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J. T. BOLTON

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DISPLAY SHELF CONSTRUCTION

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FIG_1

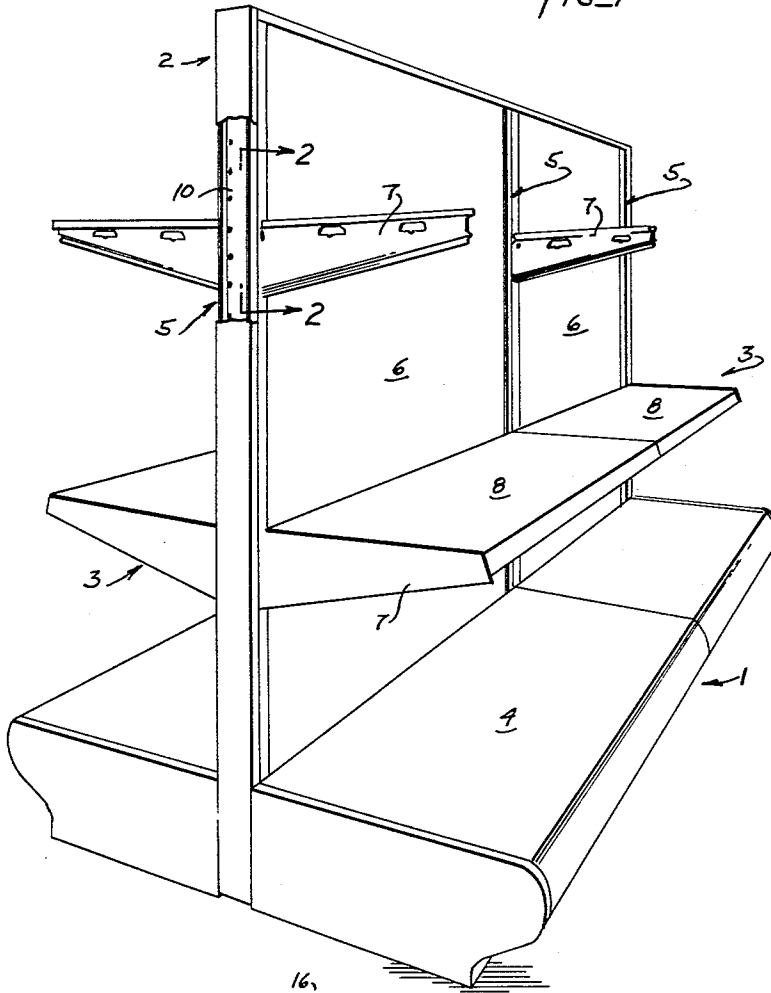
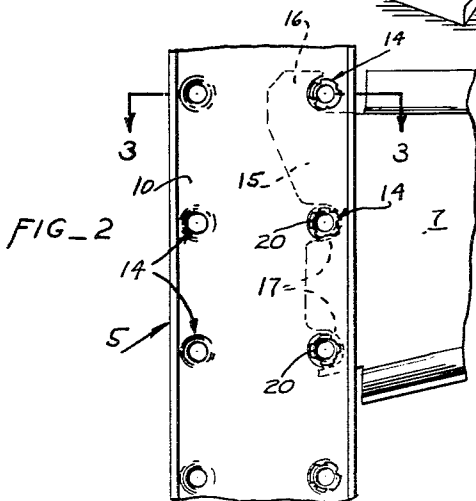
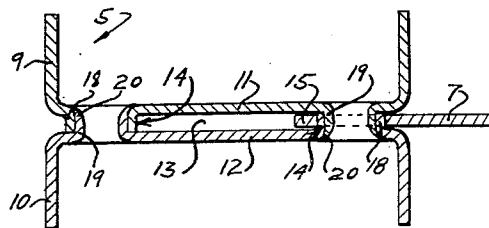


FIG_3



INVENTOR.
JOHN T. BOLTON
BY
Bayless, Mollen & Wood
ATTORNEYS

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DISPLAY SHELF CONSTRUCTION

John T. Bolton, Hillsborough, Calif., assignor to Duro Consolidated, Inc., Redwood City, Calif.

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3 Claims. (Cl. 211-147)

This application relates to display shelf construction and more particularly to a novel shelf bracket supporting member.

In the art to which the invention pertains a plurality of horizontally extending shelf brackets are adapted to be adjustably positioned on vertical bracket-supporting members. Such shelf units are used extensively in retail stores and the like for displaying merchandise on shelves which extend between and are carried by the adjustable brackets. Conventionally, a panel extends between a pair of vertical uprights to form the back wall of the shelf unit.

In many cases, the parts of these display units are fabricated in the factory and then assembled at the store site. It is also common practice to provide for vertical adjustability of the shelf brackets on the vertical members so that the spacing between shelves may be varied as desired.

The shelf brackets usually comprise a generally planar member which is adapted to extend into a slot in the vertical supporting member and, as in the shelf construction herein described, hooks provided on the bracket engage transverse projections in the slot. The slots may be formed by the spacing between a pair of opposed vertical members with the projections extending across said space between said members.

Heretofore such projections have been formed by inserting small pins in holes in the opposed vertical members so that the portion of the pin extending across the space between the members is engaged by the hooks on the shelf bracket. One obvious disadvantage of such prior construction is that the small pins are difficult to handle, result in grossly inefficient assembly methods, and may easily become displaced or lost in the assembly process.

In another prior art construction dimples have been formed from the material of the vertical supporting members and such dimples spot welded together in order to provide the required spacing and hook engaging projections. This structure has been found to be seriously lacking in strength since any substantial load on the shelf bracket has caused the spot welded dimples to pull apart, thereby releasing the bracket.

It is therefore an object of this invention to provide shelf bracket supporting members which are strong and rigid and yet readily fabricated.

Another object of this invention is the provision of a supporting member for shelf brackets which is easily assembled.

It is a further object of this invention to provide, in display shelf construction, means for supporting shelf brackets with hooks, which means may be constructed from a minimum of material and yet result in an effective support for the brackets and shelves.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, in which:

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Fig. 1 is a perspective view of a display shelf unit incorporating the construction of this invention;

Fig. 2 is an enlarged side elevational view of the vertical supporting member and shelf bracket of this invention as seen generally from line 2-2 of Fig. 1; and,

Fig. 3 is a greatly enlarged cross sectional view through the vertical supporting member as seen from line 3-3 of Fig. 2.

In detail, the shelf construction of this invention comprises a base member, generally designated 1 (Fig. 1), a vertical back member 2, and vertically spaced, horizontally extending shelves 3. Base member 1 is provided with a deck 4, which comprises the lowest shelf, and supports a plurality of vertically extending uprights or supporting members 5. Back panels 6 extend between the uprights 5 to form the back member 2.

A plurality of shelf brackets 7 are adapted to be adjustably positioned projecting from uprights 5 by means to be later described. Shelf panels 8, extending between the brackets 7, form the shelves on which goods are to be displayed.

It is obvious that a display unit, such as illustrated in Fig. 1, may be made in various sizes and shapes and is preferably transported to the retail store, where it is to be used, in a knocked down or disassembled state. It is most practical to assemble the shelf unit of this invention at the display site and a series of units may be provided for assembly into as extensive a display area as desired. Likewise, as will be shown, shelf brackets 7 are adjustable vertically along uprights 5 so that shelves 8 may be positioned at any desired height or used in any desired number.

This invention concerns itself primarily with the construction of the uprights or supporting members 5 which are formed with a pair of opposed sheet metal channels 9, 10 (Fig. 3). Channels 9, 10 are arranged with their central webs 11, 12 in parallel relationship, a space 13 being provided therebetween.

Extending across space 13 between the webs 11, 12 of channel members 9, 10 are a plurality of projections, generally designated 14 (Figs. 2, 3). These projections act both as means spacing channel members 9, 10 and as elements to be engaged by brackets 7 for supporting the same.

Each bracket 7 is adapted to have one end portion 15 inserted in the space 13 between members 9, 10. Said end portion is provided at its upper end with a hook 16 (Fig. 2) and one or more abutment recesses 17. The spacing between hook portion 16 and abutment recesses 17 is such that hook 16 extends around an upper projection 14 and the next lower projection 14 is received in a recess 17. In this manner a shelf bracket 7 inserted between members 9 and 10 is engaged with at least two projections 14 for supporting said bracket in a position extending outwardly from the upright member 5.

It will also be noted that the width of bracket 7 is only slightly less than the width of the space 13 between channels 9, 10 so that little lateral movement of the bracket is permitted when the same is in place. Since the load on the shelf panel 8 is predominately downwardly, the moment tending to rotate the shelf brackets in a vertical plane is resisted by the hook 16 and recess 17 in engagement with the transverse elements 14.

The success with which elements 14 resist the load on the shelf bracket 7 is dependent upon their strength and resistance to deflection. The particular structure of the elements 14 herein disclosed is uniquely suited to its purpose since it is not only economically formed, but also extremely strong.

Each of the hook engaging elements 14 is seen in Fig. 3 to comprise a pair of oppositely projecting, telescopically disposed, hollow tubular portions 18, 19. Por-

tions 18, 19 are respectively struck from opposite channel members of the pair comprising the upright member 5. With regard to the right hand portion of Fig. 3 the outer tubular portion 18 is drawn or punched from the web portion 12 of channel member 10 and the inner tubular portion 19 is similarly struck from the web portion 11 of channel member 9. The outer projecting end of portion 18 is in engagement with the inner face of web 11 so as to act, in part, as a spacing member. It will be noted that the distance which tubular portion 18 projects from web 12 is equal to the spacing 13 between the channel members.

Inner tubular portion 19 extends from web 11 through the central opening in portion 18 and is radially expanded or crimped, as at 20 adjacent the outwardly directed surface of web 12. Tubular portion 19 therefore acts, in part, to hold members 9, 10 together against separation from the correct spacing as shown.

The element 14 is particularly strong since it provides the double walled thickness of tubular portions 18, 19 to resist the force applied to shelf brackets 7 through hooks 16 and recesses 17. The portion from the element 14 extending across the space 13 between the channel members provides a hook engaging surface which is substantially at right angles to the plane of the shelf bracket, and therefore, the force applied by the shelf bracket tends to deform the tubular portions 18, 19 from such transverse projection. Since the portions 18, 19 each overlap the other their resistance to this type of deformation is at a maximum. The relatively small force that may tend to separate channel member 9 from channel member 10 is easily successfully resisted by the flanged or crimped portion 20.

It is important to note that the portions 18, 19 are formed solely from the material of the webs 11, 12 of the channel members 9, 10. The elimination of any small or delicate parts in the bracket supporting member of this invention makes assembly of the structure of this invention an easy and rapidly performed task. Conventional punch press equipment is capable of forming and assembling the uprights 5 of this invention at a substantially greater and more economical rate than has heretofore been possible. The increase in strength and reliability of the bracket supporting members of this invention over previously known structure has been found to render the former substantially foolproof and defect free in operation.

It will be noted from Fig. 3 that the element 14 on the left hand side of channels 9, 10 is reversed end for end from that shown on the right hand side of the drawing. In the former case, striking the outer portion 18 from web 11 and the inner portion 19 from the web 12 contributes to the strength of the overall structure.

Although the tubular structure for hook engaging elements is preferred because of its strength, the invention may appear as useful in modified forms. For example, it is necessary only that a transverse portion be punched from one of the channel members to project transversely into engagement with the other member and that an opening be provided in such one member through which a second portion, struck from said other member, may project for crimping over on the opposite side.

The extent to which the outer projecting end 20 of the inner member 19 is extended or crimped over will depend primarily upon the form of the hook engaging element desired and the material being used. In this connection, it is necessary only that portion 20 be in such frictional engagement with the channel opposed to the one from which it is drawn as to frictionally resist separation of the channel members.

Although the invention has been described and illustrated in detail, it is obvious that modifications therein which would occur to one skilled in the art are intended to be within the spirit and scope of the following claims.

I claim:

1. A shelf bracket supporting member comprising: a pair of opposed support elements, means spacing said elements including a first generally tubular portion, punched out of one of said elements and projecting from one side thereof into engagement with the other of said elements, and means securing said elements in such spaced relation including a second generally tubular portion punched out of said other element through the central opening in said first portion and expanded adjacent the side opposite said one side of said one element.

2. A shelf bracket supporting member comprising: a pair of spaced, parallel, sheet metal elements, an integral portion of one of said elements projecting therefrom into engagement with the other of said elements for spacing said elements, an opening provided in said one element adjacent said portion, and an integral portion of said other element extending therefrom through said opening and crimped over said one element to resist withdrawal therefrom.

3. In display shelf construction in which a plurality of shelf supporting brackets provided with planar hook portions are adapted to be positioned at various heights, means for supporting said brackets, comprising: an opposed pair of sheet metal members arranged in generally vertical, parallel relation and spaced apart for permitting insertion of said hook portions therebetween, and a plurality of vertically spaced hook engaging elements extending between said members, each of said elements comprising a pair of oppositely projecting, telescopically disposed, hollow, tubular portions respectively struck from said members, the end of the outer one of said portions remote from the member from which it is struck engaging the other of said members for spacing said members, and the inner one of said portions being radially outwardly expanded at its end remote from the member from which it is struck for preventing separation of said members from said spaced relation.

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