

[54] **DISPLAY DEVICE**
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[58] **Field of Search** **40/152.1, 152, 156, 10, 40/23; 248/38, 470, 469, 471, 472**

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[57] **ABSTRACT**

A display device in which a circular panel consisting of a rigid backing disc and two superimposed sheets of paper carrying an imprint is held together by a frame of extruded plasticized polyvinyl chloride welded or otherwise joined into a closed loop and having an approximately C-shaped cross section, the circumference of the panel being received in the groove of the frame between the re-entrant portions of the C-shape.

9 Claims, 5 Drawing Figures

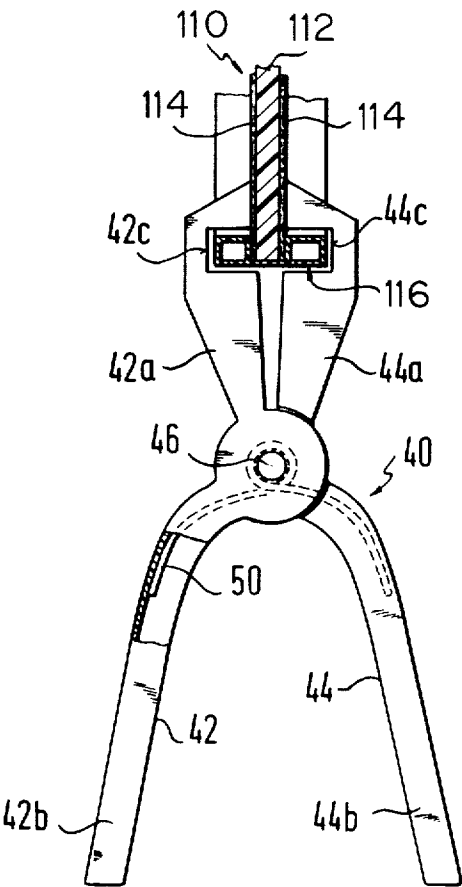


Fig.1

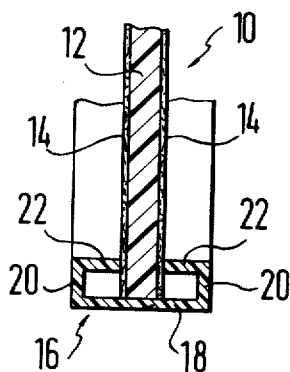


Fig.2

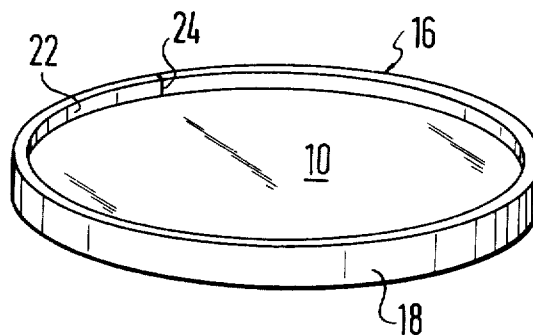


Fig.3

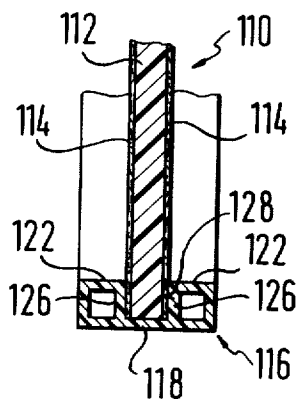


Fig.5

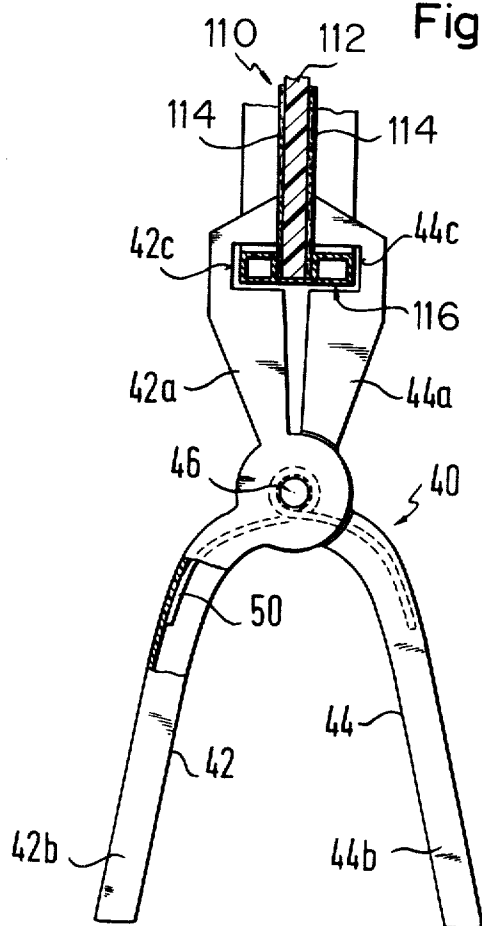
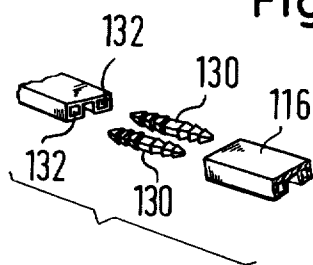


Fig.4



DISPLAY DEVICE

This invention relates to display devices, and particularly to a display device in which a display panel is received in a frame.

It is a primary object of this invention to provide a framed display panel which may be assembled quickly, conveniently, and preferably without the use of tools requiring special skill.

A more specific object is the provision of a framed display panel whose circumference is circular, elliptical, or otherwise continuously convex in a closed loop about the major faces of the panel.

It is known to frame panels or discs in frames or gaskets of resilient material which are essentially U-shaped in cross section, the edge portion of the disc or panel being received in the groove between the legs or flanges of the U-shape. The frames so produced are esthetically unsatisfactory because the legs or flanges tend to buckle and form loose folds upon insertion of the disc or panel.

It has now been found that better fitting, and therefore more satisfactory frames can be made from yieldably resilient, synthetic resin composition whose cross section is approximately C-shaped, that is, includes a re-entrant portion on each flange or leg of the U-shape.

In its more specific aspects, the invention resides in a display device comprising a panel having two major faces and a circumferential face portion connecting the major faces and extending in a continuous, convexly arcuate closed loop. The device further comprises an annular frame of yieldably resilient, synthetic resin composition which is of approximately C-shaped, uniform cross section. The frame includes an elongated web portion having one concave and one convex longitudinal face, two elongated web portions which project from the concave face of the web portion in transversely spaced relationship, and an elongated re-entrant portion on each flange portion remote from and approximately parallel to the web portion. Each re-entrant portion is directed toward the re-entrant portion on the other flange portion, and the circumferential face portion of the panel is received between the re-entrant portions of the frame.

Other features, additional objects, and many of the attendant advantages of this invention will readily become apparent as the same becomes better understood by reference to the following detailed description of preferred embodiments when considered in connection with the appended drawing in which:

FIG. 1 shows a circular display device of the invention in fragmentary section through its axis;

FIG. 2 shows the device of FIG. 1 in a perspective view;

FIG. 3 illustrates a modification of the device of FIG. 1 in a corresponding view;

FIG. 4 shows a portion of the frame in the device of FIG. 3 in a fragmentary, exploded, perspective view; and

FIG. 5 shows the apparatus of FIG. 3 assembled with a bracket in partly sectional plan view.

Referring now to the drawing in detail, and initially to FIG. 1, there is seen a display device of the invention whose most conspicuous element is a laminar, circular panel 10. The panel consists of a backing disc 12 of stiff polystyrene and two pliable discs 14 of paper carrying

the imprint to be displayed on the major exposed faces of the panel.

The three layers of the panel 10 are held in superimposed relationship by a frame 16 which consists of a unitary length of extruded, plasticized polyvinyl chloride, bent into a closed loop. The extruded material is approximately C-shaped in cross section. An elongated web 18 of the frame is cylindrical corresponding to the configuration of the circumferential face portion of the panel 10. Two elongated flanges 20 are flat circular rings projecting from the concave face of the web 16 in transversely spaced relationship. An elongated re-entrant or inturned portion 22 of the frame 16 remote from and approximately parallel to the web 18 on each flange 20 is directed toward the re-entrant portion on the other flange.

The dimensions of the panel 10 and of the frame 16 are selected in such a manner that the circumferential face portion of the panel 10 is received between the two re-entrant portions 22 under resilient pressure.

The two ends of the extruded shape which forms the frame 16 are joined to each other by welding, or heat-sealing, as indicated by the welded seam 24 shown in FIG. 2. The seam may be formed before the frame 16 is assembled with the panel 10, the frame material being sufficiently resilient to be slipped over the panel 10, but welding or heat-sealing after assembly may be preferred with large display devices.

In the modified embodiment of the invention shown in FIGS. 3 and 4, the panel 110 is not significantly different from the panel 10 illustrated in FIGS. 1 and 2. It includes a central, rigid disc 112 covered on both sides with indicia or imprint-carrying sheets 114 of more pliable paper. The annular frame 116 which holds the plastic and paper discs of the panel 110 in the illustrated condition may consist of the same plasticized, and therefore resilient, polyvinyl chloride composition described above.

The frame 116 also is produced by extruding the plastic composition, and by bending the extrudate into a circular loop shape conforming to the panel 110. The cross section of the frame 116 differs from that of the frame 16 by curled edges 126 on the re-entrant portions 122. The latter are located approximately in a common surface parallel to the concave inner face of the web 118, and the two edge portions 126 are located in parallel radial planes and provide a unitary connection between the re-entrant portions 122 and the web 118. The two edge portions 126 and the web 118 thus bound a seamless groove 128 in which the circumferential face portion of the panel 110 is received.

As is best seen in FIG. 4, each edge portion 126 together with the associated re-entrant portion and flange and a part of the web 118 bounds a longitudinal, approximately square bore 132 in the frame 116, and the loop of the frame 116 is closed by means of two connectors 130.

The connectors are pins made of square, metallic, bar stock of slightly greater cross section than that of the bores 132, and transverse grooves are cut into the longitudinal faces of the connectors in such a manner as to form barbs which permit easy insertion of the tapering ends of the connectors 130 into the longitudinally terminal portions of the bores 132, but impede withdrawal of the connectors. The frame 116 thus may be assembled about the sandwich structure of the panel 110 by means of two connectors 130 to constitute the

only means holding the several layers of the panel in the assembled condition.

The two framed panels respectively shown in FIGS. 1 and 3 may be suspended from or held upright by a bracket 40 of the type shown in FIG. 5 in its cooperation with the frame 116 and panel 110. The bracket 40 essentially consists of two, two-armed, sheet metal levers 42,44, a pivot pin 46 connecting respective fulcrum portions of the levers, and a torsion spring 50, partly helical and coiled about the pin 46.

The levers 42,44 have respective first arms 42a,44a whose faces have recesses 42c,44c shaped conformingly to receive respective flange portions of the frame 116 and parts of the web portion of the frame. The recessed faces of the first arms are opposite each other and biased toward abutting engagement with each other by the spring 50 which consists of spring-temper steel wire, and whose ends tend to move the second legs 42b,44b of the levers 42,44 apart. The frame 116 thus is firmly clamped between the first legs 42a,44a, and the second legs 42b,44b normally diverge from the pin 46 as is shown in FIG. 5. The free ends of the second legs and a circumferential portion of the frame 116 thus provide a three-point support for the display device on any horizontal surface.

The second legs 42b,44b are readily accessible, and may be moved manually toward each other against the biasing force of the spring 46 to release the frame 116 from the clamping engagement of the legs 42a,44a. The frame 116 may then be stripped from the panel 110, and the indicia-bearing pliable paper sheets 114 may be replaced by others bearing a different imprint.

Extruded plasticized polyvinyl chloride shapes of the type employed in the frames of the invention are so inexpensive as to be disposable together with the panel which they frame when the display device has performed its function and is no longer needed. A new display device is readily fashioned from a backing disc of plastic, cardboard, or like stiff material, pliable facings carrying a message, and a new length of extruded frame material. A torch or other simple heating device is needed for assembling a frame of the cross section shown in FIG. 1, but no tools whatsoever are needed for assembling a frame from material of the shape shown in FIGS. 3 and 4 by means of connectors, such as the barbed pins 130.

Obviously, the panel and frame need not be circular, but may be elliptical, ovoid, or of any other shape bounded by a continuous, convex loop which permits a smooth fit of the frame material and the panel circumference. An angular corner on a panel is not readily accommodated.

It should be understood, therefore, that the foregoing disclosure relates only to preferred embodiments of the invention, and that it is intended to cover all changes and modifications in the examples of the invention herein chosen for the purpose of the disclosure which do not constitute departures from the spirit and scope of the invention set forth in the appended claims.

What is claimed is:

1. A display device comprising, in combination:
 - a. a panel member having two major faces and a circumferential face portion connecting said major faces and extending in a continuous, convexly arcuate, closed loop; and
 - b. an annular frame of yieldably resilient, synthetic resin composition, said frame being of approxi-

mately C-shaped, uniform cross section and including an elongated web portion having one concave and one convex longitudinal face, two elongated flange portions projecting from said concave face in transversely spaced relationship, an elongated re-entrant portion on each flange portion remote from said web portion and directed toward the re-entrant portion on the other flange portion, and an edge portion on a part of each re-entrant portion remote from the associated flange portion, said edge portion extending from said re-entrant portion to said web portion and being integrally connected to said re-entrant and web portions, each edge portion jointly with the associated re-entrant and flange portions and with a part of said web portion bounding a longitudinally open bore in said frame, said circumferential face portion of said panel member being received between the edge portions of said frame.

2. A device as set forth in claim 1, wherein said frame essentially consists of a continuous, unitary, elongated body of said composition, and at least one connector simultaneously received in the two longitudinally open terminal portions of said bore and connecting the two longitudinal ends of said body.

3. A device as set forth in claim 2, wherein said connector is elongated in the direction of elongation of said body.

4. A device as set forth in claim 3, further comprising barb means on said connector permitting entry of the connector into said terminal portions while impeding withdrawal of said connector from said bore.

5. A device as set forth in claim 1, wherein said panel is laminar and includes a plurality of superimposed disc members respectively constituting said major faces and jointly constituting said face portion, said frame constituting the sole effective means keeping said disc members in the superimposed condition.

6. A device as set forth in claim 5, wherein one of said disc members is substantially more rigid than any other disc member of said panel.

7. A device as set forth in claim 5, wherein said panel member includes three of said disc members, two of said disc members being of pliable material and constituting said major faces, and the third disc member being interposed between said two disc members and consisting of material more rigid than said pliable material.

8. A display device comprising, in combination:

- a. a panel member having two major faces and a circumferential face portion connecting said major faces and extending in a continuous, convexly arcuate, closed loop;
- b. an annular frame of yieldably resilient, synthetic resin composition, said frame being of approximately C-shaped, uniform, cross section and including
 1. an elongated web portion having one concave and one convex longitudinal face,
 2. two elongated flange portions projecting from said concave face in transversely spaced relationship,
 3. an elongated re-entrant portion on each flange portion remote from said web portion and directed toward the re-entrant portion on the other flange portion, and

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4. an edge portion on a part of each re-entrant portion remote from the associated flange portion, said edge portion extending from said re-entrant portion to said web portion and being integrally connected to said re-entrant and web portions, 5
5. each edge portion jointly with the associated re-entrant and flange portions and with a part of said web portion bounding a longitudinally open bore in said frame,
6. said circumferential face portion of said panel member being received between the edge portions of said frame; and 10
- c. a bracket, said bracket including
 1. two lever members having each a first arm and a second arm,
 2. a pivot pin connecting said lever members inter- 15

6

- mediate the arms thereof, and
3. yieldably resilient means angularly biasing said lever members relative to said pin toward a position of abutting engagement of said first arms, respective opposite faces of said first arms being recessed and conformingly receiving respective ones of said flange portions and respective parts of said web portion in clamping engagement under the biasing force of said yieldably resilient means.
9. A device as set forth in claim 8, wherein said second arms are accessible for manual operation, said first arms releasing the received portions of said frame when said second arms are manually moved toward each other. 15

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