United States Patent

Ferdinand et al.

[15] **3,645,486**

[45] **Feb. 29, 1972**

[54] MODULAR WALL SHELVING

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[73] Assignee: **The Hirsh Company**, Skokie, Ill.

[22] Filed: **Feb. 5, 1970**

[21] Appl. No.: **8,830**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 745,287, July 16, 1968, Pat. No. 3,563,626.

[52] **U.S. Cl.**.....**248/243**, 108/108, 211/90

[51] **Int. Cl.**.....**A47b 47/00**

[58] **Field of Search**.....248/243, 244, 245, 246, 241, 248/235; 108/108, 152, 110, 107; 211/90, 148; 52/36

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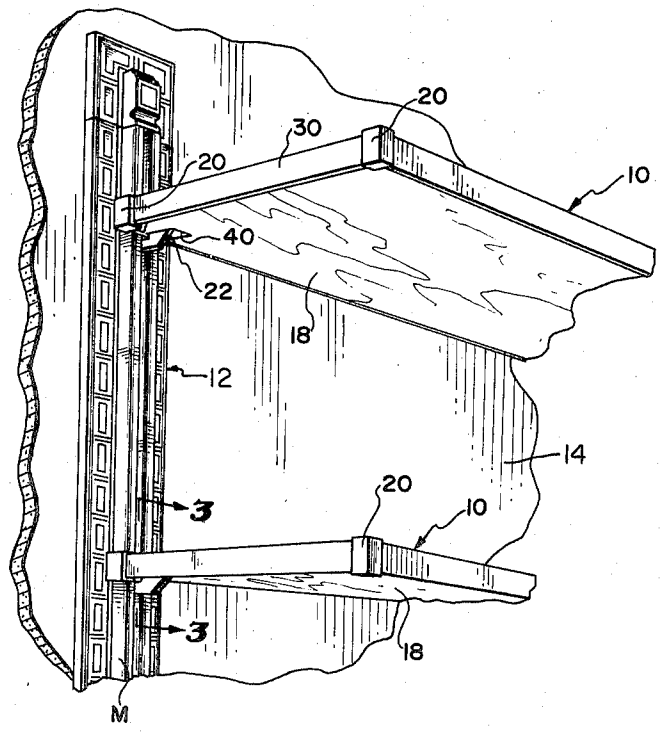
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Primary Examiner—J. Franklin Foss
Attorney—Harbaugh and Thomas

[57] **ABSTRACT**

Modular knockdown shelving having vertical pilasters comprising a baseplate secured to the wall with hook end brackets that slidably interlock with metal channel supports in supporting relation. The channel supports have spaced apertures which receive adjustably located shelf support brackets upon which fabricated shelf members are slipped horizontally in place. End lock elements on the pilasters hold the elements in assembled relationship.

10 Claims, 13 Drawing Figures



Patented Feb. 29, 1972 3,645,486

3 Sheets-Sheet 1

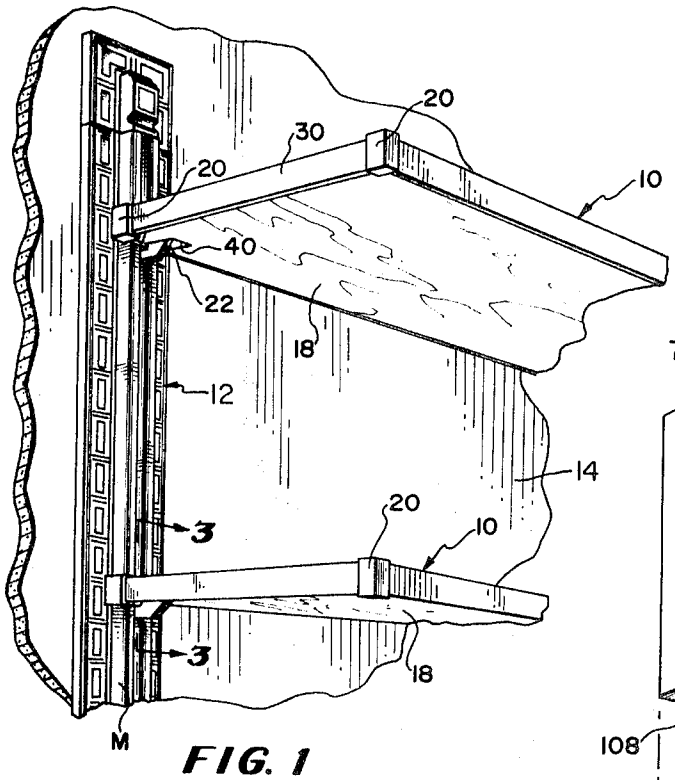


FIG. 1

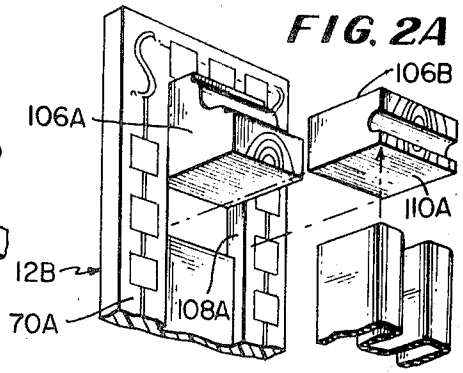
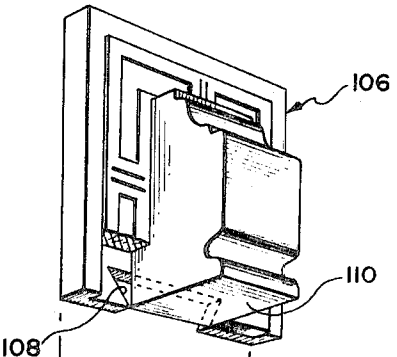


FIG. 2A



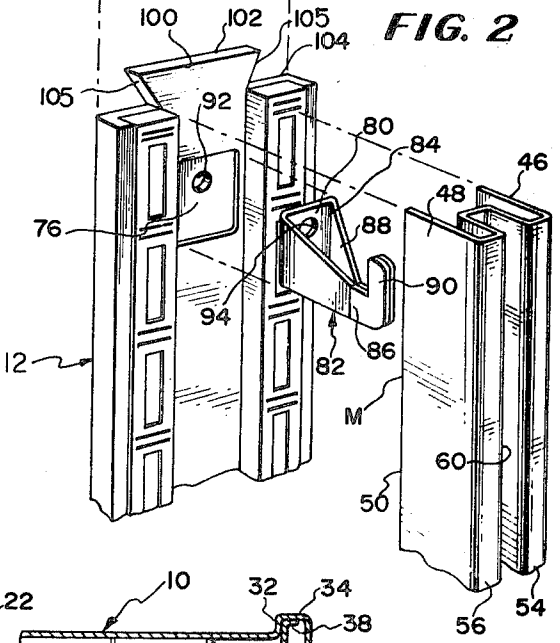


FIG. 2

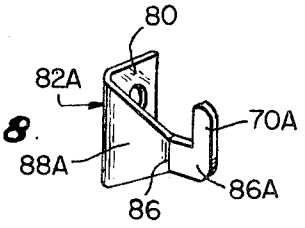


FIG. 8

FIG. 3

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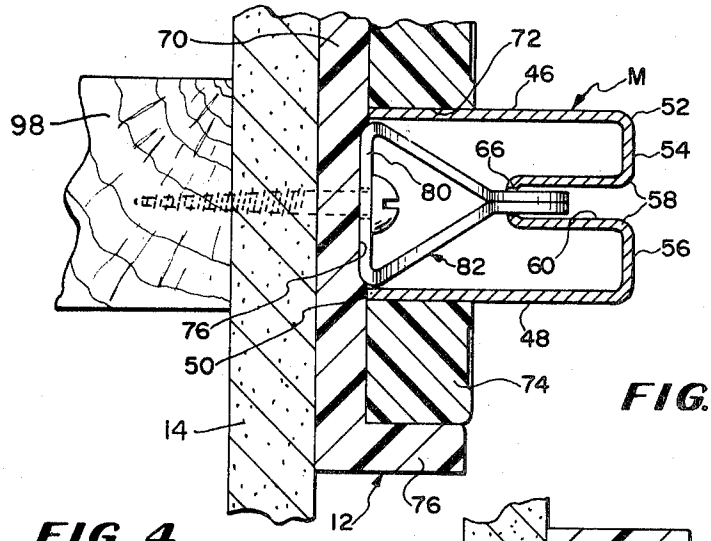


FIG. 4

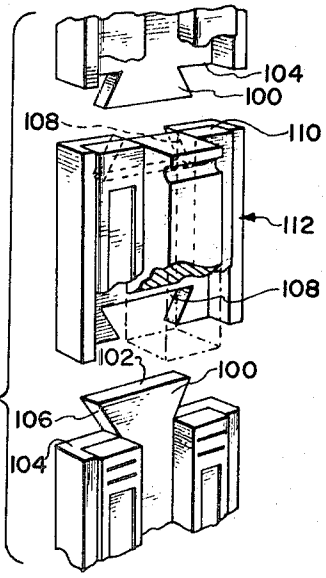


FIG. 5

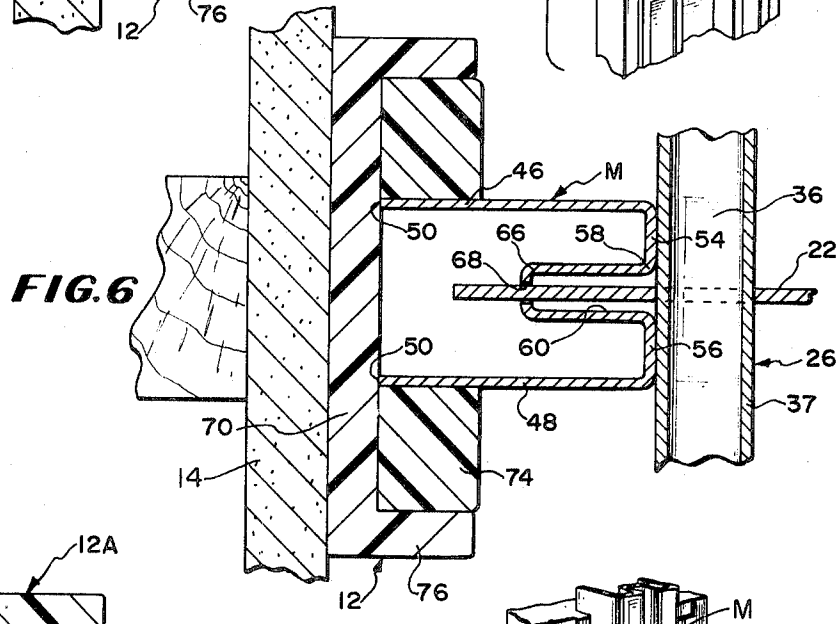


FIG. 6

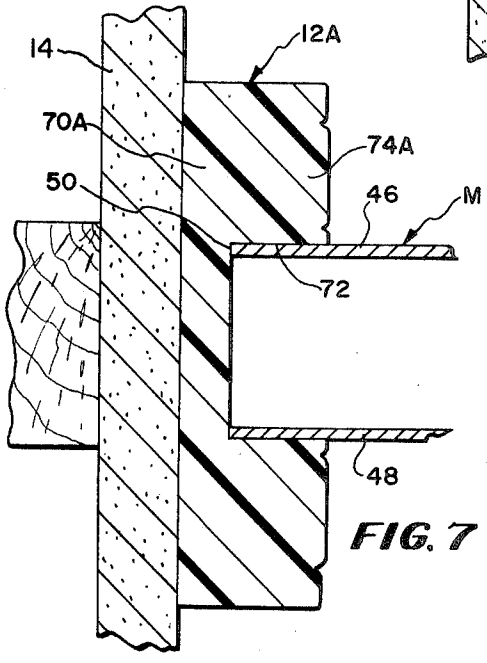


FIG. 7

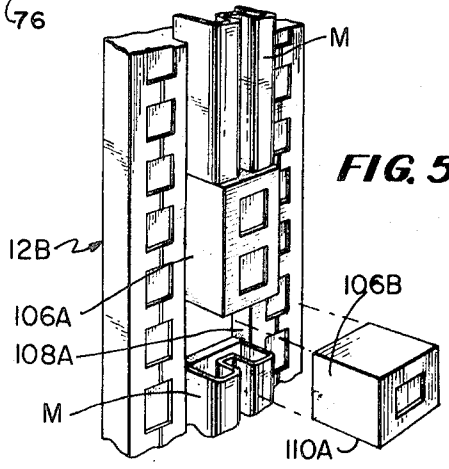
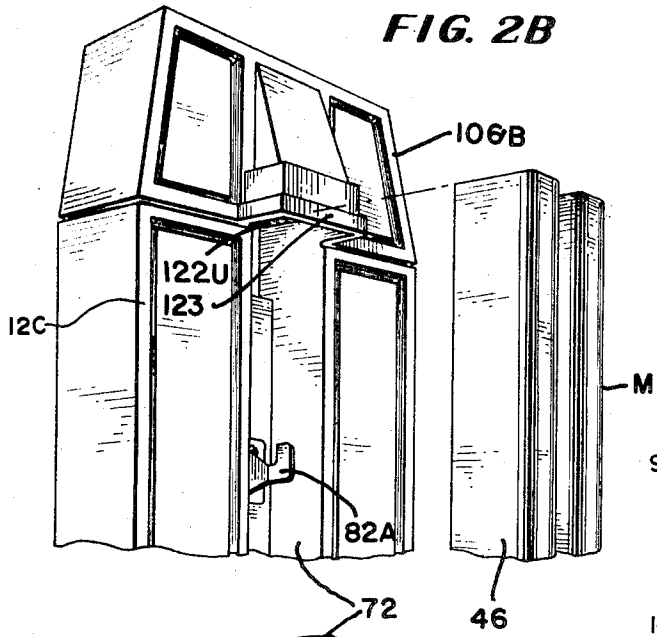


FIG. 5A

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FIG. 2B



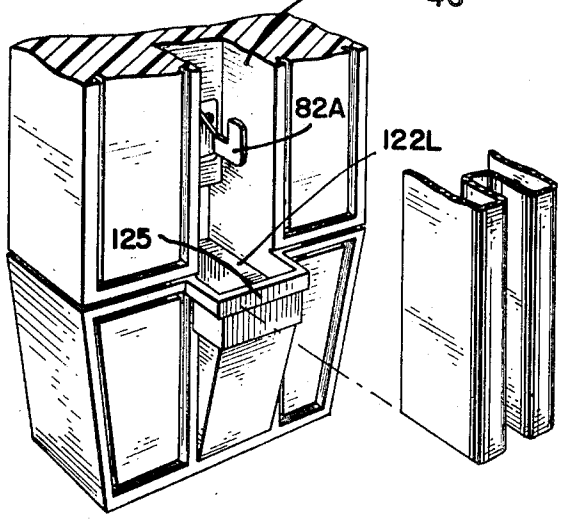


FIG. 5B

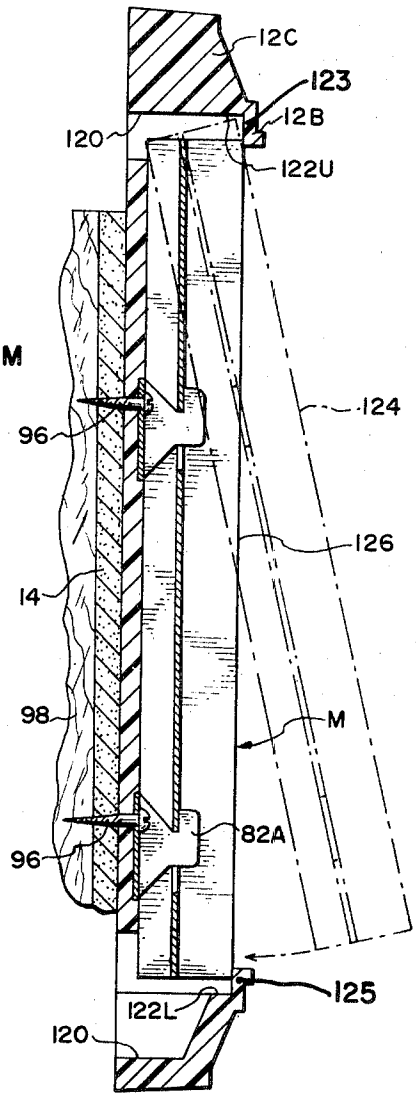


FIG. 9

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MODULAR WALL SHELVING

CROSS REFERENCES

Ferdinand et al. S. N. 845,173, filed July 28, 1969, and Ferdinand et al. S. N. 745,287, filed July 16, 1968, now U.S. Pat. No. 3,563,626 of which applications this application is a continuation in part.

BACKGROUND OF THE INVENTION

Modular knockdown shelving for home and office is of increasing popularity particularly that which can be supported anywhere on a wall to provide open space between its lowest shelf and the floor or a desk top or table top. Ease of assembly and adjustment are important without the means being obvious by which such is accomplished, either for locating the modular units themselves of the positioning of the shelves for selected spacing between them. Heretofore a great deal of damage can occur to the walls in securing conventional modular shelving to the wall if it is not supported also from the floor. Furthermore, the appearance of such shelving may not lend itself to a decorative scheme including an appearance for ruggedness and strength.

Reference is made to Handler U.S. Pat. No. 3,139,258.

SUMMARY OF THE INVENTION

The present invention is concerned principally with the mode of attaching modular shelving in a relationship supported solely by a wall without the securing means being obvious, yet is easily located and mounted, and at any time is readily adjustable.

A flat decorative pilaster having securement indicators is located on a wall with the bases of hooklike brackets serving as washers for the heads of screws which clamp the brackets and the flat member ruggedly in a predetermined spaced relationship for mutual positioning and proper leveling and spacing. A cross-sectionally M-shaped channel member having apertures through the concealed bight of its intermediate walls receives the ends of the hook members as guided by lateral decorative walls defining a recess and slips downwardly thereon in supported relation with the edges of the legs recessed slightly in the pilaster within either a wide recess or two parallel recesses for lateral support. End stop elements at either or both ends of the pilaster member hold the channel members against inadvertent movement out of the hook members while completing the unitary finished appearance of the assembly. Shelf supporting brackets are adjustably received in other apertures in the channel member and are readily removed without tools and quickly relocated, as more particularly described in said applications. In fact, if the shelves are first removed from their supporting brackets relocation can be accomplished without necessarily moving articles thereon. When slipped into place the shelves are held laterally as well as vertically in rigid securement, and, as more particularly described in Ser. No. 745,287, can be converted to cabinets.

Other and further objects and advantages include the economic benefits of mass production of a high-quality, uniform product of pleasing modular appearance with elements that are light and easy to handle and readily adjustable. Other and further objects will become apparent from the description and related drawings.

In the drawings:

FIG. 1 is a fragmentary perspective view of a shelving assembly as viewed at an angle from below the level of the uppermost shelf.

FIG. 2 is an exploded perspective view of the upper end of the pilaster shown in FIG. 1.

FIG. 2A is a perspective view of a modification of the pilaster end shown in FIGS. 1, 2 and 5.

FIG. 2B is a perspective view similar to FIG. 2A of a further embodiment of the pilaster end.

FIG. 3 is a sectional view taken on the line 3—3 in FIG. 1.

FIG. 4 is a sectional view taken on line 4—4 in FIG. 3.

FIG. 5 is an exploded perspective view of an intermediate portion of the pilaster.

FIG. 5A is a perspective view of a modification of the intermediate portion of the pilaster shown in FIG. 5.

FIG. 5B is a view similar to FIG. 5A showing another modification of the invention.

FIG. 6 is a sectional view taken on line 6—6 of FIG. 3.

FIG. 7 is a view similar to FIG. 4 cross-sectionally showing another embodiment of the pilaster construction.

FIG. 8 is a perspective view of a modification of the clip shown in FIGS. 2, 3 and 4.

FIG. 9 is a side longitudinal sectional view showing the steps of mounting and removing the channel member on the pilaster plate.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, like numerals referring to similar parts through the description, the ends of two identical shelves 10 are shown as mounted on one of several pilasters 12 embodying the invention as affixed to a wall 14 that defines the rear plane of the perspective. Each of the shelves 10 has a top panel 16 (FIG. 3), a bottom panel 18 and the corners of the shelves have corner inserts 20 as more particularly described in Ferdinand, Ser. No. 845,173. Each shelf is supported at a point opposite a pilaster 12 by means of a bracket 22, only a small portion of each is visible in FIG. 1.

As more particularly described in the application Ser. No. 845,173 and as shown in FIGS. 3 and 6 the top panel 16 of each shelf 10 has integrally formed parallel front and back box flanges 26 and 28. The ends of the shelves merely have reversely bent flanges 30. Each box flange 26 and 28 being turned upwardly to form an object-retaining flange-type edge 32 and then rolled outwardly and downwardly to form the rounded or squared upper top edge 34 and front face of the flange. Then the flange is turned inwardly as at 36 to bound the inner wall 37 which at its upper edge is bent outwardly again to form the inner edge flange 38 which can be press fitted into the rolled edge 34 (FIG. 3).

The end flanges 30 of the shelf are differently formed by the omission of a top rolled edge such as 34 so that shelves located at the same level may abut at these ends one to the other in an essentially flat coplanar relationship as rolled from an elongated tab at each end of the blank sheet metal in forming thereof in a manner shown in Handler U.S. Pat. No. 3,304,760.

The bottom panels 18 are each flat and essentially rectangular, preferably conforming in shape to their matching top panel 16. Each of the bottom panels 18 has a pair of wall side notches 40 cut therein. The front edge and rear edge of each of the bottom panels 18 has like upstanding reinforcing flanges 42 running continuously or discontinuously therealong.

The corner members 20, all of which are identical (FIGS. 5, 8 and 9) are constructed of hard rubber or plastic in a square or round design to fit within the cutout corners of the shelf having an ear press fitted in a box flange 26 or 28 and a cam lock protuberance that snaps into the adjacent end of the flange 30. Once in place, they are not easily removed and rigidify the shelf corners, particularly where they are not supported by the bracket 22.

Referring to FIGS. 4, 6 and 7, the structure of the pilasters 12 is shown more clearly to include a single-piece, elongated, extruded or roll formed cross-sectionally M-shaped metal channel member M comprising a pair of spaced walls 46 and 48, the back edges 50 of which are essentially coplanar and open therebetween. The pair of sidewalls are bent toward each other at the outer edges to from the rounded corners 62 and the flat front sections 54 and 56 along the entire length of the channel member. The walls 54 and 56 can be the same or of different widths but are spaced from each other a distance sufficient to receive therebetween at lease a single bracket 22 and preferably a pair of brackets 22 set side by side. The walls 54 and 56 are each again reversely bent as at 58 to form the continuous elongated channel 60 defined between the inner walls 62 and 64 and terminating in the bight wall 66 spaced

outwardly from the edges **50** and having a series of slots **68** therein for securement. This latter wall **66** and slots constitute a primary support element, supporting both fore and aft, the shelf brackets **22**, as already described (FIG. **3**), and a supported element when received on brackets **82** will now be described.

As shown in FIGS. **1**, **2** and **3** an elongated decorative strip carved out of wood or molded out of pressed foam polystyrene is formed to serve as a plate **70** to have an elongated recess **72** on its front face, bordered laterally by decorative moldings **74**, as shown in FIG. **3**, or integral portions **74A** as shown in FIG. **7**. If separate decorative moldings **74** are employed the edges of the strip are marginally flanged at **76** to retain them against lateral displacement and the moldings are preferably held by adhesive. The recess **72** receives the legs **46** and **48** of the channel member M snugly between them whereby it is rigidified laterally with decorative contours of the plate **70**.

Shallow recesses **76** (FIG. **2**) are provided at predetermined points spaced a multiple distance of the spaces between slots **68** to receive the flat base **80** of a sheet metal bracket **82** or **82A** whose sides **88** or side **88A** are bent inwardly at **84** to come together or be located at **86** beyond which in FIG. **2** the two sides are face to face and form a double thickness hook **90** or, as shown in FIG. **8**, a single thickness hook **90A**, which is receivable from the rear through one of the slots **68**. Matching holes **92** and **94** in the bottom of the recess **78** and the bottom wall **80** of the bracket **82** receive a suitable screw **96** whose head is accessible above the hook **90** or **90A** and when driven into a wall stud **98** clamps the bracket and the decorative plate **70** in place to receive the channel member M a vertically spaced distance from its resting position after which it is moved vertically into its resting position against the bight of the hook **90** or **90A** ready to receive the shelf brackets **22**.

Also, flathead wood screws can be used through the pilaster plate **70** into the wall studding if desired for further shelf support in which case the lower shoulder **77** of the bracket recess transmits such support from the intervening pilaster plate material and through the shoulder **77** to the bracket **82** that is in engagement therewith.

The remote ends of the strip or plate member **72** extend beyond the ends of the channel member M when it is in place, and, as shown in FIG. **2**, are fashioned to provide male members **100** of a dovetail joint having abutting square surfaces **102** and **104** bounded by outwardly diverging walls **105** or slip in locks **110A** shown in FIG. **2A**, or aligned recesses as shown in FIG. **2B**. Then when the channel member M is in place ready to receive shelves it is secured against inadvertent release of its supported relationship.

Decorative end stop members **106** having mating female dovetail contours at **108**, as shown in FIG. **2**, are pressed into engagement with the male dovetails to lock the decorative end stop member **106** in place where it obstructs vertical displacement of the channel member M by upstanding end stop elements **110** abutting thereagainst. With one pilaster plate **70** being used end elements **110** need be used only at the upper ends.

In FIG. **2A**, the upper portion of the end stop **106A** is formed integrally with the plate **70A** and a removable insert is employed between the integrally formed portion and the upper end of the channel M. For this purpose the plate **70A** can be recessed or apertured as at **108A** to receive end stop keys or stops **106B** tightly in place against inadvertent removal to lock the channel M in place and to be removed when the channel is to be moved upwardly and forwardly.

Where two or more separate pilaster plates are aligned in use, they are mounted a spaced determined distance from each other as shown in FIG. **5** and an insert **112** having like female dovetail contours **108** is slipped into place after the channels have been inserted, and the end stops **106** are utilized to finish the panel effect of the pilaster **12** at its extremities. Here again the insert **112** can be made integral as at **106A** (FIG. **5A**) with integrally formed aligned plates and a like opening **108A** can be provided between the channels M to receive the keylock **106B** releasable in place. The cross-sectional contour of the intermediate insert **106A** can be uniform throughout its length or decoratively different to duplicate the upper end appearance of both sections.

In FIGS. **2B**, **5B** and **9** a simplified one-piece plate embodiment is shown in which a pilaster plate **12C** is shown that can be molded in any length desired in relation to the length desired in relation to the length of the channel M. The integral end portions **106B** are spaced a distance less than the length of the channel M and when molded are cored out as at **120** from the wall-engaging side of the plate **12C** to provide recesses **122** by which the channel can be positioned in an inclined position as shown in broken lines **124** and slipped lengthwise into the upper recess **122U** behind the front wall **123**, then moved to a vertical position as shown in full lines **126** into the channel **72** of the pilaster as guided by the decorative sides **74** and lowered to engage the hooks **82A** in slots **68** in which movement the lower end of the channel M is received in the lower recess **122L** preferably without the upper end coming free of the upper recess **122U**. The upper end still being concealed behind the front wall **123**, a person is not tempted to pull the channel M outwardly at the top, but rather must raise the channel M upwardly first to disengage the hooks **82A**, then pull out the bottom end and thereafter remove the upper end of the channel M to free it if relocation is ever desired.

Thus a decorative strip or molding is provided bordering the channel member M to rigidify the channel member. Accordingly, a selected art or period decor can be provided and changed, if desired. The pilaster members M are slipped into place and locked in position and the shelves can be installed or readily changed.

In order of assembly of FIGS. **2** and **5** preferably is to use two pilaster plates **70** end to end with the insert **112** in place between them, fasten the plates in place with screws **96** and brackets **82** and then withdraw the intermediate insert **112**. Slide mount the channel members M in place and then reinstall the insert **112** and the end stop **106**. Thereafter shelves and brackets can be installed as more particularly set forth in said applications Ser. Nos. 845,173 and 745,287, reference and incorporation of which are hereby made. In FIGS. **2A** and **5A** the assembly is to install the pilaster plates **70A** of any selected length in place as indicated, slip the channels M in place and lock them against removal by insertion of the keylocks **106B**.

Suffice to say here that with the shelves **10** mounted on the brackets **22** the shelf is tipped up at its front edge and the bracket hook ends **120** (FIG. **3**) are inserted into the channel **60** and selected apertures **66** at the bottom thereof. The hook ends **120** are inserted with an upward motion to engage behind the bight wall **66** of the channel. The shelf is then lowered to hinge downwardly as permitted by the clearance at **122** and the lower protuberance **124** engages the bottom of the channel and holds the shelf rigidly in place.

The pilaster plate not only provides an easily located support means but prevents scarring of wall surface if removal or relocation of the modular shelving is ever desired. Only screw holes in the wall would be involved. These can be measured very accurately when being made and can be easily eliminated when no longer used.

What is claimed is:

1. In knockdown shelving the combination of

a pilaster including a plate having a recess, means for securing said plate against a wall surface including bracket means providing an outwardly accessible hook element at a predetermined point spaced from the end of the plate, and including an element for fastening said bracket and plate to a wall,

a channel member received in said recess and having vertically spaced slots therethrough disposed intermediate its front and back sides, at least one of said slots releasable receiving said hook element in weight-bearing relationship when installed with relative movement therebetween in one direction,

decorative means carried by said pilaster plate at the sides of said recess for supporting said channel member in a vertical position against lateral movement in said weight-bearing position,

support means engaging said channel member at its lower end, carried by said plate and conformed to hold said channel against release from said securing means below a predetermined level by relative movement in a direction laterally of said one direction.

2. The combination called for in claim 1 in which said decorative means includes elements releasably interengaging that end of the channel member and the end of said plate towards which said hook element opens.

3. The combination called for in claim 1 in which said channel element is moved in one direction into engagement with said hook member and including

stop means engageable with said channel member to hold said channel member against movement in the opposite direction.

4. The combination called for in claim 1 in which said decorative means defines a recess receiving said channel member for endwise movement at least a distance equal to the distance the channel member moves to disengage from the hook element.

5. The combination called for in claim 1 in which said decorative means defines a recess receiving the other end of said channel to a depth greater than at least the distance said other end of the channel travels when engaging said hook element.

6. The combination called for in claim 1 in which said decorative means includes a releasable stop means at the end of the channel member towards which said hook member opens.

7. The combination called for in claim 1 in which said support means includes an interlocking joint between said plate and support means including male and female elements of dovetail joint.

8. In knockdown shelving the combination of

a pilaster including a plate having a recess in the front face thereof,

means for securing said plate against a wall surface including a bracket received in said recess,

an elongated channel member of a length less than the length of the recess and having vertically spaced slots therethrough for relative movement in one direction to engage said securing means in supported relationship at predetermined slots,

said decorative means including a releasable element insertable between said plate and channel member to hold said channel member against movement thereof in a direction opposite to said one direction.

9. The combination called for in claim 16 including a bracket member having a hook end with an upwardly turned tab received through a selected aperture and having a support arm extending therefrom, and

a shelf member having spaced top and bottom walls receiving said support arm therebetween in supported relation.

10. In knockdown shelving the combination of

a pilaster including a plate having an elongated channel,

means for securing said plate against a wall surface including bracket means defining an outwardly accessible hook element, and including an element for fastening said bracket and plate to a wall,

an elongated channel member received in said elongated channel and having vertically spaced slots therethrough at least one of which receives said hook element in weight-bearing supported relationship when installed with relative movement therebetween in one direction,

decorative means carried by said pilaster plate bordering said channel member for supporting said channel member against lateral movement,

stop members covering said channel member at its ends, and

interlocking joint elements between said plate and stop members securing the stop members against movement to hold said channel member against release from said securing means by relative movement in a direction reverse to said one direction,

said interlocking elements including male and female elements of a dovetail joint.

* * * * *