Dec. 7, 1965 D. W. DOHERTY 3,221,678

SHELF STRUCTURE

Filed June 25, 1963

Fig. 1.

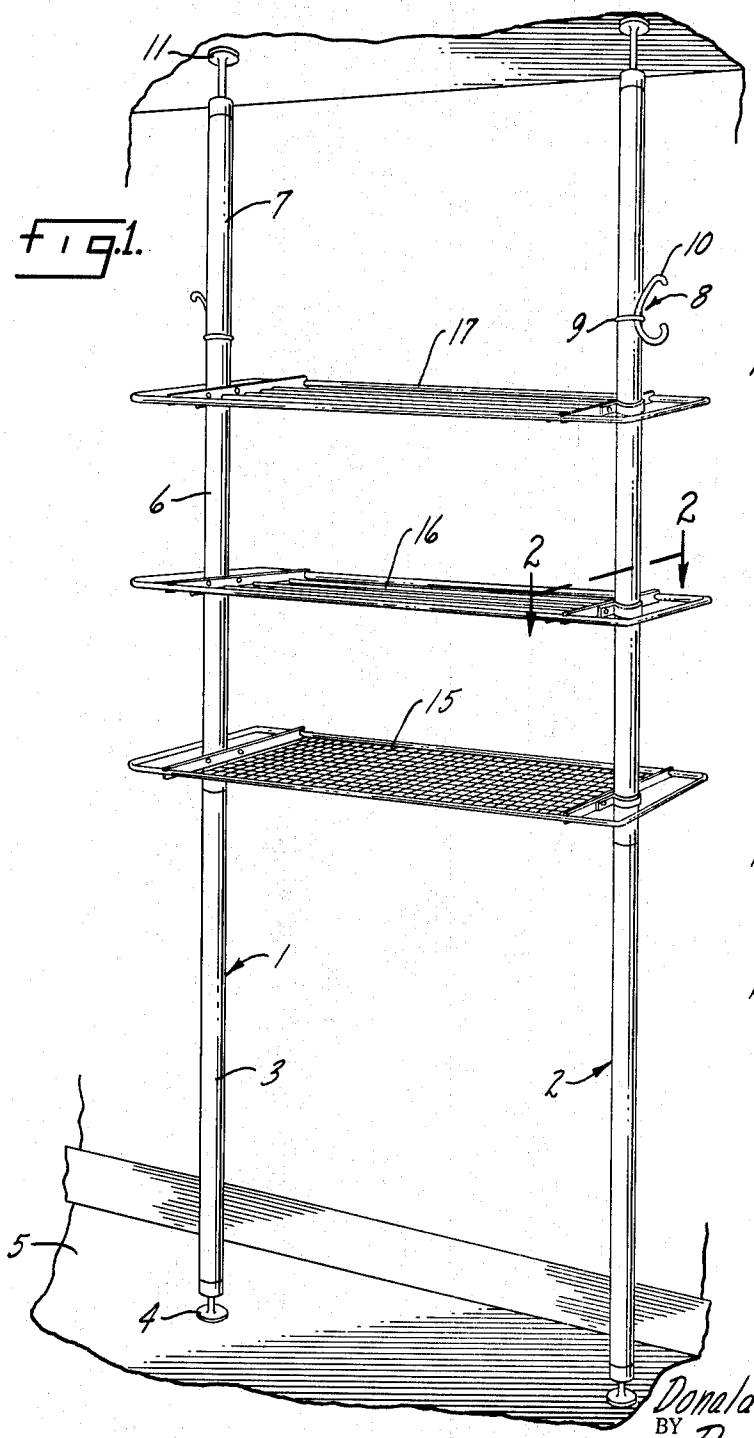
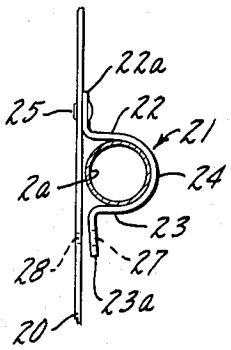


Fig. 2.



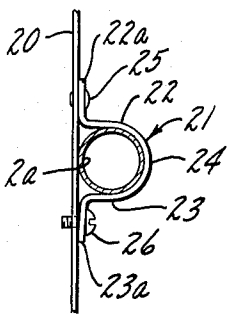


Fig. 3.

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SHELF STRUCTURE

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1 Claim. (Cl. 108—152)

This invention relates to shelf structures and has particular relation to means for assembling such structures.

As is commonly known, a number of varying products are, for ease and economy in shipment, shipped to consumers in "knocked-down" condition. The consumer, upon receipt of the individual elements packed together, is then called upon to assemble the same, oftentimes in accordance with accompanying instructions. With respect to shelf structures supported on tubular uprights, the problem of assembling and retaining said shelves against vertical sliding action includes a requirement that the supporting connection be not only effective, but such as may be easily and simply installed, with assured effect by the consumer in assembling the shelf structure. Accordingly, it is one purpose of the invention to provide a connecting assembly effective to prevent sliding action of a shelf on a tubular support and effective to provide such assurance with a minimum amount of effort on the part of the consumer or user.

Another purpose of the invention is to provide a shelf and support assembly mechanism which may be employed with an absolute minimum effort on the part of the assembler.

Another purpose is to provide a means for supporting a shelf on a tubular support wherein said means is provided the assembler in a partially preassembled configuration.

Another purpose is to provide a pre-formed connector assembly for tubular shelf supports.

Another purpose is to provide a pre-formed connector and shelf assembly for engagement with a tubular support.

Another purpose is to provide a pre-formed shelf-supporting element so formed as to insure a compressive relationship upon a tubular support when said connector assembly is fully secured to said shelf.

Other purposes will appear from time to time during the course of the specification and claims.

The invention is illustrated more or less diagrammatically in the accompanying drawings wherein:

FIGURE 1 is a perspective view;

FIGURE 2 is a view taken on the line 2—2 of FIGURE 1; and

FIGURE 3 is a view similar to that of FIGURE 2 and illustrating the structure of the invention in final configuration.

Like parts are indicated by like numerals throughout the specification and drawings.

Referring now to the drawings, and particularly to FIGURE 1, the numerals **1, 2** generally designate a pair of spaced tubular supports. Since the supports **1, 2** are substantially identical, it will suffice to describe, for clarity, the assembly of one such support. Considering the support **1**, for example, the same comprises a lower tubular segment **3** from which a foot element **4** depends to engage a surface such as the floor **5** of a building. The segment **1** is a hollow tubular element. A second hollow tubular segment **6** has an end portion (not shown) of reduced diameter which interpenetrates or telescopes into the upper open end of segment **3**. Similarly, a third tubular segment **7** has one of its ends reduced in diameter for reception within the upper open end of segment **6**.

Prior to inserting the reduced end of segment **7** into the upper open end of segment **6**, a towel hanger, such as that shown in the upper right-hand portion of FIGURE 1 at **8**, was secured to the support **1**. The towel hanger **8** comprises a lateral hollow ring **9** and a curved hook element **10** secured to the ring and extending outwardly therefrom. Ring **9** has an inner diameter only slightly greater than the reduced diameter of the end portion of segment **7** so that the end portion of segment **7** is just received within and extends through the ring portion **9**. The material forming the ring portion **9** is, however, of such thickness as to cause its outer surface to have a diameter greater than the outer diameter of the upper open end of support segment **6** and of the major portion of support segment **7**. Hence the segments **6** and **7** clamp the ring portion **9** therebetween and the ring portion **9** snugly engages the reduced portion of segment **7**. Upstanding from the upper end of segment **7** is a ceiling engaging foot element **11**, it being understood that the member **11** may be outwardly urged by any suitable yielding member such as a spring (not shown) encased within the hollow support segment **7**.

Since the telescoping engagement of segment **6** with segment **3** and of segment **7** with segment **6** and the encasement of a spring to urge one or both of the foot members **4, 11** outwardly form no part, per se, of the present invention, the same are not further illustrated herein.

With the supports **1, 2** in alignment and in spaced relationship, a series of vertically spaced shelves extending between and supported on the supports **1, 2** are illustrated at **15, 16** and **17**. It will be realized that the number and shape of the shelves **15–17** may be varied without departing from the nature and scope of the invention. As illustrated in FIGURE 1 herein, however, an arrangement of three shelves spaced and positioned as illustrated has been found convenient in relation to an arrangement above a bathroom water reservoir, clothes hamper or the like.

In order to support the shelves **15–17** on the tubular members **1, 2**, I provide an attaching structure illustrated best in FIGURES 2 and 3, the structure comprising in effect a compression assembly. Each of the shelves **15–17** has an end wall or runner **20** arranged for engagement of its flat, center outer surface with the inner rounded portion of the adjacent tubular support. It will be observed that each of the shelves **15–17** has one of the runners **20** at each of its opposite longitudinal ends. The members **20** may conveniently be formed, for example, of relatively rigid, flat stock.

An attachment member **21** is formed of substantially the same stock as the flat strip runner **20** and is shaped in a generally U-shaped configuration having relatively straight substantially parallel side wall portions **22, 23**. The side wall portions are joined by a curved bottom wall portion **24** and the side wall portions **22, 23** have their end segments outwardly flared at substantially 90 degrees to the plane of the side walls **22, 23** and in opposite directions as indicated, respectviely, at **22*a***, **23*a***, to form flange members. A rivet or other permanent attachment element or connector **25** joins the flange portion **22*a*** to the flat strip runner **20**.

As may be best seen in FIGURE 2, the strip **20** with member **21** having flange **22*a*** permanently pre-secured to the strip **20** has the free flange portion **23*a*** spaced outwardly from the strip **20**, the wall **23** being slightly less in extension than the wall **22**. Thus the consumer is presented with an attaching configuration arranged to snugly receive, in sliding engagement, the tubular support illustrated in cross section in FIGURES 2 and 3 at **2*a***. With the tubular support positioned within the attaching structure, the flange **23*a*** remains spaced from the strip **20**. Thereupon it is only necessary for the user to insert a fastener, such as the bolt **26** illustrated in

FIGURE 3, through an aperture **27** in flange **23***a* and into a threaded opening **28** in strip **20**, the threads of bolt **26** engaging the threads in aperture **28** to draw the flange **23** against strip **20**. In so doing, as may be best seen in FIGURE 3, the wall portions **22, 23** are drawn closer together and into a compressive relationship with the material of the tubular support portion **2***a*. The resulting engagement of member **21** with the tubular support is effective to prevent sliding of the shelves **15–17** on the tubular supports **1, 2**, member **21** thereby functioning as a friction band. The consumer is enabled to attach each shelf to the two spaced tubular supports by the insertion and rotation of only two fasteners **26**. The entire structure of FIGURE 1, for example, can be assembled in a matter of minutes, the vertical telescoping sections being inserted one into the other, the towel hook member **8** being rigidly supported by clamping between two of the segments of each support and the three shelves therein illustrated being positioned as desired and attached to the towel supports by insertion and tightening down of just six bolts **26**.

Whereas there has been shown and described an operative form of the invention, it should be understood that this showing and description are to be taken in an illusartive or diagrammatic sense only. There are many modifications in and to the invention which will be apparent to those skilled in the art and which fall within the scope and spirit of the invention. The scope of the invention should, therefore, be limited only by the scope of the hereinafter appended claim.

I claim:

A compression assembly for frictionally securing a base to a generally vertical, contoured support member, said compression assembly including, in combination,

a friction band,

said friction band being formed of bodily resilient material and having a contoured portion which is substantially complementary in configuration to the associated surface portion of the generally vertical contoured support member with which it is to be in frictional engagement,

said contoured portion having an unbroken engaging surface from end to end of that portion of it which receives the contoured support member to thereby maintain continuous, non-separable frictional engagement between the friction band and the generally vertical contoured support member from end to end of the area of frictional contact,

the end portions of said friction band terminating in a pair of flange members,

said flange members lying in substantially parallel planes, in an unstressed condition,

the depth of the enclosure formed between the base and the contoured portion of the friction band being less, in an unstressed condition, than the width of the contoured support member, and

connectors for connecting the flange members to the base against the resistance of the friction band caused by the compressive forces exerted by the base and the friction band against the support member as the flange members are urged against the base by the connectors.

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