Dec. 23, 1969 S. B. MARCO 3,485,189

SHELF ASSEMBLY

Filed July 10, 1967 2 Sheets-Sheet 1

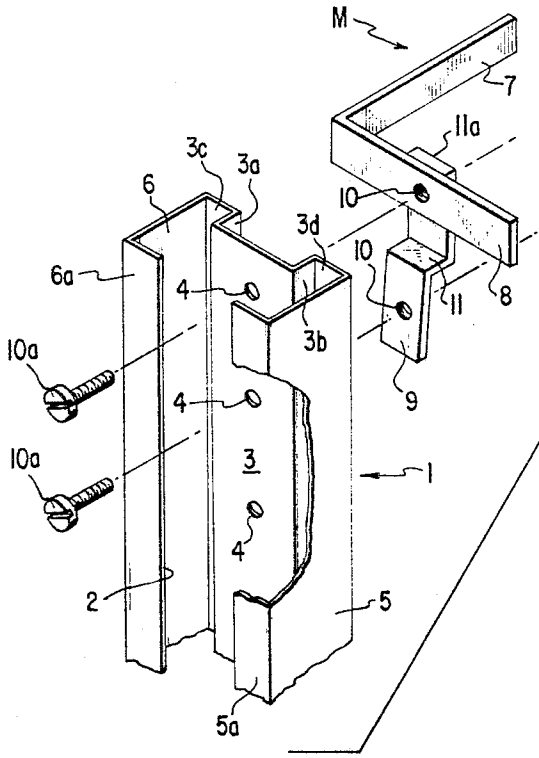


FIG. 1

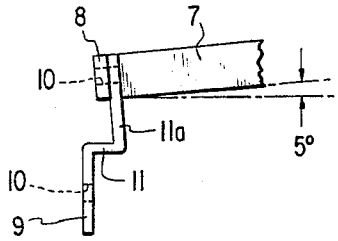


FIG. 2

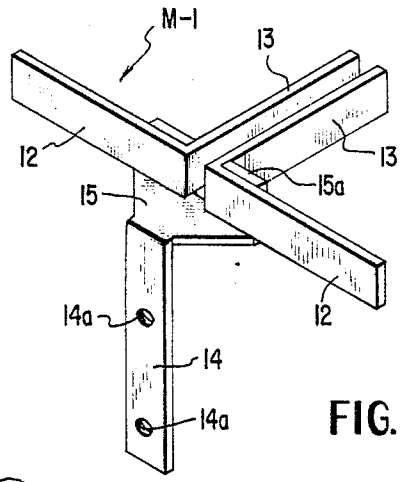
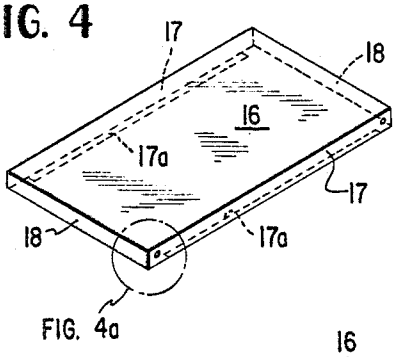


FIG. 3

FIG. 4



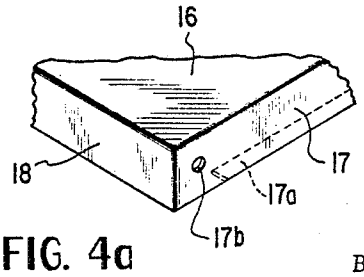


FIG. 4a

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SHELF ASSEMBLY

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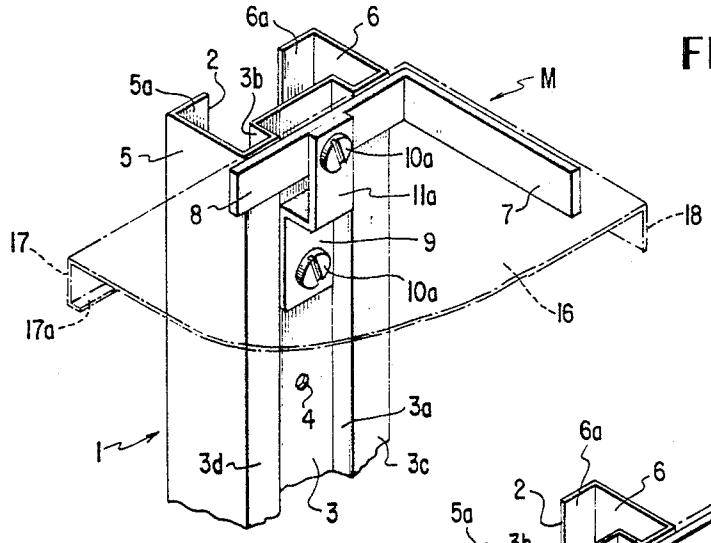

FIG. 5

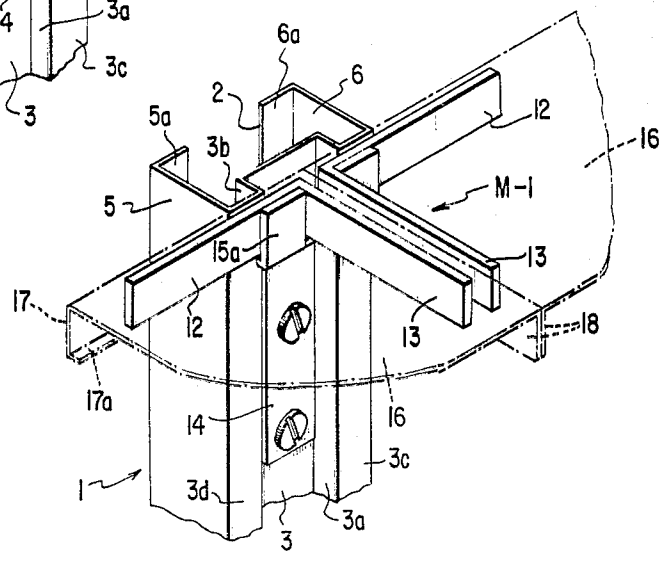

FIG. 6

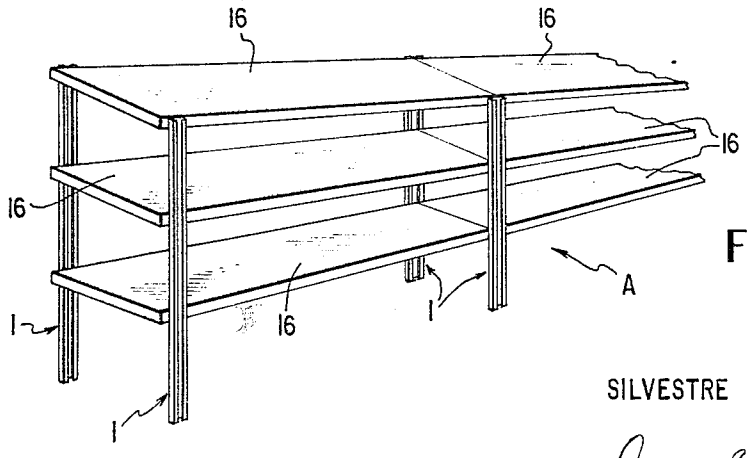

FIG. 7

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3,485,189

SHELF ASSEMBLY

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Int. Cl. A47b 57/08
U.S. Cl. 108—64 7 Claims

ABSTRACT OF THE DISCLOSURE

Demountable shelving having vertical columns with horizontal shelves and clips engaged in recessed portions of the columns and beneath the shelves.

BACKGROUND OF THE INVENTION

Field of the invention

This invention pertains to shelving, and more particularly, to shelving of the type adapted for assembly and disassembly to provide variant horizontal and vertical combinations of elements.

Description of the prior art

Various prior proposals relating to shelving of this general category exist. Basically, the prior art proposals comprise metallic angle sections suitably grooved for the required assembly steps. These prior arrangements are durable and of sufficient rigidity for effective use in industrial environments, but are not suited, due to lack of pleasing appearance, for use in homes, offices, and other areas wherein exterior appearance is a factor of importance. In some instances, rigidity and security of connection have posed problems.

SUMMARY OF THE INVENTION

The present invention provides shelving of the type described above which is adapted for ornamentation to provide an assembly of visually pleasing effect as required for use in offices, homes, and other non-industrial areas.

A basic objective of the present invention is to provide shelving characterized by stability of connection and adapted for rapid assembly and disassembly.

A further objective is to provide shelving of this type which is of simple outline and wherein the connection elements are so arranged as to be substantially hidden in use and wherein diagonal reinforcing elements are made unnecessary.

A further objective resides in supplying shelving of the type indicated wherein ornamental facing members may be joined to the vertical supporting columns following installation of the shelving.

Still another object is to provide shelving of the type indicated wherein the shelving may be connected in series and wherein the vertical spacing of the horizontal shelves is variable.

Related to the objective of increased stability in use, is the concept of supplying a shelving connector which embodies a spring tension connection between the assembled elements.

Other and further objects and advantages of the invention will become apparent to those skilled in the art from a consideration of the following specification when read in conjunction with the annexed drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a disassembled perspective view of a column and connecting unit constructed and assembled in accordance with the teachings of this invention;

FIGURE 2 is a side elevational view of a mounting member as shown in FIGURE 1;

FIGURE 3 is a perspective view of a modified form of mounting member;

FIGURE 4 is a perspective view of a shelf, on reduced scale;

FIGURE 4*a* is a detail view showing a portion of the shelf of FIGURE 4;

FIGURE 5 is a perspective view showing the assembled components of FIGURE 1 in full lines and showing the shelf of FIGURE 4 connected thereto in phantom lines;

FIGURE 6 is a view similar to FIGURE 5, showing the connection of the modification; and

FIGURE 7 is a perspective view showing a completed assembly of the components.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in greater detail, in FIGURE 7 a completed assembly A comprising a typical embodiment of the present invention is shown. The assembly A includes a plurality of upright columns **1** supporting substantially rectangular, horizontal shelves or trays **16**. The arrangement of components is such that the shelf **16** may be positioned at a number of different locations on the columns, and the units may be connected in a longitudinal series, as appears in more detail hereinafter.

The columns **1** best shown in detail in FIGURE 1, are preferably formed of metal and include opposing, flat side walls **5** and **6** with inwardly projecting forward walls **5***a* and **6***a* extending toward one another therefrom to define an elongated, vertical opening **2** of substantial width. Opposite the forward walls and opening is a multi-part inner wall including a U-shaped central portion with a bight section **3**, and arms **3***a* and **3***b*. Flanges **3***c* and **3***d* connect the arms and the side walls **5** and **6**.

The bight section **3** has a continuous series of substantially equi-distantly spaced apertures **4** formed therein and arranged in transverse alignment with the opening **2**. The provision of the openings **2** permits access to the interior of the column which is necessary for effective tightening of changeable fasteners (described below) in the mounting of the columns and shelves, and additionally permits the connection of exterior finish panels (not shown) which are connected thereon at the walls **5***a* and **6***a* by any one of a number of known means.

In FIGURES 1 and 2, a first form of mounting member M is shown. The mounting member includes a pair of substantially right angularly related, horizontal arms **7** and **8** of rectangular form, and an attachment clip. The clip has a leg member **9**, a step member **11**, and a vertical arm **11***a*, and in FIGURE 2 it is seen that the arm **7** is arranged to deviate at an angle of approximately 2 to 5 degrees from the horizontal with respect to a line normal to the vertical axis of the leg **9**, for a purpose appearing below. The leg **9** and the horizontal arm **8** each have an internally threaded opening **10** formed therein, and these openings are spaced coequally with the spacing of the apertures **4** in the column **1**.

FIGURES 1 and 5 show the manner of securing the mounting member M on the column **1**. A selected height is first chosen for the shelf **16** to be mounted, and the openings **10** of the mounting member are aligned with the selected pair of apertures **4** on the column. A bolt **10***a* of selected length or other changeable fastener is then extended through the aligned apertures and engaged in the threaded openings **10**—access being had through the open space **2**. It is to be observed that the width of the legs **9** is such that the leg is encased between the arms **3***a* and **3***b* of the bight portion. Further, the spring effect of the

tightening of the fasteners **10***a* against the inclination of the arms **7** when connected with a shelf as described below maintains a constant pressure on the clip resulting in additional rigidity of connection.

It will be understood that the mounting members M which form the corner supports in the connection of shelves **16** on the columns **1**, are provided in opposite hand orientations, right hand and left hand, respectively, for each end of the shelving.

FIGURES 3 and 6 disclose a modified form of the mounting means herein designated M–**1** employed as an intermediate connection where a series of shelves are employed in side-by-side relation. Here, two pairs of horizontal arms **12**, **13**, the arms **13** being arranged at shallow upward inclinations, are provided and are supported by a clip having a depending leg **14** of greater length than the leg **9**, and having a pair of openings **14***a* therein for alignment with the apertures **4**. The clip further includes a step member **15**, and a bifurcated vertical arm **15***a* for connection of the horizontal arms **12** and **13**. The mounting member M–**1** is secured to the column **1** by changeable fasteners which may, optionally, include bolts **10***a* and nuts (not shown).

The shelves **16** hereof may be either plain or suitably ornamented and have flat top sections with depending front and rear walls **17** and side walls **18**. The walls **17** have inward horizontal flanges **17***a* which terminate at a location spaced from the end walls **18**, and the walls **17** have a hole **17***b* therein alignable with the uppermost one of a pair of openings and apertures in the mounting members and columns. Thus, with the components assembled as shown in FIGURE 5 or FIGURE 6, a fastener may extend additionally through the shelf for added security of connection. It will be additionally seen in those figures of the drawing that the flange **17***a* underlies the arm **8** or **12**, thus ensuring the shelves against inadvertent displacement vertically.

Having described and illustrated the invention in some detail, it will be understood that these descriptions and illustrations have been offered only by way of example.

I claim:

1. An article of furniture comprising, in combination,

at least two pairs of columns forming the legs of the article of furniture, and

at least a pair of vertically spaced shelf members joined adjacent their corner portions to said columns,

each pair of columns presenting opposed inner walls between which said shelf members are located, and each column having a pair of spaced side walls extending outwardly from said inner wall, the inner wall of each column being shaped to present a vertically extending groove facing the other column of its pair and defining an outwardly offset bight portion, vertical inner wall flanges extending toward each other from said side walls, and inwardly directed arms delineating the widths of said groove and joining said blight with said inner wall flanges.

each shelf member including a top provided with depending side flanges,

and a mounting device for connecting each corner portion of each half to a corresponding column, each mounting device including a clip having a lower vertical leg, an upper vertical leg and a step portion joining said vertical legs, said lower vertical leg being received within a corresponding column groove and secured in fixed relation against the inner side of the bight portion thereof, the length of said step portion being sufficient to position the upper vertical leg inwardly beyond said inner wall flanges, an L-shaped mounting member fixed to said upper vertical leg and presenting first and second arms, one of which extends inwardly from said upper vertical leg along the depending side flange of the associated shelf member and the other of which extends along the adjacent side flange of the associated shelf member and the other of which extends along the adjacent side flange of the associated shelf.

2. The article of furniture according to claim **1** wherein each upper vertical leg is initially angled outwardly with respect to its associated lower vertical leg by an amount of from 2–5° whereby each clip is prestressed when assembled to connect the shelf member to the columns.

3. The article of furniture according to claim **2** wherein each clip member includes a pair of side-by-side upper vertical legs, and a pair of adjacent L-shaped mounting members associated with such pair of upper vertical legs to accommodate an aligned adjacent pair of shelf members.

4. The article of furniture according to claim **3** wherein said spaced side walls of each column terminate along their vertical edges in mutually inwardly inwardly directed forward wall strips, the forward wall strips terminating in spaced vertical edges exposing the interior of the column and the inner sides of said inner wall therebetween.

5. The article of furniture according to claim **1** wherein each clip member includes a pair of side-by-side upper vertical legs, and a pair of adjacent L-shaped mounting members associated with such pair of upper vertical legs to accommodate an aligned adjacent pair of shelf members.

6. The article of furniture according to claim **5** wherein said spaced side walls of each column terminate along their vertical edges in mutually inwardly directed forward wall strips, the forward wall strips terminating in spaced vertical edges exposing the interior of the column and the inner sides of said inner wall therebetween.

7. The article of furniture according to claim **1** wherein said spaced side walls of each column terminate along their vertical edges in mutually inwardly directed forward wall strips, the forward wall strips terminating in spaced vertical edges exposing the interior of the column and the inner sides of said inner wall therebetween.

References Cited

UNITED STATES PATENTS

1,172,260	2/1916	Crist	248—222
2,040,315	5/1936	Kress	211—90 X
2,480,559	8/1949	Derse	108—156
2,976,003	3/1961	Foster	211—153 X
2,998,107	8/1961	Zimmerla	108—108 X

FOREIGN PATENTS

510,879	8/1939	Great Britain.

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U.S. Cl. X.R.

108—109; 248—243, 250