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G. L. RUSSELL

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BASKET STRUCTURE WITH STACKING HANDLES

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2 Sheets-Sheet 1

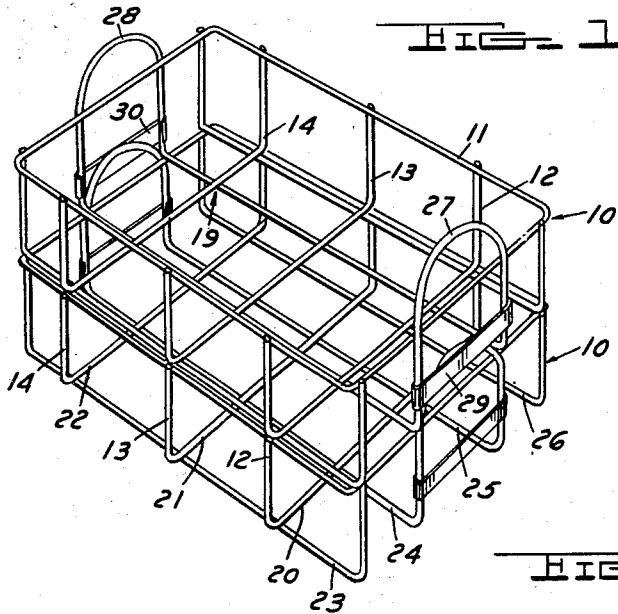


FIG. 2

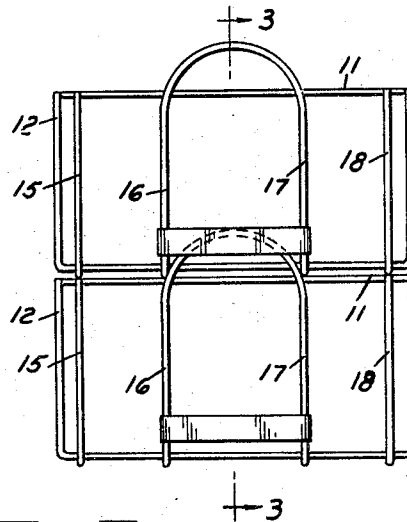


FIG. 3

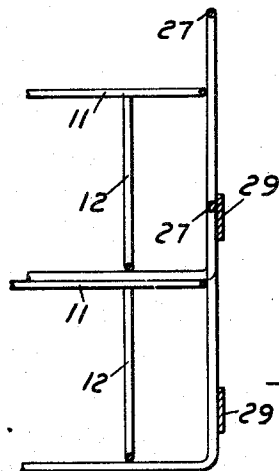
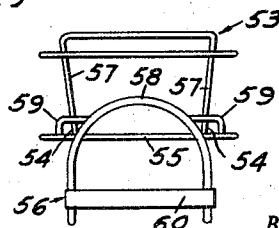


FIG. 7



INVENTOR.

GEORGE L. RUSSELL

BY

Whittemore Hulburd Belknap

ATTORNEYS

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FIG. 4

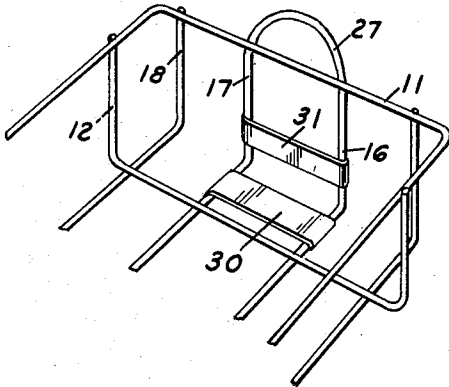


FIG. 6

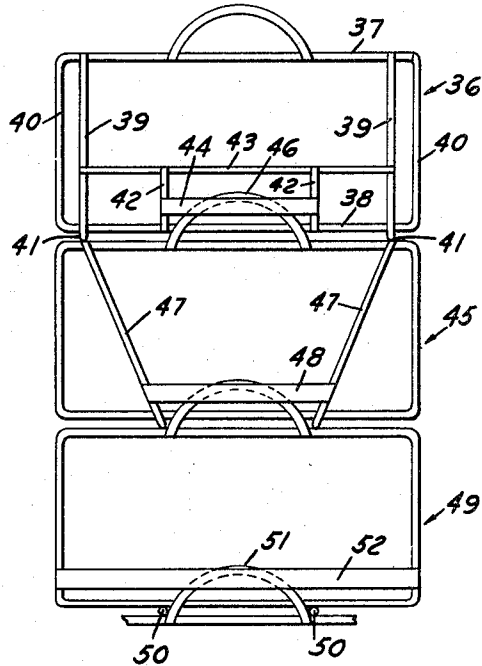
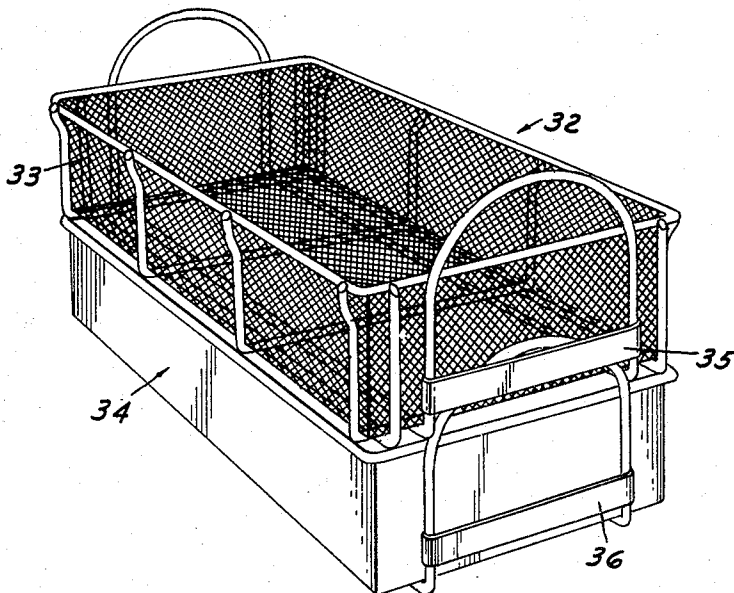


FIG. 5



INVENTOR.

GEORGE L. RUSSELL

BY

Whittemore Hulbert & Belknap

ATTORNEYS

UNITED STATES PATENT OFFICE

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BASKET STRUCTURE WITH STACKING HANDLES

George L. Russell, Fair Haven, Mich.

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1

The invention relates generally to basket structures, and more particularly to the type of wire baskets used in industry for the storage and transporting of materials in a factory or shop.

It is an object of the invention to provide a strong, durable, light-weight basket that is simple and inexpensive to manufacture.

It is a further object to provide a basket structure that is so designed that a plurality of baskets may easily be stacked one on top of another, and which assures positive engagement and interlocking of the baskets when in stacked relation.

It is a further object to provide a basket structure wherein the stacking elements are simple in design and unlikely to become damaged during use, and in which the stacking elements do not protrude beyond the basket or otherwise add in any way to the length or width of the basket.

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

Figure 1 is a perspective view of two of my baskets in stacked relation;

Figure 2 is an end elevation of the two stacked baskets;

Figure 3 is a fragmentary vertical section on line 3-3 of Figure 2;

Figure 4 is a fragmentary perspective view of one of the baskets showing a slight modification;

Figure 5 is a perspective view of a pair of stacked baskets showing further modifications;

Figure 6 is an end elevation of three modified baskets arranged in stacked relation; and

Figure 7 is an end elevational view showing another modification.

Referring now to the drawings, the numeral 10 designates a wire basket embodying the features of my invention. A rectangular frame member 11, preferably in the form of a continuous wire loop having slightly rounded corners, defines the general size and shape of the basket. A plurality of vertically extending wire supports 12, 13 and 14 are welded or otherwise rigidly secured at longitudinally spaced points to opposite sides of the frame 11, and extend downwardly therefrom to form the side walls of the basket. Similarly, a plurality of vertically extending wire supports 15, 16, 17 and 18 are welded at laterally spaced points to opposite ends of the frame 11 and constitute the end walls of the basket. The bottom wall of the basket consists of a grid 19 formed by a plurality of longitudinally spaced transverse

2

bottom wires 20, 21 and 22 which rest upon and extend across a plurality of laterally spaced longitudinally extending wire runners 23, 24, 25 and 26. The bottom grid 19 is connected to the frame 11 by means of the side and end supports, the length of said supports determining the depth of the basket.

For simplicity of manufacture, I prefer to form the side support wires 12, 13 and 14 as vertical extensions of the transverse bottom wires 20, 21 and 22. Thus in the construction illustrated, the transverse bottom wires 20, 21 and 22 extend the full width of the frame 11 and are upwardly bent at opposite ends to form the side support wires 12, 13 and 14 respectively. Similarly, the longitudinally extending runners 23 to 26, inclusive, extend the full length of the frame, and are upwardly bent to form the vertical end support wires 15 to 18, respectively. The transverse bottom wires are welded to the runners at the points where they cross thereby providing a strong and rigid structure.

It will be appreciated that the spacing between the side support wires may be increased or decreased as desired, and that the number of these supports may vary in accordance with the length of the basket. Similarly, the number of longitudinal runners and end support wires may be varied according to the width of the basket and the purpose for which it is to be used. Whereas I have illustrated a basket having four of such runners, it should be understood that the outer runners 23 and 26 are provided primarily for the purpose of increasing the strength and rigidity of the structure, and do not play an important part in the stacking of the baskets. In some cases the outer runners 23 and 26 could be eliminated entirely, while in other cases it may be advisable to provide additional sets of outer runners. The central runners 24 and 25 are particularly important however, since they constitute the main supporting runners and in addition, they play an important part in the stacking of the baskets as will hereinafter be described.

Referring again to the drawings, it will be noted that the central pairs of end supports 16 and 17 on opposite ends of the basket are connected by a pair of arcuate handle members 27 and 28 which extend above the frame 11. In the construction shown, the handles 27 and 28 are formed as integral continuations of the central end supports 16 and 17, which in turn are formed as vertical extensions of the central runners 24 and 25. Thus the central supporting runners 24 and 25, along with the central end supports 16

3

and 17 and their connecting handles 27 and 28 may be formed by bending a single wire to the proper shape and welding the ends together to form a continuous unit.

The handles 27 and 28 need not be in the form of a true radius as shown, but might even be angular if desired. It is important, however, in order to insure proper stacking of the baskets, that the curvature or taper of the handles should commence at a point slightly below the frame 11 so that the overall width of the handles and of the end supports 16 and 17 begins to narrow at this point.

A metal plate or bar 29 is welded or otherwise rigidly secured to the outer surfaces of the central pair of end supports 16 and 17 adjacent the lower end thereof. The arrangement is such that the inner surface of the plate 29 lies in substantially the same plane as the outer surfaces of the end supports 16 and 17. A similar end plate 30 is provided at the opposite end of the basket.

Wire baskets constructed in accordance with the above are light, strong, rigid and relatively simple and inexpensive to manufacture. Moreover, the baskets may easily be stacked one upon another and are so designed that when a plurality of baskets are arranged in stacked relation they are securely interlocked with one another to prevent accidental displacement.

As best illustrated in Figure 1, when the baskets are in stacked relation the central runners 24 and 25, as well as the outer runners 23 and 26 in the specific embodiment shown, rest upon and are supported by the frame 11 of the lower basket. The handles 27 and 28 of the lower basket fit securely between the central runners 24 and 25 of the upper basket thereby preventing lateral displacement of the upper basket, and longitudinal displacement of the upper basket is prevented by means of the end plates 29 and 30 engaging the outer sides of the handles 27 and 28 of the lower basket. In this way a secure interlocking of the stacked baskets is provided which makes it almost impossible to disturb the interlocking relation by jarring, pulling, tipping or any ordinary treatment.

Due to the special design of the stacking elements, the actual stacking of the baskets is made so simple and foolproof that it is almost impossible to stack them incorrectly. Even a careless operator would have no trouble in stacking the baskets correctly, and it is even possible to stack the baskets without looking. In manual stacking, the operator may tilt one end of the upper basket slightly so that the handle of the lower basket is received between the runners at the lower end of the tilted basket. The upper basket is then drawn lengthwise for a short distance until its end plate engages the outer side of the handle of the lower basket. The other end of the upper basket can then be lowered or dropped into place without further guidance.

Due to the special features and design of the stacking elements, the baskets may easily be stacked by means of an overhead crane. It will be noted that each of the handles 27 and 28 is in the form of a radius, and when the hooks of an overhead crane are engaged with the handles at opposite ends of a basket, the hooks automatically center themselves on the handles in such a way as to prevent tipping of the basket and its contents. After the hooks have been engaged, the crane operator has merely to approximately position the basket above the one on which it is to be stacked and then lower the basket. It is

4

not necessary that the operator take pains to secure perfect lateral alignment before lowering the basket, nor is it necessary to provide a helper to guide the basket into proper alignment as it is being lowered. It is only necessary that the upper basket be positioned in reasonably close longitudinal alignment with the basket below so that as the basket is lowered the vertical handles 27 and 28 of the lower basket will engage the inner surfaces of the respective end plates at opposite ends of the basket being lowered. The lateral alignment of the upper basket is automatic, since in lowering the upper basket the central runners 24 and 25 will engage the outer curved surfaces of the handles of the basket beneath and be guided thereby into perfect lateral alignment.

Figure 4 of the drawings illustrates a slightly modified construction wherein a flat metal plate 30 is welded to the upper surfaces of the central runners 24 and 25 so that it extends laterally across the space therebetween at a point adjacent the ends of the runners. A similar plate is provided at the other end of the basket, the purpose of the plates being to prevent the handles of the lower basket from entering between the central runners of the upper basket at a point where they might come into contact with the contents thereof. Sufficient clearance is provided between the outer edge of the plate 30 and the end of the basket to permit the ready entry of the handle of a properly aligned lower basket during the stacking operation.

Figure 4 also illustrates another modification in which the end plate 31 extends across the inner surfaces of the central pair of end supports 16 and 17, rather than across the outer surfaces as previously described. With this arrangement the handle of the lower basket will engage the outer surface of the plate 31 on the upper basket, and since a similar plate is present at the opposite end of the basket, the interlocking engagement of the stacked baskets is assured.

Referring to Figure 5, there is illustrated a pair of slightly modified baskets arranged in stacked relation. As shown, the upper basket 32 is provided with a wire mesh lining 33 on the inside of the basket. The lower basket 34 is constructed with solid walls and bottom, and may be formed of any suitable material such as sheet metal, fiber or plastic, for example. The stacking elements, however, are the same as previously described.

Although it might appear that with this type of construction the respective end plates 35 and 36 could be dispensed with, relying on the mesh lining or solid end panels to engage the handles of the lower basket and prevent longitudinal displacement, I have found that for best results the end plates are desirable. This is especially true with the mesh lined type of basket 32 where the lining is on the inside of the basket therefore allowing sufficient lengthwise movement of the upper basket so that the runners at one end might slip off the frame of the basket beneath and enter the basket. This would be especially likely to happen if the lining at either end of the basket should become dented in due to excessively rough usage. It will readily be appreciated that one such improperly stacked basket would threaten the stability of the entire stack, and might result in damage to the improperly stacked basket due to the pressure exerted by a number of heavily loaded baskets above. By providing end plates extending across the outer or inner surface of the central pair of end supports as previously de-

5

scribed, such disastrous results are prevented. It is evident, of course, that when a lining or solid bottom is provided there is no need for an auxiliary bottom plate of the type illustrated in Figure 4.

Referring now to Figure 6, there is illustrated in end elevation a plurality of stacked baskets each of which embodies the essential features of my invention in somewhat modified form. As shown, the upper basket 36 consists of a top frame member 37 and bottom frame member 38, said frames being held in vertically spaced relation by means of vertical wires 39 and 40. In this modification no central longitudinal runners are provided, said basket being adapted to rest upon an outer pair of runners 41. A centrally located pair of spaced end wires 42 are secured at their upper ends to a transversely extending wire 43, and have their lower terminal ends secured to the bottom frame 38. An end plate 44 is secured to said end wires and extends therebetween. The spacing between the end wires is such that when the basket 35 is stacked upon another basket 45, the end wires engage the handle 46 of the lower basket to prevent lateral displacement. Longitudinal displacement is prevented by means of the end plate 44 as previously described. It will be noted that with this construction the handles of a lower basket cooperate directly with the lower end portions of the vertical end wires of a superposed basket to assure positive interlocking engagement.

In the central basket 45, the end wires 47 are again conveniently formed as extensions of a pair of central runners, said end wires being outwardly and upwardly inclined as shown. An end plate 48 extends transversely between the end wires. With this construction, as with the construction shown in Figures 1-5 inclusive, the essential cooperation of the stacking elements takes place between the handles of the lower basket and the portions of the upper basket where the longitudinal runners merge into the upwardly extending end wires.

Still another modification is shown in the basket 49, wherein the vertical end extensions have been eliminated entirely. In this construction, the central runners 50 extend a slight distance beyond the end of the basket in such a manner that when the basket is stacked upon another, the handle 51 of the basket beneath will be engaged between the ends of the runners 50. The distance which the runners 50 project beyond the end of the basket need be no greater than the thickness of the handle 51 of the basket beneath, so that when the baskets are stacked the ends of the runners will lie in substantially the same vertical plane as the outer surface of the handle beneath. An end plate 52 is provided for the purpose previously described.

In order to increase the general usefulness and utility of my improved basket, I have devised means whereby the basket may be successfully stacked with many of the various types of baskets which are currently in use, but which are not provided with the special end plates for cooperation with the stacking handles of my basket. Referring now to Figure 7 of the drawings, the upper basket 53 is provided with runners 54 which enable it to rest upon the upper frame 55 of one of my baskets 56 placed beneath the same, and is also provided with spaced end wires 57. Such a basket, if properly dimensioned, will engage the stacking handle 58 of my lower basket in a manner that will prevent relative lateral displacement,

6

but there is nothing to prevent relative longitudinal displacement. This may be prevented, however, and positive interlocking of the stacked baskets assured, by means of projecting members 59 extending laterally outwardly from the stacking handle 58 at each end of the lower basket. The projecting members or dog-ears 59 may conveniently be formed of wire or flat stock bent to the desired angle and welded or otherwise secured to the handle 58 and frame 55, and serve to engage the end wires 57 of the upper basket to prevent endwise displacement thereof. As illustrated, the dog-ears 59 are preferably provided in addition to the end plate 60 due to the added ease of stacking the baskets when the end plates are present. It is possible, however, to eliminate the end plate and rely upon the dog-ears alone to prevent endwise shifting of the stacked baskets.

It follows from the foregoing that baskets properly constructed in accordance with my invention will successfully stack with other baskets having either the end wires alone or the runners alone, or having integral runners and end wires to prevent relative lateral displacement. It further follows that although the baskets are particularly adapted and designed to stack with baskets of a similar construction, they may also be stacked with currently existing baskets which lack some of the specific stacking features provided by the present invention.

From the above description it will be apparent that I have devised an exceptionally efficient and useful basket structure wherein stacking features are simple in design and are relatively inexpensive to manufacture. In addition, the stacking elements of the present invention are very sturdy and difficult to damage, and if damaged, are easily repaired without special skill or special tools.

One of the important features of my invention is that the stacking elements add nothing to the length or width of the basket, and there are no protruding parts to take up additional floor space. This feature is particularly important when a basket must pass through a narrow opening on a conveyor since the space that would otherwise be occupied by projecting handles, for example, is devoted to increased capacity within the basket.

Another feature is that the stacking handles 27 and 28 of the lower basket lie in substantially the same plane as the corresponding end support wires 16 and 17 of the basket above. This construction assures that the handles of the lower basket will in no way diminish the carrying capacity of the upper basket or interfere with the contents thereof.

A further feature is that the flat end plates which participate in the stacking of the baskets, also serve the auxiliary purpose of providing an ideal location for identification numbers or names, thus eliminating the necessity of providing special tags or plates for this purpose.

The drawings and the foregoing specification constitute a description of the improved basket structure with stacking handles in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A wire basket adapted to be stacked with a similar basket, comprising a wire frame, wire handles secured to opposite ends of said frame intermediate the sides thereof and projecting thereabove, said handles being curved inwardly

7

and upwardly from a point immediately below the top of said frame and having downwardly extending laterally spaced portions forming end support wires for said frame, the lower ends of said end support wires being spaced apart to receive therebetween the portions of the curved handles immediately above the top of the frame of a lower basket located beneath the first mentioned basket, and end plates extending transversely between the outer surfaces of the lower portions of the end support wires at opposite ends of the basket and engageable with the outer surfaces of the handles of a lower basket to prevent relative longitudinal displacement.

2. A wire basket adapted to be stacked with a similar basket, comprising a wire frame, laterally spaced vertical end support wires at opposite ends of said frame, said wires extending downwardly from the frame and merging at their lower ends into a pair of laterally spaced longitudinal runners, arcuate handles at opposite ends of the frame merging with the upper ends of the respective support wires and projecting above said frame, the width of said handles above said frame being slightly less than the space between said support wires and runners whereby the runners of a superposed basket will rest upon the frame of the basket beneath with the handles of the latter fitting snugly between the adjacent ends of the runners of the former to extend upwardly between the end support wires in the same vertical plane therewith, and end plates extending transversely between the outer sides of the end support wires at opposite ends of the upper basket for engagement with the outer sides of the handles of the lower basket to prevent relative endwise displacement.

3. A wire basket comprising a continuous wire frame, a pair of laterally spaced end support wires secured to opposite ends of said frame and extending downwardly therefrom, a pair of laterally spaced longitudinal runners beneath said frame extending the entire length thereof and connected at opposite ends to the lower ends of said support wires, longitudinally spaced transverse wires secured to the inner sides of said runners and extending the full width of said frame, said transverse wires being upwardly bent at opposite ends thereby forming vertical side support wires secured to opposite sides of said frame, arcuate handles connecting the upper ends of said laterally spaced end support wires and extending vertically above the frame, and metal strips extending transversely across the outer sides of said laterally spaced end supports near the bottom thereof.

4. A basket adapted to be stacked with similar baskets comprising a lifting and supporting element having a pair of spaced parallel runner portions, and a pair of generally vertical end portions at each end of said element, each pair of vertical end portions being interconnected at their tops to provide end handle portions located midway between the sides of the basket, a top border frame comprising transverse wires secured at their mid-portions to the inner surfaces of the said end portions of said element, the handle portions of said element immediately above said transverse wires being spaced apart to fit between the bottom parts of a pair of vertical end portions of a similar element on a superposed basket to prevent relative lateral movement between the baskets, and a pair of locking members each secured to the pair of end portions at one end of said element adjacent the bottoms thereof, said

8

members each having a surface substantially tangent to the adjacent pair of vertical end portions to engage the handle portions of the next lower basket in the stack, the ends of said runner portions resting upon the transverse wires of the border frame of the next lower basket.

5. A basket as defined in claim 4 in which said members each has a surface disposed tangentially to the outer surfaces of the adjacent pair of said vertical end portions.

6. A basket as defined in claim 4 in which said members are flat strips each of which is secured at its ends to the vertical end portions of the lifting and supporting element.

7. A basket as defined in claim 6 in which the basket includes transverse bottom members secured to the runners, said transverse members being spaced inwardly from the ends of the basket a substantial distance to define a relatively large handle receiving opening defined at its sides by the end portions of the runners, at its inner end by the transverse member closest to the end of the basket, and at its outer end by the said strip, whereby stacking of the baskets is facilitated by movement of the upper basket into position such that the relatively large opening referred to registers generally with a handle portion of the next lower basket, after which one end of the superposed basket may be first lowered until its runners contact the transverse wire of the top border frame and thereafter moved longitudinally until the inner surface of the strip engages the outer surface of the handle of the next lower basket.

8. A basket having supporting and stacking structure, said structure including a pair of spaced parallel bottom runners extending longitudinally of the basket, each of said runners being turned up at its ends to form a pair of end supports at each end of the basket occupying a vertical plane and connected to said runners by curved portions, said basket including an upper border wire, a pair of looped handles extending upwardly from the ends of said basket and midway between the sides thereof and secured to the outer surface of the end portions of said upper border wire, each handle being coplanar with the pair of end supports at the same end of the basket, the width of the handles directly above the top edge of the basket being substantially equal to the space between a pair of end supports to fit snugly between the end supports of a superposed basket, and transverse members connecting each pair of end supports adjacent the lower ends thereof, each of said transverse members being disposed substantially tangentially to the corresponding sides of the pair of end supports which it connects to serve as abutments cooperating with the handles of the next lower basket in a stack to prevent relative longitudinal movement.

9. A basket as defined in claim 8 in which said transverse members are each disposed tangentially to the inner surfaces of the pair of end supports which they connect.

10. A basket as defined in claim 8 in which said transverse members are each disposed tangentially to the outer surfaces of the pair of end supports which they connect.

11. A basket as defined in claim 10 in which said transverse members are flat straps.

12. A basket as defined in claim 10 in which the end supports continue upwardly to the top border wire, and said handles are a continuation of and interconnect the end supports.

13. A basket comprising a frame including a

top border wire, stacking and supporting structure for said basket comprising a plurality of parts all of which are located entirely outwardly of the basket beyond the vertical planes tangent to the outer surfaces of the end portions of said top border wires, said parts comprising looped handles secured at their ends to the outer surfaces of the end portions of said border wire and occupying vertical planes, a pair of laterally spaced abutment portions at each end of the basket coplanar with each of said handles, said abutment portions being located adjacent the bottom of the basket and spaced apart a distance substantially equal to the transverse span of said handles directly above said top border wire, and an abutment member connecting each pair of said abutment portions adjacent the bottom thereof and substantially tangent to the outer surfaces thereof and engageable with the outer surface of the handle of the next lower basket in a stack.

14. A stacking basket comprising a top border frame having longitudinally extending side portions and transversely extending end portions, a pair of laterally spaced parallel runner parts extending longitudinally of the basket at the bottom thereof, said runner parts having upwardly curved end portions to facilitate longitudinal sliding of the basket on a horizontal supporting surface, a pair of laterally spaced upwardly extending end support parts at the ends of said basket extending from the bottom thereof to the transversely extending end portions of said top border frame, looped handles extending upwardly from intermediate the ends of the transversely extending end portions of said top border frame, the outside transverse width of the portions of said handles immediately above said border frame being substantially equal to the space between the portions of said laterally spaced parts which are adjacent the bottom of the basket and in the same vertical plane as the said portions of said handles whereby said laterally spaced parts constitute lateral abutments cooperating with the handles of the next lower basket in a stack to limit relative transverse movement between stacked baskets, said basket having transversely extending abutment members located adjacent the bottom end corners of the basket and inwardly of the basket from said end support parts cooperating with the handles of the next lower basket in a stack to engage the inner surfaces of said handles to limit relative longitudinal movement between stacked baskets.

15. A basket as defined in claim 14 in which said end support parts are formed by upturned end portions of said runner parts.

16. A basket as defined in claim 14 in which said handles are formed by looped upward extensions of the pairs of end support parts.

17. A basket as defined in claim 14 in which said transversely extending abutment members are connected to one of said laterally spaced pairs of parts and at least the portion thereof intermediate said parts is located entirely inwardly of vertical planes tangent to the inner surfaces of the portions of said handles immediately above said border frame.

18. A basket as defined in claim 14 in which said transversely extending abutment members are connected to said laterally spaced pairs of runner parts adjacent to the ends thereof and spaced inwardly from vertical planes tangent to the inner surfaces of the portions of said handles immediately above said border frames.

19. A basket having supporting and stacking structure, said structure including a pair of spaced parallel bottom runners extending longitudinally of the basket, each of said runners being turned up at its ends to form a pair of end supports at each end of the basket occupying a vertical plane and connected to said runners by curved portions, said basket including an upper border wire, a pair of looped handles extending upwardly from the ends of said basket and midway between the sides thereof and secured to the outer surface of the end portions of said upper border wire, each handle being coplanar with the pair of end supports at the same end of the basket, the width of the handles directly above the top edge of the basket being substantially equal to the space between a pair of end supports to fit snugly between the end supports of a superposed basket, and transversely extending abutment members located adjacent the bottom end corners of the basket and disposed inwardly from the inner surfaces of the handles to serve as abutments engageable with the handles of the next lower basket in a stack to limit relative longitudinal movement between stacked baskets.

GEORGE L. RUSSELL.

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