

Feb. 2, 1960

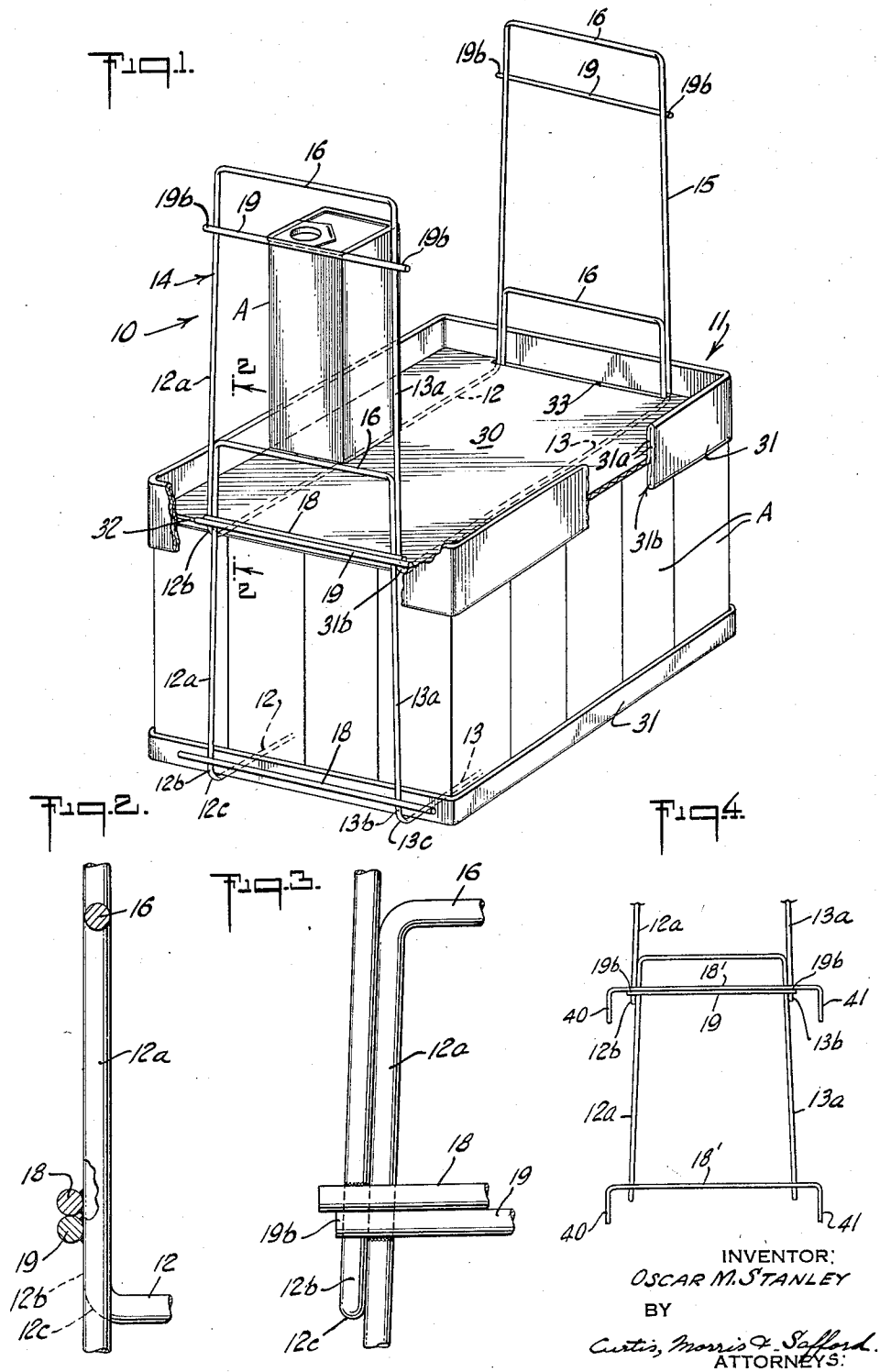
O. M. STANLEY

2,923,432

ARTICLE HOLDER

Filed Oct. 3, 1956

3 Sheets-Sheet 1



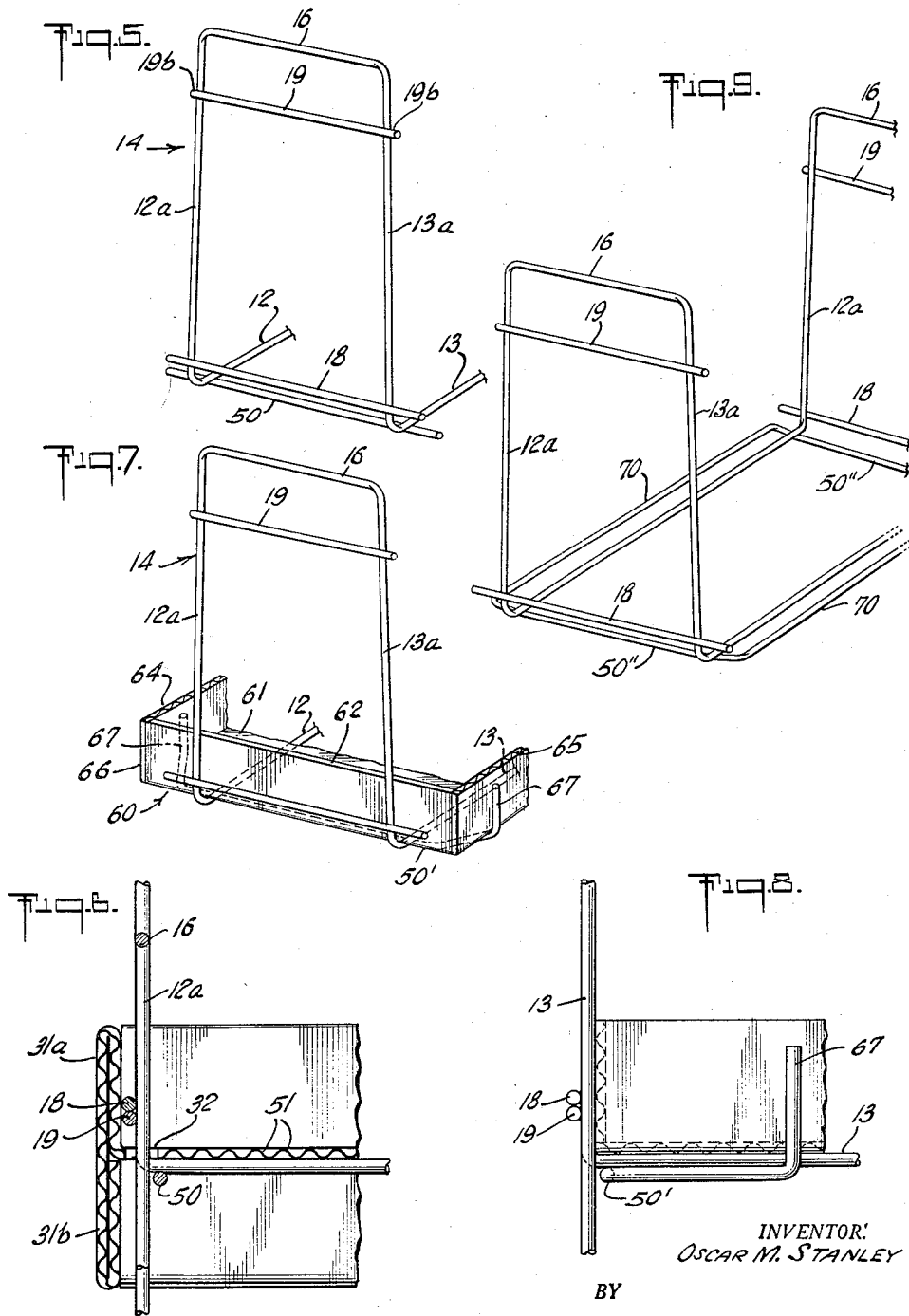
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3 Sheets-Sheet 2



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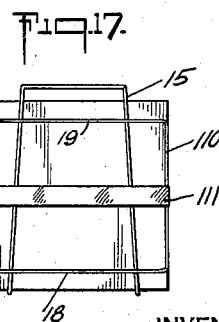
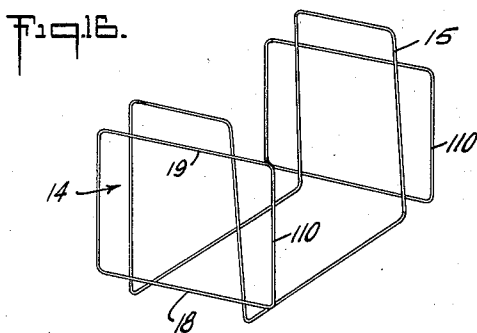
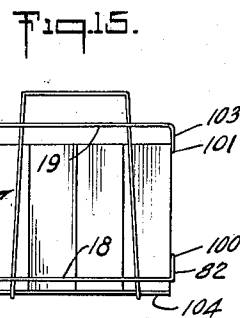
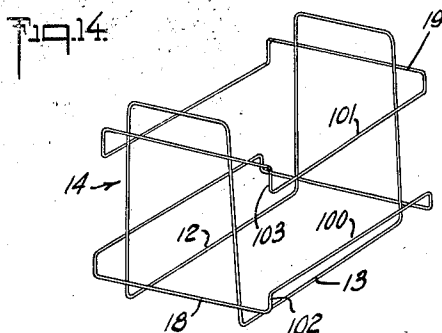
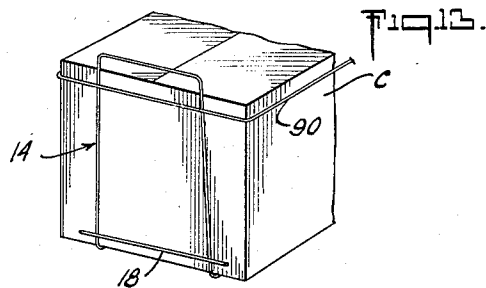
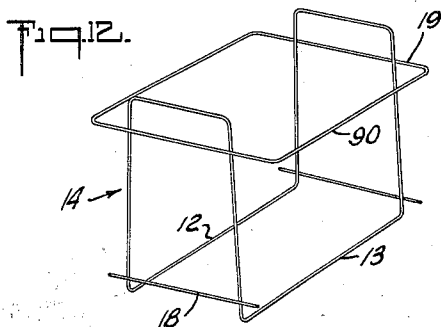
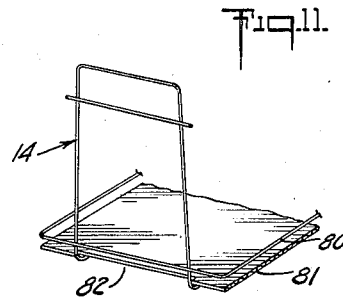
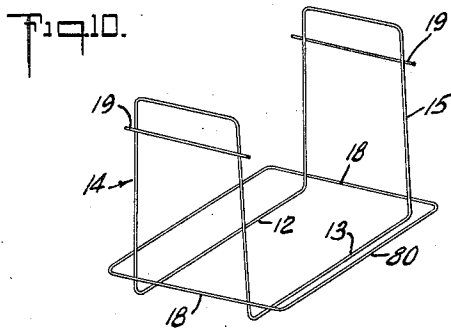
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3 Sheets-Sheet 3



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1

2,923,432

ARTICLE HOLDER

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6 Claims. (Cl. 220—102)

The present invention relates to portable holders for supporting articles as, for example, during transit, storage or for display purposes.

The article holder of the present invention is adapted for general application, but is particularly useful as a non-returnable holder for non-returnable containers. For example, one type of milk container in common use is composed of a wax impregnated paper material and has flat rectangular sides to facilitate packing. Empty containers must be transported from their place of manufacture to the dairy where they are filled, and then must be transported from the dairy to the store where they are to be sold. During such transit, they should be supported in such a way as to prevent excessive rubbing one on the other which may produce leaks.

Heretofore, it has been a common practice to transport empty milk containers to the dairy in paper board cartons and to use returnable cases to transport the filled containers to the stores. Thus, the ultimate cost of the milk to the consumer must include the cost of the cartons in which the empty containers are shipped to the dairy and a portion of the initial cost of the returnable cases. The cases in which the milk containers are transported from the dairy to the stores are composed of wood or metal and in either case they are relatively expensive to manufacture. Therefore, after the containers of milk have been delivered to the store, the empty cases are returned to the dairy. Such transportation and handling of the relatively heavy and bulky cases to and from the stores together with the maintenance costs to clean and repair the cases further adds to the cost of the milk to the consumer.

One of the objects of the present invention is to provide a non-returnable holder for articles which is so inexpensive to manufacture as to make it economically feasible to dispose of the holders after use.

Another object is to provide article holders of the type indicated which are adapted to be stacked one on the other or to be stacked one within the other for storage in a compact mass.

Another object is to provide article holders of the type indicated which interlock one with another in a stack to provide the strength required to support the weight of the articles mounted on the holders.

Another object is to provide an article holder of the type indicated which is of extremely simple construction and easy to handle while strong enough to support the articles.

In the specification and accompanying drawings, I have shown and described a preferred embodiment of my invention and suggested modifications thereof; but it is to be understood that these are not intended to be exhaustive nor limiting of the invention, but on the contrary are given for purposes of illustration in order that others skilled in the art may fully understand the invention and principles thereof and the manner of applying it to practical use so that they may modify and adapt it

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in various forms, each as may be best suited to the conditions of a particular use.

In the drawings:

Fig. 1 is a perspective view of a plurality of article holders incorporating the novel features of the present invention and shown stacked one on the other;

Fig. 2 is an enlarged side elevational view of a portion of two stacked holders to show the transverse rods on adjacent holders interengaging to support one holder on the other.

Fig. 3 is an enlarged end elevation view of a portion of two stacked holders to show the interlocking engagement of the transverse rods on each holder with the sides of the frame of the adjacent holder;

Fig. 4 is an end elevational view of a pair of stacked holders and illustrating a modified construction in which the ends of one transverse rod are extended and bent downwardly to provide supporting feet for the holders;

Fig. 5 is a perspective view of one end of a holder of further modified construction having spaced pairs of transverse rods to receive the handle loops of an adjacent holder therebetween;

Fig. 6 is an enlarged sectional view of a pair of stacked holders similar to Fig. 2 and showing one form of article supporting tray of corrugated paper board mounted thereon with the corrugations extending transversely of the supporting beams of the holder;

Fig. 7 is a perspective view of an article holder similar to Fig. 5 but modified to provide rod extensions for supporting the sides of another form of tray;

Fig. 8 is a side view of a portion of a pair of stacked holders of the type illustrated in Fig. 7;

Fig. 9 is a perspective view of a holder of still further modified construction in which extensions of the inner rods underlie and further support the tray;

Fig. 10 is a perspective view of an article holder of the kind illustrated in Figs. 1 to 3 in which the lower transverse rods are portions of a continuous loop forming side rails;

Fig. 11 is a perspective view of one end of the holder illustrated in Fig. 10 showing the tray in the form of a flat board with the side rails of the loop located above the tray to retain articles thereon;

Fig. 12 is a perspective view of an article holder similar to the one illustrated in Fig. 10 and showing the ends of the upper transverse rods extended to provide a continuous loop to form upper side rails for retaining articles thereon;

Fig. 13 is a perspective view of one end of the article holder illustrated in Fig. 12 and showing the article in the form of a single container or carton;

Fig. 14 is a perspective view of an article holder like those illustrated in Figs. 10 and 12 and showing the ends of both the upper and lower transverse rods extended in the form of continuous loops forming upper and lower side rails for retaining articles thereon;

Fig. 15 is an elevational view of one end of the holder illustrated in Fig. 14 to show the manner in which the upper and lower ends of articles are retained on the holder by the side rails;

Fig. 16 is a perspective view of a holder like those illustrated in Figs. 10 to 16 showing the transverse rods at each end of the holder extended to provide a continuous loop in a vertical plane at each end of the holder; and

Fig. 17 is an elevational view of one end of the holder illustrated in Fig. 16 and showing the vertical loop for retaining articles on the holder.

In the embodiment of the invention illustrated in Figs. 1 to 3, the article holder comprises a frame 10 and a tray 11. The frame 10 is made from a length of steel wire, or other similar shape, so formed as to provide

spaced parallel sections 12 and 13, constituting carrying beams, and loops projecting upwardly at right angles from opposite ends of the parallel sections to provide handles 14 and 15 for carrying the holder. The ends of the length of wire are welded to each other to provide a continuous rigid frame structure. The sides 12a and 13a of each handle loop 14 and 15 are inclined inwardly toward each other at a slight angle from the bottom to the top where they are joined by straight horizontal sections 16. Thus, the narrower upper portions of the handle loops 14 and 15 are adapted to fit between and telescope into the open lower portions of an adjacent holder.

Transverse rods 18 of steel wire or the like extend between the sides 12a and 13a of each handle loop 14 and 15 adjacent the lower ends thereof and are attached thereto as by welding. The rods 18 are so located above the beam sections 12 and 13 on the outside of each handle loop 14 and 15 as to provide vertical abutments 12b and 13b on the sides 12a and 13a, respectively, below the rods. Similar transverse rods 19 extend between the sides 12a and 13a, respectively, of each handle loop 14 and 15 adjacent the top thereof. Rods 19 extend beyond the sides 12a and 13a of the handle loops 14 and 15 a distance at least equal to the width of the wire of which the frame is constructed to provide projections 19b at each end adapted to interlock with the vertical abutments 12b and 13b of an adjacent carrier. In some instances the ends of the parallel beam sections 12 and 13 may project upwardly without being connected to form handle loops, and with such a construction the transverse rods 19 constitute handles.

The tray 11 for each article holder has a flat rectangular base 30 on which articles A, such as milk containers, are supported. In the embodiment of the invention illustrated in Figs. 1 to 3, the tray has a peripheral flange 31 which projects vertically above and below the flat base 30. Tray 11 has slots 32 and 33 in its flat base 30 adjacent the flanges 31 at opposite ends through which the handle loops 14 and 15 of the frame 10 may pass to mount the tray on the frame. Thus, the flat rectangular base 30 of the tray 11 overlies and is supported by the spaced parallel beam sections 12 and 13 of the frame 10 and is prevented from sliding on the frame by the engagement of the handle loops 14 and 15 with the sides of the slots 32 and 33. The articles A to be transported are mounted on the tray 11 as illustrated in Fig. 1. For example, when the holders are to be used for transporting milk containers A of quart size, the tray 11 will have such dimensions as to support 4 rows of 5 containers each or a total of 20 containers having a total weight slightly over 40 pounds. The parallel beam sections 12 and 13 of the frame 10 are located outwardly beyond the middle two rows of containers to equalize the loading on the tray and beams.

The construction of the holders adapts them to be stacked one on the other. This is accomplished by lowering one holder onto another holder so that the open lower ends of the loop handles 14 and 15 on the upper holder telescope over the closed upper ends of the loop handles 14 and 15 of the lower carrier as illustrated in Fig. 1. The handles 14 and 15 on the lower carrier are guided into alignment with the handles on the upper carrier by the engagement of one side with the transverse rods 18 and on the other side by the engagement of the projections 19b of the rods 19 with the rounded portions 12c and 13c of the frame which tends to move the handles outwardly toward the rods 18. Thus, the upper end of the loop handles 14 and 15 of the lower holder telescope into the open ends of the handles on the upper holder in alignment therewith. The upper holder is lowered until its lower transverse rods 18 interengage and seat on the upper transverse rods 19 on the lower holder which supports it thereon. The loop handles 14 and 15 on the lower holder are prevented from movement outwardly by the engagement of its sides with the transverse rod

18 on the upper holder and is prevented from inward movement by the interlocking engagement of the projecting ends 19b of rod 19 with the vertical abutments 12b and 13b on the frame of the upper holder. Such interlocking engagement of the abutting rods 18 and 19 on the upper and lower holders with the sides 12a and 13a of the handles 14 and 15 of adjacent holders further strengthens the handles 14 and 15 in a vertical direction so that they can support holders stacked four high or with a total weight on the lower holder greater than 160 pounds without buckling.

When a plurality of holders loaded with milk containers A are so stacked, the lower ends of the containers are confined by the upwardly projecting flange portion 31a of tray 11 and the upper ends of the containers are confined by the depending flange portion 31b of the tray of the overlying holder. Thus, the holders confine the containers A to prevent excessive rubbing one on the other during transit.

Fig. 4 illustrates a modified construction in which the transverse rods 18' are extended beyond the sides 12a and 13a of the loop handles 14 and 15 and bent downwardly to provide feet 40 and 41 at each end of the holder for supporting it on a floor. The feet 40 and 41 position the carrying beams 12 and 13 above the floor and are of such length as to hold the depending portion 31b of the tray flange 31 above the floor to prevent it from being crushed. Such a construction is only necessary on the lowermost holder of a stack but may be provided on all of the holders so that no care need be exercised in selecting one holder from another. Holders with the feet 40 and 41 depending therefrom may be stacked one on the other as illustrated in Fig. 4.

Figs. 5 and 6 illustrate a further modified construction in which an additional rod 50 extends between the carrying beam sections 12 and 13 at each end of the holder. Transverse rod 50 is spaced inwardly from the rod 18 at a distance at least equal to the thickness of the wire constituting the loop handles 14 and 15. With this construction the upper portions of the handles 14 and 15 of a lower holder are held in alignment with the handles on the upper holder by the transverse rods 18 and 50 at opposite sides thereof. The rods 18 at each end of the upper holder will engage and be supported by the transverse rods 19 at each end of the lower holder in the same way as previously explained with respect to the holders illustrated in Figs. 1 to 3. It will be understood that the rod 18 can be extended and bent downwardly to provide feet 40 and 41 the same way as illustrated in Fig. 4.

It will be noted by reference to Fig. 6 that the same tray 11 as illustrated in Fig. 1 is used having a peripheral flange 31 with upwardly projecting and depending portions 31a and 31b, respectively, for retaining the bottom and top portions of containers A on adjacent holders. Preferably, the trays 11 are composed of corrugated paper board with the corrugations 51 extending transversely of the supporting beams 12 and 13 of the holder frame to strengthen the overhanging portions of the tray.

Figs. 7 and 8 illustrate another modified construction similar to that illustrated in Figs. 5 and 6 in which a tray 60 is used having a flat base 61 of a length to extend between the loop handles 14 and 15 with opposite pairs of flaps 62, 63 and 64, 65 adapted to fold upwardly to provide a peripheral flange 66. The opposite ends of the rods 50' are extended outwardly, forwardly and upwardly to provide retaining fingers 67 to hold the side flaps 64 and 65 in their upwardly folded position. The flat tray 60 is mounted on a frame by merely pressing it downwardly into position on the supporting beams 12 and 13. The upstanding handles 14 and 15 cause the end flaps 62 and 63 to fold upwardly and the upstanding fingers 67 at the ends of the rods 50' cause the side flaps 64 and 65 to fold upwardly to provide the peripheral flange 66. The corrugations in the paper board material

of the tray 60 extend transversely of the supporting beams 12 and 13 to provide additional support to the cantilever portions of the tray overhanging the supporting beams in the same way as illustrated in Fig. 6

Fig. 9 illustrates a modified construction similar to that shown in Figs. 5 to 7 in which the ends of the rod 50" are formed by the ends of a rectangular wire loop providing side rails 70 underlying the tray 11 laterally of the beams 12 and 13 to provide additional support therefor. As illustrated in Fig. 9, the ends of the rod portions 50" of the loop are bent upwardly a distance equal to the thickness of the wire constituting the carrying beams 12 and 13 so that the side rails 70 extend parallel to the carrying beams in a common plane.

Figs. 10 and 11 illustrate an article holder like that illustrated in Figs. 1 to 3 and having side rails 80 for retaining articles thereon. In this modified construction the lower transverse rods 18 at each end of the holder are formed by straight sections of a continuous rectangular loop of wire material welded to the upright sections 12a and 13a of the holder. The ends of the loop then form the transverse rods 18 and the sides of the loop form the side rails 80 located above the carrying beams 12 and 13. A flat tray 81, as illustrated in Fig. 11, may be used in place of the tray 30 illustrated in Figs. 1 to 3. The flat tray 81 may be formed of a piece of fibreboard or the like having notches 82 at its ends to accommodate the handle portions 14 and 15 and interlock therewith to retain it in place on the holder. The side rails 80 of the frame thus serve to retain articles in position on the tray 81 without the use of any flanges on the tray.

Figs. 12 and 13 illustrate an article holder of the kind illustrated in Figs. 1 to 3 in which the ends of the upper transverse rods 19 are continued to form a rectangular loop to provide upper side rails 90 for retaining an article or articles on the holder. This type of holder is particularly adapted for retaining the upper portion of an article or articles mounted on any suitable type of tray on the holder. As illustrated in Fig. 13 the article is in the form of a single container or carton C mounted directly on the carrying beams 12 and 13 of the holder and retained in place thereon by the side rails 90.

Figs. 14 and 15 illustrate an article holder of the kind illustrated in Figs. 1 to 3 in which the ends of the transverse rods 18 and 19 are each extended to form a pair of spaced horizontally arranged rectangular loops to provide side rails 100 and 101 for retaining an article or articles on the holder. In the illustrated embodiment, the rods 18 and 19 of the lower and upper loops extend horizontally throughout their length and then are bent upwardly and downwardly, respectively, as at 102 and 103 and then horizontally to provide the spaced side rails 100 and 101 above the carrying beams 12 and 13. As illustrated in Fig. 15 a flat tray 104 is provided similar to that illustrated in Fig. 11 on which articles A are supported and the sides of the articles are retained adjacent the bottom and the top by the side rails 100 and 101.

Figs. 16 and 17 illustrate an article holder of the kind illustrated in Figs. 1 to 3 wherein the transverse rods 18 and 19 are formed by the lower and upper sections of rectangular wire loops 110 welded to the upright rods 12a and 13a of the handle portions 14 and 15. Thus, the rectangular loops 110 at each end of the holder provide supports for articles adapted to be held in place on the holder by means of tapes 111 embracing the loops and articles. Fig. 17 illustrates articles taped in position on this type of support.

The holder of the present invention can be used to hold articles for display purposes or during storage but can be used to particular advantage for transporting containers to a place where they are to be filled and the filled containers to the place where they are to be sold. For example, the holder may serve as a carrier for empty milk containers from the place where they are manu-

factured to the dairy as well as from the dairy to the store where the milk is to be sold. When so used the empty containers are mounted on the trays 11 of the holders at the place of manufacture and the trays are so dimensioned that the upwardly projecting portion 31a of peripheral flange 31 engages the sides of the containers to retain them tightly engaged with each other on the tray. The loaded holders may be easily lifted manually by means of the loop handles 14 and 15 at each end and the loaded holders may be stacked one on the other as previously explained. When so stacked, the depending portion 31b of the peripheral flange 31 overlies the sides of the containers on the next lowermost holder to retain their upper ends tightly engaged to prevent excessive rubbing. When holders of the kind illustrated in Figs. 10 to 14 are used, the milk containers A are held in position on the flat tray 61 or 83 by the side rails 80 or 100 and 101. At the dairy the containers may be removed from the holders for filling or they may be filled while still mounted on the tray. In either case the holders facilitate handling and reduce the time and manual labor required.

The filled milk containers are transported by truck or other vehicle in the same holders arranged one over the other in stacks. The interengagement of the transverse rods 18 and 19 on adjacent holders supports them one over the other in a stack and the interlocking engagement of the rods 18 and 19 with handles 14 and 15 provides a rigid support at each end of the stack. The containers A on any particular holder are arranged in closely adjacent side by side relationship and held by the upstanding and depending portions 31a and 31b of the peripheral flange 31 of supporting tray 11, upstanding flange 64 of tray 60 or by side rails 80 or 100 and 101 on their supporting tray 11, 81, or 103. When the milk is delivered from house to house the containers are dispensed from the holders which may be easily and quickly lifted from the stack when empty. When the containers of milk are delivered to a store where they are to be sold, they are again transported on the holders and may be arranged in stacks.

One of the principal features of the present invention is the low cost construction of the holders which renders it economically feasible to dispose of the holders after the articles have been delivered to their point of destination. In other words, the cost of the holder is less than the cost of handling and transporting the holders back to the dairy. Thus, when the milk containers A are delivered to a store, the empty holders may be flattened out and sold for scrap.

While several embodiments of the invention are herein illustrated and described, it will be understood that further modifications may be made in the construction and arrangement of the parts without departing from the spirit or scope of the invention. For example, any of the holders illustrated in the drawing may be used with or without a tray depending upon the type of article to be held. Therefore, without limitation in this respect the invention is defined by the following claims.

I claim:

1. A frame of a stack of generally U-shaped wire frames having upright ends adapted to interlock one with the other to provide a rigid upright structure at the ends of the stacked frames, each frame comprising spaced longitudinally extending beams with upright extensions at each end, the upper ends of the spaced extensions at each end of each frame having a width to adapt its upper ends to fit between the lower ends of the upright extensions of an upper frame between the beams, a pair of transverse struts extending between the spaced extensions at each end of the frame and located below the top and above the bottom of the extensions, respectively, the lower strut of each frame of a stack being located on the outside of the frame to rest on an upper strut of a lower frame and support the upright end of the upper

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frame, the ends of the extensions of each lower frame projecting upwardly beyond the lower strut of an upper frame to interlock with one side thereof to hold the upright extension of the lower frame from lateral movement in one direction, and the ends of the upper strut of each lower frame projecting beyond and overlying the upright extension of the upper frame to interlock therewith to prevent lateral movement of the upright extension of the lower frame in the opposite direction.

2. A frame in accordance with claim 1 in which the upright extensions on each end of the frame are joined to form a handle loop and the extensions being inclined toward the top to adapt a plurality of said frames to be stacked with the upper ends of the handle loops of each frame telescoping into the open lower ends of the extensions of an upper frame, and the inclination of the upright extensions being so dimensioned as to position the sides of the telescoping extensions closely adjacent the extensions of an upper frame into which it telescopes.

3. A frame in accordance with claim 1 in which an article supporting tray is mounted on the frame and having a bottom wall resting on the spaced longitudinally extending beams and a peripheral flange on its edge for holding articles on the tray.

4. A stack of frames in accordance with claim 1 in which an article supporting tray is mounted on each frame and having a bottom wall resting on the spaced

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longitudinal beams and a peripheral flange projecting above and depending below the bottom wall to hold the lower ends of articles mounted thereon and the top of articles on the next lowermost frame of a stack.

5. A frame in accordance with claim 1 in which an article supporting tray is mounted on the spaced longitudinally extending beams, said tray having a bottom wall and a peripheral flange, and said tray having slots in its bottom wall adjacent the peripheral flange at each end through which the upright extensions project.

6. A frame in accordance with claim 1 in which the ends of the lower transverse struts extends beyond the sides of the upright extensions and are bent downwardly to provide feet for holding the parallel beam sections above the floor.

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