April 16, 1963 L. JONES 3,085,694

MERCHANDISE DISPLAY RACK

Filed Jan. 3, 1961 2 Sheets-Sheet 1

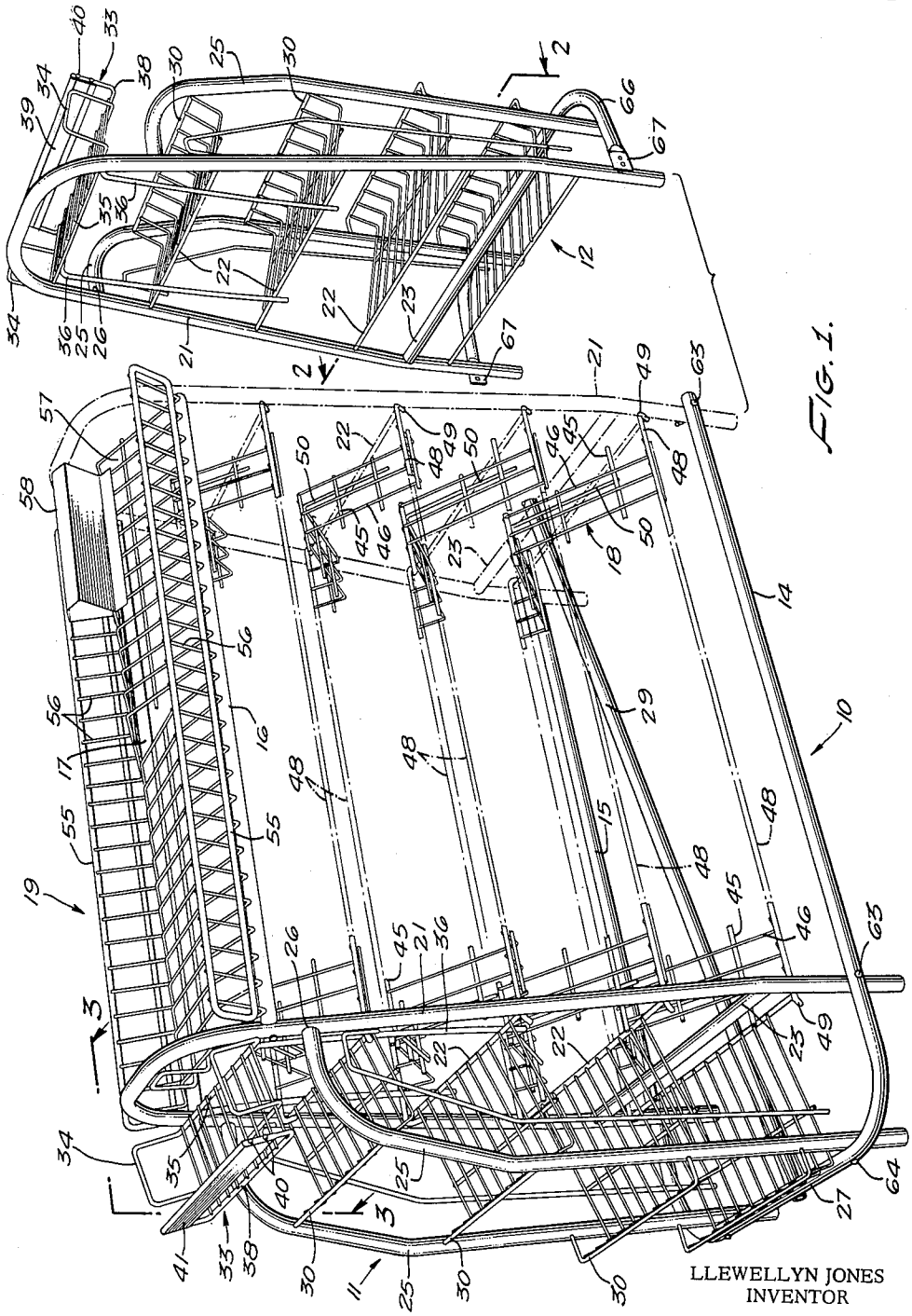


FIG. 1.

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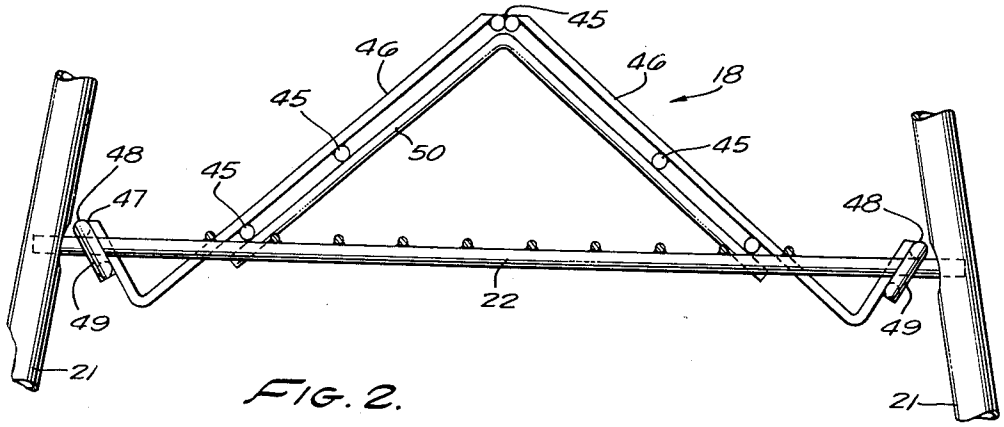


FIG. 2.

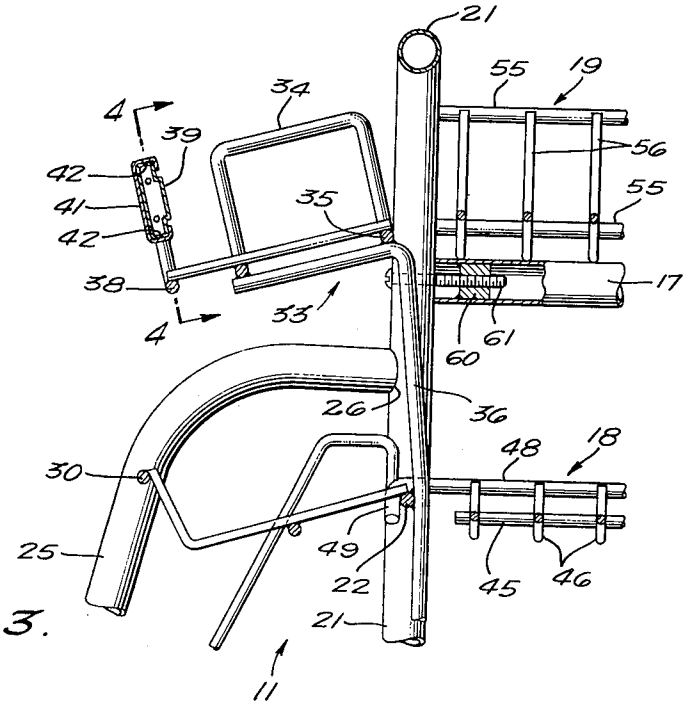


FIG. 3.

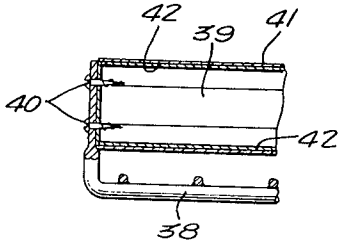


FIG. 4.

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3,085,694

MERCHANDISE DISPLAY RACK

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This invention relates to merchandise display stands and more particularly to an improved stand fabricated from tubular main frame elements supporting shelving fabricated from welded wire assemblies, the stand featuring a plurality of prefabricated sub-assemblies capable of being compactly packaged and assembled at the point of use by unskilled labor utilizing simple tools.

Although the display stand of this invention has many applications and modes of use in stores and the like in the display of a wide range of merchandise, it is particularly advantageous in displaying articles susceptible to impulse buying in selected locations as adjacent check-out counters while a purchaser is waiting for the checker to check-out articles already selected for purchase. To this end, the present stand is especially designed for location between aisles leading past check-out counters in supermarkets and other stores. When so used, it presents small articles lending themselves to impulse purchasing in freely accessible and exposed locations conveniently accessible to customers while awaiting processing at the check-out counter. Candies, smoking needs, small toiletries and the like articles are typical of articles of merchandise for which the present stand is ideally suited.

Of particular interest is the fact that the invention display stand is especially designed for fabrication at the factory in sub-components rigidly welded and secured together in a size conveniently and compactly packaged in knock-down condition. These components are further provided with easily operated assembly connectors readily securable together by mechanically untrained persons at the point of use.

A further feature of the construction is the provision of optionally usable end frame units one of which lacks transverse shelving and the other of which includes a tier of shelves cooperating with the end unit framework to reinforce and stabilize this unit. When assembled with the two types of end frame units, the stand can be located at the end of other store fixtures or closely adjacent one end of the check-out counter with only one end being used to display goods. Alternatively, when assembled using the second end frame unit at both ends, the stand can be used to display merchandise along four sides and placed where it is accessible to customers from all sides.

The main shelves are constructed as individual subcomponents from crisscross arranged wire elements rigidly welded together at points of cross-over and provided with support means at their ends engageable with elements of the end frame members so as to be supported thereon by gravity action without need for fasteners of any kind. A feature of the longitudinal shelving is the fact that the shelves are of inverted V-shape in cross-section, a feature having several important advantages. Not only are the shelves compactly nestable together for compact storage and packaging but the inclination of the main body of the shelf presents the articles in a more convenient viewing position for the shopper. Furthermore, the items automatically gravitate to the forward edge of the shelf as the stock thereon becomes depleted thereby maintaining a neat appearance of the stock. Of particular importance from the cost and strength viewpoints is the fact that this shelving design serves to strengthen the stand and thereby to permit the use of lighter weight, smaller gauge wire in its construction.

Accordingly, it is a primary object of the invention to

provide an improved merchandise display stand of the demountable type so designed as to be packaged compactly for shipping and assembled at the point of use by mechanically untrained personnel.

Another object of the invention is the provision of a demountable merchandise display stand embodying a minimum number of prefabricated components readily securable together by simple fastener means.

Another object of the invention is the provision of a merchandise display stand fabricated from tubular frame elements and a plurality of generally similar shelving elements fabricated from crisscross arranged wire components welded together at points of cross-over.

Another object of the invention is the provision of a new and improved display stand assemblable at the option of the purchaser to display articles of merchandise either from all four sides or from three sides only, depending upon whether one of the two end frames is provided with or lacks cross-shelving.

Another object of the invention is the provision of an all metal merchandise display stand featuring end frame units including tubular main frame elements and wire shelving all rigidly and permanently secured together at the point of manufacture and including means by which a pair of such units can be assembled to and support long shelving components.

Another object of the invention is the provision of a merchandise display stand fabricated from tubular main frame elements and comprising as principal sub-assemblies two end frame units, tubular horizontal members connectable between the end units, and intervening superimposed shelf units the ends of which have interlocking engagement with the end frame units.

These and other more specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawings to which they relate.

Referring now to the drawings in which a preferred embodiment of the invention is illustrated.

FIGURE 1 is a perspective view of a preferred embodiment of the invention with one of the prefabricated end units displaced from the right end of the stand;

FIGURE 2 is a fragmentary view on enlarged scale taken from one end of a typical longitudinal shelf as viewed from the plane indicated by line 2—2 on FIGURE 1;

FIGURE 3 is a fragmentary view on enlarged scale, partly in section, taken along line 3—3 on FIGURE 1 showing details of the end shelving and the mode of securing the end unit to the longitudinal frame members; and

FIGURE 4 is a fragmentary sectional view taken along line 4—4 on FIGURE 3.

Referring now more particularly to FIGURE 1, there is shown a preferred embodiment of the merchandise display stand according to this invention and designated generally **10**. The principal sub-assemblies of the stand include identical end frame units **11**, **12** rigidly interconnectable by a lower pair of horizontal tie rods **14**, **15** and an upper pair of horizontal tie rods **16**, **17** (FIGURE 3) secured to the end frame members by fasteners to be described below.

Additionally, the stand includes a plurality of generally similar longitudinal shelf units **18** resting by gravity on elements of the end frame units. The four lower shelves **18** are substantially identical in design but differ in being of slightly increasing width approaching the bottom of the stand. The uppermost shelf **19** differs somewhat from the others in respects to be explained presently.

It will, therefore, be appreciated that the rather bulky

stand as viewed in its assembled operating condition is adapted to be demounted into a limited number of sub-assemblies for compact packaging in paper cartons or the like with all parts of a single stand contained within a package of a size readily handled by one workman.

The end frame units **11** and **12** will be understood as including a tubular A-frame **21** formed from a long length of tubing and having its vertical legs wider at the bottom than at the top and rigidly interconnected by horizontal wire tie elements **22** and a tubular tie **23** secured to member **21** as by welding. Additional components of the end frame include L-shaped tubular members **25** having their upper shorter legs welded to the A-frame members at **26** and the lower end of its longer legs resting directly on the floor even with the lower end of the A-frame member **21**. The lower ends of frame members **25** and the legs of A-frame **21** are interconnected by the bight portion of a tube **27** integral with the adjacent ends of tie rod members **14** and **15**. Thus, from one point of view tie rods **14** and **15** are the parallel leg portions of a continuous U-shaped member and are appropriately known as a "kick-rail" because of their location close to the floor and spaced outwardly from most of the other elements of the display stand.

Not only does the kick rail serve important reinforcing functions for the stand as a whole, but it interconnects the end frame units. Additionally and importantly, the kick rail protects the stand against damage from contact by shopping carts employed by shoppers as well as by merchandise dollies used by stocking clerks in replenishing stock in the store. Except for the location of the high strength kick rail these dollies and shopping carts would strike the relatively light gauge components of shelves **18** and cause damage to these as well as displacement of the merchandise from the shelves.

A further and important component of the main frame proper is the provision of a tubular sway bar **29** in an inclined position centrally of the stand with its lower end bolted or otherwise detachably connected to the bight portion **27** of the sway bar, the other end of the sway bar being detachably bolted to the mid-length of cross-tube **23** of the other end frame unit. It will be recognized that the inclined position of sway bar **29** and its rigid connection with the components of the two end frames greatly serves to strengthen the stand in that forces applied in a manner tending to fold the stand in a lengthwise direction act to place certain of the lower frame members in tension and others in compression. In other words, the lower frame members cooperate to form a high-strength truss type structure.

The transverse shelves of the end frame units are generally similar in construction and are fabricated from pre-formed lengths of wire stock welded together and having the configuration clearly shown in FIGURE 1. Each shelf is generally L-shaped as viewed from the end and includes a rear cross-member **22** forming one of the tie rods connected between the legs of A-frame member **21**. A second main transverse member **30** forms the front lip edge of each shelf and has its opposite ends welded or otherwise rigidly secured to the longer legs of frame members **25**. The merchandise supporting portion of these shelves are preferably inclined downwardly at a convenient viewing angle such that merchandise gravitates against the forward end wall of the shelves as the stock becomes depleted.

Uppermost shelf **33** is fabricated somewhat differently from the others and includes a rectangular loop of wire **34**, the opposite ends of which are bent upwardly to form end walls. The inner side **35** of loop **34** is welded or otherwise secured to inverted L-shaped lengths of heavy gauge wire **36** which extend vertically and have their lower ends welded to tie rods **22** of the A-frame, as is best shown in the end frame unit at the right-hand end of FIGURE 1. See also FIGURE 3.

The forward side wall of upper shelf **33** is formed by a U-shaped wire **38** (FIGURES 3 and 4) having a light gauge metal panel **39** secured between its upturned legs by screws **40**. Panel **39** provides a support for pricing information or advertising display carried by a second panel member **41** having its upper and lower edges **42** frictionally engaged over the upper and lower edges of panel **39**. It will be understood that similar marking and advertising display panels may be carried by other of the shelves and particularly along the upper edge of shelf **19**.

Shelves **18** will be best understood from the showing in FIGURE 2, it being pointed out that these include a plurality of rather heavy gauge longitudinal wires **45** welded at frequent points of cross-over to the L-shaped cross-wires **46**. The upturned ends of the latter forming side walls which are secured at **47** to heavy gauge longitudinal wires **48** having downwardly hooked ends **49** engageable over transverse tie rods **22** firmly secured to the legs of A-frame **21**. Desirably, and further reinforcing the longitudinal shelves, particularly adjacent their ends, there are provided at spaced intervals along the length of the shelves inverted V-shaped wire members **50** (FIGURE 2) welded or brazed to the underside of elements **45**.

It will be understood that shelves **18** are assembled between the end frame units **11** and **12** by inserting hooked ends **49** over transverse tie members **22** of the end frame units at points positioned closely against tubular members **21**. The load carried by shelves **18** will tend to flatten the shelves but this is resisted by the V-shaped reinforcing members **50** as well as by the engagement of hooked ends **49** against the inner side walls of A-frame members **21** as is clearly illustrated from FIGURE 2.

Upper shelf **19** is generally similar to underlying shelves **18** but differs in certain details as will be evidenced from a consideration of FIGURES 1 and 3. Shelf **19** is designed for support directly against the upper pair of tie rods **16** and **17** to which it may be welded or clipped as desired. Its upturned lateral side walls are formed by a closed rectangular loop of heavy gauge wire **55** rigidly secured by welding to the upturned ends of cross-wires **56**. The intermediate portions of these cross-wires may be reinforced by longitudinal tie wires **57**. If desired, the apex of cross-wires **56** may be employed to support a sheet metal divider partition **58** of any suitable configuration, such as that shown in FIGURE 1. This partition may serve to support pricing data, advertising display or other matter.

A preferred mode of securing the horizontal tubular members **14**, **15**, **16** and **17** rigidly to the A-frame assemblies **11** and **12** is shown in FIGURE 3. Welded or otherwise fixed interiorly of the ends of these tubes is a threaded sleeve **60** receiving a fastener bolt or screw **61** extending through transverse holes in the legs of A-frame member **21**. The ends of the upper tie rod tubes **16**, **17** may be appropriately ground or shaped to engage snugly the rounded exterior walls of tube **21**. The kick rail provided by tubular tie rods **14** and **15** is secured to the lower ends of the A-frame **21** by bolts **63** and the bight portion **27** of this rail is similarly connected to the lower ends of the L-shaped tubes **25** by bolts **64**.

Attention is also called to FIGURE 1 showing the U-shaped tube **66** as having flattened ends **67** provided with one or more holes to receive fastener bolts **63**. Accordingly, it will be understood these bolts serve to secure both tie rods **14** and **15** and U-shaped member **66** to A-frame member **21**.

While the particular merchandise display rack herein shown and disclosed in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative

of the presently preferred embodiments of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

I claim:

1. An all metal merchandise display stand for use in stores comprising two rigid prefabricated end frame units rigidly connectable together by upper and lower pairs of horizontally disposed tie rod members and including means detachably and rigidly connecting the same to the opposite sides of said end frame units, both of said end frame units including a tubular A-frame lying parallel to one another and including a plurality of horizontally-arranged rigidly-attached cross rod members, one of said end frame units also including a pair of inverted L-shaped tubular legs lying parallel to one another and projecting endwise beyond the face of said one A-frame, the free ends of the shorter legs of said L-shaped legs being rigidly secured to an upper portion of said one A-frame and cooperating therewith to reinforce said stand and to provide four supporting legs for said one end frame unit, and a plurality of merchandise support shelves formed from networks of crisscross wires welded together at points of cross-over, said shelves being arranged in superimposed tiers one of which tiers extends crosswise of and is supported by the end frame unit having four supporting legs and another of said tiers extending lengthwise of said stand between and being supported by said A-frames and the attached cross rod members thereof.

2. A display stand as defined in claim 1 characterized in that said shelves extending lengthwise of the stand are individually removable from and insertable in said stand by lifting action without need for fastening devices.

3. A display stand as defined in claim 2 characterized in that the shelves across said end frame unit include means holding said shelves in rigidly assembled position and serving to reinforce and strengthen said end frame.

4. A display stand as defined in claim 1 characterized in that said lower pair of tie rod members are of integral U-shape with the bight portion thereof being rigidly secured to the lower ends of said L-shaped end frame members.

5. A display stand as defined in claim 4 characterized in the provision of a rigid anti-sway tie rod member extending longitudinally of said stand at angles to the horizontal with its lower end secured to the bight portion of said U-shaped tie rod member and its upper end secured to a cross rod of the other end frame unit.

6. A display stand as defined in claim 1 characterized in that said shelves extending lengthwise of said stand

are of inverted V-shape in cross-section with the opposite lateral edges thereof terminating in low-height upturned lateral side walls.

7. A display stand as defined in claim 6 characterized in that the shelves extending across the end of said stand are inclined downwardly and include low-height upturned lower edges extending across said end frame unit.

8. A display stand as defined in claim 7 characterized in that both end frame units are substantially identical and include similarly arranged and constructed display shelves supported between the four supporting legs of each end frame unit.

9. A quickly demountable merchandise display stand adapted to be fabricated from tubular main frame members and from crisscross arranged wires welded together at points of cross-over, said stand being so constructed as to be compactly packaged for shipping and storage and erected at the point of use by unskilled labor using simple tools, said stand comprising a rigid main frame formed by a pair of end frame units, a plurality of tubular members extending between either lateral side of said end units and attachable horizontally between said end units to anchor the same rigidly together, and a plurality of pre-assembled wire shelves adapted to extend lengthwise of said stand with their opposite ends resting by gravity on said end frame units, an anti-sway tie rod means extending lengthwise of the center of said stand at an angle to the horizontal and including fastener means for securing its opposite ends to said end frame units, said shelves being of inverted V-shape in cross-section, and the lower corner ends of said shelves having hooked ends engageable over cross rods forming part of said end frame units at points inside and immediately adjacent main frame components of said end frame units, whereby the weight of merchandise on said V-shaped shelves tends to urge said hooked shelf supports firmly against the main frame of said end units.

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