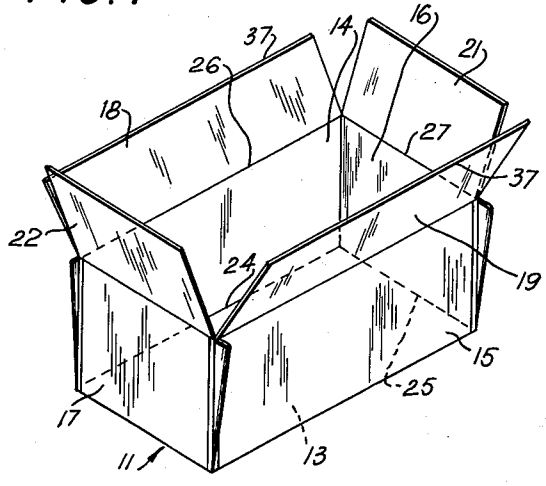
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CONTAINER CONSTRUCTION

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2 Sheets-Sheet 1

FIG. 1



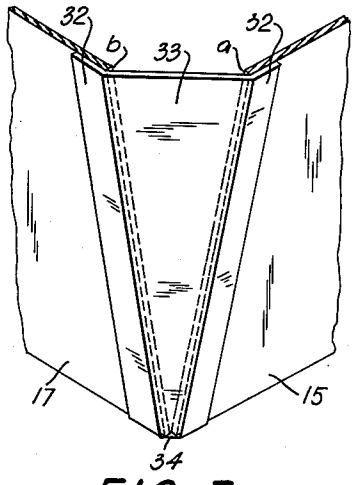


FIG. 3

FIG. 2

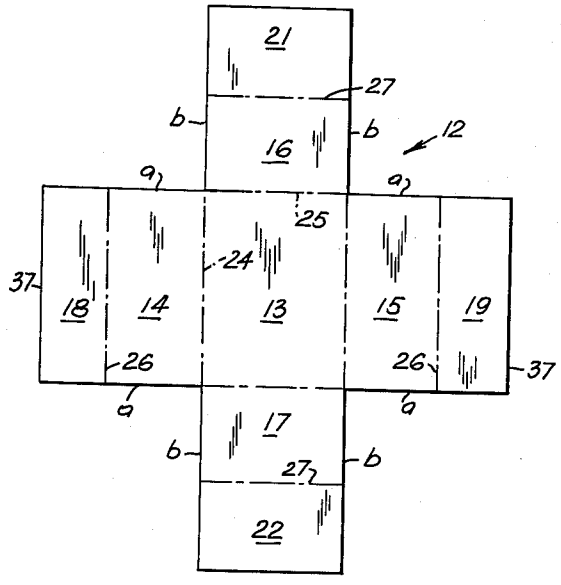
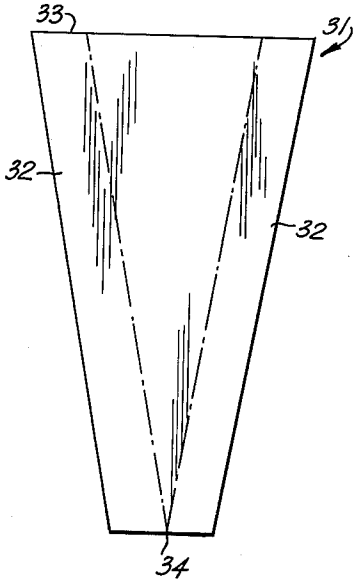


FIG. 4



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FIG. 5

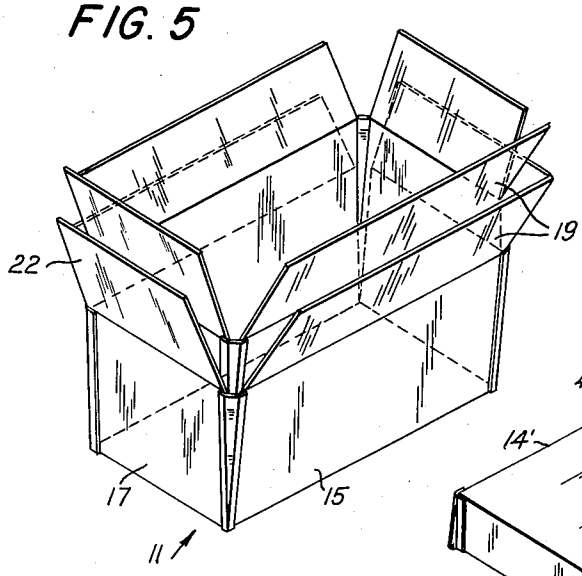


FIG. 7

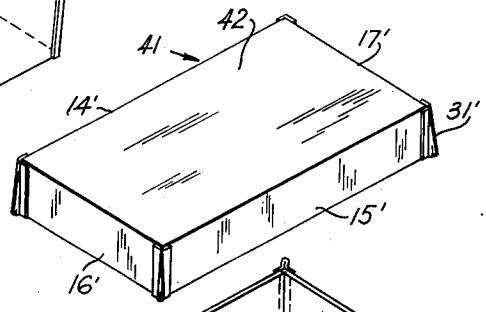


FIG. 6

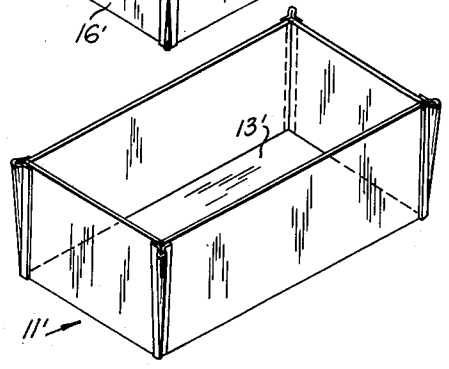
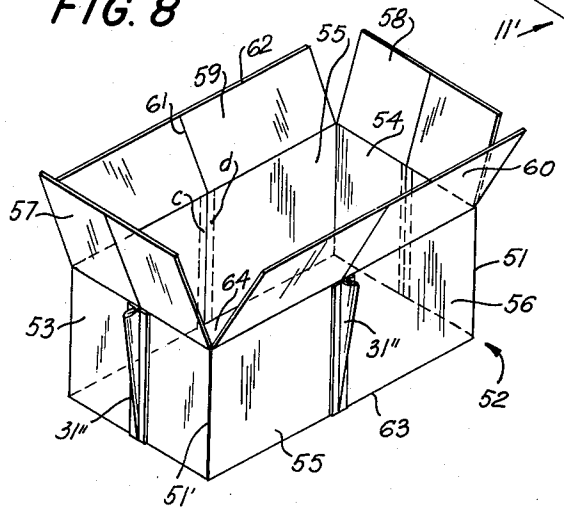


FIG. 8



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CONTAINER CONSTRUCTION

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2 Claims. (Cl. 229—31)

This invention relates to the art of containers, more particularly of the stackable type.

As conducive to an understanding of the invention, it is noted that where conventional containers, such as those formed from folded box blanks of corrugated material, with their end and side walls integrally connected at the corners, have their opposed wall surfaces in parallel relation respectively to form a parallelepiped, a plurality of such containers cannot be stacked in nested relation. Consequently, where the containers are to be re-used, they must be piled one on top of the other, occupying a great deal of storage space, and if the empty containers are to be transported from one location or factory to another for re-use, they would occupy excessive storage space if shipped in their assembled condition. Where the containers are collapsed into folded form by cutting the tape connecting the conventional bottom flaps, such operation would take considerable time, and when the containers reach their destination would require that such containers be re-formed by again taping the bottom flaps, adding greatly to the cost due to the time involved for such reassembly, and also because of the cost of the tape required to reassemble the containers.

Where the containers are originally formed with their end and side walls integrally connected and flared outwardly to facilitate stacking, since the containers could not be juxtaposed without waste of space between adjacent containers, storage and shipping space occupied by a plurality of such containers would be considerably greater than that required for containers in the form of a parallelepiped.

It is accordingly among the objects of the invention to provide a container which may readily be formed from corrugated board, for example, and which when once formed may, after the contents thereof have been removed, readily be stacked in nested relationship, while still fully formed, to facilitate storage and shipping of such empty containers in a minimum of space, and also may readily be removed from such nested relationship and closed to form a parallelepiped to minimize storage and shipping space required for filled containers, without need for reclosing the bottom of the container.

According to the invention, these objects are accomplished by the arrangement and combination of elements hereinafter described and more particularly recited in the claims.

In the accompanying drawings in which are shown one or more of various possible embodiments of the several features of the invention,

FIG. 1 is a perspective view of one embodiment of the invention,

FIG. 2 is a plan view of a blank of sheet material from which the embodiment shown in FIG. 1 is desirably formed,

FIG. 3 is a detailed perspective view of a corner of the container with the walls thereof in tapered condition to permit nesting of a plurality of empty containers,

FIG. 4 is a plan view of a connector strip to hold the corners of the container together,

FIG. 5 is a perspective view showing the containers in stacked relationship,

FIG. 6 is a perspective view of another embodiment of the container,

FIG. 7 is a perspective view of a cover to be used with the embodiment of FIG. 6, and

FIG. 8 is a perspective view of still another embodiment of the invention.

Referring now to the drawings, as shown in FIG. 1 the container **11** may be of any suitable material such as corrugated board, and is preferably made from a blank of corrugated sheet material **12** as shown in FIG. 2.

The blank **12** has a rectangular wall **13** which forms the bottom of the container; rectangular portions **14** and **15** and **16** and **17** which form the side and end walls of the containers, and rectangular closure flaps **18**, **19**, **21**, **22** extending from the side and end walls respectively and which form the top wall of the container when it is closed.

Desirably, the junctions between the bottom wall **13** and the side and end walls **14**, **15** and **16**, **17** have fold lines **24**, **25** respectively formed therein, and the junctions between the side and end walls **14**, **15**, **16**, **17** and closure flaps **18**, **19**, **21** and **22** have fold lines **26**, **27** formed therein.

In the preferred embodiment shown, the width of each of the closure flaps **18** and **19** is substantially equal to one-half the width of the bottom wall **13** for the purpose hereinafter to be described.

To form the container **11** from the blank **12**, the side and end walls **14**, **15** and **16**, **17** thereof are bent upwardly into parallel relation respectively. The adjacent edges *a*, *b* of the side and end walls **14**, **17**; **15**, **17**; **14**, **16** and **15**, **16** are connected in such manner that although securely retained together, the side and end walls may pivot outwardly slightly about the fold lines **24** and **25** respectively, so that the resultant cavity thus formed will permit stacking of a plurality of containers **11** in nested relationship as shown in FIG. 5.

In the illustrative embodiment shown, the adjacent edges *a*, *b* of the container walls are joined by an elongated flexible connector strip **31**, preferably of strong material such as fiberglass cloth or the like. The strip **31**, which illustratively is shown substantially in the form of an isosceles triangle, has its side edges **32** secured as by gluing to the adjacent edges *a*, *b* of the container walls, with the base **33** of the connector strip **31** adjacent the upper edges of the side and end walls of the container.

Desirably, the vertex **34** of the strip **31** is truncated to provide sufficient material laterally of the center line of the strip to permit secure adhesion thereof to the edges *a* and *b*.

With the construction above described, it is apparent that the spacing between the edges *a*, *b* of the side walls when the latter are moved outwardly will be substantially in the form of an isosceles triangle, and that a plurality of empty containers may be stacked in nested relationship as shown in FIG. 5 to facilitate storage, handling and shipping of the containers in such assembled condition.

To close the container shown in FIG. 1, after it has been formed it is merely necessary to bend the flaps **18**, **19**, **21**, **22** inwardly, so as to extend parallel to the bottom wall **13**, with the free edges **37** of the flaps **18**, **19** in abutment so that they may readily be secured as by length of gummed tape, for example, which desirably extends over the end walls **16**, **17**. Since the width of each of the flaps **18**, **19** is substantially half the width of the bottom wall **13**, when the flaps **18**, **19** are secured with their edges in abutment, the container will be in the form of a parallelepiped, i.e., having all of the pairs of opposed surfaces in parallel relationship.

With the container thus closed, the connector strips **31** will extend outwardly as shown, or if desired may extend inwardly into the container. By reason of the flexibility of such connector strips **31**, they will not be injured by reason of abutment thereagainst of the contents

of the container, if they extend inwardly, or by the abutment thereagainst of adjacent containers, if they extend outwardly.

As the container is in the form of a parallelepiped, a plurality of closed containers may be stacked in side by side relationship, and one on top of the other, without loss of space.

If desired, the container may be formed as shown at **11'** in FIG. 6, without the closure flaps **18, 19, 21** and **22**. The container **11'** is identical in all other respects to that shown in FIG. 1 and may be closed by a cover **41**, which is identical to the container **11'** except that the top wall **42** is slightly larger than the bottom wall **13'** of container **11'** and the side and end walls **14', 15'** and **16', 17'** are narrower in width than the corresponding walls of the container **11'**.

Since the cover **41** also has connector strips **31'** at each corner, it is apparent that both the container **11'** and covers **41** may be separately stacked in nested relationship for storage and shipping.

Since the top wall **42** of the cover **41** is slightly larger than the floor **13'** of container **11'**, the cover may readily be positioned over the container **11'** when the latter is filled, and secured in place as by taping, so that the closed container **11'** will form a parallelepiped.

In the embodiment shown in FIG. 8, the corners **51** of the container **52** are rigidly connected, and each of the end and side walls **53, 54, 55, 56** and the associated closure flap **57, 58, 59, 60** has a slit **61** which extends from the outer edge **62** of the associated flap to the fold line **63** at the bottom of the associated wall, preferably midway between the ends of each of said walls. The adjacent edges *c, d* of each slit are joined by an elongated connector strip **31''** which, as in the embodiments previously described, has its side edges secured as by gluing to the adjacent edges *c, d*.

With the construction above described, it is apparent that the spacing between the edges *c, d* of the slits **61** in the end and side walls **53, 54, 55, 56**, when the latter are moved outwardly, will be substantially in the form of an isosceles triangle, and that a plurality of empty containers may be stacked in nested relationship.

The container shown in FIG. 8 may be closed by merely bending the flaps **57, 58, 59, 60** inwardly so as to extend parallel to the bottom wall **64**, with the free edges **62** of flaps **59, 60** in abutment so that they may readily be secured as by a length of gummed tape, for example, which desirably extends over the end walls **53, 54**.

With the constructions above described, it is apparent that the containers may readily be formed from conventional material, and after being shipped to one location, and emptied, may readily be stacked, without need for collapsing the containers into flat form, and in such stacked relationship may readily be shipped to another location and repacked with only the need to close the open mouth of the container in conventional manner.

As many changes could be made in the above articles, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A stackable container having a rectangular floor and rectangular side walls and end walls, each connected at one edge to said floor, said container walls having vertical slits associated therewith extending upwardly from the lower edge thereof, and a flexible member connecting the adjacent edges of said slits to permit pivotal movement away from each other of the side and end walls, whereby when the adjacent edges of the slits are substantially in engagement, the container will be in the form of a parallelepiped.

2. The combination set forth in claim 1 in which the slits are substantially centrally located in each of the side and end walls.

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