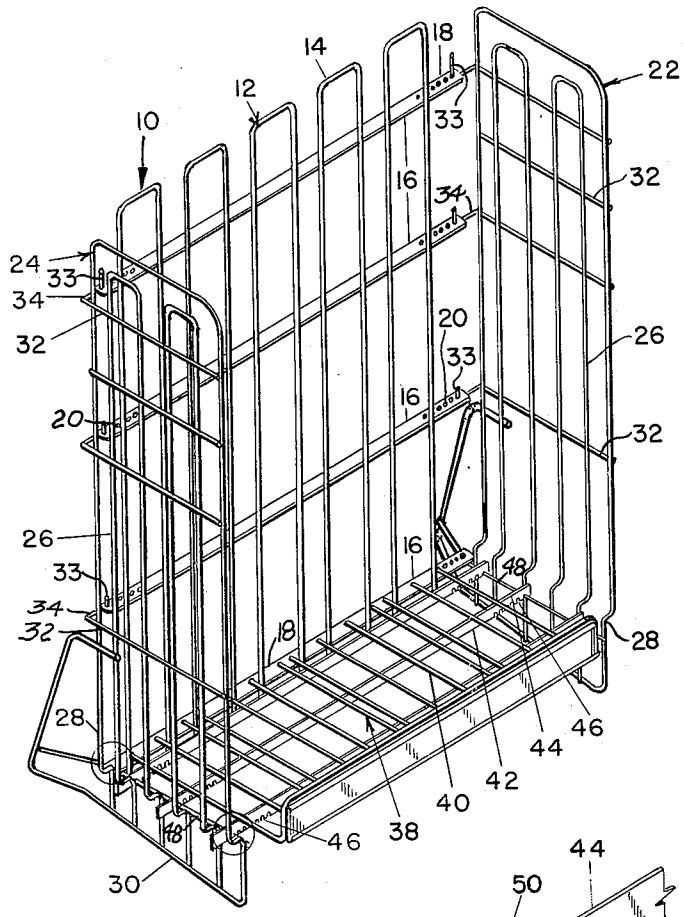
Aug. 1, 1961 W. F. BROWNING, JR 2,994,441

DISPLAY RACK

Filed July 25, 1960 2 Sheets-Sheet 1

FIG. 1



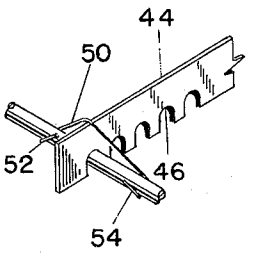


FIG. 2

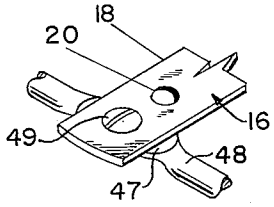


FIG. 3

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DISPLAY RACK

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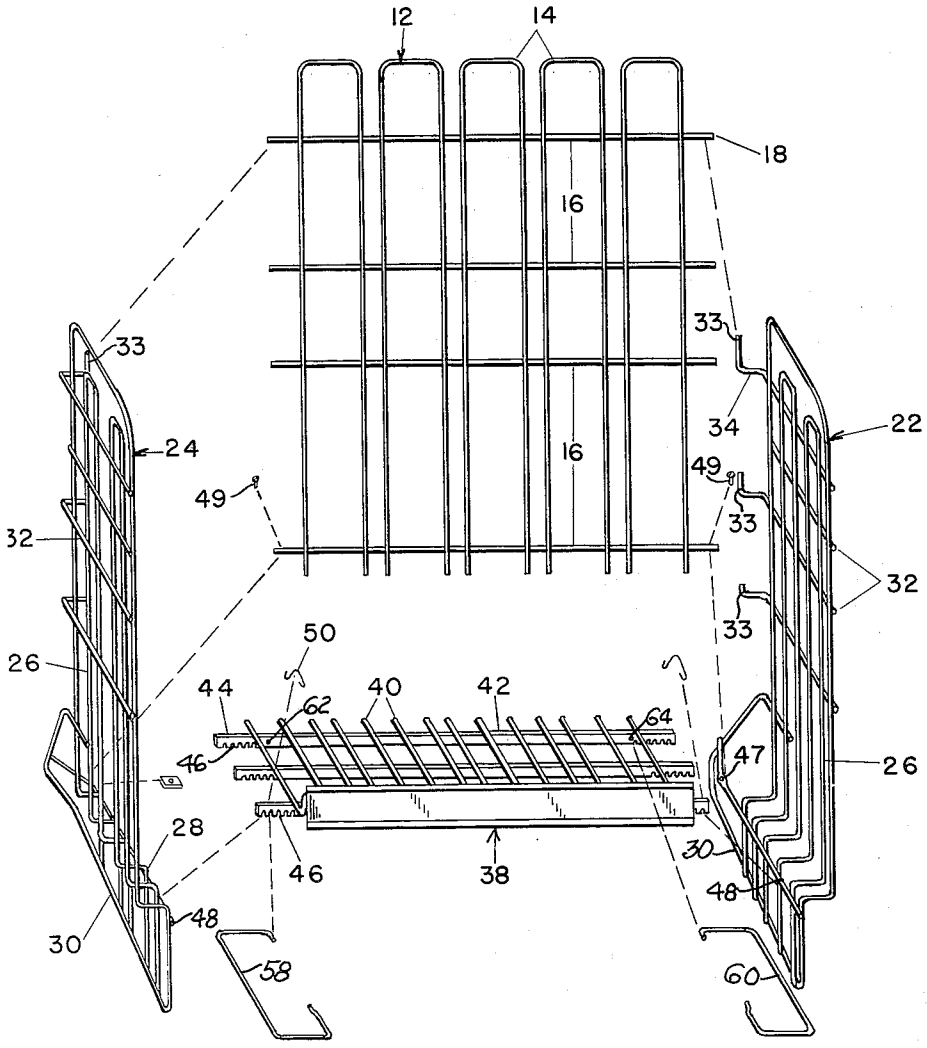

FIG. 4

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2,994,441

DISPLAY RACK

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Filed July 25, 1960, Ser. No. 45,001
12 Claims. (Cl. 211—177)

This invention relates to a display rack and particularly to a collapsible and adjustable wire frame display rack of the sort used to display cartons of merchandise in a store such as soft drink bottle cartons and the like.

Irrespective of other wire racks which are known in the art of storage and display or "bin-type" racks, there exists a need for a wire rack which is structurally strong and rigid and which is adjustable in order to accommodate products in various sizes of packages and which can be completely knocked down for storage or transportation. This is particularly true in displaying and selling soft drinks packaged in drink cartons where a given product is marketed in bottles of more than one size and bottles often are more than one constant diameter. A rack dimensioned to fit the smallest carton of bottles of a given product would be too small for the larger size or "king" sized bottles and conversely, a rack made for larger size bottles would be too large to store the smaller size properly. Adjustment from one size to the other must be quick and expedient and must be performed in a minimum of space because of the crowded conditions of supermarkets and other stores where such racks are commonly used. While other adjustable display racks are known in this art, they inherently have certain disadvantages relating to the adjustability and the structural rigidity and to the difficulty in completely disassembling and re-assembling such racks. Some of the disadvantages of these racks are that they are difficult to change from one dimensional setting to another; they require two or more persons to handle the parts to accomplish either of the adjustments; and, further, there is no positive attachment of various parts of the rack, thereby creating a certain amount of inherent looseness, permitting enough sway from side-to-side as to cause sometimes the merchandise in the rack to fall with resulting damage, not only to the merchandise, but sometimes spewing broken glass which strikes and injures the customers. In some racks, the adjustment of the support bottom of the rack to accommodate smaller size cartons leaves a protrusion from each side of the rack which trips customers or snags their stockings or clothing.

Generally described, the present rack is adapted to be constructed from a number of individual panels identified as the side panels, the back panel and the bottom tray or adjustable bottom panel and all panels are constructed from pre-formed bent, wires welded or otherwise attached together on a permanent panel frame, and preferably painted, chrome plated or galvanized, anodized, or otherwise treated to protect the metal and to present an attractive appearance. The rack is adapted to be quickly assembled and disassembled with an open front and top but with closed side wire panels, a closed bottom of wire and a closed wire panel back. The normally vertical wire back member is composed of a plurality of vertical wires arranged on a substantially equal plane and being welded or otherwise attached to a plurality of horizontal and parallel spacer bars. Each of the aforementioned bars has a protruding end on each side of the back panel which is drilled with a plurality of aligned spaced holes. Each of the two side panels are substantially of identical construction and consist of a plurality of straight wire members arranged in a rigid manner and each one of the frames is particularly characterized by the fact that near the bottom portion thereof, all of the wire members bend inwardly for a distance and then downwardly to the bottom of the side panel. A plurality of transverse wire rod members are rigidly fastened as a part of the side panel wire frame, there being one generally for each of the horizontal drilled members of the back piece, and each of these transverse wire members has a wire end which is bent inwardly from the back of the side panel and thence upwardly to be inserted in an opening in a respective drilled member on the back panel. The upwardly extending wire ends of the side panel members are progressively shorter in length from the top to the bottom of the frame, whereby the back frame when lifted a distance to clear the top upstanding wire member, will have a transverse drilled member matching with a wire end for insertion thereon. The open wire bottom of the present device consists of a plurality of transverse wire rods rigidly welded or otherwise fastened to several longitudinal flat bar members placed upright and having each of the ends thereof notched to represent an adjustable position. With the bottom adjusted to its shortest or longest length, the entire length thereof is still contained within the sides of the rack so that there are no protruding pieces. And the support rod for each of the ends of the wire bottom notched members is on the innermost portion of the inturned bottom portion of the side members.

A primary purpose of this invention is to provide a display rack which is quickly and easily assembled and/or disassembled and which may be readily adjusted on the spot by one person for packages or cartons of different sizes.

Another advantage of the present invention resides in the arrangement of the bottom support, whereby it does not protrude from the sides of the rack in either its innermost or outermost adjusted position.

Still another advantage of the present invention resides in the particular arrangement of the transverse back members fitting over progressively shorter ends of wire on the side members whereby a quick, positive adjustment, assembly, disassembly and rigidity is obtained which is not possible from other arrangements.

Another important advantage of the present invention resides in the particular construction of the back, side and bottom panels whereby they may be manufactured with a minimum of cost and may be disassembled and placed in substantial flat association for shipping and transportation.

An additional object resides in the particular manner of adjusting the bottom support of the rack on support wires and in the arrangement of a wire spring clip for holding the bottom firmly in place.

Other and further objects and advantages of my invention will become apparent upon reading the following specification taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of an assembled rack of this invention.

FIG. 2 is an enlarged view taken from the position encircled on FIG. 1.

FIG. 3 is another enlarged view taken on the position encircled in FIG. 1.

FIG. 4 is an exploded view of the disassembled panels of the present rack showing the manner in which they are related for quick and easy assembly.

Referring initially to FIG. 1, the complete rack designated generally by the numeral **10** consists of an open top and an open front formed through the use of a plurality of wire panel members. A normally vertically disposed back panel **12** consists of a plurality of vertical "U-shaped" wire members **14** placed substantially in the same plane and rigidly connected together by a plurality of transverse bars **16** which are arranged in spaced relation increasingly further apart from top to bottom

on the frame for a purpose to be described hereinafter. Each of the bar members **16** has protruding end portions **18** extending beyond the sides of the frame **12** and having drilled therein along the length thereof a plurality of spaced adjustment holes **20**.

The sides of the rack **10** are formed from two substantially identical side panel members **22, 24**, each constructed from a plurality of "U-shaped" wire members **26** having the bottom portions thereof at **28** turned inwardly and thence downwardly to the bottom terminal point whereat they are joined together by means of a ground support rod **30** welded or otherwise attached thereacross and extending back to the frame at the rear portion thereof. Rods **26** are connected together by additional transverse rods or struts **32** spaced apart vertically along the vertical length of rods **26** and being arranged increasingly further apart from top to bottom in manner corresponding with the bars **16** on the rear panel **12**. Each of the rods **32** has a rearwardly terminal end **34** which is formed by bending rod **32** inwardly, thence upwardly into a tip **33**. The lowermost bar **16** is attached to the respective side panels **22, 24** by respective screws.

The upward portion **33** of the ends of rods **32** are of longer length at the top than at the bottom and are arranged in increasingly longer lengths from the top downwardly to the bottom of the frame corresponding to the rear spacing of the bar members **16**. With this arrangement, both of the panels **22, 24** may be adjusted a distance apart by lifting them one at a time from the ends **33** upon which they are normally inserted and repositioning them in one of the selected holes **20**. According to this arrangement, it is obvious that the panels may be adjusted in a choice of distances therebetween, depending upon the particular selection of the hole **20** on both sides of the ends of bar member **16**. The particular spacing between the bar members **16** and the terminal end portions **33** whereby the terminal ends **33** are longer at the top than at the bottom makes it much easier to lift the rear frame **12** completely off the pins or ends **33** and to repositioning them whereby it is assured that if the top bar **16** is lifted a sufficient amount to clear the top pin **33**, the other pins **33** will also be clear of their corresponding member **16** and will be readily reattachable thereon.

The adjustable and removable bottom panel **38** of the rack is a substantially flat and rectangular panel constructed from a plurality of normally horizontal transverse rods **40** connected together into a composite frame by a plurality of longitudinal adjustable bar members **42**, there being three in the embodiment shown. Each of the members **42** has a protruding terminal end **44**, the under side of which is formed with a plurality of spaced notches **46**. The innermost bend of the members **28** on side panels **22, 24** are connected together by a support rod **48** upon which normally rests the bottom panel **38** on each end thereof and into which notch **46** of bar **42** fits these support members. In connection with this, it is emphasized that in both the innermost position of adjustment as well as the outermost and widest extended position of adjustment, the ends **44** of the bottom **38** are confined wholly within the confines of the side frame members **22, 24** so that no part of these protruding ends **44** extend outside of the rack. This fact eliminates a previous, grievous problem of protruding wire members which cause store customers to hurt themselves or damage their clothing.

As seen in the enlarged view in FIG. 2, the support members **42** are fastened in place on the rod support **46** by means of a quick-assembly wire clip **50** having bent terminal ends **52, 54** readily positionable about the body of the rod **48** and over the top of the bar end **44**. Additionally to lock the frame securely together, the bottom bar **16** is screwed by a screw **49** to the respective side panels **22, 24** on a flat portion **47** of rod **48**.

When the bottom panel **38** is in its longest position of adjustment the transition from the shorter to this longer position is made smooth through the use of a pair of bottom wire, extension pieces **58, 60** inserted in respective holes **62, 64** on the bottom bar members **42**. Extension pieces **58, 60** are positionable from a retracted position hanging under the bottom panel **38** when sides **22, 24** are closer together to an extended, raised position co-extensive with bottom **38** and resting on bars **42**.

While I have shown and described a particular embodiment of my invention, this is not to be construed as any limitation on the scope of my invention since various changes, alterations, substitutions, deviations and modifications may be made in the embodiment shown without departing from the scope of my invention shown in the appended claims.

I claim:

1. In a wire display and storage rack of the class described, a substantially flat back member having a plurality of connecting members rigidly attached thereto, a pair of forwardly extending and opposed side frame members having one side thereof adjustably and pivotally attached on a respective connecting member of a respective side of said back frame for adjustment thereon, said side frame members of said rack being adjustable from a full width position with a maximum distance therebetween measured across the width of said back to a minimum distance therebetween measured across the width of said back, and said adjustment being effected by moving each of said side members inwardly or outwardly with respect to said back member, bottom support means on said respective side frame members, a detachable bottom on said side frame members adjustably supported on said bottom support means and having supports thereon supported on a respective end thereof in both the maximum and minimum position of adjustment, each of said side frame members being recessed inwardly at the bottom thereof to accommodate the bottom member and to confine same within the confines of said rack and said side panels both in the maximum and minimum positions of adjustments of said side frame members and said bottom.

2. In a wire display and storage rack of the class described, a substantially flat back member constructed from a plurality of horizontally spaced wires connected together by transverse connecting members rigidly attached thereto, a pair of forwardly extending and opposed wire frame side members having one side thereof adjustably and pivotally attached on a respective side of said back frame for adjustment thereon, said side members of said rack being foldable flat against said back and being adjustable from a full width position with a maximum distance therebetween measured across the width of said back to a minimum distance therebetween measured across the width of said back, and said adjustment being effected by moving each of said side members inwardly or outwardly with respect to said back member, bottom support means on said respective side members, and a detachable flat bottom on said rack supported by a respective side member on said bottom support means in both the maximum and minimum position of adjustment, said bottom being positionable flat against said back whereby said sides, said back and said bottom may be packed flat for shipping.

3. In a wire display and storage rack of the class described, a substantially flat back member, a pair of forwardly extending and opposed side frame members having one side thereof adjustably and detachably attached on a respective sid of said back frame for adjustment thereon, said side frame members of said rack being adjustable from a full width position with a maximum distance therebetween measured across the width of said back, and said adjustment being effected by moving each of said side members inwardly or outwardly with respect to said back member, bottom support means on said respective side frame members, a detachable bottom on said rack supported on said bottom support means on

each of said side members and being supported by a respective side member in both the maximum and minimum position of adjustment, each of said side members being recessed inwardly at the bottom thereof to accommodate said bottom member and to confine same within the confines of said rack and said side members, both in the maximum and minimum positions of adjustments of said sides and said bottom.

4. In a wire display and storage rack of the class described, a substantially flat back member connected together by transverse connecting members rigidly attached thereto, a pair of forwardly extending and opposed wire frame side members having one side thereof adjustably attached on a respective end of said connecting members for adjustment thereon, said side members of said rack being adjustable from a full width position with a maximum distance therebetween measured across the width of said back to a minimum distance therebetween measured across the width of said back, and said adjustment being effected by moving each of said side members inwardly or outwardly with respect to said back member, bottom support means on said side members, a detachable bottom on said rack supported on each of said side members and having supports on each end thereof supported by a respective side member in both the maximum and minimum position of adjustment, each of said side members being offset inwardly at the bottom thereof to accommodate the supports of said bottom member and to confine same within the confines of said rack and said side members, both in the maximum and minimum positions of adjustments of said sides and said bottom.

5. In a wire rack display and storage device of the class described, a normally vertically disposed back panel comprising a plurality of vertical wire rods having a plurality of substantially horizontal elongated bars attached thereon, each of said horizontal bars having a respective end portion protruding from a respective side of said back panel and each of said end portions having a plurality of spaced adjustment holes formed therein, a pair of opposed side panels on said back panel normally extending forwardly therefrom, each of said side panels comprising a plurality of vertical wires connected together by a plurality of horizontal wires and some of said horizontal wires having an inwardly and upwardly bent end portion thereon engageable in a hole in a respective end portion of one of said horizontal bars on said back panel, said respective ends of said wires on said side panels being progressively longer from the bottom upwardly, an adjustable bottom on said rack, and bottom support means on said side panels, thereby making the lowermost terminal upwardly bent end a short end and the uppermost end a long end, whereby when said back panel is lifted a sufficient amount to clear said top end, it automatically clears all of said succeeding lower ends and a bottom on said rack.

6. In an adjustable bottom for a rack which has a back and side panels, offset portions on each of said side panels near the bottoms thereof, said bottom having a plurality of transversely disposed bar members, bottom support means on said side panels each of said bar members having a plurality of notches formed on the underside adjacent the end thereof and said notches being engageable with said respective bottom support means on said side panel so as to support said bottom panel adjustably thereon, the length of all of said notched bottom support members being such that it is no greater than the width of said rack measured from the outward edge of said offset portion on one side to a corresponding position at the outward position of the offset portion on the other side, whereby in any position of adjustment of said side panels from outermost width to innermost width, the transverse bars on said bottom resting upon said side panels are still confined within the area defined by said side panels whereby no protruding ends of said bottom are present in any position of adjustment from the maximum to the minimum width of said rack.

7. The device in claim 6 including a retaining member attached on said rack between said notched bottom support members and said side panels comprising a bent wire having a hook on each end thereof, said hooks being hooked about the support means on said side panel and the body of said wire being over and against the top edge of said notched members.

8. In a wire rack display and storage device of the class described, a normally vertically disposed back panel, a pair of opposed side panels each adjustably mounted on said back panel and normally extending forwardly therefrom, said side panels having portions engageable with a respective portion of said back panel for adjustment thereon to increase or decrease the distance between said side panels, said side wire panel members each having the lower portion thereof bent inwardly toward the center of said back panel and thence downwardly to the bottom, thereby forming an inwardly turned ledge at the bottom of each of said side panels, a normally horizontal bottom on said side panels, bottom support means on said side panels, said bottom having means thereon engageable with the respective bottom support means on said side panel so as to support said bottom panel adjustably thereon, the length of said bottom being such that it is no greater than the width of said rack measured from the outward edge of said inwardly turned portion on one side panel to a corresponding position at the outward position of the inwardly turned portion on the other side panel, whereby in any position of adjustment of said side panels from outermost width to innermost width, the ends of said bottom resting upon said side panels are still confined within the area defined by said side panels whereby no protruding ends of said bottom are present in any position of adjustment from the maximum from the minimum width of said rack.

9. In a wire rack display and storage device of the class described, a back panel normally vertically disposed and comprising a plurality of vertical wire rods having a plurality of substantially horizontal elongated bars attached thereon, some of said horizontal bars having a respective end portion protruding from a respective side of said back panel and some of said ends having a plurality of spaced adjustment holes formed therein, a pair of opposed side panels on said back panel and normally extending forwardly therefrom, each of said side panels comprising a plurality of vertical wires connected together by a plurality of horizontal wires and some of said horizontal wires having an inwardly and upwardly bent end portion thereon engageable in a respective hole of one of said apertured horizontal bars on said back panel, said respective ends of said wires on said side panels being longer at the top than the bottom upwardly, thereby making the lowermost terminal upwardly bent end a short end and the uppermost end a long end, whereby when said back panel is lifted a sufficient amount to clear said top end, it automatically clears all of said succeeding lower ends, said side panels each having the lower portion thereof recessed inwardly toward the center of said back panel, thereby forming an inwardly turned portion at the bottom of each of said side panels, a normally horizontal bottom on said wire rack, said bottom having means thereon engageable with the respective side panel so as to support said bottom adjustably thereon, the length of said bottom being such that it is no greater than the width of said rack measured from the outward edge of said inwardly turned portion on one side to a corresponding position at the outward position of the inwardly turned portion on the other side, whereby in any position of adjustment of said side panels from outermost width to innermost width, the bottom when resting upon said side members is still confined within the area defined by said side panels whereby no protruding portions of said bottom panel are present in any position of adjust-

ment from the maximum from the minimum width of said rack.

10. In a wire rack display and storage device of the class described, a normally vertically disposed back panel, side panels on said back panel off-set portions on each of said side panels, means on said side panels cooperating with other means on said back panel whereby said side panels may be adjusted closer together or further apart, a normally horizontal bottom support panel on said wire rack comprising a plurality of wire members connected together by a plurality of transversely disposed bar members, bottom support means on each of said side panels, each of said bar members having a plurality of notches formed on the underside adjacent the end thereof and said notches being engageable with the support means on said side panel so as to support said bottom panel adjustably thereon, the length of all of said notched bottom support members being such that it is no greater than the width of said rack measured from the outward edge of said inwardly turned portion on one side panel to a corresponding position on the other side panel, whereby in any position of adjustment of said side panels from outermost width to innermost width, the bar members of said bottom resting upon said support means are still confined within the area defined by said side panels whereby no protruding ends of said bottom panel are present in any position of adjustment from the maximum from the minimum width of said rack.

11. In the wire rack display and storage device of the class described, a back panel normally vertically disposed and comprising a plurality of vertical wire rods having a plurality of substantially horizontal elongated bars attached thereon, each of said horizontal bars having a respective end portion protruding from a respective side of said back panel and each of said end portions having a plurality of spaced adjustment holes formed therein, a pair of opposed side panels on said back panel and normally extending forwardly therefrom, each of said side panels comprising a plurality of vertical wires connected together by a plurality of horizontal wires and some of said horizontal wires having an inwardly and upwardly bent end portion thereon engageable in a respective hole of one of said horizontal bars on said back panel, said respective ends of said wires on said side panels being progressively longer from the bottom upwardly, thereby making the lowermost terminal upwardly bent end a short end and the uppermost end a long end, whereby when said back panel is lifted a sufficient amount to clear said top end, it automatically clears all of said succeeding lower ends, said side panels each having the lower portion thereof bent inwardly toward the center of said back panel and thence downwardly to the bottom, thereby forming an inwardly turned ledge at the bottom of each of said side panels, a cross-connecting wire member attached to said side panels at the inward portion of said in-turned bottom, a bottom normally disposed horizontal support panel on said wire rack comprising a plurality of wire members connected together by a plurality of transversely disposed bar members, each of said bar members having a plurality of notches formed on the underside adjacent the end thereof and said notches being engageable with the cross-wire member on said inwardly turned portion of said side panel so as to support said bottom panel adjustably thereon, the length of all of said notched bottom bar members being such that it is no greater than the width of said rack measured from the outward edge of said inwardly turned portion on one side to a corresponding position at the outward position of the inwardly turned portion on the other side, whereby in any position of adjustment of said side panels from outermost width to innermost width, the transverse bars of said bottom resting upon said side panels are still confined within the area defined by said side panels whereby no protruding ends of said bottom panel are present in any position of adjustment from the maximum from the minimum width of said rack.

12. The device in claim 11 including a retaining member attached on said rack between said notched bottom bar member and said side panels comprising a bent wire having a hook on each end thereof, said hooks being hooked about the cross-wire on said side panel and the body of said wire being over and against the top edge of said notched member.

References Cited in the file of this patent

UNITED STATES PATENTS

1,024,922	Beecher	Apr. 30, 1912
1,612,903	Bitney	Jan. 4, 1927
2,315,595	Chappory	Apr. 6, 1943
2,562,497	Klein	July 31, 1951
2,761,568	Temple	Sept. 4, 1956
2,889,924	Paulucci	June 9, 1959