

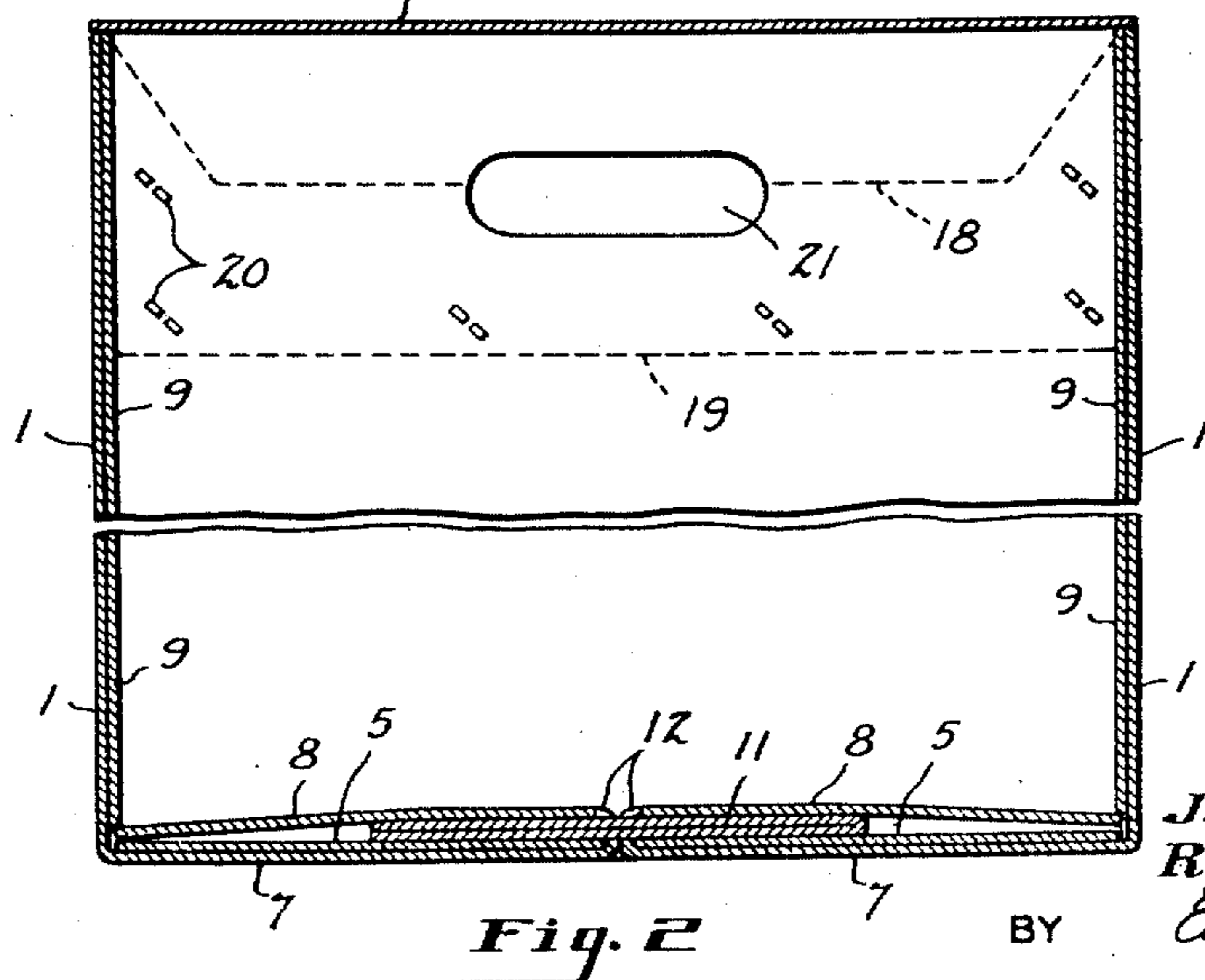
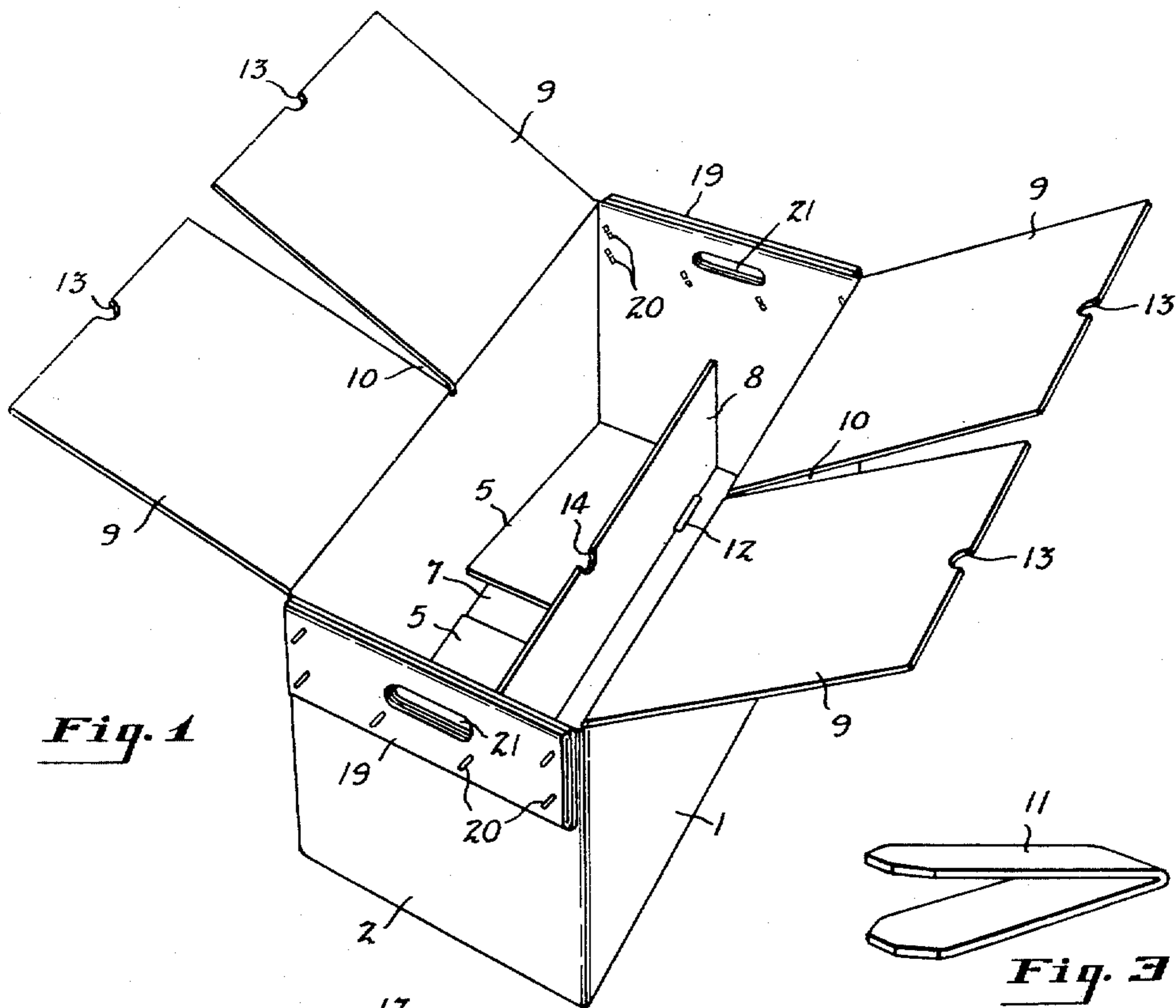
Feb. 6, 1951

J. H. CASSIDY ET AL
CONTAINER BOTTOM STRUCTURE

2,540,712

Original Filed May 18, 1943

2 Sheets-Sheet 1



INVENTORS
John H. Cassidy
Reed M. Grunden
BY Evans & Mc Coy
ATTORNEYS

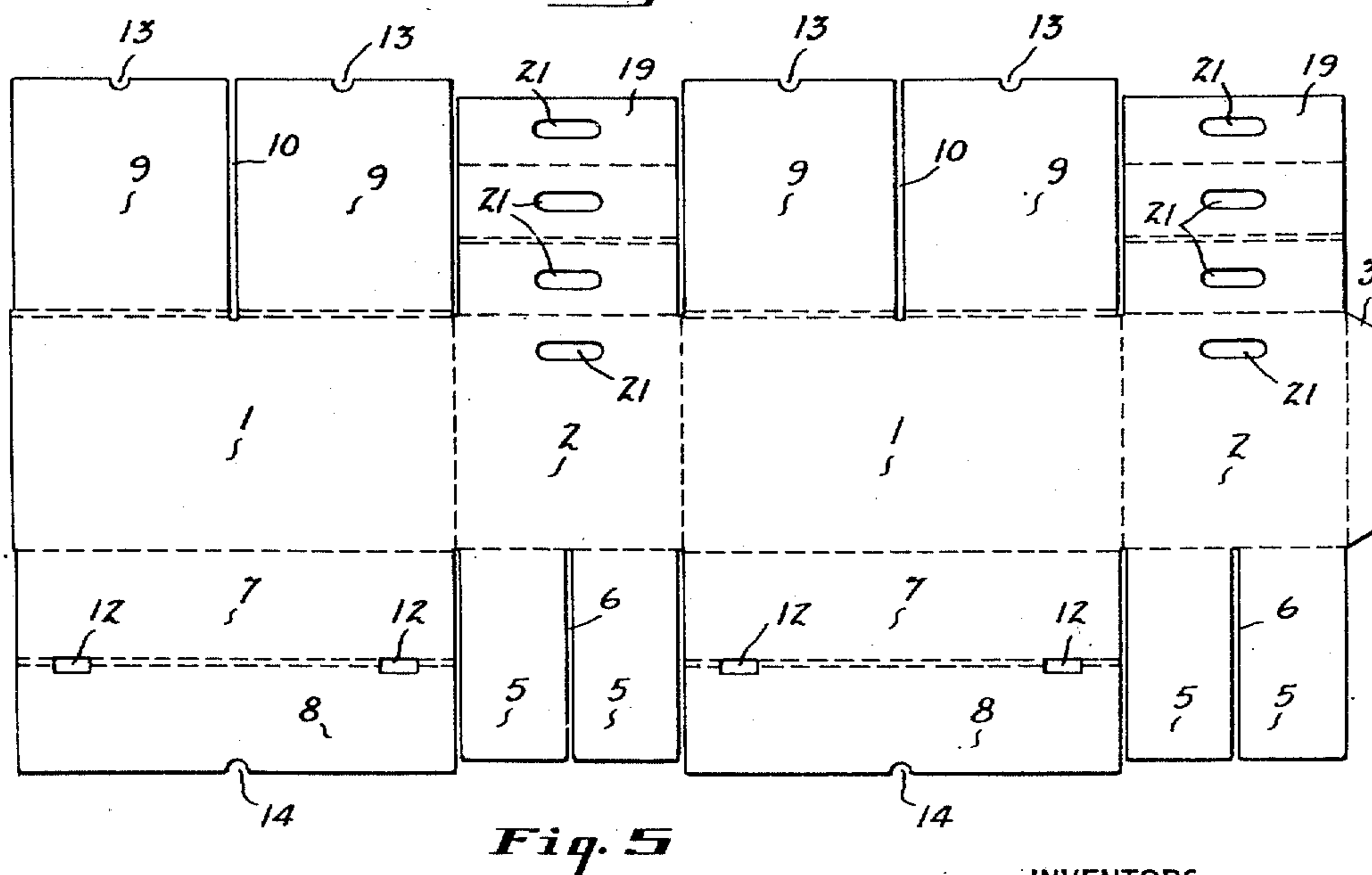
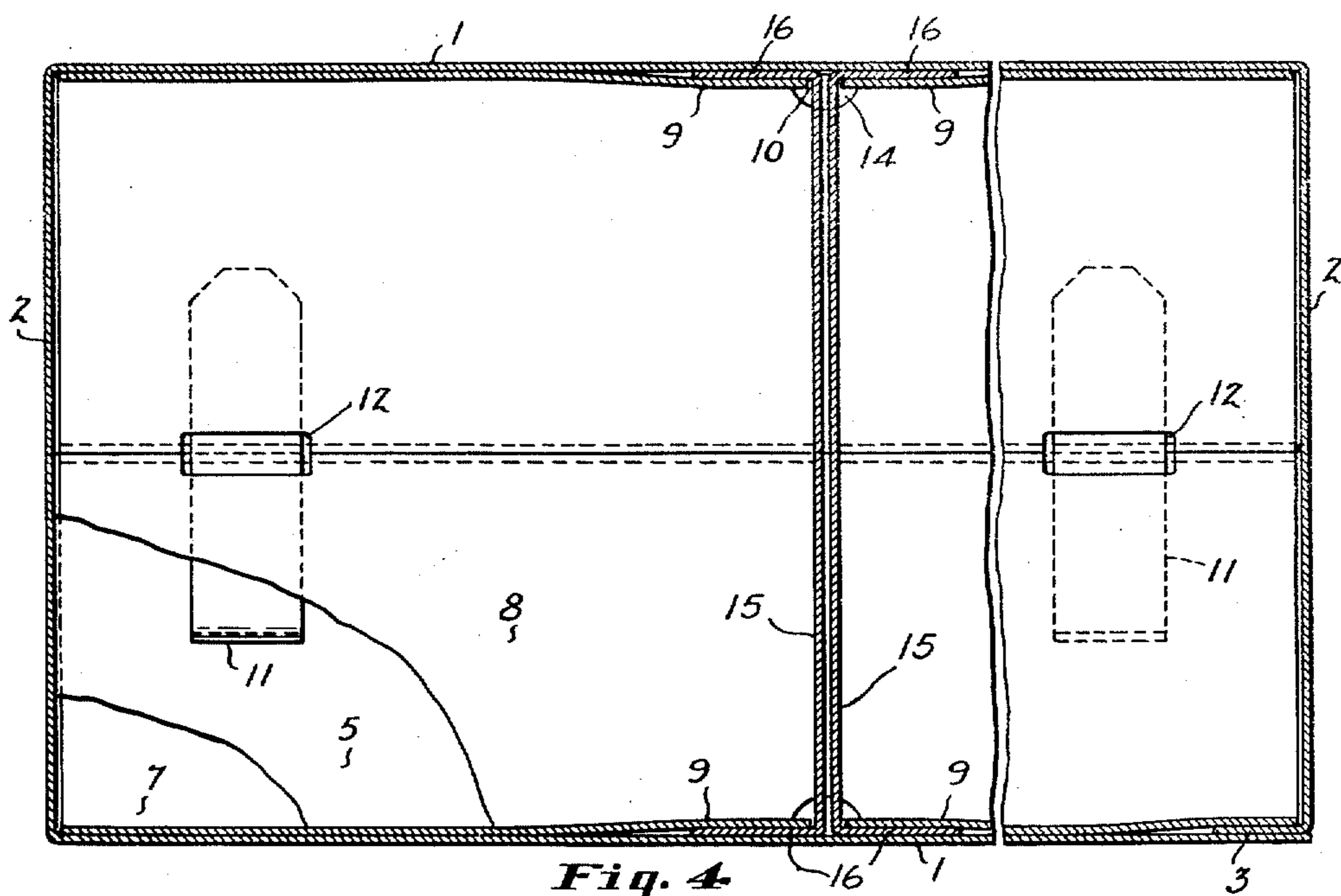
Feb. 6, 1951

J. H. CASSIDY ET AL
CONTAINER BOTTOM STRUCTURE

2,540,712

Original Filed May 18, 1943

2 Sheets-Sheet 2



INVENTORS
John H. Cassidy
Reed M. Grunden
BY *Evans & McCoy*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,540,712

CONTAINER BOTTOM STRUCTURE

John H. Cassidy, Sandusky, Ohio, and Reed M. Grunden, Erie, Pa., assignors to The Hinde & Dauch Company, Sandusky, Ohio, a corporation of Ohio

Original application May 18, 1943, Serial No. 487,472. Divided and this application July 28, 1948, Serial No. 41,144

3 Claims. (Cl. 229—39)

1

This invention relates to containers constructed of sheet material such as paperboard and particularly to a bottom structure suitable for a collapsible container, this application being a division of our copending application Serial No. 487,472, filed May 18, 1943, Patent No. 2,450,419, October 5, 1948.

The present invention has for an object to provide a bottom so constructed as to hold the upright walls of the container square and effectively distribute loads imposed upon the bottom to the side walls.

A further object is to provide a foldable bottom structure having separate portions integral with each of the side and end walls and locked together in such manner as to provide a rigid bottom structure.

With the above and other objects in view the invention may be said to comprise the container bottom as shown in the accompanying drawings and hereinafter described, together with such variations and modifications thereof as will be apparent to one skilled in the art to which the invention pertains.

Reference should be had to the accompanying drawings forming a part of this specification in which:

Figure 1 is a perspective view of a container embodying the invention;

Fig. 2 is a transverse vertical section through the container;

Fig. 3 is a perspective view of one of the bottom locking keys;

Fig. 4 is a horizontal section through the container looking toward the bottom; and

Fig. 5 is a plan view of the blank from which the box is made.

In the accompanying drawings the invention is shown applied to an elongated two-compartment egg case which has side walls 1 and end walls 2. The container is formed of a suitable sheet material, such as corrugated paperboard, and the side and end walls are preferably made in one piece, the side walls being integral with the end walls at three corners of the container. At the fourth corner a side edge of an end wall 2 is provided with a flange 3 (see Figures 4 and 5) which is secured interiorly to the end of the contiguous side wall 1 by suitable means. The end walls 2 have full width extensions hinged to the bottom edges thereof, each consisting of two supporting flaps 5, preferably of equal width separated by a narrow slot 6 extending from the free edge of the extension to the hinge line parallel with the outer edges of the flaps 5. Each of the

2

side walls 1 has a foldable extension 7 forming a bottom section that is hinged to the bottom edge of the side wall and extends the full length of said bottom edge. The outer half of each of the bottom sections 7 is in the form of a flap 8 which is hingedly connected to the inner body portion of the bottom section 7 and adapted to be folded back upon the upper side of said inner body portion. The bottom sections 7 are adapted to be swung to horizontal position between the side walls, and the flaps 8 are adapted to be inserted through the slots 6 between the flaps 5 and to be folded back upon the top faces of the flaps to bring their free edges contiguous to the side walls 1 where they are held by material within the container or by other means if desired.

The side walls 1 each have two flaps 9 hinged to their top edges and separated by narrow slots 10 between the ends of the side walls. The flaps 9 are adapted to be swung inwardly against the interior faces of the side walls 1 and are of a length such that their free edges have frictional engagement with the upper faces of the flaps 8 adjacent the side walls which serve to hold the flaps 9 against the inner faces of the side walls. The interior side wall flaps 9 stiffen the side walls and may also serve to hold the bottom flaps 8 down against the top faces of the supporting flaps 5.

The foldable bottom sections 7 are of a width such that their edge creases abut along the longitudinal center line of the container and the foldable bottom sections and supporting flaps provide a bottom of triple thickness joined to each of the upright walls. Since the bottom is formed by sections that abut along the longitudinal center line, it is desirable that stiffening means be provided intermediate the end walls to resist relative endwise movements of the bottom sections which would create shearing stresses on the end walls, and to resist forces tending to cause relative vertical movements of the bottom sections which would put heavy strain on the hinge connections between the end walls and the supporting flaps. As shown in Figs. 2, 3 and 4, the bottom stiffening means comprises suitable flat keys 11 which are inserted through registering slots 12 in the longitudinal creases of the bottom sections 7 which abut in the slots 6. The keys 11, which may each be in the form of a flat paperboard strip folded upon itself to provide a stiffening member of adequate rigidity, are inserted through the slots 12 after the flaps 8 have been inserted through the slots 6 and before the flaps 8 have been bent back to horizontal position, the

3

keys 11 lying upon the top faces of the flaps 5 and beneath the flaps 8 when the flaps 8 have been folded down. The keys 11 because of their fit in the registering slots 12 of the two bottom sections resist relative endwise movements of the bottom sections, and by reason of the fact that they bridge the joint between the bottom sections inwardly of the end walls 2, they resist relative vertical movements of the bottom sections. The container bottom stiffened by means such as the keys 11 holds the container square and effectively distributes the load imposed upon the bottom to the upright walls of the container.

As herein shown the body of the container is of knockdown construction and formed of a single flat blank of sheet material as shown in Fig. 5. After the upright walls 1 and 2 have been joined by attaching the flange 3 to a side wall 1, the bottom of the container may be assembled by first swinging the supporting flaps 5 to horizontal position, then inserting the flaps 8 of the bottom sections through the slots 6, inserting the keys 11 in the slots 12 to hold the body portions of the bottom sections against the under faces of the flaps, after which the flaps 8 may be folded back upon the top faces of the flaps 5 and the interior side wall flaps 9 folded down against the flaps 8 to hold the flaps 8 in horizontal position. To facilitate the collapsing of the container the side wall flaps 9 may be provided with finger notches 13 and the flaps 8 with similar notches 14.

As shown in Fig. 4, the container of the present invention may be provided with a partition composed of panels 15 arranged back to back and provided with edge flanges 16 that are engaged by the flaps 9 to hold the partition in place.

As shown in Fig. 1, the end walls of the container may be reinforced by folded plaits 19 in which registering hand holes 21 are formed to provide hand grips in the reinforced top edge portions of the end walls.

It is to be understood that in accordance with the provisions of the patent statutes variations and modifications of the specific devices herein shown and described may be made without departing from the spirit of the invention.

What we claim is:

1. In a container having side and end walls, a bottom structure comprising a pair of supporting flaps hinged to the bottom edge of each end wall, the flaps of each pair being spaced apart to provide a narrow slot between them, the flaps of the two pairs and the two slots being in longitudinal alinement, a foldable bottom section hinged to the bottom edge of each side wall, each of said sections having a body portion beneath alined supporting flaps, a fold portion in said slots and a flap overlying the body portion and the supporting flaps thereon, the fold portions of the two bottom sections abutting and having registering openings spaced apart and from the ends thereof, and flat transversely disposed locking and stiffen-

4

ing keys extending through said registering openings and confined between said bottom member flaps and said supporting flaps.

2. In a container having side and end walls, a bottom structure comprising a pair of supporting flaps hinged to the bottom edge of each end wall, the flaps of each pair being spaced apart to provide a narrow slot between them, the flaps of the two pairs and the two slots being in longitudinal alinement, a foldable bottom section hinged to the bottom edge of each side wall, each of said sections having a body portion beneath alined supporting flaps, a fold portion in said slots and a flap overlying the body portion and the supporting flaps thereon, the fold portion of one bottom section abutting the fold portion of the other throughout the length of said sections and said abutting fold portions having a pair of registering openings spaced from each end, and a flat transversely disposed locking and stiffening key extending through each of said pairs of registering openings, each of said keys being beneath the flap portion of a bottom section and lying upon the top faces of the flaps of one pair.

3. In a paperboard container having side and end walls, a bottom structure comprising a pair of supporting flaps integral with each end wall and hingedly connected thereto along the bottom edges thereof, the flaps of each pair being separated by a narrow slot substantially midway between the side walls, a foldable bottom section integral with each side wall and hingedly connected thereto along the lower edge thereof, each of said sections having a fold portion substantially midway between its ends and parallel to the bottom edges of the side walls providing a body portion between the fold and side wall and an end flap, each of said bottom sections being folded around adjacent supporting flaps connected to opposite end walls with the body portion thereof beneath the said supporting flaps, the fold portion thereof in the said slots and the end flaps thereof overlying the flaps and body portion, said fold portions being positioned in said slots and abutting from end to end, said fold portions having registering openings at points spaced from opposite ends thereof, and locking and stiffening keys formed of folded paperboard, said keys extending transversely through said registering openings and being confined between said end flaps and said supporting flaps.

JOHN H. CASSIDY.
REED M. GRUNDEN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,450,419	Cassidy et al.	Oct. 5, 1948