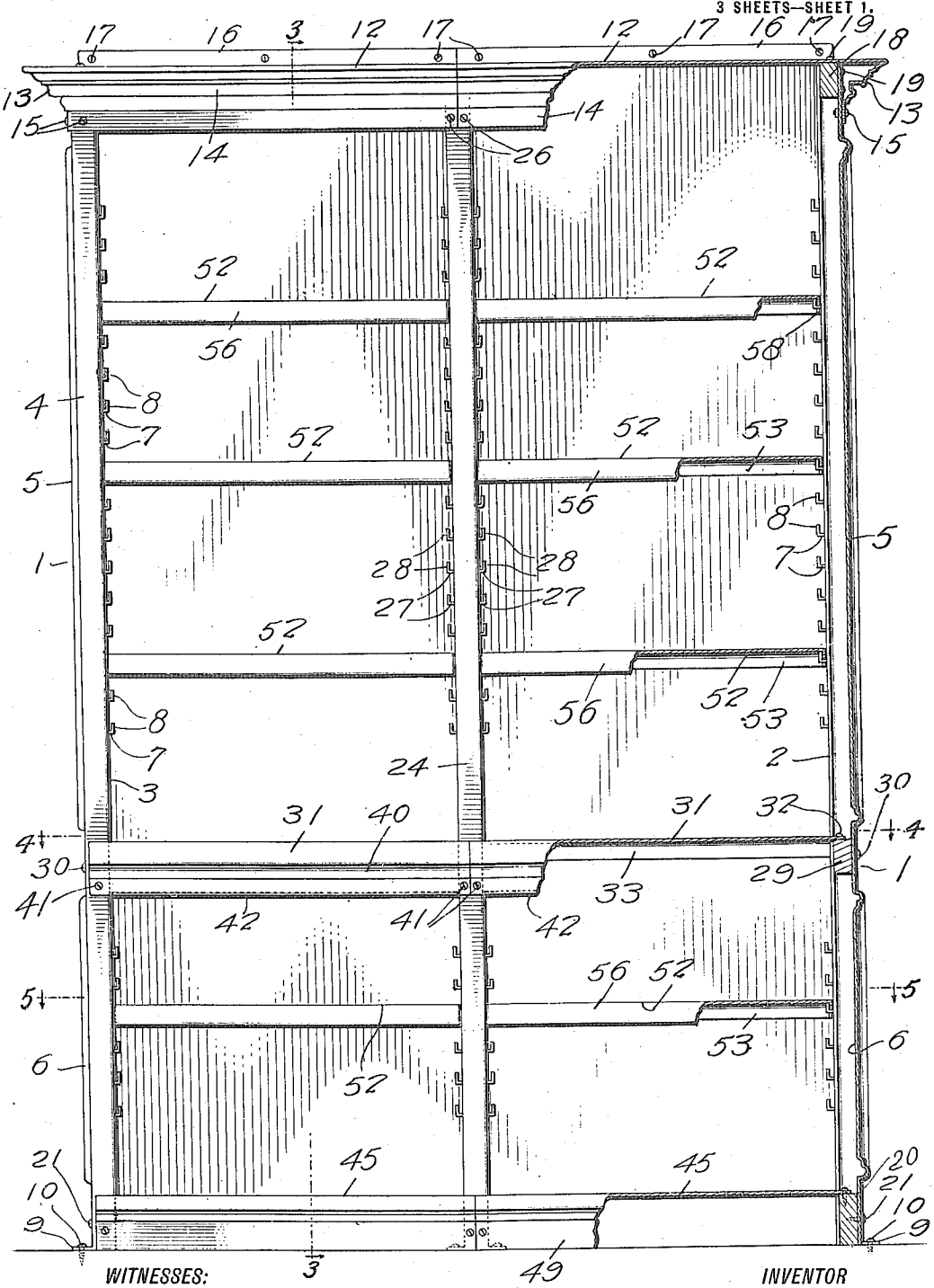
A. T. WINQUIST.

SHELVING.

APPLICATION FILED JAN. 27, 1915.

1,164,439. Patented Dec. 14, 1915.

3 SHEETS—SHEET 1.



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Fig. 1.

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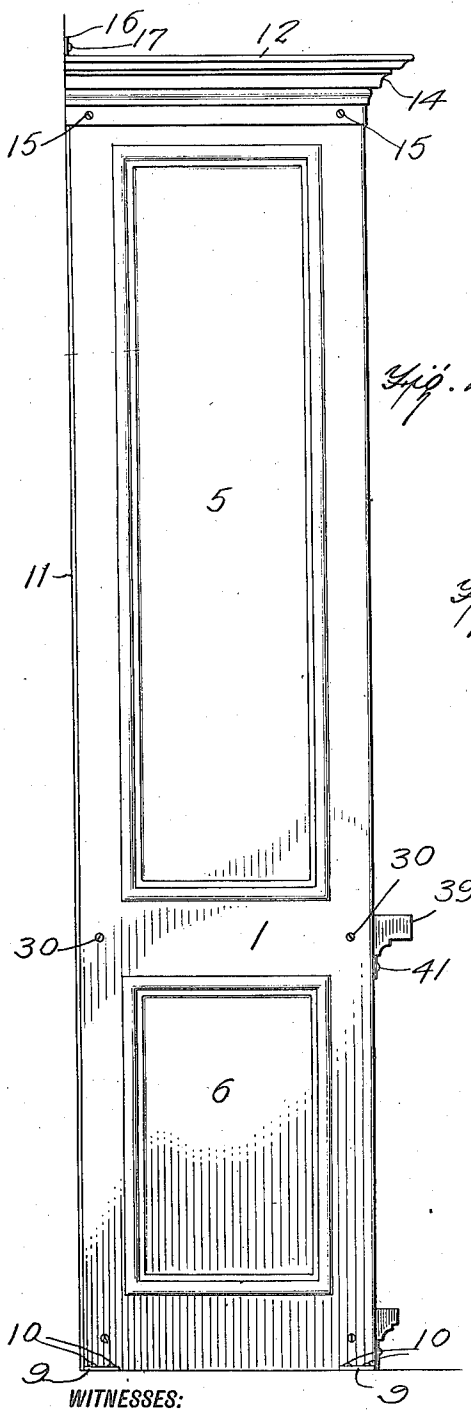


Fig. 2.

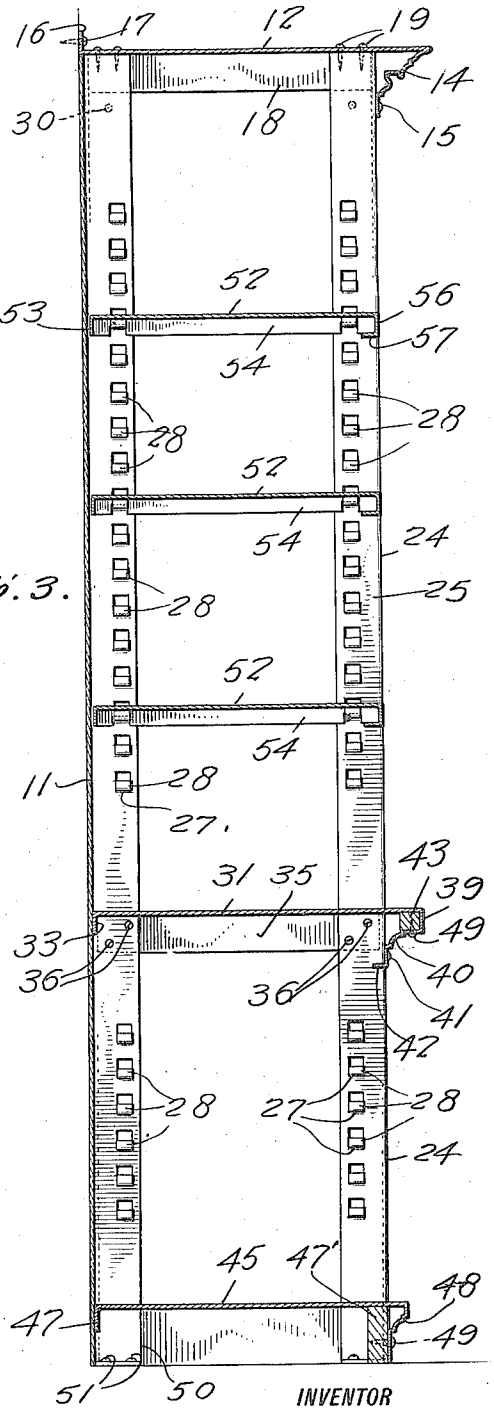


Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 4.

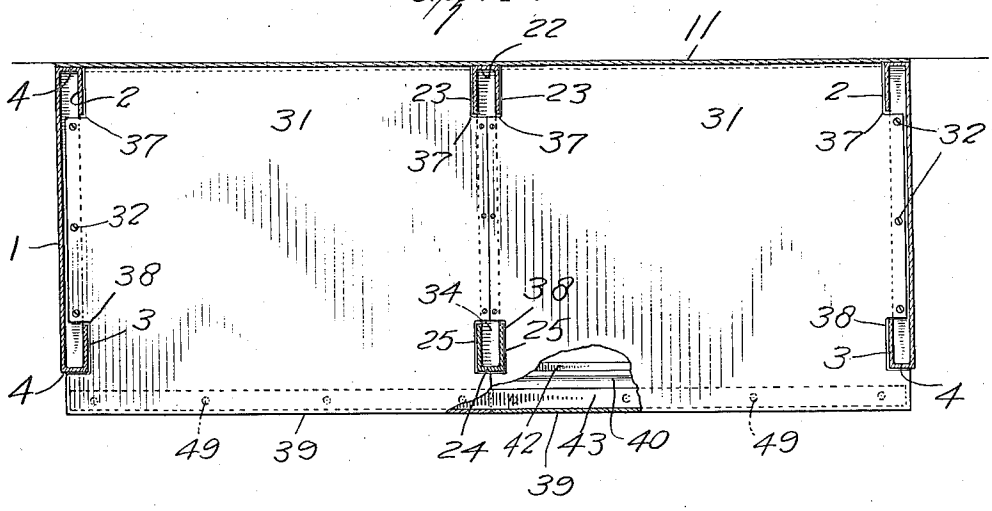


Fig. 5.

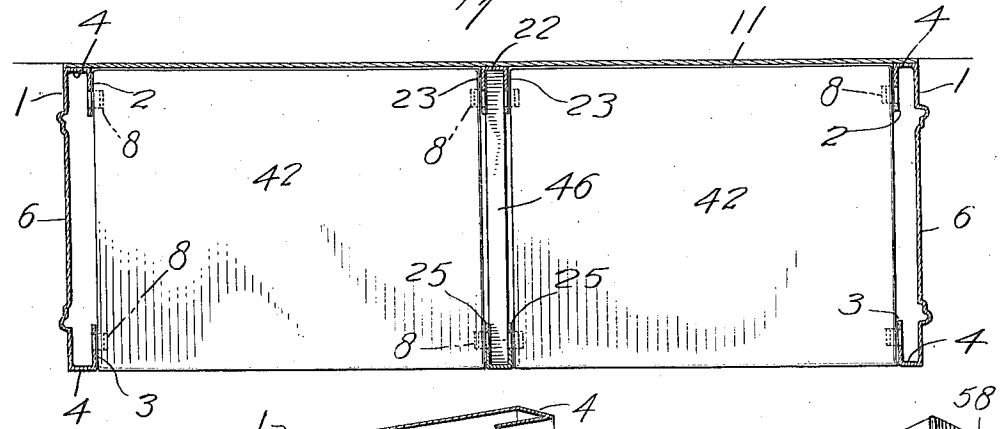


Fig. 6.

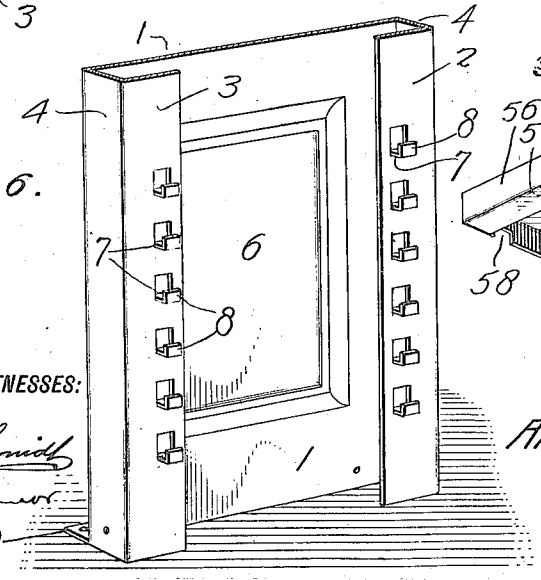
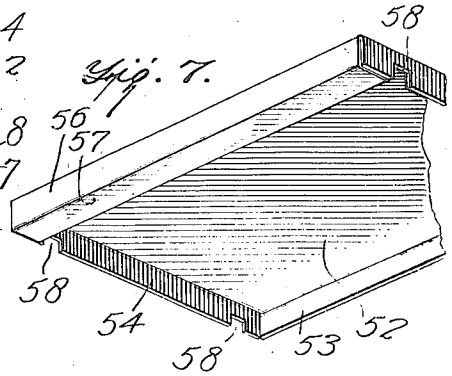


Fig. 7.



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SHELVING.

1,164,439. Specification of Letters Patent. Patented Dec. 14, 1915.

Application filed January 27, 1915. Serial No. 4,759.

To all whom it may concern:

Be it known that I, ANDREW T. WINQUIST, a citizen of the United States, and a resident of Aberdeen, county of Chehalis and State of Washington, have made certain new and useful Improvements in Shelving, of which the following is a specification.

My invention is an improvement in shelving, and has for its object to provide shelving of sheet metal, suitable for use in stores and shops of any character, or for holding books or the like, and of sectional character, capable of being set up or knocked down, and adjustable for varying needs, and wherein the mechanism is such that the shelving may be quickly set up or taken down, may be packed in compact form when knocked down, and which will be of handsome appearance when set up.

In the drawings: Figure 1 is a front view of a section of shelving constructed in accordance with the invention, and with parts in section, Fig. 2 is a side view, Figs. 3, 4 and 5 are sections on the lines 3—3 4—4 and 5—5, respectively, of Fig. 1, each looking in the direction of the arrows adjacent to the line, Fig. 6 is a perspective view of a portion of one end, and Fig. 7 is a similar view of one of the supporting shelves.

The improved shelving is composed of sections or units, each section or unit consisting of end frames and an intermediate frame, the frames being connected, and each of the end frames is formed from a sheet of metal, bent to form a body 1, and flanges 2 and 3 at the side edges of the body, the said flanges overlying the body in spaced parallel relation, and being connected thereto by means of integral webs 4.

The body of each of the end frames 1 may be ornamented in any desired manner, as for instance by stamped panels 5 and 6. Each of the flanges 2 and 3 is provided with a plurality of series of struck-up lugs, the said lugs being formed from the material of the flanges, by slitting the flanges on three lines, two of the lines being parallel, and the third line connecting the first-named lines at one end. The material between the slits is then bent outward to form a horizontal support 7, and upwardly to form a stop 8 at the outer end of the support. One of the series of supports and stops at each flange is at the panel 5 and the other at the panel 6.

At its lower end the body 1 of each end frame is provided with lateral outwardly extending lugs 9, the said lugs being perforated to receive screws 10 or the like for holding the frames to the supporting surface upon which the section or unit rests, as for instance a floor. The back of each unit or section is constituted by a sheet of metal, the said sheet extending flush with the outer faces of the end frames, as shown more particularly in Figs. 4 and 5, and the said sheet is secured to the end frames in any suitable or desired manner.

The top of each unit or section is formed in the present instance by two sheets 12, each sheet extending from the center of the section beyond one of the side frames, and from the rear face of the sheet 11 to and beyond the front webs 4 of the end or side frames. The sheets 12 abut at their inner ends, and it is obvious that a single sheet might be used instead of the two sheets as shown. As before stated the sheets 12 extend beyond the side edges and beyond the front webs 4 of the side or end frames, that is beyond the sides and front of the section. At each end and at the front each sheet is provided with an extension 13 and 14 respectively, the extensions being bent downward and inwardly to fit against the bodies 1 of the side frames and the webs 4 of the said frames. These extensions or flanges 13 and 14 may be ornamented, as shown, by being pressed into ornamented shape, and they are secured to the bodies and to the front webs 4 of the end frames by means of screw bolts 15. The said screw bolts are passed through the extensions 13 and 14 and through the end frames from without inward, and are engaged by the nuts on the inner sides of the said frames and webs. At the rear edge each plate 12 has a flange 16 bent laterally upward and adapted to abut against the wall or other surface against which the shelving is placed, and the said flanges having the openings for receiving screws 17 or the like to hold the sections in position.

The inner ends of the flanges 16, and the inner edges of the extensions 14 abut at the center of the section, as shown in Fig. 1.

A bar 18 of wood or the like is arranged at the point where each plate 12 touches the upper end of the body of the adjacent end frame, the said bars being placed in the corner formed between the plate 12 and the body, and screws 19 are passed through the bodies of the end frames and through the plates 12 into engagement with the bars, to securely connect the parts together. The screws that connect the bodies of the end frames to the bars 18 are behind the extensions 13. Other bars 20 of wood or the like are arranged transversely of the lower ends of the bodies of the end frames, and screws 21 are passed through the bodies into engagement with the bars.

The central frame is constituted by two columns or uprights of channel material, the rear column comprising a body 22 which fits against the inner face of the back 11, and sides 23 extending parallel with respect to each other and at right angles with respect to the body. The front column or upright comprises a body 24 arranged flush with the webs 14 at the front of the side frames, and sides 25 extending parallel with each other and at right angles to the body. The extensions 14 of the plates 12 fit against the outer faces of the body 24 of the front column, and screw bolts 26 are passed through the extensions and through the body of the column to connect the extensions to the column at this point.

The sides 23 and 25 of each column have series of struck-up lugs 27—28 corresponding to the lugs 7—8, each lug comprising a horizontal support 27 and a vertical stop 28 at the outer end of the support. The lugs 7—8 of the end frames are similarly arranged, that is each lug 7—8 of one side frame registers with a lug 7—8 of the other side frame. The lugs 27—28 of the columns are arranged similarly to the lugs 7—8, so that each lug 27—28 registers with a lug 7—8.

A bar 29 of wood is arranged transversely of the body of each side frame between the adjacent ends of the panels 5 and 6, and screws 30 are passed through each side frame into engagement with the adjacent bars. The bars 29 at each side of the frame are at the same level, said bars assisting in supporting shelving or partitions consisting of two sheets 31 of metal, which divides the section into an upper and a lower portion. Each sheet rests at its outer end on the adjacent bar 29, and screws 32 are passed through the end of the sheet into engagement with the adjacent bar.

At its rear edge each sheet 31 has a downwardly extending flange 33, the said flange abutting the inner face of the rear wall or sheet 11, and the flanges may be secured to the sheet in any desired manner. At their inner ends the sheets 31 abut and the abutting edges rest upon a bar 34 of wood whose ends engage between the side walls 23 and 25 of the rear and front columns, and the bars are secured to the side walls by means of screws 36. The ends of the bars 29 are received between the flanges 2 and 3 of the end or side frames, and the said bars 29 and 34 support the sheets 31.

As will be seen from an inspection of Fig. 4 each sheet 31 is notched at its rear edge and at its ends, as indicated at 37 to receive the column 22—23 and the flanges 2 of the end frames, and near its front edge each sheet is notched at its ends, as indicated at 38 to receive the front column and to receive the flanges 3. Each sheet 31 at its front edge extends beyond the front face of the body of the front column, and at the front edge each sheet is provided with a downwardly bent flange 39, and each flange has an extension 40, bent downwardly and inwardly, to lap upon the web 4 and upon the body 24 of the front column.

Screw bolts 41 are passed through the extensions and the webs 4 and the bodies of the column to secure the parts together, and the extensions have an inwardly bent portion 42 extending between the flanges and the side walls 25. A bar 43 of wood is arranged between the bodies 31 of the sheets, the flanges 39 and the extensions 40, and screws 44 are passed through the extensions into engagement with the bar. The bar 43 thus strengthens and reinforces the shelf or partition formed by the sheets 31 at the front of the section.

The bottom of the section is formed by two sheets 45, each sheet resting at its outer end on the adjacent bar 20, and at its inner end upon a bar 46 arranged between the front and rear columns, and having its ends received between the side walls of the columns. The sheets abut at their inner ends, and the rear edge of each sheet has a downwardly extending flange 47 abutting the inner face of the rear wall 11 and secured thereto in any desired manner.

A bar 47′ is arranged at the front of each sheet 45 and below the same, the sheet resting on the bar and each sheet has an extension 48 extending downwardly and inwardly, and lapping upon the front of the bar and secured thereto by screws 49. The extensions 13, 14, 40 and 49 relieve the front of the section, agreeably breaking the severity and plainness of the section, and the said extensions act also to strengthen and reinforce the sections and to cover the bars of wood. Each side wall of the column 24—25 is provided at its lower end with outwardly extending lugs 50 which rest upon the floor and are perforated to receive screws 51 or the like, to hold the section in place.

Each section is completed by a plurality of series of shelves, the shelves of one series being arranged between the front and rear columns and one end, while the shelves of the other series are arranged between the columns and the other end. Each shelf is composed of a sheet 52 of suitable size, having its rear edge flanged downwardly, as indicated at 53, and having its ends also flanged downwardly, as indicated at 54. The front edge of each sheet is flanged downwardly, as indicated at 56, and each flange has an inwardly extending rib or web 57 lying parallel with the body of the sheet in spaced relation.

Each of the end flanges 54 of each sheet is notched, as indicated at 58 for receiving the adjacent lugs 7—8 or 27—28, as the case may be. The notches 58 are spaced apart to properly engage the lugs of the end frame or of the columns, a pair of lugs of each end frame registering with a pair of lugs of the columns. The shelves may be arranged in different positions, and the members of each series may be at the same level or at different levels, as may be desired. The shelves constituted by the sheets 31 and 45 are fixed, but all of the other shelves are adjustable vertically. The movable shelves are also interchangeable. It will be understood that the sheets of metal forming the back of the shelving may be omitted if desired.

I claim:

1. Shelving consisting of sections or units, each unit being composed of side frames of sheet material, each frame comprising a body and flanges overlying the body in spaced parallel relation and connected to the body by integral webs, the said frames being spaced apart, and approximately parallel with each other, front and rear columns arranged between the side frames, each column being of channel material and comprising a body in the same plane with the adjacent webs of the side frame and sides extending inwardly parallel with each other, a plate of sheet metal connecting the rear column and the side frames and abutting the outer faces of the rear webs and the body of the rear column, a sheet metal top extending from the rear face of the back to and beyond webs at the front of the side frames and beyond the outer faces of the bodies of the side frames, said sheet having extensions extending downwardly and inwardly and connected to the side frames and the front column, reinforcing bars arranged transversely of the bodies of the side frames and between the columns at the top and the bottom and intermediate the top and the bottom of the section, said bars resting on the supporting surface at the bottom of the section and fitting against the inner face of the top at the top of the section, said bars being secured to the side frames and top and to the columns, and the ends of the bars extending between the flanges of the side frames and between the sides of the columns, fixed sheet metal shelves supported by the bars at the bottom of the section and by the bars intermediate the top and bottom of the sections and secured to the said bars, each shelf having at its front edge an inwardly and downwardly extending extension, and movable shelves arranged between each side frame and the central columns, each of the movable shelves being of sheet metal having downwardly extending flanges at its side edges and end, the flanges of each side frame and the side walls of each column having supporting lugs for the shelves, each lug comprising a horizontal supporting portion and a vertical stop, the end flanges of the shelves being notched at the lugs for receiving the same.

2. Shelving consisting of sections or units, each unit being composed of side frames of sheet material, each frame comprising a body and flanges overlying the body in spaced parallel relation and connected to the body by integral webs, the said frames being spaced apart, and approximately parallel with each other, front and rear columns arranged between the side frames, each column being of channel material and comprising a body in the same plane with the adjacent webs of the side frame and sides extending inwardly parallel with each other, a plate of sheet metal connecting the rear columns and the side frames and abutting the outer faces of the rear webs and the body of the rear columns, a sheet metal top extending from the rear face of the back to and beyond webs at the front of the side frames and beyond the outer faces of the bodies of the side frames, said sheet having extensions extending downwardly and inwardly and connected to the side frames and the front column, reinforcing bars arranged transversely of the bodies of the side frames and between the columns at the top and the bottom and intermediate the top and the bottom of the section, said bars resting on the supporting surface at the bottom of the section and fitting against the inner face of the top at the top of the section, said bars being secured to the side frames and top and to the columns, and the ends of the bars extending between the flanges of the side frames and between the sides of the columns, fixed sheet metal shelves supported by the bar at the bottom of the section and by the bars intermediate the top and the bottom of the sections and secured to the said bars, each shelf having at its front edge an inwardly and downwardly extending exten-

sion, and movable shelves arranged between each side frame and the central column, and means in connection with the side frames and columns for supporting the shelves at different levels.

3. Shelving consisting of units, each unit being composed of side frames of sheet material, each frame comprising a body and flanges and a flange at each side edge overlying the body on the inner face thereof in spaced relation, front and rear columns of channel shape arranged between the frames with the channels inward, a rigid sheet metal connection between the frames and the columns at the top and intermediate the top and bottom, and movable shelves of sheet metal between each side frame and the columns, the flanges of the side frames and the side walls of the column having registering lugs for engagement by the shelves, each shelf having a depending marginal flange, and the end flanges being notched to receive the lugs, and rigid reinforcing bars arranged transversely of the end frames and between the columns.

4. Shelving consisting of units, each unit being composed of side frames of sheet material, each frame comprising a body and a flange at each side edge overlying the body on the inner face thereof in spaced relation, front and rear columns of channel shape arranged between the frames with the channels inward, a rigid sheet metal connection between the frames and the columns at the top and intermediate the top and bottom, and movable shelves of sheet metal between each side frame and the columns, the flanges of the side frames and the side walls of the column having registering lugs for engagement by the shelves, each shelf having a depending marginal flange, and the end flanges being notched to receive the lugs.

5. Shelving consisting of units, each unit being composed of side frames of sheet material, each frame comprising a body and a flange at each side edge overlying the body on the inner face thereof in spaced relation, front and rear columns of channel shape arranged between the frames with the channels inward, a rigid sheet metal connection between the frames and the columns at the top and intermediate the top and bottom, and movable shelves of sheet metal between each side frame and the columns, the flanges of the side frames and the side walls of the column having registering lugs for engagement by the shelves.

6. Shelving consisting of units, each unit comprising end frames of sheet metal having flanges overlying the inner faces of the bodies of the frames in spaced relation, columns of channel material between the frames and arranged with their channels adjacent, the side walls of the columns and the flanges of the frames having registering lugs, and shelves of sheet metal resting on the lugs, and rigid connections of sheet metal between the end frames and the columns.

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B. E. CAUTHORN.