

June 11, 1963

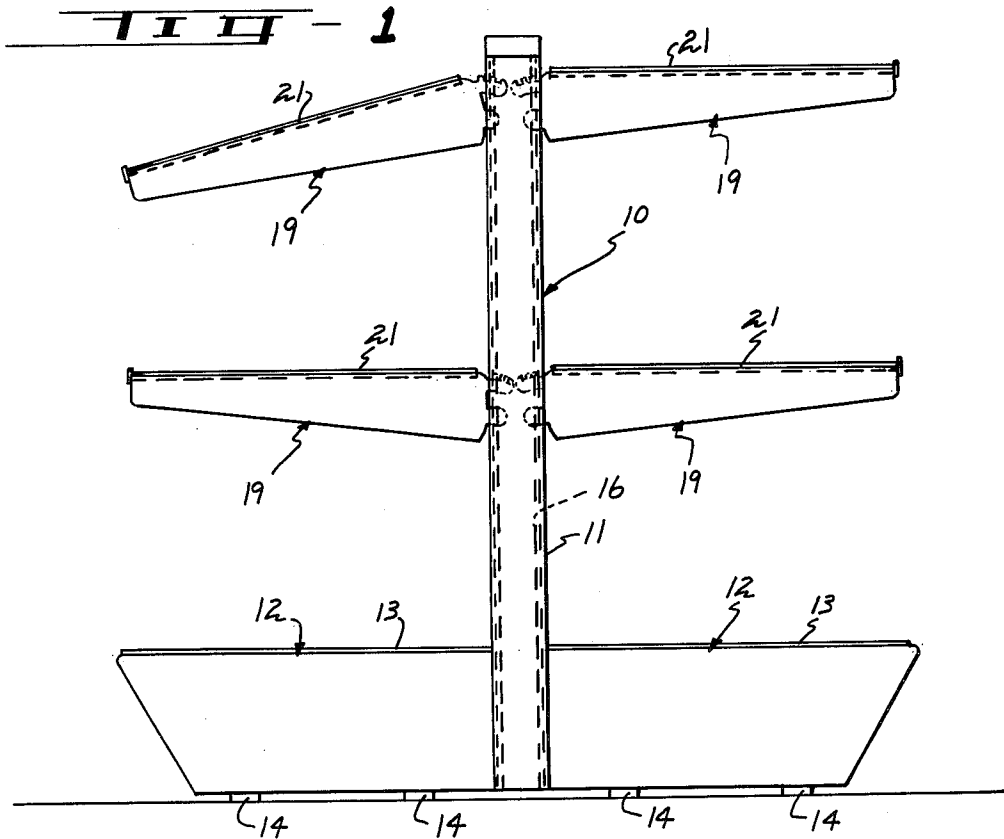
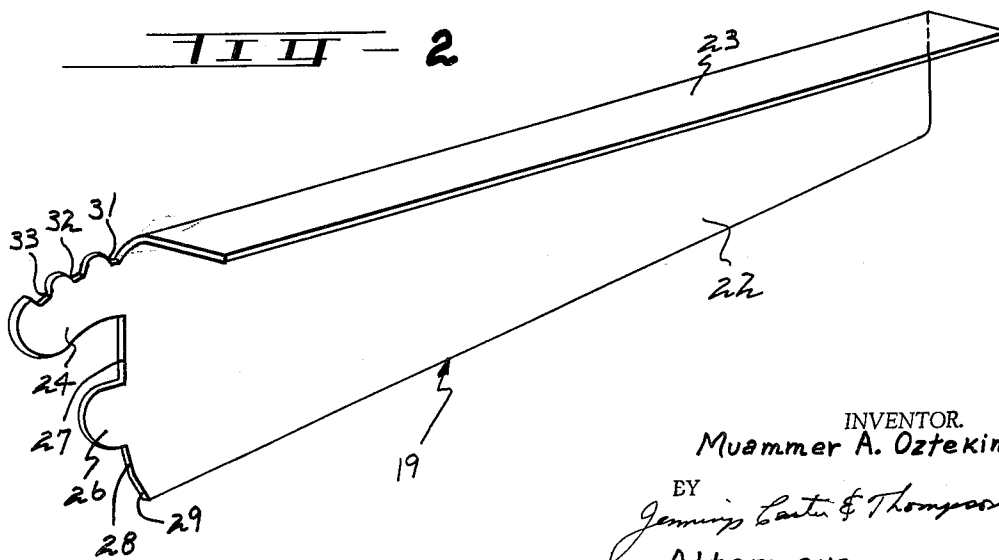
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3,093,094

ADJUSTABLE SHELF SUPPORT

Filed Jan. 17, 1962

2 Sheets-Sheet 1



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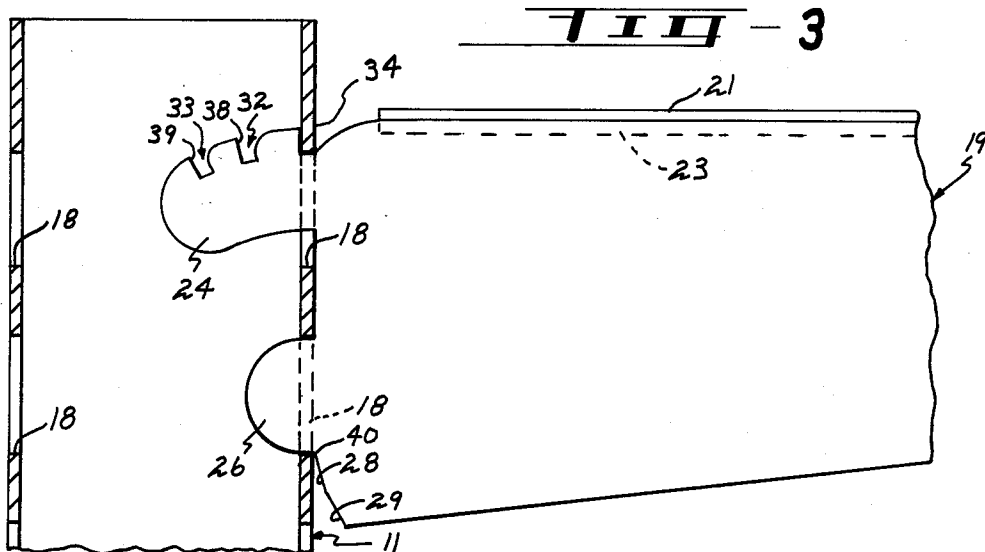
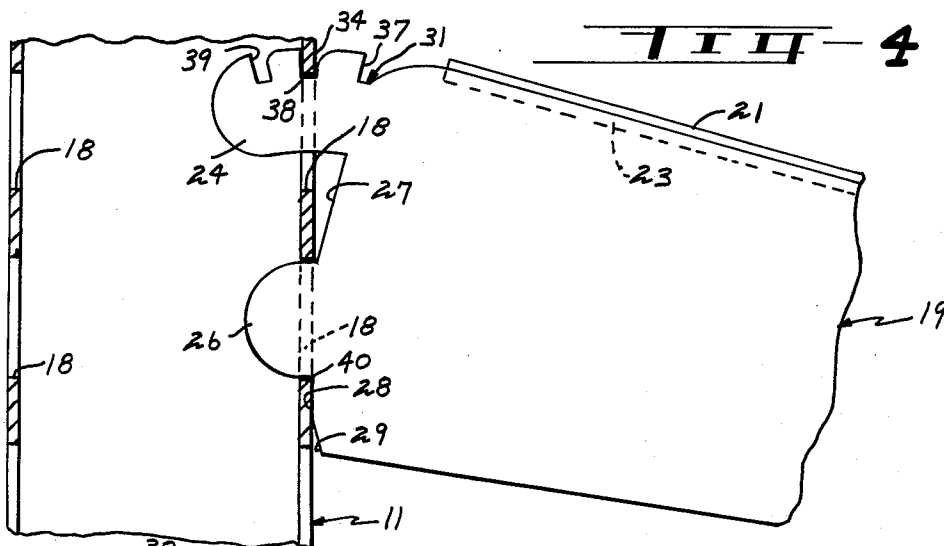
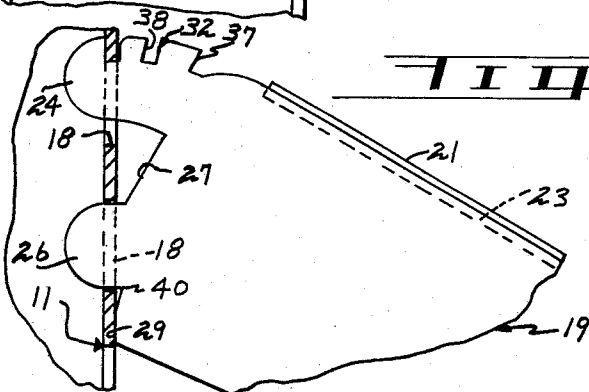
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Filed Jan. 17, 1962

2 Sheets-Sheet 2



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3,093,094

ADJUSTABLE SHELF SUPPORT

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Filed Jan. 17, 1962, Ser. No. 166,857
5 Claims. (Cl. 108-6)

This invention relates to a shelf support for knock-down display stands and the like and more particularly to a shelf support that is adapted to be positioned, selectively, at different angles so that a shelf supported thereby may be tilted to display goods to better advantage. It is desirable in many instances in the display of merchandise in grocery stores and the like to have shelves for the merchandise that may be tilted relative to a horizontal plane. Items such as bread may be displayed effectively at an angle to the horizontal.

It is an object of the present invention to provide a knockdown display stand having shelf supports that may be adjusted, selectively, at different angles to the horizontal so that a shelf supported thereon may be tilted from the horizontal, if desired.

An additional object is to provide a shelf support having a pair of spaced extensions on the rear edge thereof with the upper extension having a plurality of notches therein and the bottoms of the notches and the upper and lower surfaces of the upper extension being struck on an arc from a center located generally at the point of intersection of the lower surface of the lower extension with the rear edge thereby to allow the shelf support to be easily placed in and removed from openings in a vertical support.

A further object is to provide means for mounting a shelf at selected angles to the horizontal comprising a shelf support with upper and lower extensions on the rear edge thereof and notches in the upper extension. An abutting surface is formed on the rear edge of the shelf support between the extensions and engages the surface of a vertical support in abutting relation at the horizontal position of a shelf and another abutting surface is formed by the rear edge of the shelf support below the lower extension and engages in abutting relation the surface of the vertical support in a tilted position of the support and shelf.

A device illustrating features of my invention is shown in the accompanying drawings, forming a part of my application, in which:

FIG. 1 is a side elevational view of my invention embodying a display stand with shelves mounted on supports for tilting at selected angles;

FIG. 2 is a perspective view of a shelf support removed from the display stand shown in FIG. 1;

FIG. 3 is an enlarged fragmentary view, partly in section, of a shelf support mounted on a vertical support in the horizontal position of the shelf;

FIG. 4 is an enlarged fragmentary elevational view, partly in section, of a shelf support mounted on a vertical support with the shelf tilted at an angle 15 degrees to the horizontal; and,

FIG. 5 is an enlarged fragmentary view, partly in section, of a shelf support mounted on a vertical support with the shelf at an angle of 30° to the horizontal.

Referring now to the drawings for a better understanding of my invention, I show in FIG. 1 a display stand indicated generally by the numeral 10 and comprising a series of vertically extending posts 11 which are of a rectangular tubular construction. Base units indicated generally by the numeral 12 are connected to each side of posts 11 and have shelves 13 secured thereto. Leveling screws 14 at the bottom of base units 12 are used to level stand 10. Back panels indicated by dotted lines at

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16 may extend between the series of posts 11. Posts 11 are provided with a plurality of evenly spaced vertically elongated slots 18. Shelf supports indicated generally by numeral 19 are attached to the posts by means of the slots 18 and will be described in detail hereinafter. Shelves 21 extend between posts 11 and are secured to the upper surface of supports 19 in a suitable manner such as by spot welding.

Referring now to FIG. 2, one of supports 19 is shown in perspective view and comprises a vertical web 22 and an inwardly, horizontally extending flange 23 on the upper edge thereof. The rear edge of support 19 has an upper extension 24 and a lower extension 26 thereon. The rear edge also has a plurality of generally vertical edge surfaces thereon which extend at different angles to each other. Surface 27 extends between extensions 24 and 26 and is generally perpendicular to the surface of flange 23 on which shelves 21 are spot welded. The rear edge below lower extension 26 comprises surface 28 which is preferably at an angle of 15 degrees to the vertical and a connecting surface 29 at an angle of 30 degrees to the vertical.

Upper extension 24 has a plurality of notches 31, 32, and 33 thereon. Notches 31, 32 and 33 are adapted to be engaged selectively by notch engaging detent 34 on vertical support 11. Notch 31 is defined by a rear surface 37 which engages detent 34 in a horizontal position of shelves 21. Surface 37 is parallel to surface 27 between extensions 24 and 26 whereby surface 37 engages detent 34 and surface 27 engages the adjacent surface of vertical support 11 when shelves 21 are in horizontal position as shown in FIG. 3. Rear surface 38 which defines notch 32 is parallel to surface 28 and arranged at a 15 degree angle to the vertical. As shown in FIG. 4, surfaces 28 and 38 engage vertical support 11 and detent 34, respectively, when shelves 21 are tilted at an angle of 15 degrees to the horizontal.

As shown in FIG. 5 when shelves 21 are at a 30 degree angle to the horizontal, rear surface 39 engages detent 34 and is generally parallel to surface 29 which engages vertical support 11. The upper and lower surfaces of upper extensions 24 and the bottoms of notches 31, 32 and 33 are struck on an arc from a center located at point 40 which is the intersection of the lower surface of lower extension 26 with surface 28. The distance between the surface defining the lower portion of slot 18 on which extension 26 is supported and the upper portion of the upper opening 18 in which extension 24 is positioned is slightly greater than the distance between the lower surface of extension 26 and the surfaces defining the bottoms of notches 31, 32 and 33. By having the upper and lower surfaces of upper extension 24 curved, shelf supports 19 may be easily tilted out of retained position within slots 18. Also, the bottoms of notches 31, 32 and 33 are substantially equidistant from the supporting lower surface of extension 26 and thus, each notch may be of substantially the same depth and the clearance between the bottoms of the notches and detent 34 is generally the same regardless of which notch is engaged.

When it is desired to tilt shelves 21 from the horizontal position shown in FIG. 3, shelf supports 19 are tilted upwardly until lower extensions 26 are removed from slots 18. Then, upper extensions 24 may move downwardly to the bottom of their slots 18 at which position the selected notch may be engaged by detent 34. Then, shelf supports 19 are tilted downwardly until lower extensions 26 are fitted within slots 18 and vertical supports 11 are engaged by the rear edge of shelf supports 19.

From the foregoing, it will be understood that I have provided a knock-down display stand having shelf sup-

ports that may be adjusted, selectively, at different angles to the horizontal so that display shelves may be tilted from the horizontal, if desired. The rear edges of the shelf supports are provided with surfaces that abut, selectively, the vertical support in the several positions of shelves 21. The rear surfaces which define the notches in upper extension 24 are arranged in a parallel relation to the abutting rear surfaces of supports 19 and thus, a sturdy and tight fit is provided when shelves 21 are adjusted at selected angles and a relatively large abutting contact area is provided. Further, the bottoms of the notches and the upper and lower surfaces of upper extension 24 are struck on an arc from a center located generally at the point of intersection of lower extension 26 with rear edge surface 28 thereby to allow shelf support 19 to be easily positioned within and removed from slots 18 in the vertical support.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What I claim is:

1. In a display stand,
 - (a) a vertical support having a pair of vertically spaced slots therein,
 - (b) a shelf support having a rear edge with vertically spaced upper and lower extensions fitting in said openings, said rear edge having at least two abutting surfaces at different angles to each other adapted to engage, selectively, the adjacent surface of said vertical support in abutting relation, one of said abutting surfaces being formed by the portion of the rear edge between the extensions and engaging the vertical support in abutting relation at a horizontal position of the shelf support, the other abutting surface being formed by the rear edge beneath the lower extension and engaging the adjacent surface of said vertical support in abutting relation at a tilted position of the shelf support, said upper extension having a pair of spaced notches on the upper surface thereof,
 - (c) and a notch engaging detent on said vertical support adjacent the upper opening adapted to engage, selectively, in retaining relation said pair of notches with one notch being engaged in a horizontal position of the shelf support and the other notch being engaged in a tilted position of the shelf support.
2. In a display stand,
 - (a) a vertical support having a pair of vertically spaced slots therein,
 - (b) a shelf support having a rear edge with vertically spaced upper and lower extensions thereon fitting in said openings, said upper extension having three generally horizontally spaced notches on the upper surface thereof, said rear edge having three contact surfaces at different angles to each other and adapted to engage, selectively, the adjacent surface of said vertical support in abutting relation, and
 - (c) a notch engaging detent on said vertical support adjacent the upper opening and adapted to engage, selectively, in retaining relation the notches,
 - (d) the rear portion of the notches being defined by rear detent engaging surfaces at different angles to

each other, each rear detent engaging surface being generally parallel to one of the contact surfaces on the rear edge of said shelf support whereby upon positioning on the shelf support at selected angles the rear surface of one notch engages the detent and the contact surface of the rear edge parallel to the notch surface engages in abutting relation the adjacent surface of the vertical support.

3. In a display stand,

- (a) a vertical support having a pair of vertically spaced openings therein,
- (b) and a shelf support having a pair of vertically spaced extensions on a rear edge thereof fitting in said openings, the upper extension having at least a pair of spaced upwardly opening notches therein, the distance between the surface defining the lower portion of the lower opening and the surface defining the upper portion of the upper opening being slightly greater than the distance between the lower surface of the lower extension and the surfaces defining the bottoms of the notches, the lower extension abutting the surface defining the lower portion of the lower opening in supporting relation while a selected notch is engaged in retaining position by a portion of the vertical member adjacent the upper opening.

4. In a display stand,

- (a) a vertical support having a pair of vertically spaced openings therein,
- (b) and a shelf support having a pair of vertically spaced extensions on a rear edge thereof fitting in said openings, the upper extension having at least a pair of spaced upwardly opening notches therein, the distance between the surface defining the lower portion of the lower opening and the surface defining the upper portion of the upper opening being slightly greater than the distance between the lower surface of the lower extension and the surfaces defining the bottoms of the notches, the surfaces defining the bottoms of the notches being struck on an arc from a center located generally at the point of intersection of the lower surface of the lower extension with said rear edge of the shelf support, said rear edge having at least two surfaces at different angles adapted to engage, selectively, the adjacent surface of the vertical support in abutting relation, said shelf support being held in retained position by contact of the lower extension with the surface of the vertical support adjacent the lower opening and by a selected notch being engaged by a portion of the vertical support adjacent the upper opening.

5. A display stand as in claim 4 in which the upper and lower surfaces of the upper extension are struck on an arc from a center located generally at the point of intersection of the lower surface of the lower extension with the rear edge of the shelf support.

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