BOLTLESS METAL SHELF CONSTRUCTION WITH MOUNTING CLIPS

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This invention relates to a knock-down or boltless metal shelf construction in general and shelf-mounting units or compression-type clips in particular.

The primary object of the invention is to provide shelf mounting compression strip units for use with T-shaped uprights including means to frictionally retain back panels in place against the cross heads of the uprights.

Another object of the invention is to provide shelf mounting compression clip units including means to removably retain bars for use in supporting shelves for heavy load application.

Another object is to provide shelf mounting units of the character above described in combination with shelves of special weldless but strengthened corner constructions.

Yet another object of the invention is to provide metal shelf mounting compression clips which, although very sturdy and functional, are nevertheless relatively simple in construction and easy to manipulate for mounting on the uprights and for receiving the corners of the shelves.

These and other objects of the invention will become more apparent as the following description proceeds in conjunction with the accompanying drawing wherein:

FIGURE 1 is a perspective view of a metal shelving construction employing the instant mounting units;

FIGURE 2 is an enlarged group perspective view of the mounting unit;

FIGURE 3 is a partial perspective view of a shelf showing the special corner construction.

Specific reference is now made to the drawings wherein similar reference characters are used for corresponding elements throughout.

The boltless metal shelf construction employing the mounting units of the instant invention is indicated at 10 and comprises T-shaped uprights 12, units 14 mounted on the uprights, back panels 16 against the uprights, shelves 18 mounted on the units 14 and, in applications for heavy loads (usually in excess of 1000 lbs./shelf), shelf-supporting bars 20. The T-shaped uprights include vertical cross heads 22 and vertical legs 24 perpendicular thereto, the latter including spaced openings 26.

Each mounting unit includes a pair of complementary clips 28 and 30. Clip 28 has a vertical body portion 32 with an aperture 34 therein in the form of a bayonet slot having a lowered enlarged portion 36 and an upper reduced portion 38 at its lower edge and opening therethrough the body portion 32 is provided with an additional slot having a reduced upper portion 40 and enlarged lower portion 42. The upper end of the body portion 32 is provided with an outwardly and outwardly inclined flared portion 44 which, at its junction with the body portion, also includes a ledge 46 of different inclination than that of the main dimension of the flared portion 44.

The complementary clip 30 also has a vertical body portion 48 of dimension equal to body portion 32 of clip 28 and an upwardly and outwardly inclined flared portion 50 at its upper end equivalent to flared portion 44 of clip 28, said flared portion 50 also including a ledge 52 at its junction with portion 48. Outstruck from body portion 48 are spaced fingers 54 including enlarged heads 56 which approximate the dimensions of enlarged portions 36 and 42 of the slots 34 in the other clip 28 and reduced shanks 58 which approximate the dimensions of the reduced portions 38 and 40 of said slots 34.

Extending rearwardly from each body portion 32 and 48 coextension therewith and at an angle outwardly thereof (that is outwardly relative to the leg 24 of the upright 12) is a flange 60. Extending the full length of the body portions 32 and 48 and the flared upper ends 44 and 50 of the clips 28 and 30 are forward flanges 62 having elongated slots 64.

The self-supporting bars 20 for heavy load applications each include a flat plate 66 having an upper angulated flange 68 and a flat ledge 70 that is adapted to engage and support the shelf. One end of the bar is reduced and includes a bottom opening hook 72.

The shelf 18 includes a top member 74 and depending flanges having vertical portions 76 and 78 and horizontal portions 80 and 82. The horizontal portions at the corners are cut away as at 84 to allow for clearance of the flared upper ends 44 and 50 of the clips. The corner is made by overlapping the horizontal flange portions 76 and 78 and holding them together not by welding or bolts but by providing the horizontal flange portion 76 of one side with a lip 86 which is bent over and pressed against the overlapped portions.

In use, the clips are assembled on the uprights by passing the fingers 54 of clip 30 through a pair of adjacent openings 26 in the leg 24 of the uprights. The fingers are also passed through the enlarged portions 36 and 42 of the slots 32 of the other clip 28 which is then moved downwardly so that the shanks 58 of the fingers extend through the reduced portions 38 and 40 of the slots whereby the clips are held together and on the upright.

The back panels 17 are then placed against the cross heads 22 of the uprights behind the rear flanges 60 of the clips. The shelves are then mounted on the clips by having the corners of adjacent shelves engage over the flared portions 44 and 50 of the clips, and an FIGURE 3, in the cut out portions 84 of the corners and until the interlocked lips 86 bear on the ledges 46 and 52. In this position the clips spread slightly and tighten and the rear flanges 60 frictionally retain the back panels 17 pressed against the cross heads 22 of the uprights.

In the heavy duty applications, the clips are also assembled on each clip by passing the hook end 72 thereof through the slot 64 and by moving the same downwardly until the hook engages the lower edge of the slot. The bar extends forwardly and the flat portion 70 of its flange becomes a bearing surface for the shelf.

While a preferred embodiment of the present invention has been shown and described above, it will be understood that skilled artisans may make minor variations without departing from the spirit of the invention and the scope of the appended claims.

I claim:

1. In a boltless metal shelf construction having T-shaped uprights each including a cross head and leg and spaced openings in the leg, shelves with depending flanges, and back panels; mounting units each including a pair of complementary clips having vertically extending body portions, the body portion of one clip having horizontally extending fingers passing through a pair of openings in said upright leg and the body portion of the other clip having apertures receiving said fingers, each clip further including an upwardly and outwardly flared portion on the upper end of said body portion and a vertical flange extending rearwardly from said body portion, said rearward vertical flanges bearing on said back panels and pressing them against said upright cross
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3. The combination of claim 1 wherein each of said flanges extends at an outward angle to said body portion.

5. The combination of claim 1 wherein each of said fingers in one of said clips includes an enlarged head and reduced shank and each of said apertures in the other of said clips is a bayonet-type slot having a lower enlarged portion slightly greater than said enlarged head and an upper reduced portion slightly larger than said reduced shank whereby said other clip is retained on said one clip.

4. The combination of claim 1 and a vertically extending flange at the forward end of said body portion, said forward flange including an elongated slot and a forwardly extending shelf-supporting bar having a hook end adapted to extend into said slot and hook over an edge thereof.

5. In a bottleless metal shelf construction having T-shaped uprights each including a cross head and leg and spaced openings in the leg, shelves with depending flanges and shelf-supporting bars with a hook at one end thereof; mounting units each including a pair of complementary clips having vertically extending body portions, the body portion of one clip having horizontally extending fingers passing through a pair of openings in said upright leg and the body portion of the other clip having apertures receiving said fingers, each clip further including an upwardly and outwardly flared portion on the upper end of said body portion and a vertical flange at the forward end of said body portion and including an elongated slot, said elongated slot adapted to receive the hook end of said shelf-supporting bar, the depending flanges of said shelves at their corners extending between the upright cross head and said flared portion on one side and between the upright leg and said flared portion on the other side.

6. The combination of claim 5 wherein each of said fingers in one of said clips includes an enlarged head and reduced shank and each of said apertures in the other of said clips is a bayonet-type slot having a lower enlarged portion slightly greater than said enlarged head and an upper reduced portion slightly larger than said reduced shank whereby said other clip is retained on said one clip.

7. The combination of claim 1 wherein the depending flanges of each shelf includes vertical and horizontal portions, the horizontal portions being cut away at the corner to allow clearance for said flared portion of the clip, the corner being formed by overlapping the vertical flange portions and a lip on one of said horizontal flange portions interturn over the other overlapped vertical flange portion.

References Cited in the file of this patent

UNITED STATES PATENTS

1,843,262 Bales ........................ Feb. 2, 1932
1,861,972 Fenstermaker .................. Aug. 16, 1932
1,880,179 Onions ......................... Sept. 27, 1932

FOREIGN PATENTS

1,217,217 France .......................... Dec. 7, 1959