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Clark et al.

[11] **3,814,489**

[45] **June 4, 1974**

[54] **INTERLOCKING COMPRESSION SUPPORT MEMBER**

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[21] Appl. No.: **347,238**

[52] **U.S. Cl.** ..... **312/111,** 108/53, 108/91, 220/97 B, 312/140

[51] **Int. Cl.** **F16b 12/00**

[58] **Field of Search** ..... 312/107, 111, 140, 198; 220/97 B; 108/53, 91

[56] **References Cited**

UNITED STATES PATENTS

2,593,998	4/1952	Dupuis	220/97 B X
3,368,856	2/1968	Tisdall et al.	312/111
3,606,506	9/1971	Ungard	312/111

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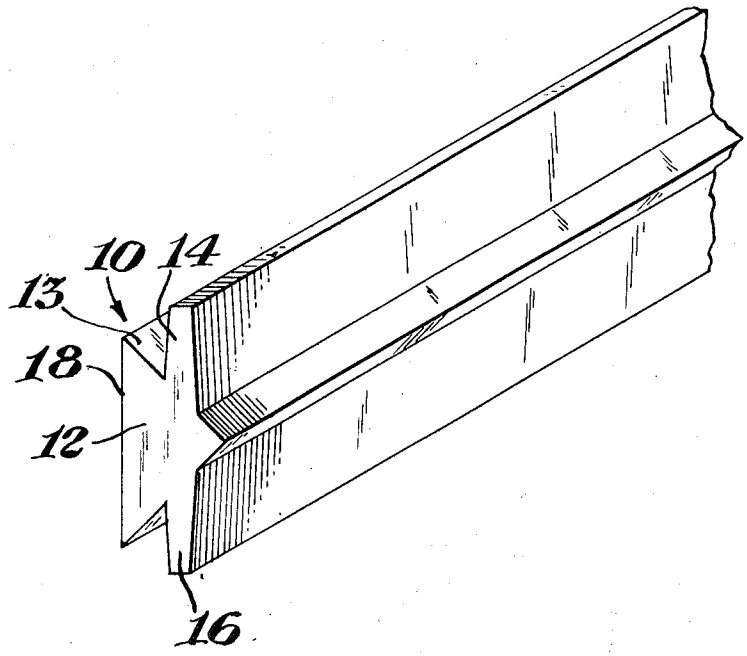
[57] **ABSTRACT**

An interlocking compression support member having an elongated three sided body with integral fins or blades extending away from two sides and substantially parallel with the third side of the body. The support member may be used to secure a plurality of stacked modular units together, such as may be formed during construction of furniture, cabinets, display cases and the like.

6 Claims, 4 Drawing Figures



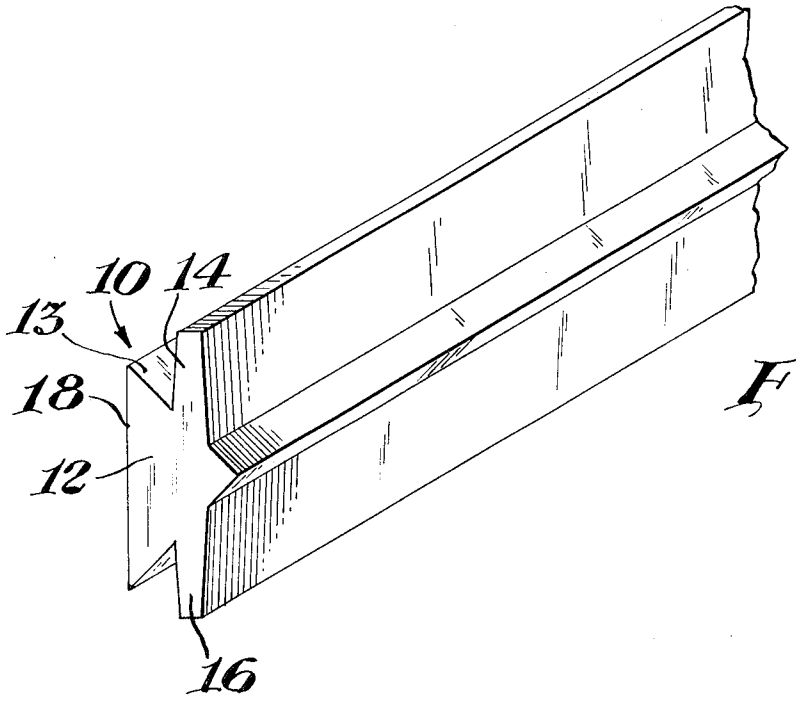


Fig. 1

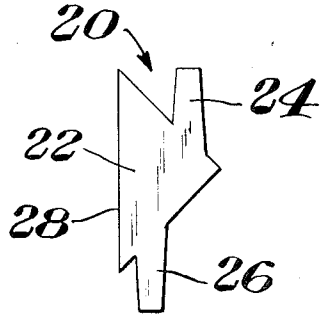


Fig. 2

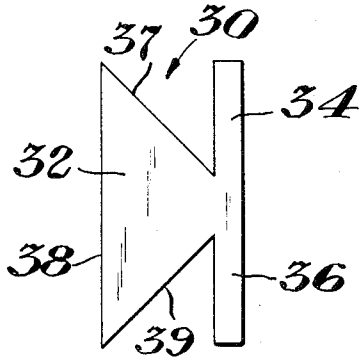


Fig. 3

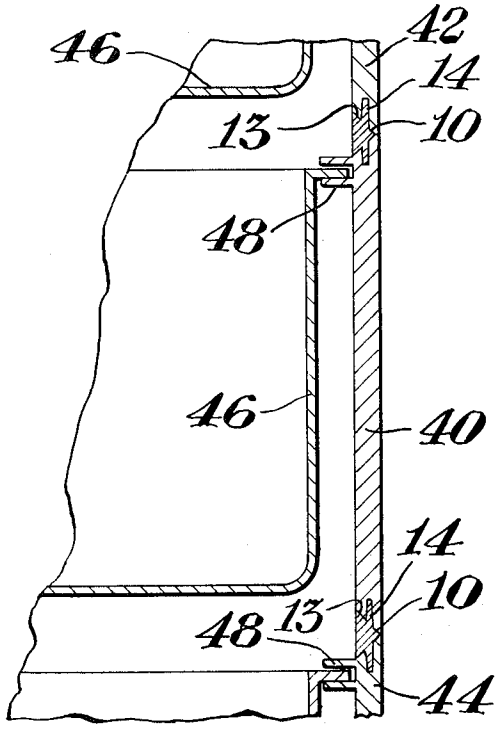


Fig. 4

INTERLOCKING COMPRESSION SUPPORT MEMBER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to interlocking means used to construct various articles such as furniture, cabinets, display cases and the like, with particular reference to an interlocking compression support member used to secure a plurality of stacked modular units together.

2. Description of the Prior Art

Modular unit construction of a wide variety of articles has become increasingly popular in the past few years. For example, furniture such as chests, bookcases, hutches, cabinets, breakfronts and the like can be made from a plurality of basic modules stacked one on another. Such modular unit construction is attractive since it provides increased design and arrangement flexibility, mass production potential previously unavailable, simple packaging and shipping, and later date supplementation of additional units, all of which may result in lower cost to the consumer. This type of fabrication has been made possible because of advances in engineering and manufacturing, and new fabrication materials such as moldable plastics, compressed wood products and lightweight metal alloys.

In some combinations, the modules are merely stacked on one another with the stability of the stack relied on to prevent the same from tumbling over. This is sometimes satisfactory where the area of intermodular contact between upper and lower modules is relatively large. However, such an arrangement is not satisfactory where the area of contact is necessarily small. In this instance, if means of locking the modules together is not provided, jostling or uneven loading could bring the upper modules tumbling down. For this reason, modular unit construction in the past has included elaborate latching or locking means such as pegs or wedges positioned in slots or sockets and interlocking beads and grooves. Examples of modular construction incorporating various locking means are illustrated by U.S. Pat. Nos. 2,432,379; 3,606,506 and 3,368,856 issued to Butler, Ungaro and Tisdall et al., respectively.

The disadvantage of using known locking means is that they can be unsightly, expensive to manufacture, unreliable and hard to put together or take apart, especially after several years of use or nonuse. In addition, a lateral force or impact may cause a breakout in thin outer walls of modular units adjacent to and associated with the locking means. In like manner, a lateral force or impact may cause deactivation of the locking means and tumbling over of the modules. Under severe overloading conditions, compression stress may contribute to failure adjacent the locking means.

SUMMARY

In general, the present invention provides an interlocking compression support member having an elongated three sided body including a first blade or fin integral to and extending away from a first side and a second blade or fin integral to and extending away from a second side. The first and second blades or fins are generally parallel to the third side of the body. The support member may be formed of metals, plastics such as polystyrene or polyurethane, wood or other common fabricating materials. The support member may be formed

by any known means as, for example, where a moldable plastic resin is used to form the same, it can be extruded as a continuous strip or otherwise molded to the desired length. The support member may also be made as a straight piece, a curve piece or with any other configuration needed to conform to the outer wall shape of the modular units it is used with.

In use, the support member is placed between the outer walls of stacked modular units with the fins or blades thereof disposed in corresponding slots in the ends of the outer walls. The ends of outer walls have slanted surfaces thereon which form a large contacting interface with corresponding surfaces of the support member. This contacting interface is larger and more stable than can be achieved with an interface which is substantially perpendicular to the outer walls of a modular unit.

The slanted interface, in conjunction with the fins or blades of a support member, create a compression wedging effect wherein a large portion of the outer wall of a module is disposed in compression stress between the slanted surfaces of the interface and the side of a fin or blade. This wedging effect helps prevent deactivation by a lateral impact and outer wall breakout associated with uneven loading and/or lateral impact in modular units having thin or structurally weak outer walls. Other beneficial advantages include such items as the support member being hidden inside the stacked modular units, a low cost to make the support member and easy assembly of modular units with support members.

BRIEF DESCRIPTION OF THE DRAWING

Yet additional objects and advantages of the present invention are even more apparent when taken in conjunction with the accompanying drawings in which like characters of reference designate corresponding material and parts throughout the several views thereof, in which:

FIG. **1** is an isometric view of an interlocking compression support member constructed according to the principles of the present invention;

FIG. **2** is an end elevational view of a modified support member illustrating offset fins or blades;

FIG. **3** is an end elevational view of another modified support member illustrating still another positioning of the fins or blades; and

FIG. **4** is a fragmentary elevational view in section illustrating the use of support members with stacked modular units of a chest.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following description illustrates the manner in which the principles of the invention are applied but are not to be construed as limiting the scope of the invention.

More specifically referring to FIG. **1**, an interlocking compression support member **10** having an equilateral triangular body **12** and blades **14** and **16** which are generally parallel to surface **18** is illustrated. The support member **10** can be extruded as a continuous strip from any thermoplastic synthetic resinous material and then cut to the desired lengths.

Referring to FIGS. **2** and **3**, modified support members **20** and **30** are illustrated. Support member **20** has an equilateral triangular body **22** and blades **24** and **26**

which are generally parallel to surface **28.** Blades **24** and **26** are offset so as to be defined by two different planes generally parallel to surface **28.** Support member **30** has an equilateral triangular body **32** and blades **34** and **36** which are generally parallel to surface **38.** Blades **34** and **36** are defined by a single plane generally parallel to surface **38.** Blades **34** and **36** are also disposed at the two adjacent intersecting ends of sides **37** and **39** which are furthest from side **38.**

Referring now to FIG. **4,** the use of support member **10** to secure stacked modular units of a chest is illustrated. Stacked modules having outer walls **40, 42** and **44** are secured together by support members **10.** The outer walls **40** and **44** include drawer slides **48** which hold and guide drawers **46.** The support members **10** are essentially hidden on the inside of outer walls **40, 42** and **44** and provide a compression wedge fit for the same as, for example, where a large part of outer wall **40** is wedged between surface **13** and blade **14.**

While certain representative embodiments and details have been shown for the purpose of illustrating the invention, it will be apparent to those skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope of the invention. For example, the support member can be made of an infinite variety of materials and in any size or length depending on the outer wall thickness and whether it is desirable to support substantially all or only part of the contacting interface between stacked modular units.

What is claimed is:

1. An interlocking compression support member useful in securing together a plurality of stacked modular units comprising an elongated three sided body, a first blade integral to and extending away from a first side of said body and a second blade integral to and extending away from a second side of said body, said first and second blades generally parallel to the third side of said body.

2. The support member of claim **1** wherein said three sided body has an equilateral triangular shaped cross section.

3. The support member of claim **1** wherein said first and second blades are defined by a single plane generally parallel with the third side of said body.

4. The support member of claim **3** wherein said first and second blades are located at the two adjacent intersecting ends of said first and second side of said body.

5. The support member of claim **1** wherein said first and second blades are defined by two different planes generally parallel with the third side of said body.

6. The support member of claim **1** wherein said support member is formed of a thermoplastic synthetic resinous material.

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