April 6, 1943. A. CHAPPORY 2,315,595

DISPLAY RACK

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Fig. 1.

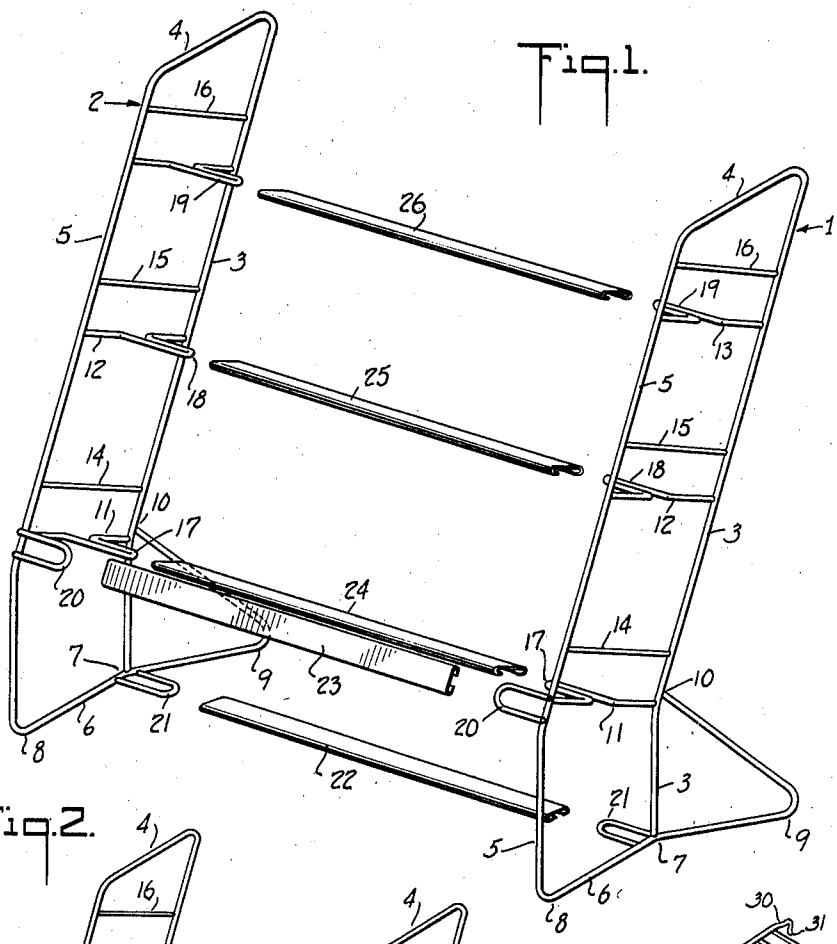
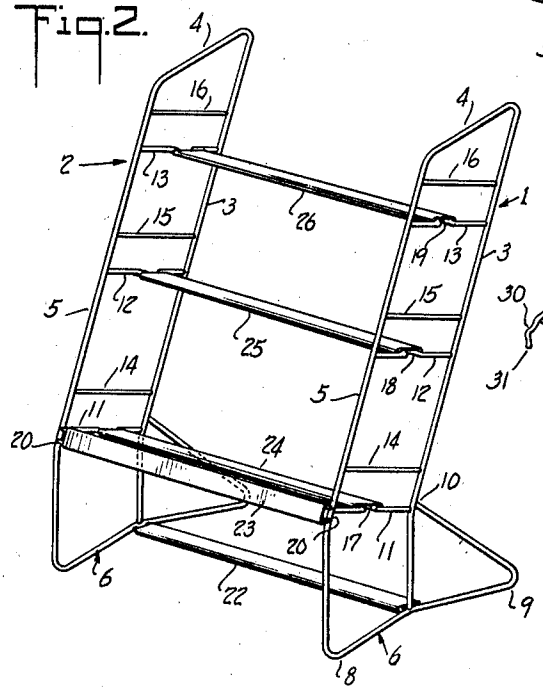


Fig. 2.



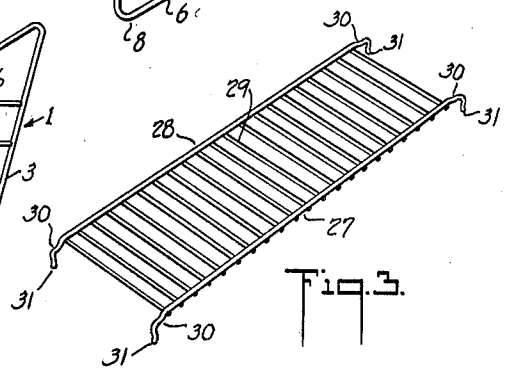


Fig. 3.

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Fig. 8.

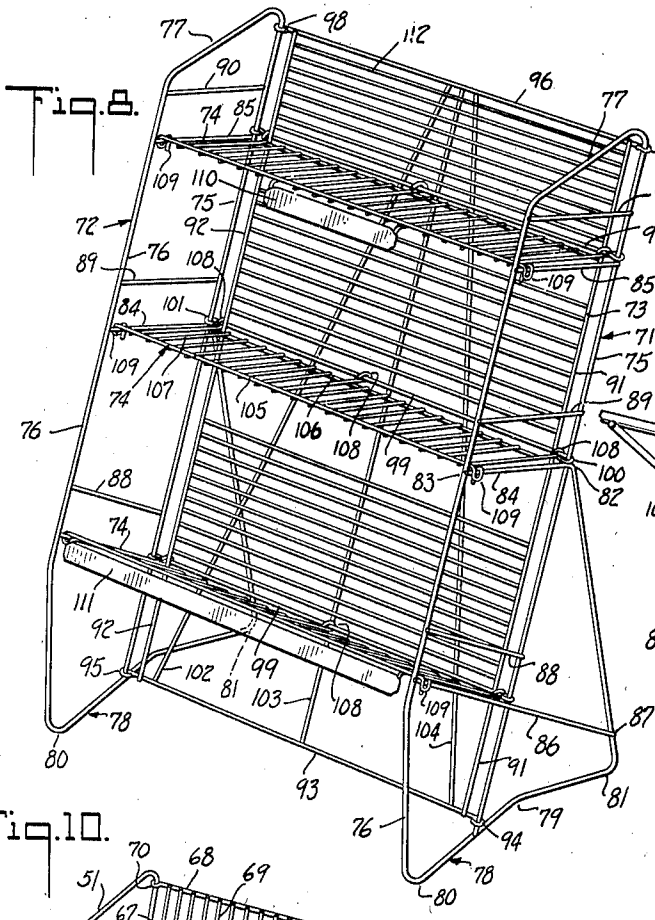


Fig. 9.

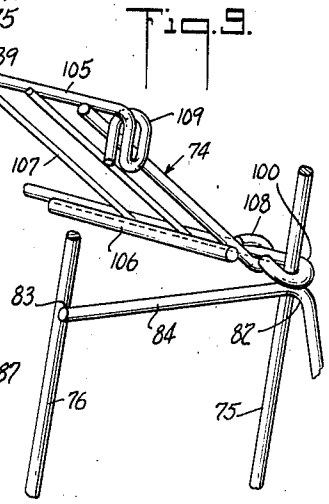


Fig. 10.

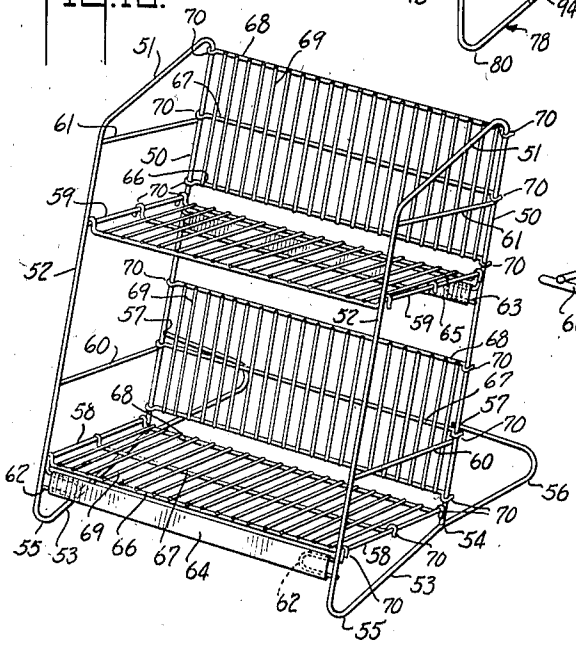
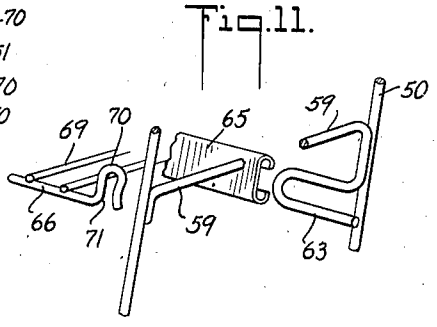


Fig. 11.



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Fig. 4.

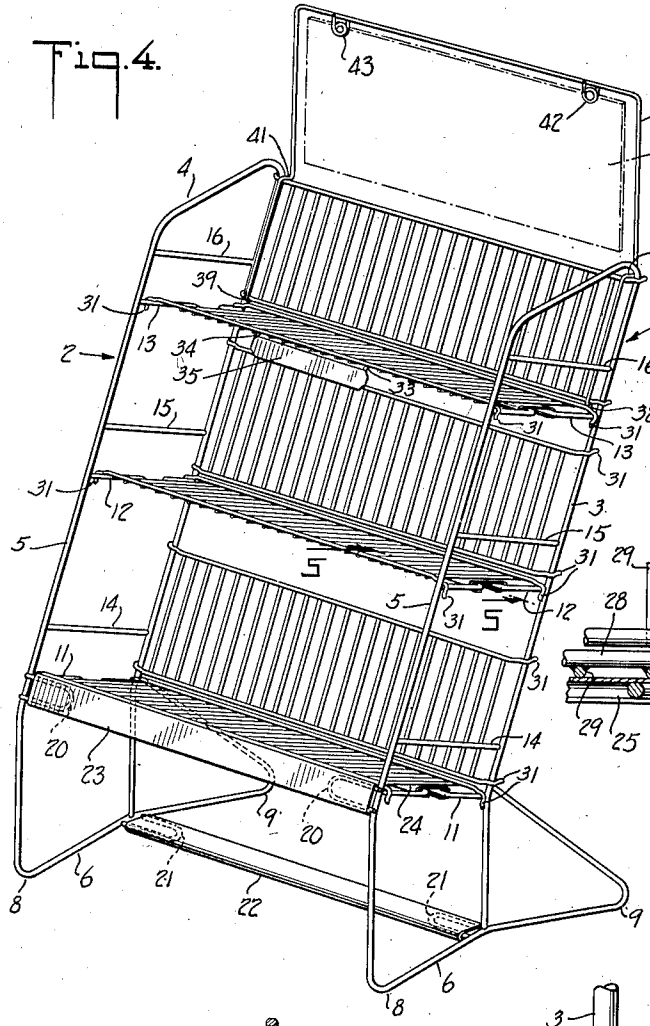


Fig. 5.

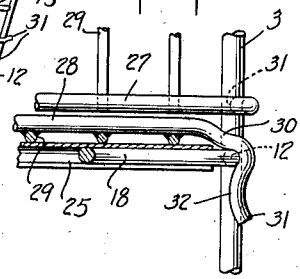


Fig. 6.

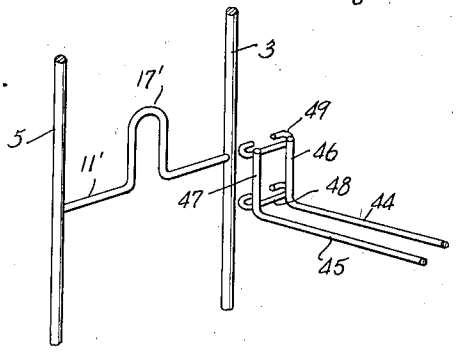
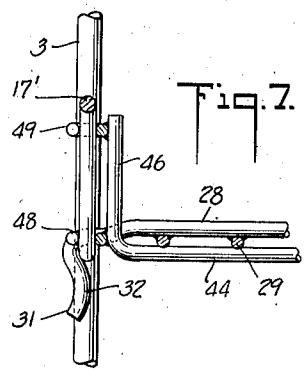


Fig. 7.



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UNITED STATES PATENT OFFICE

2,315,595

DISPLAY RACK

Andrew Chappory, Brooklyn, N. Y., assignor to National Biscuit Company, New York, N. Y., a corporation of New Jersey

Application January 16, 1941, Serial No. 374,628

11 Claims. (Cl. 211—148)

My invention relates to display racks and has for its principal object to provide a rack for the effectual display of small packages of merchandise in stores, and particularly in stores of the self-service type.

At the present time, the trend in small packages, particularly in the case of food products, is toward wrapping the articles with transparent wrappers or placing them in transparent bags, as Cellophane, so that the contents may be seen and inspected by the purchaser. The packages usually are of such size as to retail for 5, 10 or 15 cents each. Heretofore, such packages have been displayed by stacking them on counters, in bins, or on shelves, but this is not entirely satisfactory because much of the inherent advantage of visibility is lost, which loss promotes excessive handling, which in turn causes crumbling of the products within the packages. This in turn results in unsightliness and an apparent staleness of the products that offsets the sales advantage of the transparent wrapping or bag.

Special display racks of many kinds have been devised for displaying this class of merchandise, but they have not been entirely satisfactory for many reasons among which are large size, costliness, visibility on one side only, excessive weight, and other disadvantages. Having these disadvantages in mind and also the desirability of effecting a good display of the merchandise from all angles of approach and to minimize the handling of the packages, I have invented my present display rack.

The rack preferably is made in knock-down or collapsible form so that it occupies very little space in shipment. It is made from metal rods or wires welded together so that it is light in weight, yet strong and durable, and of low cost. Because of its open-work character, the merchandise is visible from all angles and the rack is of very large capacity for the floor space occupied. It can be assembled easily and quickly without the use of tools of any kind. Because of its open character it cannot catch or hold dirt or fragments of articles, and therefore is always clean and sanitary. It is of pleasing design and can be finished in any color or combination of colors to harmonize with or in contrast to other fixtures or store decorations. It is particularly advantageous in self-service stores where customers may pick up packages that attract their attention while passing by.

In the accompanying drawings I have illustrated three embodiments of my invention that are intended primarily for displaying bakery products, as biscuit, crackers, cookies, wafers, cakes and the like, that are packaged in transparent wrappings or bags. However, the racks shown are not limited to this use but may be used for many purposes, nor is the invention limited to the forms shown which are but illustrative thereof.

Fig. 1 is a perspective view of the side frames and spacer-bars of one form of rack, with the parts separated but occupying the same relative positions that they do in the assembled rack.

Fig. 2 shows the parts of Fig. 1 assembled ready to receive the shelves and back-rests.

Fig. 3 is a perspective view of a shelf or back-rest the two being of identical construction.

Fig. 4 shows the complete rack.

Fig. 5 is an enlarged fragmentary view, taken substantially on the line 5—5, showing how the shelves and back-rests interlock with the frames.

Figs. 6 and 7 are detail views of a modified form, in which the U-shaped loops or tongues, that co-operate with the spacer-bars, are formed in the plane of the side frames.

Fig. 8 is a further modification in which the back-rests form part of a back frame which is hinged to the rear uprights of the side frames and the shelves are hinged to the back frame.

Fig. 9 is a detail view of the hinged connections of Fig. 8.

Fig. 10 shows a smaller size rack, of slightly modified form, designed for counter or table display.

Fig. 11 is an enlarged detail view of a part of Fig. 10.

I have illustrated a preferred form of my invention in Figs. 1 to 5. As shown in Fig. 1, the display rack consists of two side frames 1 and 2 which are identical except that they are complementary or rights and lefts. Each side frame is formed from heavy wires or rods welded together to form an integral member.

A single piece rod is used to form the outline or main part of the frame and is bent to form a rear upright 3, a forwardly and downwardly extending top bar 4, a front upright 5 and a base 6. The base preferably is bent upward at 7 so that it has a two-point support on the floor at 8, 9. The part of the rod forming the base extends beyond the upright 3 and is then bent upward and forward and welded to the upright 3 as shown at 10. The lower end of the upright 3 also is welded to the base between the two points of support 8, 9, and preferably at the raised point 7.

A number of cross-bars 11, 12 and 13, corre-

sponding to the number of shelves to be provided in the rack, are welded at the opposite ends to the uprights 3 and 5. A retaining bar 14, 15, 16 likewise is welded to the two uprights a short distance above the cross-bars or shelf supports 11, 12, 13.

Each cross-bar has formed integrally with it or welded to it a U-shaped tongue 17, 18, 19, these tongues on the two shelves facing inwardly or toward each other when the rack is assembled.

A similar U-shaped tongue 20 is welded to the front upright adjacent to the lower cross-bar 11. While I have shown this tongue 20 as a separate piece it may be formed by continuing the cross-bar 11 and bending it so as to form the U. A similar U-shaped tongue or loop 21 is welded to the base-bar adjacent the point where it is welded to the lower end of the rear upright 3.

A number of sheet metal spacer-bars 22, 23, 24, 25, 26 are provided to fit over the tongues 17 to 21. These bars are shown as made from sheet metal with the edges rolled inwardly so as to provide a snug fit over the U-tongues, but they may be made from rods or wires similar to those shown in Figs. 6 and 7.

Fig. 1 shows the side frames and spacer-bars in the relative positions that they assume in the assembled frame. Each spacer-bar fits over two of the U-shaped tongues, one on each of the side frames. Fig. 2 shows the side frames and spacer-bars, the ends of which abut the rod or part of the frame to which the U-tongues are welded. These spacer-bars prevent the side frames from being forced inwardly.

It will be noted that the lower ends of the uprights 3 and 5 are substantially vertical and then the uprights slant or bend toward the rear so that the upper end of the rear upright is almost vertically above the rear end 9 of the base. The cross-bars 11, 12, 13 are substantially perpendicular to the uprights 3 and 5 so that they slant downwardly toward the rear. The angle that the cross-bars make with the horizontal is not the same in all instances but will be varied with the character of the merchandise that is to be displayed and with the distance that the cross-bar, or the shelf supported on it, is above the floor or counter on which the rack may stand. Usually each retainer-bar 14, 15, 16 will be parallel to its associated cross-bar and serves to prevent articles placed on the shelf from falling off the end of the rack.

Wire shelves as shown in Fig. 3 are provided for supporting the merchandise on the rack. There is one shelf for each cross-bar 11, 12, 13, in this case three, but the rack may be made with any number of shelves.

As shown in Fig. 3, these shelves are made from rods and wires welded together so as to form an open shelf that will not retain dust, dirt and small particles, yet will hold packages of articles that are to be displayed. Each shelf consists of front and rear rods 27, 28 to which the cross-wires 29 are welded. The wires 29 preferably are welded to the underside of the bars 27, 28. The ends of the rods 27, 28 preferably are off-set downwardly at each end a distance substantially equal to the thickness of the cross-wires 29 as shown at 30. Beyond the off-set, each bar is bent to form a hook, 31, adapted to engage over the cross-bar on which the shelf rests. As shown in Fig. 5, the point of the hook is bent in slightly at 32 so that at this point the distance between the two hooks on each bar is very slightly less than the distance between two opposite cross-bars as 12, 12, so that the shelves will be snapped into place over the cross-bars. As clearly shown in Figs. 4 and 5, when the shelves are in place on the cross-bars, the off-set ends of the front and rear rods rest on the cross-bars and the cross-wires 29 rest on the co-operating spacer-bar.

In order to prevent the merchandise from sliding rearwardly on the inclined shelves, I provide back-rests which are duplicates of the shelves. These back-rests are put in place by "snapping" the hooks 31 over the rear uprights 3 as clearly shown in Fig. 4.

While all of the shelves and back-rests may be identical, I may extend two or more of the cross-wires on the shelf, as shown at 33, 34, Fig. 4, to support a name plate, trade mark or other device or legend 35. In practice I have used the words "Self-service" on this plate.

The spacer-bars 22 to 26 are all alike but the lower front spacer-bar 23 provides a panel that may carry the manufacturer's name, the name of the product being sold or other advertising matter.

As shown in Fig. 4, I provide a wire frame or rack 36 adapted to carry an advertising card or other display 37. This frame is made from a single piece of heavy wire or rod having hooks 38, 39 at the two lower ends which engage under the lower bar of the top back-rest and which have off-sets 40, 41 that are sprung over the top bar of the same back-rest. The bar then extends above the back-rest and across its top is provided with two or more loops or clamps 42, 43 adapted to hold the advertising card 37.

In Figs. 6 and 7, I have shown a slightly modified form of the side frames. It will be noted in Fig. 1 that the U-shaped tongues extend laterally from the side frames. This increases the width of the frames in dissembled form and requires a carton of considerable lateral dimensions to package the frame when it is knocked-down, ready for shipment. As shown in Fig. 6, the U-tongues lie in the plane of the uprights 3, 5 so that when the rack is packed, ready for shipment it can be placed in a much smaller carton. This affects a big saving in package material and in space necessary for shipment or storage. In Figs. 6 and 7 only one of the U-tongues is selected for illustration and this is assumed to be the tongue corresponding to 17 in Fig. 1 and I have indicated it by 17' and its cross-bar as 11'.

With the U-tongues formed in the plane of the side frames, a modification of the spacer-bars is required. The spacer-bars used with this form of tongue may be formed from two wires or rods 44, 45 having upwardly bent ends 46, 47 to which the two eyes or loops 48, 49 are welded. These eyes preferably are made open on one side and fit closely over the U-tongues 17'. Only one end of the spacer-bar is illustrated in Figs. 6 and 7 but both ends are identical.

As shown in Fig. 7, the shelves used in connection with this modified form of invention are identical with those shown in Fig. 3 and the cross-wires 29 and are supported by the rods 44, 45.

By leaving the eyes 48, 49 open on one side, the unsecured ends may be bent inwardly to clamp tightly against the tongues 17' in case they fit too loosely, or they may be sprung outwardly so as to slide easily over the tongues 17' in case that is necessary in assembling the rack.

In Figs. 10 and 11, I show a rack that is particularly adapted for counter display. It consists of two side frames, spacer-bars, shelves and back-

rests similar to Fig. 4, but differs in some details of construction. However, the differences in details of construction are not limited to the small size of rack but the same differences may be embodied in the large rack of Fig. 4, and conversely the structural features of Fig. 4 may be embodied in the small size counter display rack.

Referring now to Fig. 10, each of the side frames has a rear upright 50 from the upper end of which there is a forwardly and downwardly extending top bar 51 leading to the front upright 52, at the lower end of which there is a rearwardly extending base 53 which is bent upwardly near its center at 54 to provide feet 55, 56 that rest upon the counter or other support. Beyond the foot 56 the rod is bent upward and forward and welded to the rear upright 50 at 57 similar to that shown in Fig. 1. The lower end of the rear upright 50 is welded to the base at the raised point 54 or at any point between the feet 55, 56. Cross-bars 58, 59 are welded to the uprights 50, 52 and above these are the retaining-bars 60, 61 which similarly are welded to the two uprights.

The lower cross-bar 58 may be bent where it is welded to the front upright 52 to form the U-shaped tongue 62, or this tongue may be a separate piece welded to the upright.

Similarly, the cross-bar 59 may be bent downward and inward adjacent the rear upright 50 to form a U-shaped tongue 63 as shown in Fig. 11 or the tongue 63 may be a separate piece welded to the upright 50. A spacer-bar 64 engages over the two tongues 62 and a similar bar 65 engages over the two tongues 63 to hold the two side frames in spaced relation.

The shelves and back-rests are similar to that shown in Fig. 3 but differ somewhat in detail. Each shelf has three longitudinal bars or rods 66, 67, 68 to which the cross-wires 69 are welded. The outer ends of the longitudinal rods are bent up and then downward to form hooks 70, Fig. 11, which at the throat 71 are slightly less than the diameter of the cross-bars so that when the hooks are snapped down over the bars 58, 59 they will restrain the side frames against both inward and outward movement as shown in Figs. 10 and 11. The back-rests are made the same as the shelves and the hooks 70 snap over the rear uprights 50.

In assembling the rack as shown in Figs. 10 and 11, the two side frames are first assembled with the spacer-bars 64, 65 by inserting the tongues 62, 63 in the opposite ends of the respective bars. Next the shelves will be snapped over the side bars 58, 59 and then the hooks of the back-rests are snapped over the rear uprights 50. This locks the side frames securely together and the rack can then be placed upon the counter or table and the shelves filled with merchandise. The lower spacer-bar 64 may be used as an advertisement or may carry the name of the manufacturer of the rack or the products to be sold.

As shown in Fig. 10, the spacer-bars 64, 65, whether made of sheet metal or rods, are somewhat shorter than the width of the rack so that their ends do not abut the side frames. But in cases where the hooks 70 engage over or hold the cross-bars 53, 59, on one side only, like the hooks 30, the spacer-bars 64, 65 will be made long enough to bear against the side frames.

In Figs. 8 and 9, I have illustrated another form of my invention in which the side frames, the back and the shelves are hinged together in such manner that the entire frame may be folded flat for packaging and shipping.

This rack comprises two side frames 71, 72, a back frame 73 and a number of shelves 74, all of the shelves being identical in construction.

Each side frame is made from a rod which forms a rear upright 75 and a front upright 76 which are connected at the top by an inclined bar 77 and at the lower end by a base 78 which is bent upward intermediate its ends at 79 to provide feet 80, 81 which rest upon the floor. The rod extends upward and forward from the foot 81 to a point 82 where it is welded to the rear upright. The rod may end at this point or it may be bent forward and welded to the front upright at 83, the horizontal part of the rod between uprights 82, 83 forming a cross-bar 84 on the frame. A similar cross-bar 85 is welded to the front and rear uprights near the top and a lower cross-bar 86 is welded to the two uprights near the bottom and may extend rearwardly and be welded to the frame at 87. Retainer-bars 88, 89 and 90 are welded to the front and rear uprights adjacent the several cross-bars.

The back frame has vertical side bars 91, 92 which at their lower ends are welded to a horizontal bar 93, the ends of which extend beyond the vertical bars and are bent to form eyes 94, 95 around the lower ends of the rear uprights. The upper ends of the vertical bars are welded to a horizontal bar 96 the ends of which form eyes 97, 98 around the rear uprights at the top. An intermediate horizontal bar 99 is welded to the two vertical bars and has eyes 100, 101 bent around the rear uprights. The bar 99 preferably is located at such a point that the eyes 100, 101 will rest upon the top of the cross-bars 84.

It will be noted that the rear uprights are straight and that the several eyes 94, 100, and 97 on the one side and 95, 101 and 98 on the other side provide hinged connections about which the two side frame members may be turned so as to lie flat against the back frame or turned out to stand at right angles thereto in assembled position as shown in Fig. 8. The back frame may be stiffened and strengthened by stiffening bars 102, 103 and 104 which are welded to the horizontal rods 93, 99 and 96 where they cross.

All the shelves are identical in construction and each consists of a front bar or rod 105 and a rear bar 106 to which the cross-wires 107 are welded. Two or more of the cross-wires, preferably one at each end and one in the center, are made of heavier wire and extend beyond the rear bar where each is bent to form an eye 108 around one of the intermediate horizontal rods 99. This hinges each of the shelves to the back frame so that the shelves may be folded flat against the back frame or may extend forwardly as shown in Fig. 8.

Each of the front shelf bars 105 extends beyond the end of the shelf where it is bent to form hooks 109 which fit over the respective cross-bars 84, 85, 86 to support the front of the shelves and to hold the side frames from collapsing. As best shown in Fig. 9 these hooks 109 embrace the cross-bars on both sides and prevent movement of the side frames in either direction.

Some of the cross-wires on the shelves may be extended to support a name plate 110, or 111 similar to the name plate 35 shown in Fig. 4.

While I have shown the side frames in Figs. 4, 8 and 10 as slightly different in construction, the same or similar construction may be employed in forming the side frames in any of the modifications illustrated, and none of them is limited to any one form. Similarly, while I have shown the shelves with the same inclination in Figs. 4 and

10, the cross-bars may be arranged so as to give a different slant to the shelves at different elevations, depending upon the articles to be displayed. In Fig. 8, I have shown the lower shelf as having a greater inclination than the two upper shelves but this is only for purposes of illustration and the upper shelves may have a greater inclination when it is found desirable to do so or all may be arranged to stand at the same slope.

The back-rests shown in Fig. 8 consist of parallel bars or rods 112 welded to the back frame above each of the shelves. But these back-rests may be detachable members similar to the shelves shown in Fig. 3, but this form of frame is more rigid when the back-rests are formed integral with it.

Having thus described and illustrated how my invention may be embodied in display racks, I claim all modifications and equivalents thereof that may come within the scope of my claims.

What I claim is:

1. In a display rack, a pair of side frames each having front and rear upright bars and spaced horizontal cross-bars connecting the front and rear bars, a U-shaped tongue on each cross-bar, horizontal spacer-bars, each spacer-bar at one end having a sliding fit over one of the U-shaped tongues on one side frame and at its other end having a sliding fit over the corresponding tongue on the other side frame, whereby said spacer-bars hold said side frames in spaced apart relation, and shelves resting on said cross-bar, each shelf having hooks at one end engaging over a cross-bar on one side frame and at the opposite end having hooks engaging over the corresponding cross-bars on the other side frame, whereby said shelves lock said side frames against outward separation.

2. In a display rack, a pair of side frames; each side frame being made from a single rod bent to form front and rear uprights, an inclined top bar connecting the tops of the uprights, a base bar connecting the lower ends of the uprights and extending rearwardly beyond the rear upright, the rearward extension of the base bar being one end of the said single rod and bent upwardly and forwardly and welded to said rear upright, the lower end of the rear upright being the other end of the rod and welded to said base bar intermediate its ends; cross-bars welded to said front and rear uprights, shelves resting on said cross-bars and having end hooks engaging over the respective cross-bars and holding the frames against outward movement, and spacer bars detachably connected at opposite ends to the respective side frames to hold them against inward movement.

3. In a display rack, a pair of side frames, each made from a rod bent to form front and rear uprights, an inclined top bar connecting the tops of the uprights, a base bar connecting the lower ends of the uprights and extending rearwardly beyond the rear upright, the extension of the base being bent upwardly and forwardly and welded to said rear upright, the lower end of the rear upright being welded to said base bar intermediate its ends, cross-bars welded to said front and rear uprights, U-shaped tongues on each side frame, horizontal spacer-bars, one end of each spacer bar fitting over a U-shaped tongue on one side frame and the opposite end of each spacer-bar fitting over a corresponding tongue on the other side frame, and shelves resting on said cross-bars and having end hooks engaging over the respective cross-bars.

4. In a display rack, a pair of side frames, each made from a rod bent to form front and rear uprights, an inclined top bar connecting the tops of the uprights, a base bar connecting the lower ends of the uprights and extending rearwardly beyond the rear upright, the extension of the base being bent upwardly and forwardly and welded to said rear upright, the lower end of the rear upright being welded to said base bar intermediate its ends, cross-bars welded to said front and rear uprights, U-shaped tongues on each cross-bar, horizontal spacer-bars extending between said frames and at their opposite ends fitting over the tongues on the respective cross-bars, shelves resting on said spacer-bars and cross-bars and having hooks at each end engaging over opposite cross-bars.

5. In a display rack, a pair of side frames, each made from a rod bent to form front and rear uprights, an inclined top bar connecting the tops of the uprights, a base bar connecting the lower ends of the uprights and extending rearwardly beyond the rear upright, the extension of the base being bent upwardly and forwardly and welded to said rear upright, the lower end of the rear upright being welded to said base bar intermediate its ends, cross-bars welded to said front and rear uprights, shelves resting on said cross-bars and having end hooks engaging over the respective cross-bars, and a back rest adjacent the rear edge of each shelf and having hooks at each end engaging over the rear uprights.

6. In a display rack, a pair of side frames, each made from a rod bent to form front and rear uprights, an inclined top bar connecting the tops of the uprights, a base bar connecting the lower ends of the uprights and extending rearwardly beyond the rear upright, the extension of the base being bent upwardly and forwardly and welded to said rear upright, the lower end of the rear upright being welded to said base bar intermediate its ends, cross-bars welded to said front and rear uprights, shelves resting on said cross-bars and having end hooks engaging over the respective cross-bars, a retainer-bar welded at opposite ends to the front and rear uprights above each cross-bar, and a back rest adjacent the rear edge of each shelf and having hooks at each end engaging over the rear uprights.

7. An integral side frame for a display rack comprising a rod bent to form in succession starting at one end a rear upright, an inclined top bar, a front upright and a base, the base extending rearwardly from the lower end of the front upright beyond the rear upright, the base being bent upwardly intermediate its ends and welded to the lower end of the rear upright, the rod continuing beyond the base being bent upward and forward and welded to the rear upright intermediate its ends; cross-bars welded at opposite ends to the uprights; and retainer-bars welded to the uprights above the cross-bars.

8. An integral side frame for a display rack comprising a rod bent to form a rear upright, an inclined top bar, a front upright and a base extending rearwardly from the lower end of the front upright beyond the rear upright, the base being bent upwardly intermediate its ends and welded to the lower end of the rear upright, the extension of the base being bent upward and forward and welded to the rear upright intermediate its ends; cross-bars welded at opposite ends

to the uprights; retainer-bars welded to the uprights above the cross-bars, said cross-bars having U-shaped tongues formed therein.

9. In a display rack, a pair of side frames each having a number of cross-bars extending from front to rear, a U-shaped tongue formed on each cross-bar, spacer-bars having their opposite ends fitting over corresponding tongues on the two frames to hold them spaced apart, and shelves having hooks at their opposite ends engaging over the cross-bars on the respective frames to prevent their spreading.

10. In a display rack, a pair of side frames each having front and rear upright bars and spaced horizontal cross-bars connecting the front and rear bars, U-shaped tongues on each cross-bar projecting laterally toward the opposite frame, spacer-bars for holding said side frames spaced apart, one end of each spacer-bar fitting over a tongue on one side frame and the other end of each spacer-bar fitting over a corresponding tongue on the other side frame, and shelves resting on said cross-bars and spacer bars and having hooks engaging over said cross-bars to hold said frames from spreading.

11. In a display rack, a pair of side frames each having front and rear uprights connected by spaced cross-bars, each cross-bar having a U-shaped tongue, spacer-bars, the opposite ends of the spacer-bars fitting over opposite U-shaped tongues on the cross-bars, shelves supported at their ends on the opposite cross-bars of the frames and having hooks at each end engaging over the respective cross-bars.

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