

June 7, 1966

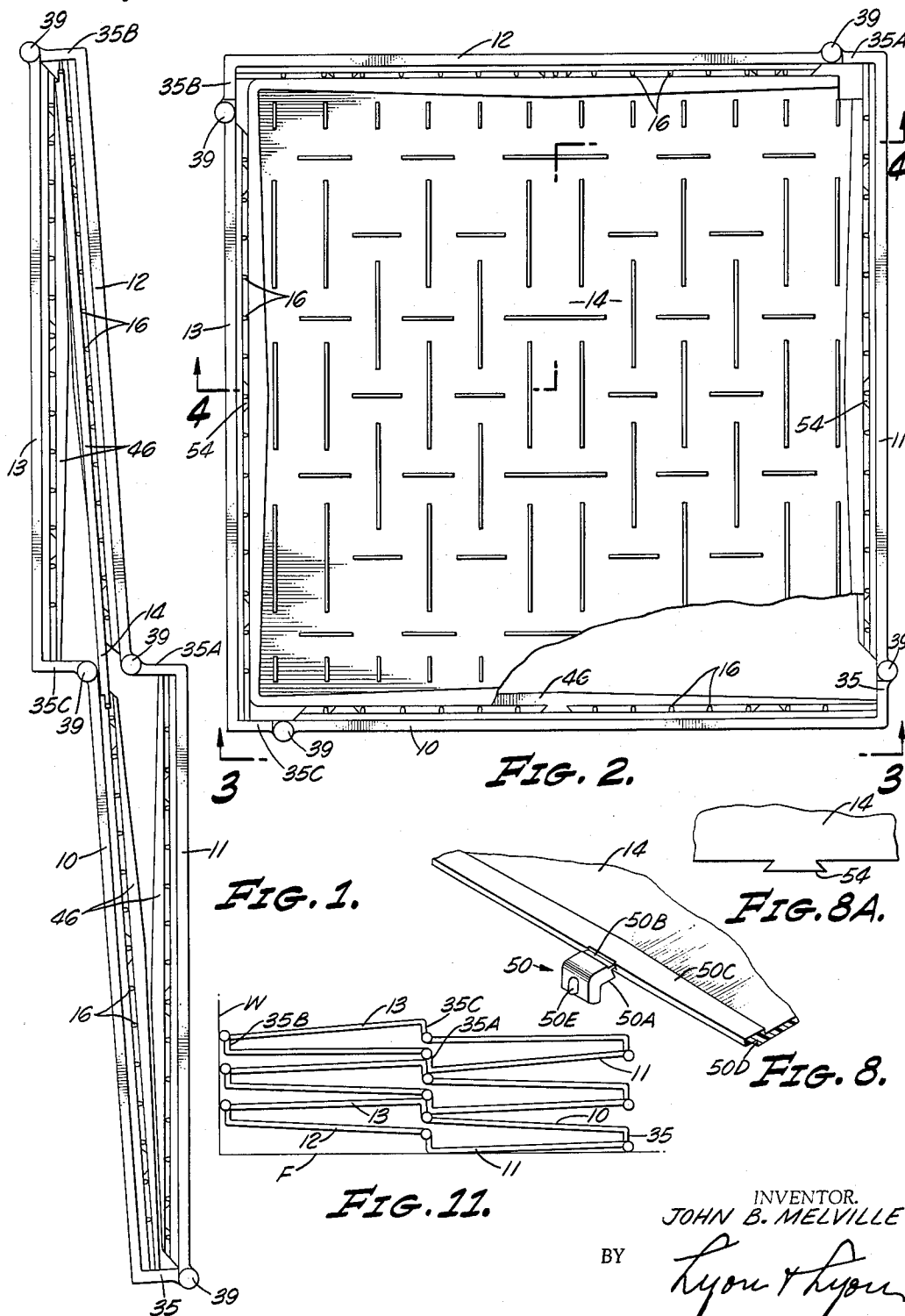
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3,254,786

FOLDING CARRYING CASE

Filed April 29, 1964

3 Sheets-Sheet 1



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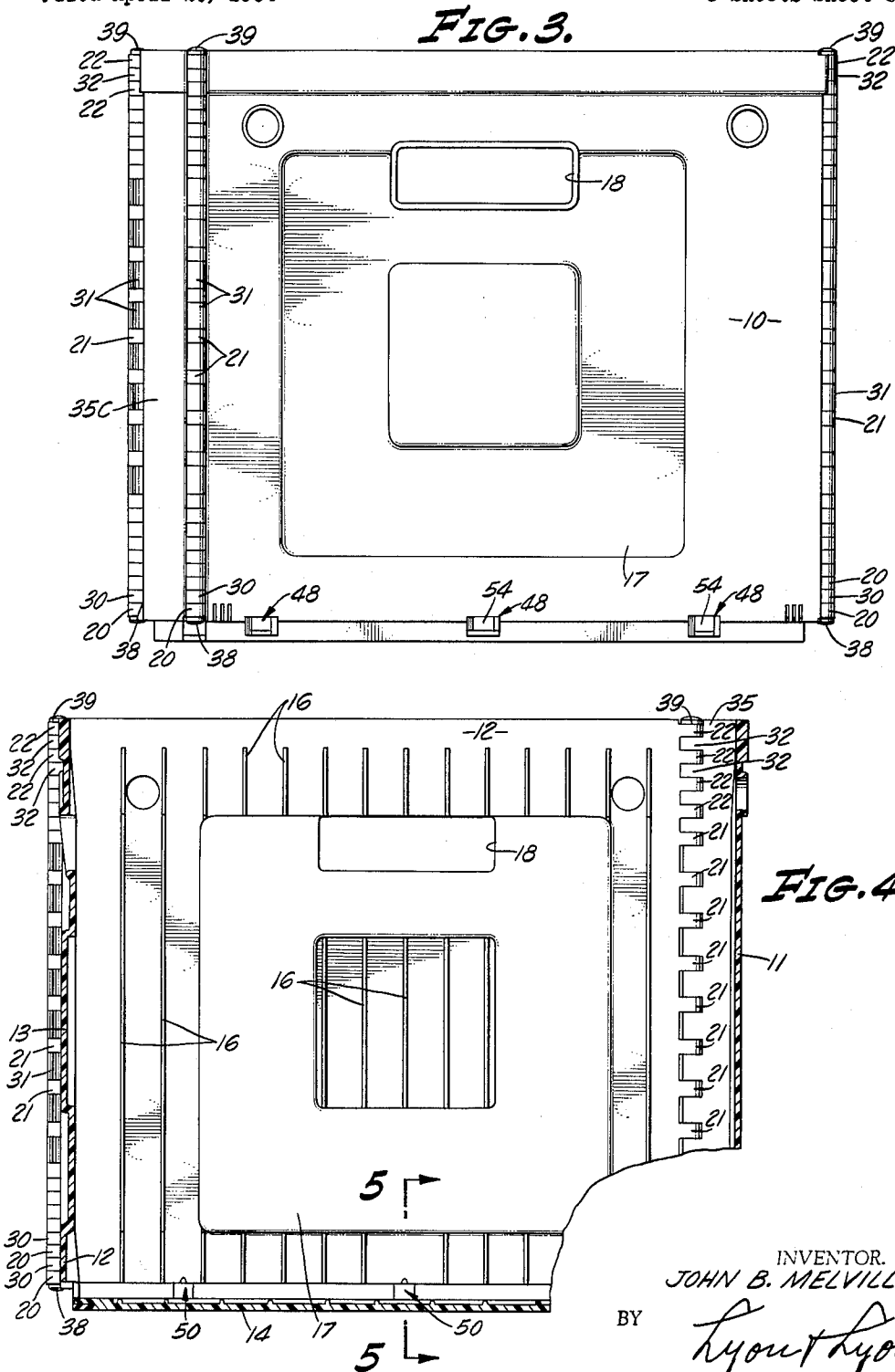
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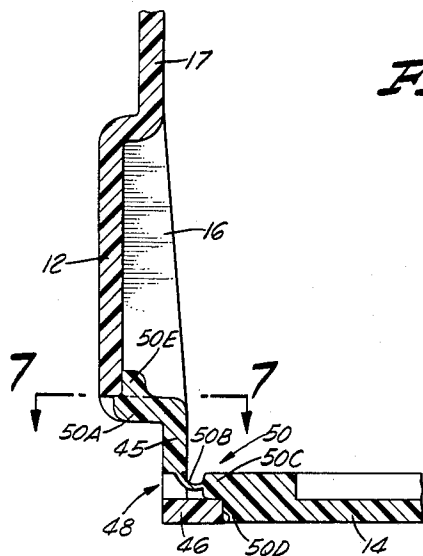


FIG. 5.

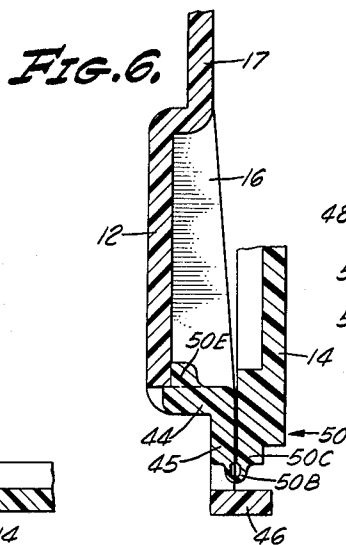


FIG. 6.

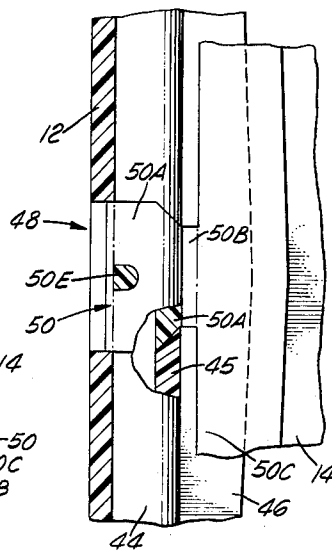


FIG. 7.

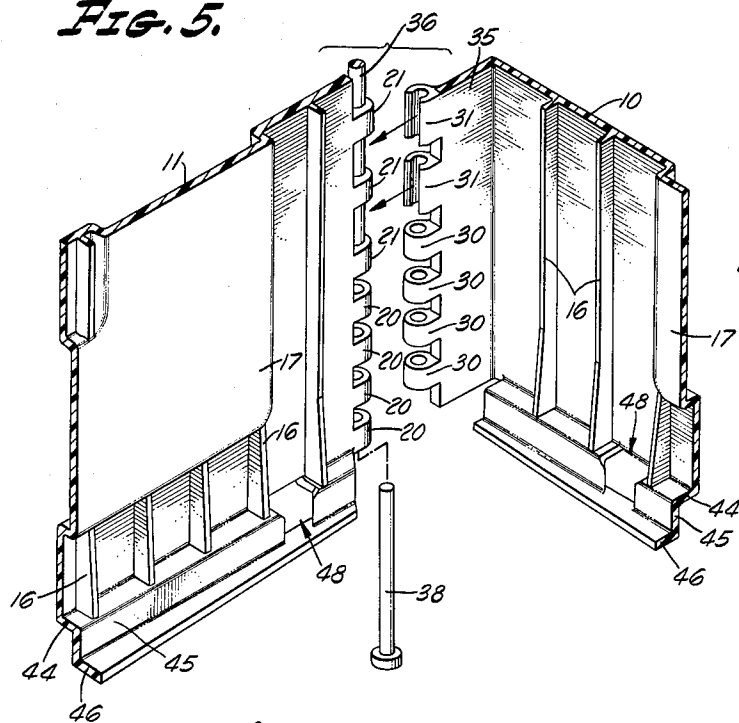


FIG. 9

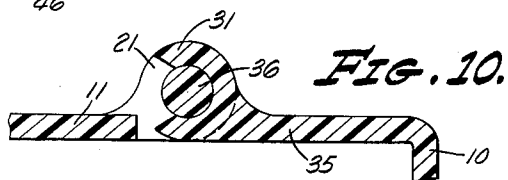


FIG. 10.

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1

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FOLDING CARRYING CASE

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5 Claims. (Cl. 220-6)

The present invention relates to collapsible carrier case constructions.

An important feature of the present invention is to provide constructional features that result in the collapsed case being substantially flat for stacking many like collapsed cases one on top of the other to facilitate storage and handling of the same. Such constructional features involve the use of four side wall members, each being generally L-shaped with a hinge structure interconnecting a shortened base leg of one L-shaped wall member with a longer leg of the adjacent L-shaped wall member. This construction not only facilitates convenient storage, but also permits the use of a ledge at the bottom of each side wall member upon which a base or floor member is supported in the extended condition of the case to provide a rigid assembly in use of the case.

Briefly, in addition to the above indicated constructional features, the case described herein is a square open top box having four wall members and a bottom member or floor member. The wall members are each of identical construction with cooperating hinge portions between adjacent end portions thereof, as indicated above. The bottom member or floor member is, in general, a square plate with three integrally formed hinge members spaced along one edge of the plate and insertable into and maintainable within cooperating cavity portions of any one of the selected walls upon which the plate is to be hinged; and also such plate has a lug portion on each of its three other edges insertable into a cavity portion in each of the three other wall members with the floor member resting on the ledge of each side wall member to provide a rigid construction. The case may be collapsed by first hinging the plate from the side wall on which it is hinged and then hinging the side members on each other to provide a substantially flat collapsed assembly.

An object of the present invention is to provide a case having one or more of the above indicated constructional features.

Another object of the present invention is to provide a case substantially entirely of plastic material such as, for example, polypropylene.

Another feature of the present invention is to provide a case wherein a hinge for these purposes is entirely of plastic material.

Another object of the present invention is to provide a construction wherein the parts are interchangeable with a choice as to which side member the floor member is hinged.

Another object of the present invention is to provide a case which may be quickly and easily assembled for repair or in original assembly.

Another object of the present invention is to provide a foldable case which in its expanded or used condition is strong and sturdy with all parts thereof securely interlocked yet easily interlocked for collapsing the case for storage, handling and other purposes.

Another object of the present invention is to provide a foldable carrier case having unique constructional features.

The features of the present invention which are believed to be novel are set forth with particularly in the appended claims. This invention itself, both as to its

2

organization and manner of operation, together with further objects and advantages thereof, may be best understood by reference to the following description taken in connection with the accompanying drawings in which:

FIG. 1 is a top plan view showing the carrier case in its folded or collapsed condition.

FIG. 2 is a top plan view of the same in its open condition or used condition.

FIGS. 3 and 4 are sectional views taken substantially on corresponding lines 3-3 and 4-4 in FIG. 2.

FIG. 5 is a sectional view taken substantially on line 5-5 of FIG. 4.

FIG. 6 is a view like FIG. 5 with the bottom or floor member in its folded condition.

FIG. 7 is a sectional view taken substantially on line 7-7 of FIG. 5.

FIG. 8 is a perspective view illustrating details of the construction of the floor or bottom member.

FIG. 8A illustrates the integrally formed tongue which is centrally located on three of the bottom member edges.

FIG. 9 is a perspective view illustrating the manner in which the wall members are hinged with certain elements being shown in detached relation.

FIG. 10 is a sectional view illustrating a detail of the side wall hinge.

FIG. 11 illustrates three of the cases stacked against a wall.

Each wall member is of identical construction, i.e., interchangeable with each other, and these are indicated by the numerals 10, 11, 12 and 13. The floor or bottom member, in general, in the form of a square plate is designated by the numeral 14.

Each of the side members is a molded plastic element formed with internally ribbed portions 16 and embossed portions 17 for strength and may also be provided with a hand hole 18 for convenience in handling or carrying.

One end of each side member is formed with a series of spaced rounded and apertured lug portions used as hinge elements, such series as illustrated includes: a first group of four closely spaced hinge elements 20 near the bottom; a second intermediate group of eight more widely spaced hinge elements 21; and a third group of four closely spaced hinge elements 22 (FIG. 4) near the top. These hinge elements 20, 21, 22 are spaced to have interleaved between the same corresponding hinge elements 30, 31, 32 formed on the end of the right angle extension 35 of the other end of a like side member, as indicated in FIG. 9. It is noted that a pin 36 extends and is maintained in the aligned apertured portions of the intermediate group of hinge elements 21 and that the corresponding hinge elements 31 are each grooved to provide in effect spring fingers which are pressable, as indicated by the arrows in FIG. 9, over the pin 36 to provide the assembly indicated in FIG. 10 to facilitate initial assembly and alignment. After the wall elements 10 and 11 are thus aligned, two additional pins, namely the lower hinge pin 38 and the upper hinge pin 39 (FIG. 4), are inserted and maintained between correspondingly the lower group 20, 30 and upper group 22, 32 of hinge elements.

Each side member is formed with a lower base portion defined, as seen in FIG. 9, by an upper ledge 44, a lower ledge 46 and a wall 45 interconnecting such ledges; and within each base portion there are three apertured portions 48 formed generally in the ledge 44 and wall 45 to receive tongue elements integrally formed with the bottom member 12 as described later to provide one element of a type of tongue and groove connection between the bottom member and side walls.

The floor or bottom member 14 is also of plastic material, is square and has three integrally formed hinge elements 50 spaced along only one edge thereof, each of which has a tapered tongue portion snugly receivable in the previously mentioned apertured or tapered grooves 48 in one of the side members.

This hinge element 50 is of special construction in that it involves a thin integrally formed flexible strip 50B which interconnects the tongue portion 50A to an edge of an integrally formed strip 50C along one edge of bottom member 16, the strip 50 defining a shouldered portion 50D which in assembly, as seen in FIG. 5, rests on the side ledge 46 with a raised projection or bead 50E on the tongue member 50A abutting the inner wall of the side 12.

As illustrated in FIG. 8A, the bottom member 14 is also formed with a tapered tongue member 54 along each of its other three edges (excluding the edge on which the hinge elements 50 are formed) to cooperate with the central one of the three tapered grooved portions 48 in side members 10, 11 and 13 to thereby provide a rigid construction in the open condition of the box or case.

To collapse the box or case to achieve the condition shown in FIG. 1, a person initially using his finger extends it through one of the case openings 48 to raise the tapered lugs or tongues 54 out of the tapered wall openings 48 after which the bottom member is pivoted further at hinge 50 to the condition shown in FIG. 6 after which the side walls are pivoted and collapsed inwardly.

Instead of the bottom of the case being a single piece, the same may be of two parts with such parts being hinged on lower edge portions of opposite sides, this two part bottom construction being particularly advantageous in large size cases.

While the case is particularly useful for milk cartons, the same may, of course, be used for other purposes. For example, the same may be provided with dividers which compartmentize the interior of the case as, for example, for storage and carrying of eggs.

One important constructional feature involves the offset hinge construction effected by the right angle extensions 35, 35A, 35B, 35C which in the collapsed condition of the case results in the planes of the wall members 11 and 13 being substantially parallel with the intermediate portions 35A, 35C defining what may be termed hook portions for convenient stacking on a floor F or against a wall W or in a corner, it being noted that hooked portions 35A, 35C of adjacent cases then abut at a central portion of each case to more firmly maintain a pile of stacked cases than would otherwise be the case.

While the particular embodiments of the present invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from this invention in its broader aspects and, therefore, the aim in the appended

claims is to cover all such changes and modifications as fall within the true spirit and scope of this invention.

I claim:

1. A collapsible case having four side wall members, each of said members being generally L-shaped with one portion extending generally perpendicular to the other portion thereof, hinge means interconnecting an end of said one portion of one of said wall members to an end of said other portion of an adjacent wall member, each of said wall members having an inwardly extending ledge portion, a floor member, means incorporating cooperating readily connectable and disconnectable portions of said floor member and one of said wall members and pivotally supporting said floor member on one of said wall members, said floor member resting on the ledge portion of each wall member in the extended condition of the case, said one portion being sufficiently prolonged a distance greater than twice the width of said ledge portion to provide a substantially flat case assembly in its collapsed condition without interference from said ledge portions.

2. A case as set forth in claim 1 in which the last-mentioned means includes a projecting portion of said bottom member engaging an apertured portion of said one side member.

3. A case as set forth in claim 2 in which said projecting portion is a tapered element cooperating with said apertured portion which is tapered to receive the same.

4. A case as set forth in claim 1 in which said hinge means includes integrally formed and spaced apertured lug portions with the lug portions on adjacent wall members being interleaved, a pin extending through aligned apertured portions of the lug members of one of said adjacent members, the lug members of the other adjacent member being slotted to form spaced portions thereof which are resilient and which may be pressed over said pin.

5. A pair of collapsed cases as set forth in claim 1 in which said one portion of one of said cases is in the form of a hooked portion engageable by one said portion of the other of said cases which is also in the form of a hooked portion.

References Cited by the Examiner

UNITED STATES PATENTS

2,550,088	4/1951	Sayer	220—6
2,746,081	5/1956	Gershen	220—31
2,797,840	7/1957	Gibbs	220—31
3,164,281	1/1965	Williams	217—14

FOREIGN PATENTS

1,022,345	12/1952	France.
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