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TIERING MEANS FOR TRAYS

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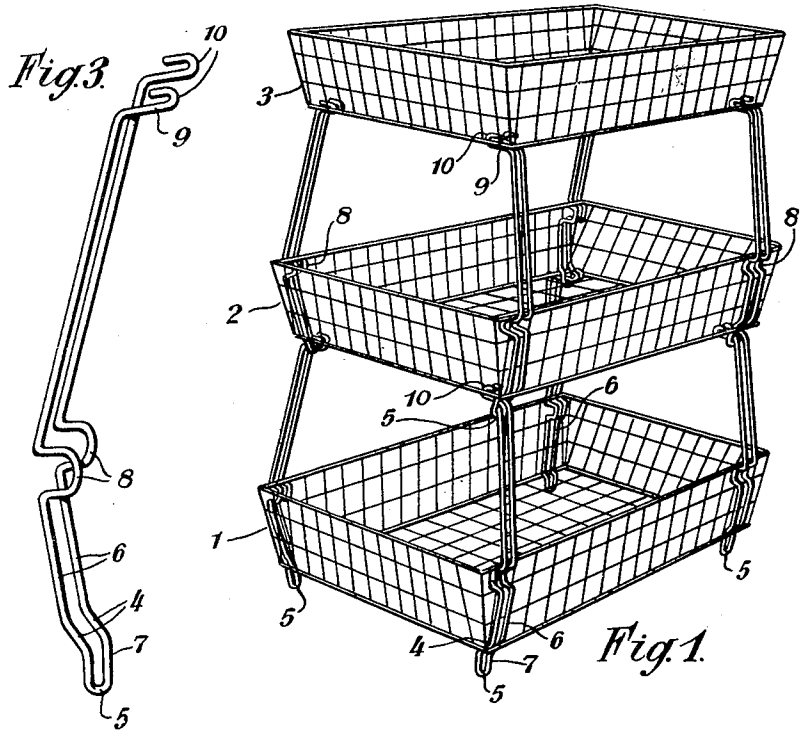


Fig. 1.

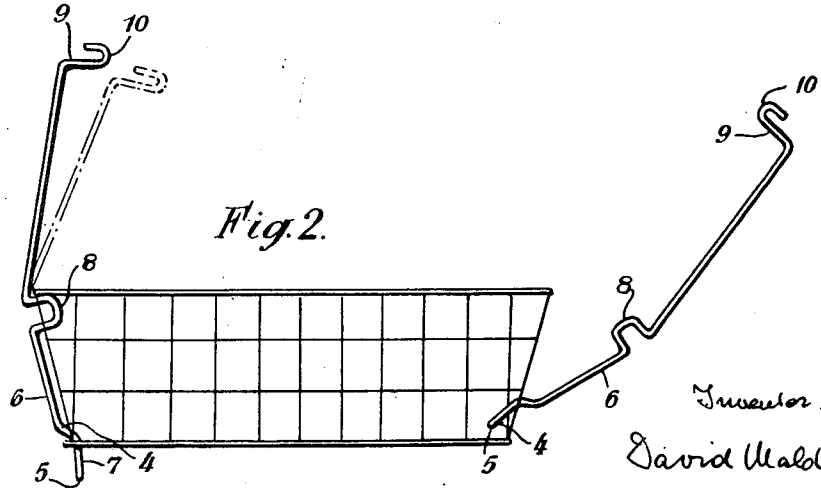


Fig. 2.

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TIERING MEANS FOR TRAYS

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This invention is concerned with wire mesh receptacles capable of being arranged one above another in tiers, and has reference for example to filing trays and the like for office use, to vegetable racks, cake stands, and the like for domestic and shop use, and to display stands, storage bins or trays for factories, and for similar purposes.

The invention aims at providing simple, cheap, and easily-operated means for connecting standard ready-made trays or specially-designed trays together in tiers, to any suitable height, and comprises the use of spring members adapted to engage the mesh in or on a lower tray at two points and shaped so that, when stressed, they may be engaged with the mesh in a higher tray and, when released, hold such higher tray rigidly by reason of the retained stress. In the wire mesh trays or racks, the meshes themselves will readily provide the necessary openings for the connecting members.

The connecting members are preferably of wire and, in the usual cases, will comprise a folded length of wire with the loop of the fold lowermost.

According to another feature of the invention, each connecting member is bent or kinked near the lower end to engage the upper edge of the lower tray and is shaped below the kink so that, when unstressed the connecting members on opposite sides of the tray assume positions with their upper ends splayed widely, these upper ends requiring to be moved inwards to engage the next higher tray, and during such action, being stressed so as (when released after engagement with the upper tray) both to bind on the lower tray and to grip the upper tray tightly.

According to a further feature of the invention, the upper ends of the connecting members are kinked at several points, at varying distances from their ends, so as to provide adjustment for height by the upper tray engaging one or other of the kinks.

Usually the connecting members will each connect upper and lower trays at the same side and at the same end of the trays, but if desired, they could be arranged to cross each other either from side-to-side of the trays or from end-to-end.

The invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of an assembly of three wire-mesh baskets of the filing tray type, with one form of the connector adopted therein;

Fig. 2 is an end view of a basket showing in full lines the initial unstressed position of one connector, and in broken lines the final stressed

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position, and showing also how the connectors are threaded into position;

Fig. 3 is a perspective view of one of the connectors shown in Figs. 1 and 2, but detached from the trays.

Referring to Figs. 1–3, the wire filing trays 1, 2, 3, are of standard type having a square mesh and the connecting members each comprise a folded length of spring wire, the two limbs of the fold being bent or cranked at 4, a short distance from the loop 5, then inclined at 6 to the end portion 7, next kinked deeply at 8 and thereafter inclining to the free end where they are bent backwards at 9, and the extremities formed as hooks 10.

The form of the wire is such that, with the lower, looped end 7 passed through a mesh in the side wall of the tray, from the outside, the kink 8 fits into another mesh in the side wall, also from the outside (see Fig. 2), thereby preventing sideways movement of the connecting member, and in this position the member stands upright, but with its upper end splayed away from the upper tray. By bending the upper end backwards, the hooks 10 at the extremity may be caused to engage one of the wires of the base of the next higher tray, against which it becomes stressed when released, thereby holding the parts firmly together. Usually, and as shown, the hooks 10 will engage the wire which is first from the corner, the length of the parts 9 being such that the upstanding part of the connector meets the corner of the tray.

Usually, one connecting member at each corner of the trays will suffice and the parts 9 of the connecting members for a lower tray may be passed through the loops 5 of the connecting members for the next higher tray.

In addition, brackets may be provided whereby the assembly could be hung from a wall. These may comprise lengths of wire, looped to engage a nail, screw or the like in the wall and having hook ends to engage one or other of the trays.

With the baskets and connectors colored, as by dipping, and with alternate baskets of a different color, and the connectors of another color, very attractive assemblies can be built up.

What I claim is:

1. In a tray assembly including a plurality of trays each having perforated side walls and a perforated bottom wall, in combination, a plurality of spring wire assembly elements of elongated U-shape, the open end of the U being uppermost, each of said spring wire assembly elements comprising a lower looped engaging por-

tion formed on the lower end thereof and being cranked so as to extend inwardly through a side wall and downwardly through the bottom wall of a tray, a straight upper portion ending in an upper engaging portion composed of two hook-shaped ends formed upon the upper end of each of said spring wire assembly elements and adapted to extend upwardly through the bottom of the next higher tray and to engage a portion thereof, and an inwardly bent U-shaped deflected portion intermediate said engaging portions and adapted to extend into an opening in said side wall of said tray from the outside thereof, each of said spring wire assembly elements having its upper portion sufficiently outwardly bent so that spring wire assembly elements arranged on opposite side walls of said tray assume positions in which the upper ends thereof are splayed away from said next higher tray in such a relative position that said hook-shaped upper engaging portions require to be forced resiliently over said tray towards each other to resiliently engage the bottom wall of said next higher tray thereabove, and, when subsequently released after being brought into engagement with the bottom wall of said higher tray, retain the intermediate and lower engaging portions thereof in tight engagement with said tray.

2. In a tray assembly including a plurality of trays each having perforated side walls and a perforated bottom wall, in combination, a plurality of spring wire assembly elements, each of said spring wire assembly elements comprising a lower engaging portion formed on the lower end thereof and being cranked so as to extend inwardly through a side wall and downwardly through the bottom wall of a tray, a straight upper portion ending in an upper hook-shaped engaging portion formed upon the upper end of each of said spring wire assembly elements and adapted to extend upwardly through the bottom of the next higher tray and to engage a portion thereof, and an inwardly bent U-shaped deflected portion intermediate said engaging portions and adapted to extend into an opening in said side wall of said tray from the outside thereof, each of said spring wire assembly elements having its upper portion sufficiently outwardly bent so that spring wire assembly elements arranged on opposite side walls of said tray assume positions in which the upper ends thereof are splayed away from said next higher tray in such a relative position that said hook-shaped upper engaging portions require to be forced resiliently over said tray towards each other to resiliently engage the bottom wall of said next higher tray thereabove, and, when subsequently released after being brought into engagement with the bottom wall of said next higher tray, retain the intermediate and lower engaging portions thereof in tight engagement with said tray.

3. In a tray assembly including a plurality of trays each having perforated side walls and a perforated bottom wall, in combination, a plurality of spring wire assembly elements of an elongated U-shape, the open end of the U being uppermost, each of said spring wire assembly elements comprising a lower looped engaging portion formed on the lower end thereof and being cranked so as to extend inwardly through a side wall and downwardly through the bottom wall of a tray and to form a projecting loop under the bottom wall of said tray, a straight upper portion ending in an upper engaging portion composed of two hook-shaped ends formed upon the upper end of each of said spring wire assembly elements and adapted to pass substantially horizontally from the outside through the projecting loop on the lower end of another U-shaped spring wire assembly element arranged above said spring wire assembly element for engaging said next higher tray with its lower engaging portion, and then to extend upwardly through the bottom of the next higher tray and to engage a portion thereof, and an inwardly bent U-shaped deflected portion intermediate said engaging portions and adapted to extend into an opening in said side wall of said tray from the outside thereof, each of said spring wire assembly elements having its upper portion sufficiently outwardly bent so that spring wire assembly elements arranged on opposite side walls of said tray assume positions in which the upper ends thereof are splayed away from said next higher tray in such a relative position that said hook-shaped upper engaging portions require to be forced resiliently over said tray towards each other to pass through said projecting loops of said other U-shaped spring wire assembly element and to resiliently engage the bottom wall of said next higher tray thereabove, and, when subsequently released after being brought into engagement with the bottom wall of said next higher tray, retain the intermediate and lower engaging portions thereof in tight engagement with said tray.

4. In a tray assembly including a plurality of trays each having perforated side walls and a perforated bottom wall, in combination, a plurality of spring wire assembly elements of an elongated U-shape, the open end of the U being uppermost, each of said spring wire assembly elements comprising a lower looped engaging portion formed on the lower end thereof and being cranked so as to extend inwardly through a side wall and downwardly through the bottom wall of a tray, a substantially straight intermediate portion of said spring wire assembly element located adjacent to said lower engaging portion adapted to engage said side wall of said tray, a straight upper portion ending in an upper engaging portion composed of two hook-shaped ends formed upon the upper end of each of said spring wire assembly elements and adapted to extend upwardly through the bottom of the next higher tray and to engage a portion thereof, each of said spring wire assembly elements having its upper portion sufficiently outwardly bent relative to said straight intermediate portion so that spring wire assembly elements arranged on opposite side walls of said tray assume positions in which the upper ends thereof are splayed away from said next higher tray in such a relative position that said hook-shaped upper engaging portions require to be forced resiliently over said tray towards each other to resiliently engage the bottom wall of said next higher tray thereabove, and, when subsequently released after being brought into engagement with the bottom wall of said next higher tray, retain the intermediate and lower engaging portions thereof in tight engagement with said tray.

5. In a tray assembly including a plurality of trays each having perforated side walls and a perforated bottom wall, in combination, a plurality of spring wire assembly elements of an elongated U-shape, the open end of the U being uppermost, each of said spring wire assembly elements comprising a lower looped engaging

portion formed on the lower end thereof and being cranked so as to extend inwardly through a side wall and downwardly through the bottom wall of a tray, a substantially straight intermediate portion of said spring wire assembly element located adjacent to said lower engaging portion adapted to engage said side wall of said tray, a straight upper portion ending in an upper engaging portion composed of two hook-shaped ends formed upon the upper end of each of said spring wire assembly elements and adapted to extend upwardly through the bottom of the next higher tray and to engage a portion thereof, and an inwardly bent U-shaped deflected portion intermediate said straight intermediate portion and said upper portion and adapted to extend into an opening in said side wall of said tray from the outside thereof, each of said spring wire assembly elements having its upper portion sufficiently outwardly bent relative to said straight intermediate portion so that spring wire assembly elements arranged on opposite side walls of said tray assume positions in which the upper ends thereof are splayed away from said next

higher tray in such a relative position that said hook-shaped upper engaging portions require to be forced resiliently over said tray towards each other to resiliently engage the bottom wall of said next higher tray thereabove, and, when subsequently released after being brought into engagement with the bottom wall of said next higher tray, retain the intermediate and lower engaging portions thereof in tight engagement with said tray.

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