United States Patent

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[73] Assignee Capitol Hardware Manufacturing Co., Inc.
Chicago, Illinois
a corporation of Illinois

[54] **CIRCULAR GARMENT RACK**
6 Claims, 13 Drawing Figs.

[52] U.S. Cl. 211/177, 211/175, 211/182
[51] Int. Cl. A47f 7/24
[50] Field of Search 211/177, 175, 176, 182, 148, 133

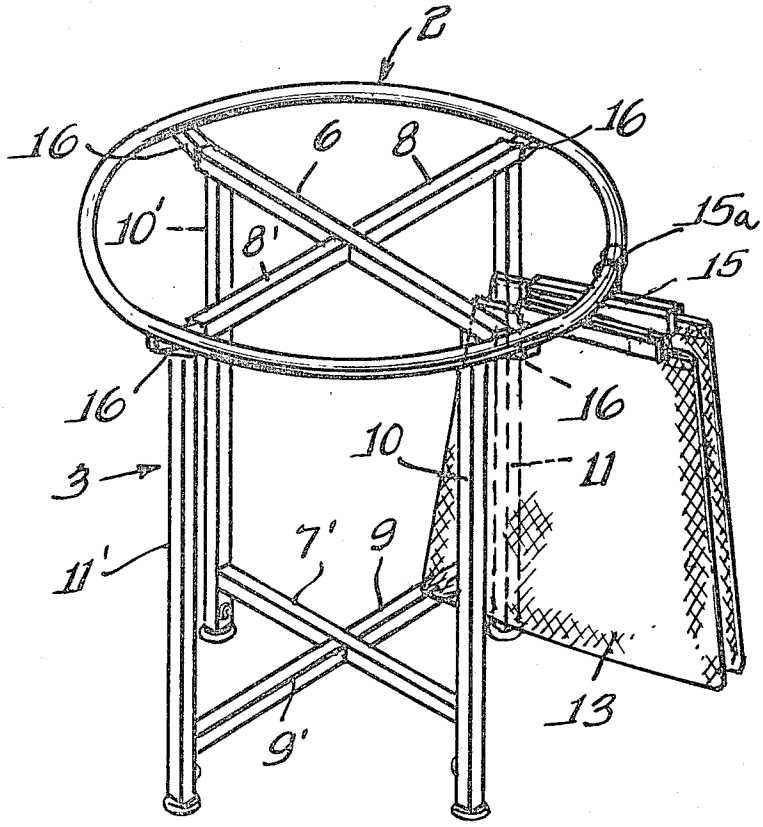
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ABSTRACT: The circular garment rack preferably has a hollow tubular hangrod bent into a circular configuration, the hangrod having circumferentially spaced openings in the bottom thereof. A floor supported frame is preferably provided for the hangrod, the frame comprising upright leg-forming members carrying at the top thereof radially inwardly extending horizontal members which releasably support the hangrod at the ends thereof preferably by vertical posts which pass through the bottom hangrod openings. The posts are most advantageously projections on adapter units progressively radially adjustably supported on the ends of said horizontal members. Also, the posts are preferably undercut at circumferentially spaced points and at least some of the openings in the hangrod are positioned to be slightly out of alignment with the posts so the horizontal members must be flexed a little to bring the misaligned openings over the posts where the hangrod snaps into place with the hangrod walls around the openings thereof received within the recesses of the posts formed by the undercut portions thereof. The support frame is preferably made in a number of sections which include manually releasable connecting means at the inner ends of the horizontal members carried by the leg members to form a strong, rigid, knock-down frame structure.



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Fig. 1.

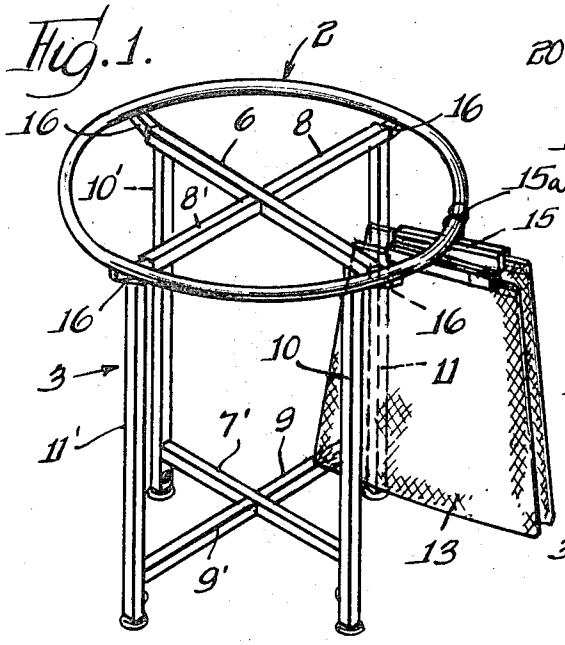


Fig. 2.

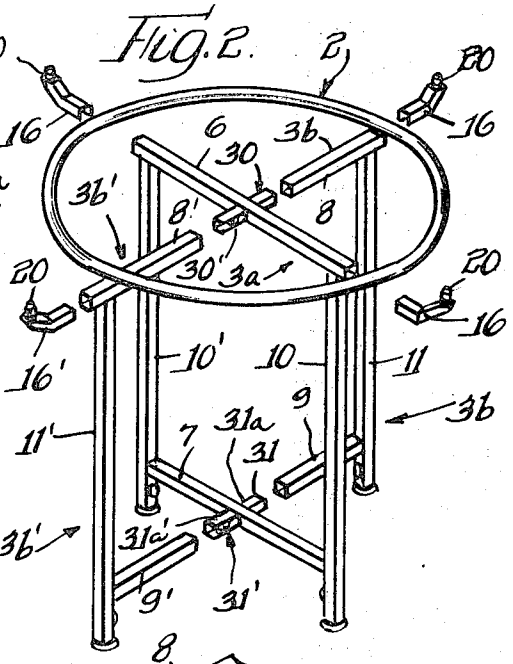


Fig. 10.

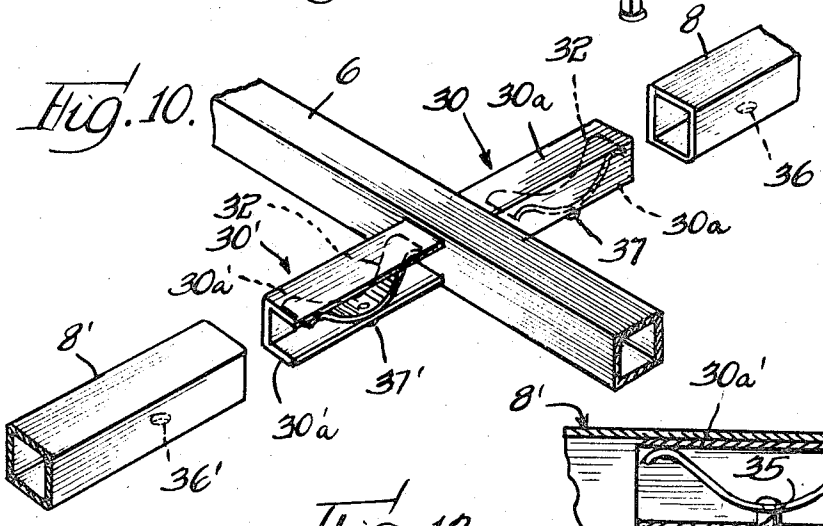


Fig. 11.

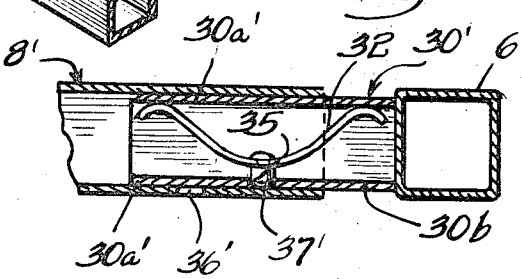
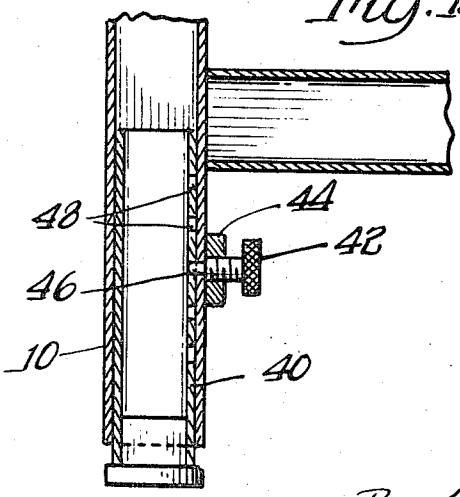


Fig. 13.



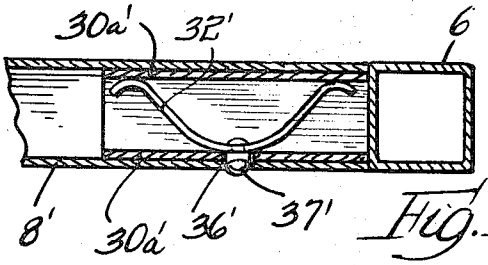


Fig. 12.

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Fig. 3

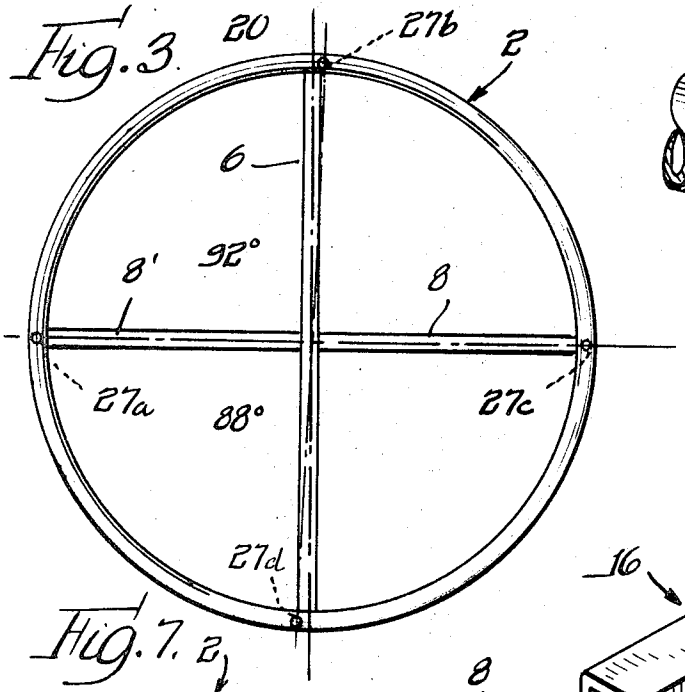


Fig. 4

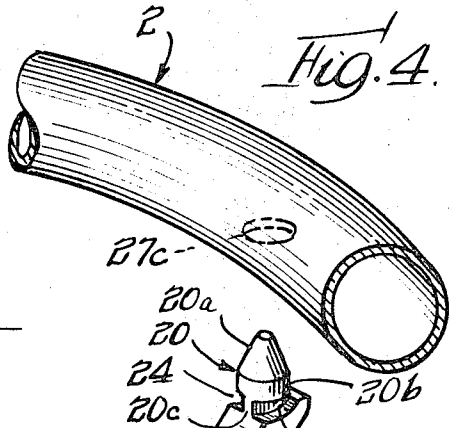


Fig. 7

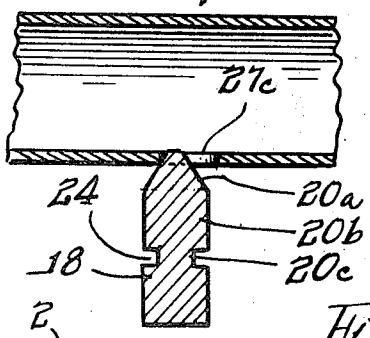


Fig. 5

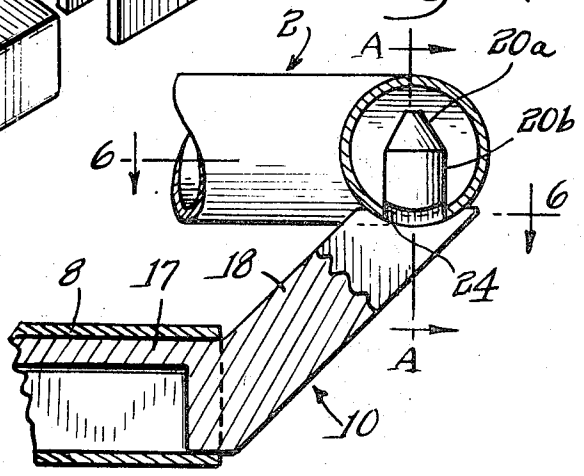


Fig. 8

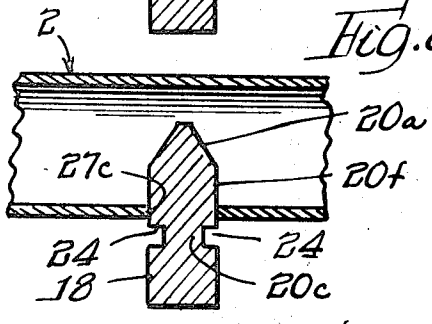


Fig. 6

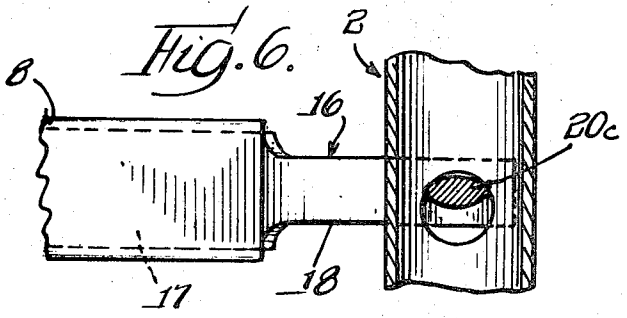
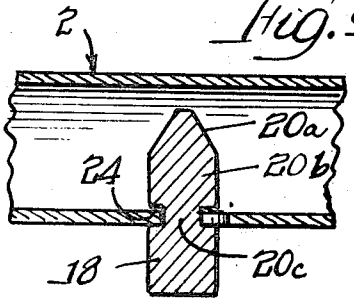


Fig. 9



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CIRCULAR GARMENT RACK

This invention relates to garment racks of the type preferably having a tubular hangrod bent into a generally circular or annular configuration so that garment supported hangers can be hung on the hangrod in various radial planes encompassing almost 360°. In one form of circular garment rack of this type heretofore proposed, the annular hangrod was carried on the top of a tubular framework having horizontal hangrod carrying members at the top thereof extending radially inwardly from the tubular upright leg-forming members. The connections between the sections of the framework and the connections between the hangrod and the horizontal hangrod carrying members were usually screws or bolts which made it difficult to assemble and disassemble and required the parts the thereof to be made to close tolerances. The present invention provides an improved circular rack of this general type where the various parts of the rack can be quickly and easily assembled and disassembled without the need of any tools, the parts need not be made to close tolerances and the assembled rack is of rigid and sturdy construction.

In accordance with one aspect of the invention, the horizontal members at the top of the support framework carry on the outer ends thereof progressively radially adjustable hangrod adapter units. In the preferred form of the invention, each of these adapter units makes a sliding telescoping fit with the outer end of one of the upper horizontal members of the support framework and carry upwardly extending posts which preferably have a tapered upper end portion and a cylindrical intermediate portion sized just to pass through circumferentially spaced openings in the bottom of the hangrod. The inner end portion of each post is preferably recessed or slotted on opposite circumferentially facing sides thereof. The circumferentially spaced hangrod openings are received in snap-on relation over the upwardly extending posts of the adapter units. One or more of the openings in the bottom of that tubular hangrod are preferably located at angular positions which do not exactly correspond with the positions of the adapter unit posts, so the upper horizontal members of the framework must be manually flexed to bring the adapter unit posts one at a time into alignment with the openings in the bottom of the hangrod where the hangrod can be pushed over and onto the adapter unit posts involved, aided by the tapered ends thereof which guide the hangrod into place over the post. When the manual force on a horizontal member is released, the post involved snaps snugly into place in the hangrod recess involved to make a rigid interlocking connection between the adapter unit post and the portion of the hangrod involved. The hangrod can be readily released from the adapter unit posts by manually flexing the horizontal members of the support framework into a position where each post is brought into alignment with the associated hangrod opening, whereupon the portion of the hangrod involved can be raised from the post.

The support frame is preferably made of a number of sections each including one or more of the upstanding leg-forming members and one of the upper horizontal members extending radially inwardly from the top of each leg-forming member. In the preferred form of the invention, the horizontal members of the different frame section are interconnected by manually releasably telescoping snap-on connections.

The above and other advantages and features of the invention will become apparent upon making reference to the specification to follow, the claims and the drawings wherein:

FIG. 1 is a perspective view of a circular garment rack constructed in accordance with the present invention;

FIG. 2 is an exploded view of the different parts making up the garment rack of FIG. 1;

FIG. 3 is a plan view of the garment rack disclosed in FIG. 1 with the circular tubular hangrod forming a portion thereof resting on top of its support frame prior to its connection therewith;

FIG. 4 is a fragmentary exploded view of an adjustable hangrod adapter unit and a portion of the hangrod to which it is connected forming part of the rack of FIG. 1;

FIG. 5 is a vertical sectional view of the parts shown in FIG. 4 in assembled relation;

FIG. 6 is a horizontal sectional view through FIG. 5, taken substantially along the section line 6–6;

FIGS. 7 through 9 are vertical sectional views through the portion of the hangrod and adapter unit shown in FIGS. 4 and 5, taken along section line A–A in FIG. 5 showing the manner in which the adapter unit posts are snapped into position within a hangrod opening;

FIG. 10 is a fragmentary perspective exploded view showing the manner in which a center frame section of the support frame of the rack is releasably interconnected with a pair of end frame sections thereof;

FIGS. 11 and 12 are enlarged fragmentary vertical sectional views through the upper or lower horizontal members of the center and end frame sections of the support frame, showing the manner in which the frame sections are moved progressively into interlocking relationship; and

FIG. 13 is an enlarged sectional view through the bottom of one of the upright leg-forming members of the support frame rack of FIG. 1, showing the manner in which the elevation of the rack is adjustable.

Referring now to FIG. 1, the assembled rack illustrated in FIG. 1 includes a horizontally oriented hangrod 2 preferably made from tubular metal stock bent and welded to form an annular or ring-shaped hangrod. The illustrated hangrod is releasably supported upon a floor mounted support frame 3. The hangrod 2 is attached to the outer ends of upper horizontal frame members 6, 8 and 8'. The upper horizontal members 6, 8 and 8' and most of the other parts of the support frame 3 to be described preferably are made from rectangular tubular metal stock. The ends of the upper horizontal members 6, 8 and 8' shown in FIG. 1 are positioned approximately 90° apart along a circle concentric with the center of the annular hangrod 2. The support frame further includes upright leg-forming members 10—10' and 11—11' extending downwardly from the upper horizontal members 6, 8 and 8'. The bottom portions of the upright leg-forming members 10—10' and 11—11' are interconnected by lower horizontal members 7, 9 and 9'. The support frame 3 thus provides between and within the innermost margins of the leg-forming members 10—10' and 11—11' and the upper and lower horizontal members 6, 8, 8', 7, 9 and 9' an unobstructed cylindrical space into which may extend the inner portions of the garments 13 draped over hangers 15 having the usual hooked necks 15*a* engaged over the hangrod 2. The posts 20 support the hangrod at an elevation where the hooked necks 15*a* of the hangers 15 clear the horizontal members 6, 8 and 8' so the hanger necks can engage the annular hangrod 2 for the entire length of the hangrod. The leg-forming members as illustrated will, however, be in the way of the clothes carrying portions of any hangers extending perfectly radially of the hangrod over the limited extent of the same. The upper ends of the legs could, of course, be inclined inwardly to engage the horizontal members at points inwardly of those illustrated so the clothes carrying portions of the hangers will clear the leg-forming members at the points of the hangrod opposite the leg-forming members.

As previously indicated, the present invention deals with the manner in which the different parts of the rack interfit to provide a strong, rigid, knock down garment rack which can be readily assembled and disassembled. To this end, in the preferred form of the invention the support frame 3 is formed in three sections, namely a center frame section 3*a* and two end sections 3*b* and 3*b*' (FIG. 3) which interfit through snap-on connections interconnecting the horizontal members 6, 8 and 8' and 7, 9 and 9' in a manner to be explained later on in the specification.

One of the most important aspects of the invention is the manner in which the hangrod 2 is attached to the upper horizontal members 6, 8 and 8' of the support frame. This is best shown in FIGS. 5 through 9 to which reference should now be made. In the most advantageous form of the invention, the horizontal members 6, 8 and 8' carry on the ends thereof hangrod adapter units 16 which have a horizontally extending

base portion 17 which is radially, progressively, slidably, adjustably connected to the outer ends of the horizontal frame members. As illustrated, the base portion 17 of each hangrod adapter 16 has a channel shaped cross section and is sized to slidably fit within the rectangular recess of a horizontal frame member 6, 8 and 8'. Each adapter unit 16 has an outer upwardly extending portion 18 which terminates in a vertical post 20 having an upper tapered portion 20*a* which merges with an intermediate cylindrical portion 20*b*. The cylindrical portion 20*b* terminates in a reduced neck portion 20*c* formed by undercutting the post on the opposite circumferentially facing sides thereof to form recesses 24–24.

As best shown in FIG. 3, the annular hangrod 2 is provided at the bottom thereof with circumferentially spaced openings 27*a*, 27*b*, 27*c* and 27*d* sized just to receive the cylindrical portions 20*b* of the posts 20 of the adapter units 16. One or more of the openings 27*a*—27*d* are positioned slightly out of angular (*i.e.* circumferential) alignment with the associated adapter unit posts 20. This can be accomplished, for example, by spacing the openings 27*a*—27*b* and 27*c*—27*d* slightly more than 90° apart from one another and the openings 27*b*—27*c* and 27*d*—27*a* slightly less than 90° apart, assuming that the posts 20 are positioned exactly 90° apart. The hangrod openings are preferably snapped into place one opening at a time. To do so, the horizontal frame members carrying a post 20 which is not aligned with the associated hangrod opening must be manually forced into a position to bring the opening into alignment with the associated post 20 before the hangrod can be pushed into place over the post. The tapered upper ends 20*a* of the posts aid in aligning the openings 27*b* and 27*d* with the posts 20. (Any radial misalignment between the hangrod openings 27*a*, 27*b*, 27*c* and 27*d* and the associated post 20 is automatically taken care of because of the radial adjustability of the adapter units 16.) The recesses 22–22 at the base of each post 20 have a width somewhat greater than the thickness of the tubing from which the hangrod 2 is made so, when the force on the horizontal frame member is released after a nonaligned hangrod opening is pushed over a post 20, the resiliency of the latter will move the same circumferentially so the recessed post involved will snap into place on the hangrod. When the neck portion 20*c* of a post (FIG. 9) is engaged by the edge of a hangrod opening, the hangrod will still be under some tension so a rigid, tight connection is made between the hangrod and the post 20.

Refer now to FIGS.2 and 10 through 12 which illustrate the manner in which the center frame section 3*a* and the end frame sections 3*b* and 3*b* ' releasably interfit in the preferred form of the invention. The center frame section includes the upper and lower horizontal members 6 and 7 which are welded or otherwise secured between the upper and lower portions of the upright leg-forming members 10—10'. The end frame sections 3*b* and 3*b* ' respectively includes the upper and lower horizontal members 8—9 and 8'—9', secured to and projecting radially inwardly from the leg-forming members 11—11'.

Projecting horizontally from the opposite sides of the center portions of the upper and lower horizontal members 6 and 7 of the center frame section are pairs of radially extending channel members 30—30' and 31—31'. Leaf spring members like 32 (FIGS. 11—12) are placed under compression between the flanges 30*a* —30*a* ' and 31*a* '—31*a* ' of the channel members 30—30' and 31—31' which are respectively at the top and the bottom of the channel members, and the spring members carry pins 37 at the centers thereof which are urged by the spring members normally through openings like 36 in the bottom flanges of the channel members. The horizontal frame members 8—8' and 9—9' of the end frame sections are sized to be telescoped over the channel members and they have openings like 36 through which the pins carried by the spring members extend when the ends of the horizontal frame members 8—9 and 8'—9' are adjacent the horizontal frame members 6 and 7. The telescoping members are released by manually depressing the pins and pulling the end frame sections from the center frame section. The member 6, 8 and 8' have a flexibility and resiliency which enables the ends thereof to be flexed to bring any post 20 into alignment with an adjacent off-centered hangrod opening, as previously explained.

The upright leg-forming members 10—10' and 11—11' may be adjustable in any suitable way. For example, a leg extension 40 (FIG.13) may be telescoped within the bottom of each associated upright leg-formed member. The position of each leg extension 40 within the associated upright leg-forming member may be adjusted by a screw 42 threaded into a fixed nut 44, the screw 42 having a reduced end portion 46 insertable within a selected aperture 48 in the leg extension 40.

It should be understood that numerous modifications may be made in the most preferred form of the invention described above without deviating from the broader aspects therein.

I claim:

1. A garment rack comprising a horizontally oriented annular hangrod adapted to receive thereon the hooked necks of garment supporting hangers, a support frame for the hangrod to which the annular hangrod is attachable at a number of circumferentially spaced points along the hangrod, the frame including horizontally extending upper members extending laterally transversely of one another, there being an unobstructed cylindrical space below and centered with respect to the annular hangrod and said horizontally extending upper members and into which space the inner portions of the hanger supported garments may extend radially inwardly of the hangrod in practically all directions, the frame also leaving an unobstructed space below and outwardly of the hangrod into which the outer portions of the hanger supported garments extend, and connector means for releasably connecting the outer ends of said horizontally extending upper members to said circumferentially spaced points of said annular hangrod, said horizontally extending upper members being resilient and flexible and one of said annular hangrod and connector means at each of said circumferentially spaced attachment points of said hangrod having projecting means passable into the opening of the other of same, and at least one of said projecting means and associated opening being normally slightly out of alignment circumferentially of the annular hangrod so at least one of said horizontally extending upper members must be flexed into a position where the latter projecting means enters said opening to effect a secure interlocking of the annular hangrod with said support frame.

2. The garment rack of claim 1 wherein said projecting means are posts tapered at the ends thereof to permit the easy alignment thereof with the associated opening means.

3. The garment rack of claim 1 wherein said annular hangrod is a hollow tubular member bent into a generally circular shape, the annular hangrod has openings at said attachment points, said projecting means being part of said horizontally extending upper members and each including circumferentially spaced undercut portions which provide recesses for receiving the walls of the hangrod at the margins of the associated hangrod openings when the force applied to flex said frame is released to return the projection means to a position out of alignment with the associated hangrod opening, the hangrod at each of said attachment points being removable from the projecting means of the horizontally extending upper member thereat by flexing the frame again to bring the projecting means thereat into alignment with the associated hangrod opening and then pulling the hangrod from the projecting means.

4. The garment rack of claim 1 wherein said connector means including means progressively, radially adjustably supported from the outer ends of said horizontally extending upper members.

5. A garment rack comprising a horizontally oriented annular hangrod adapted to receive thereon the hooked necks of garment supporting hangers, a support frame to the upper portion of which the hangrod is attachable at a number of circumferentially spaced points along the hangrod, the support frame comprising a center frame section and two end frame sections

extending transversely of said center frame section, said center frame section including two upright leg-forming members similarly positioned on opposite sides of the center point of the center frame section and an upper horizontal member extending between the upper ends of the latter leg-forming members, said end frame sections each including a single upright leg-forming member and upper horizontal member secured to the top of the associated upright leg-formed member and projecting radially inwardly therefrom to points adjacent the upper horizontal member of said center frame section, manually releasable interlocking means releasably interlocking the inner ends of the upper horizontal members of said end frame sections with said horizontal member of the center frame section through said manually releasable interlocking connections, each of said horizontal members of the support frame section carrying on the outer end thereof manually releasable hangrod engaging means each of which engages one of said attachment points of said annular hangrod, the outer ends of said upper horizontal members being flexible and resilient and one of said annular hangrod and releasable hangrod engaging means at each of said circumferentially spaced attachment points of said hangrod having vertically projecting means passable into the opening of the other of same, and at least one of said vertically projecting means and associated openings being normally slightly out of alignment circumferentially of the hangers so the horizontal members must be flexed into a position where the latter vertically projecting means enters said opening to effect a secure interlocking of the annular hangrod with said support frame, said upright leg-forming members of said frame section having a relatively small extent in both radial and circumferential directions over a portion of the length thereof encompassing the height of the garments expected to be supported on the rack, wherein the support frame leaves an unobstructed cylindrical space below said hangrod and between said leg-forming members into which space the inner portions of the hanger supported garments may extend radially inwardly of the hangrod in practically all directions, the frame also leaving an unobstructed space below and outwardly of the hangrod into which the outer portions of the hanger supported garments extend.

6. The garment rack of claim **5** wherein said annular hangrod is a hollow tubular member bent into a generally circular shape, the annular hangrod has openings at said attachment points, said vertically projecting means being part of said releasable hangrod engaging means and each including circumferentially spaced undercut portions which provide recesses for receiving the walls of the hangrod at the margins of the associated hangrod opening when the force applied to flex the associated horizontal member is released to return the axis of the vertically projecting means thereof to a position out of alignment with the associated hangrod opening, the hangrod at each of said attachment points being removable from the vertically projecting means of the releasable hangrod engaging means thereat by flexing the horizontal member involved to bring the vertically projecting means thereof into alignment with the associated hangrod opening and then pulling the hangrod therefrom.