

- [54] **LIGHTED DISPLAY BOX HAVING MEANS FOR ENCASING LAMP STRUCTURE**
- [72] Inventor: **Joseph M. Cartelli**, 63-10 110th Street, Forest Hills, N.Y. 11375
- [22] Filed: **Jan. 10, 1972**
- [21] Appl. No.: **216,850**

Related U.S. Application Data

- [63] Continuation of Ser. No. 7,820, Feb. 2, 1970, abandoned.
- [52] U.S. Cl. **340/381 R**
- [51] Int. Cl. **G08b 5/00**
- [58] Field of Search **340/381 R**

[56] **References Cited**

UNITED STATES PATENTS

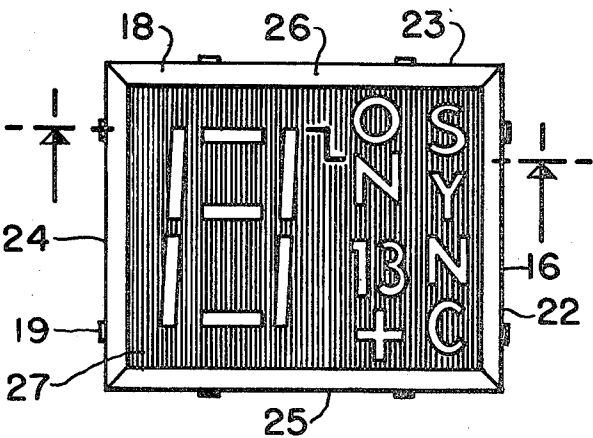
3,573,814 4/1971 Lang.....340/381

Primary Examiner—Harold I. Pitts
Attorney—Peter L. Tailer

[57] **ABSTRACT**

Lighted readout displays are assembled in a wide variety of forms from a selection of open ended boxes that are contained in a bezel cut and assembled from a uniform strip. The strip secures an indicating window in front of the boxes and securing a bulb carrying bus plate and a spring contact containing insulated back plate behind the boxes, the strip having a front flange extending in front of the window, containing integrally formed rearward extending assembly hooks securing the back plate in the bezel, and containing a stop ridge on which said back plate is seated within the bezel.

1 Claim, 9 Drawing Figures



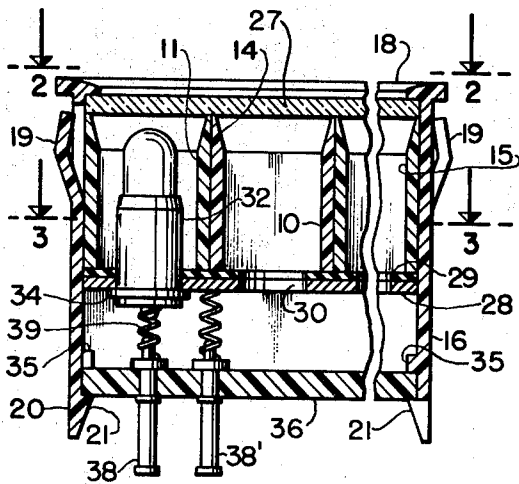


Fig. 1,

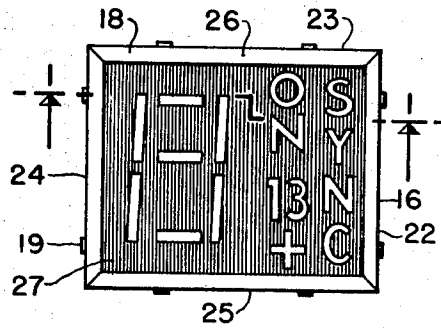


Fig. 2,

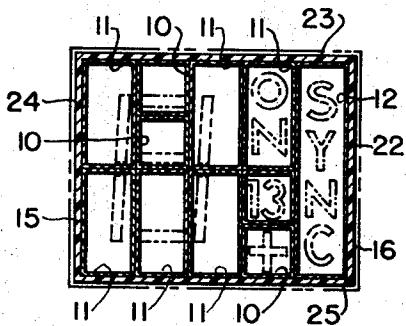


Fig. 3,

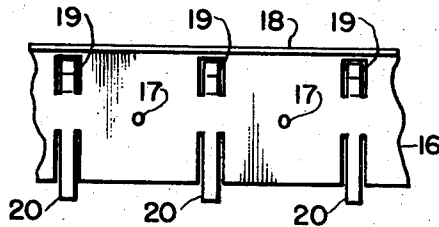


Fig. 4,

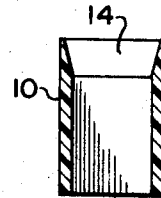


Fig. 5,

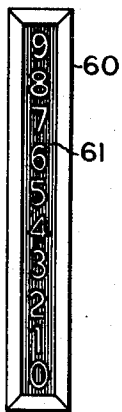


Fig. 6,

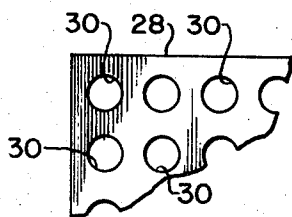


Fig. 7,

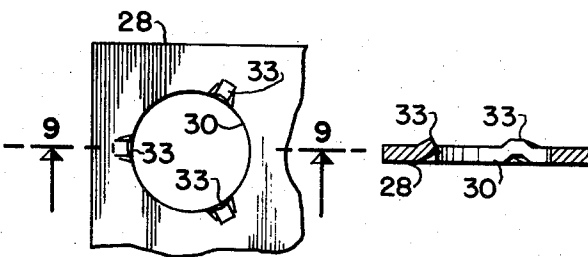


Fig. 8,

Fig. 9,

INVENTOR:
JOSEPH M. CARTELLI

BY

Peter S. Taylor

ATTORNEY

LIGHTED DISPLAY BOX HAVING MEANS FOR ENCASED LAMP STRUCTURE

This is a continuation of application Ser. No. 7,820, filed Feb. 2, 1970.

BACKGROUND OF THE INVENTION

Lighted readout displays are required in a vast number of different forms for many varied applications. These readout displays are costly and time consuming to fabricate according to each specific requirement. This invention provides lighted readout displays which are assembled rapidly and easily from standardized elements into a wide variety of forms.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a transverse section through a lighted readout display assembled from elements according to this invention, the section being taken on line 1—1 of FIG. 2 and having a central portion broken away;

FIG. 2 is a front view of the display of FIG. 1;

FIG. 3 is a section taken on line 3—3 of FIG. 1;

FIG. 4 is a side view of a strip used to form the bezel of a display according to my invention;

FIG. 5 is a longitudinal section through a box which may be selectively assembled with others of like kind to form the core of a display;

FIG. 6 is a front view of a second display which may be assembled according to this invention;

FIG. 7 is a plan view of a fragment of a bus-plate containing perforations to receive bulbs;

FIG. 8 is an enlarged view of a single aperture in the bus-plate of FIG. 7; and

FIG. 9 is a section taken on line 9—9 of FIG. 8.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in FIGS. 1, 3, and 5, a number of boxes 10, 11, and 12 are molded in quantity. The outer dimensions of the boxes 10 are such that they are as long as they are wide. The boxes 11 are twice as long as they are wide and the boxes 12 are four times as long as they are wide. Boxes with other proportions may be made if desired, but all boxes 10—12 should be the same height or distance between their open ends. The boxes 10—12 may have their inner edges of their walls at one end chamfered as at 14 in FIG. 5 to reduce the thickness of the box walls at one end. The boxes 10—12 are glued, solvent cement bonded, or joined in any other suitable manner to form a core structure 15 of a desired configuration.

Referring now to FIGS. 1—3 and particularly FIG. 4, a strip 16 is molded from plastic. Locating apertures or indentations 17 are spaced evenly along the length of strip 16. The upper edge of strip 16 terminates in a framing flange 18 which extends on each side of strip 16. Mounting clips 19 are integrally formed as tongues secured at their lower ends in the upper portions of strip 16. The mounting clips 19 are spaced equal distances on each side of the locating apertures 17. These clips 19 extend outward from their lower ends and then bend inward to terminate just below framing flange 18. Disposed directly below each mounting clip 19 is an assembly hook 20 which is formed as a downward extending tongue having an inward facing hook portion 21 at its lower end.

To assemble a given lighted readout display, boxes 10—12 are arranged and fixed together to form a desired core configuration 14. A length of strip 16 is positioned in a jig (not shown) by means of a locating aperture 17.

The strip 16 is then cut and mitered at equal distances from a locating aperture 17 to form the sides 22—25 of a bezel 26 which is glued or otherwise fixed in place about a core 15. By using a locating aperture 17 to miter cut the sides 22—25 at the same distance on each side of the locating aperture, the even spacing of the mounting clips 19 and the assembly hooks 20 is assured. Before gluing or otherwise securing bezel 26 in place, an indicating window 27 is placed over core 15 to be held in place under the inner lip of framing flange 18. Indicator window 27 may have alternating opaque and transparent portions formed thereon photographically, by screening, or otherwise to represent characters, symbols, or parts thereof which are rendered visible when a bulb is lighted in a given box 10—12.

As is further shown in FIG. 1, a metal bus-plate 28 containing an array of evenly spaced perforations 30 is placed inside the rear of bezel 26. Each perforation 30 is spaced with its center distance to an adjacent perforation 30 equal to the width of a box 10, 11, or 12. Thus at least one perforation 30 overlies each box 10, 11, or 12. A rubber or other resilient layer 29 is bonded over bus-plate 28. This rubber layer 29 is perforated to allow the insertion of a single bulb 32 in each box 10, 11, and 12. If two or more perforations overlie a box 11 or 12, the layer 29 will only be perforated where a bulb 32 is to be inserted. The perforations in layer 29 may be slightly smaller than the bulbs 32 to lightly hold them in position as they are inserted in the apertures 30.

As may be seen in FIGS. 1, 8, and 9, bus-plate 28 may have three small raised portions 33 punched downward about each perforation 30. These raised portions 33 hold the rim 34 of a bulb 32 a slight distance away from the surface of bus-plate 28 so that a bulb rim may be more easily grasped for removal. In addition, the raised portions 33 provide a good electrical contact with rim 34.

Referring further to FIG. 1, a stop ridge 35 is formed along the inner side of the strip 16. This ridge 35 does not block the insertion of bus-plate 28 as plate 28 may be cocked or angled to be slipped past it. The back plate 36 of insulating material is inserted in bezel 26 over bus-plate 28 to seat on the ridges 35 and have the hooks 21 snap in place over it. Back plate 36 has solder connections 38 fixed through it behind each bulb location. Each connection 38 has a contact spring 39 fixed to project from its inner end to contact the bulb 32 in front of it. One connection 38' is provided to make a ground contact with bus-plate 28. Thus sending current to selected contacts or connections 38 will light bulbs 32 in given boxes 10—12 to render visible desired portions of the overlying display window 27.

As shown in FIG. 2, this particular lighted readout display can indicate digits from 0 to 9 on the conventional seven bar indicator and the messages "ON", "13", "+", and "SYNC". The positions of the elements of these messages in relation to the particular boxes 10—12 is shown in FIG. 3 where the elements of the messages are drawn in phantom lines over the boxes.

A wide variety of lighted readout displays may be made according to this invention. FIG. 6 shows a bezel

60 around ten boxes 10 (not shown) which are disposed in a column to be lighted to indicate the digits from 0 to 9 on window 61. If particularly large numbers of one given display are required, the cores 15 may be integrally molded to save the time required to assemble boxes 10-12 in the desired configuration. In one production run of displays according to this invention, the boxes 10 were three-eighths inch square, the boxes 11 were three-eighths inch by three-fourths inch, and the boxes 12 were three-eighths inch by 1½ inches. All boxes 10, 11, and 12 were one-half inch deep. Perforations 30 in bus-plate 28 were one-fourth inch in diameter and spaced three-eighths inch apart on centers. Strip 16 was about one inch wide.

While this invention has been shown and described in the best form known, it will nevertheless be understood that modifications may be made without departing from the spirit and scope of the invention.

I claim:

1. A strip for use in assembly of a lighted readout display, said display having a core containing box-like openings therein extending from front to back of said core, an indicating window disposed in front of said core having light passing areas indicating at least portions of messages, a bus-plate containing an array of apertures disposed behind said core with at least one of said apertures underlying each box-like opening in said core, bulbs extending through at least some of the apertures in said bus-plate into at least some of the box-like openings in said core, said bus-plate making an electrical

contact with all said bulbs, an insulating back plate a spaced distance behind said bus-plate, a bulb contact in said back plate behind each bulb contacting each bulb, and means making an electrical contact with said bus-plate; said core, said indicating window, said bus-plate, and said back plate being substantially the same size; said strip comprising, in combination, a strip to be miter cut in four lengths to form a bezel, said strip having a flat body portion, a front flange extending inward and outward on the front edge of said body portion, mounting clips integrally formed as forward extending tongues in said strip, said mounting clips extending outward from said flat body portion to terminate behind the outward extending portion of said front flange, a stop ridge formed on the inner side of said flat body portion near its rear edge, and rearwardly extending tongues integrally formed from said strip and having inward facing hook portions extending inward behind said stop ridge, said mounting clips and said rearwardly extending tongues being formed at spaced intervals along said strip, said strip, when formed into a bezel, having said indicating window, said core, and said bus-plate disposed in said bezel and retained therein by said inward extending portion of said front flange, said strip having said back plate rest on said stop ridge and having said back plate held on said stop ridge by said inward facing hook portions of said rearwardly extending tongues.

* * * * *

35

40

45

50

55

60

65