

Dec. 29, 1925.

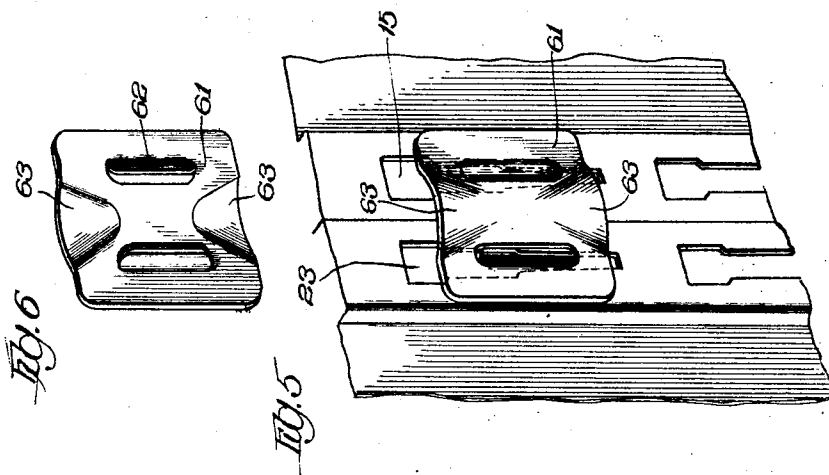
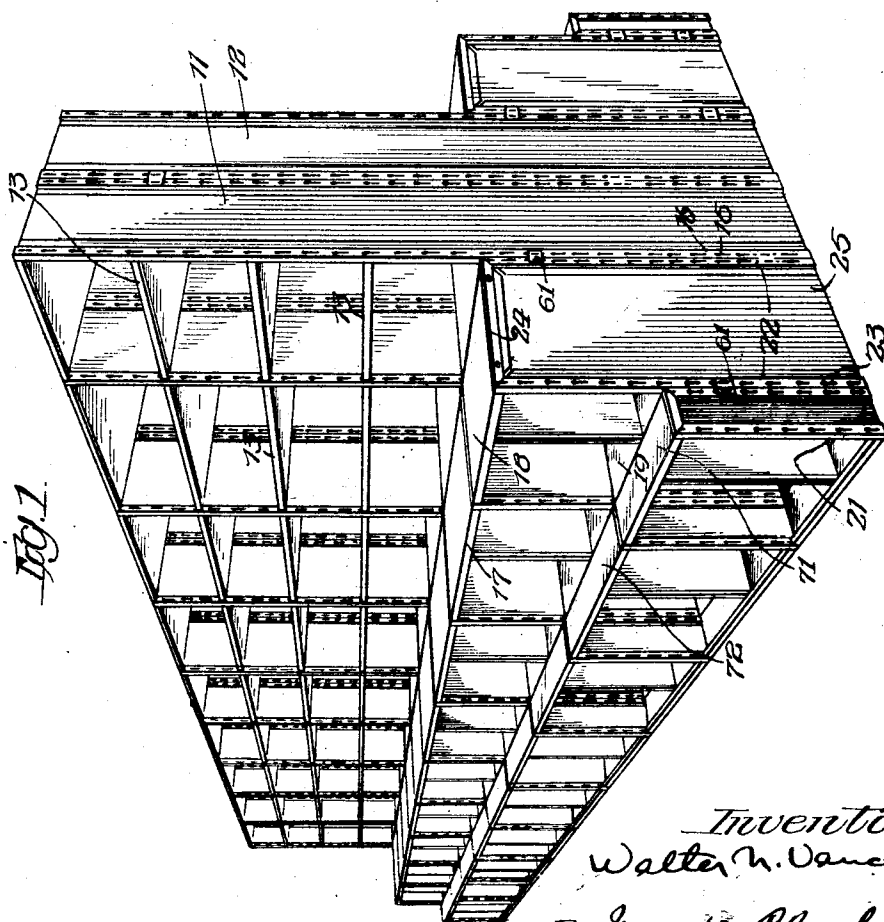
1,567,774

W. N. VANCE

RACK EXTENSION

Filed June 5, 1919

3 Sheets-Sheet 1



Inventor
Walter N. Vance
By Munday, Clarke
& Carpenter Attys

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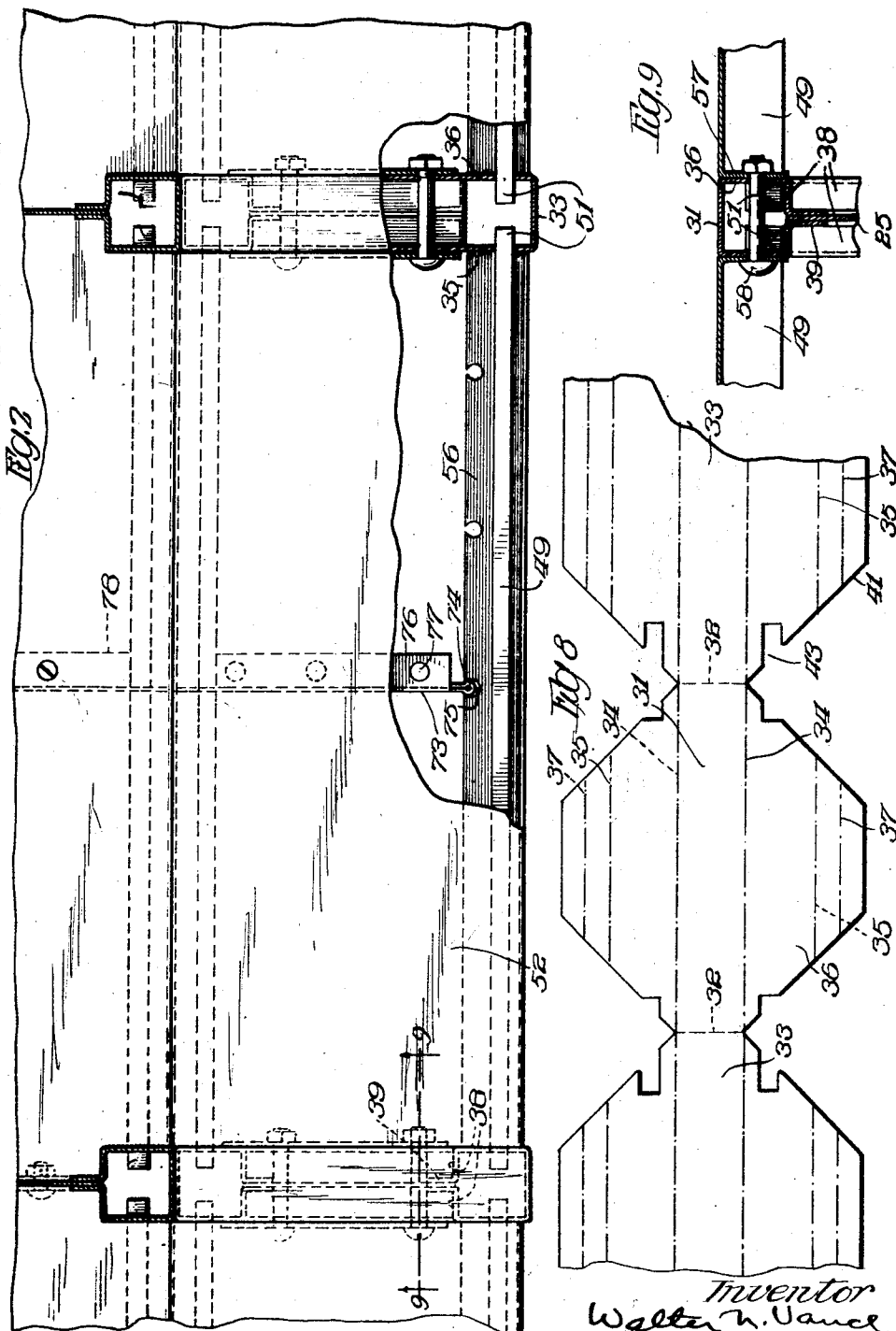
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RACK EXTENSION

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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

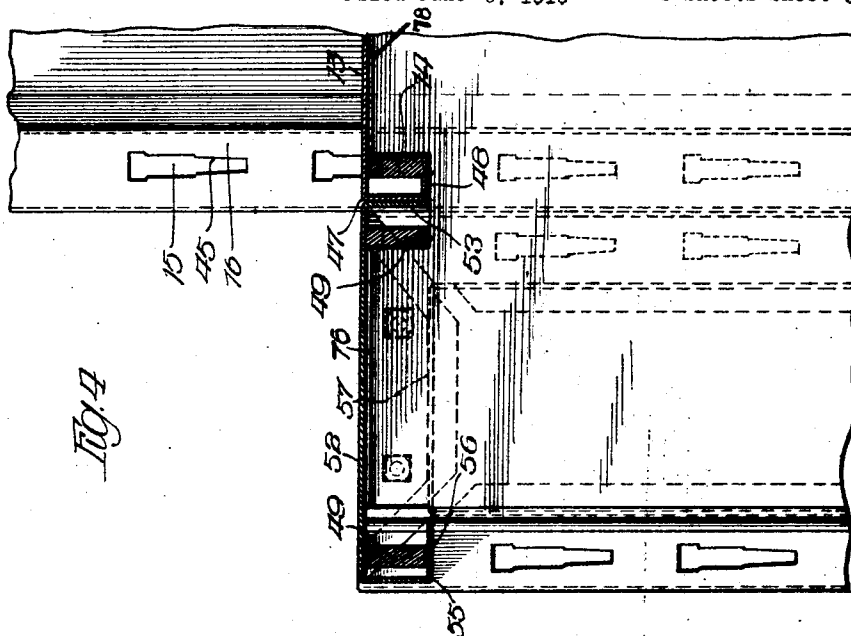


Fig. 4

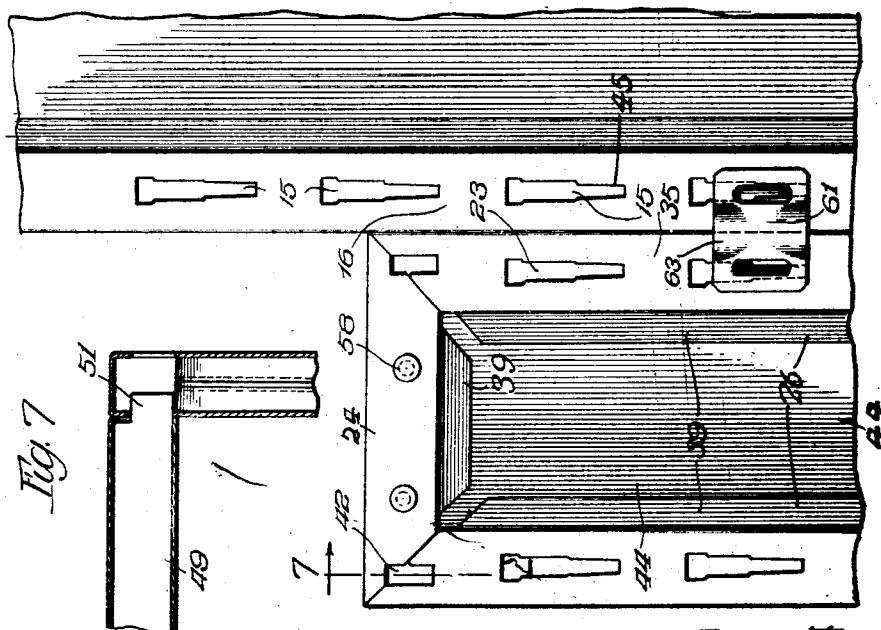


Fig. 3

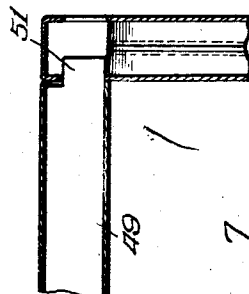


Fig. 7

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UNITED STATES PATENT OFFICE.

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RACK EXTENSION.

Application filed June 5, 1919. Serial No. 301,986.

To all whom it may concern:

Be it known that I, WALTER N. VANCE, a citizen of the United States, residing in Chicago Heights, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Rack Extensions, of which the following is a specification.

This invention relates in general to metal racks or shelvings and has more particular reference to racks or shelves of the knock-down or readily adjustable character.

A principal object of the invention is the provision of shelving with counters or extensions which may be assembled separately from the main rack sections and readily positioned and secured with respect thereto.

Another object of the invention is the provision of counter extensions for use in connection with such devices, the counter and shelves of which will accurately register with shelves of the main shelf section to form continuations thereof, so that it is unnecessary in such devices to provide special shelves extending through the extension and through also the main section.

Another and highly important object of the invention is the provision of metal shelving which may be used alone or, if desired, with main sections and as extensions and which will be of exceptionally strong and durable character.

Another important object of the invention is the provision of counter-extensions for shelving or racks which will provide top shelves or counters presenting imperforate upper surfaces and this without rendering such counters unstable or of weak connection to the remainder of the device of which it forms a part.

Another important object of the invention is the provision of means for effectively and detachably rigidly securing counter or other extensions to a section of shelves so that the two form a unitary structure.

Another important object of the invention is the provision of an improved divider adapted for rigid connection beneath a shelf counter; which need not be secured through the counter body portion of said counter and which may be constructed to divide not merely the space between the counter and the subjacent shelf but the space also between two shelves of an adjacent section of shelving and in registration

with the counter and shelf just before mentioned.

Numerous objects and advantages of the invention will be apparent as it is better understood from the following description when considered in connection with the accompanying drawing illustrating a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a perspective view of shelves embodying my present invention;

Fig. 2 is a horizontal section taken just above the counter or shelf extension and extending part way in to a main shelf section, parts being broken away to disclose certain details of construction;

Fig. 3 is a partial end view of the structure shown in Fig. 1;

Fig. 4 is a partial vertical view showing certain details of construction;

Fig. 5 is an enlarged perspective detail showing a section connector in place;

Fig. 6 is an isolated view of said connector;

Fig. 7 is a detail vertical section of a connection between a counter bearer and the end frame;

Fig. 8 is a diagrammatic view showing the blank for forming the end tube frame member; and

Fig. 9 is a detail partial section.

For the purpose of illustrating my invention I have shown on the drawing two sets of main shelving sections indicated generally at 11 and 12, each of which is provided with a number of adjustable shelves 13 supported upon suitable front and back bearers 14 which take into slots or openings 15 in tubular uprights 16. The tubular uprights are provided with these slots arranged at frequent and appropriately spaced intervals. Secured to these main sections are provided shelf and counter extensions 17 capable of separate assembly and to be readily attached to and detached from the main sections, and being capable also as will be readily manifest of use independent of said main sections. These extensions are provided with top shelves 18 forming counters and with lower shelves 19 and 21. It will be readily apparent, however, that other shelves may be provided and the shelves beneath the counter readily adjusted and changed as to height and number located within a given section,

They are preferably arranged, however, to register accurately with the shelves of the main section to which they are attached or to which they are to be attached. The extensions 17 are provided with vertical up-
 5 rights 22 slotted at 23 in the manner of the uprights 16. These uprights 22 consist of tubes which are connected across the top by
 10 portions 24 integral with corresponding front and back uprights so that there is be-
 15 tween each section a tubular frame extending up the sides and across the top and a similar frame is located at each end. A single and isolated extension section would therefore
 20 include two such frames which act as supports, a counter shelf and shelves therebeneath together with the necessary bearers for such shelves. Each frame is made from
 25 a single blank shown in part in Fig. 8, in which reference character 31 indicates a central part adapted to form the upper surface
 30 of the tube, which is preferably substantially square in cross-section as may be observed by viewing Fig. 9. The portion 31 is con-
 35 nected at its ends and at lines of bend 32 with blank parts 33 which form the outer front and back faces of the two parts 22. At
 40 each side the parts 31 and 33 are provided with lines of bend 34 upon which the sides
 45 of the blank are bent down at right angles and the materials between the lines 34 and lines of bend 35 therebeyond define the side
 50 face 36 of the tubes. The material is bent in upon the lines 35 and then back upon
 55 other lines of bend 37 therebeyond, the material between the lines of bend 35 and 37
 60 together forming the inner faces 38 of the tubes and providing outwardly extending parallel flanges 39 formed of the material
 65 beyond the lines of bend 37. The blank shown in Fig. 8 is shortened for the purposes of illustration.

In order that the parts may match nicely at the corners the material of the blanks is
 45 mitered opposite the lines of bend 32 as indicated by reference character 41, and at each side at the miter the material is cut
 50 away at or near the corners as indicated at 43 to provide the openings 42 through the tube sides, said openings being of the rec-
 55 tangular formation shown in Fig. 3.

A side plate 44 is included between the flanges 39 at the sides and top of each frame
 60 so that the frames in effect constitute partitions between successive counter sections and end walls at the extremities of the assem-
 65 bly. Slots 23, already mentioned, are provided in the side faces 36 of the frames and these, as has been stated, register as to ver-
 70 tical height with the slots 15 of tube sections 16 of the main shelf section, which it may be stated are constructed like the tube
 75 sections made from the blank in Fig. 8 except that in the main sections they are
 80 not cross-connected across their tops.

The slots 15 and 23 have a lowered tapered portion 45 for engagement with shelf bear-
 85 ers 14 of suitable form. The shelves 13 of the main section are continued beyond the main bearers and have their side edges bent
 90 down as indicated at 47 beyond the bearers 14 and the lower edge is turned back at 48 to bring their lower edges closely against
 95 the face of the bearers 14. These shelves of course may be arranged at appropriate inter-
 100 vals in the main sections and also within the extension sections, the arrangements of the slots permitting accurate registration of the
 105 shelf sections of the two parts. At the top, however, of the extension sections a counter
 110 is or may be provided and it is desired that this counter be supported at the extreme tops
 115 of the frames or uprights so that the counters of contiguous sections may be disposed in a single plane. Special front and back
 120 bearers 49 are provided to this end and each of these is of rectangular section having
 125 merely ends 51 of less width than the body of the bearers and adapted to enter into the slots 42 already described. The slots or
 130 openings 42 are so located that the upper surfaces of the bearers are disposed beneath the plane of the upper faces 31 of the cross
 135 connections in the frames by a distance equal to the thickness of the metal of a counter.
 140 Each of these counters consists of a sheet of metal having a smooth imperforate body 52 which extends from adjacent the bend 47
 145 of a shelf of the main section in registration therewith to beyond the front bearer 49.
 150 At the rear the edge of the counter is bent down as indicated at 53 alongside the bent
 155 down part of the main shelf section the parts preferably being brought into close contact as will be presently described.

At the front a similar flange 55 is pro-
 160 vided, this flange however being longer than the flange 53 and turned back upon a line
 165 of bend to provide an inwardly extending flange 56 arranged beneath the front bearer
 170 49. At each end the counter is provided with a downwardly extending flange or flap
 175 57 adapted to lie along and in contact with the adjacent side face 36 of appropriate
 180 cross connection. Through the tubular top of each frame and through the flanges or
 185 flaps 57 are provided registering apertures for receiving and holding bolts 58, which at the end of a series of sections extend merely
 190 through a cross-connection and through an adjacent wing 57 of the counter and inter-
 195 mediate the ends of said series extend through the wings of two adjacent counters and through the intermediately arranged
 200 cross-connecting tubular part. These aper-
 205 tures are so arranged that the bolts when in place will bring the flanges 53 of the counters in close contact with the edges of
 210 the shelves of the adjacent main section.

This construction is reinforced and tight-

ened by connectors shown in detail in Figs. 5 and 6. Each of these connectors consists of a metal sheet 61 having two outwardly extending lips 62 adapted to enter into appropriate slots 15 and 23 to bind the two together. The tapering form of the slots causes the connectors to have a drawing action pulling the connected parts together and rendering the entire construction rigid. At the tops and bottoms the connectors are bent or bulged outwardly at 63 to permit them to be stuck by a suitable instrument to tighten or loosen them.

Referring to Fig. 1 I have shown in addition to the counter extensions already described, an additional lower extension indicated generally at 71, which is constructed in all respects like the counter extension, the top shelf parts 72 which are constructed like the counter portions 18 are or may be used as steps or foot rests or for low counter parts as occasion may require.

I have arranged for the provision of shelf dividers which will extend continuously through the space between registering shelves and in this instance these dividers consist in a sheet of material 73 having its forward edge bent and returned upon itself at 74 to provide a bead which may be inserted in circular openings 75 in the flange part 56 of the counter. These openings extend clear to the edge to provide a passageway so that the material of the sheet behind the bead passes therethrough.

The divider is provided in its part to be disposed within the extension section with a flange 76 through which bolts 77 may extend and take into the next subjacent shelf. The material of the sheet is cut away at the top to pass the bearers 49 and 14 at the adjacent edges of the connected sections and therebeyond is provided at both its top and bottom with flanges 78 like the flanges 76 and similarly bolted to the shelves of the main section respectively in registration with the counter and with its subjacent shelf. The dividers are provided also with a flange 76 at the top and upon the part extending into the counter providing extension and where these dividers are used between shelves beneath the counter they are bolted through both shelves exactly as they are bolted to the shelves in the main sections. The extension sections may be used as independent sections merely by removing the dividers and the connectors already described. The whole structure is light and durable and readily assembled without the use of special tools and where the shelving may be erected for use.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and ar-

rangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A rack, comprising a main shelf structure including supporting uprights of substantial height, and a lower counter and auxiliary shelf section arrangeable in front of said main structure and bound thereto, said section being a complete separate unit and forming a counter-extension of said main structure.

2. A rack, comprising a main shelf structure including supporting uprights of substantial height and a lower counter and auxiliary shelf section arrangeable in front of said main structure and bound thereto, said section being of complete separate construction and having shelves aligned with the shelves of said main structure and forming continuations thereof.

3. A rack, comprising a main shelf structure including supporting uprights of substantial height and a lower counter and auxiliary shelf section arrangeable in front of said main structure and bound thereto, said section being of complete separate construction and including uprights adjacent said uprights of the main structure, said adjacent uprights being correspondingly slotted, and means engaging in adjacent slots of said uprights for securing said section tightly to said main structure.

4. A rack, comprising frame members bent and formed to provide uprights and cross connections at the top and integral therewith, bearers extending between the uprights at the top, and a shelf or counter member supported on said bearers and secured to said cross connection.

5. A rack, comprising a main shelf-carrying section comprising a main relatively high shelf structure and a complete separate auxiliary or counter-forming section of lower height arrangeable adjacent said main structure, said main structure and said counter-section being provided with shelf members arranged in alignment, the adjacent portions of said shelf members being vertically flanged and in contact with each other.

6. A rack, including framing members extending vertically to form a pair of uprights and integral cross connections therebetween, said framing members being slotted in their vertical parts to receive shelf bearers and at the joints between said vertical parts and said cross connections to receive counter bearers, the material adjacent the line of bend between the horizontal and vertical portions of said members being mitered, and end panels engaged by said members and forming therewith a closed end for the rack,

7. A rack, comprising a main shelf providing section and an auxiliary or counter and shelf providing section arranged to dispose its shelves in alinement with the shelves of the main section, and dividers extending past the junction of the shelves and auxiliary main sections.

8. A rack, comprising a main shelf providing section and an auxiliary or counter and shelf providing section arranged to dispose its shelves in alinement with the shelves of the main section, and a sheet metal divider extending from the front of the auxiliary or counter providing section to the rear of the main section and secured to the shelves of both.

9. A rack, comprising a plurality of shelf providing sections, the shelves of which are independent members, and dividers extending between superimposed shelves and secured thereto and to the shelves of both sections.

10. A rack, comprising a plurality of sections, the shelves of one section being in registration with the shelves of the other, and having flanges downturned at adjacent edges and shelf dividers extending between superimposed shelves, and between the shelves of both sections and secured thereto.

11. A rack, comprising a counter providing shelf having a downturned edge, and a shelf therebeneath, and a divider secured in a slot in the downturned edge of said counter providing shelf and to the shelf therebeneath.

12. A rack, comprising a plurality of rack sections having shelves in registration, the top shelf of one of said sections providing a counter in registration with the shelf of the other, and a divider secured to an edge of said counter providing shelf and to the shelf of the other section in registration therewith.

13. A rack, comprising a pair of rack sections arrangeable one in front of the other and each said section having bearer

receiving slots in the side faces of upright members, and means engaging in said slots of adjoining uprights for connecting said sections together.

14. A rack, comprising two rack sections each comprising uprights having shelf bearer receiving slots, and tie plates engaging in the slots of adjoining uprights of said sections to bind said sections together.

15. A rack, comprising two rack sections each comprising uprights having shelf bearer receiving slots, and tie plates engaging in the slots of adjoining uprights of said sections to bind said sections together, said tie plates exercising a wedging action.

16. A rack, comprising a main rack section, a lower auxiliary rack section separately erectable and arrangeable in front of said main rack section, and tie plates engaging adjacent portions of said rack sections for securing them together.

17. A rack, comprising a main rack section having uprights provided with shelf bearer receiving slots and auxiliary rack sections similarly constructed and arrangeable in front of said main rack section and tie members engaging in the slots of adjoining uprights in said sections to bind the two together.

18. A rack, comprising a main shelf structure including supporting uprights of substantial height, a lower counter and auxiliary shelf section arrangeable in front of said main structure and bound thereto, said section being a complete separate unit and forming a counter extension of said main structure, and another unitary counter and auxiliary shelf section bound to said last-mentioned section and forming a counter extension thereof, the entire rack thus forming a rigid unit composed of sections of different height and the tops of the counter sections being flush with shelves in said shelf structure.

WALTER N. VANCE.