Jan. 12, 1960 R. M. BRUCE 2,920,807

INTEGRAL CLEAT CONTAINER

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FIG. 1

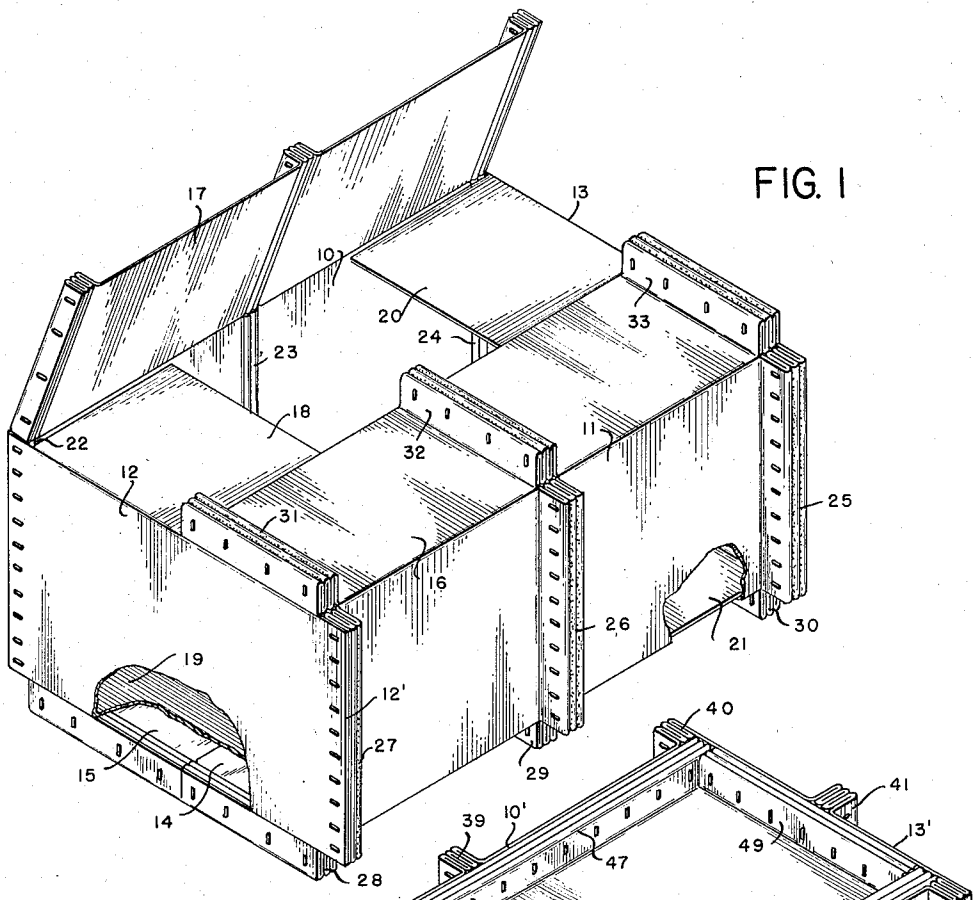


FIG. 2

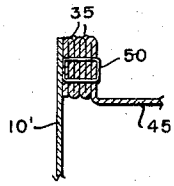


FIG. 3

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FIG. 4

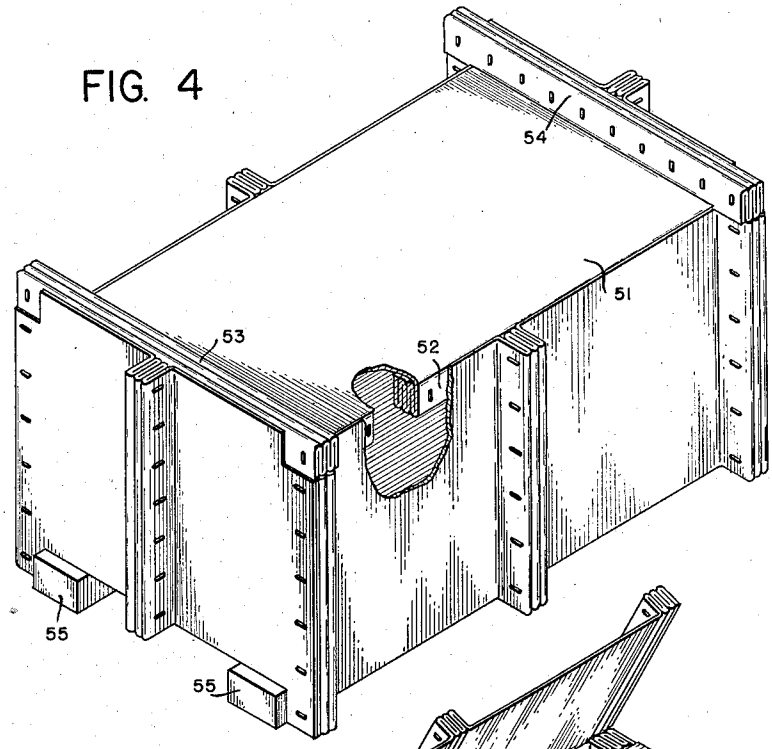
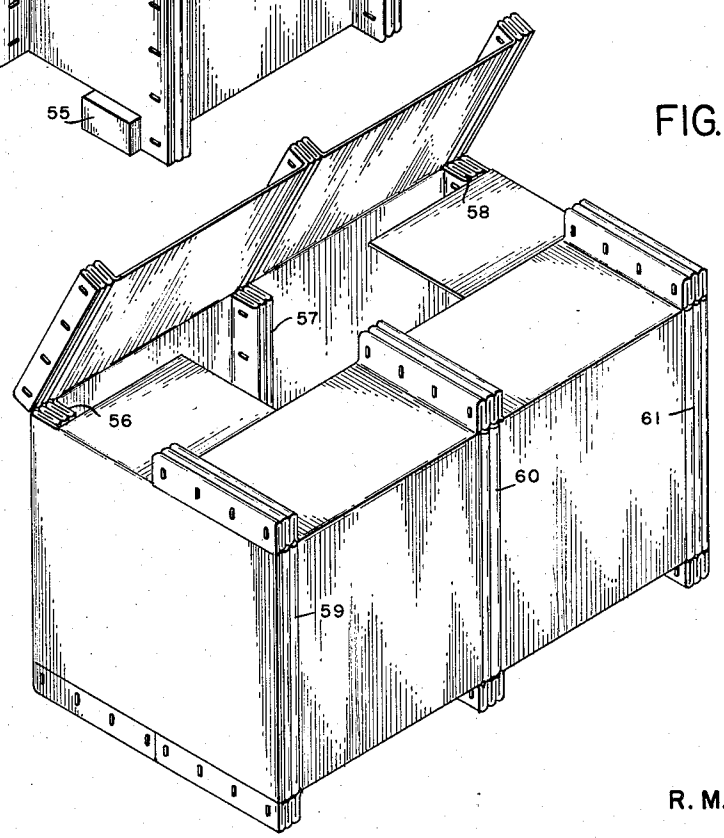


FIG. 5



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FIG. 6

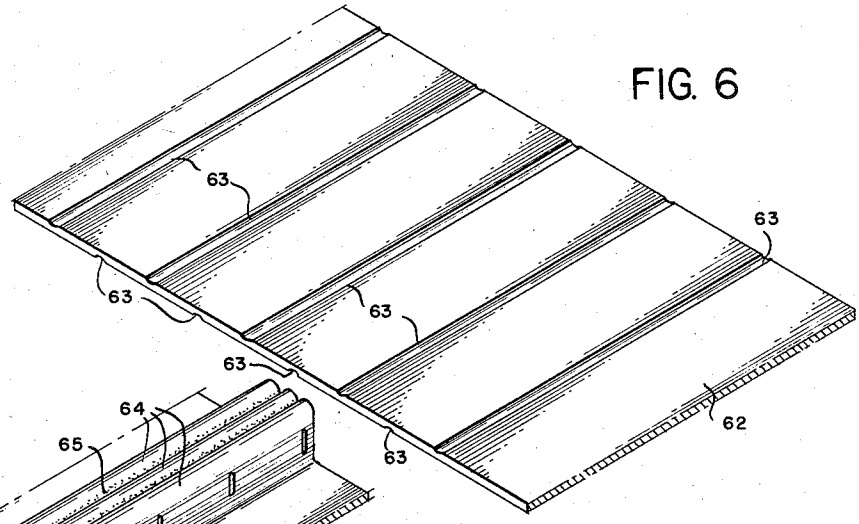


FIG. 7

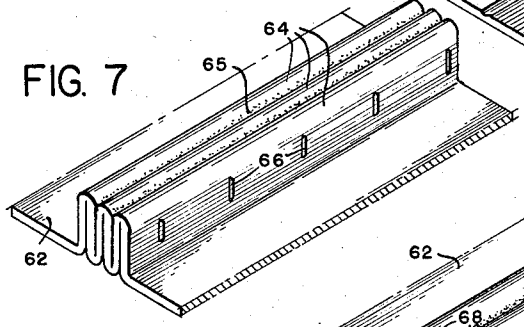


FIG. 9

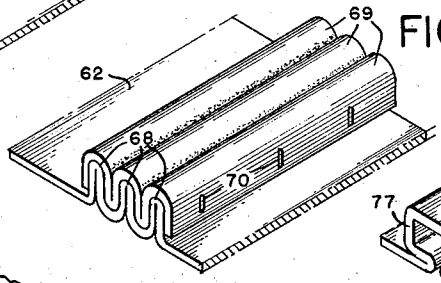
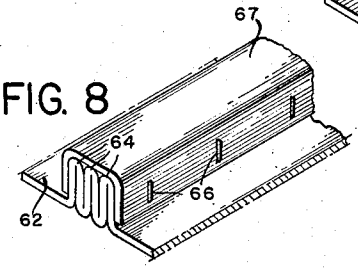


FIG. 8



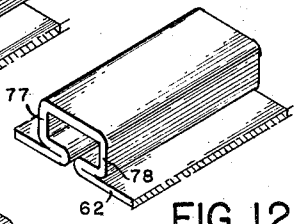


FIG. 12

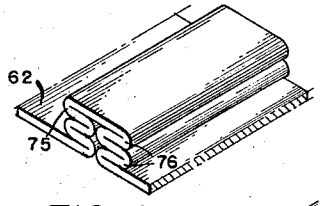


FIG 11

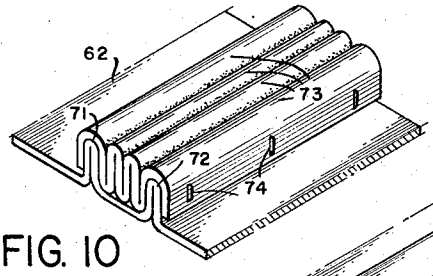


FIG. 10

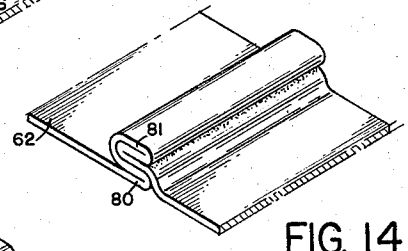


FIG. 14

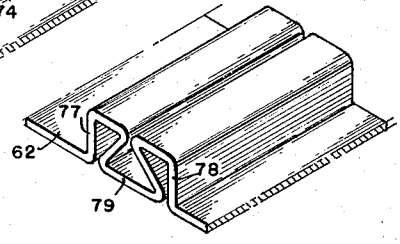


FIG. 13

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INTEGRAL CLEAT CONTAINER

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Application April 22, 1957, Serial No. 654,301

2 Claims. (Cl. 229—33)

This invention relates to the packaging and handling of commodities, and more particularly to containers of various kinds designed both to hold products but also to protect the same from injury while so held during storage and equipment.

In the container field there are almost as many kinds of packages as there are products and there are almost as many materials used as there are packages. This is not unexpected because more and more, with the progress of science, the packaging of products to obtain maximum protection at minimum cost has become almost standard procedure.

One of the most widely used containers today is a corrugated box the use of which has increased phenomenally over the years. This increase may be attributed both to improvement in materials employed and to the design of the package enabling gradual increase in the weight of the loads carried. When corrugated and solid fiber boxes began to prove inadequate they were constructed of heavier materials, and thereafter the container was strengthened by the addition of reinforcing cleats in the corrugated, the fiberboard, the plywood, and the wire bound containers. The change-over to the cleated container was not sharply defined but was over a rather wide and overlapping period determined by the load to be carried and the conditions to which the package is intended to be subjected in handling, transporting, storing, and warehousing.

It is an object of the invention to provide a container of simple and inexpensive construction, which can be readily manufactured from readily available materials, and which is of greater strength and durability than containers heretofore in use.

Another object of the invention is to provide an improved container of corrugated or solid fiberboard integrally reinforced and capable of being used where loads are heavier and it is necessary that the container be of greater strength due to such loads as well as having the capacity for being readily stacked in warehouses, handled by fork-lifts, and of withstanding severe transportation conditions.

Another object of the invention is to provide an integral cleat container which includes reinforcing folds or ribs located where maximum strength and resistance to stress are desired and in which the parts may be united by adhesion, staples, or interlocking of the parts and also a container in which the side and end portions may be integral or separate.

Other objects and advantages of the invention will be apparent from the following description in conjunction with the accompanying drawings wherein:

Fig. 1 is a perspective illustrating one application of the invention fabricated from a single blank;

Fig. 2, a similar view of a container having separate top and bottom members inset;

Fig. 3, a section on the line 3—3 of Fig. 2;

Fig. 4, a perspective of a container having separate top and bottom members reversely disposed and with wood reinforcing strips disposed lengthwise of the bottom;

Fig. 5, a perspective of slightly modified container in which the reinforcing folds of the front and rear sides of the body are internal instead of external as in the preceding figures and in which the top is composed of a pair of equal sections instead of a single section;

Fig. 6, a corrugated or solid fiberboard scored for bending;

Fig. 7, a fragmentary perspective illustrating one of the walls of the box with reinforced folds bound together by both staples and adhesive; and

Figs. 8 to 14 inclusive are fragmentary detailed perspectives illustrating different ways in which the folds may be produced and of single and multiple members.

Briefly stated the present invention is a fabricated container the walls of which, where the greatest stress is likely to be imposed, are reinforced by stiffeners or cleats integral with or independent of the walls of which the container is formed and with the reinforcing folds joined by adhesive or by staples or other fasteners and with the reinforcing ribs optionally coated for strength and for resistance to weather.

With continued reference to the drawings, the container of the present invention comprises sides **10** and **11**, ends **12** and **13**, a bottom composed of half-sections **14** and **15**, and a top composed of half-sections **16** and **17**, the end **12** is provided with flaps **18** and **19** and the end **13** is provided with flaps **20** and **21**. The sides, ends, top and bottom may be formed of a single piece of material and the container is reinforced around each end and around its center where maximum stress is likely to be encountered. Such reinforcement comprises increased thickness. For example, the end **12** has a terminus **12'** and the opposed portion of the ends are provided with a series of folds **22**. Thereafter, the blank extends along the side **10** and is provided with a central group of folds **23** and end folds **24** at the remote extremity of the side **10**, the material of the blank then forms end **13** and the end folds **25** on thte side **11** which also has central folds **26** at the center of the side **11** and the final group of reinforcing folds **27** where such side joins end **12** of the container. Each group of folds provides a reinforcing cleat for preventing bulging of the container while permitting stacking of the containers without damage to the contents.

The side **11** has a bottom flap **14** and a top flap **16** which form half of each the bottom and top of the container, the bottom flap having transverse end flaps **28**, central reinforcing folds **29** and remote end reinforcing folds **30**, while the top-section **16** has end reinforcing folds **31**, central reinforcing folds **32**, and remote end reinforcing folds **33**.

In like manner the bottom **15** and the top **17** are provided with corresponding transverse reinforcing folds.

The container of Fig. 2 is similar to that of Fig. 1 except that it is composed of side portions **10'** and **11'** and end portions **12'** and **13'**, all of a single piece of material beginning at the near edge of the end **12'** as in the preceding figure, such end having reinforcing folds **34** fastened together by adhesive **35** and staples or other fasteners **36**. At the back edge of the end **12'** the material of the blank is provided with a series of reinforcing folds **38** and a similar series of folds **39** along the center of such side and at the opposite end with reinforcing folds **40**. Likewise the end **13'** is provided with reinforcing folds **41** and the side **11'** is provided with reinforcing folds **42, 43** and **44**.

A closure **45** is employed for closing the top and bottom of the container such closure having reinforcing ribs **46, 47, 48** and **49** fastened in place by staples **50** or other

fasteners. Closure **45** has a compartment within the confines of the same composed of the main body of the closure and the outwardly turned edges thereof.

In Fig. 4, the container is the same as that of Fig. 2, however, the opposed closures **51** are slightly different, the longitudinal reinforcing folds **52** along the edges being internally disposed while the transverse end reinforcing folds **53** and **54** are externally disposed, and the bottom of the container is supported by a pair of reinforcing bars **55** for added strength.

In Fig. 5 is disclosed a container in which the transverse reinforcing folds **56**, **57**, **58**, **59**, **60** and **61** are located within the container instead of exteriorly thereof, as folds **22** to **27** inclusive as in Fig. 1.

In Fig. 6 is disclosed a blank **62** of fiberboard, corrugated board, or the like having fold lines **63** to facilitate the folding of the blank.

Figs. 7 to 14 inclusive illustrate various ways in which the blank **62** may be folded to provide reinforcement for the walls and joints of the container requiring reinforcement as shown in Fig. 7. This blank is provided with multiple folds **64** fastened together by means of adhesive **65** and staples **66**.

In Fig. 8 the structure is the same except that a cap or cover strip **67** has been added.

In Fig. 9 the blank **62** is provided with a series of folds **68** which are spaced apart and receive a complementary member composed of multiple folds **69** with staples **70** holding them together.

In Fig. 10 blank **62** is provided with a pair of spaced folds **71** and **72** which fit into a multi-folded member having 4 folds **73** the outer two of which receive the folds **71** and **72** with the parts fastened together as previously described including staples **74**.

In Fig. 11 the blank is folded so that it will have opposed pairs of folds **75** and **76** parallel to the body of the blank.

In Fig. 12 the structure is similar to that of Fig. 11 except the blank is provided with only one pair of folds, namely folds **77** and **78** in opposed relation along the blank **62**.

In Fig. 13 the blank **62** is provided with a fold corresponding with that of Fig. 12 except along the center of the integral connection there is formed a dovetail fold **79** providing in effect a triple fold.

In Fig. 14 the blank **62** has a pair of U-shaped folds **80** and **81** parallel to each other and to the sheet which forms the blank **62**.

It will be apparent from the foregoing that a container is provided which is reinforced where required so that it will be suitable for materials of various kinds. The container may be made of a number of different materials capable of withstanding heavy loads, warehouse stacking, fork lift handling and severe transportation conditions. Basically, it is a design whereby structural stiffeners or cleats are made directly from the container blank itself. As the folds are made and secured with adhesive or staples or both, they may be used plain or coated or dipped for stiffening, as well as for strength and water resistance.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawings and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. A strong fiberboard container of substantially rectangular cross-section having flat side and end walls with unobstructed inner surfaces thereof, all of the side walls thereof being provided with a plurality of like integral folded portions secured together in face to face relation and projecting outwardly therefrom intermediate the ends of the side walls and being perpendicular to the outer face of said side walls to provide reinforcing ribs on the outer surface of said side walls, at least two of the side walls being integral along the hinge line and said reinforcing ribs being substantially severed at said hinge line and forming a right angular notch thereat wherein the hinging of said side walls is permitted.

2. The invention according to claim 1 wherein the ends of said side walls have similarly formed reinforcing ribs, the outer face of said last named ribs being secured to the edges of the adjacent end walls.

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