Jan. 30, 1968 W. B. PANKNIN 3,366,264

NESTING AND STACKING TRAYS

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Fig. 1.

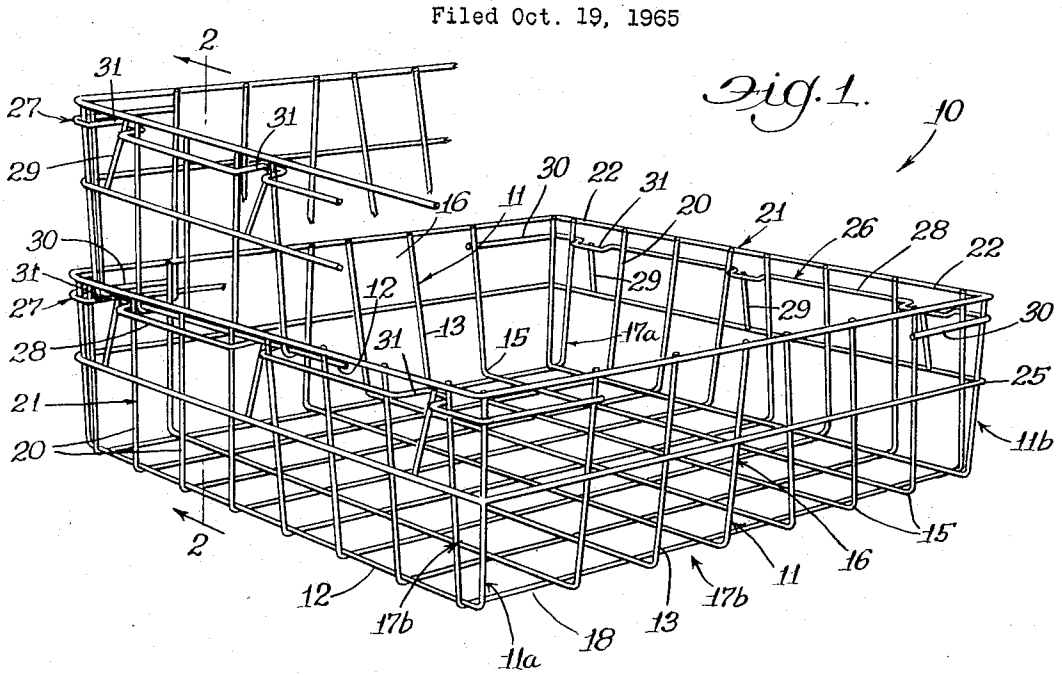


Fig. 2.

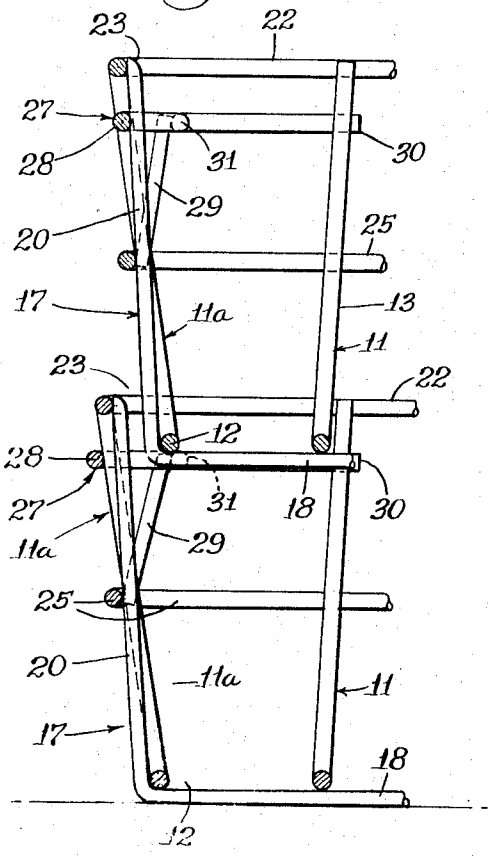
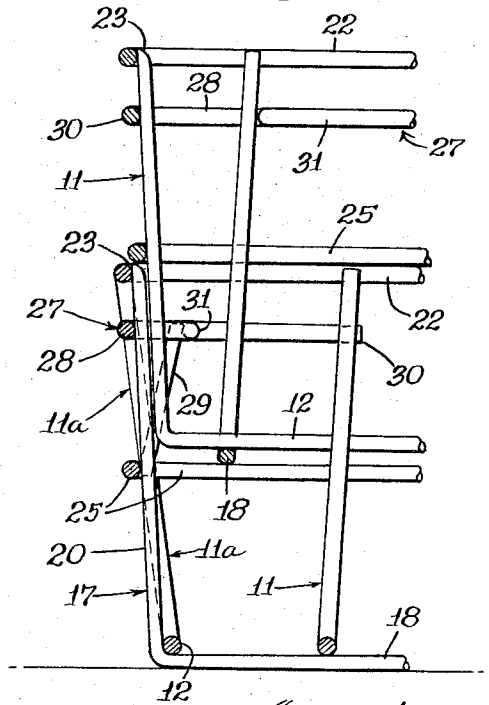


Fig. 3.



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NESTING AND STACKING TRAYS

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ABSTRACT OF THE DISCLOSURE

Stacking and nesting receptacles are provided which are formed of members comprising a plurality of generally U-shaped pieces of wire. A first group of these members are of similar shape with the bottom portions of the wire being generally parallel and with their upwardly extending legs being generally parallel for the central members and with the outside members sloping outwardly. A second set of the members extend transversely to the first set and again have their bottom portions generally parallel and the legs of the outside members extending outwardly. The bottom portions of one group are substantially farther apart than the bottom portions of the second group. The members are positioned to form a square bottom with four upwardly extending side walls of generally equal height which flare outwardly sufficiently to permit the nesting of another identical container therebetween. The members are connected by a closed rectangular loop of wire at about the midpoints of the upwardly extending legs and a closed rectangular loop of wire about the tops thereof. On the receptacle ends formed by said one set of wires there is a third horizontal wire adjacecnt the tops which third wire wraps around the corners. This wire at said ends has inwardly extending loops to form supports when the receptacles are stacked. However the receptacles will only stack with an identical receptacle when the same ends are positioned together. Because of the closer spacing of the second group of members the containers nest if they are rotated ninety degrees so that the side formed by one set of end members is in juxtaposition to the side formed by a second set of end members of the other tray.

This invention relates generally to rececptacles for transporting items such as bakery products, and more particularly to an opened top wire tray having a generally square bottom and four side walls extending upwardly and outwardly therefrom to permit the entry therein from the top of a second identical receptacle in either a closely spaced nested relationship or a relatively widely spaced stacked relationship.

It is an object of this invention to provide an improved receptacle of the type described above which permits a second identical receptacle to be stacked thereabove providing ample clearance between their respective bottoms to permit the safe transport of items therebetween, yet permitting the close nesting of a pair of identical receptacles merely by rotating them ninety degrees relative to one another from their stacked position.

An advantage of the present invention resides in the efficient use of wire therein which requires exceptionally few bends to permit the tray to function according to its intended purpose. Embodiments of the present invention may be produced utilizing a wire basket of a type that might be otherwise constructed for other purposes, and, by the addition of two more wire members be formed into baskets which will alternatively stack or nest. Thus, a manufacturer can have two different items in his line with a minimum of tooling—the tooling being far less than that normally required for two such items. Furthermore, embodiments of the present invention are unusually

sturdy, as wire baskets go, and without an unusual amount of supplemental bracing or the like.

Other objects and advantages of the invention will be apparent from the following description when taken in conjunction with the following drawings, wherein:

FIG. 1 is a perspective view of a pair of stacked receptacles, each being identical with the other and each incorporating the principles of this invention, the top receptacle having portions cut away to more clearly show the structural detail of the lower receptacle;

FIG. 2 is an enlarged fragmentary and cross-sectional view of the receptacles shown in FIG. 1 taken substantially along the line 2—2 in that figure; and

FIG. 3 is an enlarged fragmentary and cross-sectional view similar to FIG. 2 but with the upper receptacle rotated ninety degrees to show the means of support therebetween.

Although the following disclosure offered for public dissemination is detailed to ensure adequacy and aid understanding, this is not intended to prejudice that purpose of a patent which is to cover each new inventive concept therein no matter how others may later disguise it by variations in form or additions or further improvements. The claims at the end hereof are intended as the chief aid toward this purpose; as it is these that meet the requirement of pointing out the parts, improvements, or combinations in which the inventive concepts are found.

Referring now to the drawings in more detail, a receptacle or tray such as the one shown generally at **10** includes a first plurality of wire members of generally similar shape including a first member designated **11***a* and a last member designated **11***b*, these latter two wire members merely describing the outside pair of the first plurality. The two outer members are somewhat larger in cross-section than that of the remainder, e.g., 8-gauge vs. 12-gauge. Each of the members **11**, **11***a* and **11***b* includes a lower generally horizontal wire portion **12** and legs or extensions **13** bent upwardly and slightly outwardly forming lower corners **15**. The entire wire member is generally U-shaped with the sides tapering inwardly from top to bottom. Wire members **11***a* and **11***b* are spaced apart by a distance slightly less than the distance between corners **15** of any one of the substantially identical members **11**. Upwardly extending legs or extensions **13** define a first pair of opposed side walls as at **16**.

Arranged perpendicularly to the first plurality of members **11** are a second plurality of members **17** including outside extreme left and right members **17***a* and **17***b* respectively. Each of the members **17**, **17***a* and **17***b* are generally similar in shape to members **11**, members **11** including lower horizontal portions **18** and upwardly extending end portions or legs **20**. They may be formed of 12-gauge wire. Horizontal portions **18** lie in a plane immediately subjacent to horizontal portions **12** and are suitably attached thereto as by welding to form a square bottom container. Upwardly extending end portions **20** of wire members **17** define the second pair of opposed side walls **21** of the receptacle **10**. As best illustrated in FIG. 3, the outside extreme left and right members **17***a* and **17***b* are spaced apart a distance somewhat less than members **11***a* and **11***b*, each of the former pair being inset from its adjacent side wall **21** to permit the nesting function, to be described in greater detail later.

Joining and supporting the upper ends of opposed walls **16** and **21** is a first horizontal wire member **22**. This horizontal member both adds structural support to the tray **10** and covers the uppermost ends **23** of side walls **16** and **21**. Joining the two pairs of opposed side walls **16** and **21** at approximately their vertical mid-portions is a second horizontal wire **25** which serves the dual function of strengthening the receptacle as well as providing a surface to facilitate the nesting of one tray within another.

As can be seen in FIG. 3, an upper receptacle can be lowered down into and nested within the side walls of a lower receptacle when the two are properly oriented relative to one another, and the effective support between both receptacles consists of horizontal wire member **25** of the upper receptacle resting on the uppermost ends **23** of the wires forming side walls **16** and **21**.

Means are also provided for permitting a plurality of identical receptacles to be stacked with their bottoms spaced apart a distance considerably greater than the distance they are spaced apart in their nested position. Herein these means take the form of horizontal supporting wires generally **26** and **27**, each having their horizontal mid-portions **28** attached to one of a pair of opposite side walls such as **21**. Each of these supporting wires **26** and **27** also includes opposite end portions **30**. Each of the end portions is bent around and welded to one of the opposite side walls **16** to provide torsional support. Mid-portions **28** of supporting wires **26** and **27** include a plurality of inwardly bent supporting lugs **31** on which a vertically adjacent receptacle may rest when properly oriented. In addition to the support provided by welded end portions **30**, each of the lugs **31** may be additionally supported by means of a support member or wire **29** welded both to the innermost portions of the lug and horizontal wire member **25**.

As is best seen upon a viewing of FIG. 2, lugs **31** extend inwardly a distance sufficient to underlay the horizontal portions **12** of the outside first and last members **11***a* and **11***b* of an identically oriented receptacle immediately thereabove. This prevents an upper receptacle from fully nesting within the lower receptacle such as, for example, to the depth shown in FIG. 3. In this stacked position, as shown in FIGS. 1 and 2, the lowermost portions of the upper receptacle are cradled within the uppermost part of the lower receptacle (i.e., the part defined by top wire **22**) thereby preventing any lateral movement of the upper receptacle relative to the lower receptacle.

In the nested position as shown in FIG. 3, it will be understood that the upper receptacle has been rotated ninety degrees relative to the lower receptacle from the position shown in FIGS. 1 and 2 and inserted therein. The upper receptacle in this position is not impeded in its downward movement by the inwardly directed lugs **31** because lugs **31** do not extend inward sufficiently to interfere with the downward movement of horizontal portions **18** of outside extreme left and right members **17***a* and **17***b*. It is to be remembered that these outside members are more closely spaced than are members **11***a* and **11***b*. The upper receptacle is therefore able to move downwardly until horizontal member **23** engages upper portions **25** of the side walls. It can therefore be seen that an individual need only lift and rotate an upper tray ninety degrees to change a pair of stacked trays to a pair of nested trays, and vice versa.

The form and attachment of the supporting wires **26** and **27** are important aspects of this invention. They can be quickly and easily added to an otherwise complete basket to convert it into a stacking basket while still retaining the nesting aspects of the basket. The added expense in doing so is relatively nominal. Despite the torsional strain on the lugs in holding a loaded basket resting thereon, they will not break loose in normal use because of the reaction levers supplied by attached ends **30**. Furthermore, the wires **26** and **27** give added rigidity to the basket as a whole.

I claim:

1. An open-top receptacle having a generally square bottom and four sides extending upwardly therefrom, said receptacle including: a first plurality of aligned members including outside first and last members, each of said members being of similar shape with one another and having a lower generally horizontal portion and a leg at each end thereof extending upwardly and slightly outwardly therefrom, said horizontal portions being approximately parallel, said first and last member being spaced apart a distance approximately the same as the distance between the legs on each member; a second plurality of members of generally similar shape and arrangement as said first plurality and including outside extreme left and right members, each of said second plurality including a lower generally horizontal portion and a leg at each end thereof extending upwardly and slightly outwardly therefrom, the horizontal portions of said second plurality being approximately parallel and arranged perpendicular to and vertically adjacent to the horizontal portions of said first plurality, said members thereby forming said square bottom with said four upwardly extending side walls of generally equal height which flare outwardly sufficiently to permit the nesting therebetween of another identical container, said left and right members being spaced closer together than the spacing between said first and last members and being positioned inwardly from the upwardly extending legs of said first plurality; a horizontal member outside of, attached to and joining the side walls; and means attached near the top of two of said side walls and including support lugs directed inwardly from opposite side walls and slightly below the top of said receptacle, said lugs extending inwardly from opposite side walls a distance sufficient to engage and support the horizontal portions of the first and last members of an identical receptacle when stacked thereon thereby permitting a plurality of receptacles to be placed in a vertically stacked position relative to one another with their bottoms spaced apart a distance slightly less than the height of the side walls, said lugs extending inwardly a distance insufficient to engage the horizontal portions of said left and right members of said identical receptacle when one of the receptacles is rotated 90 degrees relative to its stacked position thereby permitting said identical receptacle to nest within said receptacle and permit the compact packing thereof.

2. An open top tray having a generally square bottom and four side walls extending upward therefrom, said tray including a first plurality of generally aligned wires including: a first and last wire, each of said wires being of similar shape with one another and having a lower generally horizontal and straight portion with end portions bent upwardly and slightly outwardly therefrom forming said wire into a generally U-shaped configuration, said horizontal portions being approximately parallel, said first and last wire being spaced apart a distance slightly less than the distance between the upwardly bent portions of one of said wires; a second plurality of wires having the same general shape and arrangement as the first plurality and including outside extreme left and right wires, each of said second plurality including a lower generally horizontal and straight portion and extensions thereof bent upwardly and slightly outwardly therefrom, the horizontal portions of said second plurality being approximately parallel and arranged perpendicular to the horizontal portions of said first plurality and lying in a plane vertically adjacent to said first plurality and welded thereto; said wires thereby forming said square bottom and defining two pairs of opposite and upwardly extending side walls, said side walls extending upwardly to generally equal height and flaring outwardly sufficiently to permit the nesting therebetween of a second identical tray, said left and right wires being spaced substantially closer together than the spacing between first and last wires and positioned horizontally inwardly from the upwardly extending end portions of said first plurality; a first horizontal wire extending around outside of and joining the upper ends of said upwardly bent wire portions which form the side walls, a second horizontal wire outside of, attached to and joining the side walls at approximately their vertical mid-portion, said second horizontal wire being positioned to provide a support for said tray on the uppermost portion of the side walls of a second identical and subjacent receptacle when being nested therein, and other support means in the

form of two wires, each wire being outside of and attached to a respective side wall of one pair of said opposite side walls and positioned between said two horizontal wires, said wire including a central portion extending along the respective side wall formed by said one pair and having inwardly bent supporting lugs formed integrally therewith, said supporting lugs being spaced between and extending inwardly between adjacent upwardly extending portions of said respective wall and extending inwardly therefrom a distance sufficient to engage and support the horizontal portions of the first and last wires of a second identical receptacle when placed thereon with said first and last wires vertically adjacent thereto to thereby permit a plurality of trays to be placed in a vertically stacked position with their bottoms spaced apart a distance slightly less than the height of the side walls, said supporting lugs extending inwardly a distance insufficient to engage the horizontal portions of the left and right wires of said second identical tray when one of the trays is rotated 90 degrees from their stacked position thereby permitting said second tray to move further downwardly within said receptacle and be supported by the uppermost portions of its side walls permitting close nesting therebetween and the compact packing of a plurality of similar trays, each wire of said support means extending from said central portion around the ends of the respective wall and across a part of the walls of the other pair of walls and secured thereto.

3. In a wire tray having a square bottom and four sides which sides flare outwardly from bottom to top with the bottom being formed of one group of straight spaced wires extending between one pair of sides and a second group of straight spaced wires extending between the other pair of sides and the sides being formed of wires

extending upwardly from the bottom and means interconnecting said upwardly extending wires, the improvement comprising: the outside wires of said one group being spaced a first distance apart, and the outside wires of the second group being spaced a second distance apart, said second distance being substantially less than the first distance; support wires on opposite sides of said tray, each suport wire having a first portion extending across each of said sides respectively of said one pair and having portions across a part of the adjacent sides, said support wire being adjacent the top of said sides and secured thereto, said first portion defining lugs extending inwardly toward the corresponding lugs of the other support wires, the distance between the lugs of the two support wires being greater than said second distance and less than said first distance; whereby two of said trays will stack when one is superposed on the other in one orientation and will nest when said one is rotated 90° with respect to the other.

4. In a tray as set forth in claim 3, wherein said outside wires of said first group are of a heavier gauge than that of the remaining wires of the first group, than that of the wires of the second group and than that of the upwardly extending wires.

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