Dec. 4, 1962 R. R. BOARD 3,066,811

METHOD OF STACKING CARTONS

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FIG. 1

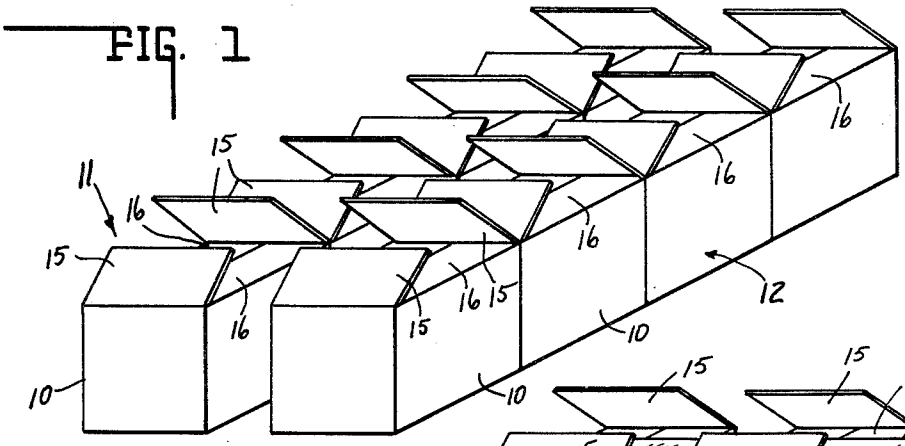


FIG. 2

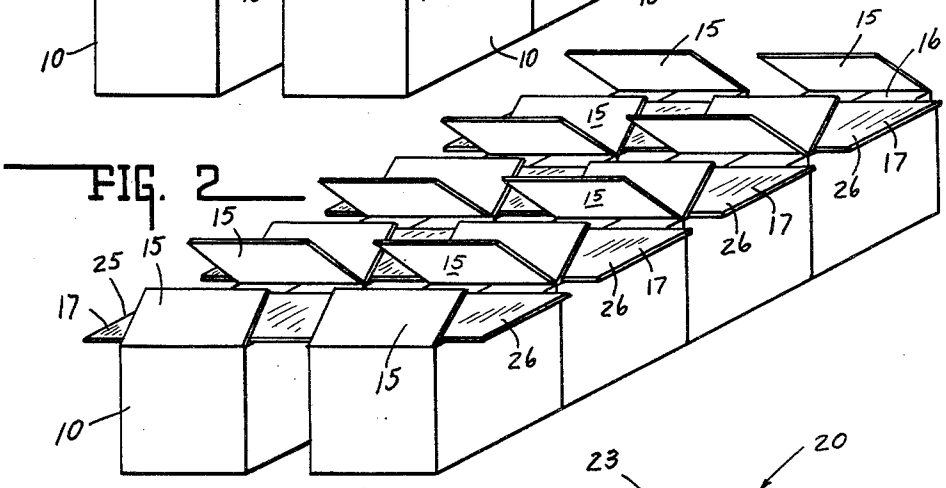
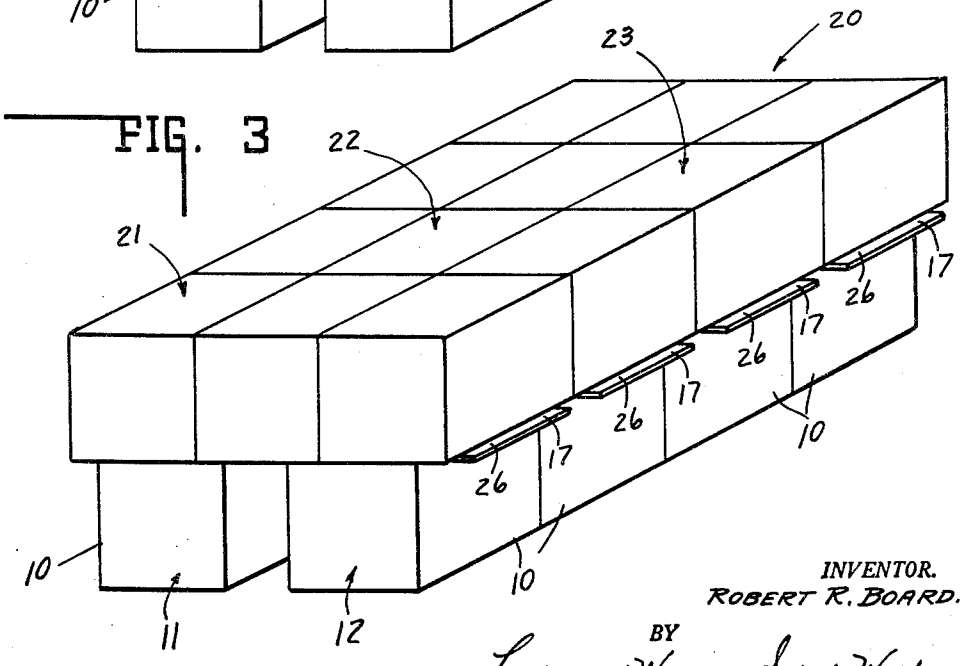


FIG. 3



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FIG. 4

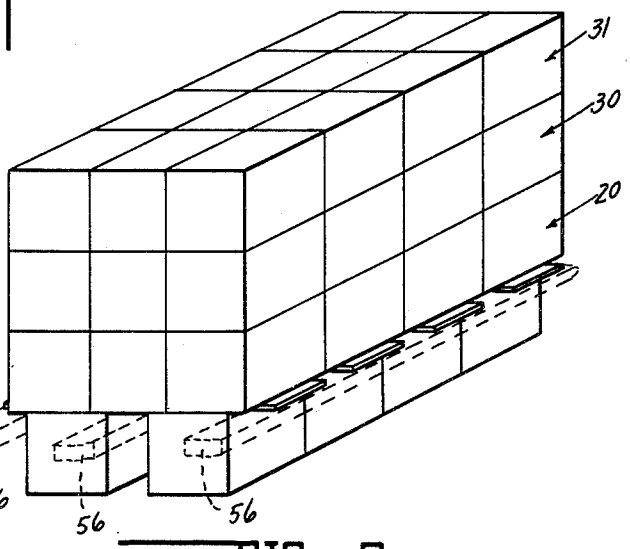


FIG. 5

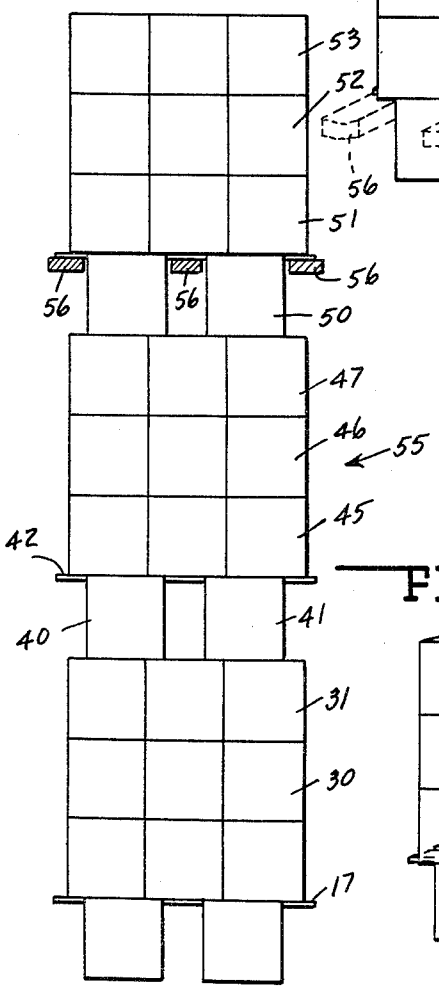


FIG. 6

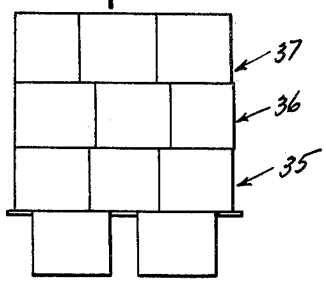
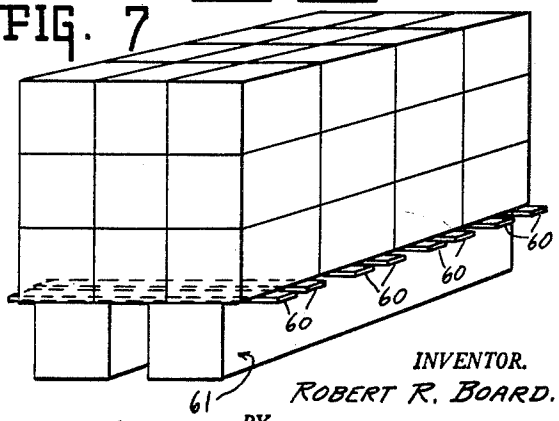


FIG. 7



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METHOD OF STACKING CARTONS

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3 Claims. (Cl. 214—152)

The present invention relates to a carton stack and to a method of forming the same.

In manufacturing and bottling plants and the like where materials are placed in cartons, it is frequently the practice to stack the cartons on pallets for movement from place to place by lift trucks. One object of the present invention is to provide a carton stack and a method for making the same which eliminate the necessity of using pallets. A further object is to provide a carton stack and method for making the same which provide spaces for the insertion of the tines of a lift truck for lifting the stack of cartons. Another object of the invention is to provide a carton stack and method for making the same which reduce the total space occupied by the carton stack because there are no pallets to take up space. Still a further object is to provide a relatively inexpensive carton stack and method for forming the same.

Still further related objects and advantages will become apparent as the description proceeds.

In accordance with the invention there is provided a carton stack including a plurality of spaced aligned cartons having closure flaps. A plate, such as, for example, corrugated board, rests upon the upper edges of the cartons beneath the outer closure flaps. A further plurality of cartons are supported on said first plurality and hold the outer closure flaps downwardly against the plate.

It should be understood that the present invention may be used whether or not there are contents within the cartons. For example, the present invention may find one utility in a glass bottle manufacturing plant. Empty bottles might be packed within cartons which cartons will be stacked according to the present invention for shipment to a bottling plant. Alternatively, the invention might be used for stacking empty cartons to be moved to a packing location.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

FIG. 1 is a perspective view of a plurality of cartons arranged according to a first step of the method forming the present invention.

FIG. 2 through 4 are perspective views of cartons and strips of corrugated board and showing further steps in the method forming the present invention.

FIG. 5 is a front elevation illustrating one form of carton stack formed according to the present invention.

FIG. 6 is a front elevation of an alternative form of carton stack formed according to the present invention.

FIG. 7 is a perspective view of a further alternative form of carton stack formed according to the present invention.

Referring now to the drawings, the method which forms a portion of the present invention is illustrated serially and comprises arranging a plurality of rectangular cartons 10—10 in two spaced parallel rows 11 and 12. Each of the cartons 10 has a pair of closure flaps 15 which are foldable about axes extending transversely of the rows. Closure flaps 15 are the outer closure flaps of each of the boxes and are arranged above the remaining inner closure flaps 16—16 of each of the boxes. As can be seen from FIG. 1, each box or carton of one row is arranged directly oppositely to a box in the other row.

Referring to FIG. 2, a plurality of elongated strips or

plates 17 which may, for example, be formed of corrugated board, are placed across each pair of oppositely located cartons beneath the closure flaps 15 of the cartons and in such a manner that each strip 17 extends outwardly of each opposite pair of cartons. Next, a tier of cartons 20 composed of three rows of cartons, 21, 22 and 23, is supported upon the two rows of cartons 11 and 12 in such a manner that the centermost 22 of said three rows rests upon both of the lower rows 11 and 12 and spans the space between the two lower rows. This step is illustrated in FIG. 3. The two outermost rows 21 and 23 rest upon the rows 11 and 12, respectively, and also upon the end portions 25 and 26, respectively, of each strip 17. It can be seen that the rows 21, 22 and 23 will hold the closure flaps 15 downwardly against the strips 17.

Further tiers of cartons 30 and 31 are then stacked upon the tier 20 as illustrated in FIG. 4. Alternatively, the cartons of the various tiers may be staggered as illustrated in FIG. 6 wherein the tiers 35, 36 and 37 include irregularly arranged rows of cartons. Such an arrangement may, in some cases, provide more strength and stability to the carton stack.

Referring to FIG. 5, the stacking is continued similarly to that above described in that a further pair of rows 40 and 41 are arranged in a spaced parallel relationship upon the tier 31. Elongated strips 42 are positioned beneath the closure flaps of the cartons in the rows 40 and 41 and tiers of cartons 45, 46 and 47 are supported upon the rows 40 and 41 and hold the closure flaps in rows 40 and 41 downwardly against the strips 42. Further tiers 50, 51, 52 and 53 may be added, if desired, to form the completed carton stack 55. The advantage of having the tiers, such as 50, which have only two rows of cartons therein, interspersed throughout the height of the stack, will become obvious from the explanation which follows.

When the cartons are moved from place to place by lift truck, that is, of course, desirable that the cartons not be stacked too high in order to eliminate the falling of the cartons from the lift truck. The stack 55 in FIG. 5 will include sufficient cartons that the uppermost tier 53 in the stack will be positioned near the ceiling of a building so that as much as possible of the available storage space will be used. 56—56 represents the prongs of a three-pronged lift truck. These prongs may be inserted into the stack 55 to the position illustrated in FIG. 5 for lifting the uppermost portion of the stack. After the uppermost portion has been moved, the centermost and lowermost portion of the stack may then be moved. Thus, at no time does the number of cartons carried by the lift truck extend sufficiently high to involve danger of the cartons toppling from the lift truck.

When any portion of the stack 55 is lifted by the truck in the manner above described, the tines 56 will support the weight of the three-rowed tiers directly and through the elongated strips located below the three-rowed tiers. The weight of the lowermost two-rowed tier will be supported through the strips and the closure flaps of the lowermost tier.

It can be seen that the present invention provides a carton stack and method for making the same which eliminates the necessity of using pallets. It will be obvious from the above description that because of the fact that the corrugated strips are relatively inexpensive in comparison to the cost of pallets, a relatively inexpensive carton stack is provided by the present invention.

In FIG. 7 there is illustrated a further alternative form of the invention which is identical to the above described form with the exception that in place of a single strip, such as the strip 17, a pair of strips 60—60 is used for each oppositely positioned pair of cartons in the two-rowed tier 61 of the carton stack.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention and the scope of the claims are also desired to be protected.

The invention claimed is:

1. A method of stacking cartons which comprises spacing and aligning a pair of cartons having closure flaps, placing a rigid plate on and bridging said carton in such a manner that said plate extends outwardly of said pair of cartons, closing the closure flaps of the cartons over the bridging plate, and placing a further plurality of cartons on said pair of cartons to hold said closure flaps downwardly against said plate.

2. A method of stacking cartons which comprises placing a plurality of cartons having closure flaps in two, spaced parallel rows, with the cartons of one row opposite respective cartons of the other row, locating a plurality of rigid plates upon said cartons and across the rows of cartons in such a manner that each plate extends outwardly of each opposite pair of cartons, folding the closure flaps of the catrons downwardly over the plates, and placing a further plurality of cartons upon the rows of cartons to hold the closure flaps downwardly against the plates.

3. A method of stacking cartons for lifting by a lift truck which comprises arranging a plurality of rectangular cartons in two spaced parallel rows, with each carton of one row located oppositely to a corresponding carton in the other row, each of said cartons having a pair of closure flaps which are foldable about axes extending transversely of the rows, placing an elongated rigid strip of corrugated board across each pair of oppositely located cartons in such a manner that each strip extends outwardly of each opposite pair of cartons, folding the closure flaps of the cartons downwardly over the rigid strip, supporting three rows of cartons upon said two rows with a centermost of said three rows resting on both of said two rows and with the other two rows of said three rows each resting upon a respective one of the first mentioned two rows and upon the end portions of said strips, and supporting a further plurality of cartons upon the three rows of cartons.

References Cited in the file of this patent

UNITED STATES PATENTS

2,509,023	Vogel et al.	May 23, 1950
2,530,444	Wood	Nov. 21, 1950
2,596,071	Friesner	May 6, 1952

FOREIGN PATENTS

262,933	Switzerland	Nov. 1, 1914