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Schreiber

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[54] **STORAGE UNITS**

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[51] **Int. Cl.²**..... **A47B 47/04**

[58] **Field of Search**..... 312/257 R, 257 A, 257 SM, 312/257 SK, 263, 245, 198, 107; 248/159; 220/21, 22, 4 R, 4 F, 8; 52/36; 108/152, 64; 211/135, 184

[56] **References Cited**

UNITED STATES PATENTS

2,334,912	11/1943	Eide	297/442 X
2,366,676	1/1945	Rosenthal	108/111
2,366,677	1/1945	Rosenthal	108/111
3,044,841	7/1962	Hein	312/297 X
3,273,952	9/1966	Himelreich et al.	312/330
3,692,190	9/1972	Dolas	211/135
3,749,465	7/1973	Newcomer	312/245
3,756,168	9/1973	Bushyhead	108/111
3,765,740	10/1973	Mastrangelo	312/357 R

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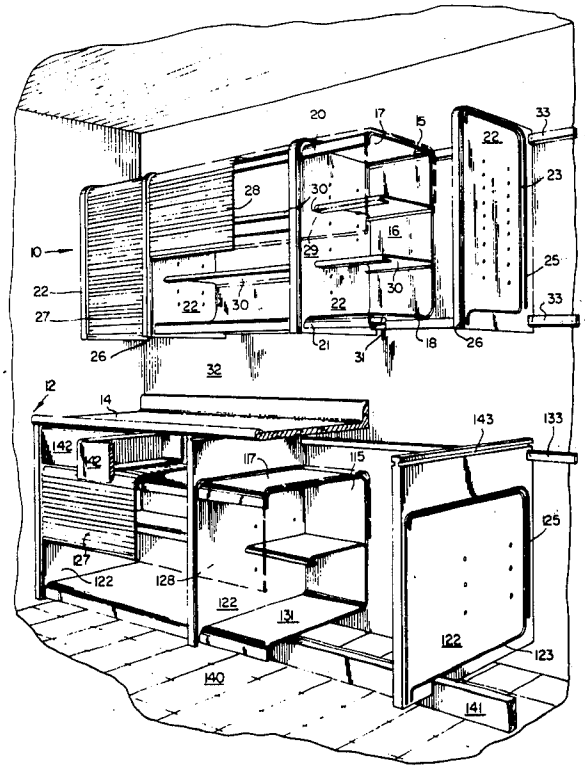
[57] **ABSTRACT**

Furniture components comprise walls having slots extending therethrough, and sheet material having a cross-section which is shaped to fit slidably through the slots. The sheet material can be slit through the slots and extends between and at right angles to the walls, and has a vertical portion forming a cupboard back and a horizontal portions forming the top and bottom of a cupboard.

4 Claims, 2 Drawing Figures



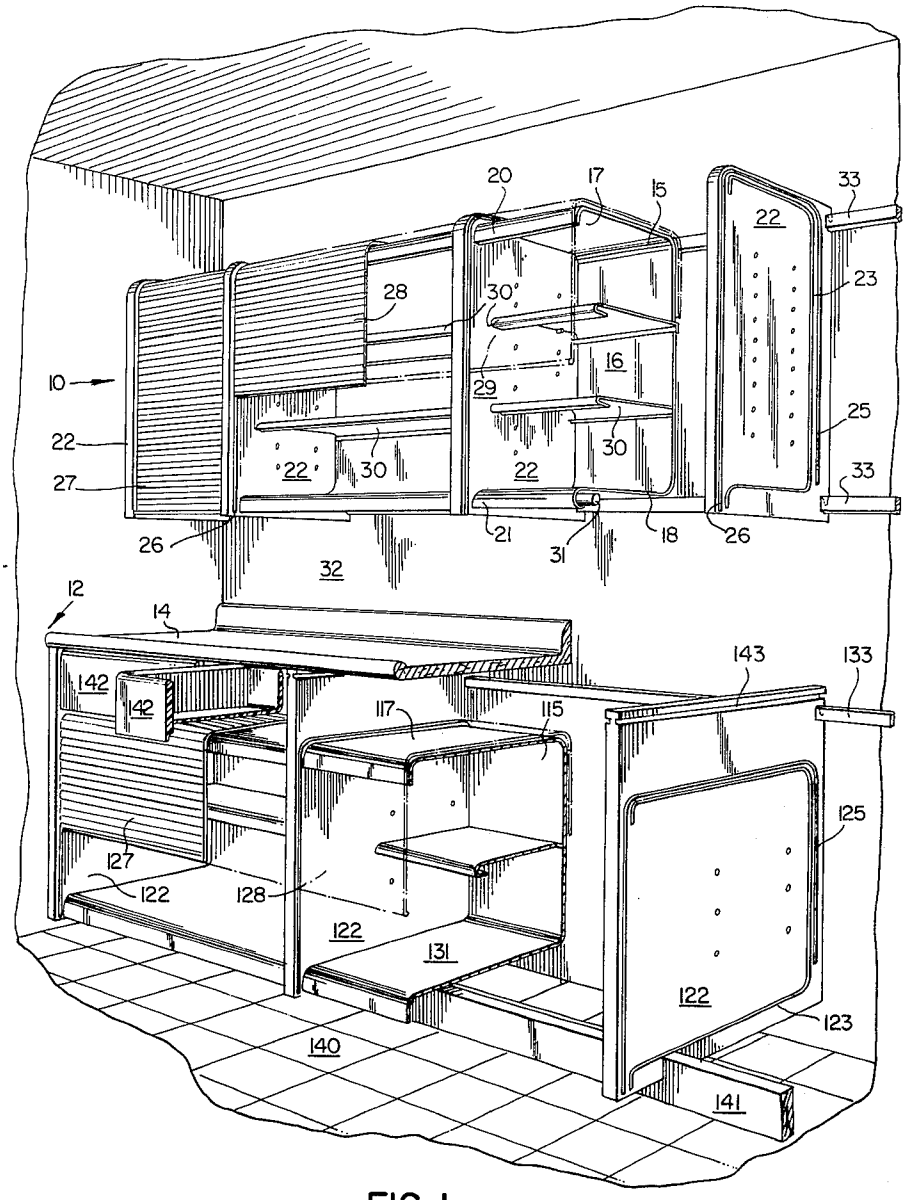

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FIG. 1

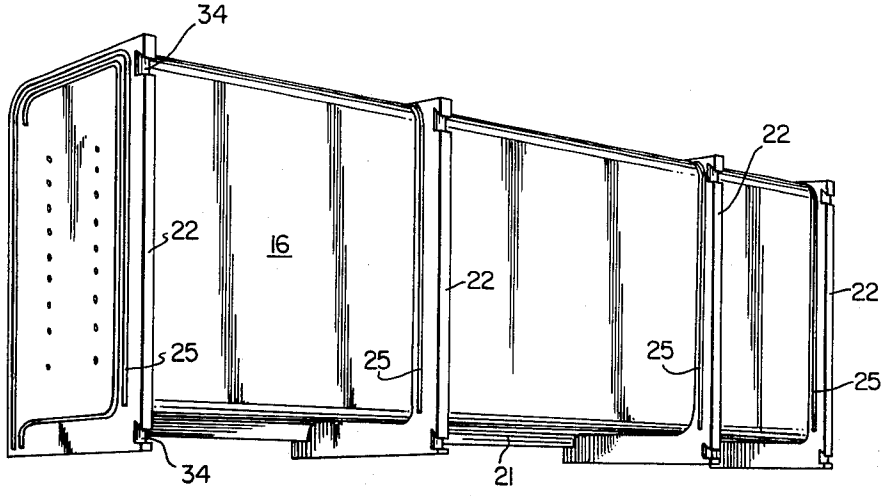

FIG. 2

STORAGE UNITS

The present invention relates to furniture components, to articles of furniture and to methods of constructing furniture, and is particularly, but not exclusively, applicable to fitted furniture.

One important use of the present invention is for cupboards and shelving for use as kitchen furniture or other storage furniture, for example in offices, parts of homes other than kitchens, hospitals, factories and stores.

Hitherto, fitted cupboards have usually been constructed by firstly assembling a plurality of frame members, made for example of wood, to form a frame, and then fitting a cladding for example plywood or a wood and plastics laminate, onto the frame. The cupboards are then fitted with the required doors, shelving and other accessories and if necessary with a countertop.

The construction of the frame usually requires the formation of a number of joints, which are time consuming and therefore relatively expensive to produce. In addition, if the furniture is manufactured in a factory for subsequent fitting in a room, it frequently happens that the length of the furniture does not correspond to the length of the wall along which the furniture is to be fitted. Consequently, it is necessary to leave a gap at one or both ends of the furniture or to cut to size special filler pieces for closing such gaps.

Manufacturers of kitchen furniture have sought to mitigate this disadvantage by manufacturing kitchen furniture in accordance with predetermined modules, but of course, it frequently happens that the rooms in which the furniture is to be fitted are not constructed with dimensions corresponding to these modules.

It is indeed possible to avoid or at least reduce the use of filler pieces by having the furniture specially constructed to the required size on site, but in this case the economic advantages of factory production are lost.

The present invention provides furniture components comprising at least two walls having slots extending therethrough, and sheet material the cross-section of which is shaped to fit slidably through the slots to allow the sheet material to be inserted through the slots and to extend between and at right angles to the walls.

In use, the sheet material can be cut to the required length, depending upon the length of a cupboard or cupboards or other article of furniture to be assembled from the components. The support is then inserted into the slots in the walls, and the walls can be slid into position along the sheet material and secured thereto.

Preferably, the sheet material, or at least a part thereof has a generally U-shaped cross-section for forming the top, bottom and back of a storage space in the furniture, in which case the slots each have a correspondingly generally U-shaped configuration. For example, the sheet material may be a channel-shaped extrusion of plastics material or may be formed by vacuum welding or any other suitable and convenient process from plastics material. The walls may also be formed from plastics material, e.g., by injection moulding. However, it is also envisaged that the walls and/or the sheet material may be made of other materials, for example metal, which may be painted or plastics coated metal, or wood, which may be in the form of a moulded wood laminate.

The components preferably also include doors. For example, the doors may be flexible "roll up" doors,

which may be formed in one piece of plastics material with transverse reinforcing ribs or bars and which may be shaped to slide along grooves of generally inverted U-shaped configuration formed in the walls. Alternatively, the walls may be provided with pivoted or sliding doors. In any case, it is preferable to make the doors so that they can readily be cut to length on site.

In addition, a motor may be provided for opening and closing the door.

A light fitting, for example, a fluorescent light fitting, may be provided for mounting on the support, which may for example be provided with a downwardly extending edge portion for concealing the light fitting.

The walls may further be provided with grooves for slidably receiving runners of drawers.

Suitable means may be provided for attaching the walls to the wall of a building. Such means may, for example, comprise an L-section support bracket for attachment to a building wall, the furniture walls being provided with correspondingly shaped recesses or notches enabling the furniture walls to be fitted into engagement with the brackets. The brackets may be in the form of bars, which may extend the length of the assembled furniture and assist in rigidifying the latter.

The present invention further provides an article of furniture comprising at least two walls having slots extending therethrough, and sheet material the cross-section of which fits through the slots, the sheet material being inserted through the slots and extending between and at right angles to the walls.

The present invention still further provides a method of constructing an article of furniture, which comprises the steps of cutting sheet material to a desired length, fitting the cut sheet material through slots in walls, sliding the walls along the sheet material into required positions, and securing the walls in said required positions to the sheet material.

The invention will be more readily understood from the following description of a preferred embodiment thereof, given by way of example with reference to the accompanying drawings, in which:

FIG. 1 shows a partly broken-away view, taken in perspective, of kitchen furniture; and

FIG. 2 shows a view taken in perspective of the rear of part of the furniture shown in FIG. 1.

The furniture illustrated in FIG. 1 comprises a wall-mounted assembly, indicated generally by reference numeral **10**, which includes a plurality of storage cupboards, and a floor- and wall-mounted assembly, indicated generally by reference numeral **12**, which also provides storage cupboards and which includes a preformed plastic laminate counter-top **14**.

The assembly **10**, which is also illustrated in FIG. **2**, is formed by sheet material in the form of a generally U-shaped frame member **15**, which forms a rear wall **16**, a top **17** and a bottom **18**. The top **17** and the bottom **18** each merge smoothly at the rears thereof with the rear wall **16**, and are formed at the fronts thereof with downwardly extending valence portions **20**, **21**, respectively.

The frame member **15** extends through four transverse walls **22**.

Each of the walls **22** is formed with a slot **23** extending through the whole thickness of the wall, the slot **23** having a shape which matches the cross-section of the frame member **15**, and allowing the respective wall **22** to be slid along the frame member **15**.

Each wall 22 is also formed on each of its opposite sides with a groove 25 extending outwardly of the opening 23 through only part of the thickness of the wall 22 and serving as a door guide groove.

The assembly is provided with four doors, of which one is not illustrated and the other three are indicated by reference numerals 27, 28 and 29, respectively. Each of these doors extends between an adjacent pair of the walls 22 and is slidably guided in the grooves 25 of those two walls. Moreover, each of the doors is formed in one piece from a flexible plastics material with transverse ribs and can readily flex, in accordance with the shape of the slots 25, when slid up or down in front of the channel frame member 15 to open and close the respective cupboard. Stops 26 are provided at the lower ends of the slots 25, at the front of the assembly 10, to retain the doors in the slots 25.

The assembly 10 is also provided with adjustable shelves 30, which are supported on conventional pegs projecting from openings in the walls 22.

Beneath the valence portion 21 of the frame member 15, there are provided fluorescent light fittings, of which only one is shown and indicated by reference numeral 31. The light fitting 31 is concealed by the valence portion 21 and serves to illuminate the countertop 14.

The assembly 10 is supported on a wall 32 of a room by means of channel-shaped support rails or brackets 33 of L-shaped cross-section, which engage in appropriately shaped recesses 34 (see FIG. 2) in the rears of the transverse walls 22.

The assembly 12 has transverse walls 122 formed with openings 123, through which extends a frame member 115 of generally U-shaped cross-section, and grooves 125 for roll-up doors of which only two are shown and indicated by reference numerals 127, 128. It will thus be readily seen that the construction of the assembly 12 resembles that of the assembly 10 in a number of respects. However, the assembly 12 is secured to the wall 32 by only one support rail 133, and is supported on a floor 140 by means of a wooden beam 141. The beam 141, as can be seen from the drawing, also supports bottom 131 of the frame member 115.

In addition, the assembly 12 is provided with drawers 142 having runners (not shown) which slidably engage in horizontal slots 143 formed in the transverse walls 122. The drawers 142 are also supported by horizontal portions of the doors 127, 128 extending above top 117 of the frame member 115.

Preferably, electric motors (not shown) are provided for opening and closing the doors of the assemblies 10 and 12. These electric motors may for example be in engagement with the doors through frictional drive discs or sprocket wheels, preferably via overload clutches, and may be provided with automatic cutout circuitry to prevent overheating of the electric motors if the doors should become jammed.

The above-described assemblies are constructed as follows.

Firstly, the support rails 33 and 133 are cut to size, depending on the length of the wall 32 or the desired lengths of the assemblies, if these are for example to be less than that of the wall 32, and the support rails 33 and 133 are then secured in position on the wall 32. Similarly the beam 141 is cut to length and mounted on the floor 140.

Next, the frame member 15 and 115 are cut to the appropriate lengths, and the required number of transverse walls 22 and 122 are fitted onto and slide along the frame members 15 and 115 respectively, until these walls are positioned at spacings corresponding to the widths of the cupboards which it is desired to form in the assemblies 10 and 12. The walls 22 and 122 may then be secured in position relative to the frame members 15 and 115, respectively, e.g., by inserting screws, dowels or other locking members through the edges of the walls into engagement with the frame members. At the same time, the roll-up doors are cut to length, if necessary. The edges of the roll-up doors are then fitted into the grooves 25 and 125, and the stops 29 are inserted to retain the doors.

In this way, the assemblies can readily be constructed so as to correspond in length to that of the wall 22 and to provide cupboards of any required length.

Finally, the fluorescent light fittings 31, the countertop 14, the drawers 142 and the electric motors are fitted into position.

The above-described furniture components may of course be modified. For example, if it is not intended to construct the assemblies so as to extend the whole length of the wall 32, then at least one end of each assembly may be provided with a transverse wall which is slotted on one side only and presents, on its other side, an aestethically pleasing flat uninterrupted surface. Alternatively, a cover, for example of plastics laminate, may be provided, for example, over the outer surface of an end wall 22 of one or each of the assemblies as shown in FIG. 1.

Instead of employing roll-up doors as described above and illustrated in the drawings, leaf doors, pivotally supported on the transverse walls, or sliding doors sliding in channels secured, for example, to the valences 20 and 21 may be employed. Alternatively, the doors may be omitted if open shelving is required. partially bya a) shaped part

The top, bottom and rear wall of each frame member described above are formed in one piece, and shapes of the frame members illustrated in the drawings have the advantage that the rear walls are joined to the tops and bottoms by curved portions which obviate corners which might act as dust and dirt-traps. However, for facilitating manufacture and/or transportation and storage of the components, it may be preferable to form the top, bottom and rear wall as at least three separate, e.g., flat, components, and to correspondingly modify the shape of the slots in the transverse walls.

Yet another possibility would be to provide instead of a frame member formed only of the top, bottom and rear walls, a support in the form of a beam, e.g., of extruded plastics material and arcuate cross-section, fitting into corresponding openings in the transverse wall and formed with a longitudinal slot for receiving a panel, which panel could, e.g., form the top, bottom or rear wall of the storage space.

I claim:

1. An article of furniture comprising:

a. at least two rigid vertical wall members;

b. means defining a substantially U-shaped slot extending through the entire thickness of each of said wall members;

c. a channel-shaped member formed from one piece of sheet material, said channel-shaped member having a substantially U-shaped cross-section cor-

responding to the shapes of said slots so as to extend through said slots and having an open side vertical and facing forwardly from said article of furniture; and

d. closure means secured to said article, said closure means being movable between a closed position, in which said closure means closes the open side of said channel-shaped member, and an open position, in which said closure means leaves said open side of said channel-shaped member open.

2. An article of furniture as set forth in claim **1**, and further comprising:

a. horizontal rail means for securing said article of furniture to a building; and

b. means defining in each of said wall members at least one recess for engagement with said rail means.

3. An article of furniture as set forth in claim **1**, wherein said channel-shaped member has a downwardly-extending valence portion, formed at each of its longitudinal edges with said slots through said wall members being shaped to accomodate said valence portions.

4. An article of furniture as set forth in claim **1**, wherein said vertical wall members have means defining inverted generally U-shaped grooves in mutually facing sides of said wall members, said grooves being disposed outwardly of said slots, and wherein said closure means comprises a flexible door having opposite side edges thereof slidably received in respective ones of said grooves.

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