

Nov. 28, 1933.

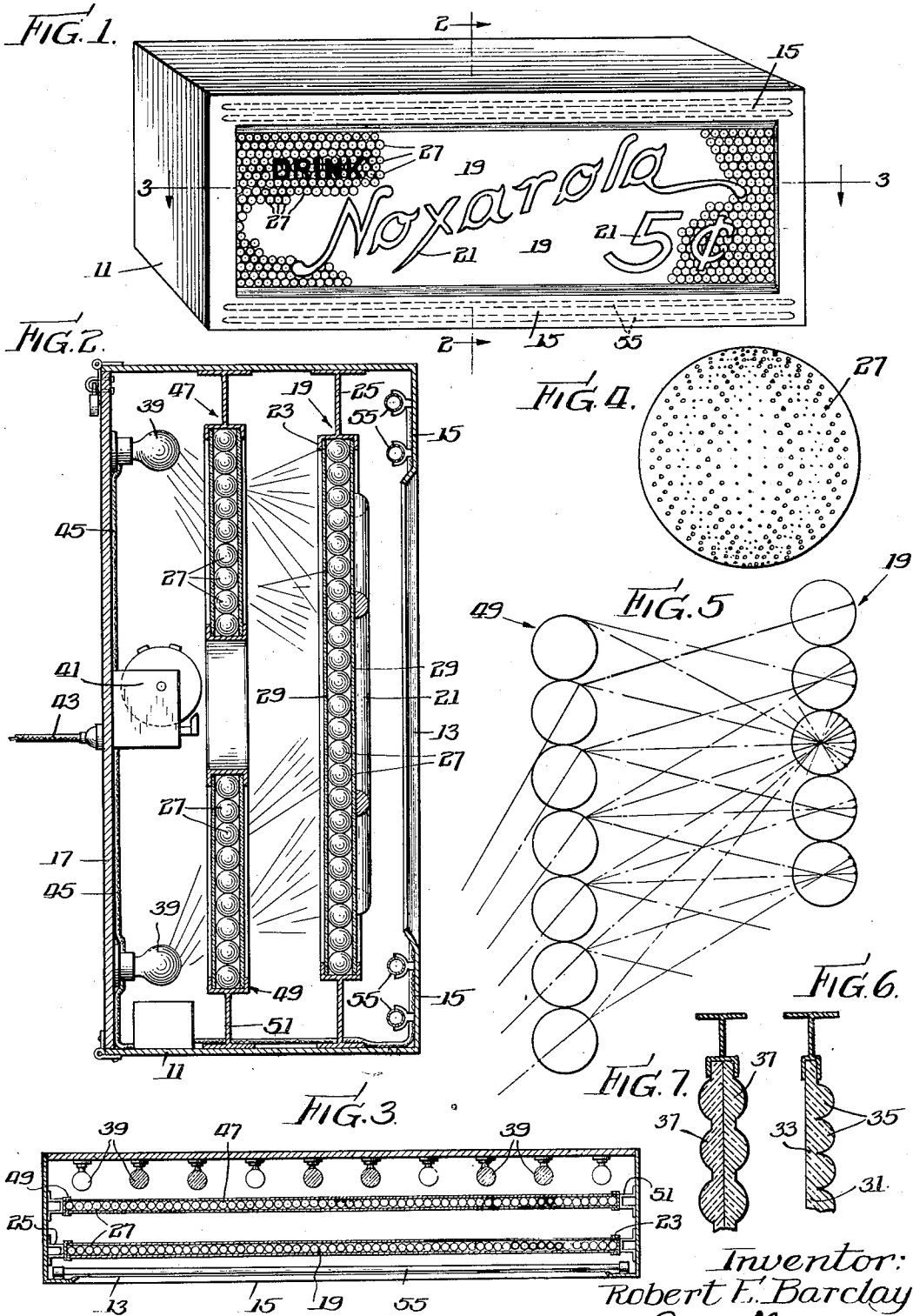
R. E. BARCLAY

1,937,139

SIGN

Filed Jan. 19, 1933

2 Sheets-Sheet 1



Inventor:  
Robert E. Barclay  
By: Cox & Moore attys

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2 Sheets-Sheet 2

FIG. 8.

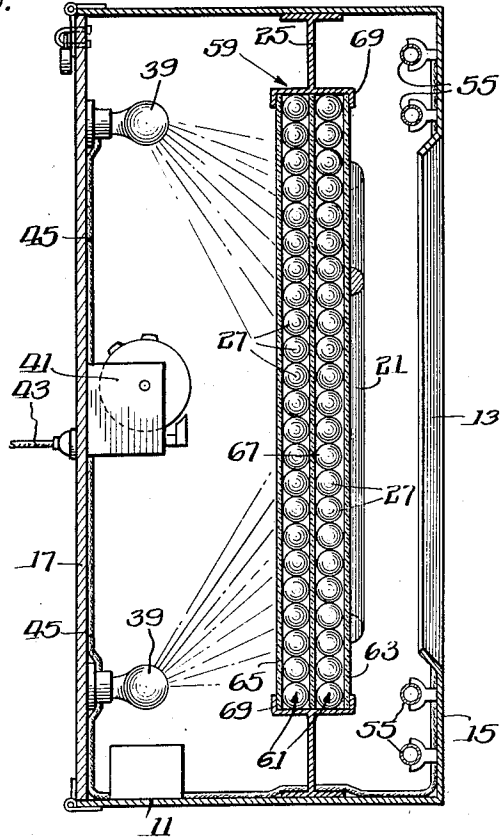
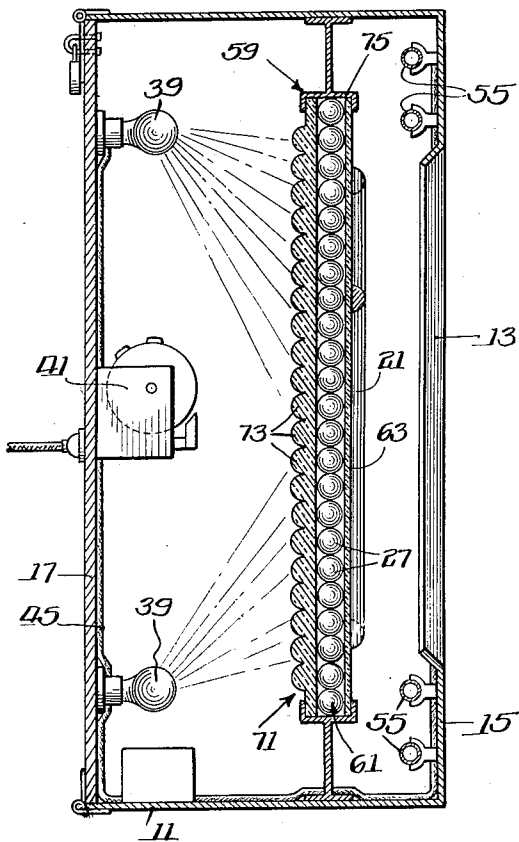


FIG. 9.



Inventor:  
Robert E. Barclay  
By: Cox & Moore attys.

# UNITED STATES PATENT OFFICE

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Robert E. Barclay, Chicago, Ill., assignor to Federal Electric Company, Chicago, Ill., a corporation of New York

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21 Claims. (Cl. 40—132)

My invention relates in general to display devices, and has more particular reference to an illuminated silhouette sign of novel construction and arrangement and adapted to produce unusual, eye-arresting effects.

An important object of the invention is to provide a sign having a background of minute, ever-shifting points of light to provide an effervescing effect against which display characters may be contrastingly mounted to provide an unusually effective sign especially well adapted to advertise beverages.

Another important object is to provide an illuminated sign having a background, the character of the effect produced by which may be instantaneously changed by controlling the illumination of the background, it being possible to create a warm sparkling effect simulating the visual effect produced by the effervescence of carbonated beverages, and alternatively to impart a cool, frozen appearance to the sign by altering the medium or manner in which the background is illuminated.

Another important object is to utilize, in a sign, a frame or background comprising closely packed spherical elements in order to obtain a dispersion of light in an unusual manner whereby to produce appropriate effects in a sign.

Another important object resides in the method of employing the light dispersive effect of relatively small uniform elements in order to produce a novel sign background.

Another important object is to utilize in a sign the combination of relatively small closely packed spherical elements of glass in conjunction with means creating a traveling or shifting light effect in order to produce a sign background comprising flickering or shifting points of light uniformly scattered throughout the entire area of the background.

Another object is to utilize the spherical elements of light refracting material arranged in panel form in conjunction with illuminating means for producing a traveling or shifting light effect in the panel and means to selectively control the traveling light effect in order to alternatively create in the panel a traveling or effervescing light effect and alternatively produce a frozen effect by arresting the traveling movement.

Another important object is to provide a sign incorporating a panel comprising a plurality of spherical elements and illuminating the panel alternatively with traveling lights and from a stationary light source.

Another important object resides in providing a panel of the character described with means for illuminating the panel progressively or alternatively with different colored lights.

Another important object resides in utilizing,

in a sign, an illuminated panel comprising a plurality of spherical glass elements.

Another important object resides in illuminating a sign character through a panel comprising a plurality of closely packed glass marbles.

Another important object is to illuminate a sign character directly and alternatively in an indirect manner through a panel comprising adjacently mounted spherical portions of light refracting material.

Among the other objects of the invention is to produce in a sign, a sparkling background effect created by myriads of minute ever-shifting points of light; to produce alternately a sparkling lively effect and a cool refreshing frozen appearance in a sign; and, in general, to accomplish the foregoing objects by means of a neat compact and inexpensive device.

These and numerous other objects of the invention will be more fully understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred form of apparatus illustrating the various aspects of the invention.

Referring to the drawings:

Figure 1 is a perspective view of a sign embodying my invention;

Figures 2 and 3 are sectional views taken substantially along lines 2—2 and 3—3 in Figure 1;

Figure 4 is a perspective view of a part of the device;

Figure 5 is a diagrammatic view illustrating the operation of certain parts;

Figures 6 and 7 are partial sectional views showing modified constructions; and

Figures 8 and 9 are sectional views similar to Figure 2, showing modified arrangements.

To illustrate my invention, I have shown on the drawings a sign comprising a casing 11, which may be conveniently formed of sheet metal or other suitable material. The casing shown is rectangular and has an opening 13 in its front face defined by flanges 15 formed at the forward edges of the side walls of the casing. The back of the casing also is preferably formed as a panel 17, which may be hinged or demountably secured to the casing to permit access to be easily had to the interior of the casing from the rear.

The casing carries a display panel 19 preferably mounted slightly behind and opposite the opening 13 on which panel characters 21 are or may be mounted in any suitable fashion for display through the opening. The characters 21 are preferably formed of wood or other suitable material to provide a character which may form a silhouette against the panel and the panel 21 is adapted to be illuminated to provide a novel highly effective backing for the sign characters.

The panel 19 comprises means forming a mul-

tiplicity of preferably closely packed light refracting elements, the forward surfaces of which, at least, are curved outwardly and these elements may be illuminated by means creating a shifting light ray, the elements each acting to multiply and reproduce microscopic images of the shifting light rays so that the entire panel presents a uniform scintillating jewelled effect, comprising the ever-shifting images of the light sources from which the rays emanate, behind the characters. The minute, ever-shifting images produce an effect closely simulating the appearance of the effervescence found in carbonated beverages so that the sign has especial utility when used to advertise beverages.

The panel 19 preferably is mounted in a frame 23 carried by supports fastened in the housing 11 by means of supports 25 and may be formed as a layer of glass marbles 27 preferably packed as closely as possible between supporting plates 29. The marbles and plates are or may be of any suitable light transmitting material, such as glass. Alternatively, the marbles may be formed as a unitary pane, or as shown in Figure 6, the panel 19 may be formed as an integral plate 31 with a flat surface 33 on one side and a multiplicity of preferably spherical projections 35 on the other, or, as shown in Figure 7, the panel may be formed by means of two plates 37 similar to the plate 31 arranged back to back.

The panel 19, however formed with forwardly facing spherical surfaces, is illuminated from the rear by means capable of producing a shifting or traveling light effect. As shown in the drawings, this is accomplished by means of stationary lamps 39 preferably mounted on the back panel 17 in position so that rays from the lamps may shine on the back of the panel 19. Means 41 is provided for flashing the lamps in order to obtain a traveling or shifting light effect, the flashing means being connected in the circuit which supplies power to the lamps. The flashing means may be of any suitable well known form, and the lamps may be supplied with power from an external power source through the cable 43 to the flasher and through conductors 45 from the flasher to the individual lamps. The travelling light effect may also be produced by mounting permanently lighted lamps for shifting movement behind the panel 19.

The lamps 39 also may be of any type producing a well defined light source and capable of being controlled to provide the traveling effect, although I prefer to use small electric lamps of the incandescent filament type for the purpose since these are inexpensive and easy to mount and control. The lamps 39 are preferably arranged as shown in horizontal rows although I contemplate other lamp arrangements.

The spherical elements 27 act as reducing prisms and when illuminated from the rear, each reproduces a miniature image of the light source so that by flashing the lamps 39, the panel 19 is made to reproduce the flashing image of each lamp.

In order to multiply the lamp images on the screen 19 and to further reduce their size to thus produce a fine grained effect without multiplying the lamps 39, I prefer to interpose a second screen 47 preferably formed in sections corresponding to the lamp rows although a complete panel may be used. The purpose of sectionalizing the panel is simply to avoid using more marbles than are necessary to screen the direct rays of the lamps from striking the marbles of screen 19.

The screen 47 may be formed in the same fashion as the screen 19, that is to say, may comprise marbles held in place between plates or may be formed integrally as shown in Figures 6 and 7. In any event the screen 47 is suitably mounted as in frames 49 and supported as on brackets 51 in the casing in position between the lamps 39 and the screen 19.

As shown in Figure 5, each marble of the screen 47 receives an image of each lamp 39 and each such image is transmitted to a number of the marbles of the screen 19. Not all of the marbles of the screen 19 receive an image from each marble of the screen 47 but the number of images produced in each marble of the screen 19 is substantially uniform and each marble receives a multiplicity of infinitely small light images, substantially as shown in Figure 4. As the lamps 39 are alternately flashed and darkened, the images on the marbles come and go and since the images are of minute size, having been subjected to the reducing effect of the marbles of both screens, the resulting effect is an effervescing play of light images over the screen 19, which results in displaying the characters 21 in silhouette fashion against a highly eye-arresting background.

The background, however, is not sufficiently prominent to draw attention away from the characters but rather draws attention to the sign and thence to the characters which form the prominent feature thereof.

A somewhat similar and for some purposes a superior effect may be obtained at less expense as shown in Figures 8 and 9, in which the panels 19 and 47 are combined into a single panel 59 which in Figure 8 consists of a pair of layers 61 of closely packed marbles mounted between the front and rear plates 63 and 65 and separated by a single plate 67, the plates being supported in place by means of the brackets 69. This arrangement is cheaper because of the elimination of support brackets and at least marble supporting plate.

In Figure 9, the rearmost layer of marbles and the plates 65 and 67 shown in Figure 8 are replaced by a single pane 71 similar to the pane shown in Figure 6, the forward face of which pane is preferably flat to furnish support for the forward layer of marbles, and the rearward face of which is provided with closely packed hemispherical projections 73 facing toward the lamps 39. The forward plate 63 and the plate 73 are secured together and in place with the marbles 21 therebetween by means of the brackets 75. With this arrangement the images formed in the marbles of the forward prismatic layer are less clearly defined than in the arrangement shown in Figure 2 and are less numerous so that the "bubbly" effect is reduced and a smooth flowing background effect of traveling light is created which is nevertheless of fine grain or texture and does not draw attention away from the sign characters.

The effect created is of narrow upright shadow bands traveling laterally across each individual marble of the panel.

I also provide for the illumination of the characters themselves in a manner to increase their prominence and incidentally increase the aesthetic appeal of the entire sign.

To this end, the characters may be coated with fluorescent paint and illuminated directly from lamps 55 concealed behind the flanges 15 which form the edge of the opening 13. These lamps 55 are preferably of the electrical discharge type and are energized by means of suitable conductors, preferably hidden in the casing from a trans-

former which may be mounted in the casing and connected to the power conductor 43. I prefer to mount two or more lamps behind each flange 15, each lamp being adapted to give off light of different color characteristic. Suitable electrical connections for energizing the lamps and switches for controlling each lamp may be provided. By energizing the lamps 55 in various combinations, beautiful color effects may be produced in the characters 21 so that, in addition to the effervescing background, the characters themselves may be alternately caused to glow in different colors. Cool green may alternate with warm red, which, in turn, may be replaced with rich, royal purple, or combinations of the colors may be used, the upper portions of the characters being illuminated in one color, while the rest is glowing with another.

Another valuable effect is created when the lamps 39 are extinguished and the lamps 55 alone operated. The glass beads being no longer illuminated, lose the warm sparkling effect imparted by the lamp images therein and take on a frozen icy appearance particularly when the lamps 55 are in operation.

The sign is capable of various unusual effects and has numerous applications for advertising and display purposes.

It is thought that the invention and numerous of its attendant advantages will be understood from the foregoing description, and it is obvious that numerous changes may be made in the form, construction, and arrangement of the several parts without departing from the spirit or scope of my invention, or sacrificing any of its attendant advantages; the form herein described being a preferred embodiment for the purpose of illustrating my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. A sign comprising a panel formed of closely packed spheroidal glass elements arranged in a common plane, a plurality of spaced apart light sources adjacent the plane, translucent light refracting means between the light sources and the panel, and means to actuate the light sources to illuminate the panel through the light refracting means with flickering light rays.

2. A sign comprising a plurality of spherical light refracting elements adjacently arranged in a common plane in the form of a panel, means on the panel forming silhouette indicia for display against the panel, means to illuminate the elements with shifting light rays, and means to illuminate the indicia-forming means with stroboscopic light.

3. A sign comprising a plurality of light refracting elements adjacently arranged in a common plane in the form of a panel, means on the panel forming silhouette indicia for display against the panel, means to illuminate the elements with shifting rays from a light source in rear of the panel, and additional means forming a light source in front of the panel to illuminate the indicia-forming means with colored lights.

4. A sign comprising a plurality of spherical light refracting elements adjacently arranged in a common plane in the form of a panel, means on the panel forming silhouette indicia for display against the panel, means to illuminate the elements with shifting rays from a light source in the rear of the panel, and additional means forming a light source in front of the panel to

illuminate the indicia-forming means successively with lights of unlike color characteristic.

5. A sign comprising a plurality of light refracting elements arranged in closely packed adjacent relationship in a common plane to form a main panel, a pair of light refracting panels spaced behind the main panel, one opposite the upper portions, and the other opposite the lower portions of the main panel, a plurality of lamps behind each light refracting panel, and means forming indicia in the path of light rays travelling from the lamps through the main panel.

6. A sign comprising a plurality of light refracting elements arranged in closely packed adjacent relationship in a common plane to form a main panel, a pair of light refracting panels spaced behind the main panel, one opposite the upper portions and the other opposite the lower portions of the main panel, a plurality of lamps behind each light refracting panel, and means to flash the lamps.

7. A sign comprising a plurality of light refracting elements arranged in closely packed adjacent relationship in a common plane to form a main panel, a pair of light refracting panels spaced behind the main panel, one opposite the upper portions and the other opposite the lower portions of the main panel, a plurality of lamps behind each light refracting panel, means to flash the lamps, and means forming silhouette indicia disposed in front of the main panel.

8. A sign comprising a plurality of light refracting elements arranged in closely packed adjacent relationship in a common plane to form a main panel, a pair of light refracting panels spaced behind the main panel, one opposite the upper portions and the other opposite the lower portions of the main panel, a plurality of lamps behind each light refracting panel, means to flash the lamps, means forming silhouette indicia disposed in front of the main panel, and illuminating means located in front of the main panel to illuminate the silhouette indicia.

9. A sign comprising a casing having an opening defined by a flange, electrical discharge illuminating means disposed at an edge of the opening behind said flange, a panel in said opening behind said illuminating means, means forming silhouette indicia opposite said opening in front of said panel in position to be viewed through the opening and to be illuminated by the illuminating means disposed behind the flange, said panel comprising a plurality of relatively small light refracting elements closely and adjacently packed in a layer, means providing refracted light rays forming a traveling light effect visible in said layer.

10. A sign comprising a composite panel including a background layer of spheroidal elements, means forming a light-refracting layer on one side of the background layer, means facing the light-refracting layer to illuminate the background layer through the light refracting layer and means forming sign characters on the side of the background layer opposite the light-refracting layer.

11. A sign comprising a panel formed of closely packed spherical elements of light refracting material arranged in a common plane, a plurality of spaced apart light sources on one side of the plane, a second panel comprising a plurality of closely packed spherical elements of light-refracting material disposed between the light sources and the first named panel, a silhouette sign character mounted for display in front of

said first named panel, and means to actuate the sources to illuminate the elements of the first panel through the second panel.

12. A sign comprising a composite panel including a background layer of spherical elements, means on one side of the composite panel to illuminate the background layer, means forming block characters on the opposite side of the background layer, and means in front of said panel to illuminate the block character with stroboscopic light.

13. A sign comprising a panel formed of closely packed spherical elements of light refracting material arranged in a common plane, means forming a silhouette sign character on one side of said panel, means forming a light source on the opposite side of the panel to illuminate the light-refracting elements behind the silhouette sign character, and means to illuminate the surfaces of the sign character facing away from the panel.

14. A sign comprising a panel formed of closely packed spherical elements of light refracting material arranged in a common plane, means forming silhouette sign characters on one side of said panel, means forming a light source on the opposite side of the panel to illuminate the light-refracting elements behind the silhouette sign character, and electrical discharge light units mounted in position to illuminate the surfaces of the sign character facing away from the panel.

15. A sign comprising a panel formed of closely packed spherical elements of light refracting material arranged in a common plane, means forming silhouette sign characters on one side of said panel, means forming a light source on the opposite side of the panel to illuminate the light-refracting elements behind the silhouette sign character, and means forming colored light sources disposed in position to illuminate the surfaces of the sign character facing away from the panel.

16. A sign comprising a panel formed of closely packed spherical elements of light-refracting material, a plurality of spaced-apart light sources facing one side of the panel, translucent light-refracting means between the light sources and the panel, means forming a silhouette sign character mounted on the side of the panel opposite from the light sources, and means to intermittently actuate the light sources to illuminate the spherical elements with flickering light rays behind the silhouette sign character.

17. A sign comprising a panel formed of close-

ly packed spherical elements of light refracting material arranged in a common plane, means forming a silhouette sign character on one side of said panel, means forming a light source on the opposite side of the panel to illuminate the light refracting elements behind the silhouette sign character, and means to illuminate the surfaces of the sign character facing away from the panel with colored light.

18. A sign comprising a panel formed of closely packed spherical elements of light refracting material arranged in a common plane, means forming a silhouette sign character on one side of said panel, means forming a light source on the opposite side of the panel to illuminate the light refracting elements behind the silhouette sign character, and means to illuminate the surfaces of the sign character facing away from the panel successively with light of unlike color characteristics.

19. A sign comprising a panel formed of closely packed spherical elements of light refracting material arranged in a common plane, means forming a silhouette sign character on one side of said panel, means forming a light source on the opposite side of the panel to illuminate the light refracting elements behind the silhouette sign character, said sign character having laterally inclined surfaces, and means to illuminate said inclined surfaces with colored light.

20. A sign comprising a panel formed of closely packed spherical elements of light refracting material arranged in a common plane, means forming a silhouette sign character on one side of said panel, means forming a light source on the opposite side of the panel to illuminate the light-refracting elements behind the silhouette sign character, said sign character having oppositely-facing, laterally-inclined portions, and means to illuminate said oppositely-facing portions with light of contrasting character.

21. A sign comprising a panel formed of closely packed spherical elements of light refracting material arranged in a common plane, means forming a silhouette sign character on one side of said panel, means forming a light source on the opposite side of the panel to illuminate the light refracting elements behind the silhouette sign character, said sign character having oppositely-facing, laterally-inclined portions, and means to illuminate said oppositely facing portions with light of contrasting color character.

ROBERT E. BARCLAY.

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