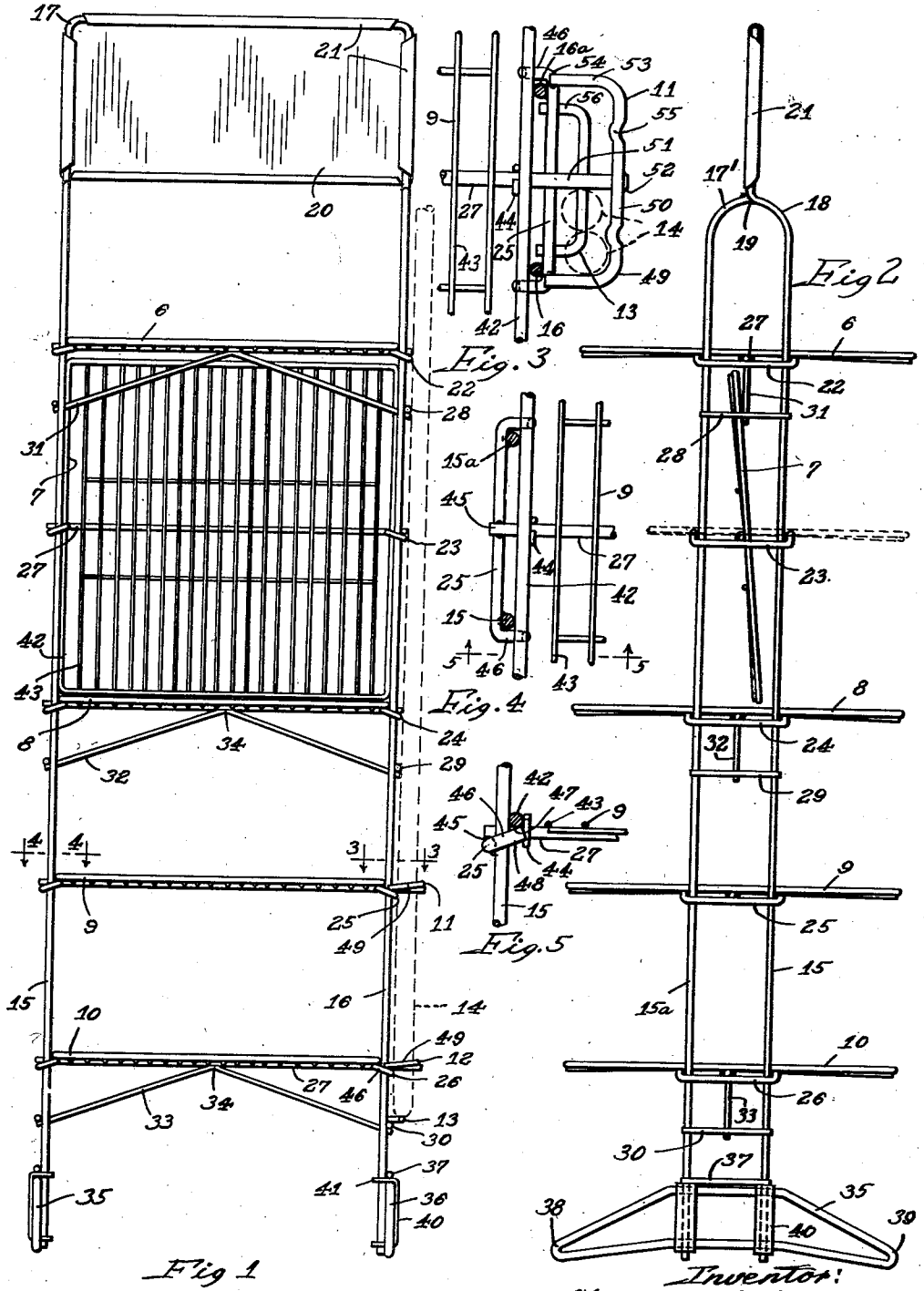
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DISPLAY RACK

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DISPLAY RACK

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This invention relates to a new and improved display rack of wire construction.

The principal object of the invention is to provide a multiple shelved rack of light and economical but sturdy construction, and one in which the shelves, although foldable into the plane of the frame structure so as to permit shipment of the rack in a small carton, are, nevertheless, adapted when unfolded to operative position to be supported rigidly in such position and without likelihood of accidentally folding.

Another object is to provide a rack of the kind mentioned having quickly attachable and detachable foot pieces, which when attached, afford broad support and give the desired stability, but which when removed can be placed inside the same carton with the rest of the rack in shipment.

Still another object consists in the provision of separate pockets on the side of the rack formed by U-shaped wires welded to the cross tie wires and projecting ends of the shelf pivot pins, the pockets being adapted to hold mop handles or the like.

The invention is illustrated in the accompanying drawing, in which—

Figures 1 and 2 are, respectively, a front and side view of a display rack made in accordance with my invention showing all but the second shelf in operative position, that shelf being shown folded so as to indicate the compact form to which the rack is foldable for shipment;

Figs. 3 and 4 are horizontal sectional details on a larger scale taken on the lines 3—3 and 4—4 of Figure 1, and

Fig. 5 is a sectional detail on the line 5—5 of Fig. 4.

The same reference numerals are applied to corresponding parts throughout the views.

The present rack was especially designed for the display and selling of floor wax, the cans of wax being placed on the shelves 6—10, and four or more mop handles being kept in the holders 11 and 12 resting on the support 13 therebeneath as indicated in dotted lines at 14 in Figure 1. However, it will be evident that racks of this kind with or without the holders 11—12 are suitable for a variety of purposes in stores of various kinds. The five broad shelves 6—10 afford considerable storage room in a small floor space and yet the cans or boxes or whatever other articles are placed on the shelves are all in full view and easily accessible from either side of the rack.

The frame for the rack is formed by three wires, the one wire being bent generally to inverted U-form to provide opposed parallel legs 15 and 16 interconnected at their upper ends by the cross portion 17. Two other wires provide companion legs 15a and 16a for the legs 15 and 16 on opposite sides of the frame and extend parallel thereto and have their upper ends bent laterally as indicated at 17' in Fig. 2 to be welded to the correspondingly bent portions 18 of the legs 15 and 16 at 19. A sheet metal sign plate 20 has edge portions 21 wrapped around the upper extremities of the legs 15 and 16 and around the cross portion 17 to provide a place for a display sign while at the same time reinforcing the frame so that no strain will be imposed upon the welded joints 19. A series of wire cross ties 22—26 welded at opposite ends to the wires 15, 15a, 16 and 16a further reinforce the frame and, as will soon appear, provide supports for the shelf pivot pins 27 and the shelves 6—10 carried thereon. In addition, there are wire cross ties 28, 29 and 30 below the cross ties 22, 24 and 26, respectively. These are likewise welded to the frame at their opposite ends and form supports for the ends of brace wires 31, 32 and 33 which are of inverted V form and are welded to the pivot wires 27 at the middle, as indicated at 34 and have their opposite ends welded to the middle of the wires 28, 29 and 30. The braces 31—33 give lateral stability and rigidity to the frame. Detachable wire foot pieces 35 and 36 are arranged to be slipped onto the lower end of the frame on the opposite sides thereof and to have abutment with additional wire cross ties 37 provided below the wires 30 previously mentioned and welded at their opposite ends to the wires 15—15a and 16—16a. Each foot piece is formed from a single piece of wire to a generally trapezoidal form so as to provide widely spaced feet 38 and 39 at opposite ends of the base of the trapezoid. Two vertical U-shaped sheet metal cleats 40 are welded in laterally spaced relation to each foot piece 35 and 36 and have their ends 41 perforated to receive the lower ends of the legs 15—15a and 16—16a, the cleats when in operative position having abutment at their upper ends with the ends of the wire cross ties 37, as shown. These foot pieces are obviously quickly attachable and detachable and when in place on the lower end of the frame afford ample stability due to the wide spacing of the feet 38—39.

Each of the shelves 6—10 comprises a rectangular frame 42 with a wire grill 43 welded thereto. Small wire rings 44 are welded to opposite sides of the frame 42 and project therebelow,

as clearly appears in Fig. 5, for sliding engagement on the associated pivot pin 27. The latter has its opposite ends projecting from the frame and welded as at 45 on top of the adjacent wire cross ties 22—26 at the middle thereof. The wires 27 therefore pivotally support the shelves 6—10 by means of their rings 44 so that the shelves may be folded into the plane of the frame like the shelf 7 as shown in full lines in Figs. 1 and 2. The shelves are so folded when the rack is placed in a carton for shipment, and obviously this permits use of a very small carton, considering the size of the rack when unfolded for use. The wire cross ties 22—26 as previously stated are U-shaped. The ends 46 are extended inwardly and upwardly so as to provide not only supporting ledges 47 on top thereof on which the wire frames 42 of the shelves are adapted to be supported when in horizontal operative position, but also upwardly inclined bottom surfaces 48 over which the wire frames 42 will ride fairly freely in the final movement of the shelves toward operative position. There is sufficient springiness in the frames 42 of the shelves 6—10 so that they will ordinarily spring inwardly of themselves upon coming into contact with the inclined surfaces 48, especially when the shelves are given a quick movement and are brought forcibly into operative position. If the angularity of the surfaces 48 in some instances is not sufficient to give the desired cam action, the frame can be sprung sufficiently by hand to clear the extremities of the end portions 46 of the wires 22—26 to enable moving the shelves to operative position. Of course, once the shelves are in such position, the inherent resilience of the frames 42 insures their spreading sufficiently to find support on top of the end portions 46 of the wires 22—26. The shelves may be folded like the shelf 7 or in the opposite direction, but in either event it should be clear that they will in unfolding come into engagement directly on top of the end portions 46 on one side of the pivot pins 27 but must be brought past the extremities of the end portions 46 on the other side of the pivot pins in order to get into position on top of said end portions, and it is in that phase of the operation that the inclined surfaces 48 play an important part in facilitating movement of the shelves to operative position by their cam action on the resilient side portions of the wire frames of the shelves.

I provide the holders 11 and 12 for mop handles 14 in the form of U-shaped wires 49, the cross portions 50 of which rest on top of the projecting ends 51 of the adjacent shelf pivot wires 27, and are welded thereto as at 52. The oppostie ends 53 of these U-shaped wires 50 rest on top of the adjacent wire cross ties 25 and 26 and are welded thereto as at 54. The end portions 51 of the pivot wires 27 therefore bisect the holders so as to provide two compartments of equal size on opposite sides thereof, and there is furthermore a slight crimp 55 provided in the cross portion 50 to further divide the two compartments so that each compartment will accommodate two mop sticks, and when one is removed the other will not incline sideways. The support 13 previously mentioned is also formed from a U-shaped wire having its ends 56 welded on top of the adjacent cross wire 30 therebeneath, and it will be noticed that this support 13 is disposed with its cross portion parallel with the cross portions 50 of the U-shaped wires 49 forming the holders 11 and 12, and that it is in a plane approximately midway between the wire cross ties 25—26 and the cross portions 50 of the U-shaped wires 49, as clearly appears in Fig. 3. In that way the ends of the mop handles are certain to come into engagement with this support. It is apparent, therefore, that the mop handle holders are provided at very little additional cost and that they find adequate support on the neighboring portions of the rack to which they are welded.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention, and I do not wish to be limited except by the scope of the appended claims, in which—

I claim:

1. A foldable rack structure comprising a supporting frame having opposed uprights, one or more shelves therebetween, pivots supporting said shelves on said uprights for pivotal movement of each about a transverse substantially horizontal axis through the middle of the shelves, inward projections on said uprights on one side of the pivots onto which the shelves are adapted to be engaged when swung to horizontal position, and supports on said uprights approximately in the same horizontal plane with said projections but on the opposite side of the pivots for releasably supporting said shelves in horizontal position, said supports and shelves being resiliently held in engaged relation for rigid support of the shelves in horizontal position, but said shelves and supports being movable laterally relative to one another for engagement or disengagement of the supports under the shelves.

2. A foldable rack structure comprising a supporting frame having opposed uprights, shelves therebetween in vertically spaced relation, all adapted to fold into the plane of said uprights, pivots supporting said shelves on said uprights for pivotal movement of each about a transverse axis through portions of the shelves intermediate their free ends, said shelves having resilient marginal frames, and means providing inwardly directed supporting projections on said uprights on opposite sides of the pivots onto which the shelves are adapted to be engaged when swung to horizontal position, said shelf frames being adapted to be flexed inwardly to clear the projections in the final movement thereof to horizontal position and being adapted thereafter to spread outwardly over said projections to rest thereon.

3. A rack structure as set forth in claim 2 wherein the projections on at least one side of the pivots have upwardly inclined bottom cam surfaces arranged to be slidably engaged by the resilient shelf frames in the final pivotal movement thereof to horizontal position, substantially as and for the purpose described.

4. A rack comprising laterally spaced upright side frame members, a horizontal shelf therebetween adapted to fold to substantially vertical position, means pivotally supporting said shelf on said uprights for pivotal movement about a transverse axis through a portion thereof intermediate its free ends, an inward projection on one of said uprights on one side of the pivot means adapted to be engaged by the shelf when swung to horizontal position, and a support on one of said uprights on the opposite side of said pivot means for releasably supporting said shelf in horizontal position, said shelf and upright being resiliently yieldable laterally relative to one another for engagement or disengagement of the support under the shelf.

5. A rack comprising laterally spaced upright side frame members, a horizontal shelf therebetween adapted to fold to substantially vertical position, means pivotally supporting said shelf on said uprights for pivotal movement about a transverse axis, said shelf having a laterally yieldable resilient side member, and projections on at least one of said uprights on the opposite sides of said pivot means in substantially coplanar relation in a substantially horizontal plane for releasably supporting said shelf in horizontal position by engagement under said yieldable side member, the latter being adapted to be flexed inwardly to clear one of said projections when the shelf is swung to horizontal position and being adapted thereafter to return to normal position and engage on top of said projection for support of the shelf.

6. A rack structure as set forth in claim 5 wherein the projections have upwardly inclined bottom cam surfaces arranged to be slidably engaged by the resilient side member in the final pivotal movement thereof to horizontal position, substantially as and for the purpose described.

7. A wire rack structure comprising a frame having laterally spaced upright side members each formed by two spaced uprights, one or more foldable shelves between said side frame members each comprising a wire frame having resilient side members, a transverse pivot rod pivotally connected to the frame of each shelf at an intermediate portion thereof, and cross wires transversely disposed with respect to the ends of each rod and fastened thereto and having their end portions fastened to the outer sides of said uprights, the cross wires on at least one side of the frame being bent so as to provide ends projecting inwardly beyond the plane of the inner sides of said upright wires to provide shelf supporting projections, the shelf on each pivot rod being adapted to be swung to horizontal position and to have at least one of the side members of the shelf frame flexed inwardly to clear the adjacent projection in the final movement of the shelf to operative position, the frame being thereafter adapted by reason of its inherent resilience to spread so as to project over and be supported on said projection.

8. A rack structure as set forth in claim 7 wherein the inwardly bent ends of said cross wires are inclined upwardly substantially as and for the purpose described.

9. A structure as set forth in claim 7 including a holder on the outer side of one of said side members comprising a U-shaped, substantially horizontally disposed wire having the two end portions thereof projecting toward the frame side member and secured in rigid relation thereto, the adjacent pivot rod having the end thereof projecting outwardly and secured to the cross portion of said U-shaped wire intermediate the ends thereof.

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