

[54] DISPLAY APPARATUS

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211/148

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[58] Field of Search 108/111, 59, 157;
211/153, 148, 135, 90, 88; 182/119

[56]

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Primary Examiner—James T. McCall

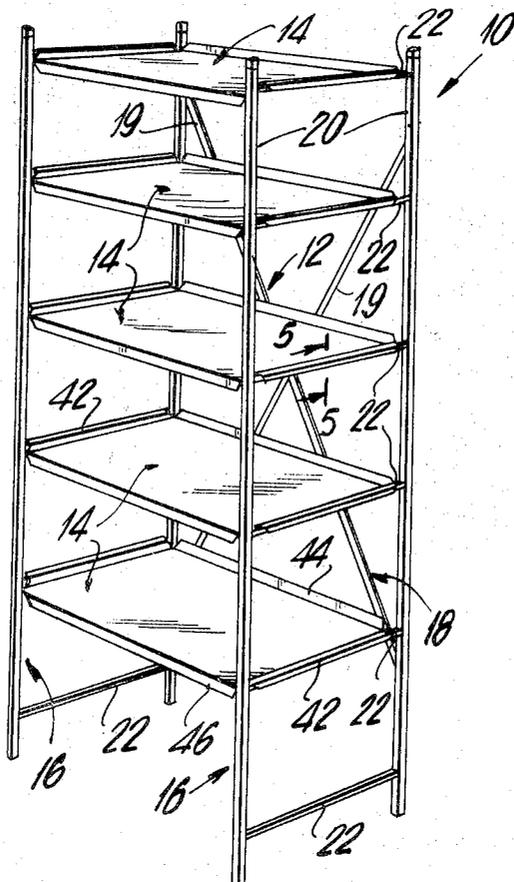
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[57] **ABSTRACT**

A display apparatus for stacking goods, such as cartons, beverage containers, etc., includes a vertically extending frame that is defined by two vertical side structures having a plurality of generally horizontal support members. The two side structures are interconnected by bracing means, and a plurality of shelves extend between the two vertical side structures to accommodate stacked goods. Each shelf is generally rectangular in plan form, with the corners thereof being cut off so that the edge portions of the shelf may be folded. Two edge portions are adapted to be mounted on the horizontal support means, with each edge portion being folded about three generally parallel lines so as to form a U-shaped clip portion substantially corresponding to the cross-section of the associated horizontal support members. The clip portions of the shelf are snapped into place onto the horizontal support members. The other two opposed side edge portions are folded about two generally parallel lines so as to form reinforcing beam members to provide additional rigidity to the span of the shelf structure, and to provide a surface for pricing or labeling. Assembly and disassembly of the display apparatus may be readily accomplished in a very short period of time, since there is no requirement for bolting each shelf to the frame structure.

3 Claims, 5 Drawing Figures



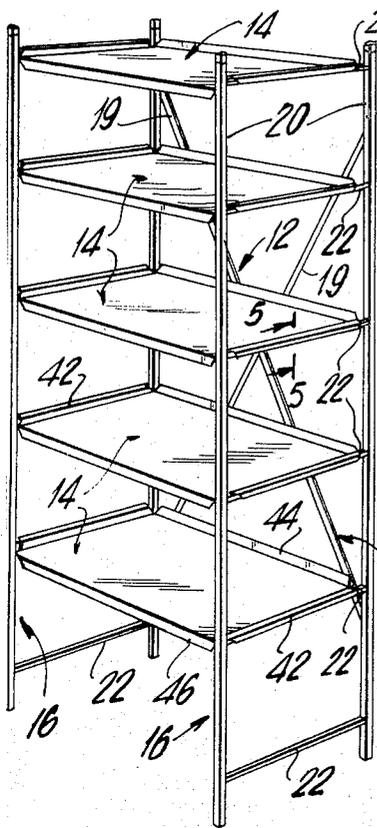


FIG. 1

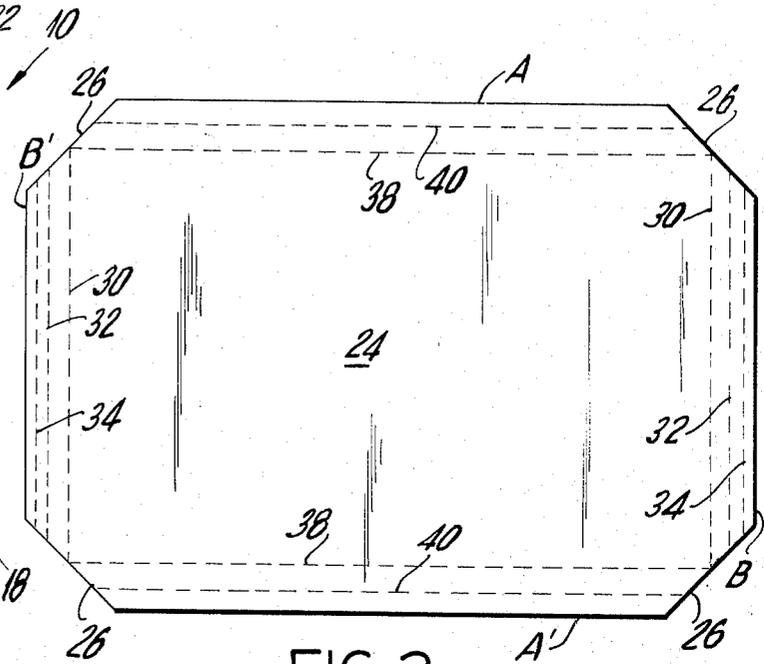


FIG. 2

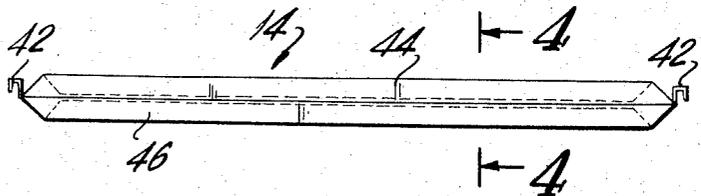


FIG. 3

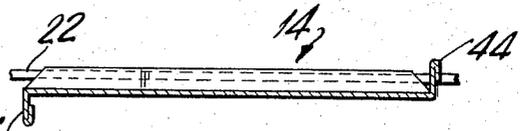


FIG. 4

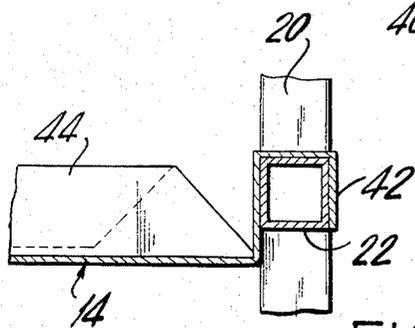


FIG. 5

DISPLAY APPARATUS

The present invention relates to display apparatus and, more particularly, to a quickly assembled and disassembled display shelf apparatus which is especially useful in retail establishments, such as supermarkets, drug stores and hardware stores, wherein there is a constant requirement for temporary additional display shelving.

In order to effectively merchandise new products, and to provide increased shelf capacity for accommodating new products, there is a constant need in retail establishments for additional shelf space for displaying goods. The additional shelf space is normally accommodated at the end of aisles, and hence there is a requirement that the shopper must be able to remove products from the additional shelving both from the front of the display shelf and also from the sides. Hence the products mounted on the shelves must be visible from at least three sides, and preferably from all sides, and the display apparatus must be strong and sturdy, yet be light enough so as to be easily manually assembled and disassembled by a clerk with a minimum of tools. Furthermore, considering that many times the auxiliary display apparatus is only required for a day or two, the assembly and disassembly of the apparatus must be accomplished very rapidly. Heretofore, auxiliary display apparatus has normally been of the type wherein the frame structure and the shelves were bolted together. Bolting by the use of screws and nuts is a long and tedious task, and in addition, the use of bolts further adds to the complexity of the display apparatus as well as to the overall cost of the apparatus.

Accordingly, it is an object of the present invention to provide a new and improved display apparatus which may be rapidly assembled and disassembled.

It is another object of this invention to provide a new and improved display apparatus which does not require the use of bolts for maintaining the shelves on the supporting structure, yet results in a rigid and strong support for display products.

It is still a further object of the present invention to provide a new and improved display apparatus which has an open look design so that product visibility is available from all four sides of the display apparatus. Furthermore, it is desirable that items stacked on the shelves of the improved display apparatus may be removed from any of three sides, thereby aiding the shopper, and increasing the flexibility of the subject display apparatus.

It is another object of the present invention to provide a new and improved display apparatus which is inexpensive, yet is extremely durable for constant reuse as required.

These and other objects are obtained by the provision of a display apparatus comprising a generally vertical frame structure defined by two vertical side structures including horizontal support members, and a bracing means for interconnecting the vertical side structures. Each supporting shelf is generally rectangular in plan form, and has the edges thereof cut off at an angle in order to enable the side edge portion to be folded. Two opposite side edge portions are folded about three generally parallel lines so as to form U-shaped clip portions which may be snap-locked onto the horizontal support members of the vertical side structures. The remaining two opposed side edge portions of the shelf are folded about two generally parallel

lines, so as to form a beam or reinforcing member which extends along the span of the shelf thereby aiding in the rigidity of the entire display apparatus. If desired, one or both of the reinforcing members may be bent so as to be positioned above the plane of the shelf so as to provide an edge to prevent the inadvertent toppling of stacked goods from the shelf. The reinforcing members also provides a surface for pricing or labeling.

For a better understanding of the invention, reference should be made to the following detailed description and to the drawings in which:

FIG. 1 is a perspective view of the improved display apparatus of the subject invention;

FIG. 2 is a plan view of a sheet of material preparatory to being bent about the dotted lines to form a shelf for use in the subject display apparatus;

FIG. 3 is a side view of a shelf of the subject invention;

FIG. 4 is a sectional view taken along line 4—4 in FIG. 3; and

FIG. 5 is a detailed sectional view taken along line 5—5 in FIG. 1 and illustrating in detail the interconnection between a shelf member and a horizontal support member of the subject display apparatus.

Turning to FIG. 1 the display apparatus 10 of the subject invention generally comprises a frame assembly 12 for supporting a plurality of shelves 14. The frame assembly 12 includes two vertically extending side structures 16 which are interconnected by a bracing means 18. The bracing means 18 may take the form of two rods 19 which are suitably attached, as by bolting, to the vertically extending side structures 16. Each of the latter includes two elongated rods 20,20 interconnected by a plurality of horizontal support members 22 of generally rectangular cross-section, whereby each side structure 16 is in the form of a ladder construction. The horizontal support members 22 of the respective side structure 16,16 are located at the same heights for maintaining the shelves 14 in a generally horizontal disposition.

Each shelf 14 is secured to a respective support members 22 by an interference or snap fit so that no bolts or other type of fastening means are required.

FIG. 2 illustrates a generally rectangular sheet 24 which may be suitably bent so as to form a shelf 14. More particularly, the corners of each rectangular sheet 24 are cut at an angle, indicated by the numeral 26, so as to enable the side edge portions, designated by the letters A,A', B and B' to be folded to define the shelf 14. The opposite edge sides B,B' are folded along crease lines 30,32 and 34 in order to define the structure for cooperating with the horizontal support members 22. Each side edge portion B,B' is first folded 90° upwardly about the line 30, after which the edge portion is folded 90° in the opposite direction (downward) about the hinge line 32, followed by the subsequent folding of the side edge portion about the crease line 34 downwardly 90°. The result is a U-shaped clip portion, designated by the numeral 42 in FIG. 3, with the clip portion being of rectangular cross-section corresponding to the rectangular cross-section of the horizontal support member 22. The dimensions of the clip portion 42 are suitably controlled so as to result in an interference or tight fit with the horizontal support member 22 (see FIG. 5), so that the shelf must be snapped into place onto the horizontal support member. Hence, ad-

ditional fastening means such as bolts, etc., are not required for maintaining the shelves in place.

Referring to FIG. 2, each side edge portion A,A' is first folded downwardly 180° about the crease line 40. Subsequently, the side edge portion A is folded about the crease line 38, downwardly 90°, whereas the side edge portion A' is folded 90° upwardly about crease line 38. This results in the side edge portion A' extending above the planar surface of the sheet 24, whereas the side edge portion A extends below the surface of the sheet 24. This is clearly illustrated in FIG. 4, while FIG. 3 illustrates that both side edge portions A,A' extend substantially along the entire span of the shelf intermediate the U-shaped clip portions 42. Note that each portion A,A' extends perpendicular to the plane of the sheet 24. Accordingly, the provision of the upstanding edges A,A' relative to the planar surface of the rectangular sheet 24 effectively define beams which act to increase the rigidity and load carrying capability of the shelf 14.

In the assembly of the subject display apparatus, after the frame assembly 12 has been assembled, it is merely necessary to snap each shelf 14 into place onto the associated horizontal support members 22. In like manner, disassembly of the display apparatus is readily achieved by merely disengaging the U-shaped clip portions 42 from the associated horizontal support members 22.

The display apparatus of the subject invention provides a new and improved shelf structure of low cost construction which may be readily assembled and disassembled. In addition, the subject display apparatus is attractive, and very functional in providing sturdy shelving which is open on at least three sides to provide maximum product visibility and accessibility.

While the invention has been described in connection with a preferred embodiment of the subject apparatus, it is not intended to limit the invention to those embodiments. On the contrary, it is intended to cover all alternatives, modifications and equivalents. For example, the corners of the rectangular sheet may be notched by a rectangular or square cut in lieu of the angular cut 26. Also, each vertical side structure 16 may be made of several sections which are assembled by pins extending through the elongated rods 20,20, with sufficient diagonal bracing being provided for strengthening the structure. Furthermore the cross-sections of the horizontal support members 22 (and hence the slip portions 42) may also be rectangular, round, or any other configuration which will provide a strong interconnection for the display apparatus.

What is claimed is:

1. A display shelf apparatus which may be quickly assembled and disassembled comprising:
 - a first vertically extending side structure including a pair of vertically extending, spaced rods interconnected by a plurality of horizontal support members;
 - a second vertically extending side structure including a pair of vertically extending, spaced rods interconnected by a plurality of horizontal support mem-

bers, said first and second vertically extending side structures being disposed in opposed relationship and having a corresponding number of horizontal support members that are likewise disposed in opposed relationship;

one pair of diagonal bracing means comprising a first diagonal bracing means releasably connected at one of its ends to the upper end of one rod of said first side structure and releasably connected at its opposite end adjacent the lower end of the opposed rod of said second side structure,

and a second diagonal bracing means releasably connected at one of its ends to the upper end of one rod of said second side structure and releasably connected at its opposite end adjacent the lower end of the opposed rod of said first side structure; and

a plurality of shelves interconnecting opposed horizontal support members of said first and second side structure, each shelf being generally rectangular in plan form and having the corners thereof cut-off at an angle, two side edge portions of each shelf being folded about two generally parallel lines to define beam reinforcing members substantially spanning the length between said horizontal support members and extending perpendicular to the plane of the shelf member, and each of the other two opposed side edge portions of said shelf being folded about three generally parallel lines to form a U-shaped clip portion disposed above the plane of said shelf, and said U-shaped clip portion corresponding in cross-section to the cross-section of said horizontal support member, said shelf being secured to each of said vertical side structures by an interference fit between the respective U-shaped clip portion of the shelf and the associated horizontal support member so as to be releasably engaged with the respective horizontal support member thereof, each interference fit extending along the length of the interconnection of the horizontal support member and the U-shaped clip portion of the shelf and being operative to support said shelf and in addition to provide a bracing means to restrain racking of the display apparatus in a direction perpendicular to the direction of the restraining force of said first and second diagonal bracing means such that diagonal bracing means are not required between the respective rods of each said side structure thereby enabling unrestricted access to the shelves of the display apparatus between the horizontal support members.

2. A display apparatus as in claim 1 wherein the cross-section of the clip portions of the shelf and the cross-section of the associated horizontal support members are square.

3. A display apparatus as in claim 1 wherein one of said beam reinforcing members extend above the plane of the shelf whereas the other beam member extends below the plane of the shelf.

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