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T. TAAFFE

2,099,243

ILLUMINATED SIGN

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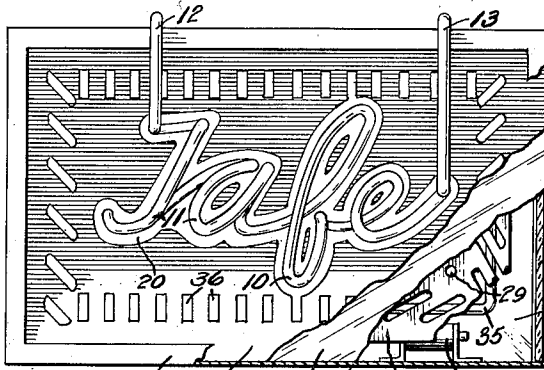


Fig. 1.

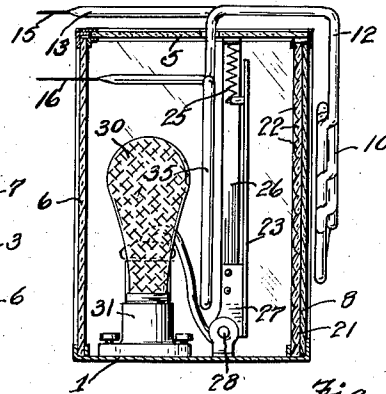


Fig. 3.

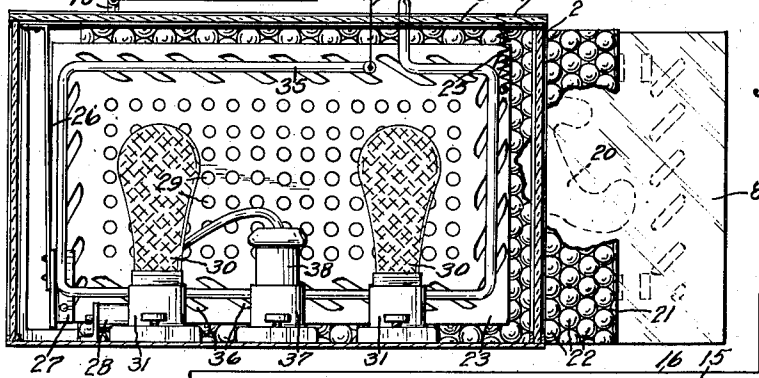


Fig. 2.

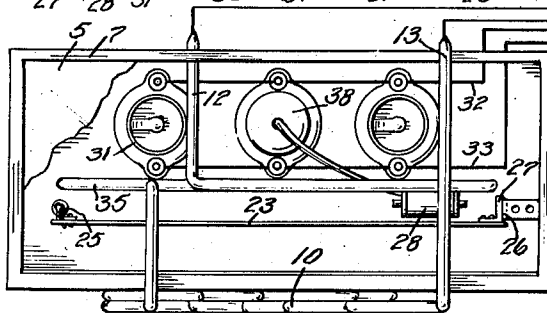


Fig. 4.

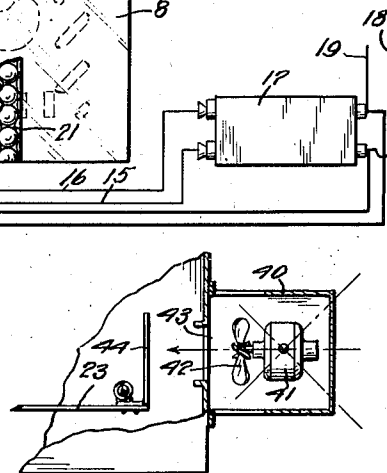


Fig. 5.

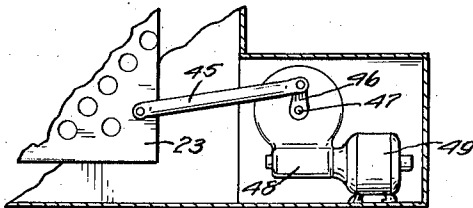


Fig. 6.

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ILLUMINATED SIGN

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10 Claims. (Cl. 40-132)

This invention relates to improvements in illuminated signs.

The object of my invention is to provide an illuminated sign of simple and practicable construction which will produce an effective and alluring brilliance in the sign in daylight as well as by night.

A further object of my invention is the provision of a sign of the class set forth wherein the sign characters are delineated in luminescent tubing of the neon gas type having an opaque ground-plate therefor with the sign characters formed broadly thereon in translucent areas symmetrical with the radiant tubing, together with means to changeably refract the light passing through said translucent areas to cause said areas to gleam and sparkle with an intensity and motion attractively visible in broad daylight and which will produce upon the eyes of an observer an effect of life and animation heretofore absent in signs of this class.

Still further objects of the invention are to provide simple and inexpensive means to utilize colored light contrasting with that emitted by the tubing of the sign characters and refracted upon the ground-plate to produce a distinctive background for said tubing-sign and thereby affording beautiful and attractive effects; to provide interior colored light sources arranged to have their rays impinge outwardly upon the ground-plate, with means to interrupt, motivate and refract said rays to effect the simulated animation of the sign-background; and improved means to interrupt the interior light rays cast upon the ground-plate together with novel means for maintaining the interrupting devices in motion.

Other objects and advantages residing in my invention, and objects relating to details of construction and various arrangements of parts thereof, will be fully apparent in the course of the detailed description to follow.

The accompanying drawing illustrates by way of example representative forms of my invention, in which:

Figure 1 is a view in front elevation of a sign embodying my invention, with portions broken away.

Fig. 2 is a view in side elevation of the same with the proximate side wall removed.

Fig. 3 is a view in rear elevation with the rear wall removed and showing the plates forming the front wall partially pulled out and partly broken away.

Fig. 4 is a plan view of the apparatus with the

top wall removed, together with a diagrammatic representation of the electrical apparatus involved.

Figs. 5 and 6 are fragmentary views of the invention in side elevation and illustrative of alternative devices for animating the shield element of the invention.

Referring to said views, wherein similar reference characters denote like parts in the several views, the reference numeral 1 indicates the bottom wall of a substantially rectangular housing; 2 and 3, the opposite side walls thereof; 5 the top wall; and 6 the rear wall. All of said walls excepting the bottom wall which is shown as of sheet metal are shown as formed of marginal metal frames 7 within which the respective wall proper consists of a sheet of clear or colored glass or other translucent material.

The front wall of said housing is formed of a sheet 8 of glass coated with an opaque paint or analogous material excepting in certain translucent areas to be hereinafter explained.

The housing just described is primarily formed and adapted to furnish a support and background for a luminous tube sign 10 of the neon gas type, formed of continuous sign characters or letters 11 and supported at opposite ends from the top of the housing by communicating tubes 12 and 13 covered with opaque material in the usual manner to mask such tube portions not entering into the sign characters from emitting visible light.

The sign 10 is thus positioned in a plane parallel and spaced outwardly with relation to the ground-plate 8. The tubes 12 and 13 may extend rearwardly over the upper wall of the housing and are provided with terminal electrodes, not especially shown, connected, respectively, to high tension circuit wires 15 and 16 from a transformer 17 receiving current at normal service voltage from supply wires 18 and 19.

In the drawing only the tube portion 13 is shown as directly connected to the circuit wires 15, 16 and transformer 17 as the tube portion 12 is utilized to connect additional structure to be hereinafter explained, but it will be apparent both of said tube parts may be arranged as the portion 13 is shown.

The ground-plate 8, as stated, is desirably a sheet of glass rendered opaque by coating or otherwise treating its forwardly directed plane surface, excepting for an area 20 directly to the rear of the tubular sign 10 and covering a considerably greater space than said sign but conforming generally to the configuration of the

sign-characters, providing in effect a clear glass background area for the sign and against which the luminous tube in all of its convolutions is presented in full relief.

5 The rearwardly facing surface of said ground-plate may be formed throughout with raised or depressed light-refracting elements which may take the form of lenses or prisms. Or, as shown, a separate sheet 21 of glass may be utilized positioned immediately adjacent the rear face of the ground-plate 8 and formed upon one side, preferably its rearward side, with light-refracting elements 22, as described.

23 indicates an opaque shield suspended within 15 the housing to the rear of and in parallel with the plates 8 and 21 upon springs 25 and 26. The spring 25 upon one side is desirably of the coiled variety, while upon the opposite side a flat spring 26 is connected at one end adjacent the top of 20 the housing and is connected adjacent the bottom of the shield through a soft iron angle-piece 27 which serves as an armature within the field of an electro-magnet 28 intermittently energized to cause said shield to be maintained in constant 25 irregular movement. Said shield is closely perforated throughout its entire area through which perforations 29 only may direct rays of light from the rear of the shield impinge upon the clear areas of said ground-plate.

30 The structure described comprises the simplest form of the invention, wherein the neon gas-filled tube 10 is rendered luminous through the passage therethrough of a suitable electrical current and which emblazons the sign characters formed 35 thereof against a background of clear glass through which the passage of natural light from the rear glass wall 6 or from all or portions of the other translucent housing-walls is refracted and modified by the lens elements 22 to cause said 40 background area to sparkle and gleam with marked brilliance.

In addition, said light emanating through or from said housing is permitted to fall directly upon said background in a fluctuating and constantly changing form through the continual 45 movements of the shield 23 to further accentuate the sparkling effects produced thereon by the rapid interchange of light and shade thereover.

The full effect and beauty of the sign, however, 50 is not realized until the light projected upon said background area 20 is provided with color and tints in contrast with the effulgence of the superimposed light emanating from the neon tube 10 and against which radiant and sparkling back- 55 ground the sign tube glows with added brilliancy, and instead of either dimming or clashing with the other each tends to accentuate the other to the general improved effect, and the flaming tube especially stands out in bolder relief from its iridescent background and to such an extent that 60 even in strong daylight the sign tube is boldly visible.

To obtain such color effects daylight may be 65 utilized through the use of colored glass in the rear, top or side walls, or in all of them, through which the white light of day may be filtered and modified to obtain the tints desired. Artificial light may be generated in electric lamps 30 of 70 suitable color mounted in sockets 31 disposed in parallel in an electric circuit comprising the circuit-wires 32 and 33. Said lamps may be of the same or differing colors, in which latter case the background area 20 will reflect the respective 75 colors in stronger measure in portions thereof

where directly adjacent and blend together harmoniously in the intermediate portions.

Also neon gas tubing may be utilized to illuminate said background area, and where the same color is employed therefor as is used in the sign tube 10 an extension 35 of said sign tube is formed 5 within the housing to the rear of the shield 23, as shown in Figs. 1 to 4, inclusive, but preferably a separate neon tube, not shown, is employed having its distinct electrical circuit issuing from the 10 transformer 17, whereupon light rays of a different and more or less contrasting color may be used for illuminating the background area, or to illuminate a series of clear spaces, as 36, in the otherwise opaque ground-plate 8 forming a border 15 or design about the sign 10 and background area. Such means of natural or interior illumination may be employed selectively or in combination and a wide variety of choice is available as to 20 color combinations.

Interposed in the electrical circuit inclusive of the wires 32 and 33 is a socket 37 in which is a flasher-element 38 in circuit with the electro- 25 magnet 28 and whereby the latter may be intermittently energized to attract the armature 27 of the shield 23 and thus maintain it in constant irregular motion in a well understood manner.

An alternative means for obtaining such constant motion of the shield is illustrated in Fig. 5, wherein 40 indicates a compartment formed upon 30 the side of the sign-housing within which is mounted an electric motor 41 actuating a fan 42. The current of air thereby created flows through an opening 43 in the side wall of the housing and impinges upon a vane 44 extending from the 35 shield and causes the shield to swing upon its spring suspension devices. In Fig. 6 I have shown the shield 23 connected by a rod 45 with a crank-arm 46 mounted upon a shaft 47 of driving devices 48 actuated by an electric motor 49. 40

Having described my invention, what I claim, is:—

1. An illuminated sign, comprising an opaque ground-plate having a translucent area delineating sign-characters, a luminous tube disposed in 45 spaced relation forwardly of said plate forming sign-characters similar to and in axial symmetry with the sign-characters of said plate, a plurality of light-refracting elements positioned at the rear of said translucent area to refract light passing 50 through said area, means to project colored light rays through said refracting elements to provide in said area a colored background for said tube, and means interposed between the source of said light rays and said elements to effect the constant movement of said rays upon said elements. 55

2. An illuminated sign, comprising a housing, a plane glass ground-plate forming a wall of said housing, a luminous tube formed in sign-characters secured in spaced relation forwardly 60 of said plate, said sign-characters being reproduced upon said plate as a translucent background area for said sign-characters, the remainder of said plate being opaque, a glass plate having a surface formed of light-refracting elements 65 disposed in parallel close relation upon the inner side of said plate, a perforate shield suspended in said housing to the rear of said last named plate, means to actuate said shield in irregular movement, and a source of light to the 70 rear of said shield.

3. An illuminated sign, comprising a housing, a glass ground-plate forming a wall of said housing, a luminous tube formed in sign-characters secured in spaced relation forwardly of said plate, 75

said sign-characters being reproduced upon said plate as a translucent background area for said sign-characters, the remainder of said plate being opaque, a glass plate having a surface formed of light-refracting elements disposed in parallel relation upon the inner side of said plate, a perforate shield suspended in said housing to the rear of said last named plate, means to actuate said shield in irregular movement, and an extension of said luminous tube positioned to the rear of said shield to supply light through said shield to impinge upon said refracting elements.

4. An illuminated sign, comprising a housing, a glass ground-plate forming a wall of said housing, a luminous tube formed in sign-characters secured in spaced relation forwardly of said plate, said sign-characters being reproduced upon said plate as a translucent background area for said sign-characters, the remainder of said plate being opaque, a glass plate having a surface formed of light-refracting elements disposed in parallel relation upon the inner side of said plate, a perforate shield suspended in said housing to the rear of said last named plate, means to actuate said shield in irregular movement, and a luminous tube of contrasting color to that of said first named tube positioned to the rear of said shield to supply light through said shield to impinge upon said refracting elements, and to color said background area with light contrasting with that emitted by said first named tube.

5. An illuminated sign, comprising a housing, a plane glass ground-plate forming a wall of said housing, a luminous tube formed in sign-characters secured in spaced relation forwardly of said plate, said sign-characters being reproduced upon said plate as a translucent background area for said sign-characters, the remainder of said plate being opaque, a glass plate having a surface formed of light-refracting elements disposed in parallel relation upon the inner side of said plate, a perforate shield suspended in said housing to the rear of said last named plate, means to actuate said shield in irregular movement, and a plurality of lamps positioned to the rear of said shield to supply light through said shield to impinge upon said refracting elements and illumine said background area with colored light contrasting with that emitted from said tube.

6. An illuminated sign, comprising a housing, a plane glass ground-plate forming the front wall of said housing, a luminous tube formed in sign-characters secured in spaced relation forwardly of said plate, said sign-characters being reproduced upon said plate as a translucent background area for said sign-characters, the remainder of said plate being opaque, a glass plate having a surface formed of light-refracting elements disposed in parallel relation upon the inner side of said plate, a perforate shield suspended in said housing to the rear of said last named plate, means to actuate said shield in irregular

movement, the walls of said housing to the rear of said shield being formed of glass to admit natural light through the perforations of said shield to impinge upon said refracting elements and illumine said back-ground area.

7. An illuminated sign, comprising a housing, a glass ground-plate forming a wall of said housing, a luminous tube formed in sign-characters secured in spaced relation forwardly of said plate, said sign-characters being reproduced upon said plate as a translucent background area for said sign-characters, the remainder of said plate being opaque, a glass plate having a surface formed of light-refracting elements disposed in parallel relation upon the inner side of said plate, a perforate shield suspended in said housing to the rear of said last named plate, means to actuate said shield in irregular movement, and a plurality of lamps positioned to the rear of said shield to supply light through said shield to impinge upon said refracting elements and to illumine said background area from its rear side.

8. An illuminated sign as set forth in claim 7, wherein said plurality of lamps within the housing are of contrasting color to that of said luminous tube illuminating said background area from its rear side with light distinguishable in color from that emitted by said luminous tube.

9. An illuminated sign, comprising an opaque ground glass having a translucent area delineating sign characters, a luminous tube disposed in spaced relation from said ground glass plate forming sign characters similar to and in axial symmetry with the sign characters of said ground glass plate, a plurality of light refracting elements positioned at the rear of said translucent area to refract light passing through said area, means to project colored light rays through said refracting elements to provide in said area a colored background for said tube, and means interposed between the source of said light rays and said elements to effect the constant irregular movement of said rays upon said elements.

10. An illuminated sign, comprising a housing, a glass ground plate forming a wall of said housing, a luminous tube formed in sign characters secured in spaced relation from said glass ground plate, said sign characters being reproduced upon said glass ground plate as a translucent background area for said sign characters, the remainder of said glass ground plate being opaque, a glass plate having a surface formed of light refracted elements disposed in parallel relation upon the inner side of said plate, a perforated shield suspended in said housing to the rear of said last mentioned plate, means to actuate said shield in irregular movement, and an extension of said luminous tube positioned to the rear of said shield to supply light through said shield to impinge upon said refracting elements.

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