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2,844,262

SHELF ASSEMBLIES

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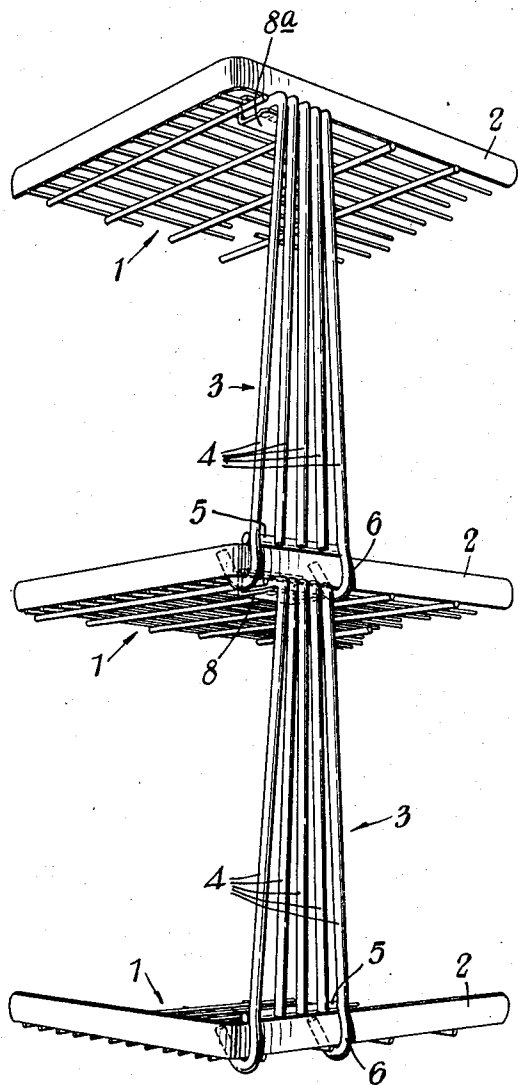


FIG. 1.

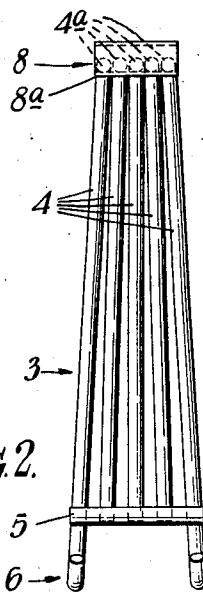


FIG. 2.

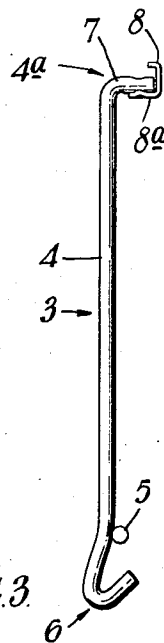


FIG. 3.

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SHELF ASSEMBLIES

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2 Claims. (Cl. 211—148)

This invention relates to collapsible shelf assemblies which can be built up to a desired size utilising standard shelves and support struts, and is concerned with the provision of a generally improved and more rigid assembly of this nature.

Accordingly the invention provides a collapsible shelf assembly having at least two shelves provided with non-circular section rims and a set of similar struts for positioning between opposite sides of the shelves to support the latter one above the other, characterised in that each of said strut is constituted by a substantially flat spring arm which has a lower upwardly hooked end for engaging under the rim of the lower shelf and a transverse co-operating bearer bar which overhangs the hook mouth and can be forced over the upper edge of said lower shelf rim to grip the latter firmly in the hooked arm end, the arm being set, in relation to said lower end and bearer bar, to incline outwardly and upwardly from the lower shelf rim when gripping the latter and having a shoulder with returned hook means at the upper end which can be forced into retained seating relationship with the upper shelf rim by tensioning the arm from said inclined position into a substantially perpendicular position between the shelves.

In order that the invention may be clearly understood and readily carried into effect, an embodiment thereof will now be described in detail with reference to the accompanying drawing, in which:

Figure 1 is a broken away perspective side view of part of a shelf assembly according to the invention, and

Figures 2 and 3 show to a larger scale, in front and side elevation respectively, a support strut as used in Figure 1.

Referring now to the drawings, a shelving assembly as shown in Figure 1 is built up to any desired height and breadth utilising rectangular wire mesh shelves 1 which are of similar size and shape and have substantial rims 2 therearound of ellipse-like form in cross-section. The shelves are supported one above the other by sets of similar struts 3, the struts of a set being conveniently positioned one near each of the four overlying corners of adjacent superposed shelves in the assembly.

Each strut 3 is in the form of an elongated spring arm member which is composed of a number of lengths of stout wire 4 arranged side by side in co-planar relationship, these wires 4 being secured substantially in contacting relationship at the end of the arm which is located uppermost in the assembled position, and being spread out slightly at the lower arm end. A transverse bearing bar 5 extends across one face of the arm near the lower end of the latter and serves to connect the wires 4 at this lower arm end. The inside arm wires terminate at this bar 5 whilst the two outermost wires are extended beyond the bar 5 and are bent around under the latter to form upwardly and outwardly directed hooks 6. The disposition of these hooks 6 in relation to an upper seating pro-

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vided at the junction of the transverse bearing bar 5 and arm face is such that, when the aforesaid upper seating is positioned approximately vertically above a lower seating formed by the hooks 6, the strut 3 is set at an inclination to the vertical.

At the upper end of the arm 3 the contacting wire ends 4a are bent over approximately at right angles to form a shoulder 7 on the same side of the arm as the bearing bar 5, this shoulder 7 providing an upwardly directed bearing surface or seating at the top of the arm and terminating in a returned hook member 8. The returned hook member 8 is conveniently constituted by a channel-section strip of metal which corresponds in length to the overall width of the shoulder 7 and has a channel width which is greater than the diameter of the wires 4. For the purpose of attaching the hook member, the shouldered wire ends 4a are entered into the strip channel 8 and secured to the inside of one channel wall 8a so that the opposite channel wall overlies and is spaced from the top of the shoulder.

In use, the struts, as described, are intended for positioning between two superposed or overlying wire mesh shelves at or near the corners thereof as aforesaid. To this end the upwardly directed hooks 6 at the lower end of each arm are first engaged under the lower rim edge 2 of the underlying shelf to provide a seating for this lower rim edge. The arm member is then angularly displaced towards an upright relationship with the shelf so that the transverse bearing bar 5 is forced over the upper rim edge to position the latter in the seating formed between the bar and arm face. At this juncture in the positioning of the strut 3, the latter will be outwardly and upwardly inclined in relation to the shelf 1, assuming that the latter is substantially horizontal, owing to the inclined setting of the arm in relation to the seatings. Thereafter, further turning of the lower hook means 6 about the lower shelf rim 2 to bring the strut 3 into an upright position will be positively prevented. Thus, in order to bring the strut 3 into substantially upright relationship with the underlying shelf 1 a tensioning force must be applied to the upper strut end. When the strut 3 is located in the aforesaid substantially upright position as a result of the application of said tensioning force, the hook 8 at the upper strut end can be engaged with a wire mesh of the overlying shelf, the upwardly directed bearing surface provided by the shoulder 7 at the upper strut end being then held beneath the rim 2 of the overlying shelf 1 to provide a seating therefor.

It will be appreciated that similar shelves can be built on to the structure as desired by the use of appropriately positioned struts. In this way, a shelf assembly of any desired height can be built up utilising only two sets of standard parts consisting respectively of shelves and struts. Each unit consisting of superimposed shelves may be self-supporting and the assembly may be expanded laterally by the addition of further self-supporting units, adjoining units being linked together as desired.

I claim:

1. For a multi-tiered rack assembly having wire mesh trays with non-circular section rims supported one above the other by interposed struts, a strut unit comprising a plurality of spring wires secured side by side in substantially co-planar relationship, the wires being bent over at one end to form a substantially right-angled shoulder and the two outermost wires having extensions at the ends thereof remote from said shoulder which are first bent back in a direction opposite to the shouldered wire ends and are thence returned under said shoulder at an acute angle to the plane of the wires to form upwardly directed hooks, a bearer bar which spans the wires adjacent said hooks to overlie the hook mouths and returned hook

means on said shoulder, said unit being adapted to extend under tension between two superposed trays with the lower tray rim held firmly in the upwardly directed hook means by the bearer bar and the shoulder held in seating relationship under the upper tray rim by engagement of the returned hook means in the upper tray mesh.

2. A strut unit as claimed in claim 1 wherein the spring wires are disposed fanwise with the shouldered wire ends in contact and the opposite wire ends spread apart.

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