Integral, extruded shelf structures, and integral, extruded supporting means or rails therefor, the shelf structure having a horizontal article supporting shelf or shelf part, a longitudinally extending brace or brace means, and at least one depending, longitudinally extending flange at the rear thereof. The rail is adapted to be attached to a wall or other support, and said rail has an upwardly opening longitudinally extending groove for removable reception of the flange of the shelf structure.
EXTRUDED SHELVING AND EXTRUDED SUPPORT MEANS THEREFOR

BACKGROUND OF THE INVENTION

1. Field of the Invention
This invention relates generally to shelf structures, and relates more particularly to extruded shelf structures, and extruded support-means therefor.

2. Description of the Prior Art
There are various types of shelves known in the prior art, but as far as I am aware such prior art devices are not integral extrusions having a horizontal shelf part, bracing means along the shelf part and means for removably attaching the structures to extruded rails that are secured to a supporting wall or the like. Many of these prior art devices are assemblies of a number of elements and some are quite complicated and difficult to install.

SUMMARY OF THE INVENTION

The present invention comprises an integral, extruded shelf structure having a horizontal shelf or shelf part, at least one longitudinally extending depending flange along at least a major portion of said shelf part, and bracing means extending along said shelf part. There is also an extruded, integral rail adapted to be attached to a supporting wall or the like, said rail having an upwardly opening groove extending longitudinally of the rail in which said flange of the shelf structure is adapted to be received. The shelf structure is removable from the supporting rails. Preferably the shelf structure and the rails are of relatively stiff plastic such as, for example, styrene, polystyrene, polyethylene, such plastics being of suitable density. Alternatively metal such as aluminum could be used.

OBJECTS AND ADVANTAGES OF THE INVENTION

It is an object of the invention to provide extruded shelving means.

It is another object of the invention to provide shelving of this character comprising a shelf structure and a separate supporting structure, both of said structures being extruded.

It is still another object of the invention to provide shelving means that is simple and sturdy.

A further object of the invention is to provide shelving of this character that is relatively inexpensive to manufacture.

The characteristics and advantages of the invention are further sufficiently referred to in connection with the following detailed description of the accompanying drawings which represent several embodiments. After considering these examples, skilled persons will understand that many variations may be made without departing from the principles disclosed and I contemplate the employment of any structures, arrangements or modes of operation that are properly within the scope of the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring to the drawings, which are for illustrative purposes only:

FIG. 1 is a perspective view of shelving embodying the present invention and with the shelf structure and the rails separated;

FIG. 2 is a cross sectional view showing the shelf structure supported by the rails, the rails being attached to a supporting wall;

FIG. 3 is a sectional view of an alternative arrangement;

FIG. 4 is a sectional view of another alternative arrangement; and

FIG. 5 is a perspective view of still another alternative arrangement.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring more particularly to FIGS. 1 and 2 there is shown an extruded shelf structure, indicated generally at 10, an upper rail, indicated generally at 12, and a separate lower rail, indicated generally at 14.

The shelf structure 10 comprises a horizontal shelf or shelf part 16 having a vertical back 18 extending longitudinally thereof. The back 18 has a rearwardly extending part 20 defining a shoulder 22 at the bottom, the top portion of part 20 having decorative upwardly and rearwardly curved parts 24. Back 18 has a depending part 26 which extends longitudinally of the shelf and forms a flange extending longitudinally of the shelf, the purpose of said flange will be described hereinafter.

Along the front edge the shelf 16 turns up slightly and a bead 28 extends longitudinally of said shelf. From the bead 28 the shelf structure is provided with a downwardly and rearwardly inclined brace 30 which extends longitudinally of the shelf and provides firm support for the front of the shelf. The brace forms a V with the shelf and is integral therewith.

At the rear of the brace there is a depending flange 32 which is in alignment with the flange 26 and extends longitudinally of the brace 30. Spaced forwardly of the flange 32 is a downwardly and rearwardly curved rib 34 which defines with the flange 32 a longitudinally extending groove 36.

Upper or top rail 12 comprises a back or back wall 38 adapted to be attached to a supporting wall or the like by means of screws, not shown, extending through holes 40 provided therefor in said back 38. At the bottom of said rail 12 there is a forwardly extending part 42 from the forward edge of which there is an upwardly extending flange 44 spaced forwardly of the back 38 and defining, with said back and part 42, a groove 46 which extends longitudinally along said upper rail.

Lower or bottom rail 14 has a back or back wall 50 having a forwardly projecting part 52 from the front edge or part thereof there is an upwardly extending flange 54 which is spaced forwardly of wall 50 and defines with said wall 50 and part 52 a groove 56 which extends longitudinally of the rail 14. The front part of flanges 54 and part 52 is downwardly and rearwardly curved. Wall 50 also has screw holes indicated at 51 for screws to attach rail 14 to a supporting wall or the like.

Rails 12 and 14 are attached horizontally to a supporting wall W or the like in parallel relationship to each other with the upwardly opening grooves 46 and 56 in alignment. The shelf structure is attached to said rails by placing the flanges 26 and 32 in the grooves 46 and 56 as best shown in FIG. 2. The shoulder 22 of the rear wall 18 of the upper rail rests on the upper edge of the back wall 38 while the lower edge of the flange 26 rests on the bottom of the groove 46. The top edge of the flange 44 is engaged by the under side of the shelf 16 adjacent the flange 26.

Flange 32 of the brace is disposed in the groove 56 with the lower edge of said flange 32 resting in the bottom of groove 56 of the lower rail 14. The upper edge of flange 54 of lower rail 14 engages the bottom of groove 36 and the rear edge of the flange 34 engages the curved surface along the front of the flange 54 and part 52. The outer side of flange 34 is so curved as to blend into the curved front of the part 52, as best shown in FIG. 2.

The shelf structure 10 may, of course, be easily and quickly removed from the rails if desired. Thus shelf structures of various sizes or colors, for example, may be interchanged or various types of shelf structures may be substituted for the arrangement shown, as long as the essential parts thereof are incorporated therein. The brace 30 serves to hold the shelf 16 against sagging or tilting forwardly.

In FIG. 3 there is a somewhat different arrangement. Both the rails are integral with a back wall 60, there being an upper upwardly opening groove 62 defined by a part of the wall 60, a forwardly projecting part 64 and an upwardly extending flange 66 along the forward edge of the part 64. A similar groove 68 extends longitudinally along the lower edge of the back wall 60, said groove 68 opening upwardly and being defined by a forwardly projecting part 70 of the back wall 60 and an upturned flange 72 spaced forwardly of said back wall.
The shelf structure of the FIG. 3 arrangement, is indicated generally at 59, includes a horizontal shelf or shelf part 74 having an integral vertical back wall 76. Along the top of back wall 76 there is a flange 78 spaced rearwardly of the back wall 76 to define therewith a longitudinal groove 80, there being a rearwardly top or cap 82 along the upper part of said back wall, said cap 82 having a downwardly facing shoulder 84 adapted to rest on the upper edge of the back wall 60 of the rail means when the shelf structure is attached to the rail means. Also, flange 66 of the rail means is then disposed in the groove when the shelf structure is attached to said rail means.

Shelf structure 59 has a depending flange 88 in alignment with the back wall 76 and rearwardly and downwardly extending parts 90 and 92 respectively defines a downwardly opening groove 94, part 92 being a flange. When the shelf structure is attached to the rail means the flange 92 of said shelf structure is disposed in groove 68 of the rail means and the upturned flange 72 of the rail means is disposed in the groove 94. Thus the shelf structure is securely but removably attached to the rail means. An upturned flange 96 is provided along the front edge of the shelf part to prevent items thereon from slipping off said shelf part. The depending flange 88 serves as bracing means for the shelf structure and aids in holding the shelf structure from sagging and tilting forwardly.

In the arrangement of FIG. 4 the shelf structure is indicated generally at 100 and has a shelf or shelf part 102 from the rear of which there is a vertical back wall 104. At the upper and back wall 104 has a downwardly extending flange 106 spaced rearwardly of said back wall to define therewith a downwardly opening groove 108. The back wall also has a downwardly facing shoulder 110. Adjacent the junction of the back wall 104 and the shelf 102 there is a rearwardly and downwardly inclined flange 112.

There is a rail, indicated generally at 114, that is substantially the same as the rail 12 of the arrangement shown in FIGS. 1 and 2 and which has the same reference numbers for the corresponding parts.

When the shelf structure is attached to the rail 114 the flange 106 of the shelf structure is disposed in the groove 46 of the rail while the flange 44 of the rail is disposed in the groove 108 of the shelf structure. The flange 112 rests against the supporting wall W of the building or the like and serves as bracing means for the arrangement of FIG. 4.

Referring to FIG. 5 there is shown an alternative shelf structure which comprises a horizontal shelf 120 with a brace part 122, there being a bead 124 along the junction of the front of the shelf and the brace. At the rear the shelf 120 has an upturned flange 126, there being a similar but downward flange 128 at the rear of the brace. The back sides of said flanges 126 and 128 being in a common plane. The back sides of said flanges are provided with adhesive tape 130 which has adhesive on both sides. This tape is of well known character and is on the market. One side of said adhesive tape is stuck onto the rear side of each of the flanges 126 and 128. The outer side of the tape has a protective strip 132. When it is desired to attach the shelf structure to a wall or the like of a building the protective strips 132 are removed to expose the adhesive coating of the adhesive tape. The flanged part of the shelf structure is then pressed against a wall or the like so as to adhesively secure said shelf structure to a supporting wall.

End plates 136, FIG. 2, and 138, FIG. 3, may be attached at the ends of the shelf or shelf structure and/or rails, to prevent articles on the shelf from falling therefrom at the ends and also to provide a more attractive device.

I claim:

1. In extruded shelving, comprising:
   A. a unitary shelf structure having a horizontal shelf part;
   B. bracing means for the shelf structure;
   C. means for attaching the shelf structure to support means;
   and
   D. wherein the means for attaching the shelf structure to support means includes upper and lower rails adapted for attachment to a supporting wall or the like, each of the rails having a longitudinally extending groove for reception of respective flanges.

2. The invention defined by claim 1, including connecting means for connecting the rails together in parallel relationship relative to each other, the rails and the connecting means being integral.

3. The invention defined by claim 2 wherein the connecting means and integral rails are extruded.

4. The invention defined by claim 2 wherein the structure has downwardly and longitudinally extending flanges in combination with respective rails having a longitudinally extending groove for reception of said flanges.

5. The invention defined by claim 2 wherein the connecting means for connecting the rails together includes a back wall at the rear of the shelf part normal to said shelf part; and the means for attaching the shelf structure to the rails includes longitudinally extending flanges at the rear of the back wall and integral therewith for removable reception in the grooves of the respective rails.

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