April 18, 1961 I. B. YOUNG, JR 2,980,282

MILK CASE

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FIG. 1

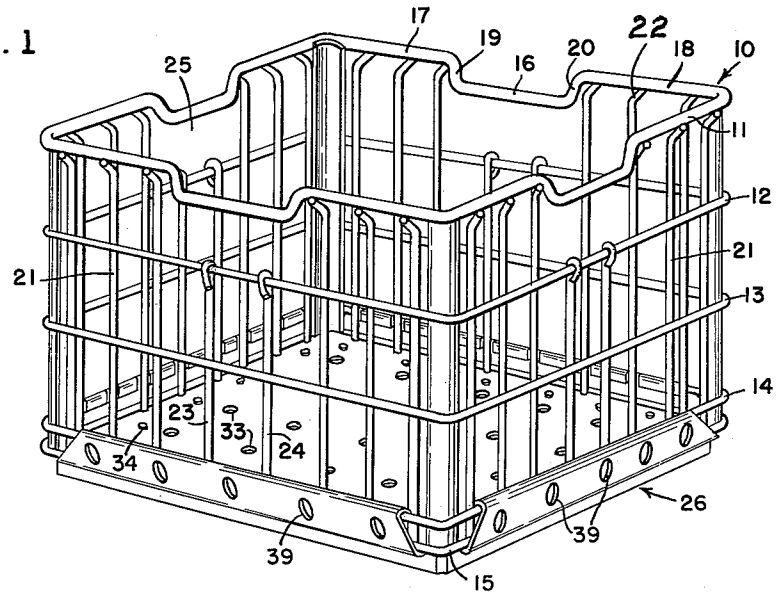
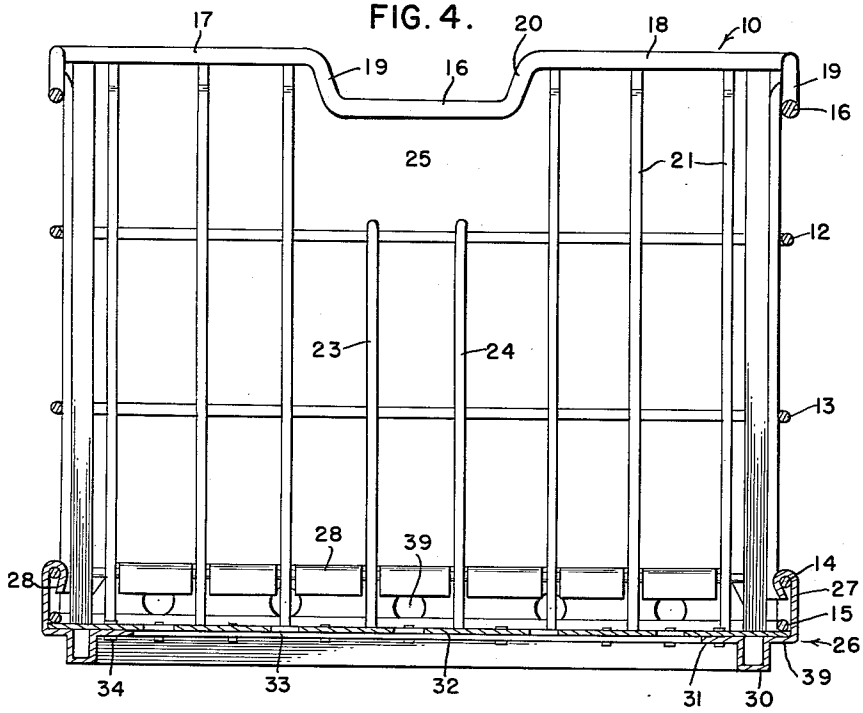


FIG. 4.



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FIG. 2.

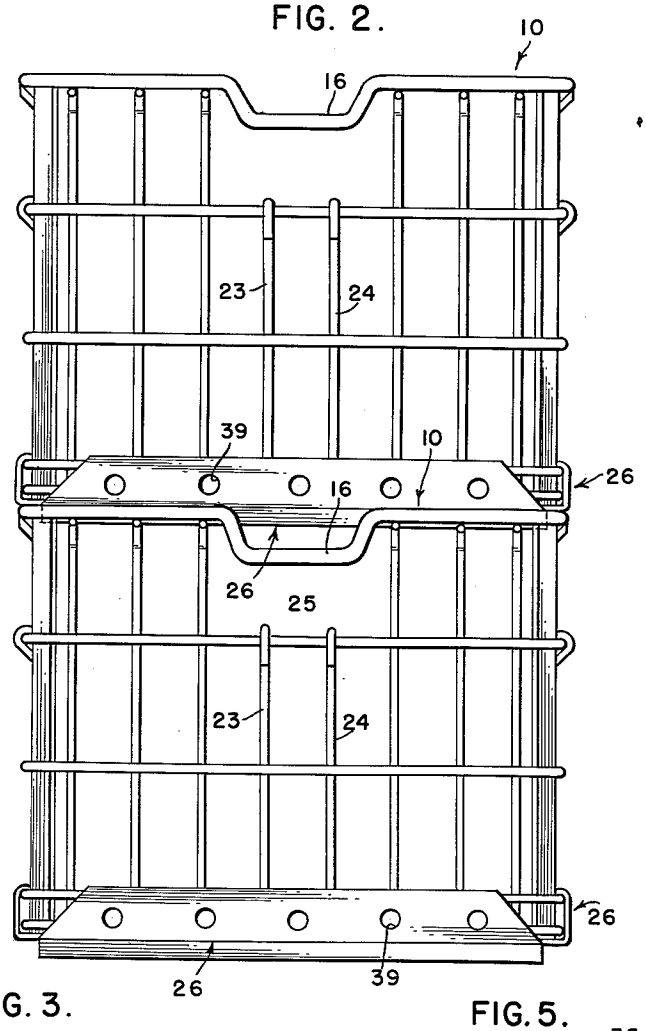


FIG. 3.

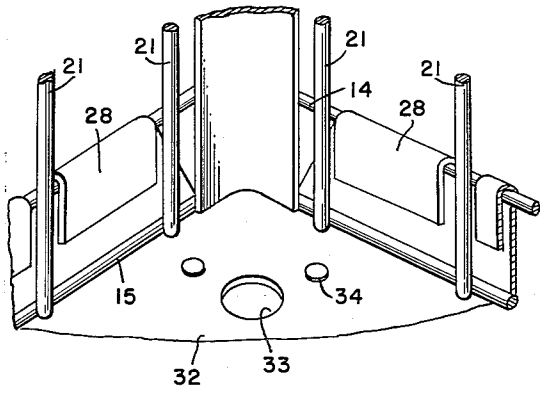
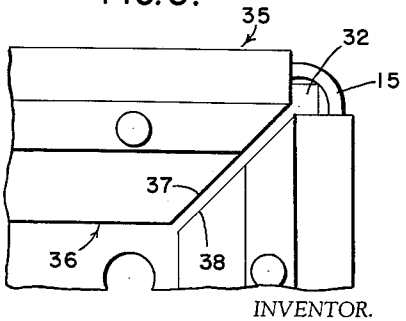


FIG. 5.



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2,980,282

Patented Apr. 18, 1961

2,980,282

MILK CASE

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Filed Mar. 13, 1957, Ser. No. 645,753

9 Claims. (Cl. 220—19)

This invention relates generally to milk cases and pertains more particularly to certain improvements therein lending the milk case to greater ease of handling both manually and in conjunction with automatic filling machines.

It is of primary concern in connection with this invention to provide an improved form of milk case which is constructed in a novel manner so as to incorporate a maximum of rigidity for the purposes intended and to incorporate certain of the component parts thereof which are most subject to wear and abuse in replaceable form so as to permit the maximum use to be obtained from the assemblies, and wherein the construction embodies other constructional features adapting it particularly for use in conjunction with automatic machines for loading milk cartons into the cases and also, wherein the construction permits stacked cases to be handled by that type of hand truck incorporating a hook element for engaging the handle portion of the lowermost case in the stack, the handle portion being so constructed and arranged so as to prevent the aforementioned hook from engaging the next uppermost case in the stack as would tend to unbalance or tip the cases above the lowermost one.

Another object of this invention is to provide an improved milk case construction embodying a plurality of vertically spaced and horizontally disposed forming ribs interconnected by series of vertical members and wherein the case is provided with a bottom of perforated sheet-like construction held in place by a series of combined runner and bumper members along the lower edges of the case, the combined bumper and runner members having upper marginal edge portions which are engaged over one of the forming ribs so as to form a rigid and unitary assembly and yet one which may be easily dismantled for replacement of parts.

Another object of this invention is to provide a milk case of the character described wherein the uppermost forming rib is provided with downwardly deformed hand grip portions which permit ease of handling both of individual cases and of stacked cases and which present convenient hook engageable means which are disposed below the top of the case so that a hook engaged with any of the hand portions can clear the bottom of a case stacked on top and will not interfere therewith in any way.

Still another object of this invention is to provide an improved milk case of the character described wherein the vertical members are inset inwardly from the uppermost forming rib throughout the major portion of their lengths but are flared outwardly to join with the uppermost forming rib at their upper extremities, whereby to provide a flaring mouth for the case serving to guide cartons within the confines of the case particularly when the same are being loaded by automatic machinery.

A further object of this invention is to provide an improved milk case constructed essentially from rod or wire-like members and incorporating a sheet-like bottom and having along the marginal edges of such bottom a plurality of combined bumper and runner members which

are fixedly secured to the bottom and engaged with side wall portions of the case to retain the bottom in place, the runners incorporating depending portions which are projectable into the mouth or open upper end of another case so that a plurality of the cases may be stacked one upon the other in partially nesting relationship.

The invention will be best understood from a consideration of the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended, it being understood that various changes in the form, proportions, and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

Fig. 1 is a perspective view of a milk case constructed in accordance with this invention;

Fig. 2 is a side elevational view partially broken away showing two of the milk cases constructed in accordance with this invention shown in stacked relationship;

Fig. 3 is an enlarged partial perspective view of an inner corner of the milk case;

Fig. 4 is a transverse sectional view taken through one of the milk cases and showing details of construction thereof; and

Fig. 5 is a partial bottom view showing one corner of the milk case.

Referring at this time more particularly to Fig. 1, the case in its entirety is indicated generally by the reference character **10** and will be seen to consist essentially of a plurality of wire or rod-like elements physically interconnected to form an open topped receptacle or case particularly adapted for use in connection with the reception and transportation of milk cartons or the like.

Essentially, the case is formed from a plurality of horizontally disposed, vertically spaced generally rectangular forming ribs **11**, **12**, **13**, **14** and **15**. Each of these forming ribs is preferably constructed of rod-like material and in the particular construction shown, each of such rib forms a square having rounded corner portions. The uppermost rib **11** is preferably constructed of a little heavier gauge material than are the remainder of the forming ribs since this upper rib forms the top of the case and is provided in each side thereof with a downwardly deformed handle portion, such as the handle portion **16** indicated in Fig. 1. Each handle **16** is preferably disposed in a common vertical plane with the opposite end portions **17** and **18** of the rib on the corresponding side of the case and is integrally joined with such portions **17** and **18** by the downwardly inclined rib portions **19** and **20** so that the handle portions **16** lie a substantial distance below the open upper end of the case.

As can be seen most clearly from Fig. 4, the uppermost rib **11** encompasses a larger area than do any of the other ribs **12**, **13**, **14** or **15**, the latter being of substantially identical size, the purpose of which will be presently apparent.

The ribs **11–15** inclusive are rigidly joined together by means of a series of vertical rod members **21** which are spot welded or otherwise rigidly secured thereto to form a rigid open framework and it is to be noted that in view of the fact that the uppermost rib **11** is larger than the remaining ribs, the upper extremities **22** of the vertical members must be laterally offset to join with and be rigidly secured to the uppermost rib **11**. Preferably, the upper extremities **22** of the vertical members **21** engage on the underside of the rib **11** and are secured thereto so as to present a substantially smooth upper surface for the case.

The construction of the case wherein the uppermost rib **11** is larger than the underlying ribs taken in con-

junction with the vertical wires or rods 21 having the laterally offset upper terminal portions 22, provides a guiding effect which is particularly useful when the cases are being loaded by automatic machinery. That is to say, the outwardly flared upper ends of the vertical members 21 afford an obstruction-free entrance into the case which serves to permit slight misalignment between the automatic loading machinery and the open mouth of the case when being loaded. Also, by outwardly flaring the upper ends of the vertical members 21, and securing them on the underside of the upper rib 11, no ragged wire or rod ends are presented on the inner surface of the case which might damage cardboard milk cartons.

The aforementioned vertical members 21 in all cases lie on opposite sides of associated hand grip portions 16 of the upper rib and to impart a greater rigidity to the assemblage, it is preferred that on each side of the case an additional pair of shorter vertical members 23 and 24 be provided which extend upwardly from the lowermost rib 15 to the rib 12 second from the top of the case, and which members 23 and 24 are bent around the rib 12 as indicated and rigidly secured thereto as well as the other ribs whose inner sides they contact. This affords a hand grip opening 25 in each side of the case and immediately below the hand gripping area of the upper rib 11.

A combined bumper and runner unit 26 is disposed along each lower edge of the case and each of these members, as will be seen most clearly in Fig. 4, includes a vertical side wall bumper portion 27 which extends upwardly on the outer side of the two lowermost ribs 14 and 15 and whose upper marginal edge is notched in the region of each of the vertical members to provide the individual tab elements 28 which are bent around the rib 14 and serve to hold the members 26 in place. Each member 26 also includes an inwardly directed horizontal portion 39 extending longitudinally along the lower edge of the vertical wall bumper portion 27 and joined with the inner part of this portion 29 is a depending generally U-shaped runner portion 30 and on the inner side of this runner portion a further horizontal wall portion 31. The upper surface of the two wall portions 39 and 31 are substantially coplanar and form a shelf for supporting marginal edge portions of the bottom member 32. The bottom member 32 is preferably in the form of the sheet having a plurality of openings or perforations 33 therein serving to provide ventilating means in such bottom and the inner horizontal wall portion 31 of each runner is rigidly fixed to the bottom member as, for example, by the rivets 34.

As can be seen most clearly in Fig. 5, adjacent runner members 35 and 36 as shown in that figure, are beveled as at 37 and 38 at their adjacent ends and it is to be understood that each of the runner members is separately distinct from the others and may, if necessary, be removed and replaced if damaged or worn through use, thus greatly increasing the useful life of the cases.

It is preferred that the vertical wall portions 27 of the runners be provided with aerating openings or perforations 39 similar to those provided in the bottom 32 and that the outer surface of each such vertical wall portion 27 be disposed substantially in the same vertical plane as the outer edge of the uppermost rib 11 so that when similar cases are disposed in side-by-side relationship, the vertical wall portions 27 act as bumper elements so as to prevent entanglement between adjacent cases, particularly on conveyor belt systems.

I claim:

1. A milk case for receiving a plurality of milk cartons, comprising a plurality of horizontally disposed, vertically spaced forming ribs interconnected by a series of vertical members to present a reticulated enclosing side wall for said case, the vertical members being outturned at their top ends and there joined to the underside of the topmost one of the forming ribs and thereby defining an enlarged top opening for said case, said vertical members being of wire-like form and lying on the inner sides of said forming rib and with the upper extremities thereof projecting laterally outwardly for securement to said uppermost forming rib, a perforate bottom wall for said case, and a bumper-runner unit disposed along each bottom edge of said case, said units being secured to said bottom wall and to at least one of said forming ribs to rigidly secure said bottom wall said units and said side walls together as a single unitary structure, each of said units including a vertical bumper wall portion lying along the outer side of its corresponding side of the case and having an upper marginal portion presenting a series of tabs secured around one of said forming ribs whereby to attach said units to the side wall structure, each unit also including a horizontal wall portion projecting inwardly of said forming ribs and a depending runner portion, said bottom wall marginally engaging said horizontal wall portions of said units, and means securing said bottom wall to said units whereby the units, the bottom wall and the side wall structure are rigidly but detachably interconnected as a single unitary structure.

2. The milk case as defined in and by claim 1 wherein said depending runner portions of said runner members are disposed inwardly of the corresponding sides of said case whereby a plurality of the cases may be stacked one upon the other in partially nesting relationship.

3. A case of the character described comprising a plurality of side wall forming ribs each defining a polygonal structure and said ribs being in vertically spaced relation, a plurality of vertical members on the inner sides of and joining together said ribs, and a combined runner-bumper unit extending along each bottom corner of the case and each unit comprising a longitudinal plate portion lying against adjacent sides of at least two of said side wall forming ribs and having a lower portion extending inwardly beneath the lower one of the said two ribs and a runner joined to the inwardly extending lower portion in inwardly spaced relation with the plate portion, a bottom member of the same polygonal form as said side wall forming ribs and having peripheral portions each overlying and supported upon a runner and secured thereto, and means detachably securing the longitudinal plates of said units to the adjacent side wall forming ribs.

4. The invention according to claim 3, wherein each of said runners is of channel form and has one side joined to the inwardly extending lower portion of the adjacent longitudinal plate and a horizontal wall portion joined to and extending inwardly from the other side of the runner channel and secured to the bottom member.

5. The invention according to claim 3, wherein the said peripheral portions of the bottom member are in edge abutment with the adjacent longitudinal plates and lie between the bottommost forming rib and the said inwardly extending lower portion of the plate.

6. The invention according to claim 3, wherein said runner-bumper units are separate and independent from one another and said last means comprises integral tabs carried by the top edges of the plates and engaged over an adjacent forming rib.

7. The invention according to claim 3, wherein said forming ribs are fashioned of wire-like material, the topmost rib being of a materially heavier gauge than the ribs therebelow, the inner sides of all of the ribs being in the same vertical plane whereby the outer sides of the topmost rib project beyond the outer sides of the ribs therebelow, and said vertical members also being formed of wire-like material and having short outturned tip portions at their upper ends terminating below and rigidly secured to the underside of the topmost forming rib.

8. The invention according to claim 7, wherein each of said longitudinal plates lies in a vertical plane paralleling the adjacent side of the case with its outer side substantially in the plane of the adjacent outer side of the topmost rib.

9. A milk case for receiving a plurality of milk receptacles, comprising a plurality of horizontally disposed vertically spaced side wall forming ribs interconnected by a series of straight vertical members joined at their bottom ends to and lying against the inner sides of at least two of the horizontally disposed ribs and forming with the horizontally disposed ribs reticulated side walls for said case, a bottom wall for said case, and an elongate combined bumper and runner unit of angular cross sectional form extending along each bottom corner of the case and receiving such corner in the angle thereof whereby one leg of the unit overlies the outer sides of horizontally disposed ribs forming a portion of the adjacent side wall and is secured thereto and the other leg lies beneath a portion of the bottom wall, the unit including as an integral part thereof a hollow channel-like runner extending longitudinally of and projecting downwardly from the under face of said other leg.

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