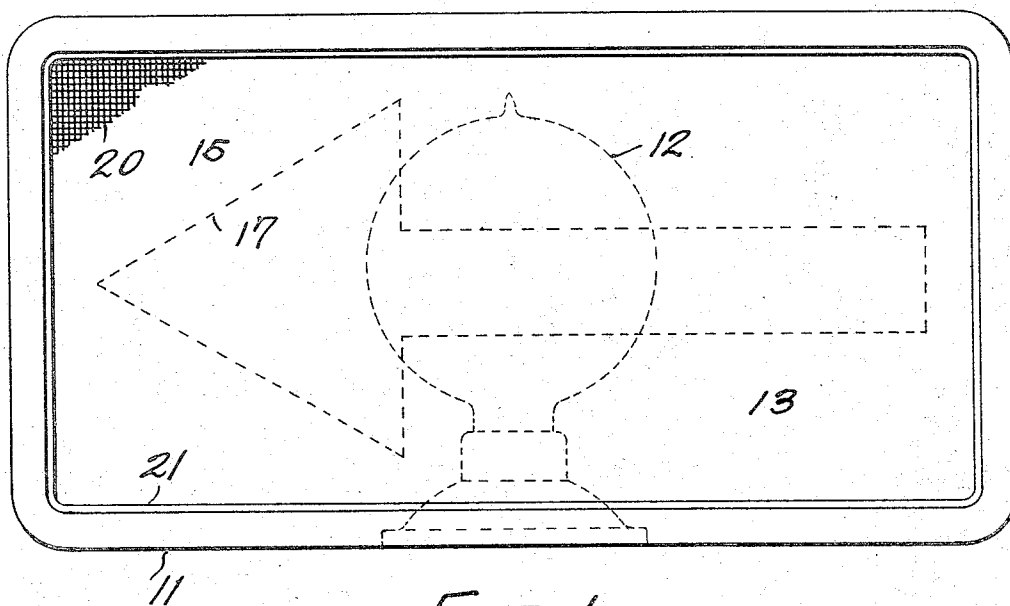


FIG. 1

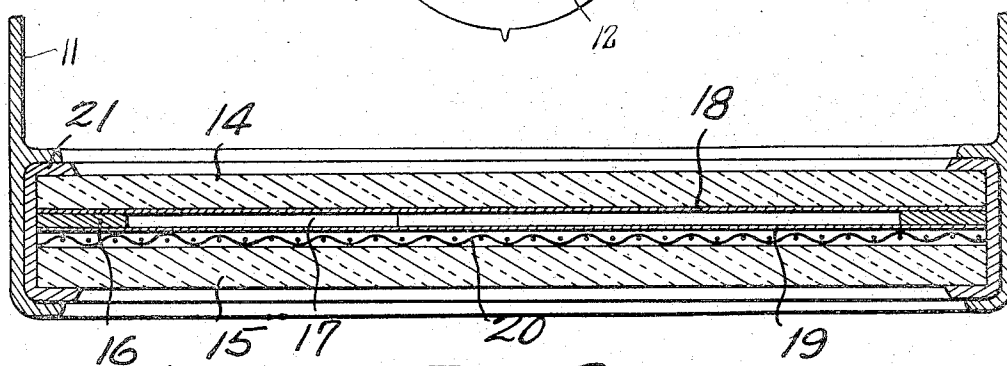


FIG. 2

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SIGNAL.

Application filed December 27, 1921. Serial No. 525,035.

To all whom it may concern:

Be it known that we, LESLIE G. BELL and MORRIS GRIMM, both subjects of the King of Great Britain, and both residents of the city of Montreal, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Signals, of which the following is a full, clear, and exact description.

10 This invention relates to improvements in direction indicators or signals for automobiles and the like, and the primary object of the invention is to provide a signal which operates in the same manner both day and
15 night.

A further object is to provide a visual direction signal of simple and inexpensive construction which will be durable and efficient in operation and of moderate cost.

20 According to the present invention, a signal device is provided which operates in exactly the same manner day or night and has substantially equal visibility at either time. The invention resides particularly in providing a casing adapted to contain a source of
25 light and having a translucent front which in daylight is normally plain white. Behind the translucent front is located an opaque sheet having an opening of desired
30 shape therein, through which light may pass to both shine through and illuminate a portion of the translucent white front. Means hereinafter described in detail are provided for ensuring visibility of the signal in day-
35 light.

In the drawings which illustrate one embodiment of the invention in its most simple form;—

40 Fig. 1 is a front elevation of a signal as it will appear when in operation.

Fig. 2 is a sectional view on an enlarged scale of the front of the device.

Referring more particularly to the drawings, 11 designates a casing of any suitable
45 form or shape adapted to contain a source of light 12, for example the electric incandescent bulb illustrated. The casing is provided with a front panel 13. This front panel may be constructed in a variety of
50 ways but the arrangement shown in Figure 2 is at the present time found most satisfactory. The form of panel illustrated comprises inner and outer sheets 14 and 15 of transparent material, such as plain clear
55 glass. Between these sheets of transparent

material, there is disposed an opaque sheet 16, such as black paper, sheet metal or the like having an opening 17 therein of any suitable shape, such as an arrow or hand pointing with the index finger or the like, 60 through which opening light may pass. At the inner and outer surfaces of the opaque sheet, there are provided sheets 18 and 19 of translucent material, such as white paper. A sheet 20 of foraminous material, such as
65 open mesh wire cloth, may be disposed between the front or outer transparent sheet 15 and the front translucent sheet 19. All these sheets may if desired be connected together by a binder or frame 21, so that they
70 may be handled as a unit.

The purpose of the transparent sheets 14 and 15 is purely to support and protect the other members of the front slide 13. The apertured opaque plate 16 is obviously the
75 signal member per se. The front outer translucent sheet 19 serves to conceal the signal plate 16 and to present at all times when the signal is not in operation a blank surface. When the signal is operated, light
80 shines through the plate aperture 17 and illuminates that portion of the translucent sheet over the aperture, so that this portion of the translucent sheet has the appearance of being incandescent and distinguishes con-
85 spicuously from the surrounding portion of the transparent sheet. The inner translucent sheet 18 is, it has been found by experiment, desirable for the purpose of intensifying the effect. When only a single
90 translucent sheet is used, the signal effect is orange colored, but when the inner translucent sheet is used spaced from the outer by the apertured plate, the effect produced
95 is of an intense white or incandescent signal, which is startlingly conspicuous and which has much greater visibility than the signal, as given through a single thickness of translucent material. It has been found
100 that, under certain light conditions or perhaps due to the thinness of the front translucent sheet or to a tendency therein to semi-transparency, a vague outline of the aperture 17 may be observed even when the signal is not in use. To avoid any possibility
105 of this being mistaken for a signal, a screen or filter in the form of the wire mesh sheet 20 is placed in front of the translucent sheet. This screen breaks up the light reflected from the translucent sheet when the signal 110

is inoperative, so that any slight differences in the reflecting power of the sheet due to the aperture 17 are completely lost sight of. This screen further has the effect of imparting a dull or grayish appearance to the signal, so that the effect produced when the signal is operated is very greatly intensified. The question of operation at night needs no explanation, as it is obvious from the foregoing description. At night, the entire signal device is invisible or substantially invisible and, when operated, the effect is that of a white device on a black ground, as will be readily understood. In daylight, however, when the whole signal is visible, it is more difficult to comprehend the operation. It must be understood that the signal is visible in daylight merely because of the light transmitted from it to the eye of the beholder. In the case of the white translucent material at the front, the reflection is say 80% of the light received. This reflected light comes back to the observer from all parts of the sheet. When the lamp 12 is in operation, the light given off from it shines through the translucent material to the eye of the beholder. Therefore, more light is transmitted from that part of the sheet opposite the aperture than from the remaining part, with the result that the sheet over the aperture appears bright or incandescent, whereas the remainder appears dull. This effect is intensified by the wire screen. When light is shining through the translucent sheet, the source is larger than the individual wires of the screen, with the result that at a short distance the wires of the screen are lost sight of with no apparent diminution in the illumination, whereas in the surrounding part of the screen, they materially reduce the amount of reflected light. The inner translucent sheet is illuminated by light from the lamp and the light is uniformly distributed through this sheet, which becomes in effect a source of light of uniform intensity in the whole area of the opening. If the inner translucent sheet is omitted, the effect is not as good. It will also be observed that the inner translucent sheet serves as a light filter, and therefore that any color effects desired may be produced by the use of appropriate material in this inner sheet. In order to produce the desired effect, the inner and outer translucent sheets must be in spaced relation but the spacing is not necessarily very great.

The signal device itself has been illustrated in a most elementary form, and it will be understood that the different signals may be in separate casings 11 or may be combined in a single casing in any manner desired. It will also be understood that, while the device has been illustrated as embodying an electric lamp, this is not essential since if constant sources of light, such as

acetylene flames, are used, any of the customary devices may be resorted to to interrupt the passage of the light as desired. Obviously, a number of modifications may be made in the exact manner of producing the desired result, for example, by the combination of the translucent and transparent members or in any other manner found suitable.

Having thus described our invention, what we claim is;—

1. In a device of the class described, the combination with a source of light, of a sheet of paper arranged to be illuminated thereby and to become a secondary source of light, a second sheet of paper arranged to give passage to light from said secondary source, said latter sheet serving also to reflect external light and signal means interposed between said sheets to define the shape of beams of light passing from the secondary source of illumination to the reflecting sheet.

2. In a device of the class described, the combination with a source of light of a sheet of paper arranged to be illuminated thereby and to become a second source of light, a second sheet of paper arranged to give passage to light from said secondary source, said latter sheet serving to reflect external light, and an opaque plate disposed between the secondary source of light and the reflecting sheet, said plate being provided with a symbol forming aperture.

3. In combination with a device according to claim 1, foraminous means arranged to reduce the amount of light reflected from said reflecting sheet and to split up the rays thereof in a manner to produce uniform reflection from all parts thereof.

4. In combination with a device according to claim 1, foraminous means arranged to reduce reflection of light from said reflecting sheet, said reducing means offering substantially no obstruction to the passage of light through the reflecting means, whereby the reflection reducing means becomes substantially invisible over portions of the reflecting means through which light is passing.

5. A device of the class described, comprising a pair of translucent sheets disposed in spaced relation, an opaque apertured plate disposed between said translucent sheets, the aperture in said plate being in the form of a symbol, and a foraminous wire sheet on the opposite side of one of said translucent sheets from the apertured plate.

6. In a device of the class described, a pair of translucent sheets in spaced relation, an opaque apertured plate disposed between the translucent sheets, the aperture in said plate being in the form of a symbol and a foraminous sheet on that side of the device designed to be exposed to view.

7. In a device of the class described, a

pair of translucent sheets, an opaque apertured sheet disposed between the translucent sheets and holding the same in spaced relation, the aperture in said opaque sheet being
5 in the form of a symbol, a sheet of open mesh wire cloth on the opposite side of one of said translucent sheets and on that side of the device designed to be exposed to view, and a frame holding all of said elements
10 together.

8. In combination with a device according to claim 7, inner and outer sheets of transparent material forming a protective covering for the elements of the device.

15 9. In a device of the class described, a casing, a source of light therein, a front for said casing comprising inner and outer sheets of translucent material, an opaque plate positioned between said translucent
20 sheets, said plate being provided with a symbol forming aperture and a sheet of

open wire mesh cloth in front of the outer translucent sheet.

10. In combination with a device according to claim 9, a frame holding the translucent sheets, apertured plate and wire cloth
25 together for removal as a unit from the casing.

11. A device of the class described, comprising a pair of sheets of white paper, an
30 apertured opaque plate disposed between said sheets, the aperture in said plate being in the form of a symbol, a sheet of open-mesh wire cloth over one of said paper sheets, front and back transparent sheets,
35 and a frame holding all said elements rigidly together.

In witness whereof, we have hereunto set our hands.

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