June 30, 1936. R. A. VISSING 2,046,044

LUMINOUS TUBE SIGN

Filed March 20, 1935 2 Sheets-Sheet 1

FIG. 1.

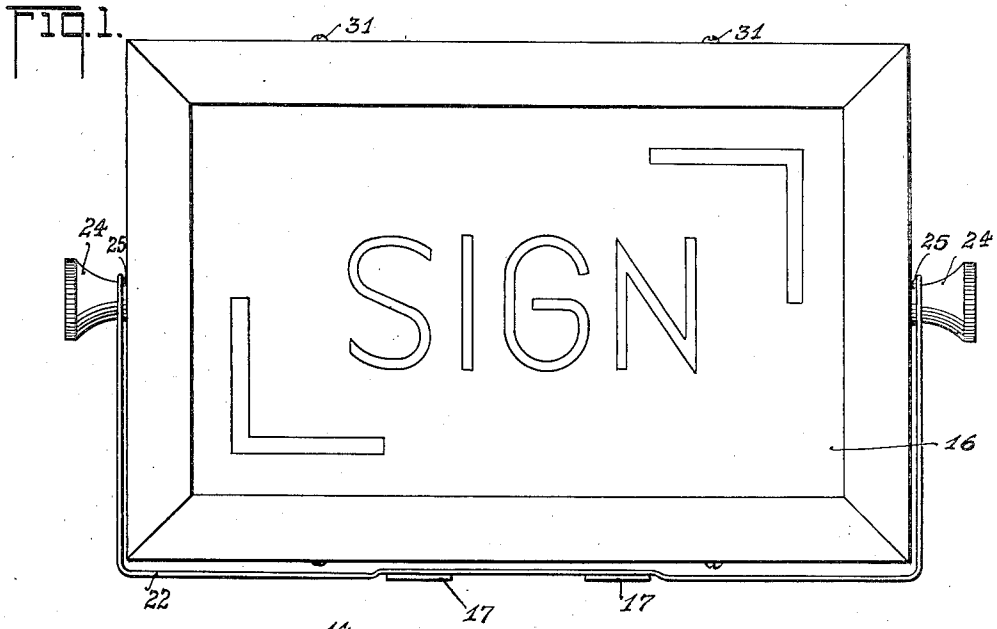


FIG. 2.

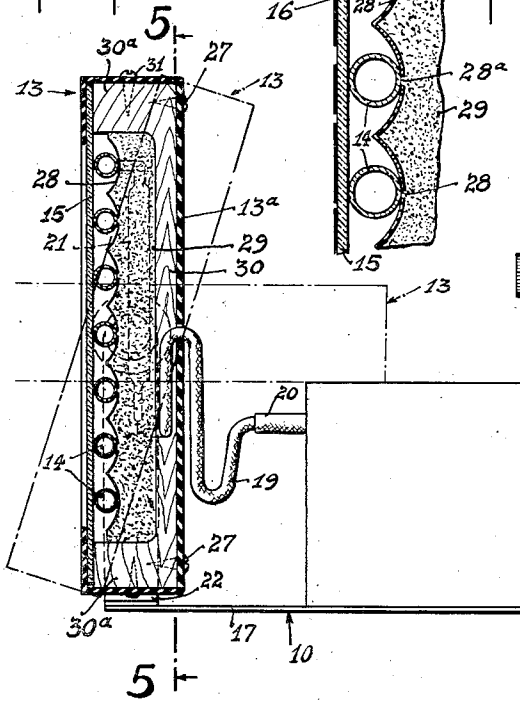
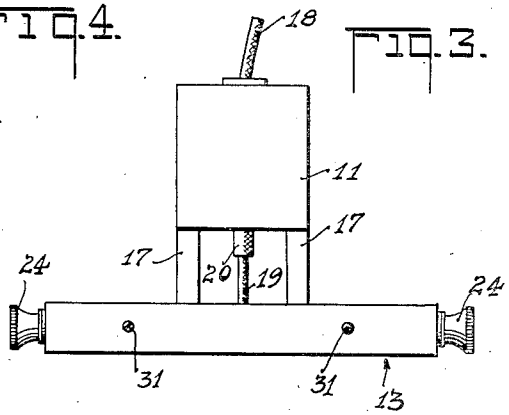


FIG. 4.

FIG. 3.



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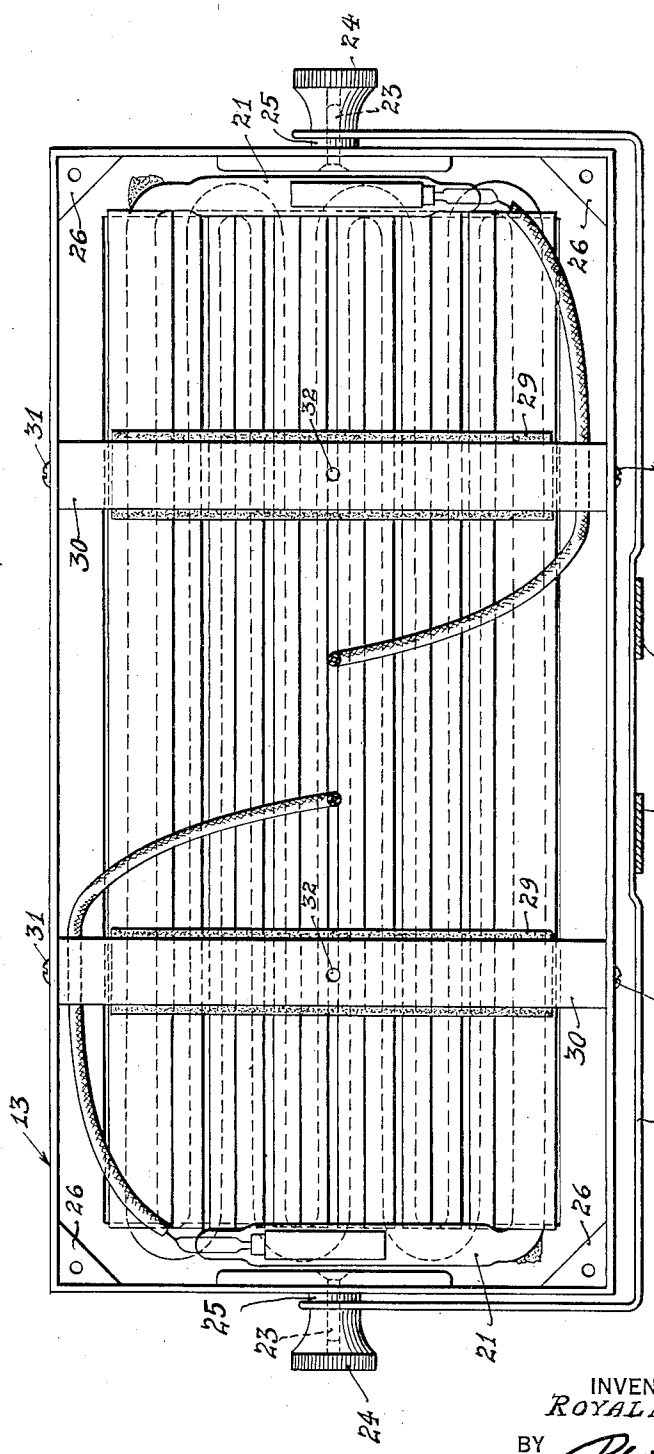
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FIG. 5.



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2,046,044

UNITED STATES PATENT OFFICE

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LUMINOUS TUBE SIGN

Royal A. Vissing, Magna, Utah, assignor to Neosign Corporation, New York, N. Y., a corporation of Delaware

Application March 20, 1935, Serial No. 11,903

4 Claims. (Cl. 40—130)

This invention relates to luminous tube signs usually called "neon" signs, and particularly to signs of this character which are readily changeable to exhibit a wide variety of advertising matter; and among other objects the invention aims to provide improvements over the sign construction disclosed in the application of E. D. Vissing, Serial No. 667,728, allowed September 7, 1934, and assigned to the assignee of the present application.

More specific objects of the invention will appear from the following detailed description of a preferred embodiment of the invention.

In the accompanying drawings forming a part of this specification and showing said preferred embodiment,—

Fig. 1 is an elevation showing the front face of the improved sign;

Fig. 2 is a vertical section of the same showing in dot and dash lines two alternative positions of the sign panel;

Fig. 3 is a plan view of the same on a smaller scale;

Fig. 4 is an enlarged vertical section through the sign panel, tubing and sponge rubber holders; and

Fig. 5 is a section substantially on the line 5—5 of Fig. 2, but on a slightly larger scale.

While the luminous tube sign disclosed in the E. D. Vissing application has proved in practice to be eminently practical and useful, certain disadvantages are inherent in its construction, among them being a constant singing or buzzing noise, which, it has been discovered, is due to leakage of a portion of the electric current through the metallic reflector and thence to the casing or frame. Another drawback is that when preparing an advertisement by means of the erasable quick-drying paint, which is preferably used on the sign, the worker may be forced to operate in an uncomfortable or unnatural position, thus making good workmanship very difficult, especially when working on the lower portion of the sign panel. Another drawback in an unnecessary complexity in the means for mounting the reflector and the grid of tubing. Furthermore, the sign is less stable and less easily handled than is desirable in a portable unit of this character.

Referring more specifically to the accompanying drawings, the improved sign comprises a stand or base 10, a transformer (not shown) in a casing 11 mounted on said base in a manner to be described, the sign casing 13, a grid 14 of neon or similar luminous tubing and a sign panel 15, which is preferably of clear glass to permit an advertisement to be formed thereon from a coating of an erasable quick-drying paint or lacquer 16. If desired, the sign-forming coating 16 may be replaced by a stencil or the like and the transparent panel 15 may be dispensed with.

As will be understood from the drawings, the stand or base comprises a pair of parallel flat metal straps 17 to which the transformer casing 11 is rigidly secured, as by screws, or rivets (not shown). The transformer casing 11 has an opening in the rear wall thereof through which a conductor 18 passes to make a connection with a standard electrical socket, not shown. From the opposite wall of the transformer casing a conductor 19, which passes through a porcelain or other tubular insulator 20, extends to the electrodes 21 of the grid 14, as shown in Fig. 5. Secured to the outer ends of the metal strap 17, as by rivets (not shown) is an upright generally U-shaped frame 22, which is also preferably of flat strap metal. The upper ends of the arms of the U-shaped frame 22 are perforated to permit screws 23 to pass through them, said screws having their heads within the casing 13 and entering knurled screw knobs 24 which with washers 25 are adapted to fix the angular position of the casing 13 relative to the U-shaped frame 22.

The casing 13 comprises a frame which may be of plywood or micarta, preferably with four triangular wooden blocks 26 at each of the corners on the inside thereof, each wooden block 26 being perforated to receive one of the screws 27 by which the back 13a of the casing may be held. The wooden corner blocks 26 also strengthen the casing, as will be understood. Preferably the front of the casing consists of closely fitting bevelled parts similar to the parts of a picture frame, as shown in Fig. 1, and the glass panel 15 is held closely against the front portions of the casing while a sealing compound such as a black non-hardening putty (not shown) is inserted between the inside face of the casing and the adjacent surface of the glass 15 so as completely to seal the interior of the sign, thus preventing any dust from finding its way into the sign interior.

The grid 14 is preferably placed in contact with the glass panel 13 to conserve space, although these parts may be separated if desired. The reflector 28 is generally similar to the reflector disclosed in the aforesaid E. D. Vissing application, but at the bottom of each of the grooves the reflector is split, to provide a series of air gaps 28a (Fig. 4) which provide effective insulators for breaking up any stray leakage currents tend-

ing to discharge through the reflector. It has been found that said air gaps will completely eliminate all noise of discharge of leakage currents and it is believed that by the provision of these air gaps not only the noise of discharge but the leakage currents themselves are practically completely obviated.

Directly back of the reflector **28** are at least two sponge rubber supports **29** (Figs. 2 and 5) which also provide cushions to hold the reflector properly relative to the tubing. The sponge rubber supports **29** are held by braces **30** preferably of wood or the like, said braces having arms **30***a* at each end adapted to contact with the glass panel **15** to hold the same rigidly against the casing **13**. A pair of screws **31** at both the top and the bottom provide means to secure the braces **30** rigidly within the casing **13**, and also to assist in holding the sponge rubber supports **29** with the proper pressure against the reflector **28**. The braces **30** may also have screw holes **32** for screws (not shown) which assist in holding the back **13***a* rigidly onto the casing. The upper screws **31** may also be used to secure a pair of hooks or if desired, said screws may be replaced by a pair of screw eyes having the dual function of assisting in holding the braces **30** in position and with their eyes providing means by which the sign may be suspended as by chains, cords or the like, as will be understood without illustration.

From the foregoing it will be clear that the improved sign has the following advantages, among others:

(1) It is very stable, and may be picked up and handled by the transformer casing;

(2) Its sign panel may be moved into a horizontal position, where it will be supported rigidly by the transformer casing, thus greatly facilitating good workmanship when preparing the advertisement;

(3) Its grid is well protected and hence will withstand fairly rough handling during transportation, without breakage; it is also well insulated;

(4) Its stand may be placed on polished surfaces, without scratching or marring them, and may be slid about on flat surfaces; furthermore, said stand is of a minimum number of parts, promoting economy in manufacture, saving weight, and in cooperation with the transformer, eliminating tipping over;

(5) As explained above, noisy discharge through the reflector is obviated.

Obviously the present invention may be embodied in other forms, and equivalent elements may be substituted for those disclosed herein. For example, instead of the air gaps **28***a*, dielectric solids may be used, although the cost would be increased by such a change.

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

1. A luminous tube sign comprising, in combination, a transparent panel; neon tubing back of said panel; and a reflector back of and close to said tubing and having grooves for receiving the lengths of the tubing; each of said grooves being open at the bottom to provide an insulating air gap.

2. A luminous tube sign comprising, in combination, a sign panel; neon tubing arranged in parallel lengths adjacent said sign panel; and a metallic reflector back of said tubing and having grooves for receiving the lengths of the tubing; each of said grooves being open directly back of the tubing lengths to provide an insulating air gap.

3. A luminous tube sign comprising, in combination, a sign panel; a series of tube lengths; a grooved reflector, the grooves of which individually receive and contact with the tube lengths; and insulating means breaking up the reflector into a series of insulated reflector elements, thereby eliminating the noise of leakage currents tending to discharge through said reflector.

4. A luminous tube sign comprising, in combination, a sign panel; a series of tube lengths; a grooved reflector receiving said tube lengths; a strip of soft insulating material supporting the reflector and holding it against the tube lengths; a support for the soft insulating material; and a casing to which said support and sign panel are secured.

ROYAL A. VISSING.