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R. E. SMOLA ET AL
BRACKET FOR METAL SHELVING

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2 Sheets-Sheet 1

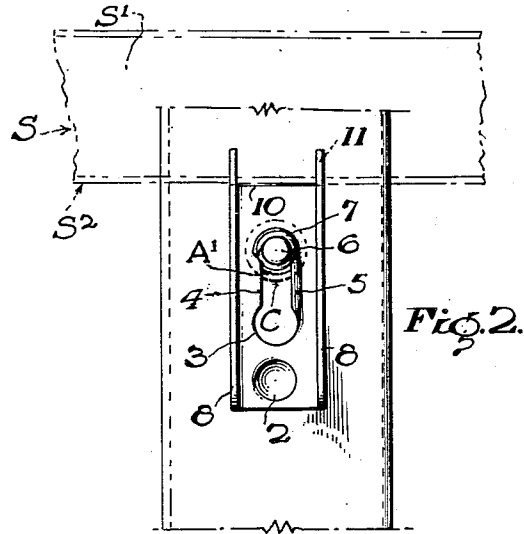
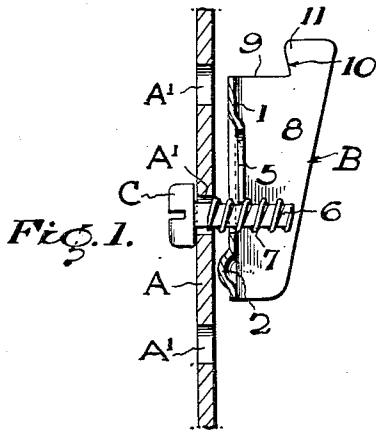


Fig. 3.

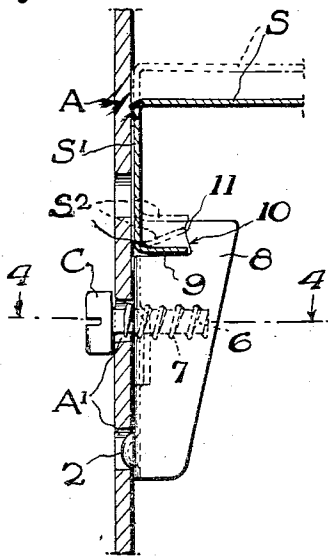
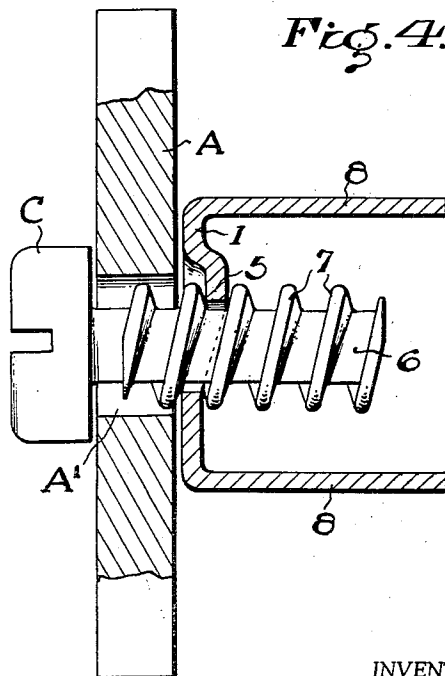


Fig. 4.



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BRACKET FOR METAL SHELVING

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2 Claims. (Cl. 211—147)

This invention relates to metal shelving, more particularly to a bracket for supporting adjustable steel shelving on the usual uprights.

One of the objects of the invention is to provide a metal bracket which readily lends itself to convenient manufacturing procedures, and which may be firmly and positively held at a selected location on the uprights to support metal shelves firmly in position, by a simple manual manipulation at the time the installation is made, or subsequently, when it is desired to change the height of some of the shelves.

Another object of the invention is to provide a bracket with a keyhole slot having one edge of its tail portion deflected to provide a thread engaging lip for cooperation with a fastening having a screw shank. Thus, when the bracket is applied to the upright, the bracket, including means for preventing twisting, may be firmly drawn toward the upright to avoid looseness and angular movement between the bracket and the upright.

A further object of the invention is to provide a bracket of substantially U-shaped cross section resulting in the formation of wings whose upper shelf engaging portions are notched or recessed to provide an undercut shelf flange receiving seat, the formation being such that the seat itself is provided with an overhanging retaining shoulder which enables the shelf flange to snap into position to engage the shelf supporting seat, and, thereafter, prevents upward accidental displacement of the shelf, as for example, when it is unloaded and there is possibility that it may be accidentally struck an upward blow either by a load being moved, or some other similar causes.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Fig. 1 is a vertical sectional view of a portion of a shelving upright, with the bracket also in section, as the bracket is about to be applied in position for use.

Fig. 2 is an elevation, partly in section, showing an upright and a related shelf, and viewing the bracket at right angles to the position shown in Fig. 1.

Fig. 3 is a vertical sectional view, partly in elevation, showing the bracket in final position on the upright and supporting a shelf, the lower inwardly directed flange of the shelf being shown partly in dotted lines to illustrate how the flange snaps bind the retaining shoulder of the bracket.

Fig. 4 is an enlarged cross sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is an exploded view illustrating the manner of using the brackets back-to-back in connection with a plurality of upright elements.

Fig. 6 is a view of the parts shown in Fig. 5 as drawn to final position.

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Similar reference characters designate corresponding parts throughout the several figures of the drawing.

The upright A is intended to support the bracket B which is turn is intended to support the ends of the shelf S.

5 The upright A is provided with a plurality of equally spaced openings A', any selected pair of which may be chosen to apply the bracket B.

The shelf S is provided with a downturned flange S' and an inwardly turned bottom flange S2, in accordance with conventional practice.

Referring to the bracket B, it will be observed that the same includes a body of substantially channel or U-shaped transverse cross section. This formation provides a web 1 whose lower portion is provided with a struck-out anchoring projection 2 which may be conveniently made in the form of a dimple or blister at the time of formation. Above the anchoring projection 2, the web 1 is provided with a keyhole slot comprising the circular portion 3 and the tail portion 4. One edge of said tail portion is deflected to form a thread engaging lip 5. This lip extends along the straight portion of one side of the slot and continues as an arc into the tail portion of the slot where it feathers off within the circular upper end of the tail portion. This lip is shown in an enlarged scale in Fig. 4.

25 The key slot is intended to cooperate with a fastening or stud C provided with a slotted head and a screw threaded shank portion 6 so that the threads 7 of the shank 6 will engage with the lip 5, as clearly shown in Fig. 4.

At this point it may be noted from Figs. 1, 2 and 3, that the bracket B is initially placed adjacent the upright A so that the threaded shank 6 of the stud C will enter the circular portion 3 of the keyhole slot. (Figs. 1 and 2.) The bracket B may then be moved downwardly until the anchoring projection 2 fits into the subjacent opening A' in the upright A, whereupon the stud C may be turned, and with the thread 7 of the stud in engagement with the lip 5, the bracket may be made fast against the upright A, as shown in Fig. 3.

Referring further to the bracket B, it will be observed that the same is provided with the laterally spaced side members or wings 8 whose upper end portions are provided with notches or recesses to provide a horizontal seat 9 for supporting the flange S2 of the shelf. Moreover, the notch or recess is bounded at one side by an inwardly and downwardly inclined wall 10 which at its junction with the top edge of the wing provides a retaining shoulder 11. Thus, the arrangement described provides in effect a shoulder 11 overhanging the seat 9 so that when the bracket is assembled to the upright, the flange S2 enters the notch or recess through a relatively constricted mouth. The flange S2 has inherent flexibility and when it engages the retaining shoulder 11 it will bend as indicated by the dotted lines in Fig. 3 and then snap into the recesses at the upper end of the wings 8. It will, of course, be understood that the side wall S' of the shelf is in contact or engagement with the inner sides of the upright A so that when the horizontal lower flange S2 of the shelf clears shoulder 11 and rests on the seat 9, the flange will be retained against accidental upward displacement. Thus, when the shelf is in position on the bracket it will be restrained against undesirable upward lifting movement, unless and until it is desired to change the elevation of the shelf, whereupon pressure on the underside of the shelf S will enable flange S2 to snap upwardly past the shoulder 11 in making its exit.

It will now be apparent that the bracket B may be initially assembled to the upright A, as shown in Figs. 1 and 2, and when moved downwardly with the shank 6 of the stud in the key slot, the lower anchoring projection 2 will engage the subjacent opening A', and steady the clip against twisting about the shank 6 so that when the stud

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is rotated with a convenient tool the threads 7 of the shank engaging the lip 5 will firmly draw the clip into final position.

It may further be pointed out that the lower projection 2 also serves the purpose of accurately locating the bracket on the upright and thereby assures that the several shelves will be held in parallel relationship.

The present invention also has the advantage that it provides a shelf supporting arrangement that will permit the brackets to be mounted in back-to-back relationship, irrespective of variations in the thickness of metal comprising the upright.

For example, as shown in Figs. 5 and 6, the brackets B and B' may be used in pairs at either side of the upright, which in this case may comprise the uprights A2 and A3 with an intervening side sheet D.

Referring to Fig. 5, stud C is inserted into the slot of bracket B to its fullest extent as shown in Fig. 6. Together the bracket B and stud C are inserted into the desired position in the corner supports or uprights A2 and A3 and side sheet D or any combination thereof. Bracket B' is then placed over stud C and positioned and tightened as previously described. Dimension X, Fig. 5, must exceed dimension Y to allow stud C to turn freely while bracket B' is being drawn to the supports A2 and A3. That is to say, dimension X provides space for the stud C to turn freely in bracket B while pulling bracket B' tight to the upright assembly.

We claim:

1. A mounting for metal shelves, having downwardly and intumed flanges, comprising, in combination, an upright member provided with a vertical series of equally spaced openings, a bracket including a web having an anchoring projection on its outer face and provided above said projection with a key slot whose tail portion is deflected to form a thread engaging lip to serve as a nut integral with the bracket, wings on each edge of the web, a stud having a screw shank for freely entering an opening in the upright paired with the opening engaged by the projection whereby the screw shank will engage the lip to draw the bracket toward the upright to prevent vertical and angular movement of the bracket, horizontal flange supporting seats adjacent the upper ends of the wings, retaining shoulders overlying portions of the flange receiving seats, whereby, when the bracket is firmly mounted on the upright by the head of the screw engaging the upright

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and with its threads cooperating with said lip as a nut, the distance between the shoulder and the upright will be less than the distance between the inner end of the seat and the upright, and the intumed shelf flange will snap past the shoulder to rest on the seat and be held against accidental upward displacement.

2. A mounting for metal shelves, having downwardly and intumed flanges, comprising in combination, an upright assembly including a plurality of members provided with a vertical series of equally spaced registering openings, brackets on opposite sides of said assembly and each including a web having an anchoring projection on its outer face and provided above said projection with a key slot whose tail portion is deflected to form a thread engaging lip to serve as a nut integral with the body, wings on each edge of the web, a stud common to both brackets and having a screw shank for initially entering the circular portion of the key hole slot paired with the opening engaged by the projection whereby as the tail portion of the slot is moved onto the screw shank said shank will engage the lip of each bracket to draw both brackets toward the upright assembly to prevent vertical and angular movement of the bracket, horizontal flange supporting seats adjacent the upper ends of the wings, retaining shoulders on the wings overlying portions of the flange receiving seats, whereby, when the brackets are firmly mounted on the upright assembly the distance between the shoulder and the upright will be less than the distance between the inner ends of the seats and the upright assembly, and the intumed shelf flanges will snap past the shoulders to rest on the seats and be held against accidental upward displacement.

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