April 28, 1964 I. W. SHELL 3,130,693

BRACKET SUPPORT STRUCTURE

Filed March 14, 1962 4 Sheets-Sheet 1

Fig. 1

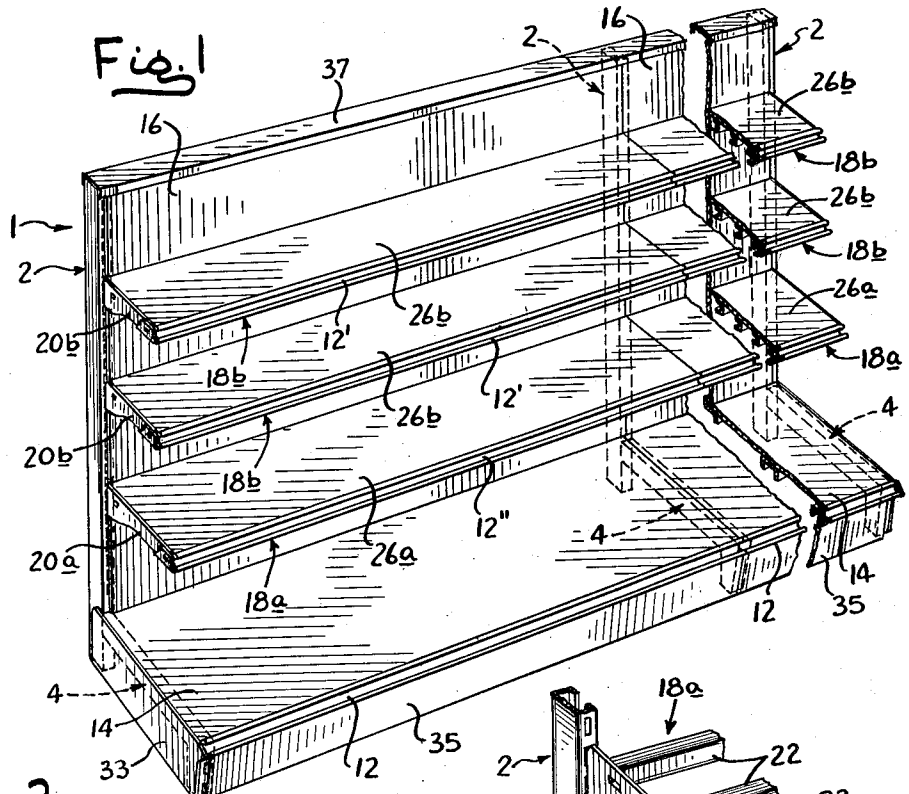


Fig. 2

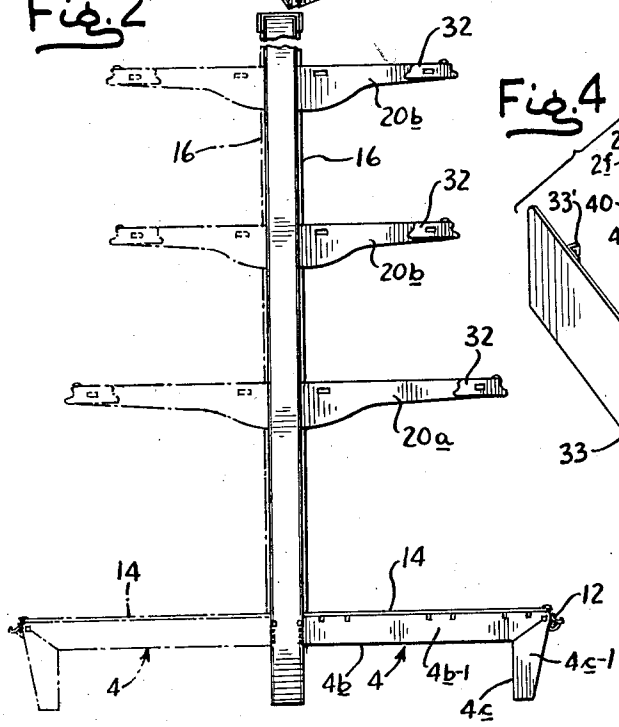


Fig. 4

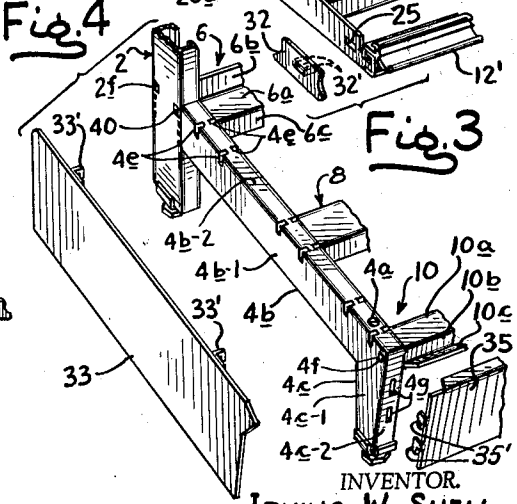


Fig. 3

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BRACKET SUPPORT STRUCTURE

Filed March 14, 1962 4 Sheets-Sheet 2

Fig. 5

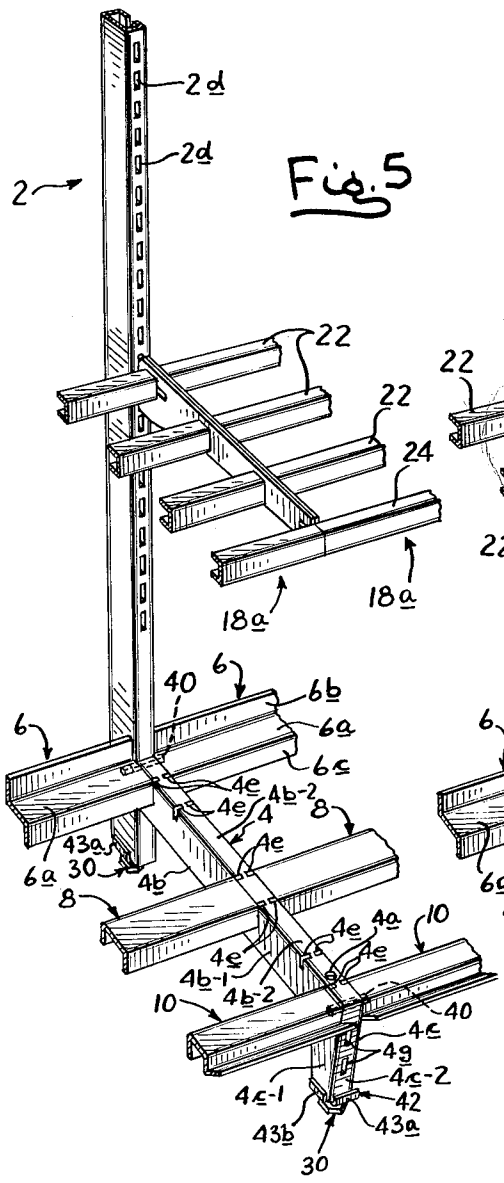
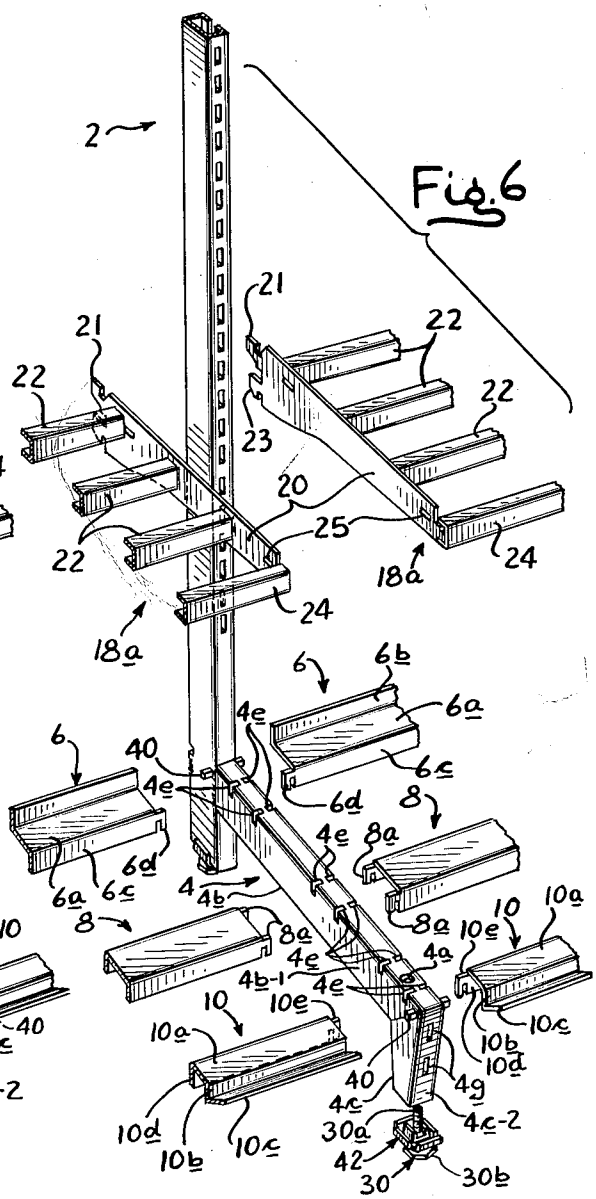


Fig. 6



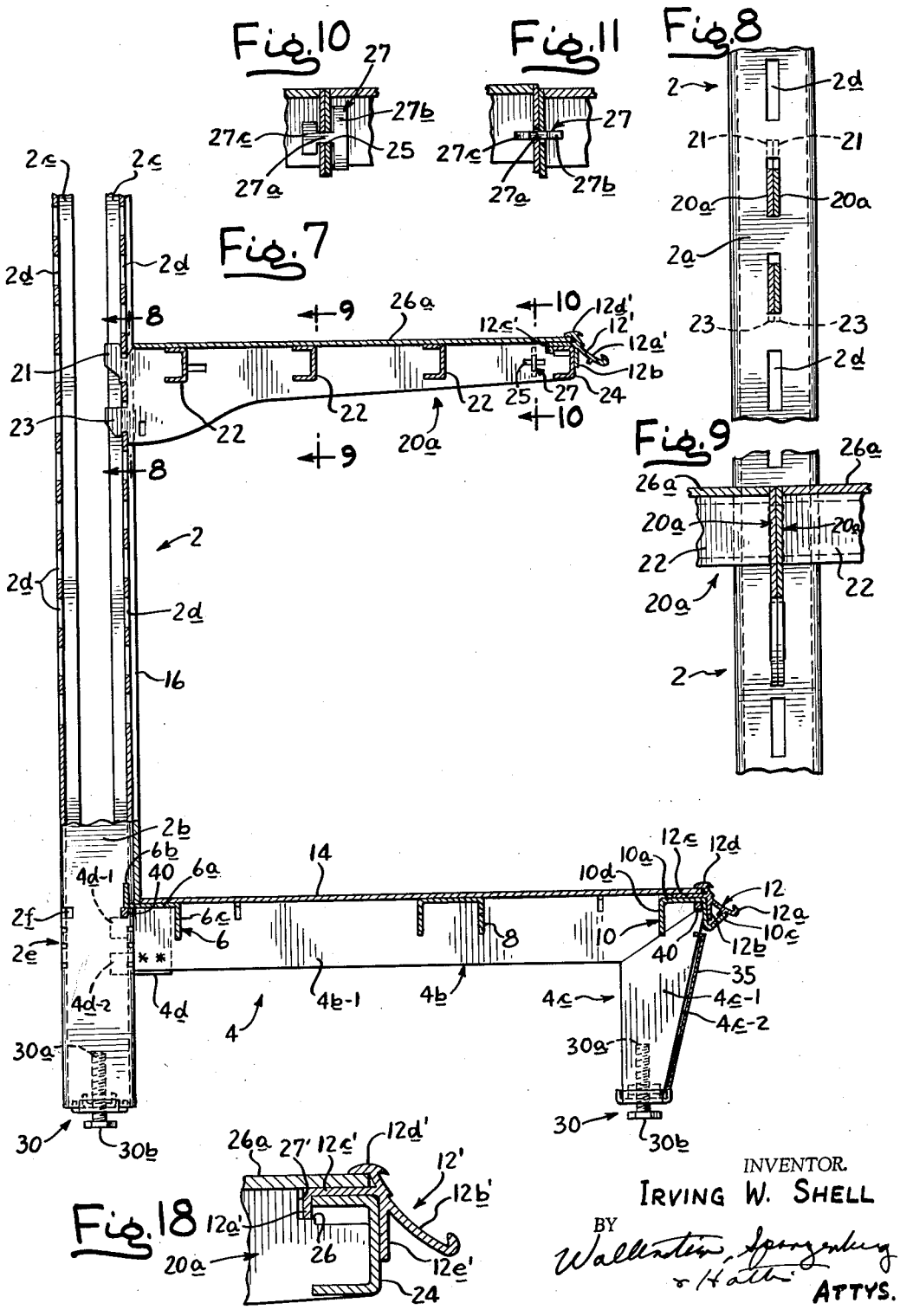
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BRACKET SUPPORT STRUCTURE

Filed March 14, 1962 4 Sheets-Sheet 3



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April 28, 1964 I. W. SHELL 3,130,693

BRACKET SUPPORT STRUCTURE

Filed March 14, 1962 4 Sheets-Sheet 4

Fig. 12

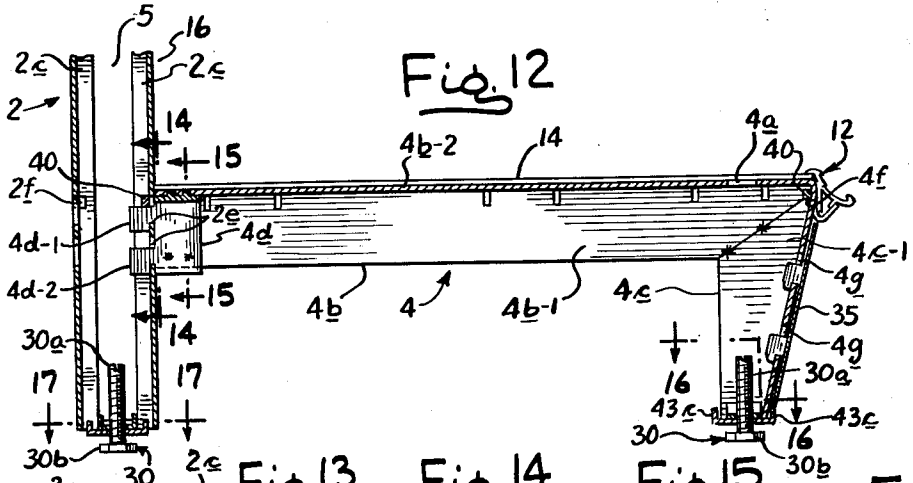


Fig. 13

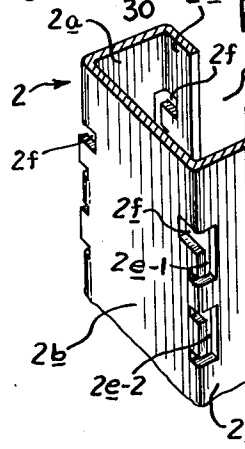


Fig. 14

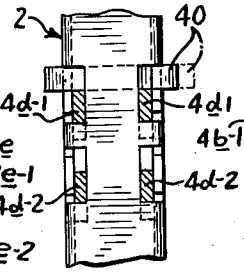


Fig. 15

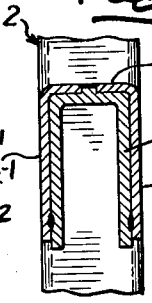


Fig. 16

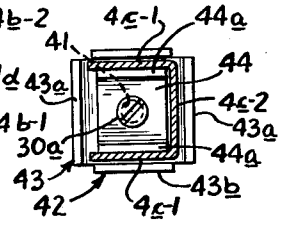


Fig. 17

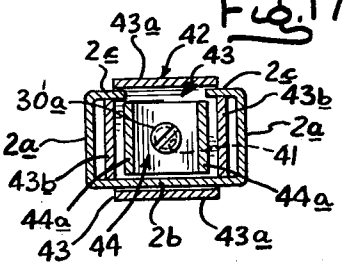


Fig. 13A

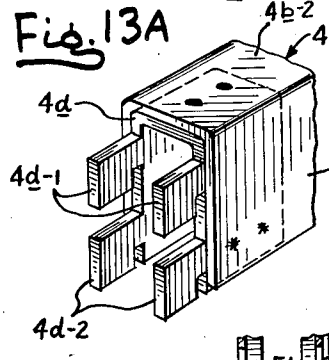


Fig. 20

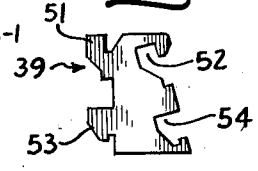
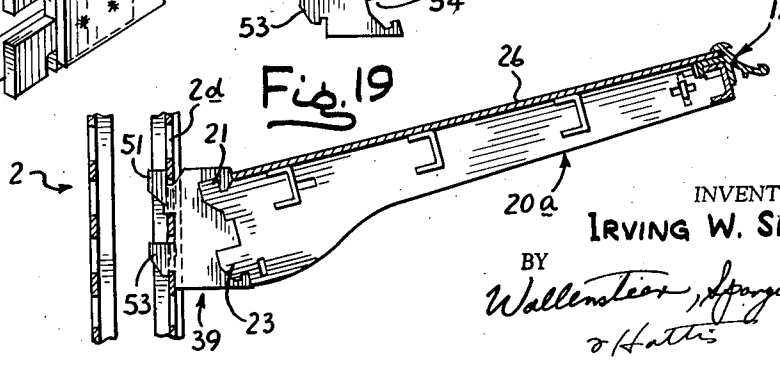


Fig. 19



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3,130,693

BRACKET SUPPORT STRUCTURE

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Filed Mar. 14, 1962, Ser. No. 179,708
14 Claims. (Cl. 108—108)

The present invention relates to bracket support structure which, for example, has utility for supporting shelving of the type used frequently in supermarkets for displaying food and other articles either along walls or in the middle of the floor.

The shelving in supermarkets and the like are commonly supported from brackets extending from slotted uprights. Where the shelving is located at a point spaced from the walls of the room, the uprights form part of a shelf supporting structure where the uprights contact the floor to form points of support for the structure. The uprights are usually provided with forwardly projecting leg units which form additional points of support spaced from the uprights. These leg units commonly have horizontally forwardly extending elevated portions welded to the bottom portions of the associated uprights and terminating in depending front portions which contact the floor. Horizontal frame members extend between the uprights and the front and middle portions of the leg units to provide a stable and rigid support structure.

It is an object of the present invention to provide a bracket support structure of the type described above which is self supporting and is made of small compact and sturdy parts which can be readily assembled preferably without the need for screws, bolts or the like with a minimum of effort. A related object of the invention is to provide bracket support structures as just described wherein the uprights, leg units and frame members are completely separate units before setup of the structure and so can be readily stored in a minimum of space and can be shipped and handled with a minimum of effort. A still further related object of the invention is to provide bracket support structure as just described wherein all of the uprights, leg units and frame members are constructed to form either right or left hand members, thereby reducing the number of different parts out of which the structure is made.

Still another object of the invention is to provide bracket support structure as above described which is of relatively simple and economical construction.

A still further object of the present invention is to provide bracket support structure as described above wherein the elevation of the leg units and the uprights can be readily adjusted at any time.

Another object of the invention is to provide shelf support structure where the shelving comprises spaced brackets having hooked extensions adapted to hook into slots in a pair of uprights, the uprights being designed to accommodate right and left hand shelf assemblies at any one of a number of selected elevations, and including means for tieing together the adjacent shelf assemblies so that the two are maintained at precisely the same elevation even though they are supporting different weights which would normally result in different deflections of the shelf assemblies. A related object of the invention is to provide a shelf support structure as just described wherein the adjacent shelf assemblies are so designed that they can receive price card receiving moldings which can be mounted in abutment, so that a neat appearance is provided without the use of masking elements for masking the spaces between the moldings.

Other objects of the invention, and the features thereof which accomplish the various objectives of the invention, will be apparent from a reading of the specification to follow, the claims and the drawings wherein:

FIG. 1 is a perspective view of bracket support structure incorporating the features of the present invention;

FIG. 2 is an end elevational view of the structure shown in FIG. 1;

FIG. 3 is an enlarged fragmentary perspective view of the structure of FIG. 1 illustrating particularly the construction of the shelf assemblies forming a part thereof;

FIG. 4 is an enlarged exploded perspective view showing the bottom of an outer upright, a leg unit detachably connected thereto, and cover plates which are attached to the leg unit shown therein;

FIG. 5 is an enlarged fragmentary perspective view of the center portion of the structure shown in FIG. 1, showing the manner in which contiguous shelf units and horizontal frame members are related respectively to the center upright and center leg unit;

FIG. 6 is an enlarged view corresponding to FIG. 5 showing the different elements therein detached from the upright and leg unit;

FIG. 7 is an enlarged fragmentary transverse sectional view through the center upright and a shelf unit and leg unit supported thereby;

FIG. 8 is a vertical sectional view, taken substantially along the line 8—8 in FIG. 7;

FIG. 9 is a vertical sectional view, taken substantially along the line 9—9 in FIG. 7;

FIG. 10 is a vertical sectional view, taken substantially along the line 10—10 in FIG. 7;

FIG. 11 is an enlarged view corresponding to FIG. 10 showing the manner in which a shelf assembly tie key is inserted into the contiguous slots of contiguous shelf units;

FIG. 12 is an enlarged fragmentary transverse sectional view through a leg unit and the associated upright showing the manner in which the leg unit is detachably secured to the upright;

FIG. 13 is an enlarged perspective sectional view through one of the uprights forming the structure of FIGS. 1 and 2;

FIG. 13A is an enlarged perspective fragmentary view of the rear portion of a leg unit which detachably connects with the portion of the upright shown in FIG. 13;

FIG. 14 is an enlarged vertical sectional view, taken substantially along the line 14—14 in FIG. 12;

FIG. 15 is an enlarged vertical sectional view, taken substantially along the line 15—15 in FIG. 12;

FIG. 16 is an enlarged horizontal sectional view, taken substantially along the line 16—16 in FIG. 12;

FIG. 17 is an enlarged horizontal sectional view, taken substantially along the line 17—17 in FIG. 12;

FIG. 18 is an enlarged transverse sectional view through one of the shelf assemblies showing the manner in which the price card receiving molding is supported thereon;

FIG. 19 is a transverse sectional view through an upright and shelf unit with a shelf inclining attachment interposed between the upright and the shelf unit to incline the latter with respect to the horizontal;

FIG. 20 is a view of the shelf inclining attachment shown in FIG. 19.

Referring now to FIGS. 1 and 2, a shelf structure is shown including a self-supporting frame 1 including three laterally spaced identical hollow uprights generally indicated by reference numeral 2. Each of the uprights preferably has a rectangular form (FIG. 13) with relatively narrow outwardly facing walls 2*a*—2*a*, a bridging side wall 2*b* extending between corresponding side margins of the outer walls 2*a*—2*a*, and narrow, coplanar side walls or flanges 2*c*—2*c* extending inwardly from the other side margins of the outer walls. The confronting edges of the flanges are spaced apart to form a relatively large vertical opening 5. Each of the uprights 2 is adapted to form either a left hand, right hand or intermediate upright. When an upright is placed at one end of the shelf struc-

ture, it is oriented so that the bridging walls 2*b* faces outwardly to form a finished side wall surface.

Each of the outer walls 2*a*—2*a* of each of the uprights are identically slotted, there being two types of slots. One type comprises vertical bracket-receiving slots 2*d* (FIG. 7) which are spaced along most of the height of the upright starting from a position spaced above the bottom thereof. The other type of slots are leg unit-receiving slots generally indicated by reference numeral 2*e* which are located near the bottom of each of the uprights. One unique and important feature of the invention relates to the relationship of these slots to the horizontally extending leg units 4 and to a locking pin to be described which results in the secure attachment of the leg units 4 to either or both of the outer walls 2*a*, without the need of bolts or screws.

Each leg unit 4 like each upright 2 is uniquely designed to be used at any position in the shelf structure. The bottom portions of the uprights and the leg units are tied together by means of specially designed frame members to be described of three different types. One type is a rear or inner horizontal frame member 6 (FIG. 4) which extends between a pair of the uprights and the inner portions of a pair of the leg units; another type is an intermediate horizontal frame member 8 which extends between a pair of leg units; and a third type is a front or outer horizontal frame member 10 which extends between the outer ends of a pair of the leg units. The front frame members 10 are designed to receive a shelf and price card receiving molding strip 12. A bottom shelf 14 is held in place by the molding strip 12 in a manner to be described.

Extending between the outer portions of each pair of uprights is a vertical backing panel 16. The shelf structure is adapted to support shelving on either or both the front and rear sides thereof as illustrated by the dotted configuration of shelving shown in FIG. 2. When shelving is supported from both the front and rear sides of the shelf structure, the structure has a perfect longitudinal symmetry as illustrated in FIG. 2. In such case, a pair of the panels 16 are used which are respectively adjacent the outer walls 2*a*—2*a* of the uprights 2. The structure is so designed that the vertical panels 16—16 are held securely in place by the wedging action of the bottom shelves 14—14 and the other shelves to be described.

The shelf structure supports lower and upper shelf units indicated by reference numerals 18*a* and 18*b*, respectively. The shelf structure illustrated in the drawings is a pyramid type where the lower shelf units 18*a* are wider than the upper shelf units 18*b*. Each shelf unit includes a pair of end brackets 20*a*—20*a* or 20*b*—20*b* having a length corresponding to the width of the associated shelf unit. Horizontal shelf supporting channel members 22 and 24 are welded or otherwise secured between each pair of end brackets, there being illustrated three members 22 spaced rearwardly of the outer ends of each shelf unit at the same elevation and a front frame member 24 which is at a lower elevation than the frame members 22. Each of the end brackets 20 is a sheet metal stamping having a pair of vertically spaced rearwardly extending hooked extensions 21 and 23 which are substantially identical to the design of the hooked extensions of the bracket disclosed in copending application Serial No. 835,469, filed August 24, 1959 The upper hooked extension 21 hooks upwardly and the bottom hooked extension 23 hooks downwardly. These hooked extensions are adapted to extend into and interlock with the defining walls of a pair of the bracket-receiving slots 2*d* of the uprights. The latter upright slots preferably have a width which is slightly greater than twice the width of the hooked extensions of the brackets so that two brackets can be placed in the same slot 2*d*. The end brackets 20*a*—20*a* or 20*b*—20*b* of each of the shelf units are spaced apart a distance such that the hooked extensions thereof extend respectively into the right half of the slot 2*d* of a left hand upright and the left half of a slot 2*d* of a right hand upright. In this way, contiguous shelf units can be supported at the same elevation in contiguous relation sharing the same slot 2*d* of a common upright, such as the intermediate upright shown in FIG. 1. Means to be described are provided for tieing together the shelf units sharing a common slot 2*d* so that two shelf units will have the same elevation even when they support different weights causing different deflections of the end portions of the shelf units.

The end brackets 20*a*—20*a* or 20*b*—20*b* and the front frame member 24 of each shelf unit are designed to receive a shelf supporting and price card receiving molding strip 12′ which is similar in many respects to the molding unit 12 used with the bottom shelf 14. Due to certain design features of the shelf units to be described, the molding strips 12′—12′ of a pair of shelf units supported at the same elevation can be brought into abutment to form an almost invisible joint therebetween. Each molding strip retains the front edge portion of a shelf 26*a* or 26*b*, the rear edge thereof being braced against the associated vertical panel 16 to aid in holding the panel securely in place.

Each of the leg units and the uprights have elevation adjusting means to be described secured to the bottoms thereof and by means of which the elevation of the shelf structure can be readily adjusted at any time. The elevation adjusting means includes adjustable headed screws 30 (FIG. 7) to which access may be had through the aforementioned opening 5 in the side of each upright and through an opening 4*a* in each of the leg units (FIGS. 3 and 12).

To present a neat appearance, the various exposed edges of the shelf structure are covered over by various cover units. For example, the outer edges of all of the molding strips 12′ associated with the shelf units are covered by identical individual snap-on cover units 32 having a centered hooked extension 32′ which can snap into a slot 25 in the forward end portions of any end bracket 20*a* or 20*b*. Side covers plates 33—33 have hooked extensions 33′—33′ which snap into slots in the sides of the leg units to cover the open sides of the leg units and also the raw edges of the lower molding strips 12. Front cover plates 35 extending between each pair of leg units have hooked extensions 35′—35′ which snap into slots 4*g* in the forward walls of a pair of leg units to cover over the spaces between the lower shelf 14 and the floor. Top plates 37 are provided which extend between and rest upon the tops of each pair of uprights and overlap the panels 16.

When it is desired to adjust the angle of inclination of the various shelf units 18*a* and 18*b*, individual attachment members 39 to be described (FIGS. 19 and 20) are interposed between the uprights 2 and the hooked extensions 21 and 23 of the various brackets 20*a* and 20*b*.

Now that the elements of the frame structure of the present invention have been broadly introduced, the unique structural features thereof will now be described in detail.

Refer now more particularly to FIG. 13 which shows the details of the leg unit-receiving slots 2*e* in the bottom portion of each of the uprights 2. As there shown, each of the outer walls 2*a* of the upright have two vertically spaced pairs of horizontally spaced slots 2*e*–1 and 2*e*–1 and 2*e*–2 and 2*e*–2 located adjacent to the side margins of the wall. The upper portions of the upper pair of slots 2*e*–1 and 2*e*–1 intersect a pair of laterally facing and horizontally aligned opening 2*f*—2*f* respectively formed at the outer margins of the bridging wall 2*b* and in the adjacent flange 2*c*. As will appear, the aligned openings 2*f*—2*f* are adapted to receive a pin 40 which, in accordance with the preferred form of the invention, carries out two important functions, namely locking the associated leg unit in place on the upright and supporting the rear horizontal frame member 6 on one or both sides of the upright.

Each of the leg units comprises a channel member having a horizontally extending elevated portion 4*b* with laterally spaced vertical side walls 4*b*–1 and 4*b*–1, and a bridging top wall 4*b*–2, and a depending floor-engaging portion 4*c* having vertical side walls 4*c*–1 and 4*c*–1 in the same plane as the side walls 4*b*–1 and 4*b*–1, and a front wall 4*c*–2 which inclines downwardly and rearwardly to form a tapered leg. The contiguous edges of the side walls 4*b*–1 and 4*c*–1 are welded together to form a sturdy, integral, bracing leg structure. When each of the bracing legs are mounted in place, the outer surfaces of the side walls 4*b*–1 and 4*c*–1 are respectively flush with the sides 2*b* and 2*c* of the associated upright 2.

A hook-forming insert member 4*d* is welded or otherwise secured to the inside of the rear portion of each leg unit, the insert member 4*d* having two vertically spaced pairs of horizontally spaced depending hooked extensions 4*d*–1 and 4*d*–1 and 4*d*–2 and 4*d*–2 which are respectively adapted to extend into and interlock with the defining walls of the correspondingly spaced slots 2*e*–1 and 2*e*–1 and 2*e*–2 and 2*e*–2 in the bottom of the associated upright. The height of each of the hooked extensions 4*d*–1 and 4*d*–2 is slightly less than the height of the corresponding upright slots 2*e*–1 and 2*e*–2 but, due to the slots forming the necks of the hooked extensions which contact the bottom edges of the associated upright slots, the hooked extensions in their mounted positions occupy only the lower portions of the upright slots 2*e*–1 and 2*e*–2. The upper edges of the upper hooked extensions 4*d*–1 and 4*d*–1 are then immediately below the lower level of the laterally facing openings 2*f*—2*f*. Consequently, when pin 40 is press-fitted within the aligned openings 2*f*—2*f* of the upright, the pin will overlie the upper edges of the upper hooked extensions 4*d*–1 and 4*d*–1 to prevent removal of the hooked extensions from the associated upright slots. For reasons to be explained, each of the pins 40 has a length substantially greater than the width of the associated upright, so that the pin can be selectively centered in the aligned openings 2*f*—2*f* where they project laterally beyond both sides of the upright (FIG. 14) or, alternatively, so that the pin is flush with the outer side of the upright and projects way beyond the inner side wall or flange 2*c* thereof (dotted line position of FIG. 14).

Each leg unit has a number of slots formed therein for detachably receiving the hooked extensions of various elements of the frame structure. Thus, pairs of slots 4*e*—4*e* are positioned at different points along opposite sides of the horizontally extending portion 4*b* of each leg unit. Each of these slots extends through one of the corners of the leg unit at the intersection of the bridging top wall 4*b*–2 and a side wall 4*b*–1 thereof. Two pairs of the slots 4*e*—4*e* are located adjacent the rear of the leg unit, two pairs of the slots are located at the central portion of the leg unit, and two pairs of the slots are located contiguous to the front end of the leg unit. The side cover plates 33—33 have hooked extensions which extend into the forwardmost of the rear pairs of slots 4*e* and the rearwardmost of the front pairs of slots.

Each leg unit further has a pair of horizontally aligned pin-receiving openings 4*f*—4*f* at the juncture of the side walls 4*b*–1 and 4*c*–1. A pin 40 is press-fitted within the aligned openings 4*f*—4*f* of each leg unit so that it projects equally beyond both sides of the leg unit where the latter is associated with an intermediate upright 2, and so that it projects only beyond the inner side of the leg unit where the latter is associated with an outer upright 2. The front wall 4*c*–2 of each leg unit is provided with a pair of vertically spaced slots 4*g*—4*g* which receive the hooked extensions of the front cover plate 35.

The portions of the pins 40 projecting beyond the sides of the uprights 2 and the leg units 4 act as supports for the rear and front frame members 6 and 10 which extend between contiguous pairs of the uprights and the leg units. Each rear frame member 6 has a horizontal

shelf support wall 6*a* whose rear portion rests on the upper surface of a pin 40, a rear upstanding bracing wall 6*b* and a front depending bracing wall 6*c*. The opposite ends of the depending wall 6*c* terminate in a pair of projecting, depending hooks 6*d*—6*d* which are adapted to extend into the confronting, rearwardmost leg unit slots 4*e*—4*e* of a contiguous pair of leg units. When the hooks 6*d*—6*d* are fully in engagement with the defining walls of the slots 4*e*—4*e*, the rear portion of the shelf support wall 6*a* of the frame member 6 will rest upon the projecting portion of a pair of the pins 40 and the shelf support wall 6*a* will be level with the bridging top walls 4*b*–2 and 4*b*–2 of the leg units involved. The frame member walls 6*a* and 6*b* respectively will be in contact with the sides of the contiguous pairs of upright and leg units involved to brace the structure in a lateral direction to aid in forming a rigid frame structure.

The intermediate frame members 8 extending between the middle portions of a contiguous pair of leg units are channel members having a pair of depending hooked extensions 8*a*—8*a* projecting from the ends of the flanges thereof and respectively extending into a pair of the slots 4*e*—4*e* in the leg units.

Each of the front or outer frame members 10 extending between a pair of the leg units has a top support wall 10*a* which terminates at the front in a depending wall 10*b* which, in turn, terminates in a forwardly and upwardly inclined lip 10*c*. The lip 10*c* and the depending wall 10*b* together form a channel for supporting the molding strip 12 to be described. Each front frame member 10 has a rear depending wall 10*d* which has at the opposite ends thereof a pair of projecting depending hooked extensions 10*e*—10*e* adapted respectively to extend into the forwardmost confronting slots 4*e*—4*e* of the associated pair of leg units. When the hooked extensions 10*e*—10*e* are fully in engagement with the defining walls of the slots 4*e*—4*e*, the forward portion of the support wall 10*a* rests upon the projecting end portions of a pair of pins 40 at the forward ends of the pair of leg units involved. The support wall 10*a* in the fully mounted position of the frame member 10 is at an elevation slightly below the top surfaces of the bridging walls 4*b*–2 and 4*b*–2 of the associated pair of leg units.

Since the leg units have corresponding slots 4*e* on both sides thereof, each leg unit is adapted to support frame members 6, 8 and 10 on either side thereof.

As previously indicated, each of the front frame members 10 is adapted to support a shelf holding and card receiving molding strip 12. Each molding strip comprises a downwardly and outwardly inclining front wall 12*a* which forms an open ended channel into which a price card may be slipped. The molding strip further has a depending flange 12*b* which enters the channel formed by the channel-forming walls 10*b* and 10*c* of the front frame member 10, as best shown in FIG. 7. The molding strip further has a pair of rearwardly extending and vertically spaced shelf-receiving wall extensions 12*c*—12*d*. These two walls form a channel for receiving the forward edge of the shelf 14. The top surface of the bottom wall extension 12*c*, the shelf support wall 6*a* of the rear frame member 6, and the intermediate frame member 8 are all in the same horizontal plane so that the shelf 14 will be horizontal.

As previously indicated, the uprights and the leg units are provided with elevation adjusting means including adjustable headed scerws 30. Each of these screws has a threaded shank 30*a* having a screwdriver-receiving slot in the top thereof, and a floor-engaging head 30*b* at the bottom thereof. The threaded shank of each screw threads through a threaded opening 41 in a horizontal plate assembly 42 which carries the bottom end of the associated upright or the floor-engaging portion of 4*c* of the associated leg unit. Each of the plate assemblies 42 comprises a base plate 43 having upwardly extending lips 43*a*—43*a* and 43*b*—43*b* on the opposite sides thereof.

The ends of the lips 43*a* and 43*b* are spaced from each other to provide clearance slots for the passage of the vertical walls of the uprights and the leg units. When positioned beneath one of the uprights, the outer upright walls 2*a*—2*a* extend on the outside of the base plate 43 as shown in FIG. 17, and the bridging wall 2*b* and the planges 2*c*—2*c* extend between the slots defined by the spaced ends of the lips 43*a* and 43*b* of the base plate.

To adapt each plate assembly 43 for use on the bottom of a leg unit, an inner plate member 44 is secured as by welding to the top of the base plate 43, which plate member has a pair of parallel upstanding lips 44*a*—44*a* along a pair of opposite sides thereof, the lips 44*a*—44*a* being spaced inwardly from the lips 43*b*—43*b* of the base plate 43 to form narrow channels for receiving the side walls 4*c*–1 and 4*c*–1 of the forward depending portion 4*c* of each leg unit, as shown in FIG. 16. The outer wall 4*c*–2 of each leg unit in such event passes around the outer edges of the lips 44*a*—44*a* of the inner plate member 44.

The elevation of the leg units is varied by passing the shank of the screwdriver through the opening 4*a* in the top of each leg unit, inserting the end of the screwdriver into the screwdriver-receiving slot at the top of the associated screw 30 and turning the same. The elevation of the screw uprights is adjusted by passing the shank of the screwdriver through the vertical opening 5 in each upright, inserting the end of the screwdriver into the slot in the top of the associated screw, and turning the same.

The shelf units 18*a* and 18*b* previously briefly described have two important unique features which relate to the design of the end brackets 20 thereof and their relationship to the shelf holding and price card receiving molding strips 12'. These features relate to support of contiguous shelf units at the same elevation. Frequently, the weight supported by such contiguous shelf units is sufficiently different that deflection of one shelf unit will be somewhat different than the other. In order to tie two shelf units together so that the two remain at the same elevation independently of the weights of the articles supported thereby, the end brackets 20*a* and 20*b* of the shelf units are provided with horizontally extending and aligned slots 25—25. Extending through the slots 25—25 of confronting end brackets 20*a*—20*a* or 20*b*—20*b* is a flat key member 27 shown most clearly in FIG. 10. Each key member has a narrow shank portion 27*a* with a width approximately equal to that of the slots 25 and a length approximately equal to the spacing between the outer faces of the end brackets. One end of the shank portion 27*a* of each key member terminates in a laterally extending wing 27*b* having a length greater than the slots 25 and adapted to be grasped and turned by an operator, and the other end terminating in a wing 27*c* in the same plane as the wing 27*b* and having a length no greater than the length of the key-receiving slots 25. In one position of the key member as shown in FIG. 11, the shorter wing 27*c* can be passed through the aligned key-receiving slots 25 to bring the handle forming wing 27*b* against the outer surface of the adjacent bracket. Then, the key member can be turned approximately 90° where the contiguous bracket becomes wedged in the space between the wings of the key member, as shown in FIG. 10. The two shelf units are thereby held at the same elevation through the medium of the key member.

In accordance with another feature of the present invention, the end portion of each of the brackets 20*a* or 20*b* has a cut-away portion providing a depressed upper edge 26. One end of each front frame member 24 of each shelf unit is welded or otherwise secured around the forward edge of an end bracket 20*a* or 20*b*, the upper end thereof terminating short of a shoulder 27' on the bracket to provide a space or channel between the rear edge of the frame member 24 and the shoulder 27'. This channel receives a depending lip or flange 12*a*' on the

rear of the associated shelf holding and price card receiving molding strip 12', the defining walls of the channel retaining the molding strip on the frame member 24 and enabling the molding strip of contiguous shelf units to be brought into abutment. Each molding strip 12' has a pair of vertically spaced rearwardly extending wall extensions 12*c*' and 12*d*' which provides a channel for receiving the forward edge portion of the associated shelf 26*a* or 26*b*. The upper surface of the wall extension 12*c*' is level with the top surfaces of the shelf unit frame members 22 so that the shelf is supported in a perfectly horizontal position within the channel formed by the wall extensions 12*c*' and 12*d*'. Each molding strip 12' further has a downwardly and forwardly projecting portion 12*b*' which forms an open ended channel into which a price card may be slid as in the case of the molding strip 12. Also, the molding strip 12' has a depending wall or flange 12*e*' which abuts against the outer frame member 24.

If it becomes desirable to support the shelf units at an angle to the horizontal, this may be readily achieved by means of a simple insert member 39 (FIGS. 19 and 20) which is insertable between each upright and the end bracket of a shelf unit. This insert member may be a flat sheet metal stamping having a pair of rearwardly extending hook extensions 51 and 53 corresponding to the hooks 21 and 23 of each of the brackets 20*a* or 20*b*. A pair of hook-shaped slots 52 and 54 are respectively formed in the front edge of the insert member which conform to the shape of the hooked extensions 21 and 23 at the rear end of each of the brackets 20*a* or 20*b* and are spaced along a line inclined at an angle corresponding to the desired angle of inclination of the shelf units. It can thus be seen that a pair of insert members 39—39 can be mounted in place between a pair of uprights 2—2 and end brackets of a shelf unit by inserting the hooked extensions 51 and 53 of a pair of insert members into the slots of a pair of uprights and the hooked bracket extensions 21 and 23 of a pair of end brackets into the correspondingly sized slots 52 and 54 of the insert members.

Thus, the present invention has provided a very simple and economical knock-down frame structure with a minimum of different parts which can be readily assembled and disassembled without the need for any screws, bolts and the like.

It should be understood that numerous modifications may be made in the preferred form of the invention described above without deviating from the broader aspects of the present invention.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. In a bracket support frame structure including laterally spaced, floor-engaging bracket supporting uprights having a bracket supporting front wall and side walls extending rearwardly from the side margins of the front wall, and frame members connected between said uprights, the improvement comprising: a leg unit removably attached to each of said uprights and extending forwardly therefrom and having a floor-engaging portion at the front end thereof, the rear ends of each of said leg units having at least one pair of laterally spaced depending hooked extensions, the bracket supporting upright associated with each leg unit having laterally spaced slots for said hooked extensions in the front wall thereof, said hooked extension of each leg unit projecting into associated upright slots and interlocking with the defining walls of the lower margins thereof, and means preventing the removal of the hooked extensions of each leg unit from the associated upright slots comprising a pair of horizontally aligned, laterally facing pin-receiving openings in the side walls of each of said uprights adjacent the front wall thereof, and a retainer pin passing through the aligned pin-receiving openings of each upright immediately above the associated hooked extensions of the

associated leg unit to prevent the removal thereof from the associated upright slots.

2. In a bracket support frame structure including laterally spaced floor-engaging bracket supporting uprights having a bracket supporting front wall and side walls extending rearwardly from the side margins of the front wall, and frame members connected between said uprights, the improvement comprising: a leg unit removably attached to each of said uprights and extending forwardly therefrom and having a floor-engaging portion at the front end thereof, the rear ends of each of said leg units having two vertically spaced pairs of laterally spaced depending hooked extensions, the bracket supporting upright associated with each leg unit having two vertically spaced pairs of laterally spaced slots for said hooked extensions and of greater height than the height of said hooked extensions, the two pairs of hooked extensions of each leg unit projecting into the associated upright slots and interlocking with the defining walls of the lower margins thereof, and means preventing the removal of the hooked extensions of each leg unit from the associated upright slots comprising a pair of horizontally aligned, laterally facing pin-receiving openings in the side walls of each upright adjacent the front wall of the associated upright, and a retainer pin passing through each pair of aligned pin-receiving openings immediately above the associated hooked extensions of the associated leg unit to prevent the removal thereof from the associated upright slots.

3. In a bracket support frame structure including laterally spaced floor-engaging bracket supporting uprights having a bracket supporting front wall therein and side walls extending rearwardly from the side margins of the front wall, and frame members connected between said uprights, the improvement comprising: a leg unit removably attached to each of said uprights and extending forwardly therefrom, each of said leg units comprising a horizontally extending portion having a pair of laterally spaced vertical side walls and a bridging top wall extending between the upper margins of said side walls, and a floor-engaging portion at the front end of said horizontally extending portion, said horizontally extending portion having correspondingly sized and positioned hook-receiving slots on each side thereto to form right or left hand leg units, each slot extending through one of the corners of the leg unit at the intersection of said bridging and side walls thereof, frame members extending between the leg units attached to said uprights and having hooks on the ends thereof extending into and interlocking with the defining walls of said leg unit slots, the rear ends of each of said leg units having two vertically spaced pairs of laterally spaced depending hooked extensions, the upright associated with each leg unit having two vertically spaced pairs of laterally spaced slots for said hooked extensions, the two pairs of hooked extensions of each leg unit projecting into the associated upright slots and interlocking with the defining walls of the lower margins thereof, and means preventing the removal of the hooked extensions of each leg unit from the associated upright slots comprising a pair of horizontally aligned, laterally facing pin-receiving openings in the side walls of each upright adjacent the front wall of the associated upright, and a retainer pin passing through each pair of aligned pin-receiving openings immediately above the associated hooked extensions of the associated leg unit to prevent the removal thereof from the associated upright slots.

4. A knock-down bracket support structure comprising: a pair of laterally spaced hollow uprights each having laterally facing side walls and a slotted outer wall for supporting brackets extending from the front of the upright, leg units detachably secured at their inner ends to the bottom portions of said uprights, each of said leg units having a horizontal top support wall extending transversely from the outer wall of the associated upright, and depending side walls, the top support wall of each leg unit having slots therein adjacent to said uprights exposing upwardly facing edges of said side walls thereof, a horizontally inner frame member detachably positioned between said uprights adjacent the bottom ends thereof, the end edges of the inner frame member engaging and bracing the confronting side walls of said uprights, said inner frame member having depending hook-forming extensions which pass into said leg unit slots and engage the upwardly facing edges of said leg unit side walls.

5. A knock-down bracket support structure comprising: a pair of laterally spaced hollow uprights each having laterally facing side walls and a slotted outer wall for supporting brackets extending from the front of the upright, leg units detachably secured at their inner ends to the bottom portions of said uprights, each of said leg units having a horizontal top support wall extending transversely from the outer wall of the associated upright, and depending side walls, the top support wall of each leg unit having slots therein adjacent to said uprights exposing upwardly facing edges of said side walls thereof, a horizontal inner frame member detachably positioned between said uprights adjacent the bottom ends thereof, said frame member having a horizontal shelf support wall terminating flush with the horizontal top support wall of said leg units and at the rear in an upstanding bracing wall and at the front in a depending bracing wall, the edges of the upstanding bracing wall of the inner frame member engaging and bracing the confronting side walls of said uprights and the end edges of said horizontal shelf support wall of the inner frame member engaging and bracing the confronting side walls of said leg units, the ends of said depending bracing wall of the inner frame member having depending hook-forming extensions which pass into said leg unit slots and engage the upwardly facing edges of said leg unit side walls.

6. A knock-down bracket support structure comprising: a pair of laterally spaced hollow uprights each having laterally facing side walls and an outer wall for supporting brackets extending from the front of the upright, a leg unit extending transversely from the outer wall of each upright and secured at its inner end to the bottom portion of the upright, a horizontal inner frame member detachably positioned between said uprights and having end edges extending between and bracing said uprights adjacent the bottom ends thereof and a horizontal shelf support wall flush with the top of said leg units, a horizontal outer frame member secured between the corresponding outer end portions of said leg units, and having channel-forming means thereon said outer frame member further including a top support wall positioned slightly below the plane of the top of said leg units, shelf retaining means secured to said outer frame member by depending flange means thereon fitting into the channel of said channel-forming means, said shelf retaining means having vertically spaced rearwardly projecting wall extensions forming a shelf-receiving channel therein, the top surface of the bottom of said wall extensions being flush with the top of the associated leg units, and a shelf having a front edge portion in said shelf-receiving channel and a rear portion resting on said shelf support wall of said inner frame member and side portions resting on the top of said leg units.

7. Shelf bracket support structure comprising: three spaced and laterally aligned hollow uprights each of which is capable of forming either a right or left hand upright for supporting shelving on either side thereof, each of said uprights comprising a pair of laterally facing side walls and a front wall having vertically spaced slots therein, at least one pair of shelf units, one of said shelf units having a pair of brackets with bracket support extensions projecting into corresponding slots in one of the outer uprights and the central upright, the other shelf unit having a pair of brackets with bracket support extensions extending into corresponding slots in the other outer upright and the central upright, the bracket support extensions

being in the neighborhood of half the width of the slots in the uprights and the bracket support extensions of the inner brackets of the shelf units extending into the same bracket slots in juxtaposed relation, a leg unit detachably secured at its inner end to the bottom front portion of each upright, each of said shelf units further having a rear horizontal frame member extending between the rear portion of said pair of brackets and having a top surface adapted to support a shelf, a front horizontal frame member extending between the front ends of said pair of brackets and having a top surface at an elevation slightly below the top of said rear horizontal frame member, a molding unit extending around the front of said front horizontal frame member, said molding unit further having a pair of vertically spaced rearwardly extending channel-forming walls, the upper surface of the bottom of these walls being in the same plane as the top of said rear horizontal frame member, and a shelf extending into the channel formed by said vertically spaced walls of each of the moldings and extending rearwardly over the top of said rear horizontal frame member.

8. Shelf bracket support structure comprising: three spaced and laterally aligned hollow uprights each of which is capable of forming either a right or left hand upright for supporting shelving on either side thereof, each of said uprights comprising a pair of laterally facing side walls and a front wall having vertically spaced slots therein, at least one pair of shelf units, one of said shelf units having a pair of brackets with bracket support extensions projecting into corresponding slots in one of the outer uprights and the central upright, the other shelf unit having a pair of brackets with bracket support extensions extending into corresponding slots in the other outer upright and the central upright, the brackets support extensions being in the neighborhood of half the width of the slots in the uprights and the bracket support extensions of the inner brackets of the shelf units extending into the same bracket slots in juxtaposed relation, a leg unit detachably secured at its inner end to the bottom front portion of each upright, each of said shelf units further having a rear horizontal frame member extending between the rear portion of said pair of brackets and having a top surface adapted to support a shelf, a front horizontal frame member extending between the front ends of said pair of brackets and having a top surface at an elevation slightly below the top of said rear horizontal frame member, the brackets of each shelf unit having adjacent the front ends thereof a channel-forming depression therein forming a channel extending transversely of the bracket, a molding unit extending over the front and top of said front horizontal frame member, said molding unit having a depending flange extending into said channels formed at the outer ends of said brackets and movable in the channels into abutment with the molding of the other shelf unit, said molding unit further having a pair of vertically spaced rearwardly extending channel-forming walls, the upper surface of the bottom of these walls being in the same plane as the top of said rear horizontal frame member, and a shelf extending into the channel formed by said vertically spaced wall of each of the moldings and extending rearwardly over the top of said rear horizontal frame member.

9. A knock-down bracket support structure comprising: a pair of laterally spaced hollow uprights each having laterally facing side walls and an outer wall for supporting brackets extending from the front of the upright, a leg unit extending transversely from the outer wall of each upright and detachably secured at its inner end to the bottom portion of the upright, a horizontal inner frame member detachably positioned between said uprights adjacent the bottom ends thereof, a horizontal outer frame member detachably secured between the corresponding outer end portions of said leg units, said outer frame member having means forming a pair of vertically spaced rearwardly projecting wall extensions forming a shelf-receiving channel therein, a vertical panel extending between said pair of uprights and overlapping the outer walls thereof, and a shelf passing into said shelf-receiving channel and extending to and abutting the bottom of the adjacent vertical panel to hold the same against the outer walls of the uprights.

10. In a bracket support frame structure including laterally spaced hollow uprights each comprising spaced parallel laterally facing side walls and a front wall bridging the margins of said side walls, the improvement comprising; a separate leg unit removably attached to each of said uprights and extending forwardly therefrom, each leg unit having a horizontally extending portion with hook-receiving slots therein adjacent the forward and rearward end thereof, support pins projecting laterally beyond the facing side walls of said uprights, support pins projecting laterally inwardly beyond the facing side walls of said leg units, front and rear frame members respectively extending between the forward ends of the leg units and the uprights, the front portions of the rear frame member having hooks adjacent to the leg units which hooks extend into the rearwardmost of said hook-receiving slots therein and rear portions resting upon the projecting ends of the support pins mounted in said uprights, said front frame member having hooks at the rear portions thereof adjacent the bracing leg units which hooks extend into the forwardmost of said hook-receiving slots in said leg units and front portions resting upon the projecting ends of said support pins mounted in said bracing leg units.

11. In a bracket support frame structure including laterally spaced hollow uprights each comprising spaced parallel laterally facing side walls and a front wall bridging the margins of said side walls, the improvement comprising: a separate leg unit removably attached to each of said uprights and extending forwardly therefrom, each leg unit having a horizontally extending portion with hook-receiving slots therein adjacent the forward and rearward ends thereof and at least one pair of laterally spaced, downwardly extending hooked extensions projecting rearwardly from the rear end of said leg unit, the front wall of each upright having at least one pair of laterally spaced hook-receiving slots adjacent the side margins thereof, said pair of hooked extensions at the rear end of each of said leg units extending into said hook-receiving upright slots and interlocking with the defining edges of the lower portions of said slots, a pair of laterally facing and horizontally aligned openings formed in the opposite side walls of the upright contiguous to the upper portions of said hook-receiving slots, support pins slidably disposed in said pair of horizontally aligned openings in said uprights adjacent said hook-receiving upright slots and overlying the hooked extensions of the leg units to prevent the removal thereof from the uprights, each of said pins projecting laterally beyond the facing side walls of said uprights, the horizontally extending portions of each of said leg units being provided at the forward end thereof with a pair of laterally facing and horizontally aligned openings, support pins slidably disposed in the horizontally aligned openings in said leg units and projecting laterally inwardly beyond the facing side walls of said uprights, front and rear frame members respectively extending between the forward ends of the leg units and the uprights, the front portions of the rear frame member having hooks adjacent to the leg units which hooks extend into the rearwardmost of said hook-receiving slots therein and rear portions resting upon the projecting ends of the support pins mounted in said uprights, said front frame member having hooks at the rear portions thereof adjacent the bracing leg units which hooks extend into the forwardmost of said hook-receiving slots in said leg units and front portions resting upon the projecting ends of said support pins mounted in said bracing leg units.

12. In a bracket support frame structure utilizing at least one upright having vertically spaced bracket-receiving slots in the front thereof, and a bracket having

a pair of vertically spaced hook projections at the rear thereof adapted to enter, and interlock with the defining walls of a pair of the upright slots, the improvement comprising: an attachment member for supporting the bracket at an angle to its position when supported directly by said upright, said attachment member comprising a vertically oriented member having a pair of vertically spaced hook projections at the rear thereof interlocking with the defining walls of a pair of said upright slots, and a pair of vertically spaced recesses in the front thereof and conforming to the shape of and receiving said bracket projections at the rear of said bracket and being spaced along an inclined line to support said bracket along a similar incline.

13. In a bracket support frame structure utilizing at least one upright having vertically spaced bracket-receiving slots in the front thereof, and a bracket having a pair of vertically spaced projections at the rear thereof adapted to enter and interlock with the defining walls of a pair of the upright slots, the improvement comprising: an attachment member for supporting the bracket at an angle to its position when supported directly by said upright, said attachment member comprising a vertically oriented sheet metal member having a pair of vertically spaced projections extending from the rear edge thereof and interlocking with the defining walls of a pair of said upright slots, and a pair of vertically spaced recesses in the front edge thereof and conforming to the shape of and receiving said bracket projections at the rear of said bracket and being spaced along an inclined line to support said bracket along a similar incline.

14. A shelf unit to be supported from a pair of laterally spaced uprights having a front wall having vertically spaced slots therein, said shelf unit comprising a pair of laterally spaced brackets with bracket support extensions adapted to project into corresponding slots in said uprights, a rear horizontal frame member extending between the rear portion of said pair of brackets and having a top surface adapted to support a shelf, a front horizontal frame member extending between the front ends of said pair of brackets and having a top surface at an elevation slightly below the top of said rear horizontal frame member, a molding unit extending around the front of said front horizontal frame member, said molding unit further having a pair of vertically spaced rearwardly extending channel-forming walls, the upper surface of the bottom of these walls being in the same plane as the top of said rear horizontal frame member, and a shelf extending into the channel formed by said vertically spaced walls of each of the moldings and extending rearwardly over the top of said rear horizontal frame member.

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