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DISPLAY APPARATUS

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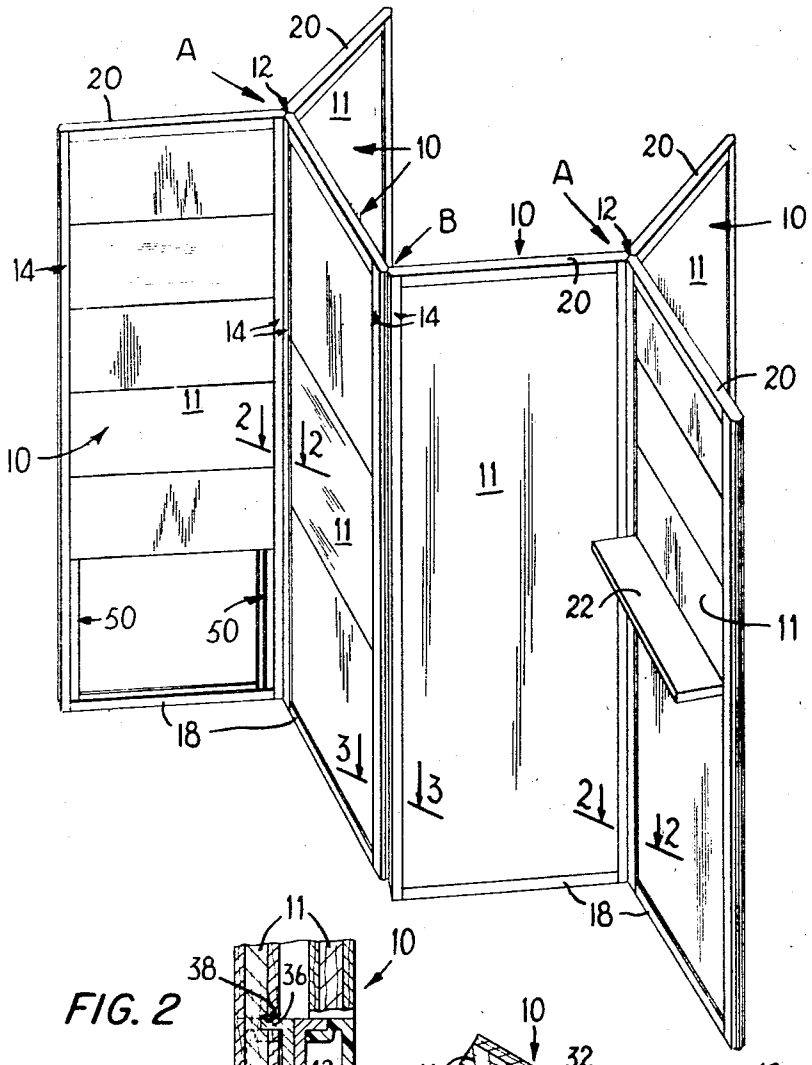

FIG. 1

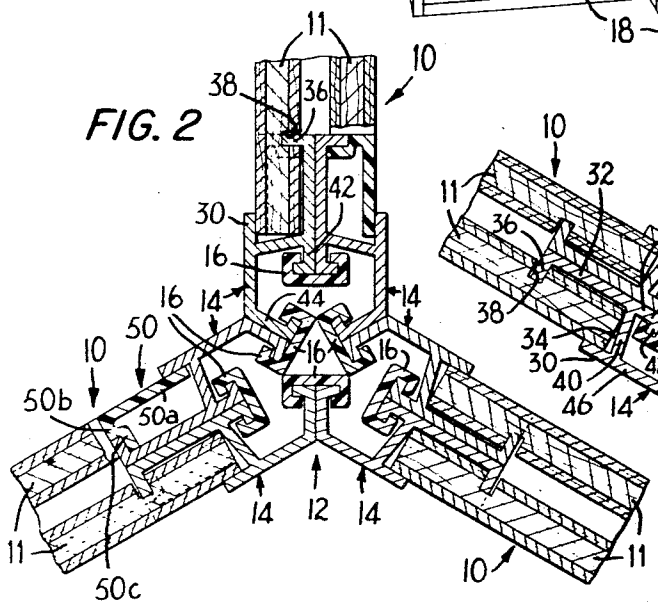

FIG. 2

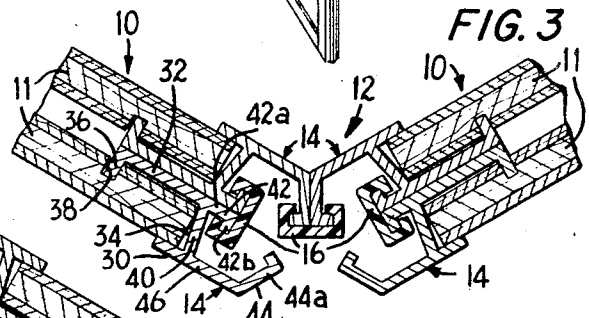

FIG. 3

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DISPLAY APPARATUS

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U.S. Cl. 40—125 6 Claims

ABSTRACT OF THE DISCLOSURE

Display apparatus of the type used to present product information and to exhibit product samples at trade shows, at conventions, in company sales offices and the like composed of a plurality of interconnected panels supported and interlocked by means of mounting or frame members extending along and joined to the side margins of the panels and coupling members removably received by elements of the mounting members. The mounting members include formations arranged to encompass and hold the panel and one or more coupling flange arrangements formed in such a way as to receive a portion of the coupling member and to coact with it to provide interconnections between adjacent panels.

Background of the invention

This invention relates to display apparatus and, more particularly, to a novel and improved display apparatus of the type used to present product information in the form of written or pictorial material, to display product samples, and for various other purposes.

The exhibition of goods at trade shows constitutes an important part of any promotional and sales program. At these shows, which occur for each of a large number of industries annually or sometimes more often in commercial centers throughout the country and abroad, manufacturers display their product lines and have sales staffs present to inform potential customers about their products and of course actually to make sales or at least develop potential sales. Considerable work goes into designing and constructing effective displays, not only for trade shows, but for conventions of various organizations, for special promotions, for exhibits in company sales offices and numerous other applications.

Often, a given display, with or without modification, is used for a number of different shows, conventions, promotions or the like. To this end, many display structures are constructed so that they can be dismantled, shipped to another location and the reassembled, time and time again.

Summary of the invention

There is provided, in accordance with the present invention, a display apparatus having the advantages of attractiveness, which is always of considerable importance in the areas of advertising and sales promotion, low cost, ease and speed of knock-down and set up, and versatility. More particularly, the display apparatus comprises a plurality of panels of a suitable form which are adapted to exhibit written or pictorial information, or to mount sample products or otherwise to impart knowledge to one viewing the panel. The panels are interconnected with each other, preferably in angular relationships so that they can be set up vertically on the floor, table or other supporting surface. For example, a series of relatively large panels interconnected to each other can be arranged to form a partition between different sections of an exhibit or to enclose an exhibit space. The panels may be single large sheets of plywood, metal, plastic, hardboard or any other suitable material

or they may be composed of a number of smaller pieces arranged, with or without space between them, into a larger panel format.

The structure by which the panels are supported and interconnected is composed of identical panel frame or mounting members extending along and joined to the side margins of the panels and identical coupling members removably received by elements of adjacent mounting members and joining them, and therefore the panels, together. Preferably, the mounting members include formations adapted to encompass a portion of the margin of the panel with which they are associated, such formation being composed of flanges extending along and abutting the front and back faces of a marginal portion of the panel and a retainer flange which is received in a coacting groove formed in the back face of the panel. The coupling members may be elongated elements having a generally C-shape in cross-section and are received by coupling elements formed on the mounting members in such a way that they abut each other when two panels are interconnected. The coupling elements on the mounting members will then include outwardly extending flanges or ribs receivable in the undercuts within the C-shaped coupling member.

In some instances, it will be desired to connect the panels back to back so that the faces of the respective panels face outwardly in opposite directions and permit information, products or the like to be displayed on both sides of the panel assembly. Accordingly, coupling elements which afford back to back interconnection of the panels are provided on the mounting members. In addition, the mounting members are arranged to be joined with the panels placed end to end, usually at an angle to each other as mentioned above, and thus they include second coupling elements geometrically arranged to coact with the coupling members and provide end to end interconnection of the panels or assemblies of panels placed back to back.

Brief description of the drawing

For a better understanding of the invention, reference may be made to the following description of an exemplary embodiment, taken in conjunction with the figures of the accompanying drawings, in which:

FIG. 1 is a pictorial view showing a display apparatus constructed according to the invention;

FIG. 2 is a cross-sectional view, on a larger scale than FIG. 1, showing in detail the frame and coupling members by which three panels are joined edge to edge, the view being taken generally along the lines **2—2** of FIG. 1 and looking in the direction of the arrows; and

FIG. 3 is a cross-sectional view on a larger scale than FIG. 1, illustrating the interconnection of two panels, the view being taken generally along the lines **3—3** and looking in the direction of the arrows.

Description of exemplary embodiment

Referring first to FIG. 1, the exemplary embodiment of the display apparatus of the invention is a freestanding assembly of panels or panel units, the panel units being designated generally by the reference numeral **10** in the drawings. The panel units **10** are composed of panel members **11** mounted back to back (FIGS. 2 and 3) and interconnected by an assembly **12** composed of panel frame or mounting members **14** extending along and joined to the sidemargins of the panel members **11** and coupling members **16** (not visible in FIG. 1). In the preferred form shown in the drawings, the panel units are interconnected at angles to each other in a pattern providing groupings or bays of three panels intersecting at 120° to each other at joints identified by the letter A. The bays are then joined together at intersections B between one panel unit branch

of each adjacent bay. FIG. 1 illustrates two such bays, but it will be understood that a multiplicity of bays may be interconnected in the manner depicted in FIG. 1 to create a larger sized display.

In the form shown in FIG. 1, one side (the front in FIG. 1) of the display apparatus is composed of alcoves in which an observer faces two panel units **10** intersecting at an internal angle of 120°, while the other side (the back in FIG. 1), forms a cubicle where an observer can view four panel units, two of which are substantially parallel to each other. As will be apparent from the description to follow, the specific construction of the frame or mounting members **14** and the coupling members **16** can be varied to provide dimensional and geometrical requirements needed to suit various sizes and shapes of allotted space for the display or any requirements dictated by the nature of the information and products being exhibited. For example, three bays of panel units in which at least two of the panels are of identical width can be arranged to provide a closed hexagonal space forming a central core from which other panel units or panel bays branch out to form alcoves and cubicles. The closed space might be used to contain and hide electrical or mechanical equipment associated with the display. The foregoing examples of geometric arrangements of the panel units are only indicative of a variety of arrangements that might be made with the system of the invention and that are within the purview of the invention.

The panels **11** may of course be either in one piece and extend over a part or the whole of the vertical space between panel mounting members **14** (FIGS. 2 and 3) and extending from a lower frame member **18** to an upper frame member **20** (FIG. 1), or they may be composed of a multiplicity of smaller panel members extending between the side mounting members **14** and positioned one over another in abutting relation or spaced, as desired, in the vertical direction. The panels can be made of various materials, such as plywood, plastic, metal, pressed or composition board, laminations of various material and the like. The panels can have various textures and moreover may be curved, formed with openings or otherwise varied to meet the needs of the particular display. With many types of products, the panels may form mountings for samples, and where appropriate, any mechanical and electrical components of the products may be mounted on shelves behind the panels. If needed, enclosures can be provided at the back, and trays or shelves, as illustrated in FIG. 1 by the shelf **22**, can be suitably mounted on the frame members or on the panels for the display of sample products or for sales literature.

The mounting members **14** extend longitudinally along and are joined to the panel members **11**. They are preferably extrusions from a suitable material, such as aluminum so that they can be formed in relatively long sections that are then readily cut to the length for assembly. The mounting members **14** associated with the several panel units are identical, thereby affording the advantage of interchangeability and enabling the numerous geometric patterns of assembly referred to above.

The members **14** include, in section, parallel, spaced-apart panel-retaining flanges **30** and **32** which define a longitudinal slot **34** of a width sufficient to accommodate the edge of the panel member **11**. The wider flange **32** engages the back face of the panel and is provided with an inturned lip **36** which is received in a companion groove **38** formed in the back of the panel member **11**. A transverse connecting portion **40** extends between the retainer flanges **30** and **32**; it will be observed that the portion **40** is angularly related to the flanges in such a way that the panel can be inserted edgewise into the receiving slot **34** at an angle with respect to the planes of the flanges **30** and **32** and then pivoted back so as to locate the rib or lip **36** in the groove **38**.

The panel mounting members **14** further include two coupling elements **42** and **44**. The coupling elements **42** are in the form of hook-like, L-shaped flanges, the longer legs **42***a* of which are located substantially in the planes of the back retaining flanges **32** and form extensions of them and the shorter legs **42***b* of which project in the direction of the planes of the front surfaces of the panels **11**. The coupling elements **42** of the mounting members **14** are, accordingly, arranged to coact when two of the members **14** are placed back to back and to provide a T-shaped body for receiving the connector elements **16**.

The connectors **16** (FIGS. 2 and 3) are extrusions formed from a suitable material, such as a vinyl, or other plastic, and have a generally C-shape in cross-section. All of the connector elements **16** used in assembling the display apparatus are identical and are therefore interchangeable with each other. As in the case of the mounting members **14**, the provision of identical connector members **16** not only affords versatility in the manner in which the panels are assembled in a display, but also reduces the cost by eliminating the number of different parts required to make up the display.

The other coupling elements **44** of the mounting members are adapted to provide interconnections between the panels **11** or pairs of back to back panels **11** forming panels units **10**. They are composed of generally L-shaped sections **44***a* extending longitudinally along and forming an angle with a facing flange **46** which forms a continuation of the front panel retainer flange **30**. In a manner conforming to the principles of the coupling elements **42**, the coupling elements **44**, when placed back to back, coact to provide T-shaped formations for receiving the C-shaped connectors **16**.

In the exemplary embodiment of the display apparatus that is illustrated in the drawings, the L-shaped coupling elements **44** are disposed at such an angle (120°) to the planes of the panel units **10** that when they are positioned end to end with their longer legs **44***a* in abutting relation, the angle included between the panels is 120°. It is the 120° angle that affords the various arrangements of the panels, such as the one illustrated in FIG. 1 of the drawings, to provide alcoves and cubicles in an assembly of connected bays.

As a further preferred element of the display apparatus of the invention, the framing and interconnecting structure **12** includes spacers **50** (FIGS. 1 and 2) of generally L-shaped cross-section having a longer leg **50***a* which is adapted to reside in the plane of the panel faces and a shorter leg **50***b* which includes an offset **50***c* adapted to be disposed snugly adjacent the lip **36** on the rear panel-retainer flange **32**. The spacers **50** may be located anywhere along the length of the mounting members **14** between a pair of vertically spaced-apart panels, the spacers serving to provide the separation between the panels; or they may be located at the top or bottom of each panel assembly between the upper or lower margins of the panels **11** and the frame members **18** and **20**.

The upper and lower frame members **18** and **20** are, desirably, U-shaped in cross-section, having a dimension between the faces of their parallel side flanges equal to the distance between the faces of the front retainer flanges **30** of the mounting members **14** on the respective front and back panels making up a panel unit, thus providing an apparently closed border or frame extending about the periphery of each panel of the panel unit.

The assembly of the display apparatus and the dismantling of it after use are accomplished quickly and easily without the need for any special tools. The initial preparation of the display involves the fabrication of the panels **11** and the artwork or other preparation of the information or product samples. In this regard, the panels can be made up separately and later mounted in the mounting members by inserting them endwise into the receiving space **34**. The pairs of panels **11** placed back to back and forming the individual panel units **10** are then assembled together by means of the coupling elements **42**, and coupling members **16**, followed by the

installation of the upper and lower frame members **18** and **20**.

At the site of the display, it is merely necessary to erect the panel units and join them together by sliding the coupling members **16** endwise along the back to back coupling elements **44** of the adjacent mounting members **14**. The angular relationship between the panel assembly provides a free-standing structure which is rigid and requires no tie-downs or other external supports. Bracing or framework for lights can be added at the top of the display apparatus, if desired.

As is readily apparent from the foregoing, there are numerous advantages of the display apparatus of the invention. Among them are the versatility which is afforded by the geometrical relationship between the several panels as interconnected by the mounting and coupling structure. A multiplicity of panel units can be interconnected in numerous geometric patterns to suit display spaces of various shapes and dimensions. The display apparatus can be constructed at relatively low cost, inasmuch as it involves a minimum of different parts and, moreover, employs basic interchangeable parts which are common to the entire system. It can be tailored to meet various requirements as to the subject matter of the display, the size of the display and other variables. Fabrication is accomplished by simply cutting the various extrusions to the desired lengths, followed by the quick and easy assembly procedures set out above. The frame members provide a protective border around the panels which permits shipment without any significant risk of damage to the display.

The above-described embodiment of the invention is merely exemplary, and many modifications and variations of it can be made by those skilled in the art without departing from the spirit and scope of the invention. All such modifications and variations are intended to be within the scope of the invention as defined in the appended claims.

We claim:

1. Display apparatus comprising a plurality of display panels adapted to display written material, illustrations, sample products or the like and having a front face and a back face, and means for supporting and interconnecting the panels including identical mounting members extending along and joined to the side margins of the several panels and identical coupling members removably received by the mounting members to interconnect them and therefore the panels, each of the mounting members including spaced panel-retainer flanges extending along and encompassing the side margins of each panel, a first coupling element arranged to removably receive a coupling member and to coact with the coupling element on a second panel disposed in back to back relation to that panel to interconnect the two panels, and a second coupling element arranged to receive a coupling member and to coact with the second coupling element on another panel to joint the two panels together in end to end relation.

2. Apparatus according to claim **1** wherein one of the panel-retainer flanges is L-shaped in cross-section, the longer leg of the L-shaped flange extending along and abutting the margin of the back face of the panel and the shorter leg of the L-shaped flange being receivable in a groove formed in the back face of the panel, and wherein the other panel-retainer flange extends along and engages the margin of the front face of the panel.

3. Apparatus according to claim **2** wherein the L-shaped panel-retainer flange and the front retainer flange are interconnected by a web portion of the coupling member, the web portion being disposed at an angle to the said retainer flanges such that the edge of the panel can be inserted into the space between the retainer flanges at an angle such that the back face of the panel clears the shorter leg of the L-shaped portion, the panel thereafter being rotated about an axis along its margin to bring the back face into engagement with the longer leg of the L-shaped flange.

4. Apparatus according to claim **1** wherein the first coupling portion of the mounting member is constituted by an element of generally L-shaped cross-section, the longer leg of the L-shaped element being disposed substantially in the plane of the back face of the panel and the shorter leg of the L-shaped element extending from the longer leg in the direction of the plane of the front face of the panel.

5. Apparatus according to claim **1** wherein the second coupling portion of the mounting member is constituted by, in cross-section, a part substantially in the plane of the front face of the panel and extending away from the margin of the panel and a part which is generally L-shaped, the longer leg of the L-shaped part extending angularly from the aforementioned part and forming an oblique internal angle therewith, and the shorter leg of the L-shaped part extending from the longer leg generally toward the margin of the panel.

6. Apparatus according to claim **5** wherein the coupling member is an elongated body which is generally C-shaped in cross-section and is adapted to encompass the shorter legs of the L-shaped coupling portions and to retain the longer legs of two abutting coupling portions associated with two adjacent interconnected panels in abutting relation.

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U.S. Cl. X.R.

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