United States Patent [19]

Sacks

[11] **3,718,101**

[45] **Feb. 27, 1973**

[54] **SHELF**

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[52] **U.S. Cl.** **108/152,** 211/90
[51] **Int. Cl.** **A47b 5/00**
[58] **Field of Search** 108/90, 108, 110, 111, 152; 211/90; 248/235, 250

[56] **References Cited**

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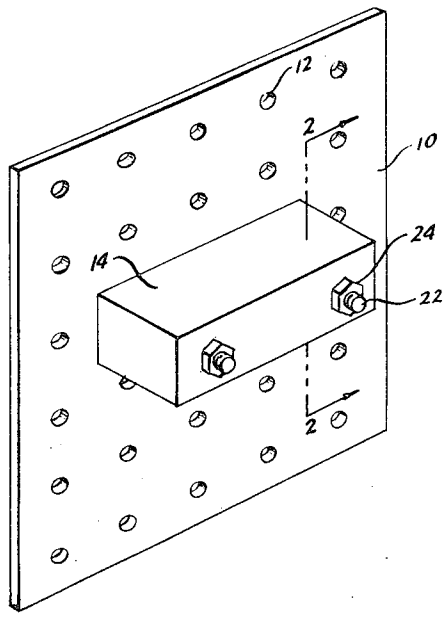
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Primary Examiner—James C. Mitchell
Attorney—Henry G. Dybvig et al.

[57] **ABSTRACT**

A display shelf comprises a hollow box of stiff board material having one side open. The shelf is mounted by assembly over a relatively rigid supporting block having upper and lower surfaces spaced to slidably and frictionally contact the interior surfaces of opposite horizontal sides of said shelf. The supporting block is fastened to an upright wall and the assembly of the hollow box-like shelf upon the supporting block produces a shelf structure which conceals its own support. In an embodiment particularly suited for attachment to perforated walls, bolt elements having an L-shaped shank have the foot portions of their shanks entered into perforations of the wall and the supporting block for the shelf is bored to receive threaded ends of the bolt elements. Appropriate nuts are engaged to the bolt elements to secure the supporting block to the perforated wall and then the box-like shelf is slidably assembled over the supporting block.

2 Claims, 5 Drawing Figures



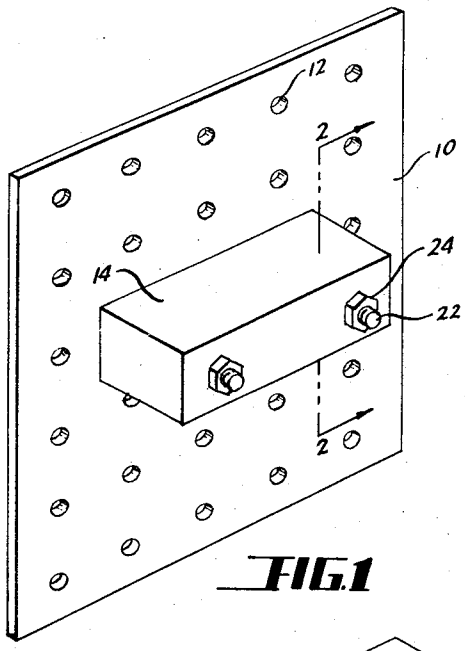


FIG. 1

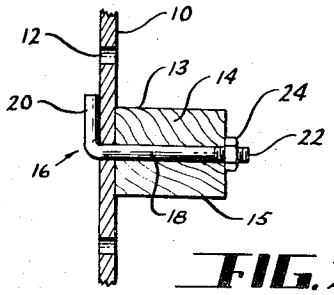


FIG. 2

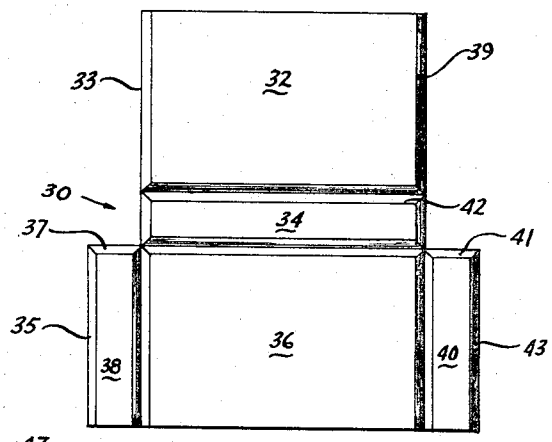


FIG. 3

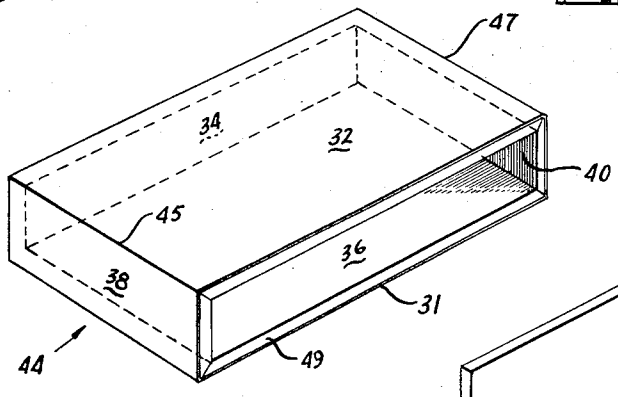


FIG 4

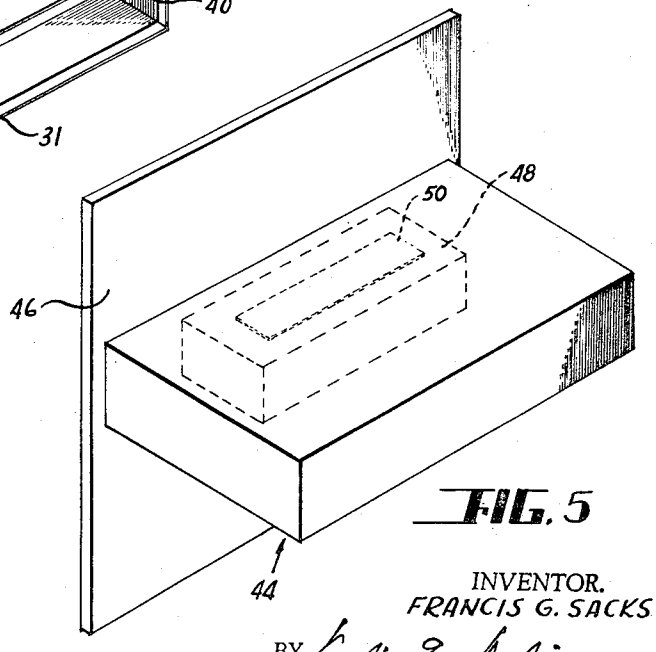


FIG. 5

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SHELF

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to shelf structures and more particularly to easily mountable and de-mountable shelf structures such as used for the display of items in retail stores and the like.

2. Description of the Prior Art

Shelf structures are generally of four basic types. All involve a horizontal board or slab. In one type the shelf is supported at its ends as in a bookcase. In a second type the shelf is supported from above, as by hanger devices which engage the outer edge of the shelf. In a third type the shelf is supported from below, as by brackets mounted under the shelf. In the fourth type of shelf, usually a masonry structure such as a mantle above a fireplace, the shelf is a stone or wooden slab such as may replace a horizontal row of bricks in a brick wall. A shelf of this nature is neat in appearance because it projects outwardly from a wall and has no visible supporting structure below, above or at the ends thereof.

SUMMARY OF THE INVENTION

In the present invention the pleasing appearance of a fireplace mantle, resulting from its lack of visible support brackets is made available in simple and easy to erect display shelf devices by constructing a shelf device in the form of a hollow box having only one side open and supporting the shelf device from within by means of a block mounted against the wall which is to receive the shelf. The supporting block has horizontal upper and lower surfaces sized and spaced to snugly enter the box-like shelf and frictionally retain the shelf to the wall. The upper surface of the box-like shelf provides a load supporting surface and the lower surface and side walls act as a retainer means which prevents the shelf from tipping away from the wall. L-shaped fastener means for attaching the supporting block to perforated wall structures adapt the present invention for use with commonly used perforated wall structures.

An object of the present invention is to provide a new and improved shelf assembly. Another object of the present invention is to provide an improved shelf assembly having a shelf member slidably attached and thus readily demountable from a shelf support means. Other objects and advantages will become apparent from the following description and accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a shelf support member adapted for attachment to a perforated wall in accordance with the present invention.

FIG. 2 is a fragmentary section view taken substantially along the line 2—2 of FIG. 1.

FIG. 3 is a plan view illustrating a pattern of beveling formed in a laminar material to produce a shelf device in accordance with the present invention.

FIG. 4 is a perspective view illustrating a box-like shelf device produced with the pattern illustrated in FIG. 3.

FIG. 5 is a perspective view illustrating the shelf device of FIG. 4 assembled to a modified support member.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates a perforated wall 10 of the type frequently used to support merchandise displays in retail establishments. The wall material is typically a fiberboard material such as sold under the trademark Masonite. Regularly spaced perforations 12 both decorate the board and provide mounting sites for display fixtures.

To provide a support for a shelf in accordance with the present invention, a rectangular block 14, which may be wood or another suitably unbending and generally rigid material is bored at two positions spaced apart the same distance as the perforations 12 to receive fastener elements in the form of bolts 16 best illustrated in FIG. 2.

The bolts 16 have an L-shaped shank providing a foot portion 20 extending at an angle to a leg portion 18. The leg portion 18 has its end 22 threaded to receive a nut 24. The block 14 is easily mounted in place by inserting foot portions 20 of two bolts in adjacent perforations 12 in the perforated wall 10, twisting the bolts to positions at which their leg portions 18 extend generally perpendicular to the wall 10, advancing the block 14 onto the bolts 16 so that the bores within the block 14 receive The leg portions 18, then threading nuts 24 onto the ends 22 of the bolts as appears in FIG. 2. It is preferred that the foot portions 20 project upwardly behind the wall 10 so as to derive bearing support from the unperforated portions of the wall 10. This allows the foot portions 20 to resist a tendency of the edge of the upper surface of the block 14 which is distal from the wall 10 to drop downwardly under loads placed upon the block 14.

For all practical purposes, the block 14 when mounted as described provides a shelf which can support loads placed upon its upper surface. For many display purposes, however, the appearance of the nuts 24 at a visible part of the shelf is considered objectionable. The present invention, as will be later described, offers a convenient means for concealing the hardware which is mounting the block 14 and also a convenient means for enlarging the area of the upper surface of a shelf without requiring proportionately enlarged hardware for mounting the shelf.

FIGS. 3 and 4 illustrate the preferred mode of forming the box-like shelf member which is to be supported by the block 14. The starting material is a board 30 of a stiff and self-supporting board material such as sold under the trademark Masonite cut to the shape shown and to one side of which has been laminated a flexible but relatively nonstretchable surface layer or sheet 31. The surface layer 31 is preferably a plastic material such as cellulose acetate and may have coloring incorporated therein or placed thereon for purposes of decoration. The surface layer 31 does not appear in FIG. 3 because it has the same shape as the board 30 and is located on the opposite face of the board 30.

Machinery such as described in U.S. Pat. No. 3,322,171 has been developed for grooving laminar board materials such as described in reference to the board 30 to a depth which is substantially equal to the thickness of the board 30 absent the surface layer 31. Such equipment is designed to bevel the sides of grooves formed thereby at precise 45° angles to the plane of the board. This allows the board to be folded

at precise ninety degree angles with the surface layer 31, being undisturbed by the grooving operation, maintaining the continuity of the board across the grooved portion thereof.

As shown in FIG. 3, the board 30 has been grooved so as to divide the board into five panels numbered 32, 34, 36, 38 and 40. Certain free edges of the panels are also beveled at 45° angles as shown at 33, 35, 37, 39, 41 and 43. After the board 30 has been grooved as shown and certain of its side edges beveled as shown, the board is readily folded to form the box 44 illustrated in FIG. 4. As can be noted, the panels 34, 38, and 40 function as a spacer means which supports the panels 32 and 36 in a spaced apart parallel relation.

A structurally self-supporting box is produced by applying an adhesive cement to only the beveled surfaces 33, 35, 39 and 43 before or during the time the board 30 is folded to the box shape illustrated in FIG. 4. For maximum rigidity, however, it is preferred to apply the cement to all of the beveled surfaces of the board 30. Due to the manner in which the board 30 was grooved, the surface layer or sheet 31 becomes the outer surface of the box 44.

In the practice of the present invention, the box 44 is sized with respect to the block 14 to assure that the panels 32 and 36 of the box have a mild forced fit against the upper and lower surfaces 13 and 15 of the block 14. This mild forced fit means that when the box 44 is forced onto the block 14 the block 14 will tend to separate the panels 32 and 36 of the box. To allow this forced fit to occur without damage to the box 44, it is preferred that the length of the box 44 between the panels 38 and 40 and also the depth of the box be large in relation to the block 14 so as to allow the panels 32 and 36 to flex and by flexing adapt to the mild oversize present in the block 14. By allowing a flexure of the panels 32 and 36 to accommodate a very slight oversize of the block 14, it is possible to slidably and frictionally mount the box 44 to the block 14 without a requirement for extreme tolerances regarding the degree of oversize of the block 14 and without placing undue stresses on the adhesive bonds, especially those at the corners 45 and 47.

It will be noted that due to the manner in which the box 44 is formed, there is an outer rectangular margin 49 enclosing an opening to the interior of the box. The margin 49 is made up of free margins of the panels 32, 36, 38 and 40 and is not covered by the surface layer 31. Assuming the surface layer 31 to include decorative coloring, the coloring will not appear on the margin 49. For the purposes of the present invention, however, this is unimportant. Thus, as the box 44 is forced onto the supporting block 14, the margin 49 is moved against the wall 10 and therefore will be concealed by the wall 10.

FIG. 5 illustrates a modification of the present invention in which a supporting block 48 is adhesively mounted to a nonperforated wall 46. The strength of the structure shown in FIG. 5 will obviously be limited to the strength of the adhesive bond that can be achieved between the supporting block 48 and the wall 46. However, those skilled in the art will quickly realize that this limitation may be overcome as needed by suitable screws or other fastening elements, not shown.

While it has been described with reference to the preferred embodiment that the supporting block 14 is mildly oversized with respect to the space between the top and bottom panels of the box 44, those skilled in the art will realize that warpage in the panels defining the box 44 can destroy the mild undersize designed into the box 44. In the practice of the present invention, this loss of a mild press fit between the box and its support member poses no problem and requires only the insertion of a shim layer such as can be achieved with a strip of adhesive tape 50 as illustrated in FIG. 5. It will be understood, of course, that the adhesive tape is not being used to adhesively attach the box to its support member, but rather is used only to build up the thickness of the support member as necessary to assure a mild forced fit between the box-like shelf and its support member.

An important innovative feature of this invention is that the shelf assembly need not be a permanent assembly. Thus, the box 44, being secured by a mere forced fit over its support member, can be slid away with a substantially equal but opposite force. This allows quick change in merchandise displays and, especially with the preferred embodiment, a quick rearrangement of merchandise display sites.

Another innovative aspect of the present invention is the duo-functional use of the box 44 to provide both a pleasing display surface and to conceal the hardware, if any, used to mount its support means. It is thus preferred that the shelf member be a box having only one open side, this being the side which abuts against the wall which will support the shelf assembly. It is to be recognized, however, that the demountable shelf feature of the present invention can be obtained without using a fully closed box such as shown at 44. Thus, if only a demountable shelf feature is desired, only one of the panels 32 or 36 is required together with a sufficient fraction of the remaining panels to provide a band or a belt passing down and under the block 14 or 48, as the case may be.

Although the preferred embodiments of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

Having thus described my invention, I claim:

1. A shelf assembly comprising, in combination, a shelf member including rectangular first and second panels having generally flat and confronting surfaces, said shelf member including a third panel engaged to a first margin of each of said first and second panels, said shelf member including a fourth panel engaged to a second margin of each of said first and second panels and a fifth panel engaged to a third margin of each of said first and second panels, said third, fourth, and fifth panels cooperating to support the confronting surfaces of said first and second panels a first distance apart, a support member slidably received between said first and second panels and having opposite outer surfaces frictionally containing the confronting surfaces of said first and second panels, the confronting surfaces of said first and second panels each having an area larger than

the area of the outer surface of said support member frictionally contacted thereto whereby said first and second panels have outer margins of their confronting surfaces spaced from said support member, said first and second panels being flexible, said outer surfaces of said support member spaced apart a second distance greater than said first distance, said first and second panels being flexed by entry of said support member between said first and second panels, the flexure of said first and second panels providing a restoring force to compressively grip said support member between said first and second panels, and means to affix said support member to one face of a vertically disposed wall.

2. The shelf assembly of claim 1 including a one piece flexible sheet member adhered to one face of all of said first, second, third, and fourth, and fifth panels.

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