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KNOCKDOWN SHELF AND CABINET STRUCTURE

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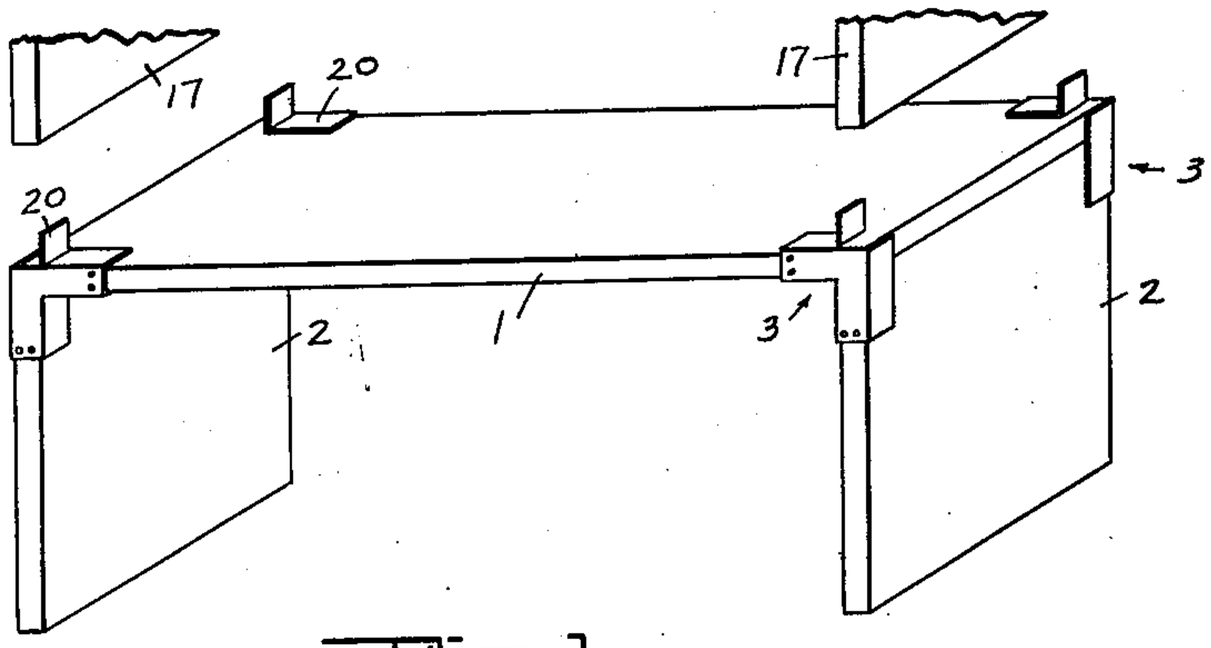

Fig. 1

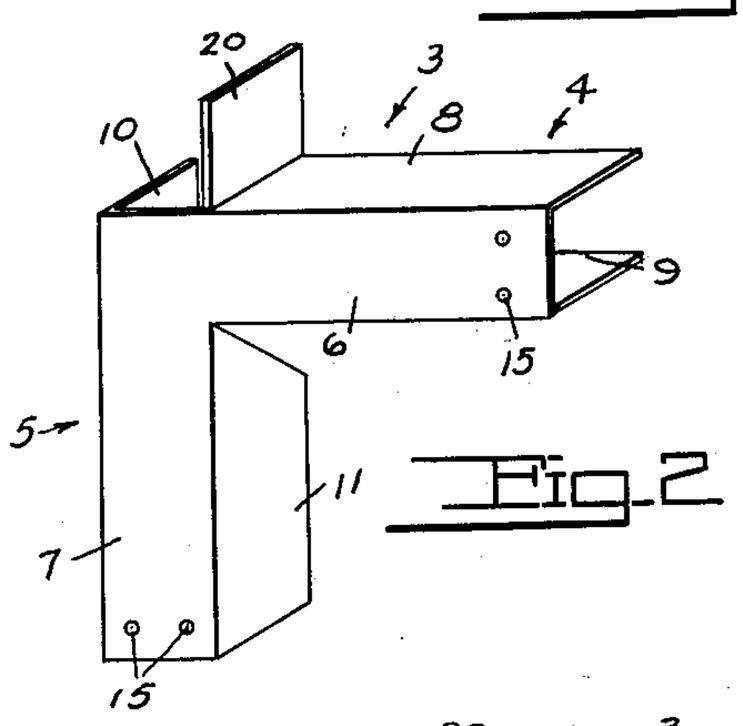

Fig. 2

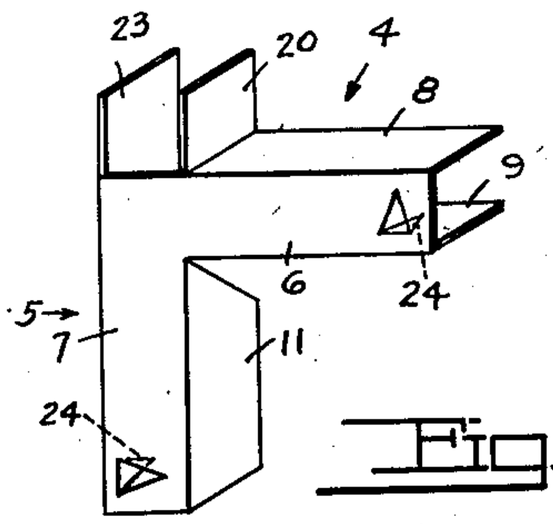

Fig. 3

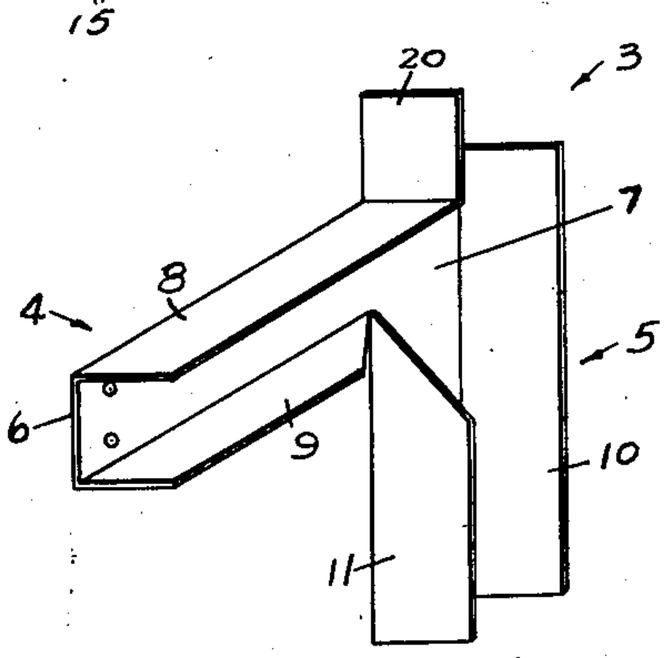

Fig. 4

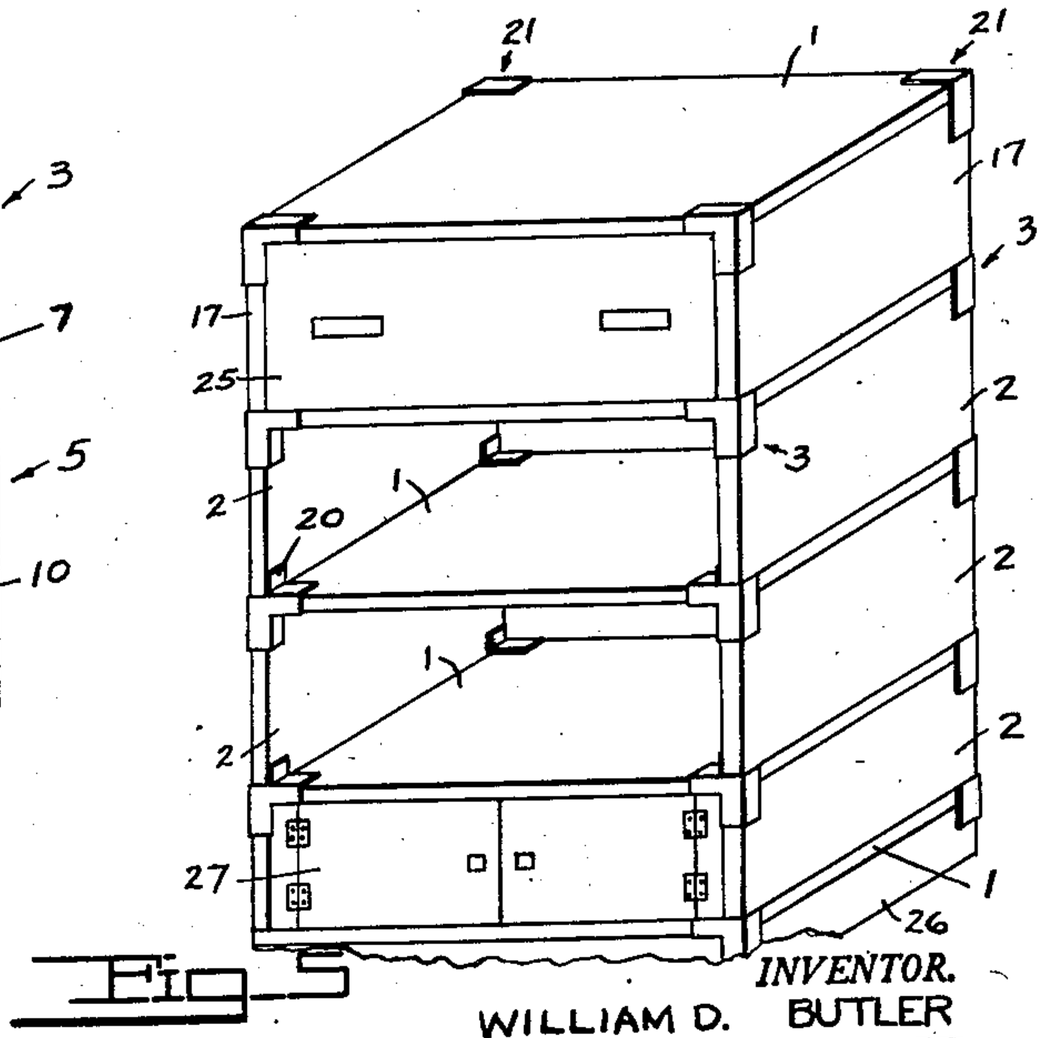

Fig. 5

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KNOCKDOWN SHELF AND CABINET STRUCTURE

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4 Claims. (Cl. 20—92)

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This invention relates to shelf and cabinet structure, and particularly to such structure that does not require the services of a skilled workman in setting up or taking down the same.

Heretofore in houses and apartments, as well as elsewhere, the need arises for additional shelf or cabinet space. Most closets have a considerable amount of unused space, such as between an existing shelf and the ceiling, or floor, or along one end or side. The fitting of shelves or cabinets having drawers or compartments in these unused spaces has heretofore required the services of a carpenter or cabinet maker, and once the installation is in place, it is permanent and cannot be removed without injury to the building.

One of the objects of the present invention is the provision of means to enable a person to set up any desired number of shelves, drawers, or cabinets, or combination thereof, in any desired space at little cost more than that of the actual lumber used, and which shelf or cabinet structure may be quickly installed and may be added to or reduced in size, as desired, by the user or completely knocked down to a flat, compact kit or pile of flat pieces without requiring the services of a skilled workman and without injury to the building in which the installation is made.

Other objects and advantages will appear in the description and in the drawings.

In the drawings,

Fig. 1 is an isometric view of a shelf and pair of supporting end pieces connected by separate members at each of the corners of the shelf, and a fragment of a pair of upper end pieces are indicated above the shelf at its ends showing how the connecting members are adapted to position the said upper end pieces when the latter are lowered onto the ends of the shelves.

Fig. 2 is an enlarged isometric view of one of the corner members.

Fig. 3 is a slightly reduced isometric view of a form of corner member that is slightly different from that of Fig. 2.

Fig. 4 is an isometric view of the corner member of Fig. 2 as seen from a different angle.

Fig. 5 is an isometric view of a tier of shelves in which a drawer and cabinet are included for showing different adaptations of the invention.

In detail, in Fig. 1 a rectangular shelf 1 is shown, which shelf is supported at its ends on the upper edges of vertical opposed, rectangular end pieces 2.

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It is to be noted that the shelf 1 and end pieces 2 are of the same depth and thickness. They may be, and many times are, cut from the same board.

Assuming one or more shelves are to be positioned at one end of a closet so as to fit between two of the side walls of the closet and against the end wall, the housewife, or whoever is making the installation will first measure the distance between the opposed side walls, which distance will be substantially the length of the shelf or of board 1. The distance between shelves or the height of the shelf above the floor or above an existing shelf will be the height of the end boards or end pieces 2. If boards of the desired length corresponding to the measurements taken are not in stock, it requires only a saw to cut the boards to such length, and even this is usually done by the supplier, and not the person installing the shelves.

After obtaining the boards, the person installing the shelves positions the shelf 1 on top of said end pieces so that the ends of the shelf rest on the upper edges of the end pieces. Special corner pieces 3 are then slipped over the upper corners of the end pieces and the adjacent corners of the shelf for connecting the shelf and end pieces.

Each of said corner pieces comprises a pair of channel portions 4, 5 that extend at right angles to each other, the portion 4 extending horizontally and opening laterally to receive therein an edge of the shelf 1 at one of its corners, while the portion 5 extends vertically and opens laterally to receive the edge of end piece 2 at its upper end.

The bottom or web 6 of each channel portion 4 thus extends across and in engagement with one end of one edge of the shelf that extends between the end pieces, while the bottom or web 7 of the channel portion 5 of each member extends over one of the vertical edges of each end piece at the upper end of the latter.

The opposed sides 8, 9 of the channel portion 4 extend over the upper and lower sides respectively, of shelf 1 at its corners, and opposed sides 10, 11 of the channel portion 5 extend over the outer end inner sides respectively, of each end piece at each corner thereof.

From the foregoing structure, it is seen that each member 3 substantially comprises a corner member formed with a right angle outwardly opening recess in which the edges of the shelf and end pieces are received at each of their adjacent corners.

The bottoms or webs 6, 7 of each of the legs or channel portions 4, 5 of the corner pieces may be formed with one or more openings 15 (Fig. 2) for nails or screws 16 (Fig. 1) that are adapted to extend through the same and into the shelf and end pieces.

The use of nails and screws is not absolutely necessary where the shelf 1 fits between the opposed side walls of a closet. Their principal use in any event is to hold the corner pieces in position against possible accidental separation from the shelf and end pieces.

In most instances, it is desirable to use more than one shelf. As seen in Fig. 1, it is only necessary to position other end pieces 17 corresponding with end pieces 2 on top of the ends of the shelf 1, and then another shelf corresponding to shelf 1 may be supported at its ends on the upper edges of end pieces 17 in exactly the same manner that shelf 1 is on end pieces 2. Corner pieces 3 are again used to hold such upper shelf on end pieces 17.

In installing the shelves in a closet, or in any desired position, it is sometimes found best to position each section (shelf and two end pieces below the ends) in the desired location before adding the upper sections, although there is no reason why a tier of a plurality of shelves could not be bodily moved into the desired location after being assembled at a point away from the latter.

In order to insure positioning of the end pieces 17 properly above a lower shelf, the upper sides 8 of channel portions 4 may have a section 20 cut away from the corner or juncture between the channel sections a distance substantially equal to the thickness of the respective end pieces, and then said section 20 is bent upwardly at right angles to the remainder of the channel section 4. Thus, end pieces 17 will rest directly on the shelf 1 along the entire lower edges of the end pieces and the projections 20 will engage the inner opposed sides of the end pieces 17 adjacent their lower corners.

In Fig. 5, all of the end pieces below the uppermost ones are designated by the numeral 2, although it is obvious that in each adjacent superposed pair one will be above the other. In each instance the shelves or partitions are identified by the numeral 1.

As seen in Fig. 5, where there is no occasion for adding another shelf, the uppermost corner members, generally designated 21 in Fig. 5, do not require the projections 20; therefore said projections may be bent down so as to be coplanar with the side 8 of the channel portion 4. Where the projection 20 is up at right angles to side 8, it will be seen that it is substantially coplanar with the side 11 of the channel portion 5 (Fig. 4).

Where the opposed walls of a closet or recess in a wall are close against the end members of the shelf assembly, the said walls will prevent any outward movement of the lower ends of said end members. Where the shelf assembly is not between such walls, the vertical side 10 of the channel portion 5 may be extended upwardly to opposed relationship to projection 20, as seen at 23 in Fig. 3. By this arrangement, the lower ends of the end pieces will be held between projections 20, 23 against movement to one side or the other. With the corner pieces of the construction shown in Fig. 3, the tabs or projections 20, 23 provide means for positively positioning a vertically disposed board or a horizontally elongated piece between said projections projecting oppositely outwardly therefrom and coplanar with a piece secured in the vertical channel portion therebelow, while another piece may be positioned in the horizontal channel portion having sides 8, 9. Thus a builder may employ quite a long piece extending between projections 20, 23 and between similar projections on other similar corner pieces, whereby such long piece will be enabled to tie the remaining structure together, a result that is impossible with conventional corner members that merely have channel portions extending at right angles to each other. It is also pertinent to note that the structure of Figs. 2, 3 enables a piece to extend oppositely outwardly of the ends of the frame members in the channel portions and away from the channel having sides 10, 11 and between projections 20, 23 (Fig. 3) or alongside projection 20 (Fig. 2) if and when desired.

Instead of nailing or screwing the corner members to the shelves and end members by nails or screws in openings 15, the bottoms or webs 6, 7 of the channel portions 4, 5 may be formed with sharpened, inwardly projecting elements 24 stamped from the bottoms 6, 7 adjacent their outer open ends. These elements may readily be driven into the edges of the shelf and end piece and will function to hold the corner member to said shelf and end piece. Also, said projections will hold the shelf rigid with the end pieces so that there can be no relative movement between them.

In Fig. 5 several of a considerable number of adaptations are shown. In this adaptation, the upper shelf 1 forms the top of the assembly, and the next to the top shelf forms the bottom of a compartment in which a drawer 25 is adapted to slide. If the drawer is out, the shelf still remains for use.

The lowermost shelf may be on a relatively low base 26 and said lowermost shelf forms the bottom of a cabinet in which swinging doors 27 may be easily installed to close the front side.

Obviously no drawers or doors may be used, or the assembly may have all doors or drawers between adjacent pairs of shelves, or any desired combination other than that shown may be made.

A single pair of spaced shelves would clearly form a sort of box with an open front side, and the wall against which the shelves are positioned will close the rear side. Any combined means (not shown) may be used to close the rear side, such as a panel, if so desired, the same being nailed or screwed to the shelves or end pieces, or both.

It is not intended that the invention be restricted to the exact arrangements shown in the drawings. The drawings are merely illustrative of preferred structure.

From a structural standpoint, it will be seen that economy is effected in using shelves and end pieces of the same thickness and width. Thus, any sections that may be cut off the shelves to accommodate the shelves to a particular place may possibly be used as end pieces in other installations. The supplier of shelves merely needs to have the simple and economically made channel section and pieces of lumber of the same thickness and width. With these, any shelf assembly can be easily effected.

We claim:

1. A corner member comprising a pair of jointed laterally opening channel portions extending at a substantial angle to each other and having coplanar webs integrally joined at the

adjacent ends of said portions, said respective portions having spaced opposed side walls extending laterally from said webs to the same side, one portion of said pair extending generally horizontally and the other portion of said pair extending generally vertically from one end of said one portion whereby each portion has an inner side wall defining the inner sides of the angle formed by said portions and an outer side wall defining the outer sides of said angle, a pair of flat, spaced, opposed projections formed integrally with the outer side walls of said portions at their adjacent ends and projecting outwardly of said outer side walls at their juncture, said projections being respectively coplanar with the inner and outer side walls of said other portion of said pair for receiving a frame member therebetween extending across the juncture between said webs and oppositely outwardly of said portions and said portions each being adapted to receive a frame member therein in adjoining relation at the adjacent ends of said portions and at an angle to each other corresponding to the angle between said portions.

2. The combination of horizontal and vertical members and a corner member positioning and securing said horizontal and vertical members together comprising a pair of channel portions extending at right angles to each other and integrally joined at their ends, one of said channel portions being fitted over a portion of said vertical member and the other of said channel portions being fitted over a portion of said horizontal member, a pair of spaced tabs being formed on said corner member, one of said tabs being an elongation of the outer side wall of said first mentioned channel portions and the other of said tabs being formed on the upper side wall of the other channel portion whereby an additional member being secured by said corner member will engage said tabs and project past the lateral edges thereof in both directions and at substantially right angles to each of said horizontal and vertical members.

3. A corner member for positioning and securing together horizontal and vertical members comprising a pair of channel portions extending at right angles to each other and integrally joined at their adjacent ends, one of said channel portions fitting over a portion of said vertical member, and the other of said channel portions fitting over a portion of said horizontal member, and a projection on said last mentioned channel portion extending upwardly to provide an upstanding tab adjacent the juncture between said channel portions parallel with one side of said first mentioned portion and coplanar with the other side of said first mentioned channel portion whereby an additional member being secured by said corner member will engage said tab and project past the lateral edges thereof in both directions and at substantially right angles to each of said horizontal and vertical members.

4. A corner member for positioning and securing together horizontal and vertical members comprising a pair of channel portions extending at right angles to each other and integrally joined at their adjacent ends, one of said channel portions fitting over a portion of said vertical member, and the other of said channel portions fitting over a portion of said horizontal member, a pair of flat spaced opposed projections on said last mentioned channel portion extending upwardly to provide upstanding tabs adjacent the juncture between said channel portions and parallel with the sides of said first mentioned channel portion, said tabs being respectively coplanar with the inner and outer sides of said first mentioned channel portion whereby an additional member being secured by said corner member will engage said tabs and project past the lateral edges thereof in both directions and at substantially right angles to each of said horizontal and vertical members.

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