United States Patent

[11] 3,602,472

[72] Inventor **Anthony J. Smyth-Tyrrell**
"Brora" Thorden Approach, Herongate, England

[21] Appl. No. **880,321**
[22] Filed **Nov. 26, 1969**
[45] Patented **Aug. 31, 1971**
[32] Priority **Nov. 26, 1968**
[33] **Great Britain**
[31] **56070/68**

[54] **SHELF SUPPORTS**
5 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** **248/242,** 108/108, 211/148
[51] **Int. Cl.** **A47g 29/02**
[50] **Field of Search** ..... 248/243, 235, 241, 244, 245; 108/106, 107, 109, 110, 152; 211/148, 148 A, 177, 134; 52/36, 727, 728; 287/189.35

[56] **References Cited**

UNITED STATES PATENTS

1,336,971	4/1920	Levene	248/243 X
2,622,834	12/1952	Sparring	248/243
2,998,107	8/1961	Zimmerla	248/243 X

FOREIGN PATENTS

626,905	1/1963	Belgium	248/243
372,442	11/1963	Switzerland	108/108

Primary Examiner—J. Franklin Foss
Attorneys—Emory L. Groff and Emory L. Groff, Jr.

ABSTRACT: A shelf-supporting assembly consisting of hollow uprights which are slotted to hold shelf-supporting brackets, each upright having a vertical row of slots through one pair of opposite sides, these being arranged in offset relation so that rear ends of horizontally adjustable brackets in the upright overlap.

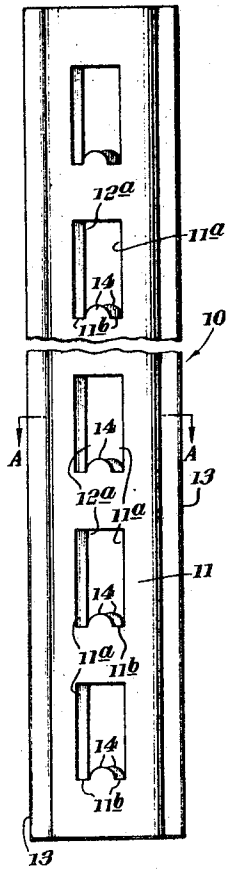


Fig. 1.

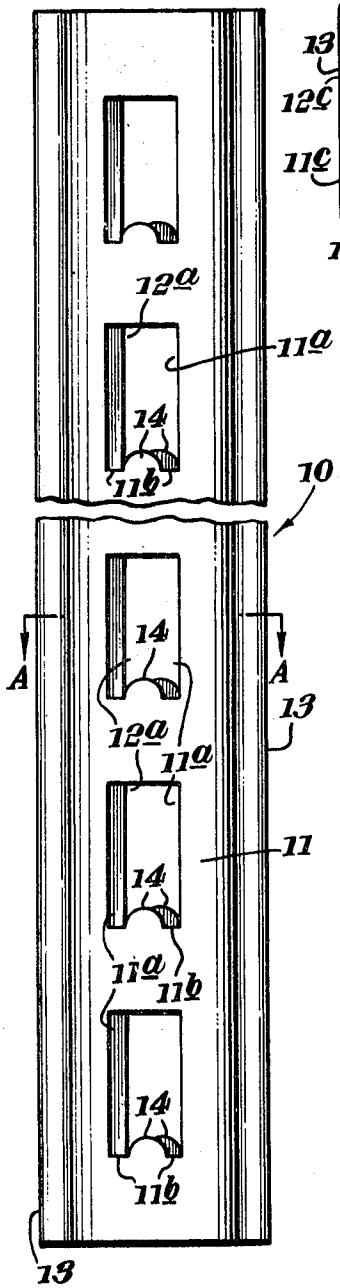


Fig. 2.

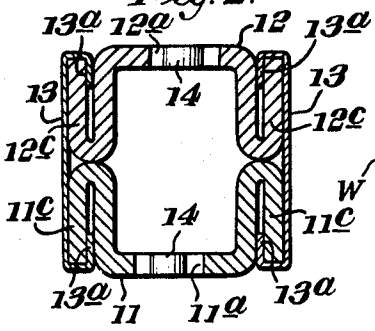


Fig. 3.

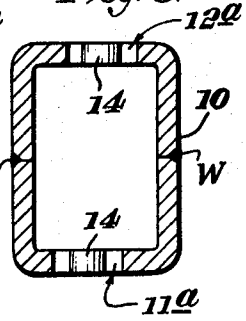


Fig. 4

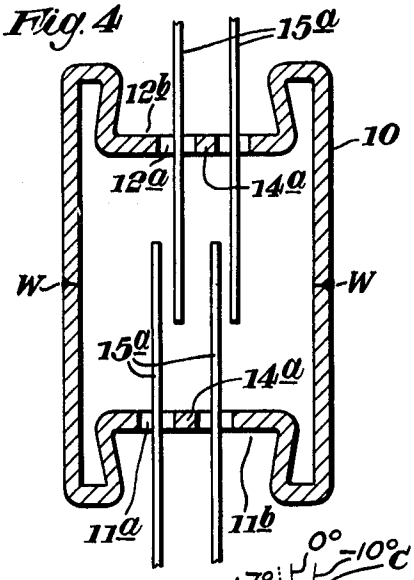


Fig. 5.

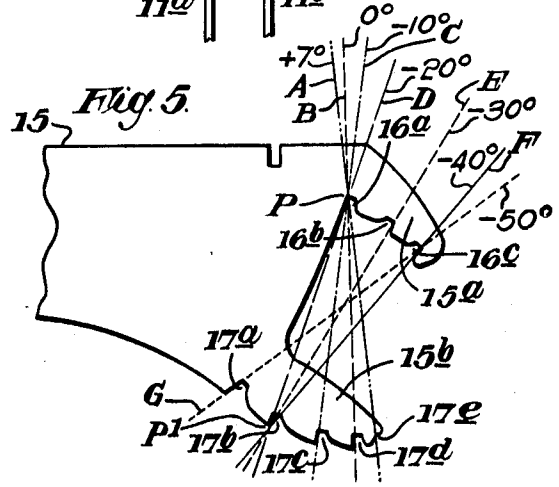


Fig. 6A.

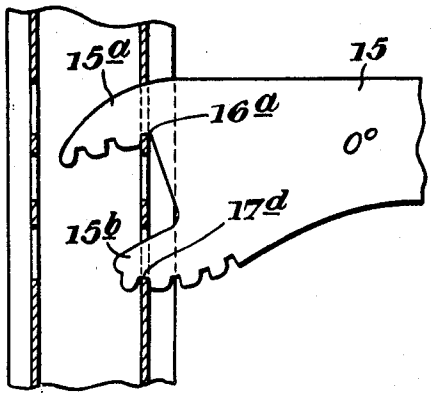


Fig. 6B.

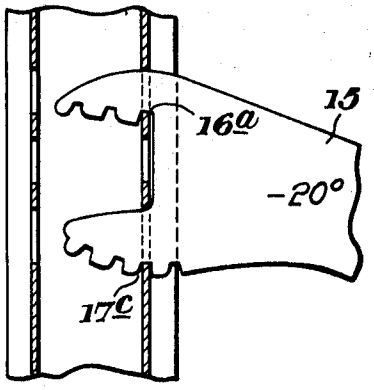


Fig. 6C.

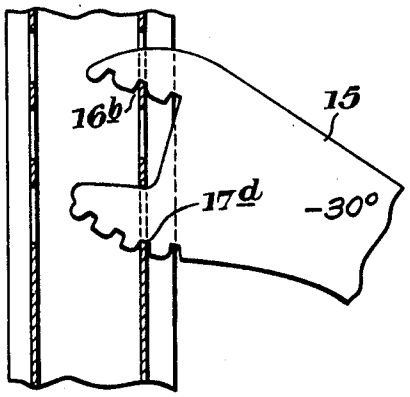
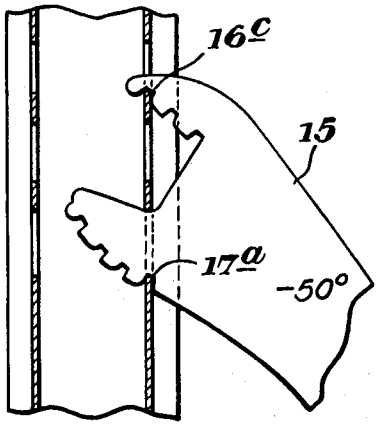


Fig. 6D.



SHELF SUPPORTS

CROSS-REFERENCES TO RELATED APPLICATIONS

United Kingdom applications No. 56070/1/68 filed 68.11.26.

BACKGROUND OF THE INVENTION

This invention concerns shelf supports and in particular bracket-supporting uprights which are hollow and have slots therethrough to receive and retain bracket ends, the uprights being what are known as Gondola or free standing, having slots along one opposite pair of sides so that shelves can be supported at said opposite sides of two or more uprights by brackets, the rear ends of which engage in the slots.

The brackets have rear limbs to enter selected slots, these limbs having cutouts in from edges to engage on horizontal edge portions of said slots so that the brackets extend forwardly from the uprights, and by engaging selected cutouts the angular position of a bracket can be adjusted.

Where bracket limbs engage in slots in the opposite sides, it is necessary for the rear end portions of the brackets in the hollow uprights to be arranged so that those entering from one side of the upright do not interfere with those entering from the other side. Thus the projection depth of the rear parts can be small, so that the rear parts do not extend beyond the central plan of the upright with respect to the slotted sides. This, however, means that the projecting parts must be small, limiting the degree of angular adjustability, or the distance between the slotted sides must be greater than is necessary to give adequate support.

The object of this invention is to provide an improved form of upright which is of small dimensions in horizontal cross section, but in which rear bracket portions entered from opposite sides can overlap without mutually interfering.

SUMMARY OF THE INVENTION

In accordance with the invention there is provided a freestanding shelf supporting structure consisting of the combination of an upright and a bracket supported thereby, said upright comprising a tube with a pair of opposite parallel sides, a vertical row of spaced apart rectangular colinear slots through each said side with the slots of one offset in a vertical plane with respect to those of the other row, a central spacing projection extending up from the center of the bottom edge of each slot, said bracket comprising a shelf supporting part and two vertically spaced-apart hook limbs extending from the rear of said part and each tapering rearwardly each said hook limb of a length in excess of one half of the distance between said parallel upright sides, said hook limbs being spaced to enter superposed upright slots, a series of spaced-apart slots in the lower edge of each hook limb for the selective engagement of one slot of each limb on the lower edge of an upright slot for selective angular setting of the shelf supporting part.

Conveniently the lower edge of the upper hook limb is concavely curved and the lower edge of the lower edge of the lower hook limb is convexly curved.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front view of a part of one form of upright,

FIG. **2** is a section on the line A—A, FIG. **1**,

FIGS. **3** and **4** are views similar to FIG. **2** of modifications, and

FIG. **5** is a side view of a rear part of one form bracket, and

FIGS. **6A–6D** show the bracket in its various adjusted positions.

DESCRIPTION OF PREFERRED EMBODIMENTS

As shown, the upright comprises a rectangular cross section tubular member **10** with one pair of opposite sides **11**, **12**, each having a vertically colinear row of equispaced slots **11***a*, **12***a*, respectively. It will be seen that the slots of one row are offset in a vertical plane with respect to those of the other row, each row being offset to one side of the common centerline of the sides.

In the embodiment of FIGS. **1** and **2**, the upright is fabricated from two facing channel section parts the side limbs of which have bent back ends **11***c*, **12***c*, the channel section parts being retained in place by side strips **13**, **13**, with bent back ends **13***a*, **13***a*, these strips serving to hold the channel section parts into a unitary structure, the assembly being pressed to close the end parts on to the side limbs.

In the embodiment of FIG. **3**, the upright consists of a tube **10** of rectangular cross section.

The lower edge of each slot has an upstanding nib or projection **14** which serves to space the rear bracket parts.

In the embodiment illustrated in FIG. **4**, the upright is formed with one pair of opposite sides having inset parts **11***b*, **12***b*, which are in parallel relation, each part having slots **11***a*, **12***a*. The upright conveniently is made in two parts, welded or brazed upon the lines W—W. In FIGS. **2** and **4**, the two parts are identical, thus facilitating manufacture.

Instead of a dividing projecting nib, a central vertical strip such as **14***a* can divide each slot vertically into a pair of parallel slots in all embodiments, those of each pair receiving two side-by-side bracket rear end parts.

The rear end part of a bracket is shown in FIG. **5**. It consists of a shelf-supporting part **15** bnd rear spaced-apart limbs **15***a*, **15***b*, shaped so that each part can enter a slot of an upright and the part **15** adjusted in a substantially arcuate manner.

The lower edge of each limb has slots or cutouts, those of the top being referenced **16***a*–**16***c*, those of the lower being referenced **17***a*–**17***d*. The front end of each slot **17***a*–**17***d* is substantially radial with respect to a point P at the root of the slot **16***a*. The bracket can be adjusted in three different angular positions by the engagement of the slot **16***a* on the lower edge of one upright slot and either the slot **17***b*, **17***c*, **17***d* on the edge of a lower upright slot. A further position of adjustment is provided by a depression **17***e*, which serves the same function as a slot. The top edge of the limb **15***a* is convexly curved and the bottom edge generally concavely curved. The bottom edge of the limb **15***b* is generally convexly curved at the tooth peaks on a radius about the point P.

In FIG. **5**, these positions are indicated by the lines A, B, C, D, giving slopes to the horizontal of +7°, 0°, −10° and −20°.

Further positions can be obtained by using the slot **17***b*, with either slot **16***b*, **16***d* (lines E and F) or the slots **17***a* and **16***c* (line G). The curvings of the limbs **15***a*, **15***b* is such that a bracket can be lifted slightly and moved arcuately about its selected pivot point, for example P, or P^1. The bottom edge of the limb **15***a* is generally convexly curved at the tooth peaks about the point P^1. FIGS. **6A–6D** show four of the positions which can be obtained. The teeth are sawtooth shaped to facilitate movement during adjustment.

It will be understood that a pair of platelike brackets can be supported in side-by-side relation, or a bracket can have two parallel spaced apart rear parts, with two upper and two lower limbs.

The construction herein enables the rear bracket end parts of brackets from opposite sides to overlap and reside side-by-side in the upright.

The brackets at one side can therefore be adjusted for angular disposition without interfering with brackets at the other side.

I claim:

1. A freestanding shelf-supporting structure consisting of the combination of an upright and a bracket supported thereby, said upright comprising a tube with a pair of opposite parallel sides, a vertical row of spaced-apart rectangular colinear slots through each said side with the slots of one row offset in a vertical plane with respect to those of the other row, a central spacing projection extending up from the center of the bottom edge of each slot, said bracket comprising a shelf-supporting part and two vertically spaced-apart hook limbs extending from the rear of said part and each tapering rear-

wardly each said hook limb of a length in excess of one half of the distance between said parallel upright sides, said hook limbs being spaced to enter superposed upright slots, a series of spaced-apart slots in the lower edge of each hook limb for the selective engagement of one slot of each limb on the lower edge of an upright slot for selective angular setting of the shelf support part.

2. A freestanding shelf-supporting structure as claimed in claim 1 wherein the lower edge of the upper hook limb is concavely curved and the lower edge of the lower edge of the lower hook limb is convexly curved.

3. A freestanding shelf-supporting structure as claimed in claim 2, wherein the projection comprises an upstanding rib.

4. A freestanding shelf-supporting structure as claimed in claim 2, wherein the projection comprises a central vertical strip.

5. A freestanding shelf-supporting structure as claimed in claim 2, wherein the said opposite parts include inset parts having the slots therethrough.