Jan. 23, 1940. F. S. GANOUNG 2,188,294

GASEOUS TUBE SIGN

Filed June 24, 1938 2 Sheets-Sheet 1

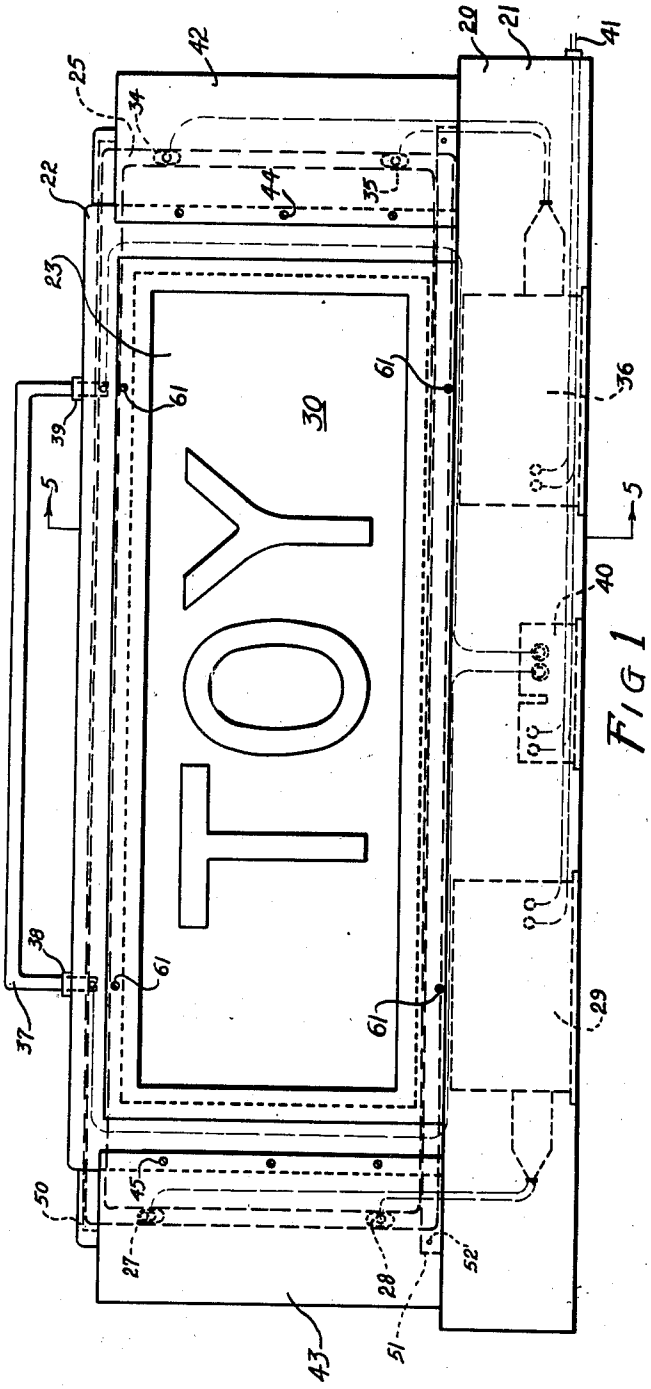


FIG 1

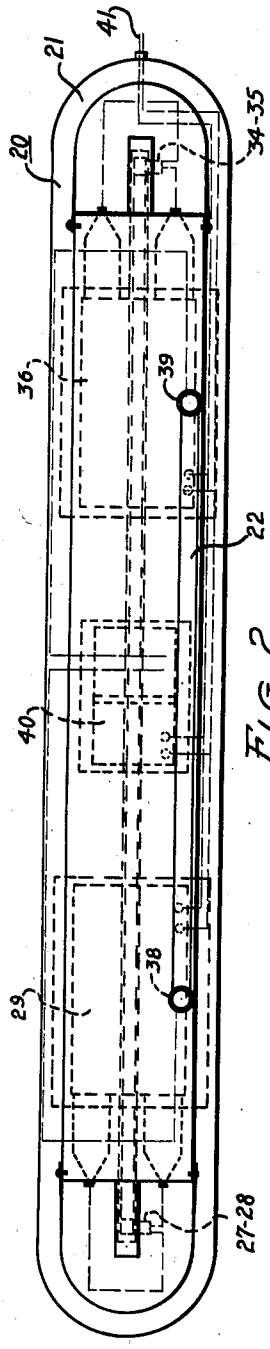


FIG 2

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GASEOUS TUBE SIGN

Filed June 24, 1938 2 Sheets-Sheet 2

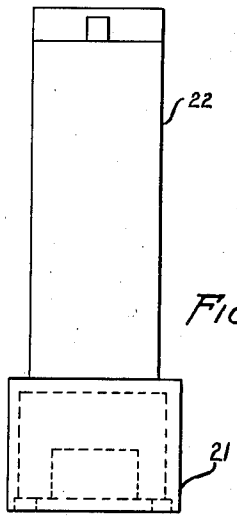


FIG 3

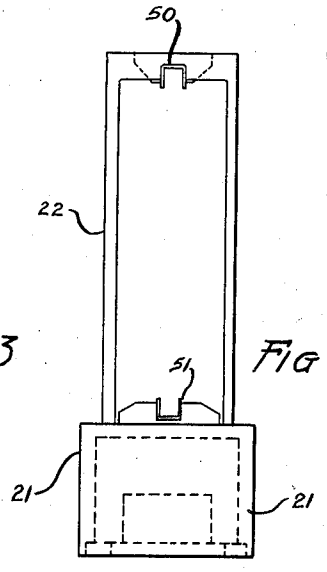


FIG 4

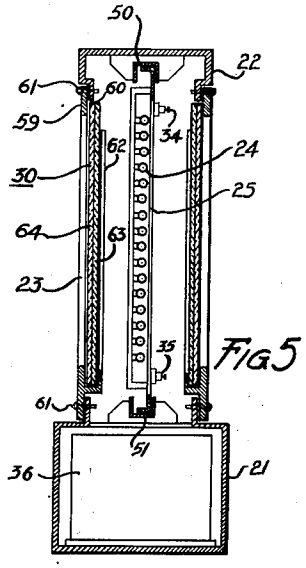


FIG 5

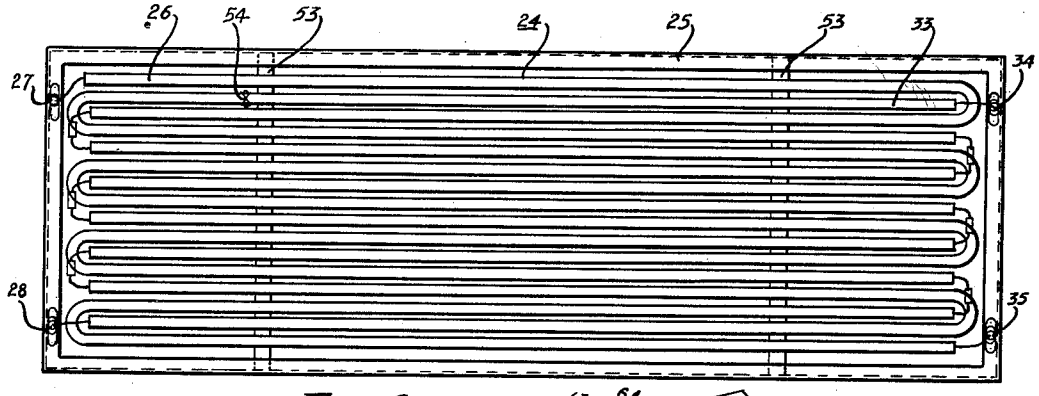


FIG 6

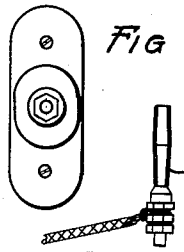


FIG 10

FIG 11

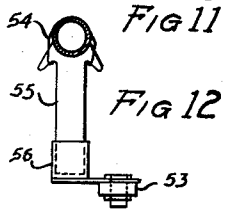


FIG 12

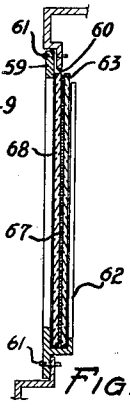


FIG 13

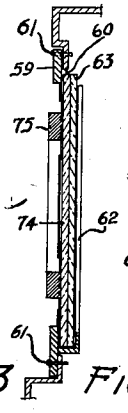


FIG 14

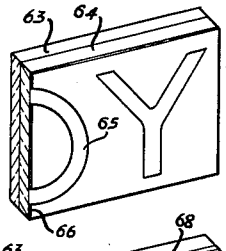


FIG 7

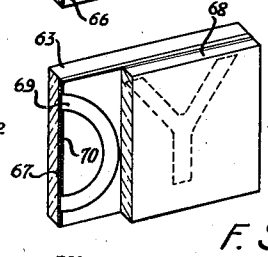


FIG 9

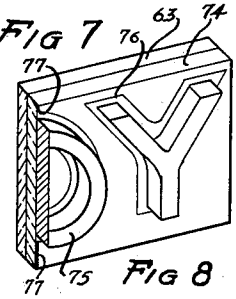


FIG 8

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UNITED STATES PATENT OFFICE

2,188,294

GASEOUS TUBE SIGN

Florance Samuel Ganoung, Olean, N. Y.

Application June 24, 1938, Serial No. 215,593

7 Claims. (Cl. 40—133)

My invention relates in general to electrically illuminated signs, and more particularly to signs illuminated by gaseous tubes.

Heretofore a great deal of difficulty has been encountered in the maintenance of gaseous tube signs against electrical breakdowns between the electrodes of the gaseous tubes and ground. Difficulty has also been encountered in the maintenance of the electric cables and other electrical connections. The principal source or cause of the difficulties resides in the fact that the gaseous tubes and the electrodes for the gaseous tubes are exposed to dirt, insects, rain, sleet, and ice. The collection of this foreign matter tends to cause an electrical breakdown which necessitates the servicing of the sign to put it in proper working condition.

An object of my invention is the provision of a gaseous tube sign which protects the electrically energized parts from dirt, insects, rain, sleet and ice.

Another object of my invention is to mount the gaseous tube means in a closed housing to protect it from foreign matter and against breakage.

Another object of my invention is the provision of a sign illuminated by gaseous tubes which is adaptable to give any desirable display pattern including any letter, symbol, character, ornament or design, or any combination of such arrangement, which cannot be directly produced by the configuration of the gaseous tubes themselves.

Another object of my invention is the provision of a design illuminated by gaseous tubes which gives clear cut and defined display patterns, including any letter, symbol, character, ornament or design, or any combination of such arrangement.

Another object of my invention is the provision of utilizing a bank of gaseous tube means and of diffusing the light emanating from the gaseous tube means to give a substantially solid glowing back ground to illuminate a display pattern, including any letter, symbol, character, ornament or design, of any combination of such arrangement, and to give a clear cut illuminated display pattern which is visible in the day light as well as at night.

Another object of my invention is the provision of an illuminated field opening in the design housing which permits a change of display patterns, including any letter, symbol, character, ornament or device, or any combination of such arrangement, without installing a new sign.

Another object of my invention is the provision of a peripheral frame which engages the illuminated field opening in the sign housing and which permits the exchange of display patterns by changing one pattern for another in the peripheral frame.

Another object of my invention is the provision of utilizing features of my invention with raised characters or letters so as to give an illuminated border around the raised letters or characters.

Another object of my invention is the provision of gaseous tube means which may be constructed in sections and which may be arranged to utilize the different kinds of gases in the tubes of each section to give different emanations of colors for illuminating the display pattern in the illuminated field opening of the sign.

Another object of my invention is the provision of interrupting the light illuminating the display pattern to give the effect of a movable display pattern.

Another object of my invention is the provision of a bank of gaseous tube means which may be readily inserted in or withdrawn from the housing of the sign.

Another object of my invention is the provision of mounting a diffusing material at a distance from the bank of gaseous tube means to produce an illuminated field of a substantially solid glowing back ground.

Another object of my invention is the provision of a sign which may be easily washed as a window and which gives beautiful designs of any color combination or of changeable gaseous tube colors and which gives a display pattern legible at acute angles of vision.

Another object of my invention is the provision of a sign which provides a double faced display pattern with the same gaseous tubing which is ordinarily used for a single faced sign.

Another object of my invention is the provision of a sign which may be readily manufactured and which may be maintained at a minimum of expense.

A fuller understanding of my invention may be had by referring to the following description and claims, taken in conjunction with the accompanying drawings, in which like parts are designated by like reference characters, and in which:

Figure 1 illustrates a gaseous tube sign embodying the features of my invention, as shown in front elevation;

Figure 2 shows a plan view of the sign shown in Figure 1;

Figure 3 shows an end view of the sign shown in Figure 1;

Figure 4 shows an end view of the sign shown

in Figure 1, with an end portion removed illustrating the guide rails which receive the bank of gaseous tubes, but which tubes are not shown in place;

Figure 5 shows a cross-sectional view of the sign taken along the line 5—5 of Figure 1 and illustrates the bank of gaseous tubes slidably mounted in the guide rails;

Figure 6 illustrates a bank of gaseous tube means which may be replaceably mounted in the housing of my sign;

Figure 7 shows a fragmentary and cross-sectional view of a portion of display pattern which may be mounted in the illuminated field opening of my sign;

Figure 8 is a view similar to Figure 7 showing the employment of my invention in connection with raised letters;

Figure 9 shows a view similar to Figure 7 but modified by the employment of a thin opaque means upon which the display pattern is provided;

Figure 10 is a large front elevational view of one of the sockets which are electrically connected to the gaseous tube means;

Figure 11 shows an electrical plug which may be arranged to detachably fit in the socket shown in Figure 10 for making electrical connection between the transformer and the gaseous tube means;

Figure 12 shows an insulated support upon which the gaseous tubes may be mounted to the frame as shown in Figure 6;

Figure 13 is a fragmentary and cross-sectional view through the display pattern; having an arrangement as shown in Figure 9;

Figure 14 is a fragmentary and cross-sectional view through the display pattern having an arrangement as shown in Figure 8.

With reference to Figures 1 to 6, inclusive, my invention comprises generally an electrically illuminated sign having a housing 20 with a base portion 21 and a sign portion 22, and a bank of gaseous tube means 24 arranged to illuminate the display pattern illustrated by the reference character 30. The sign portion 22 is arranged to have an illuminated field opening 23 into which the display pattern 30 is arranged to be interchangeably mounted. A display pattern is provided on both sides of the sign portion 22, making a double faced display pattern with the same gaseous tube means.

The bank of gaseous tube means 24 is arranged to be mounted in a frame 25 as shown particularly in Figure 6. As illustrated, the bank of gaseous tube means comprises two tube sections 26 and 33. The gaseous tube section 26 is arranged to be energized from, and electrically connected to, the sockets 27 and 28 which are in turn electrically connected to the transformer 29 by cables as illustrated by the dash lines, see Figure 1. The gaseous tube section 33 is arranged to be energized from, and electrically connected to, the sockets 34 and 35 which are in turn electrically connected to the transformer 36 by cables as illustrated by the dash lines. An enlarged view of a socket like that identified as 27, 28, 34 and 35 is shown in Figure 10 and is arranged to slidably receive a detachable plug 49 as shown in Figure 11 to which a cable that leads to a transformer may be connected. The use of a detachable plug facilitates the ready exchange of a bank of gaseous tube means. In order not to confuse the drawings, the bank of gaseous tube means is not illustrated in the elevational view in Figure 1.

To compare the clear cut effect of the display pattern including any letter, symbol, character, ornament or design, or any combination of such devices to that afforded by a gaseous tube itself, I arrange to removably mount a gaseous tube 37 externally of and on top of the sign portion 21. The ends of the gaseous tube 37 are arranged to be removably mounted in the electrodes 38 and 39 which are electrically connected to the transformer 40 by cables illustrated by the dash lines. The gaseous tube 37 is utilized only to compare the clean cut effectiveness of the display pattern to that of a gaseous tube itself, such as for a sales demonstration. In actual service the gaseous tube 37 need not be employed. The primary winding of the transformers 29, 36 and 40 are arranged to be electrically energized from the supply conductors 41 as illustrated by the dash lines in Figure 1.

The housing of the design may be constructed of any suitable material and any particular configuration to meet the needs of the customer. To facilitate the construction of the sign housing and to give access to the enclosed part and to afford the interchangeability of the section of gaseous tubes, the end portions 42 and 43 are arranged to be removably mounted thereon by means of screws 44 and 45, respectively. The inside of the sign portion 22 of the housing 20 is arranged to have an upper slide rail 50 and a lower slide rail 51 to slidably receive the frame 26 upon which the section of gaseous tube means are mounted. Therefore, in assembling or disassembling the gaseous tube means, it is only necessary to remove the pin 52 in the end of the lower slide rail 51 and slide the frame out of the opened end of the sign portion 22. The construction makes my sign very flexible and adaptable to changeable desires of the customer for the reason that the bank of gaseous tube means may be arranged in any number of sections which emanate different colors therefrom to produce a variety of colors upon the display pattern.

The gaseous tube means may be mounted upon the frame 25 in any suitable manner and as illustrated I employ two spaced upright frame members 53 which carry a plurality of receptacles 56 holding insulated supports 55 and to the latter of which the gaseous tubes may be attached by means of a wire 54 looped around the tube and hooked under the downwardly inclined projecting ears upon the outer end of the insulated support, as shown in an enlarged view in Figure 12. Only one of such insulator support mountings is shown in Figure 6.

Mounted within the illuminated opening 23 of the sign portion 22 is a peripheral frame 59, see Figure 5. When the peripheral frame 59 is mounted in the illuminated opening 23, its edges engage the edge portions 60 of the opening 23. As illustrated, in Figures 1, 5, 13 and 14, the peripheral frame 59 may be held in engagement with the edge portion 60 by means of screws 61. On the rearward side of the peripheral frame 59 there is provided an engaging flange 62 which extends around the two vertical sides and the bottom of the peripheral frame. The engaging flange 62 does not extend along the top edge of the peripheral frame 59 so that the display pattern may be inserted in the engaging flange 62 from the top.

As illustrated in Figure 7 which shows an enlarged cross-sectional view of the display pattern

in Figure 5, I utilize a diffusing material 63 and an opaque means 64 which may be readily inserted in the engaging flange 62 of the peripheral frame 59. The diffusing material 63 may be constructed of diffusing glass which may be purchased readily upon the market or of any other suitable material to produce an illuminated field of a substantially solid glowing back ground. The bank of gaseous tube means is located at a distance from the diffusing material 63 so that the longitudinal rib effect of the light emanating from the bank of gaseous tube means is substantially dispersed to lose the linear identity. In an embodiment of my invention which I have constructed, I find that the distance between the bank of gaseous tube means and each of the diffusing materials 63 on opposite sides of the bank of gaseous tube means may be in the neighborhood of 2½ to 3 inches. The opaque means 64 may comprise glass or any other material arranged to have a display pattern provided thereon. The display pattern may be produced by painting or otherwise covering certain portions of the glass and producing an opaque surface through which the light cannot emanate.

In Figure 7, the painted or otherwise covered portion is indicated by the reference character 66 and the display pattern which comprises letters is indicated by the reference character 65. The light which emanates through the display pattern is clear cut and produces illuminated characters or letters which may be easily read in the day time as well as at night and at an acute angle of vision.

In Figure 8, I show a modified arrangement of the display pattern shown in Figure 7, in that the opaque means 74 may be provided with raised letters or indicia, as indicated by the reference character 75 around which illuminated portions 76 may border. The opaque portions of the opaque means 74 is illustrated by the reference character 77 and may be provided thereon by any suitable manner such for example as by paint or other suitable material. The combined effect of the raised letters 75 together with the illuminated border 76 gives a very pleasing effect to the eye and enables greater flexibility in sign design to meet the demands of the purchasing public.

In Figure 9, I show another arrangement for producing a pleasing display pattern and in this arrangement the display pattern is provided upon non-inflammable, thin material 67 mounted between the diffusing material 63 and a clear transparent piece 68 which may be in the form of glass or any other suitable material. The opaque portions of the non-inflammable thin material 67 is indicated by the reference character 70 and the display pattern which is in the form of letters is indicated by the reference character 69. As in Figure 9, the pattern may be in the form of several single individual letter sections which may be arranged edge to edge between the diffusing material 36 and the outer transparent piece 68, to make any combination of words or other indicia.

The different arrangements of the display patterns as shown in Figures 7, 8 and 9 may be readily exchanged for one another by merely withdrawing one display pattern from the engaging flange 62 and inserting a new display. In making the change, it is only necessary to unscrew the screws 61 and remove the peripheral frame 59 until the upper edge thereof is free from the edge portion 60 of the opening 23. This permits the display pattern to be slidably moved upwardly from the engaging flange 62. After the new display pattern is inserted, the peripheral frame 59 is again mounted in the opening 23 by means of the screws 61. When the peripheral frame 59 is mounted in the opening 23 the edge portion 60 of the opening 23 constitutes a stop to keep the display pattern in position.

Although I have described my invention with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

I claim as my invention:

1. A gaseous tube sign construction comprising, in combination, a housing having an illuminated field opening, a diffusing material positioned in the said opening to form a closed housing, a bank of gaseous tube means, frame means for mounting the bank of gaseous tube means in the housing to protect same from dirt, insects, rain, sleet, ice and against breakage, means for slidably mounting the frame means in the housing, said bank of gaseous tube means being positioned at a distance from the diffusing material to produce an illuminated field of a substantially solid glowing back ground, opaque means having transparent character portions, and means for mounting the opaque means externally of the diffusing material to produce clean cut illuminated character through the transparent character portions.

2. A gaseous tube sign construction comprising, in combination, a housing having an illuminated field opening, a peripheral frame for engaging the peripheral edge portion of the said opening, a diffusing material positioned in the peripheral frame to form a closed housing, a bank of gaseous tube means, means for mounting the bank of gaseous tube means in the housing to protect same from dirt, insects, rain, sleet, ice and against breakage, said bank of gaseous tube means being positioned at a distance from the diffusing material to produce an illuminated field of a substantially solid glowing back ground, opaque means having transparent character portions, and means for mounting the opaque means externally of the diffusing material in the peripheral frame to produce clean cut illuminated characters through the transparent character portions.

3. A gaseous tube sign construction comprising, in combination, a housing having an illuminated field opening, a peripheral frame for engaging the peripheral edge portion of the said opening, said peripheral frame having engaging means, a diffusing material positioned in the engaging means to form a closed housing, a bank of gaseous tube means, means for mounting the bank of gaseous tube means in the housing to protect same from dirt, insects, rain, sleet, ice and against breakage, said bank of gaseous tube means being positioned at a distance from the diffusing material to produce an illuminated field of a substantially solid glowing back ground, opaque means having transparent character portions, and means for mounting the opaque means externally of the diffusing material in the engaging means to produce clean cut illuminated characters through the transparent character portions.

4. A gaseous tube sign construction compris-

ing, in combination, a housing having an illuminated field opening, a peripheral frame for engaging the peripheral edge portion of the said opening, said peripheral frame having engaging means, a diffusing material positioned in the engaging means to form a closed housing, a bank of gaseous tube means, means for mounting the bank of gaseous tube means in the housing to protect same from dirt, insects, rain, sleet, ice and against breakage, said bank of gaseous tube means being positioned at a distance from the diffusing material to produce an illuminated field of a substantially solid glowing back ground, opaque means having transparent character portions, and means for mounting the opaque means externally of the diffusing material in the engaging means to produce clean cut illuminated characters through the transparent character portions, said diffusing material and opaque means slidably fitting in the engaging means, said edge portion of said opening constituting means to hold said diffusing material and said opaque means from sliding out when said peripheral frame engages the said peripheral edge portion.

5. A gaseous tube sign construction comprising, in combination, a housing having an illuminated field opening, a diffusing material positioned in the said opening to form a closed housing, a bank of gaseous tube means, means for mounting the bank of gaseous tube means in the housing to protect same from dirt, insects, rain, sleet, ice and against breakage, said bank of gaseous tube means being positioned at a distance from the diffusing material to produce an illuminated field of a substantially solid glowing back ground, opaque means having transparent character portions, means for mounting the opaque means externally of the diffusing material to produce clean cut illuminated characters through the transparent character portions, and raised character means mounted on the opaque means with the transparent character portions forming a border therearound.

6. A gaseous tube sign construction comprising, in combination, a housing having an illuminated field opening, a diffusing material positioned in the said opening to form a closed housing, a bank of gaseous tube means, means for mounting the bank of gaseous tube means in the housing to protect same from dirt, insects, rain, sleet, ice and against breakage, said bank of gaseous tube means being positioned at a distance from the diffusing material to produce an illuminated field of a substantially solid glowing back ground, opaque means having transparent character portions, and means for mounting the opaque means externally of the diffusing material to produce clean cut illuminated characters through the transparent character portions, and a gaseous tube section removably mounted externally of the housing to afford a comparative test between the color of the illuminated characters and the said external gaseous tube section.

7. A gaseous tube sign construction comprising, in combination, a housing having an illuminated field opening, a peripheral frame for engaging the peripheral edge portion of the said opening, a diffusing material positioned in the peripheral frame to form a closed housing, a bank of gaseous tube means, means for mounting the bank of gaseous tube means in the housing to protect same from dirt, insects, rain, sleet, ice and against breakage, said bank of gaseous tube means being positioned at a distance from the diffusing material to produce an illuminated field of a substantially solid glowing back ground, opaque means having transparent character portions, and means for mounting the opaque means in juxtaposition with the diffusing material in the peripheral frame to produce clean cut illuminated characters through the transparent portions.

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