United States Patent [19]

Varon et al.

[11] **3,784,023**

[45] **Jan. 8, 1974**

[54] **HANG RAIL SUPPORT STRUCTURE**

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[73] Assignee: **Crown Metal Manufacturing Co.,** Chicago, Ill.

[22] Filed: **Aug. 30, 1971**

[21] Appl. No.: **176,224**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 93,091, Nov. 27, 1970, Pat. No. 3,685,662.

[52] **U.S. Cl.** **211/105.1,** 211/123

[51] **Int. Cl.** **A47f 5/00**

[58] **Field of Search** ..... 211/105.1, 7, 123, 211/177, 182, 103; 248/74 A, 223, 224, 225, 251, 221, 204; 24/73 PM; 256/59, 65

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[57] **ABSTRACT**

A connecting member or adapter which is adapted to be connected to a generally horizontal support member for supporting a hang rail has a generally C-shaped bracket member secured at the forward end thereof with the C opening upward. The C-shaped bracket member is preferably extruded and formed of a synthetic resin that has substantial rigidity but nevertheless has sufficient resilience so that the arms of the member can yield slightly. A hang rail is carried by the C-shaped bracket member, the hang rail comprising a tubular, extruded shape having a protruding rib along its bottom side, there being grooves formed at the juncture of the rib with the body of the hang rail. The body is substantially cylindrical in configuration. In mounting the hang rail, the ends of the arms of the C-shaped bracket member are spread apart to pass over the rib after which they snap into engagement with the grooves and firmly lock the hang rail onto the C-shaped bracket member. The said ends have hooklike enlargements to engage beneath the widest part of the rib in the grooves.

3 Claims, 2 Drawing Figures

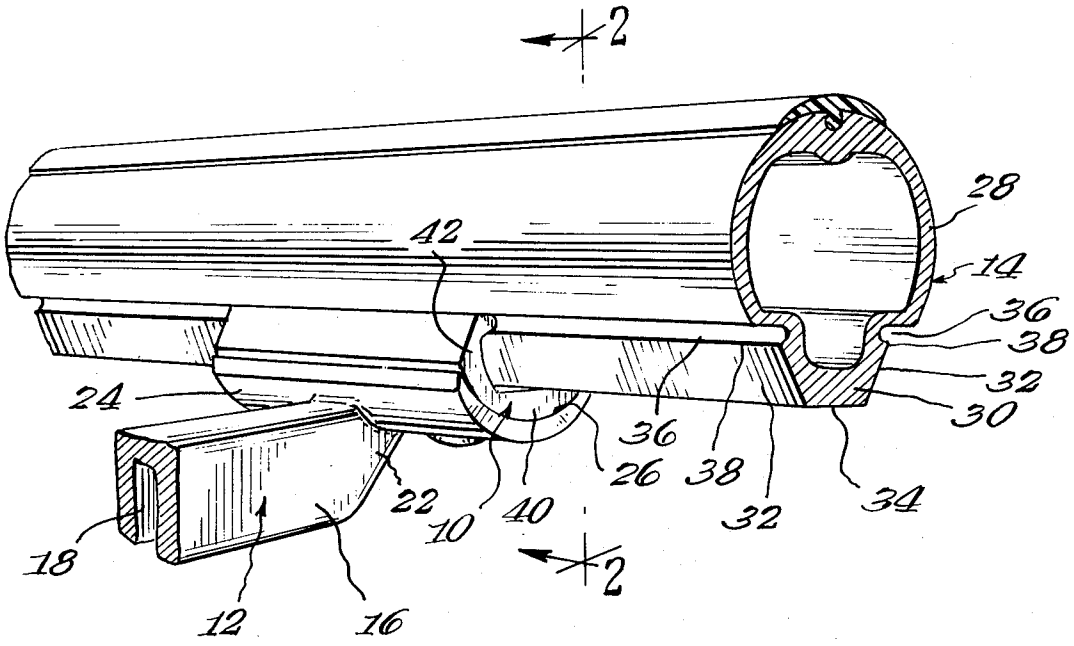


Fig. 1

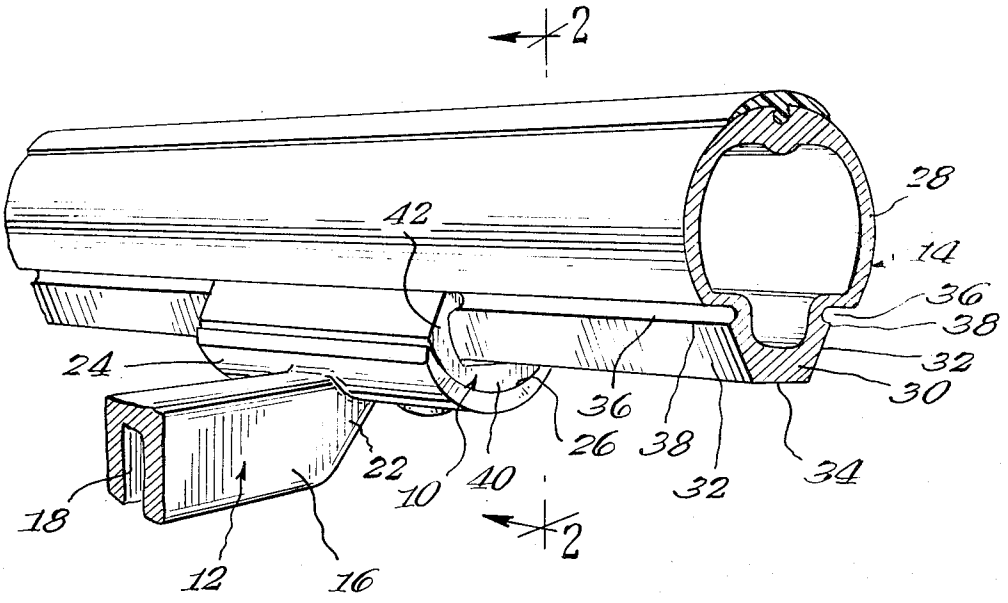
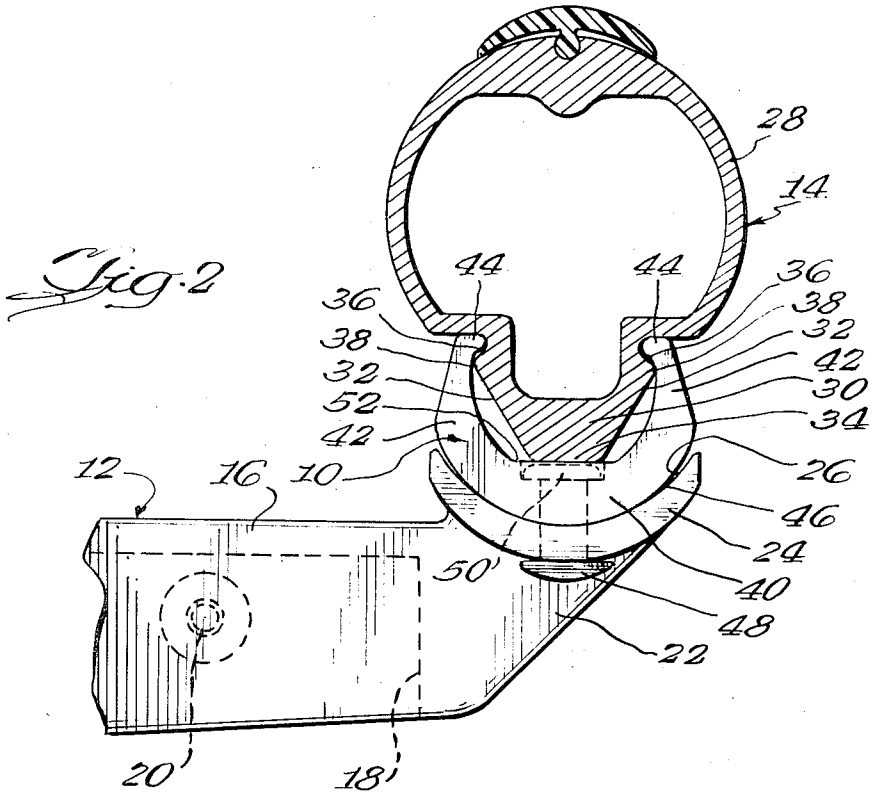

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Fig. 2


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HANG RAIL SUPPORT STRUCTURE

CROSS-REFERENCE TO RELATED APPLICATION

This is a continuation-in-part of a copending application of the applicants entitled "Hang Rail Construction and Bracket Therefor," Ser. No. 93,091 filed Nov. 27, 1970 now U.S. Pat. No. 3,685,662.

BACKGROUND OF THE INVENTION

This invention relates generally to means for supporting hang rails and specifically is directed to a novel support structure for a hang rail of the type having a protruding rib along the bottom thereof.

Hang rails are used principally in retail stores where a large number of garments is to be supported on display. The garments normally are on wire or other hangers of conventional construction and these are to be engaged over a long hang rail, readily slidable along and removable from the rail.

The hang rail is mounted on a member which is called an adapter, this adapter in turn being secured to the front end of a metal support member arranged horizontally. The rear of the metal support member is usually mounted on a standard, such as the common vertically arranged slotted channel member used quite widely.

The copending application teaches the construction of the hang rail which will be described herein and in combination with which the bracket means of the invention is adapted to be used. The bracket means refer to the connection between the adapter and the hang rail.

The bracket means of the invention is a simple, one-piece member of extruded plastic that is secured to the adapter. It provides highly effective means for supporting the hang rail removably locked in place. It is economical and robust.

SUMMARY OF THE INVENTION

The bracket means of the invention comprise an elongate C-shaped member which opens upward, nested in the concave cross arm of an adapter. The adapter is to be connected to a horizontal support member. The C-shaped member is secured to the cross arm but leaving the space between the arms of the C-shaped member free. A tubular hang rail is supported by the C-shaped member, the hang rail having an integral rib along its bottom side and a pair of grooves formed between the rib and the body of the hang rail. The distance between grooves is less than the thickness of the rib spaced slightly from the grooves. The C-shaped member is molded, preferably as an extrusion, from a resilient material such as high impact synthetic resin and its arms have hooklike ends to engage in the grooves. The said ends are spread to pass over the rib and then snap into the grooves, removably locking the hang rail to the bracket.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view showing a portion of an adapter having the bracket means of the invention secured thereto and illustrating a fragment of a hang rail operatively mounted on the bracket means; and

FIG. 2 is a sectional view taken generally along the line 2—2 of FIG. 1 and in the indicated direction, showing the bracket and adapter in side elevation.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The combined bracket means, adapter and hang rail are illustrated in FIG. 1 and designated generally **10, 12** and **14,** respectively. The adapter **12** may have any suitable means for enabling the same to be secured to a horizontal support (not shown) that is connected with a vertical standard (not shown) and hence only the forward portion **16** of the adapter is illustrated. For example, there may be a recess **18** providing a bifurcated cantilever part straddling a cooperating portion of the horizontal support and held in place by fasteners such as screws or pins one of which is indicated at **20.** The nose **22** of the adapter has a cross arm **24** which is generally formed as a segment of a cylinder to provide concave cradle or rest **26.**

The adapter **12** may be fabricated of separate components or may be an integral die casting of aluminum alloy or other suitable metal.

The hang rail **14** is identical to that disclosed in the copending application. It is an extruded aluminum alloy tube having a cylindrical body portion **28** and provided with a protruding rib formation **30** along the bottom thereof and integral therewith. The rib formation **30,** or rib as it will be called, has tapered side walls **32** and a flattened bottom end **34.** At the junction of the rib **30** with the main body portion **28,** there are outwardly opening undercut grooves **36.** The widest portion of the rib **30** occurs at the points **38** just radially outward of the grooves **36** and by virtue of which the grooves are considered to be undercut.

The bracket means **10** comprise a C-shaped member of uniform cross section along its length and hence easily formed as an extrusion. The member has a central body portion **40** and upwardly directed curved arms **42** each of which terminates in an enlargement **44** directed one toward the other. The enlargements **44** may be referred to as hooklike formations since they have the function of hooking into the grooves **36.** The bottom surface **46** of the central body portion **40** is generally arcuate forming a segment of a cylinder matingly to engage the concave cradle **26** formed on the cross arm **24** of the adapter **12.**

The C-shaped bracket member **10** is secured to the cross arm **24** by suitable fastening means such as headed rivets one of which is shown at **48,** passing through suitable holes drilled in the parts **10** and **12** laterally of the nose **22.** The inner swaged end **50** of each rivet **48** is preferably countersunk below the upper surface **52** of the body portion **40** of the bracket member **10** so as not to interfere with the hang rail **14** which preferably is supported by the body portion **40** engaging the flattened bottom end **34.**

In use, the hang rail **14** is installed by forcing the rib **30** between the arms **42** causing the arms to spread due to the wedging action of the tapered side walls **32** acting on the hooklike formations **44.** In the process of this forcing action, the formations **44** ride up the tapered side walls **32,** pass over the points **38** and snap into the grooves **36,** tightly locking the hang rail **14** in place. This locking engagement, while quite secure, is nonetheless one which enables the hang rail to be removed if desired by reversing the procedure described. An alternate way of installing the hang rail **14** is to turn the rail somewhat on its axis, hooking one of the formations **44** into one of the grooves **36,** followed by rotat-

ing the rail **14** in the opposite direction about the hooked-in engagement, forcing the rib **30** into position within the bight between the arms **42** until the opposite formation **44** passes over the opposite point **38** into the opposite groove **36.** The rail may be disassembled from the bracket member **40** by the reverse procedure, twisting it until one formation is forced out of its groove, etc.

The C-shaped bracket member **10** is required to be of sufficient rigidity to support the hang rail **14** and the garments which will be hung from the rail and in addition must have sufficient resilience to enable the flexing of the arms **42** and their snapping into position with their end formations engaged in the grooves **36** without permanently yielding or breaking. For economy, this member **10** is best extruded in lengths and then cut to size to fit the adapter to which it will be secured. While some metals may meet these requirements, it is preferred that the member **10** be fabricated of high impact strength, synthetic resin of the thermoplastic type. The resin should have high resistance to cold flow and be chemically resistant and dimensionally stable over a wide range of temperatures. Several suitable resins are ABS (acrilonitrile butadiene styrene), cellulose butyrate, high impact styrene, high impact rigid vinyl, etc. Some commercial plastics suitable are Cycolac-LL (Morbon Chemical Division of the Borg Warner Corporation) and Tenite II (Eastman Chemical Division of Eastman Co.). The bracket member could also be molded of thermosetting resins with good results, but the resulting product would be more expensive than those made of extrudible resins. The invention is not limited to any particular plastic so long as it meets the general requirements described.

Variations are capable of being made without departing from the spirit or scope of the invention as claimed hereinafter.

What it is desired to secure by Letters Patent of the United States is:

1. In a combined hang rail and adapter assembly for supporting plural articles such as clothing and the like, said assembly comprising an adapter member to be mounted on a horizontal support, said adapter having a forward portion and a nose portion at one end, a cross arm formed on the nose portion, said cross arm having an upwardly concaved cradle formed thereon, a C-shaped bracket member having an arcurate bottom surface mating with and secured to said cradle, said bracket having a body portion and arms extending from said body portion, at least one of said arms being resilient, said arms opening upwardly, said assembly further comprising a rigid, tubular hang rail formed with a cylindrical body portion, a bottom centrally disposed protruding rigid rib formed on said body portion to extend downwardly therefrom, undercut grooves formed at the junction of said protruding rib and said hang rail body portion, said rib having a wide section spaced from the grooves, said wide section having a thickness greater than the distance between the ends of said arms on said bracket member, said arms having inwardly directed formations on the ends thereof to be yieldably and frictionally received in said grooves, said rigid rib adapted to be forced into the bracket member between the arms thereof to enable at least said one arm which is resilient to flex as the end formations are passed over said wide section, said end formations being snapped into said grooves to releasably lock said tubular hang rail to said bracket member, said hang rail having a tapered section radially outward of said wide section to facilitate forcing the rib between said arms and said bracket member being formed of high impact strength, synthetic resin having sufficient resilience to permit flexing of at least said one arm which is resilient without permanent setting or breakage.

2. The combination as claimed in claim **1** in which the formations are hooklike.

3. The combination as claimed in claim **1** in which the bracket member is an extrusion of uniform cross section along its length.

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