

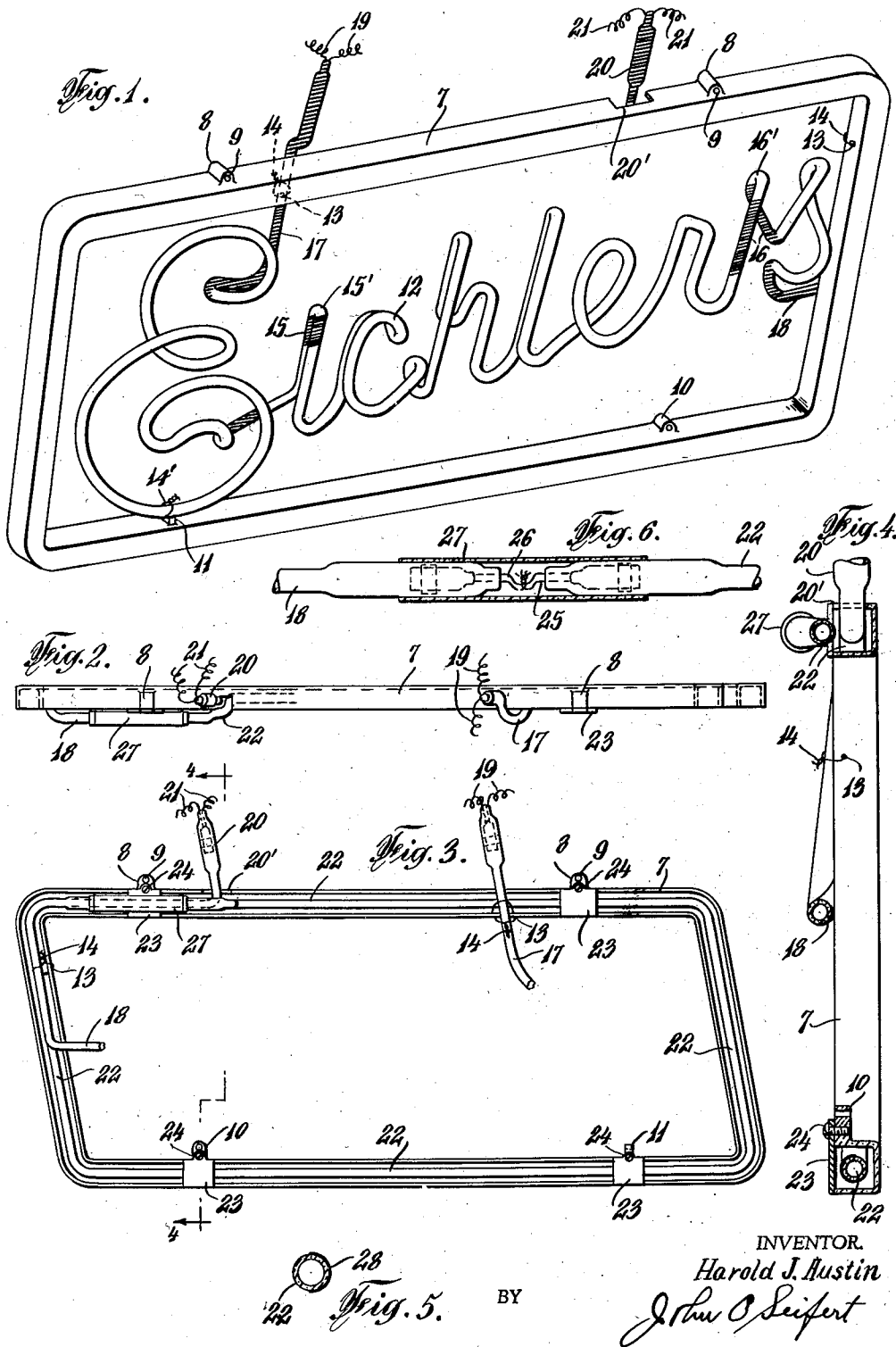
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ILLUMINATED SIGN

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## ILLUMINATED SIGN

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4 Claims. (Cl. 40—130)

This invention relates to luminous signs embodying a lamp envelope in the form of a tube of transparent material shaped to conform to a desired inscription or symbol and carrying therein a suitable gas or gaseous medium, such as mixtures containing argon, neon, helium, krypton or xenon, and the tube arranged with means to connect the gaseous medium in circuit with and charge the same from a source of electric energy to render said gaseous medium luminous, and it is the primary object of the invention to provide in signs of this character a frame or housing for protecting and supporting the luminous gas filled inscription or symbol forming tube and arranged for the engagement of means to attach or suspend the frame from a support.

In signs of this character it is desired to provide a border surrounding and preferably of a color contrasting with the inscription or symbol formed by the luminous gas filled tube. This is usually accomplished by forming the frame of a lamp envelope in the form of a tube carrying a gaseous medium different from the gaseous medium in the inscription or symbol forming tube and producing when charged from a source of electric energy a color contrasting with the color produced by the gaseous medium in said inscription or symbol forming tube, and the sign is supported by means attached directly to the tube or tubes forming the sign with the result that should the sign be subjected to a jar the tube or tubes are broken and the sign rendered useless.

It is another object of the invention to provide a sign of the character including a lamp consisting of a tube envelope shaped to form a symbol or inscription and filled with a gaseous medium adapted to be rendered luminous and produce a light of predetermined color when connected in circuit with and charged from a source of electric energy, and a supporting frame therefor surrounding said inscription or symbol forming tube and the frame formed of a translucent material which may be of a color contrasting with the color produced by the gaseous medium in the inscription or symbol forming tube, and a lamp, such as a "fluorescent" lamp including an envelope filled with a gaseous medium and said envelope being in the form of a tube shaped to conform to the contour of the frame and carried by the frame to lie contiguous thereto and electrically connected with the gaseous medium in the inscription or symbol forming tube in circuit with a source of electric energy, or the material of said frame may be substantially white and the enveloping tube for the "fluorescent" lamp

made of a color contrasting with the color produced by the gaseous medium in the inscription or symbol forming tube and effect a corresponding illumination of the frame.

It is another object of the invention to provide a sign of this character wherein the supporting frame is formed of a translucent thermoplastic material of channel shape in cross section with the open side of the channel disposed at the rear of the sign and the tube envelope of the fluorescent lamp disposed within the channel of the frame, and which tube may have a coating of opaque and reflective material on the outer portion thereof to direct the rays of the light toward the channel wall of the frame.

Other objects and advantages of the invention will hereinafter appear.

In the drawing accompanying and forming a part of this application

Figure 1 is a perspective view of a sign embodying the invention.

Figure 2 is a view looking at the top of the sign.

Figure 3 is a view looking at the rear of the sign with the inscription or symbol forming tube broken away.

Figure 4 is a cross sectional view, on an enlarged scale, taken on the line 4—4 of Figure 3.

Figure 5 is a cross sectional view of the enveloping tube of the lamp for illuminating the frame and showing a peripheral wall portion thereof provided with a coating of opaque and reflective material; and

Figure 6 is a longitudinal sectional view to show the electric connection between the gaseous medium in the inscription or symbol forming tube and in the enveloping tube of the lamp for illuminating the supporting frame.

In carrying out the embodiment of the invention shown in the drawing there is provided a frame 7 of channel shape in cross section and made of a suitable transparent material, preferably translucent thermoplastic material, and shown as of rectangular form although it may be of any other form, such as circular or elliptical. The upper member of the frame is provided with outwardly extending lugs 8 having perforations 9 therein adapted for the engagement of members, such as screws, to attach the frame to a support, or for the engagement of a strand of wire or a rod to suspend the frame from a support. The lower member or portion of the frame is provided with inwardly extending lugs 10, 11, the lug 10 having a perforation therein extending transversely of the frame, and the other lug

11 having a perforation extending longitudinally of the frame.

A lamp envelope of transparent material, such as glass, is carried and bounded by the frame, said envelope being in the form of a tube 12 shaped to form a desired inscription or symbol, and shown as shaped to form the notation "Eichler's." The tube contains and has sealed therein a suitably colored gas or gaseous medium, such as a gaseous mixture containing argon, neon, helium, krypton or xenon, and preferably neon. The tube is releasably connected to the frame 7 by wire strands passed through perforations in the frame, as at 13, and the ends engaged about portions of the tube and twisted upon themselves, as at 14. The tube may be further secured to the frame by a strand of wire 14' extended through the perforation in the frame lug 11 and the ends engaged about the lower portion of the letter "E" and twisted upon themselves. Certain portions of the tube are rendered non-luminous by applying a coating of opaque material thereto, as at 15, to separate from the tube a luminous portion 15' representative of the dot over the letter "i," and as at 16 to separate the letter "s" from the letter "r" and provide an interposed luminous portion 16'. The end portions of the tube are also rendered non-luminous by applying a coating of opaque material thereto, as at 17 and 18. The non-luminous end portion 17 is extended transversely of the rear of the upper portion or member of the frame and has an electrode therein connected to conductors 19 extended through and sealed in the closed end, as is usual. The end portion 18 of the tube is disposed relative to the channel in an end portion of the frame and connected in communication with a portion 20 having an electrode engaged therein connected to conductors 21 extended through and sealed in the closed end of said portion 20, the portion 20 being disposed relative to a cut out 20' in a side wall of the channel of the frame. The gas or gaseous medium in the tube 12 is adapted to be rendered luminous when subjected to an electric charge and for this purpose the conductors 19, 20 are connected in circuit with a source of electric energy.

The frame 7 is illuminated by a "fluorescent" lamp the envelope 22 of which is in the form of a tube shaped to conform to the contour of and disposed within the channel of the frame and retained therein by cleats 23 extending transversely of the open side of the channel of the frame and secured thereto by screws threaded into openings in the lugs 8, 10 and 11, as shown at 24 in Figure 3. The tube 22 also contains and has sealed therein a gas or gaseous medium adapted to be rendered luminous when connected in circuit with and charged from a source of electric energy, and is connected with the inscription forming tube 12 in circuit with a source of electric energy. For this purpose the electrode having the conductors 21 connected thereto is sealed in the one end of the tube 22. The gas or gaseous medium in the tube 22 is connected at the opposite end in circuit with the gas or gaseous medium in the tube 12, which is effected by engaging an electrode in said end of the tube 22 and extending conductors 25 connected thereto through and sealing the same in said end of the tube 22 and electrically connecting said conductors 25 to the conductors 26 sealed in the closed end of the tube 12, and connecting said ends of the tubes 12 and 22

by a coupling member in the form of a sleeve 27 of electric insulating material slidably engaged upon the ends of the tubes and enclosing the connected conductors 25, 26 therein, as shown in Figure 6. To direct the light rays of the tube 22 toward the channel wall of the frame the surface of the portion of the tube 22 at the open side of the channel in the frame is coated with an opaque material, as shown at 28 in Figure 5, the coating material also having the property to deflect or reflect the light rays through the uncoated portion of the tube onto the channel wall of the frame.

The gas or gaseous medium in the inscription forming tube 12 may have the property of producing light of desired color, such as red, for instance, when connected in circuit with a source of electric energy, and to produce a contrasting white light when the frame is illuminated, the material of the frame is of a substantially white translucent material, and the enveloping tube 22 is of clear glass so that the rays of light transmitted through the uncoated portion of the tube 22 exposed to the frame will illuminate the frame and produce a substantially white light surrounding or bordering the inscription forming tube 12. Should it be desired to surround the inscription forming tube 12 with an enclosing frame or border of a contrasting color, such for instance as blue, green or yellow, the material of the frame may be tinted to produce the desired color when the frame is illuminated. Or if desired the frame may be of a substantially white translucent material and the glass of the tube 22 may be colored to produce the desired color illumination of the frame.

The tube 12 may be engaged in a casing or housing of channel shape in cross section shaped to conform to the symbol, such as "Eichler's," and fixed to the frame 7 by suitable means, such as the wire strand 15. The casing will protect the tubing 12 and broaden or enlarge the letters or elements of the symbol.

Having described my invention, I claim:

1. In a sign, a frame of translucent material and channel shape in cross section, a pair of tubes of transparent material each having an electric conducting gaseous medium sealed therein adapted to be rendered luminous by an electric charge thereon, and electric conductors in electrical connection with the gaseous medium in the tubes extended to the exterior of and sealed in the ends of the tubes, the electric conductors at one end of the tubes being electrically connected and connecting the gaseous medium in one tube in electric circuit with the gaseous medium in the other tube, and the conductors at the opposite ends of the tubes adapted to be electrically connected to a source of electric energy, one of said tubes being shaped to conform to the contour of the frame and disposed in the channel thereof and having a coating of opaque material on the surface exposed through the open side of the channel of the frame to illuminate the frame and the other tube shaped to form an inscription or symbol of the sign supported by and disposed within the opening in the frame, and the gaseous medium in said latter tube adapted to produce light of a color contrasting with the color of the light produced by the tube disposed within the channel of the frame and the illumination of the frame.

2. In a sign, a rectangular frame of translucent material and channel shape in cross section, a pair of tubes of transparent material each

having an electric conducting gaseous medium sealed therein adapted to be rendered luminous by an electric charge thereon, and electric conductors in electrical connection with the gaseous medium in the tubes extended to the exterior of and sealed in the ends of the tubes, the electric conductors at one of the tubes being electrically connected and connecting the gaseous medium in one tube in electric circuit with the gaseous medium in the other tube, a sleeve of electric insulating material enclosing said electrically connected conductors and engaged at the opposite ends upon the adjacent ends of the tubes and connecting said ends of the tubes, and the conductors at the opposite ends of the tubes adapted to be electrically connected to a source of electric energy, one of said tubes being shaped to conform to the rectangular contour of the frame and disposed in the channel thereof to illuminate the frame and the other tube shaped to form an inscription or symbol of the sign supported by and disposed within the opening in the frame, and the gaseous medium in said latter tube adapted to produce light of a color contrasting with the color of the light produced by the tube disposed within the channel of the frame and the illumination of the frame.

3. In a sign, a frame of translucent material and channel shape in cross section and arranged with lugs extended outwardly from a side channel wall thereof, a pair of tubes of transparent material each having an electric conducting gaseous medium sealed therein adapted to be rendered luminous by an electric charge thereon, and electric conductors in electrical connection with the gaseous medium in the tubes extended to the exterior of and sealed in the ends of the tubes, the electric conductors at one end of the tubes being electrically connected and connecting the gaseous medium in one tube in electric circuit with the gaseous medium in the other tube, and the conductors at the opposite ends of the tubes adapted to be electrically connected to a source of electric energy, one of said tubes being shaped to conform to the contour of the frame and disposed in the channel

thereof to illuminate the frame, cleats mounted on the lugs of the frame to extend transversely of the open side of the channel of the frame and retain said tube in the channel of the frame, the other tube shaped to form an inscription or symbol of the sign supported by and disposed within the opening in the frame, flexible means engaged in openings in the frame and about the inscription or symbol forming tube to secure said tube to the frame, and the gaseous medium in said latter tube adapted to produce light of a color contrasting with the color of the light produced by the tube disposed within the channel of the frame and the illumination of the frame.

4. In a sign, a frame of translucent material and channel shape in cross section, a side channel wall of the frame being arranged with laterally extending lugs having openings therein for the engagement of means to attach or suspend the frame from a support, a pair of tubes of transparent material each having an electric conducting gaseous medium sealed therein adapted to be rendered luminous by an electric charge thereon, and electric conductors in electrical connection with the gaseous medium in the tubes extended to the exterior of and sealed in the ends of the tubes, the electric conductors at one end of the tubes being electrically connected and connecting the gaseous medium in one tube in electric circuit with the gaseous medium in the other tube, and the conductors at the opposite ends of the tubes adapted to be electrically connected to a source of electric energy, one of said tubes being shaped to conform to the contour of the frame and disposed in the channel thereof to illuminate the frame and the other tube shaped to form an inscription or symbol of the sign supported by and disposed within the opening in the frame, and the gaseous medium in said latter tube adapted to produce light of a color contrasting with the color of the light produced by the tube disposed within the channel of the frame and the illumination of the frame.

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