Nov. 1, 1932. W. B. WILSON 1,885,973

DISPLAY DEVICE

Filed March 5, 1930

Fig. 1



Fig. 3

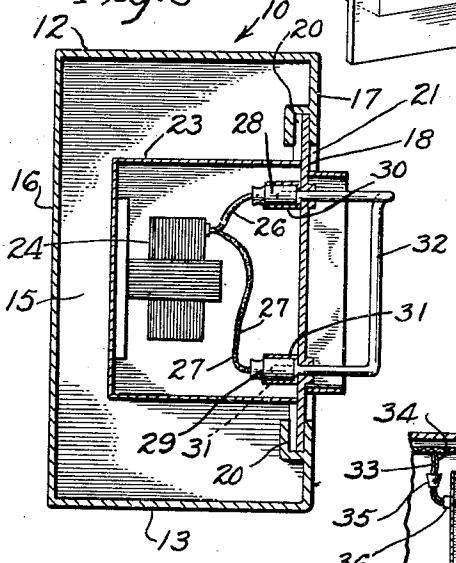


Fig. 2

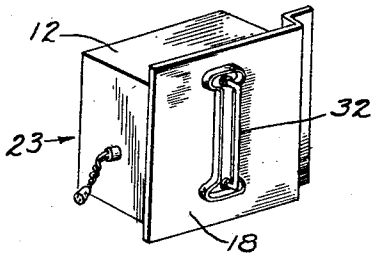


Fig. 4

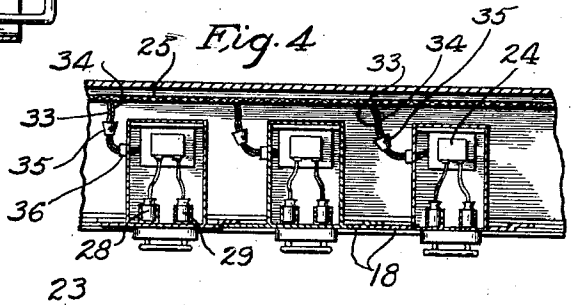
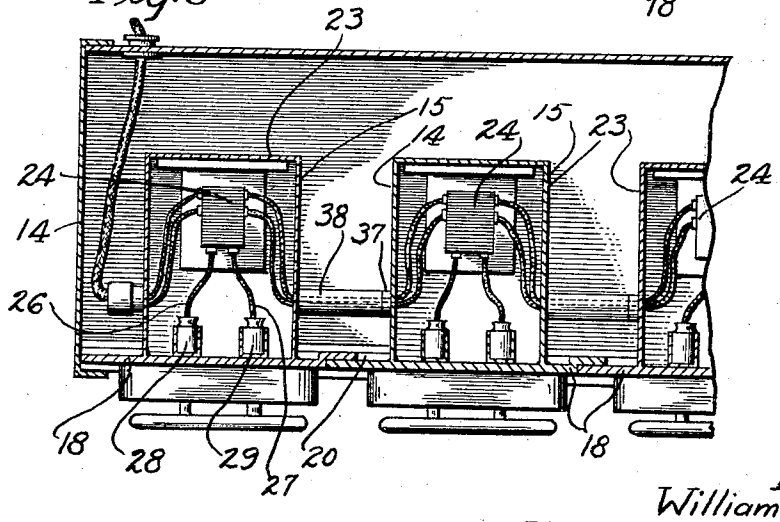


Fig. 5



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UNITED STATES PATENT OFFICE

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DISPLAY DEVICE

Application filed March 5, 1930. Serial No. 433,344.

This invention relates to display devices, and particularly pertains to detached elements for signs.

In the construction and operation of signs employing luminous tubes as illuminating means, it is desirable to insure that the tubes are impressed with a predetermined voltage, and it is further desirable to provide a wiring arrangement which will satisfactorily comply with the requirements of the National Board of Fire Underwriters, and the National Electric Code, and which wiring arrangement makes it possible for the various tubes forming designs or letters to be readily mounted and assembled in forming a sign, and to be readily connected electrically, while insuring that fire hazard will be eliminated and that a predetermined voltage in individual tubes will be individually maintained.

The present invention contemplates the provision of a sign unit comprising a background carrying sockets and a luminous tube, and upon the back of which background is mounted a transformer box in which an individual transformer is housed for the luminous tube forming a part of that sign unit, and which transformer is provided with electrical connections which may be easily secured to the feed wires.

The invention is illustrated by way of example in the accompanying drawing in which:

Figure 1 is a view in perspective showing an assembled sign of the class described.

Fig. 2 is a view in perspective showing one unit of the sign.

Fig. 3 is an enlarged view in vertical section through one of the sign units and the box within which it is mounted, and further shows the individual transformer therefor.

Fig. 4 is a view in horizontal section through a sign showing the position of the sign units and one manner in which they may be electrically connected with feed wires of a duplex electric circuit.

Fig. 5 is an enlarged view in horizontal section showing another form of electrical connections for the various units.

Referring more particularly to the drawing, 10 indicates a box in which a plurality of sign units 11 are positioned. The box 10 is formed with top and bottom walls 12 and 13, end walls 14 and 15, and a back wall 16. These various walls provide a closed box of rectangular formation and section. The front wall 17 is formed with a longitudinally extending opening in the rear of which sign background plates 18 may be positioned. The upper and lower marginal edges of these plates extend in channel shaped grooves 20 and thus make it possible for the sign units to be positioned in the box as they are moved horizontally, one after the other, with their upper and lower edges in the grooves 20. These channels will insure that the sign backgrounds will be disclosed to view through the opening 21 in the face 17 of the box. By reference to Figs. 4 and 5 it will be seen that the background plates 18 are formed with their major portions in a single vertical plane, and with one edge bent to be offset rearwardly from the vertical plane, as indicated at 22, whereby the background elements will be caused to overlap each other along contiguous edges and form a sign background having a substantially continuous face. In the present instance the sign background is shown as being of sheet metal. It will be understood, however, that other materials might be used, such as wood, porcelain, or other ceramic materials.

Carried upon the back of each of the background members 18 is a transformer box 23 which is housed within the box and is of a dimension to insure that its walls will be adequately spaced from the walls of the box. Mounted within each of the transformer boxes is a transformer 24, which is designed to receive electrical energy from feed wires 25, and to deliver it through wires 26 and 27, to sockets 28 and 29 from which it is passed through electrodes 30 and 31 mounted upon the opposite ends of a luminous tube 32 to complete a circuit through the column of gas within the tube. The sockets 28 and 29 are of the general type shown in my co-pending application entitled "Luminous gas and vacuum tube electrode socket", filed April 21, 1928, Serial No. 271,831, although other types of

sockets may be used without departing from the spirit of the invention.

Attention is directed to the fact that instead of having one transformer for the feed wires 25 as is now common practice, each letter will be equipped with a transformer designed to take current from a common line and to deliver a current of suitable voltage and amperage to the individual sign letter. Due to this arrangement it is unnecessary for the sign builder to be familiar with the electrical mathematics involved in assembling a transformer upon a line using luminous tubes, since the tube units are designed and permanently wired for a particular luminous tube, and in a manner to insure that it has the proper and constant current supply.

Another feature of considerable importance in sign construction at the present time is to eliminate the use of bare wires and a multiplicity of conductor joints. In order to meet this requirement and to make it possible for the various sign units to be readily assembled, the feed wires 25, as shown in Fig. 4, are provided with wires 33 and 34 leading to female socket members 35 which are assembled with male socket members 36 carried at some point upon the transformer box and being thus readily assembled without electrical or fire hazard. It will be also evident that such a construction will reduce the cost of assembly and wiring and will make a sign highly desirable from the standpoint of an inexperienced sign builder who purchases the individual sign units in wholesale lots and sets up the signs as orders are obtained for them.

In the form of the invention shown in Fig. 5 of the drawing complementary socket members 37 and 38 are rigidly mounted upon adjacent sides of the transformer box 23, so that when the sign units are shoved into position all of the electrical connections will be properly made and will be of a character to pass the inspection of fire underwriters.

In operation of the present invention, a box may be constructed as shown in the drawing and the letter units assembled. These units have been previously constructed to carry out a design of any desired configuration and are preferably made to utilize luminous tube lights. Each of the sign units has been fitted with a transformer of a predetermined capacity which has a direct relation to the electrical characteristics of the luminous tube and the current carried in the feed line. After the preferred designs have been selected they may be slipped into the box, as shown in Fig. 3 of the drawing, and may be electrically connected in succession by the means shown in Fig. 4 and the means shown in Fig. 5.

It will thus be seen that the device here disclosed provides simple means whereby luminous tube sign units may be constructed without reference to the sign upon which they are to be used, and may be readily assembled with certainty that they will comply with electrical specifications, and will also meet with the standard requirements of the fire underwriters.

While I have shown the preferred form of my invention, as now known to me, it will be understood that various changes might be made in the combination, construction and arrangement of parts without departing from the spirit of the invention as claimed.

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

1. In a sign structure, a casing having a guide in its front portion, and a plurality of luminous gas tube sign units disposed in the guide, and adjacent to each other, each of said units having a pair of separable connectors so arranged that the act of mounting the units in the guide in adjacent relationship causes the connectors to engage the corresponding connectors on the adjacent units.

2. In a sign structure, a casing having a guiding slide structure in its front portion, and a plurality of luminous tube sign units disposed in the guide and adjacent to each other, each of said units having a panel upon which the luminous tube is mounted, and a pair of rigidly supported separable connectors on the unit, one at each side of the unit, and arranged to coact with the corresponding connectors of the adjacent units, for conducting electrical energy to all the units.

3. In a sign structure, a casing having a guiding slide structure in its front portion, and a plurality of luminous tube sign units disposed in the guide and adjacent to each other, each of said units having a panel upon which the luminous tube is mounted, a transformer supported on the back of the panel and connected to the unit to supply it with electrical energy, and a pair of rigidly supported separable connectors, on the unit, one at each side thereof, and arranged to coact with the corresponding connectors of the adjacent units, for conducting electrical energy to all of the transformers.

4. In a sign structure, a plurality of units placed in edge to edge relation and arranged to form a display at the front of said structure, each unit comprising a luminous gas tube and a support therefor, means forming a separable circuit through the tubes, said means comprising connectors correspondingly arranged on the units and so positioned that the act of placing them in said relation engages a connector of each unit with the adjacent connector of the next unit.

WILLIAM B. WILSON.