

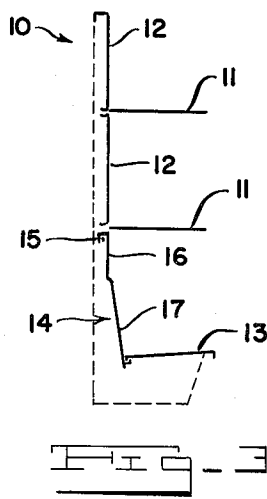
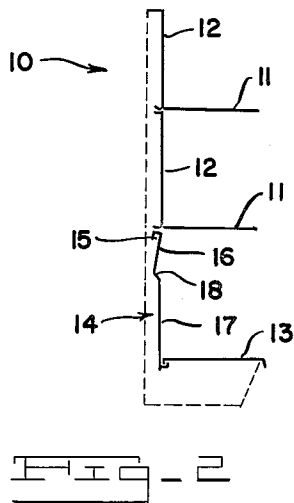
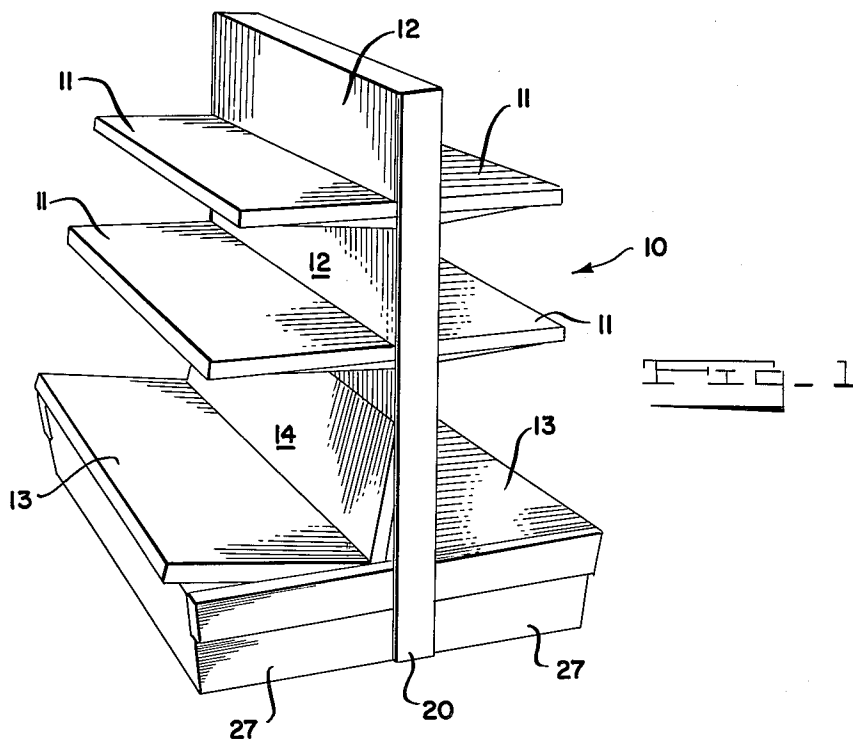
March 21, 1961

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SHELF CONSTRUCTION

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7 Sheets-Sheet 1



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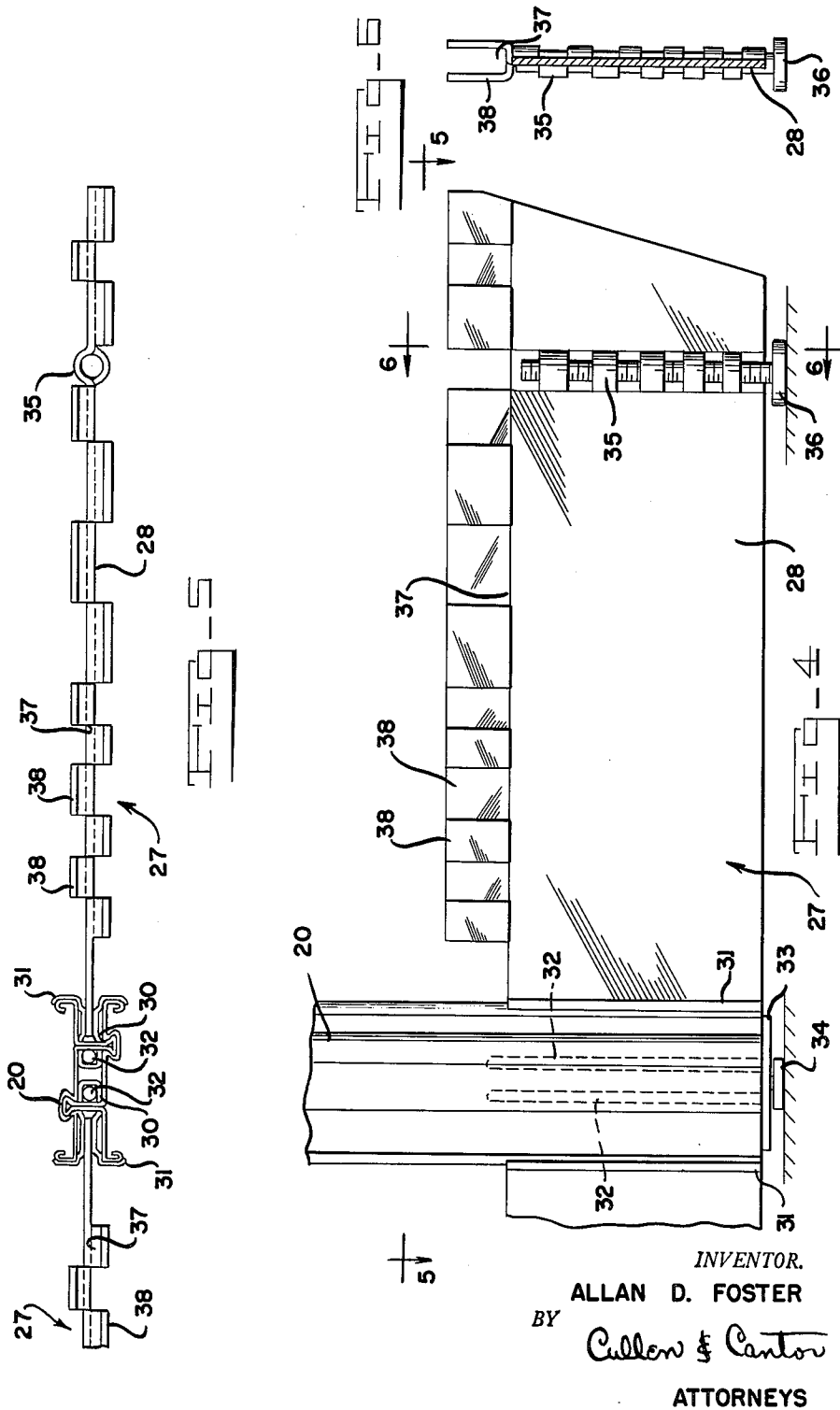
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7 Sheets-Sheet 2



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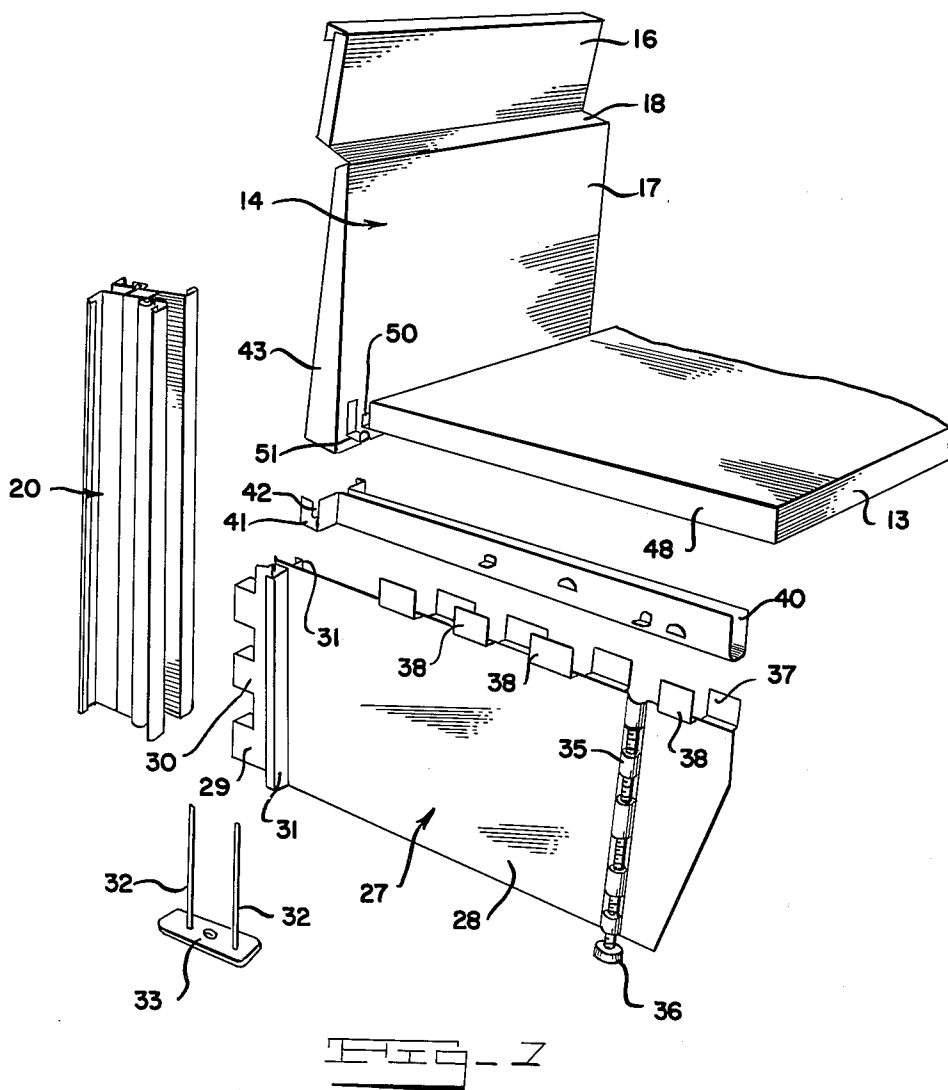
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7 Sheets-Sheet 3



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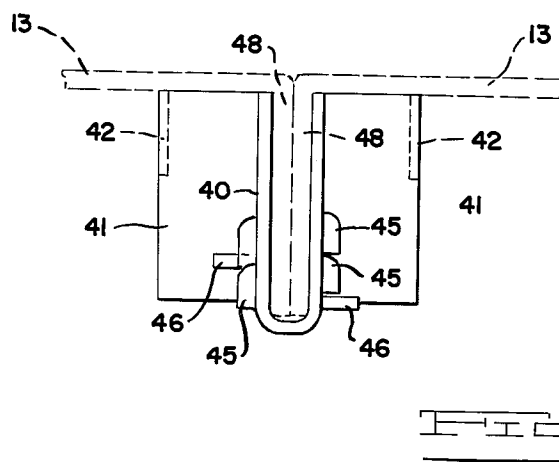
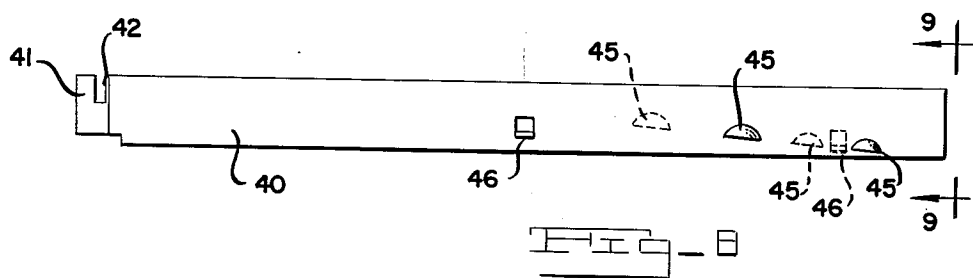
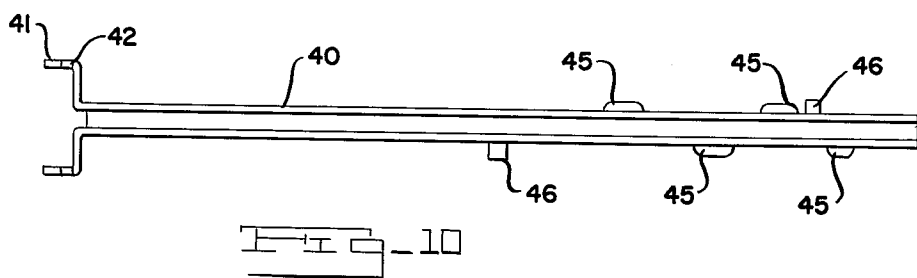
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7 Sheets-Sheet 4



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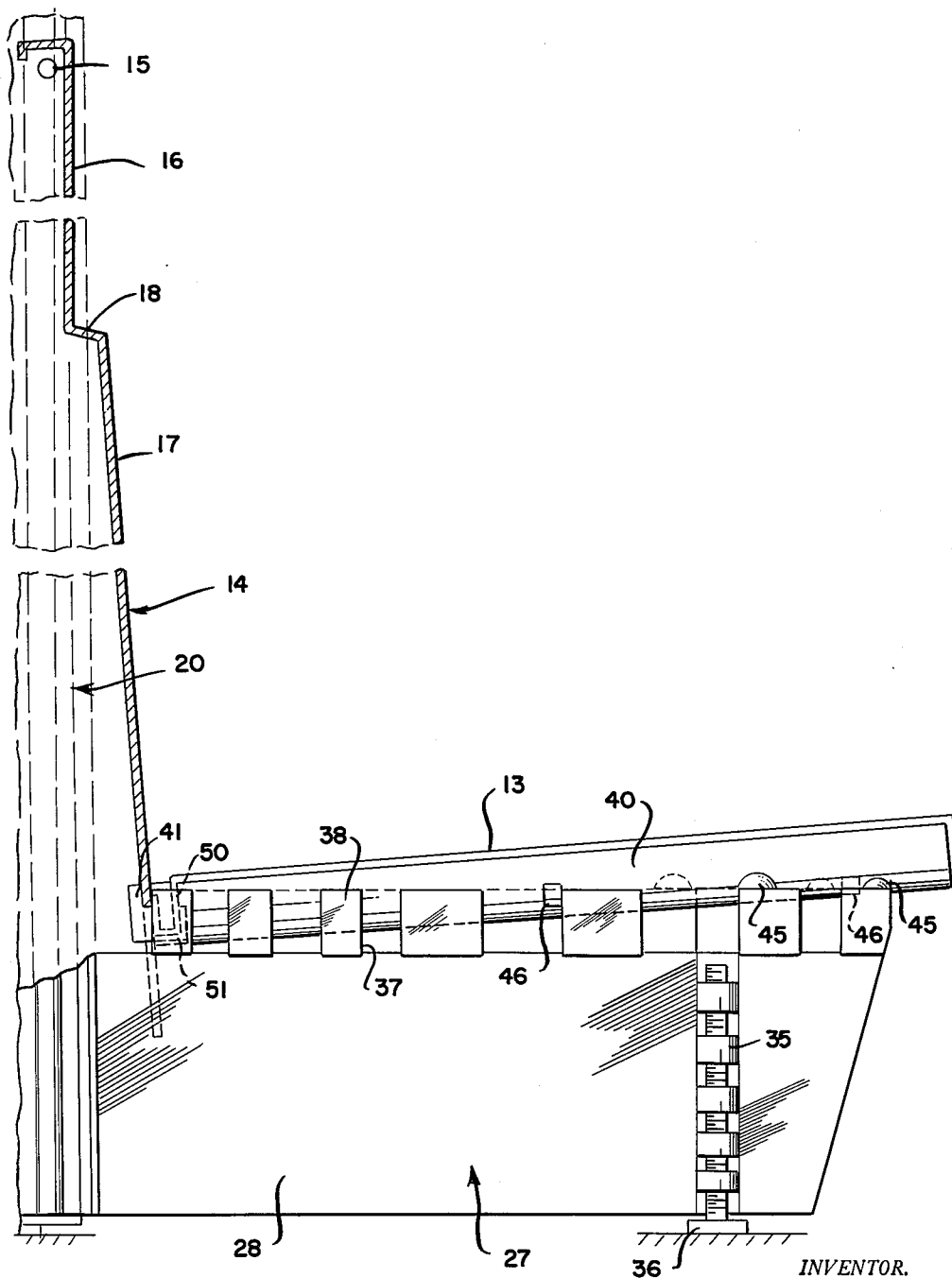
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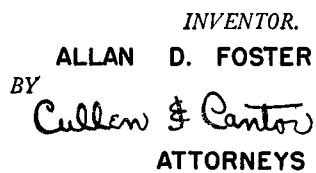
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SHELF CONSTRUCTION

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2,975,909

SHELF CONSTRUCTION

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6 Claims. (Cl. 211—150)

This invention relates to a shelf construction and more particularly to a tilting shelf arrangement useful for displaying merchandise in various types of stores.

In displaying merchandise in stores, it is common to use a wall type of shelving, which rests upon the floor, and also an island type of shelving where shelves extend outwardly from opposite sides of a center support. In such types of shelving, it is desirable, at times, that the bottom shelf be tilted relative to the horizontal to better hold or better display some particular articles of merchandise. At other times, it is desirable that the bottom shelf be horizontal.

Thus, it is an object of this invention to form a shelf construction with a bottom shelf which may be arranged either horizontally or tilted and which may be adjusted quickly, simply, without using any tools, and by one man using very little effort, and wherein the shelf construction may be assembled either as a wall unit or as an island unit.

A further object of this invention is to provide a base construction which will support the opposite ends of a shelf horizontally or tilted, and wherein a single base member may be used to support two shelves end to end to extend the length of the unit.

Another object of this invention is to form a tilting shelf arrangement having a back panel which is pivoted at its upper end and frictionally connected to the back of the tiltable shelf at its lower end so that the panel and shelf move as a unit and wherein the panel is formed so as to use a minimum arc or floor space when adjusted from one position to another and is formed so as to provide a minimum of interference with the display of merchandise on the shelf.

These and other objects and advantages of this invention will become apparent upon reading the following description of which the attached drawings form a part.

In these drawings:

Fig. 1 is a perspective view of an island shelf unit.

Fig. 2 is a schematic view of the shelf unit (assembled as a wall unit) and with the tiltable shelf in its horizontal position.

Fig. 3 is a view similar to Fig. 2 but with the tiltable shelf in its tilted position.

Fig. 4 is an elevational view of the base and its connection to the support column.

Fig. 5 is a view taken in the direction of arrows 5—5 of Fig. 4, and

Fig. 6 is a view taken in the direction of arrows 6—6 of Fig. 4.

Fig. 7 is an exploded perspective illustration of various parts forming the shelf support and tilting arrangement.

Fig. 8 is an elevational view of the adapter, per se.

Fig. 9 is an enlarged end view of the adapter taken in the direction of arrows 9—9 of Fig. 8.

Fig. 10 is a top view of the adapter shown in Fig. 8.

Fig. 11 is a view, partially in cross-section of the

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column, base, adapter, panel, and with the shelf being in its horizontal position.

Fig. 12 is a view similar to Fig. 11 but with the shelf in its tilted position.

Fig. 13 is an enlarged cross-sectional view, showing two shelves end to end and taken in the direction of arrows 13—13 of Fig. 11.

Fig. 14 is an enlarged cross-sectional view taken in the direction of arrows 14—14 of Fig. 11.

In Fig. 1, an island shelf unit 10 is illustrated. This unit consists of a plurality of shelves 11 with back panels 12 arranged vertically behind the shelves and with a lower, tiltable shelf 13 and a tiltable back panel 14. The unit could be assembled as an island with shelves extending from its opposite sides, or as a wall unit with shelves extending only from one side (see Figs. 2 and 3). The construction herein is easily adapted to either arrangement of the shelves by simply omitting certain of the parts.

The tiltable bottom shelf 13 is arranged to be either horizontal or tilted relative to the horizontal as shown in Figs. 1, 2 and 3. Back panel 14 is arranged to move with the shelf. It is supported at its top by hinges 15, which may be in the form of pins connected to columns 20 (described below) and small openings formed in the panel to receive the pins, for swinging about a horizontal axis.

The panel 14 is formed out of a single thin sheet of a material such as thin sheet metal and is bent into an upper flat portion 16 and a lower flat portion 17 connected by a step portion 18. As can be seen in Figs. 2 and 3, the flat portions are so arranged relative to each other, that the lower portion 17 is perpendicular to the upper surface of the shelf 13 and is thus vertical when the shelf is horizontal. At this time, the upper portion 16 extends downwardly and rearwardly of the shelf as shown in Fig. 2. Conversely, when the shelf is tilted forwardly and upwardly, the upward flat portion 16 is vertical and the lower flat portion is arranged at an angle to the vertical. With this arrangement, a minimum of space is used by the panel and the panel is formed so as not to interfere with the storage of merchandise on the shelf.

The supporting structure for the shelf construction includes a pair of spaced apart, vertical, support columns 20 (see Figs. 5 and 13). Each support column is formed of two identical halves 21, each having bent therefrom tongues 22 having enlarged heads that fit into bent channels 23 of the opposite halves. The two halves are assembled by simply sliding one into the other. The tongues form walls which are provided with a series of spaced apart slots 24.

In order to support the vertical columns, each column is provided with a base member 27 (see Figs. 4 and 7). If the shelf is to be assembled as a wall type of shelf, (as in Fig. 2) then only one base member is provided for each vertical column. Where an island construction (see Fig. 1) is desired, then two base members are used for each vertical column. Each base member is formed of a vertically arranged plate 28 having a connecting means at its rearward end. This connecting means is formed of a U-shaped channel member 29 welded or otherwise secured to the end of the plate which is fitted into the channel. The channel is cut out at places to form loops 30 which are inserted through the slots 24 in the tongues 22 of the support column. The channel members 29 are provided with side flanges 31 which extend around the outside of the vertical column for added rigidity (see Fig. 5).

The loops 30 are retained within the slots 24 by means of a fastener consisting of a pair of vertically arranged

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pins 32 secured to a bottom plate 33. The pins enter the space between the loops 30 and the tongue 22 through which the loops are passed. The pins will engage either one or two base members depending upon how many are used. Also, the bottom plate 33 may be provided with an adjustable screw 34 which contacts the floor and may be adjusted to level the unit.

Each base member is provided with a socket 35 formed by alternately striking out loops in opposite directions from the plate to form a circular in cross-section socket which is threaded and which receives a threaded bolt 36 also used for the purposes of resting upon the floor and acting as a levelling means.

The top of each of the plates 28 is provided with a channel 37 which may be formed by splitting the top into tabs 38 and bending the tabs oppositely so as to form a continuous channel extending the length of the plate, but with the channel having side walls that are interrupted.

An adapter 40, in the form of an elongated U-shaped channel is fitted into each of the channels 37 of the base plates 28. Referring to Figs. 8-10, the adapter 40 is provided with bent flanges 41 on its inner rearward end with slots 42 formed in the flanges. These flanges fit around the support column above the flanges 31 of the base. A portion of the tilting panel 17 adjacent each side flange 43 fits into these slots 42, as shown in Figure 13, to connect the bottom part of the panel to the adapter. Each adapter is provided with struck out support lugs 45 as its sides and also struck out stop lugs 46. As shown in Figs. 11 and 12, the lugs normally fit into spaces where the channels on the base plates are interrupted so that these lugs extend outwardly of the channel 37.

However, the adapter may be pulled forwardly with its front end tilted upwards (see Fig. 12) wherein the lugs 45 rest upon the top of the tabs 38 defining the channel 37, to thus support the adapter in a tilted position. The stop lugs 46 act as stop means to contact the vertical edges of the tabs to limit the forward and rearward motion of the adapters in the channel 37.

The tiltable shelf 13 is provided with downwardly depending end flanges 48, which extend into the adapter 40 (see Fig. 9). Where a bank of separate shelf units are assembled together and it is desired to interconnect the adjacent tilting shelves to maintain them in a planar relationship, the flange 48 of the second tiltable shelf may also be inserted into the same adapter so that the adapter holds two flanges 48 of two shelves 13 that are aligned end to end.

The rear end of the shelf 13 is provided with an upwardly opening channel 50 which may extend its entire length and be bent from the sheet forming the shelf (see Figs. 11, 12 and 13). Tongues 51 are struck out of the back panel 14. The series of tongues 51 are bent to receive the channel 50 (see figures 11 and 12) and thereby frictionally interlock the panel 17 to the shelf 13 so that the two move together as if they were of one piece.

In operation, the shelf is assembled by first assembling the base members 27 to the vertical columns 20 by inserting their loops 30 through the slots 24 in the vertical columns and then by inserting the pin connectors 32. Thereafter, the levelling bolts 34 and 36 are adjusted to level the shelves. Then, the adapters 40 are inserted into the channels 37 of the base members so that they fit completely within their channels.

Next, the back panel 17 is suspended from its pins 15 so it hangs down freely but with its bottom edge portions which are adjacent flanges 43 fitted into the slots 42 of the adapters. Thereafter, the shelf 13 is arranged so that its flanges 48 fit into the adapters and so that its channel 50 fits into the bent tongues 51 to rest between the tongues and the surface of the back panel 14.

In this condition, the shelf is horizontal and may stay that way for as long as is needed. Where it is desired to tilt the shelf, the adapter is grasped at its forward end

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and is pulled forwardly and upwardly so that the lugs 45 rest upon the top edges of tabs 38 defining the channel 37. The shelf 13 moves with it as does the rear panel 14, and the shelf is then in its tilted position.

This invention may be further developed within the scope of the following attached claims. Accordingly, it is desired that the foregoing description be read as being merely illustrative of an operative embodiment of this invention and not in a strictly limiting sense.

I now claim:

1. A shelf construction comprising a base member in the form of a substantially vertically arranged plate having a forward end, the top edge of the plate being formed into an upwardly opening, base channel having side walls which are interrupted in places, with the channel being substantially horizontally arranged; a tilting adapter in the form of an elongated, upwardly opening, channel shaped strip shaped to extend the length of and be received within said base channel, lugs formed on a side of the strip, the lugs normally being positioned at the places where the base channel side walls are interrupted so as to extend out of the side of the base channel, the adapter being slidable forwardly a short distance within the base channel by lifting the forward end of the adapter upwards, out of the plate channel to thus tilt the adapter relative to the base channel, and the lugs being formed to rest on top of the base channel walls when the adapter is so tilted, to support the adapter in its tilted position; and a shelf in the form of a flat surface having at least one depending side flange fitted within the adapter channel whereby the flat surface may be arranged substantially horizontally when the adapter is completely fitted in the base channel and may be tilted at an angle corresponding to the angle of tilting of the adapter when the adapter is tilted.

2. A shelf construction comprising a base consisting of a pair of substantially vertically arranged plates each having a forward end, the plates being spaced apart from one another and arranged to support the opposite ends of a shelf extending between them; each of said plates being provided with an upwardly opening, base channel formed on a top thereof with the two channels being parallel and substantially horizontal and with the side walls of each channel being interrupted in places; an adapter fitted into each channel, the adapters being identical and each being in the form of an elongated, upwardly opening channel of a size to fit within their respective base channels, and each adapter having lugs formed on at least one side thereof, the lugs normally being positioned at the places where the base channel side walls are interrupted, and normally extending out of the sides of the base channels, the adapters being movable forwardly within their base channels by lifting the forward end of each adapter upwardly out of their base channels to thereby tilt the adapters relative to their channels and with their lugs resting on top of the base channel walls to support the adapters in their tilted position; and a shelf having a top surface and opposite ends provided with downwardly depending flanges, with the flanges each fitted into an adapter whereby the angle of the top surface of the shelf may be adjusted by positioning the adapters horizontally within the base channels or by tilting the adapters.

3. A construction as defined in claim 2 and wherein each of the adapters is provided with at least a pair of stop lugs formed on the sides thereof and extending away from the sides of the adapters, the top lugs being arranged to fit within the interruptions to the walls of the base channels at all times and being arranged to engage the edges of the base channel walls which edges are formed by the interruptions thereto, to thus limit the amount of endwise movements of the adapters relative to their base channels.

4. A construction as defined in claim 2 and including an upwardly extending column connected to the rear

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end of each of the plates; a shelf back in the form of a substantially vertically arranged panel positioned between the columns and having its side edges each closely adjacent to one of the columns, the panel being hingedly connected at its top edge to each of the columns for hinging action about a horizontal axis, and having its bottom edge rigidly connected to the shelf for swinging of the panel along with movement of the shelf.

5. A construction as defined in claim 4, and wherein the bottom edge of the panel is connected to the rearward edge of the shelf by means of an upwardly opening channel formed along the rearward edge of the shelf, and a plurality of tongues struck out of the panel, the tongues being bent upwardly to tightly receive and hold the channel between the tongues and the surface of the panel.

6. A shelf construction comprising a pair of spaced apart vertically arranged columns, each column having at least one base supporting said column; a substantially vertically arranged back panel extending between the

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columns and having side edges, each closely adjacent to a column, the upper end of the back panel being hingedly connected to the columns for swinging the panel about a horizontal axis; a shelf at the bottom of the panel, said shelf having a rear edge adjacent to the panel and means connecting said rear edge to the panel, said means for connecting the shelf to the panel consisting of a continuous, upwardly opening channel bent from the rear edge of the shelf and struck-out tongues bent from the panel, with the tongues receiving the channel and frictionally holding the channel between the tongues and the panel whereby the panel and the shelf may be moved as a unit and means on said base for selectively supporting the shelf in a horizontal position or in a tilted position relative to the horizontal.

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