Aug. 3, 1965 G. J. POLLOCK 3,198,343

STORAGE RACK

Filed April 10, 1963 2 Sheets-Sheet 1

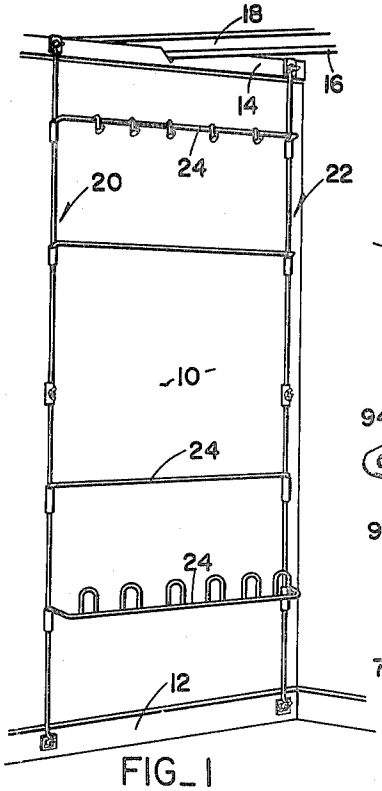


FIG_1

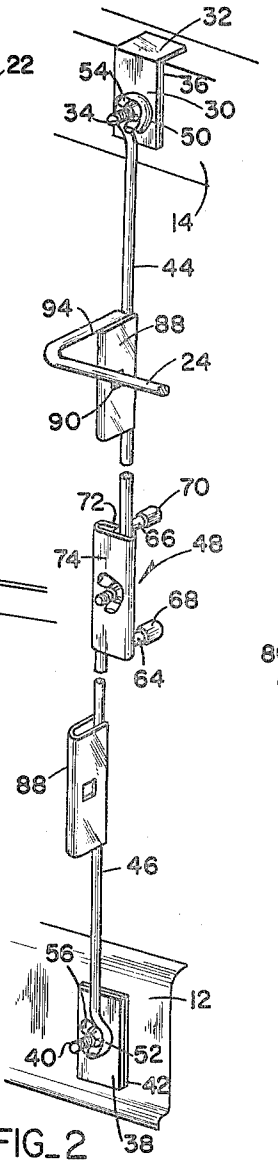
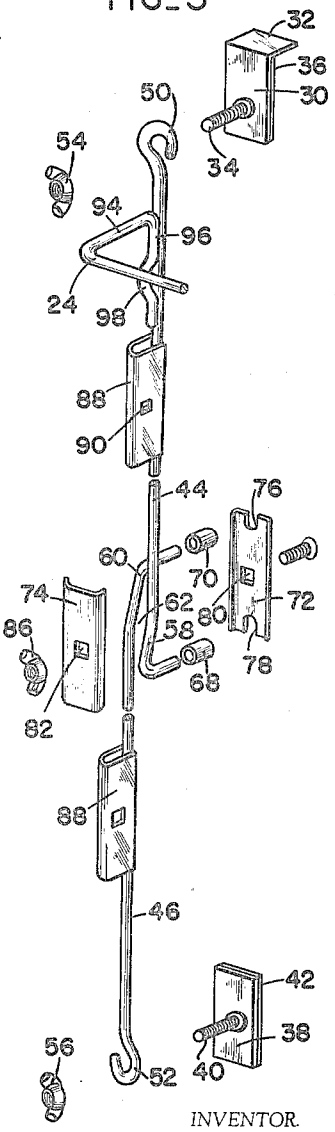


FIG_2

FIG_3



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Filed April 10, 1963 2 Sheets-Sheet 2

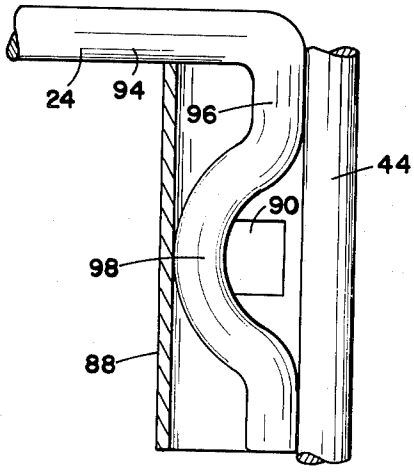

FIG_4

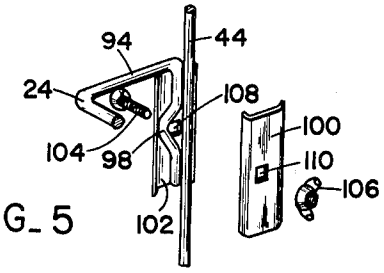

FIG_5

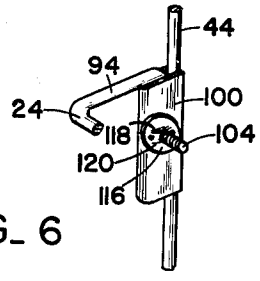

FIG_6

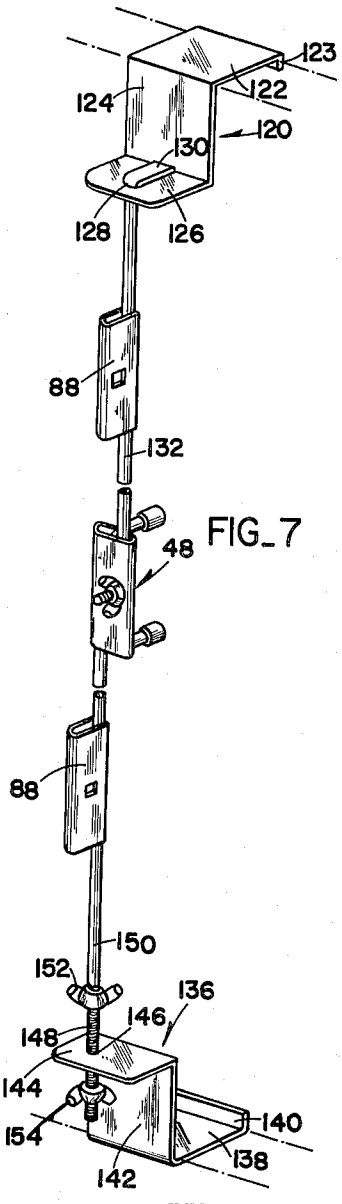

FIG_7

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STORAGE RACK

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9 Claims. (Cl. 211—87)

This invention relates as indicated to a storage rack and more particularly to a storage rack designed especially for attachment to vertical surfaces without marring them.

The present invention comprises certain improvements over the support structure described and claimed in my prior U.S. Letters Patent 2,925,916, dated February 23, 1960, relating to "Support for Garments and the Like," the structure disclosed therein being designed for attachment to closet doors and including clip means hooked over the top and bottom of the door for securing the support structure to the door without permanently marring it. Although the support structure disclosed in my patent has performed and still performs in a superior manner, such structure is not capable of attachment to areas having one or more vertical surfaces to which such structure must be attached such as, e.g. the end wall of a closet. It is accordingly an important object of the present invention to provide a rack support capable of attachment to such vertical surfaces without marring them.

A further object of the present invention is to provide an improved rack support the construction of which is considerably simplified and which can be quickly and easiy installed by the purchaser.

Another object is to provide a rack support provided with means for readily and firmly receiving racks for supporting shoes, neckties and other miscellaneous articles.

Still another object is to provide improved adjusting means for such support to facilitate adapting the support to areas of varying extent.

These and other objects and advantages of the present invention will become apparent as the following description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described and particularly pointed out in the claims, the following description and the annexed drawings setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawings:

FIG. 1 is a perspective view of the end wall of a closet having one form of my new rack support mounted thereon:

FIG. 2 is an enlarged fragmentary view of one of the vertical rack support units shown in FIG. 1;

FIG. 3 is an exploded perspective view similar to FIG. 2 only showing the component parts of the rack support unit disassembled;

FIG. 4 is a partially sectioned enlarged view showing the rack-receiving clip member connected to the vertical rod with the rack end inserted therewithin;

FIG. 5 is an enlarged, exploded view showing a two-piece rack-receiving clip member which can be vertically adjusted on the vertical rod member associated therewith;

FIG. 6 is a persepctive view of the two-piece rack-receiving clip member wherein a tamper-proof nut has been employed to firmly clamp the vertical rod members in position; and

FIG. 7 illustrates another form of the invention adapted for attachment to a door member.

Referring now in more detail to the drawings, where like parts have been designated by like reference numerals, and particularly to FIG. 1, a vertical wall, for example the end wall of a closet, is indicated at 10 and has rigidly attached thereto at the bottom thereof the usual base molding 12. It should be understood that the base molding 12 merely illustrates a typical installation environment and it will become apparent that the rack of the present invention could also be mounted directly to the vertical wall. In the form shown the wall 10 has additionally mounted thereon intermediate the top and bottom thereof a hat shelf and closet pole supported from a frame which includes the illustrated upper molding 14. The frame structure of which the molding 14 forms a part supports a closet pole 16 and a shelf 18 both of which extend between the end walls of the closet for supporting articles of clothing in the usual manner. In the preferred FIG. 1 form, the frame member 14 additionally serves to support parallel vertically disposed individual rack supporting units generally indicated at 20 and 22, the details of which will be specifically described hereinbelow. A plurality of rack members commonly indicated at 24 are supported by the spaced units 20 and 22 and extend therebetween for supporting shoes, neckties or the like. It will be understood that the racks 24 merely serve as illustrative examples of rack types which the rack support of the present invention may support, and it will be apparent that racks of different configuration for supporting different shaped articles may also be mounted on the support units 20 and 22. The opposite ends of the units 20 and 22 are mounted on the moldings 12 and 14 in a manner more specifically described hereinbelow.

FIG. 2 and 3 illustrate in detail the specific construction of the rack support unit 20 and in view of the identical construction of the units 20 and 22, a detailed description of the former will be applicable to the latter. The rack supporting unit 20 comprises an upper, L-shaped sheet metal mounting bracket generally indicated at 30, the horizonally extending flange 32 of which is adapted to overlie the top of the moldiing 14. Such bracket 30 has rigidly mounted thereon and extending outwardly therefrom a mounting bolt 34 which serves to secure the upper end of the unit to the bracket. In its pre-installed condition, the upper mounting bracket 30 is provided with an adhesive layer 36 adapted to contact the front or vertical face of the molding 14 and adhesively bond the mounting bracket thereto. A backing is provided over the adhesive layer and the peeling or removal of the backing immediately prior to assembly of the rack support units will expose the adhesive layer for bonding the bracket to the vertical surface of the molding 14. The rack support unit 20 is secured adjacent its bottom end to the molding 12 by means of a bottom mounting plate 38 which is similarly provided with an adhesive layer 42 covered by a backing which is removed immediately prior to assembly. The mounting plate 38 is further provided with a mounting bolt 40 rigidly mounted thereon and extending outwardly therefrom for securing the bottom of the support unit.

It will thus be seen that the mounting bracket 30 and mounting plate 38 are adhesively mounted on the respective adjacent wall portions in such a manner that such wall portions are not marred in any way and the brackets may subsequently be detached when desired by insertion of a knife blade therebehind. It should further be noted that although the upper mounting bracket 30 in the form shown includes a horizontally extending flange 32 for contact with the top of the molding 14, the upper mounting bracket may optionally be in the form of a flat plate similar to the bottom mounting plate 38, which would enable the unit to be secured on an entirely vertical wall surface.

The rack support unit 20 further comprises upper and lower elongated metal rods or tubes 44 and 46, respectively, which are interconnected at their adjacent ends by means of a clamp member generally indicated at 48. The upper and lower rods 44 and 46 are formed with eyelets 50 and 52 at the remote end portions thereof, which eyelets are adapted to be secured around bolts 34 and 40, respectively, by wing nuts 54 and 56 to firmly secure the eyelets in the assembled position.

As can be seen in FIG. 3, the adjacent ends 58 and 60, respectively, of the upper and lower rods 44 and 46 are laterally offset so as to define therebetween an opening 62 the purpose of which will become apparent as the description proceeds. The adjacent end portions 58 and 60 further include outer end portions 64 and 66 which are bent normal to the axis of the rod members. Plastic tips 68 and 70 are provided which fit over the ends of the bent portions 64 and 66, respectively, of the rod ends and serve to bear against the adjacent face of the vertical wall without marring the same, thus properly holding the clamped connection spaced from such vertical wall.

Referring now more specifically to the means for clamping the adjacent ends 58 and 60 of the rods, the clamp 48 comprises mating sections 72 and 74, the curved longitudinal edges of the former being adapted to be received within the curved longitudinal edges of the latter. The clamp section 72 is provided with notches 76 and 78 the bottoms of which receive the bent outer end portions 66 and 64, respectively, of the rod members 44 and 46. The clamp sections 72 and 74 are provided with centrally disposed openings 80 and 82, respectively, through which a clamp mounting bolt 84 is adapted to extend. As can be seen in FIG. 3, the path of the bolt 84 when the clamp mating sections 72 and 74 are aligned also extends through the opening 62 previously described, whereby the connection can be firmly clamped in place by means of a wing nut 86, such final clamped condition being shown in FIG. 2.

The rack support unit 20 further comprises vertically spaced, U-shaped clip members commonly designated at 88, the clip members being rigidly connected to the respective rod members in any suitable manner, for example, by welding. The clips 88 are adapted to firmly receive the racks 24, the mounting thereof being described in more detail hereinbelow when particular reference is made to FIG. 4. The clip members 88 extend outwardly from the rods normal to the wall when the rack support unit is in its assembled FIG. 2 position. Each of the clips 88 is provided with centrally disposed openings 90 extending through the legs of the clip to optionally receive nut and bolt retaining means.

It will thus be seen that the rack support comprising the individual units 20 and 22 and the racks 24 mounted therebetween may be quickly and easily installed. In the assembly of the unit 20, which is of course identical to the assembly of the unit 22, the adjacent ends of the rods 44 and 46 are placed in the notches 76 and 78, respectively, of the clamp section 72. The clamp section 72 is then disposed over the rod sections and around the clamp section 72, and the bolt 84 is inserted through the openings 80, 62, and 82 in that order and the entire assembly fimly clamped in place by the wing nut 86. Subsequent to the similar assembly of the unit 22, the racks 24 are inserted in the clips 88 and the assembly is now ready for mounting on the wall. The adhesive backings are removed from the adhesive layers 36 and the mounting brackets are then hung over the top edge of the molding 14 with some tension being placed on the assembly downwardly to secure a firm engagement therebetween. The adhesive layers 36 of the support brackets 30 will adhesively engage the molding member 14 and bond the assembled unit thereto. The bottom adhesive layers 42 are similarly uncovered and the bottom mounting plates 38 engage the molding 12 and the adhesive surfaces of the plates 38 are pressed firmly thereagainst. After allowing the adhesive to properly set, the unit is ready to support articles placed on the rack members 24.

Referring to FIG. 4, there is illustrated therein the manner in which the racks 24 are mounted in the U-shaped clip members 88. Each of the racks 24 comprises generally horizontally extending sections 94 and downwardly extending end portions 96, the latter being provided with semicircular, offset portions 98. The offset portions 98 provide a firm engagement when the ends 96 are moved downwardly into the clips 88, the offset portion 98 being slightly laterally compressible to provide such firm engagement. The racks 24 can of course be moved downwardly into the clips 88 until the horizontal sections 94 engage the top of the clip members. In such position the opening formed by the offset portion 98 will coincide with the opening 90 through the legs of the clip member 88 so, if desired, retaining means in the form of, for example, nut and bolt means, can be inserted therethrough to retain the rack in its assembled position. However, the retaining means is clearly optional and the racks 24 will be resiliently retained in position without necessity of additional retaining means.

There is illustrated in FIG. 5 an alternative form for adjustably mounting the racks 24 to the rods 44 and 46. In the form shown therein, a two-piece clip comprising mating sections 100 and 102 is employed in lieu of the single piece, U-shaped clip previously described above and illustrated in FIGS. 1–4. The clamping connection is similar to that described above for the clamp 48, a clamping bolt 104 and wing nut 106 being provided which extends through openings 108 and 110 in the mating sections 100 and 102, and through the opening formed by the offset section 98 in the end portions of the rack members. When the elements are so assembled, the bolt 104 will of course prevent vertical movement of the rack 24. It will be noted that this connection is vertically adjustable on the respective rod members, such adjustment merely requiring the loosening of the wing nut 106, moving of the clamped assembly vertically in either direction as desired, and subsequently tightening of the wing nut on the bolt 104.

FIG. 6 illustrates a rack connection wherein a commercially available tamper-proof nut 116 is provided in lieu of the wing nut previously described. The nut 116 is provided with parallel raised surfaces 118 and 120 which are adapted to receive a specially formed wrench member for tightening or loosening the nut on the bolt 122. As will be apparent, such tamper-proof nuts are especially desirable for use by property owners in rental units to preclude rearrangement or removal of the rack support units without the knowledge of the owner. Although the tamper-proof nut 116 is shown only with the rack connection, it will be understood that the same is used in place of the wing nuts throughout the rack support units.

Referring to FIG. 7, there is shown therein a rack support unit which can be readily mounted on closet doors or the like. The clamp connection for clamping the adjacently disposed ends of the rods is the same as previously described, as are the rack supporting clip members also previously described. The means for attaching the units at the upper end thereof to the door comprises a pair of top bracket members one of which is generally indicated at 120 having a horizontal top portion 122 and vertical flanged portions 123 and 124, the latter being spaced to accommodate therebetween the closet door, as indicated in dashed lines. The bracket 120 further includes an outwardly extending horizontal flange portion 126 having an opening 128 therein for receiving a flattened end portion 130 of the upper rod member 132, the latter firmly engaging the adjacent surface of the flange when the unit is installed. It will be seen that such structure avoids the necessity of a nut and bolt connection thereby achieving further simplification and ease of installation.

The opposite end of the rack supporting unit is attached

to the bottom of the door by means of a pair of bottom brackets one of which is shown in FIG. 7 and generally indicated at 136. Such bottom bracket generally corresponds in construction to the top mounting bracket 120 and thus comprises a bottom flange 138 which contacts the bottom of the door, spaced vertical flanges 140 and 142, and an outwardly extending horizontal flange 144. The latter is provided with an opening 146 through which the threaded end portion 148 of the lower rod 150 is adapted to extend, and a pair of wing nuts 152 and 154 are provided disposed, when the unit is assembled, on either side of the horizontal flange 144.

The FIG. 7 form is installed on the closet door in a manner generally similar to that described above. Subsequent to the assembling of the individual units 20 and 22 as above described, and the insertion of the upper rod ends 132 through the brackets 120, the top mounting brackets 120 are hung over the top edge of the door. The bottom brackets are then hooked over the bottom edge of the door and the lower wing nut 154 is tightened sufficiently to hold the bracket in place. The racks are set in place in the clips 88, the upper and lower mounting brackets being laterally adjustable to properly space the same at this stage of the installation. Subsequent to the setting of the racks in place, the lower wing nut 154 is tightened, and the upper wing nut 152 is tightened on top of the bracket flange, whereby the installation is firmly secured in place and ready for use.

It will thus be seen from the foregoing that I have achieved the several objects of the present invention which provides a rack support which can be rigidly attached to vertical as well as horizontal surfaces without marring the same. Further, the rack support unit constructed in accordance with the several forms shown is highly simplified and quickly and easily installed by the purchaser.

It will be understood the foregoing may suggest other modes of applying the invention without, however, departing from the principles embodied herein. For example a single support unit 20 or 22 may be employed with racks mounted thereon as above described. Further, the rack support may be mounted on an entirely flat vertical surface, as above explained. The true scope of the invention is, accordingly, defined by the appended claims.

I therefore particularly point out and distinctly claim as my invention:

1. A rack support unit comprising a pair of rigid elongated rods adapted to be mounted in a vertically extended position spaced from a vertical wall, said rods having laterally offset adjacently disposed end portions terminating in extreme outer ends directed normally to said rods and said wall for spacing said rods from said wall, clamp means for clamping said adjacently disposed ends of said rods, said clamp means comprising a pair of mating sections having complemental curved longitudinal edges, the mating sections when assembled forming an elongated opening for receiving said adjacently disposed, laterally offset ends of said rods, means for securing said mating sections together, a rack-receiving member mounted on one of said rods, upper and lower mounting members adhesively bonded to said vertical wall, and means for rigidly mounting the opposite ends of said rod members to said mounting members whereby the rack support unit is firmly mounted on said vertical wall without marring the same.

2. A rack support unit comprising a pair of rigid elongated rods adapted to be disposed in a vertically extended position spaced from the surface on which the unit is to be mounted, said rods having adjacent end portions extending normally to said rods and said surface for spacing said rods from said surface, clamp means for clamping the adjacently disposed ends of said rods in substantial longitudinal alignment, said clamp means comprising a

pair of mating sections having complemental curved longitudinal edges and means for securing said mating sections together, said mating sections when so secured forming an elongated opening for receiving said adjacently disposed ends of said rods, a plurality of rack-receiving members mounted in vertically spaced relation on said rods, upper and lower mounting members for mounting said unit on said surface, and means for mounting the opposite ends of said rods to said mounting members whereby the rack support unit is adapted to be firmly mounted on said surface.

3. The combination of claim 2 wherein one of said mating sections is provided with notches in the transverse edges thereof for receiving said normally extending rod ends.

4. The combination of claim 2 wherein said rods are provided with adjacently disposed laterally offset portions which define therebetween an opening, said securing means, when said offset portions are received within the mating sections of said clamp, extending through said opening and through openings in said mating sections for firmly clamping said rods.

5. The combination of claim 2 wherein at least one of said mounting members is provided with adhesive for adhesively bonding said one mounting member on said surface.

6. The combination of claim 2 wherein said upper and lower mounting members are provided with adhesive for adhesively bonding said members to said surface.

7. The combination of claim 2 wherein said surface on which the unit is to be mounted is a door and wherein said upper and lower mounting members comprise brackets adapted to be hooked over the respective edges of said door.

8. In a rack support structure including an elongated rod member and an article supporting rack member having an end portion adapted to be disposed adjacent to and substantially parallel with said rod member, means for rigidly clamping said rack end and said rod together comprising a pair of opposed shallow elements together embracing said rack end and said rod and having aligned apertures extending therethrough, and bolt means extending through such aligned apertures and between said rack end and said rod effective to draw said channel sections together, said rack end having a laterally offset portion to receive said bolt means whereby the latter prevents longitudinal movement of said rack end.

9. In a rack support structure, an elongated rod member, a one-piece, generally U-shaped clip member rigidly connected to said rod, said clip and said rod forming an elongated opening for receiving an article-supporting rack member, said clip having aligned openings in the leg portions thereof, said rack member being provided with a laterally offset portion which defines an opening adapted to be aligned with said aligned openings in said legs of said clip, and bolt means extending through said aligned openings whereby said rack is retained within said clip.

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CLAUDE A. LE ROY, *Primary Examiner.*