

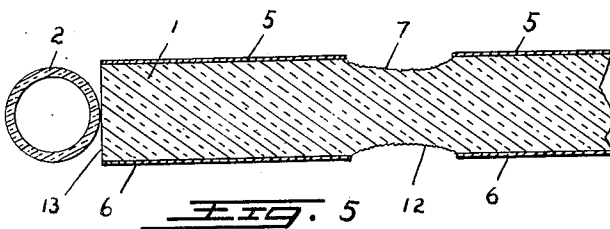
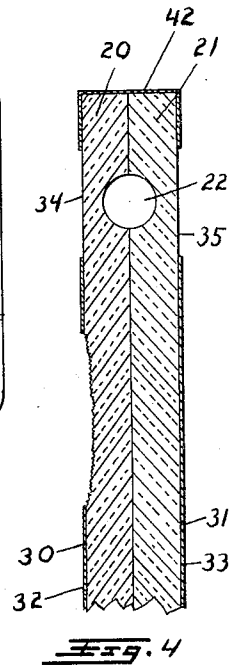
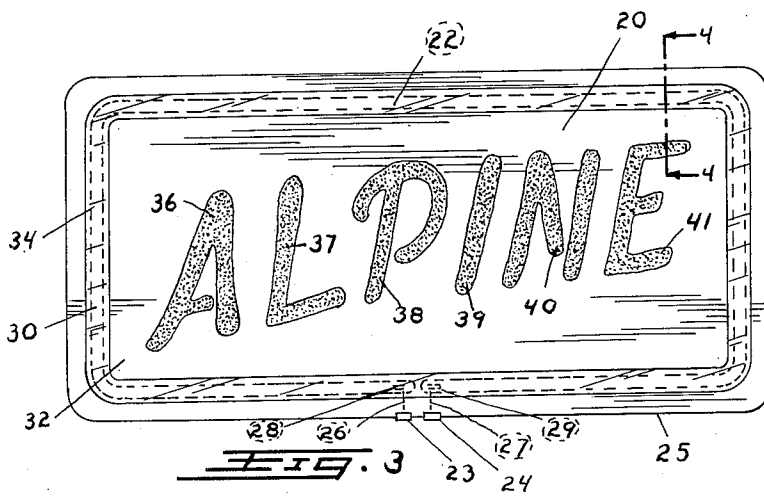
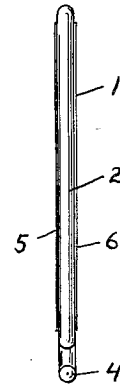
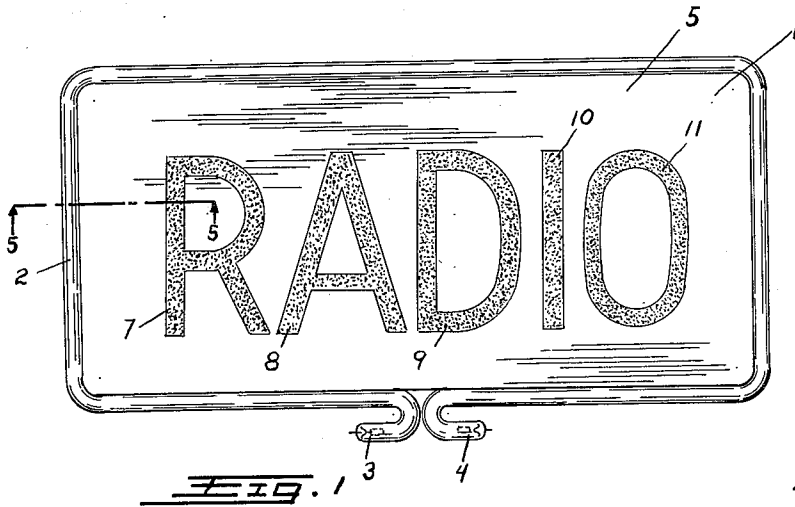
Dec. 5, 1933.

F. HOTCHNER

1,937,957

LUMINOUS SIGN

Filed March 28, 1931



INVENTOR

*Fred Hotchner*

## UNITED STATES PATENT OFFICE

1,937,957

## LUMINOUS SIGN

Fred Hotchner, Los Angeles, Calif.

Application March 28, 1931. Serial No. 526,001

14 Claims. (Cl. 40—130)

This invention relates to a luminous sign and an object thereof is to provide a sign formed from a body of light transmitting material having characters illuminated by radiation transmitted from a source of illumination disposed at an edge thereof.

A further object is to provide, in a sign of the general type described, for greatly increasing the intensity of the lighted characters.

10 A further object is to provide for the formation of a double faced sign without increasing the cost of construction further than that incident to the finishing of the additionally illuminated sign face.

An object of one form of the invention is to provide for the directing of a greater percentage of the illumination into the body of light transmitting material constituting the main element of the sign than that percentage of the total illumination so directed in any prior art device.

20 It is a further object of one form of the invention to conserve and redirect into the main body of light transmitting material that portion of the radiation from the source which is primarily radiated in the direction opposite to that portion of the body on which the copy is placed.

A further object of the invention is to provide a thin double faced sign lighted from the edge thereof and to utilize the source of illumination as an ornamental border for the copy.

30 Further objects of the invention will be apparent from the drawing and the following specification, it being understood that the invention is not limited to the particular embodiments shown but may be variously applied within the purview of the claims and is thus to be limited only by the prior art and the limitations imposed by the claims.

In the drawing two embodiments of the invention are shown to illustrate the manner of practicing the same.

40 Figure 1 is a front elevation of a sign made according to this invention which may be either a single sided sign or a double sided sign depending on whether or not copy is cut through the reflecting film on the opposite side from that shown.

Figure 2 is a side elevation of the sign shown in Figure 1.

50 Figure 3 is a front view of a sign made according to this invention and utilizing certain features disclosed in my previously filed application, Serial No. 384,172, dated August 7, 1929. As in the previous case this may be either a single or double faced sign.

55 Figure 4 is a cross section of a portion of the

sign shown in Figure 3 taken on the line 4—4, showing the manner of providing the reflecting films on the surfaces and providing openings through the films for the showing of the light as well as the manner of finishing the surface at the places where illuminated copy is to show. In this view no copy openings are shown on the reverse side and hence as shown it would be a double faced sign as regards the border and a single faced sign as regards the copy.

Figure 5 is a cross section of a portion of the sign shown in Figure 1 taken on the line 5—5, showing the border tube and copy openings on both sides of the sign. Hence this sign would be a double faced sign as regards both the border and the copy.

Numeral 1, Figure 1 indicates the body of light transmitting material constituting the main element of the sign. Ordinarily plate glass might be used for this element. Surrounding the glass, close to the edge thereof is a tubular light, such for instance as a neon tube. Any suitable means may be used to secure them together into a complete display assembly providing suitable terminal connections. The tubular light is indicated by 2, and the terminals thereof by 3 and 4.

On each side of the glass is provided a light reflecting film, such as silvering disposed to reflect back into the mass of glass any light incident upon it from within the glass. The films are indicated by 5 and 6, there being openings through the film, indicated by 7, 8, 9, 10 and 11 on the side shown in Figure 1 and any desired openings such as indicated by 12 on the opposite side. Preferably the surface of the glass at these openings is provided with means to cause the light incident upon that part of the glass surface from the inside of the glass to become scattered and leave the glass mass. Thus the letters become luminous to the eye.

Any one of several means may be used to effect this result. As shown in the drawing this may be done in a very effective manner by sand blasting or etching the glass. This is also a very practicable method for commercial purposes, inasmuch as the glass may be provided in a completely silvered surface finish in one step of the process of manufacture and the copy may be put on thereafter by sandblasting through both the silvering and the glass surface at the same time.

If desired raised glass jewel letters may be stuck onto the glass at the openings, or frosting may be painted on.

The reflecting films have the effect of confining to the glass mass much radiation that would leave

were the glass surfaces left clear. Particularly is this the case when the glass is of some thickness and much of the light which enters the glass at the edge 13 approaches either one of the main surfaces at such an angle that it escapes out of the glass and is lost.

In the form of the invention shown in Figures 3 and 4, I utilize a device shown in the previously filed application mentioned above. Two sheets of glass indicated by 20 and 21 are assembled into a gaseous conductor discharge device in which a discharge passage 22 is formed, there being terminals 23 and 24 at the edge 25 of the assembly which are connected by the wires 26 and 27 to the electrodes 28 and 29 within the device. Any suitable mounting and current supply connection to the terminals may be provided.

The surfaces 30 and 31 of the device are provided with the reflecting films 32 and 33, there being openings 34 and 35 through the films to expose the discharge passage to view in order that when it is illuminated by the passage of current the border will appear to the eye much as an exposed luminous tube. Any suitable gaseous filling, such as neon, etc., may be provided in the passage.

Character openings indicated by 36, 37, 38, 39, 40 and 41 are provided and in the particular sign illustrated the surfaces are sand blasted.

In order to conserve the portion of the light radiated in the direction opposite to the copy I provide a reflecting film around the edge. The film is indicated by 42.

In the generic sense the term "display pattern" as used herein is to be understood to include any pattern of inscriptions, characters, figures, numerals, symbols, ornaments, designs, borders or signs, whether including but one of any such devices or more than one or any combination of any such devices when used as an intended visible portion of the display and is to be understood to include as well any portion or element of the device having such form or forms when so used in the claims.

Having thus described my invention, what I claim is:

1. In a display, a body of light transmitting material, a source of light disposed at an edge thereof, light reflecting films on opposing sides of said body disposed to confine the radiation from said source within said body, and openings through one of said films delineating a display pattern through which a portion of said radiation may leave said body.

2. In a display, a body of light transmitting material, a source of light disposed at an edge thereof, light reflecting films on opposing sides of said body disposed to confine the radiation from said source within said body, openings through one of said films through which a portion of said radiation may leave said body, the surface of said body at said openings being finished to disperse said light to assist it in leaving said body.

3. In a display, a body of light transmitting material, a source of light disposed at an edge thereof, light reflecting films on opposing sides of said body disposed to tend to confine the radiation from said source within said body, and display pattern openings through said films through which a portion of said light may escape from said body to render the openings luminous to the eye as part of the illuminated display.

4. In a display, a body of light transmitting material, a source of light around an edge of said body disposed to radiate a portion of its light into said body, light reflecting films on opposing sides

of said body disposed to redirect into said body any of said light incident upon said films from within said body, and display pattern openings through at least one of said films, the surface of said body at said openings being so finished as to disperse the radiation incident upon the same and cause it to leave said body.

5. In a display, a body of light transmitting material, a source of radiation in connection with said body exposed to view as part of the visible display and disposed to radiate a part of the light therefrom into said body, light reflecting films on opposing sides of said body disposed to redirect into said body any of said light incident upon said films, and display pattern openings in at least one of said films, the surface of said body at said openings being finished so as to disperse the light incident thereupon from within said body to render said openings luminous to the eye as part of the visible display.

6. In a display, a body of light transmitting material, a source of radiation in connection with said body exposed to view as part of the visible display in two opposite directions and disposed to radiate a part of its light into said body, light reflecting films on opposing sides of said body disposed to redirect into said body any of said light incident thereupon from within said body, and display pattern openings in said films, the surfaces of said body at said openings being finished so as to disperse the light incident thereupon from within said body to render said openings luminous to the eye as part of the visible display.

7. In a display, a sheet of glass, a luminous tube at an edge of said glass exposed to view in opposite directions as part of the visible display and disposed to radiate a part of its light into said sheet, light reflecting films on the two main surfaces of said sheet disposed to confine said light within said sheet, and display character openings through said films, the surfaces of said sheet at said openings being finished to disperse the light incident thereupon from within said body.

8. In a display, a sheet of glass, a luminous tube surrounding said sheet at the narrow edges thereof exposed to view in both directions as a double faced border for the main surfaces of said sheet and disposed to radiate a part of its light into said sheet, light reflecting films on opposite sides of said sheet disposed to confine therein said light, and display pattern openings through said films.

9. In a display, a body of light transmitting material provided with a discharge passageway therethrough, a gaseous filling in said passageway and means to pass current therethrough; light reflecting films on opposing sides of said body disposed to reflect back into said body any light incident upon said films from within said body, and display pattern openings through at least one of said films.

10. In a display, a body of light transmitting material provided with a discharge passageway therethrough, a gaseous filling in said passageway and means to pass current therethrough; light reflecting films on opposing sides of said body disposed to reflect back into said body any light incident upon said films from within said body, openings through said films exposing said passageway to view as a part of the visible display and other display pattern openings in said films to delineate additional display matter disposed to be rendered luminous to the eye by vir-

tue of radiation transmitted from said passage-way through said body.

11. In a display, an extended body of light transmitting material enclosing a source of radiation, display pattern elements on a surface of said body consisting of means to disperse a portion of the radiation traversing said body causing the same to leave said body and thus render said elements luminous to the eye, a film of light reflecting material at a narrow edge of said body disposed to reflect back into said body light incident upon said edge from within said body and additional films of light transmitting material on the two opposing sides of said body adjacent said edge extending from said edge over said sides to a line near said source of radiation.

12. A sign of the character described comprising, in combination, a pair of glass plates supported in a face-to-face relation and closely adjacent each other, each plate having a substantially semi-circular groove cut therein and forming with the groove in the other plate a tubular channel extending around said plates, an electrically operated gaseous conductor extending throughout said channel, and means constituting an advertising legend associated with one of said plates and adapted to reflect the light from said gaseous conductor.

13. A sign of the character described comprising, in combination, a pair of glass plates supported in a face-to-face relation and closely adjacent each other, at least one of said plates having a groove formed therein and forming with the other plate a tubular channel extending around said plates, an electrically operated gaseous conductor extending throughout said channel, and means constituting an advertising legend associated with one of said plates and adapted to reflect light from said gaseous conductor.

14. A sign of the character described comprising, in combination, a pair of plates supported in a face-to-face relation and closely adjacent each other, at least one of said plates being of glass and having a groove formed therein and forming with the other plate a tubular channel extending around said plates, an electrically operated gaseous conductor extending throughout said channel, and means constituting an advertising legend associated with one of said plates and adapted to reflect the light from said gaseous conductor.

FRED HOTCHNER. 100

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