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HOLD-DOWN CLIP FOR SHELF

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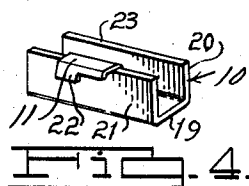
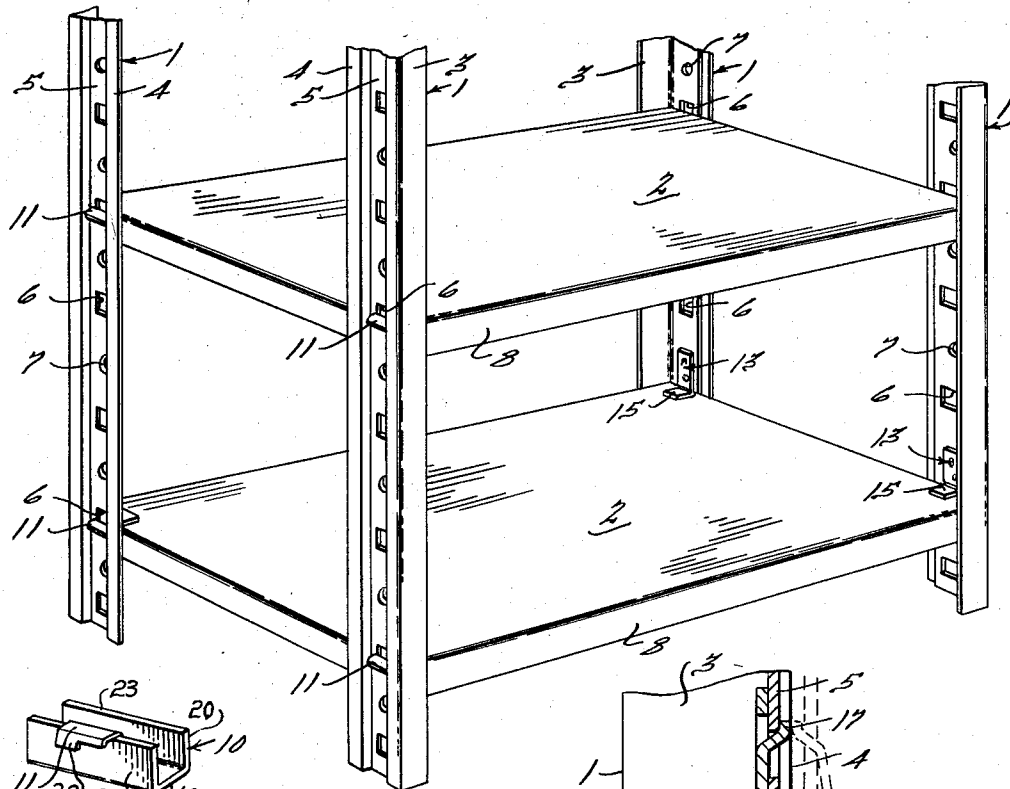


Fig. 1.

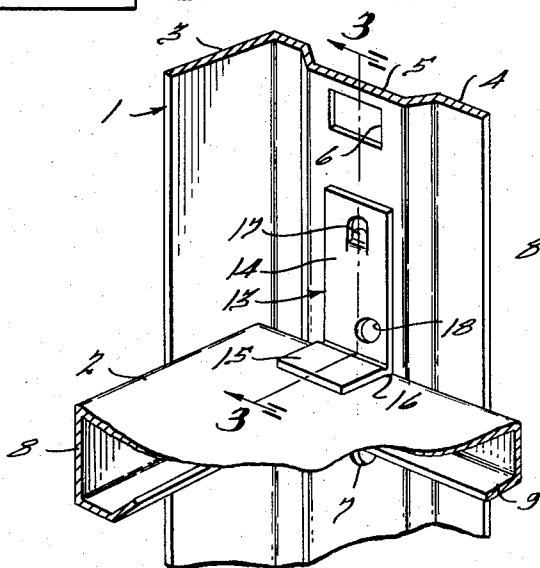


Fig. 2.

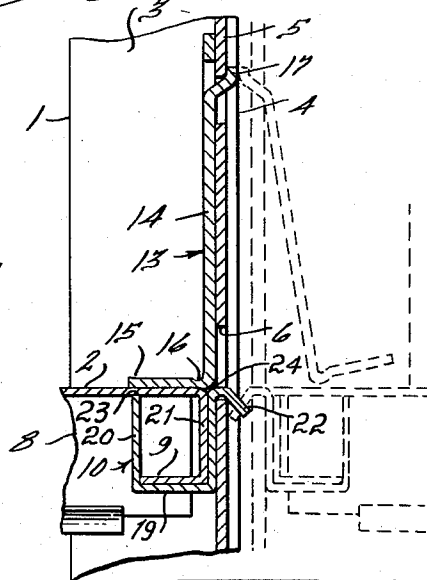


Fig. 3.

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## HOLD-DOWN CLIP FOR SHELF

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7 Claims. (Cl. 211-136)

This invention relates to improvements in metal shelving and particularly to a hold-down clip for locking a shelf to its support.

The main objects of this invention are: to provide a hold-down clip which clamps the shelf to its support; to provide a hold-down clip for metal shelving which is of angular form having a rib section at the corner and a finger at the top end which interlock between a shelf and upright, and in general to provide locking means for a shelf which is simple in construction, positive in operation and economical of manufacture.

Other objects relating to details of the invention will appear from the description to follow of a preferred embodiment of the invention illustrated in the accompanying drawing, wherein:

Figure 1 is a broken perspective view of a shelving structure embodying the features of the present invention;

Fig. 2 is an enlarged fragmentary view of the structure illustrated in Fig. 1, showing details of the lock for the shelf;

Fig. 3 is an enlarged sectional view of the structure illustrated in Fig. 2 taken on the lines 3-3 thereof, with parts of one unit shown in full lines and an adjacent unit shown in dotted lines for illustrating certain of the steps in erecting, and

Fig. 4 is a perspective view of a shelf supporting bracket.

The embodiment of the invention illustrated in the drawing comprises four uprights or columns 1 of angular section disposed with the angles facing inwardly. The shelves designated generally by the numeral 2 are formed of sheet metal. Desirably the side flanges 3 of the uprights are relatively narrow as compared to the end flanges 4 which are longitudinally offset or ribbed at 5. This substantially stiffens the flanges of the uprights and provides clearance for the shelving supports when sections are disposed in end to end relation as indicated by full lines and dotted lines in Fig. 3.

The offset portions of the uprights have a vertical series of rectangular apertures 6 and circular apertures 7 arranged in alternating relation.

The shelves 2 have downwardly and inwardly turned flanges 8 extending along the side edges thereof and downwardly and inwardly turned flanges 9 on their front and rear edges. As shown in Fig. 3, the flanges 8 are preferably wider than the flanges 9 so that the turned portion thereof extends below the end flanges, permitting the end flanges to extend into end edge abutting relation with the inner sides of the side flanges.

The shelves are supported from the uprights by hanger brackets designated generally by the numeral 10. These are of upwardly facing channel section having a web 19 and two side flanges 20 and 21 and of such dimension as is best shown in Figs. 3 and 4. The sides 21 of the hanger brackets have outturned flanges 11 on their upper edges engageable with rectangular apertures 6 in the uprights. One half of the flange 11 extends downwardly at 22 to form a securing hook portion, leaving the re-

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mainder of the space for the half of the flange 22 extending from the opposite hanger bracket, as illustrated in Fig. 3. The shelves have the downwardly and inwardly disposed edge flanges 9 placed within the brackets between the sides 20 and 21 thereof, the sides 21 being disposed in abutting relation to the uprights. The top edge 23 of the flange 20 of the brackets 10 engages the undersides of the shelves. All of the above structure is illustrated, described and claimed in the copending application of William B. Lyon, Serial No. 436,425, filed June 14, 1954, and assigned to the assignee of the present invention.

The shelves are locked in the hangers by hold-down clips or members, designated generally by the numeral 13, which are of angular shape. The vertical portion 14 of the clip is supported against the side of the uprights and its horizontal portion 15 is disposed in overlapping relation to the top surfaces of the shelves. The clip has a laterally and upwardly extending lug 17 struck from the vertical portion 14 near the top thereof. The lug extends through a circular aperture 7 in the upright above the aperture 6 with which the hanger bracket is engaged.

The hold-down clip 13 is of such length that the horizontal portion 15 engages the shelves to lock it in the associated bracket. The clip 13 is provided with a rib or offset 16 in extension of the vertical portion 14 and below the horizontal portion 15, the offset engaging the groove-like recess 24 between the top edge of the shelf and the top of the hanger bracket. When the clip 13 is in position, the rib 16 is disposed in a recess and securely holds the clip in assembled position.

When the shelf structure is to be assembled, the brackets 10 are hooked into selected apertures 6, and a shelf 2 is placed thereon as is illustrated in Fig. 3. The lugs 17 of the clips 13 are inserted in an aperture 7 as indicated by dotted lines in Fig. 3 and forced into locking position, as shown by full lines, with the horizontal portion 15 in engagement with the top surface of the shelf. In this position the ribs 16 extend into the recesses at the shelf edges and retain the clips 13 in locking position. An aperture 18 is provided through the vertical portion 14 of the clip 13 near the bottom thereof to permit a rod to pass therethrough and through the adjacent aperture 6 to engage a clip on the opposite section and force the rib 16 from the recess so that the clip can readily be removed. It will be noted that the aperture is located at one side of the center line so that when the clips are disposed with the vertical portion in back to back relationship, the apertures 18 will be out of aligned relationship.

What is claimed is:

1. A clip for clamping a shelf to brackets secured on uprights, said clip having a vertical portion and a horizontal portion at the bottom of the vertical portion in substantially right-angular relationship, the vertical portion being extended below the horizontal portion to form a rib, and means at the upper end of the vertical portion by which it is secured to an upright.

2. A clip for clamping a shelf to brackets secured on uprights, said clip having a vertical portion and a horizontal portion at the bottom of the vertical portion in substantially right-angular relationship, the vertical portion being extended below the horizontal portion to form a rib, and a lug extending from said vertical portion on the side opposite to that from which the horizontal portion extends.

3. A clip for clamping a shelf to brackets secured on uprights, said clip having a vertical portion and a horizontal portion at the bottom of the vertical portion in substantially right-angular relationship, the vertical portion being extended below the horizontal portion to form

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a rib, and a lug extending from said vertical portion on the side opposite to that from which the horizontal portion extends, said vertical portion having an aperture in lateral offset relation to its center line.

4. A clip for securing a shelf when supported on an upright, said clip having a flat vertical web and a flat horizontal web extending therefrom at the bottom of the vertical portion, said vertical web extending below the horizontal web forming a rib, said vertical web having a lug struck therefrom which extends from the side thereof opposite to that having the vertical web thereon.

5. A clip for securing a shelf when supported on an upright, said clip having a flat vertical web and a flat horizontal web extending therefrom at the bottom of the vertical portion, said vertical web extending below the horizontal web forming a rib, said vertical web having a lug struck therefrom which extends from the side thereof opposite to that having the vertical web thereon, said vertical web having an aperture therethrough in offset relation to the center line thereof.

6. In a shelf structure, an upright having openings therethrough, a shelf supporting bracket supported in one of said openings, a shelf supported by said bracket, and a clip having one portion secured in an opening in said upright and a lower portion extending over the edge of the shelf in locked relation thereto, said clip having a horizontal portion near its lower end which engages the top of the shelf.

7. In a shelf structure, an upright having openings

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therethrough, a bracket supported in one of said openings, a shelf supported on said bracket having a flanged edge extending thereinto and spaced from the upright thereby, a clip having a vertical and horizontal portion disposed in angular relationship, a rib in continuation of said vertical portion extending below said horizontal portion, and means extending from the side of the vertical portion opposite to that from which the horizontal portion extends engaged in an opening in said upright, with the horizontal portion engaged with the top of the shelf and the rib extending therebelow for engaging the flanged edge for locking said clip and the shelf in secured position.

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