Dec. 23, 1958 E. L. BLOOMQUIST 2,865,527

ARTICLE-CARRYING CASE

Filed Oct. 8, 1956

FIG. 1

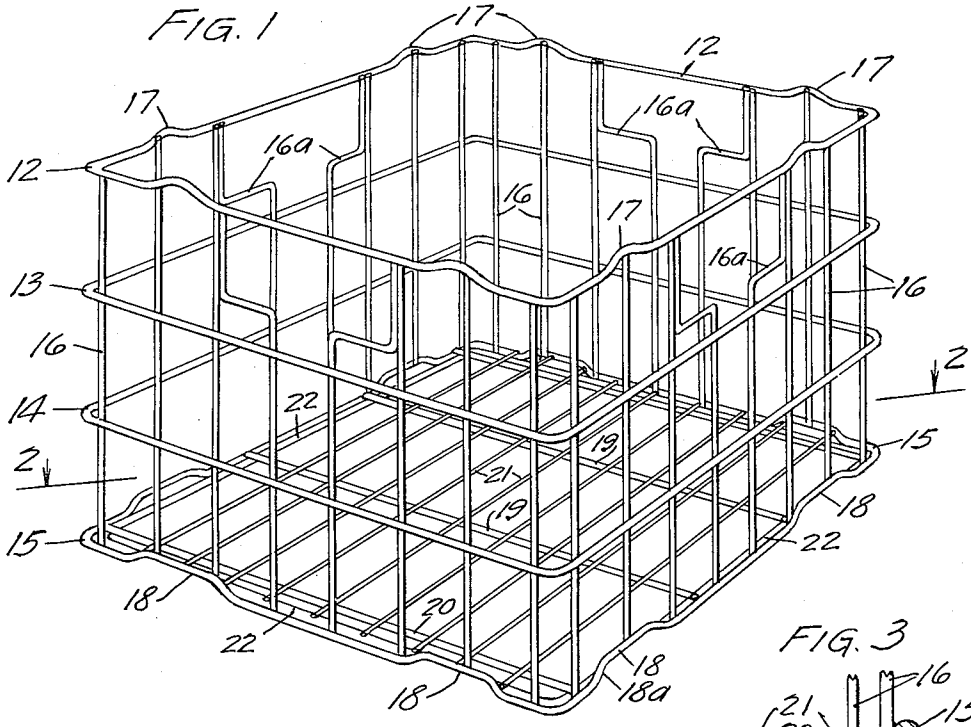


FIG. 2

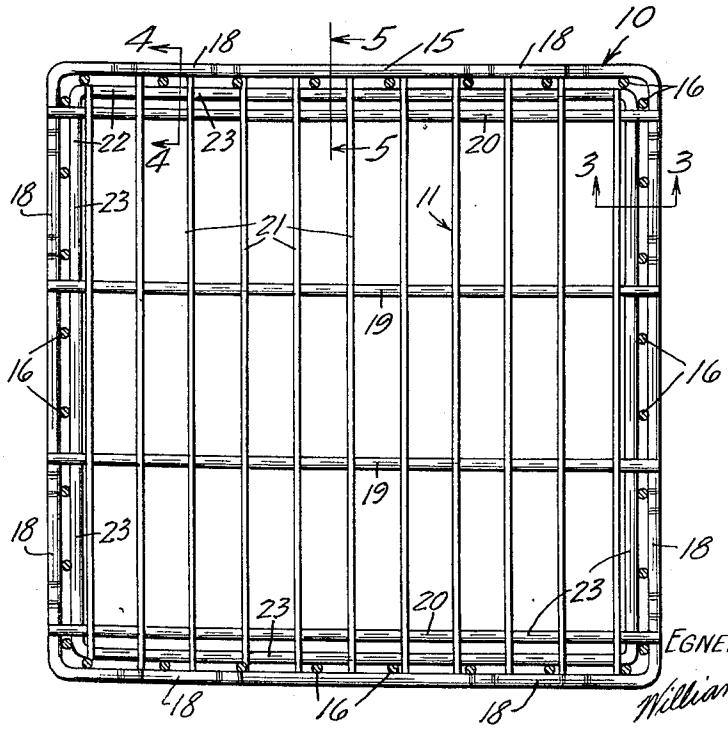


FIG. 3

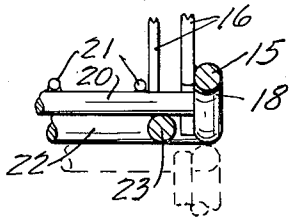


FIG. 4

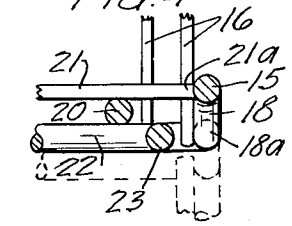
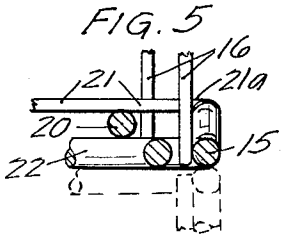


FIG. 5



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ARTICLE-CARRYING CASE

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5 Claims. (Cl. 220—19)

This invention relates to cases for carrying articles such as milk cartons and the like.

Cases for holding milk cartons and the like are generally piled one upon another when the cases are used for transporting milk. Most such cases are provided with mechanisms cooperating with cases thereabove and therebelow to maintain the stacked cases in vertical alignment. In one form, such mechanism is in the form of a projection extending downwardly from the case bottom and inwardly of the upright wall thereof for extending downwardly into the open top of a case therebelow. This form of aligning device has definite disadvantages, one being that the aligning device and the case bottom may be bent and damaged because the lowermost case in a stack (and therefore the entire stack) is supported on such device; another being that such a device must be formed of extremely strong and therefore heavy material which adds excessive weight to the case; and a third being that stacks of cases are subject to tipping because the lowermost case is supported upon such an aligning device which is disposed inwardly of the case wall.

In another form, such aligning mechanism employs a plurality of projections extending upwardly from the upper case corners to cooperate with the apertured bottom of an overlying case for maintaining the cases in vertical alignment. A primary disadvantage of this form of aligning device is the necessity, when unpiling such stacked cases, of lifting the top case in the stack over the upright projection of the case next below.

Another distinct disadvantage of substantially all types of wire cases is that such cases, when carried on a linear chain-type conveyor, jump up upon the cases adjacent thereto. In so doing, the bottom frame wire or rod of one case moves upwardly upon the similar bottom frame wire or rod of an adjacent case. As a result the conveyor cannot carry and handle the cases properly, and the cases are difficult to remove from the conveyor.

With these comments in mind, it is to the elimination of these and other disadvantages in cases for carrying milk cartons and the like to which my invention is directed, along with the inclusion therein of other novel and desirable features.

An object of my invention is to provide a new and improved article-carrying case of simple and inexpensive construction and operation.

Another object of my invention is the provision of a novel and extremely rugged article-carrying case which may be readily and easily piled in stacks of cases which will maintain themselves in vertical alignment.

Still another object of my invention is the provision of an improved and light weight case which provides a stable footing for a plurality of similar cases piled and which is constructed in such a manner that the cases will maintain themselves in vertical alignment, but may be easily pulled sideways off the top of the stack.

A further object of my invention is the provision of a case having new and novel upper and lower frame construction to facilitate nesting of the cases in vertical alignment and to facilitate supporting each of the cases on substantially the entire periphery of the case frame.

These and other objects and advantages of my invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same parts throughout the several views and in which:

Fig. 1 is a perspective view of the article-carrying case comprising the present invention;

Fig. 2 is a section view taken on a horizontal plane substantially at 2—2 in Fig. 1;

Fig. 3 is a detail section view taken on a vertical plane as indicated substantially at 3—3 in Fig. 2;

Fig. 4 is a detail section view taken on a vertical plane as indicated substantially at 4—4 in Fig. 2; and

Fig. 5 is a detail section view taken on a vertical plane as indicated substantially at 5—5 in Fig. 2.

One form of the present invention is shown in the drawings and is described herein. Receptacle means are provided and include an upright case side wall structure indicated in general by numeral **10** and a bottom structure indicated in general by numeral **11** and secured to the side wall structure **10**. The side wall structure **10** and the bottom structure **11** are formed of open wire-work.

The side wall structure **10** defines a substantially rectangular enclosure with the upper and lower edges thereof in vertical alignment. The side wall structure **10** includes a plurality of heavy and stiff wire or rod rings **12, 13, 14** and **15** which lie in substantially horizontal planes and which are vertically spaced from each other. Side wall structure **10** also includes a plurality of stiff upright wires **16** which overlie the inner sides of the rings **12—15**, and which are affixed as by welding to each of the rings. Certain of the upright wires **16**, at locations intermediate between the corners of the side wall structure are offset as at **16***a* to define elongated openings immediately below the upright frame ring **12** to receive a workman's hand therethrough when the case is picked up by the top frame ring **12**. The frame rings **12** and **15** define the upper and lower edge portions of the upright side wall structure which are in vertical alignment with each other.

The upper and lower edge portions or frame rings of the side wall structure are provided with vertically disposed male and female interfitting nesting means to facilitate stacking of the cases, one upon another, and maintaining the stacked cases in vertical alignment. In the form shown, the upper frame wire ring **12** is provided with a plurality of peripherally spaced upright male deformities or inserts **17** which are spaced from the corners of the wall structure and which are formed by producing crimps in the frame wire ring. In the form shown, two upright inserts **17** are provided in each of the sides of the wall structure and the upright inserts **17** are inverted V-shaped to define upwardly inclined top-engaging surfaces.

In the form shown the nesting means in the lower edge of the side wall structure **10** or in the lowermost frame wire ring **15** comprise a plurality of peripherally spaced and downwardly opening female receiving portions or recesses **18** which are spaced from the corners and which are formed in the frame wire ring **15** by producing crimps therein. Each of the recesses **18** in frame wire **15** is disposed in vertical alignment with a corresponding upright projection **17** in the uppermost frame ring **12** and is formed for cooperative interfitting with such an upright insert **17** of another case disposed therebelow in a stack. It will be noted that the recesses **18** in the bottom frame wire **15** are provided with inclined engaging surfaces **18***a* obliquely disposed with respect to the linear intermediate portions of the frame wire.

The wire-work bottom **11** of the case is provided with a plurality of cross members or rods **19** and **20** which extend between opposite sides of the lowermost frame

ring 15, and which overlie ring 15. The opposite ends of the cross members 19 and 20 are affixed to the ring 15 by welding. A plurality of closely spaced bottom-forming wires or thin rods 21 overlie the cross members 19 and 20 and extend in directions transverse relative thereto. The bottom-forming wires or rods 21 are welded to the cross members 19 and 20, and the ends of certain of the rods 21 are welded, as at 21*a*, to the crimped portions of the bottom frame ring.

Means are provided for positively retaining the upright male inserts of one case in the downwardly opening recesses 18 of another case disposed therebelow and thereby restricting relative horizontal movement between adjacent cases in a stack. In the form shown, such means include a substantially rectangular case-aligning ring 22 which is formed of rigid rod material substantially identical to the frame rings 12 and 15. The case-aligning ring 22 is somewhat smaller in length and breadth than the bottom frame ring 15 and the ring 22 lies in the plane of ring 15 and inwardly thereof. Case-aligning ring 22 is affixed by welding to the lower side of the bottom cross members 19 and 20. The case-aligning ring 22 has a plurality of abutment-forming portions as indicated at 23, which extend across, in a longitudinal direction, the recesses 18 in the bottom frame ring 15 for engaging the upright inserts of the case therebelow in a stack and restricting relative transverse or horizontal movement of adjacent cases in the stack.

It should be particularly noted that the case construction is well adapted for ready and easy assembly in manufacture. The upright wall structure 10 may be constructed as a unit and the wire-work bottom-forming structure 11 may also be formed as a second unit. The bottom-forming structure 11 would include the bottom cross members 19 and 20, the closely spaced bottom-forming wires 21 and the case-aligning ring 22 would be attached to the under side of cross members 19 and 20. The bottom-forming structure 11 would be merely inserted into the upright wall structure 10 and subsequently the ends of the bottom cross members 19 and 20 will be welded to the bottom frame ring 15. The ends of the closely spaced bottom-forming wires 21 would then be welded to the crimps in the bottom frame ring 15.

In operation, the cases comprising the present invention may be used to carry or store such commodities as milk cartons and the like. When the milk is to be transported, a number of cases will be placed one upon another to form stacks. The lowermost case in the stack engages the supporting surface around substantially the entire periphery of the lower edge of the wall structure 10 or around the bottom frame ring 15. The case-aligning ring 22 which extends across the several insert-receiving recesses 18 lies in the plane of the bottom frame ring 15 and will therefore engage the supporting surface and cooperate with the bottom frame ring in directly supporting the upright wall structure 10.

When another case is placed upon the lowermost case in the stack, the upright inserts 17 project into the recesses 18 and engage the lower frame ring 15 of the upper case; and the linear or planar intermediate portions of the lower frame ring 15 of the upper case engage and are supported by the linear and substantially planar intermediate portions of the upper frame ring 12 of the lower case, substantially as seen in dotted lines in Figs. 3–5. Each of the upright inserts 17 restricts movement of the upper case longitudinally along the corresponding section of frame ring 12 and the cumulative effect of all of the upright inserts 17 in the recesses 18 is to restrict movement of the upper case in all horizontal directions. The case-aligning ring 22 of the upper case also restricts horizontal movement of the upper case by restricting movement of the individual recess portions 18 transversely of the upright inserts 17. The wall structures 10 of the upper and lower stacked cases will thereby be maintained in vertical alignment with each other and the entire weight of the upper case or cases will be bourne by the upright wall structure of the lower case or cases.

It should be noted that the lowest case in the stack engages the supporting surface in direct vertical alignment with the upright wall structure and at the outermost peripheral portion of the wall structure to prevent any possible tipping of the cases when stacked.

When the cases are being unpiled from stacks, the workman only needs to lift the front side of the top case and then pull the case horizontally off the stack. As he lifts the front side of the case, the case-aligning ring 22 at this side of the case will be lifted over the upright inserts 17, and because the engaging surfaces of the inserts 17 and of the recesses 18 are obliquely disposed relative to the intermediate portions of the frame rings, the upper case may be urged horizontally and slid over the top of the lower case. It should be understood, of course, that because the front of the upper case has been lifted, the forward recesses of the transverse sides are lifted at least partially off the upright inserts of the lower case. As the upper case is slid horizontally off the lower case, the upper case may be tilted downwardly, whereupon the intermediate linear portions of the lower frame ring 15 of the upper case and the case-aligning ring 15 thereof will slide smoothly along the planar corner portions of the upper frame ring 12 of the lower case. Obviously because the upper case may be smoothly slid off the lower case in this fashion, the amount of effort required to perform this work is substantially less. When the cases are being handled in a processing plant, and are placed upon a conventionally styled case-carrying conveyor the adjacent cases on the conveyor are very substantially restricted from jumping up upon each other, that is, the frame wires of one case will not jump up upon the corresponding frame wires of another case on the conveyor because the crimped portion of the upper and lower frame wires forming inserts 17 and recesses 18 function as upright abutments, and adjacent cases are precluded from jumping up on each other by these abutments.

It will be noted that I have provided a new and improved case for carrying milk cartons and the like, which case may be piled with other similar cases in a stack and be maintained in vertical alignment with cases thereabove and therebelow in the stack.

It should also be apparent that I have provided a new and improved and lightweight article-carrying case for stacking with other similar cases and which engages a supporting surface around the entire periphery of its upright wall structure for directly supporting the weight of cases piled therebelow and which are supported directly on the wall structure.

It will, of course, be understood that various changes may be made in the form, detail, arrangement and proportion of the parts without departing from the scope of my invention which consists of the matter described herein and set forth in the appended claims.

What is claimed is:

1. An article-carrying case for storage with other similar cases in a stack, comprising receptacle means including an upright and substantially enclosing side wall structure having vertically aligned upper and lower edge portions, said receptacle means also including a bottom spaced above the lower edge portion of the sidewall structure, said upper edge portion having a plurality of upright and peripherally spaced male inserts thereon, and said lower edge portion lying generally in a horizontal plane for engaging, substantially around the entire periphery thereof, a supporting surface, and said lower edge portion also having a plurality of downwardly opening and peripherally spaced recesses cooperatively interfittable with coresponding male inserts of the next adjacent case therebelow in the stack, and a substantially continuous case-aligning ring secured to the receptacle bottom in the plane of said lower edge portion and disposed

inwardly therefrom for engaging the upright inserts of the case therebelow and restricting relative horizontal movement between adjacent cases in the stack, whereby a case may be inclined and readily moved by sliding substantially horizontally off the case therebelow.

2. An article carrying case for storage with other similar cases in a stack, receptacle means including an upright and substantially enclosing wire-work side wall structure, said side wall structure having a bottom frame ring extending around the periphery thereof and lying substantially in a horizontal plane to define the lower edge portion of the wall structure, said wall structure also having an upper edge portion in vertical alignment with said frame ring, said upper edge portion having a plurality of upright and peripherally spaced male inserts and said frame ring having a plurality of crimped portions peripherally spaced from each other and defining downwardly opening recesses formed for cooperative interfitting with corresponding male inserts of the next adjacent case therebelow in the stack, a substantially rigid case-aligning ring affixed to the receptacle means and lying in the plane of said bottom frame ring and inwardly therefrom to extend across said recesses for abutting therein the upright inserts of the case therebelow and restrict relative horizontal movement between adjacent cases in the stack.

3. An article-carrying case for storage with other similar cases in a stack, said case comprising receptacle means including an upright and substantially enclosing wire-work sidewall structure, said sidewall structure having a bottom frame ring extending around the periphery thereof and lying substantially in a horizontal plane to define the lower edge portion of the wall structure, said wall structure also having an upper edge portion in vertical alignment with said frame ring, said upper edge portion having a plurality of upright and peripherally spaced male inserts, and said frame ring having a plurality of crimped portions peripherally spaced from each other and defining downwardly opening recesses formed for cooperative interfitting with corresponding male inserts of the next adjacent case therebelow in the stack, said receptacle means also including a plurality of bottom cross members in a plane and overlying and extending across the frame ring and affixed thereto, a substantially rigid case-aligning ring underlying said bottom cross

members and affixed thereto, said ring lying in the plane of said bottom frame ring and inwardly therefrom to extend across said recesses and abutting therein the upright inserts of the case therebelow and restricting relative horizontal movement between adjacent cases in the stack.

4. The structure recited in claim 3 and including a plurality of closely spaced bottom-forming support wires extending transversely of said bottom cross members and being affixed thereto in overlying relation therewith, said wires having opposite end portions, and the end portions of certain of said wires being affixed to the crimped portions of the bottom frame ring.

5. A wire-work article-carrying case for storage with other similar cases in a stack, comprising a pair of vertically aligned upper and lower frame wire rings spaced from each other, bottom-forming means overlying and extending across said lower frame ring and secured thereto, upright wall-forming means interconnecting said upper and lower frame rings, said upper frame ring having a plurality of crimped portions spaced around the periphery thereof and defining upright male inserts, said lower frame ring being disposed in a plane for resting upon a flat supporting surface and having a plurality of crimped portions spaced around the periphery thereof and defining downwardly opening insert-receiving recesses cooperatively interfittable with corresponding inserts of the next adjacent case in a stack therebelow, a plurality of rigid rod abutments affixed to the case bottom and extending along the inner side of the lower frame ring substantially in the same plane therewith and across the recesses formed therein to engage the inner sides of the male inserts of the case therebelow in the stack and maintain the cases in vertical alignment.

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