Feb. 21, 1939. S. F. ARBUCKLE 2,147,959

ILLUMINATED INDICIUM

Filed April 3, 1937

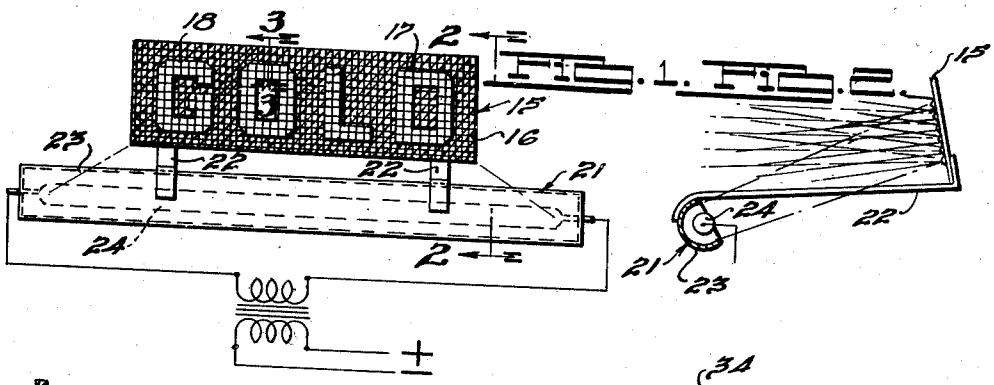
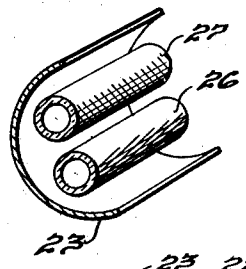


FIG. 1.

FIG. 2.



FIG. 3.



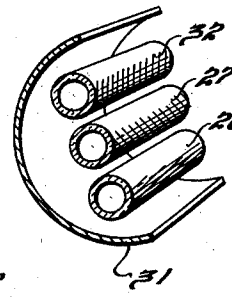


FIG. 4.

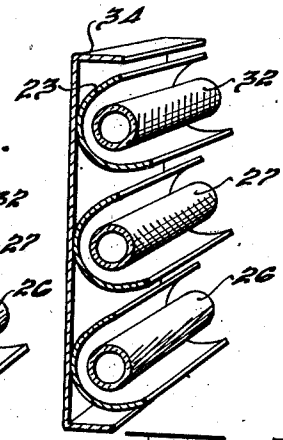


FIG. 5.

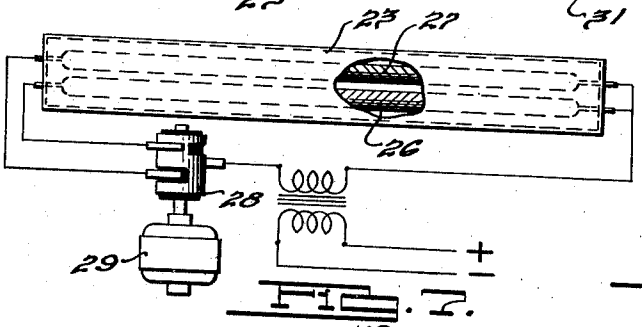


FIG. 7.

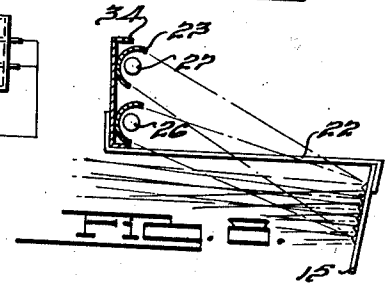


FIG. 8.

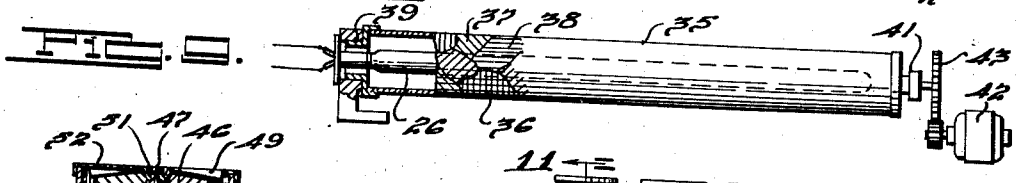


FIG. 9.

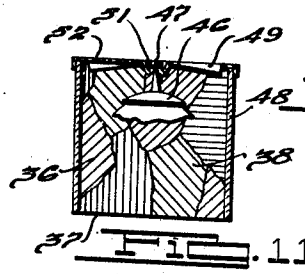


FIG. 11.

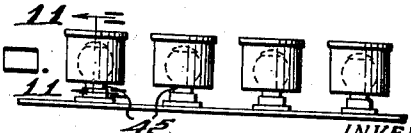


FIG. 10.

INVENTOR
Samuel F. Arbuckle.
BY
Harness, Dickey & Pierce.
ATTORNEYS.

Patented Feb. 21, 1939

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UNITED STATES PATENT OFFICE

2,147,959

ILLUMINATED INDICIUM

Samuel F. Arbuckle, Highland Park, Mich., assignor to S. F. Arbuckle Corporation, Detroit, Mich., a corporation of Delaware

Application April 3, 1937, Serial No. 134,831

2 Claims. (Cl. 40—130)

My invention relates to signs and particularly to a unit sign and light source which reflects the indicia from the sign into a predetermined zone. In the patent to G. H. Coulter and myself, No. 2,004,181, issued June 11, 1935, and assigned to the assignee of the present invention, an indicium is disclosed and claimed having its surfaces provided with reflecting areas which predetermine the zone of reflected light in width and height. In such arrangements, all of the impinging light rays are concentrated when reflected into a zone of predetermined width and height. In my copending application, Serial No. 135,845, filed April 9, 1937, and assigned to the assignee of the present invention, other methods and means for constructing the reflecting surfaces are disclosed. The indicium is pressed from a metal foil secured to a backing element or formed in foil disposed over hardenable plastic material, or otherwise constructed to be provided with reflecting areas.

In the patent to G. H. Coulter and myself No. 2,043,690, issued June 9, 1936, and assigned to the assignee of the present invention, another form of reflecting area is illustrated and described wherein the light from two sources may be deflected into a single predetermined area or a light from a single source may be deflected into two predetermined limited areas. It is to be understood that any method of constructing the indicium or method of producing the material upon which the indicia are formed, as disclosed in the above mentioned patents or applications therefor, or otherwise, may be utilized to produce the indicia of the present arrangement. The reflecting areas on the indicia will have the form of those of the above mentioned patents or application therefor.

In the present construction, the indicia are mounted on a backing element or formed directly thereon, to provide a sign, the indicia of which have reflecting surfaces composed of a plurality of reflecting areas which are related to each other, preferably joined by smooth curves. Projecting frontwardly from the sign is a bracket which supports a reflector and a light source. The light source may be a gas illuminated or incandescent lamp of well known construction and may be of one or many colors.

It is also within the purview of my invention to provide a source of illumination surrounded by an element having a plurality of areas of various colors to provide a blending of reflective colors from the indicia. Means may also be provided to revolve the element about the lamp to have the colors constantly varying over all of the surfaces. A motor may be provided for producing the rotation of the element relative to the light source. An air motor may also be employed to one or more of the elements which project over the lamp and is supported on a pintle thereabove.

Accordingly, the main objects of my invention are to illuminate indicia from a light source disposed in front thereof and extended beyond the end indicia; to provide a continuous band of illumination in front of a sign which extends beyond the ends thereof; to provide a plurality of sources of different colored light along the front of the sign; to provide a sign with reflecting area having a satin surface for slightly diffusing the light as it is reflected into a predetermined area; to provide a plurality of sources of light of different colors and means for varying the illumination of the sources for changing the color of the reflected light; to provide a source of illumination with a transparent element having a plurality of areas of different colors for illuminating indicia with a blending of said colors; to rotate a tubular element relative to a source of light, which tubular element is provided with a plurality of different colors to have the indicia illuminated thereby, constantly changing color over their areas; and, in general, to provide a sign and a source of light which produces new and novel effects, which is simple in construction and economical in operation.

Other objects and features of novelty of my invention will be either specifically pointed out or will become apparent when referring, for a better understanding of my invention, to the following description taken in conjunction with the accompanying drawing, wherein:

Figure 1 is a front elevational view of a sign and source of illumination embodying features of my invention;

Fig. 2 is a sectional view of the structure illustrated in Fig. 1, taken on the line 2—2 thereof;

Fig. 3 is an enlarged sectional view of the structure illustrated in Fig. 1, taken on the line 3—3 thereof;

Fig. 4 is an enlarged view in perspective of the source of illumination which may be employed with the sign illustrated in Figs. 1 and 2;

Fig. 5 is a view of structure, similar to that illustrated in Fig. 2, showing a modified form thereof;

Fig. 6 is a view of a structure, similar to that illustrated in Fig. 3, showing a further form which my invention may assume;

Fig. 7 is a view of a source of illumination, sim-

ilar to that illustrated in Fig. 1, showing a further form which my invention may assume;

Fig. 8 is a sectional view of the structure illustrated in Fig. 7, with the illuminating source secured to a sign;

Fig. 9 is a view in elevation, partly in section, of a source of illumination embodying a further form which my invention may assume;

Fig. 10 is an elevational view of a plurality of sources of light showing a further modified form of my invention; and

Fig. 11 is an enlarged sectional view of the structure illustrated in Fig. 10, taken on the line 11—11 thereof.

In Figure 1, I have illustrated a sign 15 embodying a backing member 16 having a plurality of indicia 17 disposed on the front thereof. The surface of the backing element 16 is preferably colored black and is roughened or matlike to provide greater absorbing properties. The surfaces of the indicia 17 have a plurality of reflecting areas 18 which are inter-related and disposed to reflect all of the impinging rays in a predetermined direction and within a zone of predetermined depth and width. Such indicia have been described and claimed in my above-mentioned patents and application therefor.

The sign, thus formed, has a source of light 21 disposed in front thereof in such a manner as to be substantially continuous and projecting beyond the end of the sign, at least beyond the last indicium having the reflecting surfaces. Any means may be provided for supporting the sign and source of light relative to each other. In the figures, I have illustrated a pair of brackets 22, one end of which is secured to the backing element 16 of the sign, the other end supporting a reflector 23 for a lamp 24. The lamp 24 may be illuminated by gas or an incandescent filament, or may be of any other type well known in the art to be suitable. The reflector 23 is disposed to concentrate the rays of light from the lamp 24 onto the indicia 17, which light will then be reflected as a continuous band in a zone of predetermined width and height.

In Fig. 3, I have illustrated a portion of the sign as embodying a backing element 16, which may be of metal, cardboard, or the like, having a reflecting surface 25 which may be of metal foil when the backing element 16 is made of cardboard or similar non-reflecting material. The reflecting surfaces 25 may be covered with a film of lacquer, varnish, Cellophane, or similar substance which protects the reflecting surfaces from tarnishing. The areas 18 for reflecting the impinging light in a predetermined manner have been described and claimed in the above-mentioned Letters Patent and application therefor.

In Fig. 4, I have shown a section of a reflector 23 having a pair of light sources 26 and 27 disposed therein. The sources 26 and 27 emit different colored light and may be energized in sequence through a rotatable contact drum 28 operated by a motor 29. Current delivered to one end of either of the lamps 26 or 27 through the contact element of the drum, energizes one or the other of the lamps as the drum rotates. In this manner, the indicia 17 may appear bright red, when one of the lamps, emitting a red light, is energized and will immediately change to another color, such as green, when the adjacent green light emitting lamp is energized. The color will automatically and instantaneously change at regular intervals during the operation of the motor 29.

In Fig. 5, I have illustrated a reflector 31 having a larger radius than the reflector 23 and containing a third lamp 32 which emits a different colored light from that of lamps 26 and 27. An additional contact is provided on the drum 28 and through the sequential energization of the lamps, the sign is illuminated with three distinctly colored rays which instantaneously change at regular intervals. In Fig. 6, I have illustrated the lamps 26, 27 and 32 as each being provided with an independent reflector 23 mounted within a channel element 34 so as to have all of the rays from each of the illuminable lamps concentrated onto the area of the indicia 17. In any of the Figures 4, 5, and 6, all of the lamps may be illuminated simultaneously to direct rays of different colors at different angles onto the reflecting surfaces so that a mottled color of reflected light will be provided to the reflected areas of the indicia 17.

The application of the rays of light from a plurality of sources is illustrated in Fig. 8. The channel element 34 is herein illustrated as being provided with two reflectors 23 illuminated by sources of colored light from the lamps 26 and 27 mounted in front of the sign 15 on brackets 22. The reflectors 23 and the lamps 26 and 27 are illustrated as being longer than the length of the indicia 17 so as to project beyond the ends thereof so as to illuminate all of the indicia from a designated angle so that the entire sign will always appear visible to anyone within the limited area in which the rays are reflected.

In Fig. 9, I have illustrated a further form which my invention may assume, that of enclosing the lamp 26 by a cylinder 35 which has a plurality of areas 36, 37, and 38 of different colors. The cylinder is mounted in trunnions 39 and 41 thereby being permitted to rotate about the lamp 26. A motor 42 and gear train 43 provide the power for effecting the rotation of the cylinder. Constantly changing mottled colors are reflected from the indicia 17 which are very attractive.

The same effect may be obtained by employing a plurality of lamps 45, each having a cap 46 with a projecting pintle 47 disposed upon its top. A cover for each of the lamps embodies a cylinder 48 having the plurality of different colored areas 36, 37, and 38 supported by a hub 49. The hub is provided with a central bearing 51 and with a plurality of vanes 52 which, upon being acted upon by the convection flow of air within the cylinder 48 due to the heat from the lamp 45, will cause the vanes and, therefore, the cylinder 48 to turn about the lamp upon the point bearing 47. Automatic means are thereby provided for changing the color of the impinging rays of light from the lamp which eliminates the motor 42 and gear train 43 employed with the device illustrated in Fig. 7.

In any of the arrangements, the cycle of alternations of the current employed to illuminate the lamp or lamps may be such as to be visible. Thus, if ten or twenty alternations per second were employed an appreciable flicker would be present in the reflected light which would attract the attention of an observer. A similar flicker could be produced by vibrating the source of light or the sign itself as pointed out hereinabove. Due to the large number of reflecting surfaces on the indicia a scintillating effect will be produced in the reflected light, similar to the sparkle obtained from the facets of diamonds, which re-

flected light will be a mixture of colors if different colored light sources are employed as set forth herein.

The indicia being composed of a plurality of semifrusto pyramidal projections, the sides of which are provided with concave and convex portions for directing light into a predetermined area, may be illuminated with a plurality of different colors simultaneously. The cylinder 35 of Fig. 9 will provide a band of light of various colors which will illuminate one side of the projecting elements with one color while the other sides are illuminated with different colors, thus providing variegated colors for each area, a plurality of such areas forming the indicia and providing mottled colored points throughout its surface.

While I have described and illustrated various embodiments of my invention, it will be apparent to those skilled in the art that various changes, omissions, additions, and substitutions may be made therein without departing from the spirit and scope of my invention, as set forth in the accompanying claims.

What is claimed is:

1. An element having a plurality of curved surfaces extending in one direction and a plurality of substantially continuous curved surfaces intersecting said first mentioned curved surfaces, the arc to which said curved surfaces conform being so related to the height of said arc as to limit the reflection of the major portion of the impinging rays of light from a source to a predetermined area, and a source of light, the rays of which are of various colors to illuminate the intersecting curved surfaces with different colors to provide mottled spots of reflected light throughout the surface of the element.

2. An element having a plurality of curved surfaces extending in one direction and a plurality of substantially continuous curved surfaces intersecting said first mentioned curved surfaces, the arc to which said curved surfaces conform being so related to the height of said arc as to limit the reflection of the major portion of the impinging rays of light from a source to a predetermined area, and a source of light, the rays of which are of various colors to illuminate the intersecting curved surfaces with different colors to provide mottled spots of reflected light throughout the surface of the element, and means for changing the colors of the rays directed on the element.

SAMUEL F. ARBUCKLE.