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1,990,829

BULK LOADING BOX

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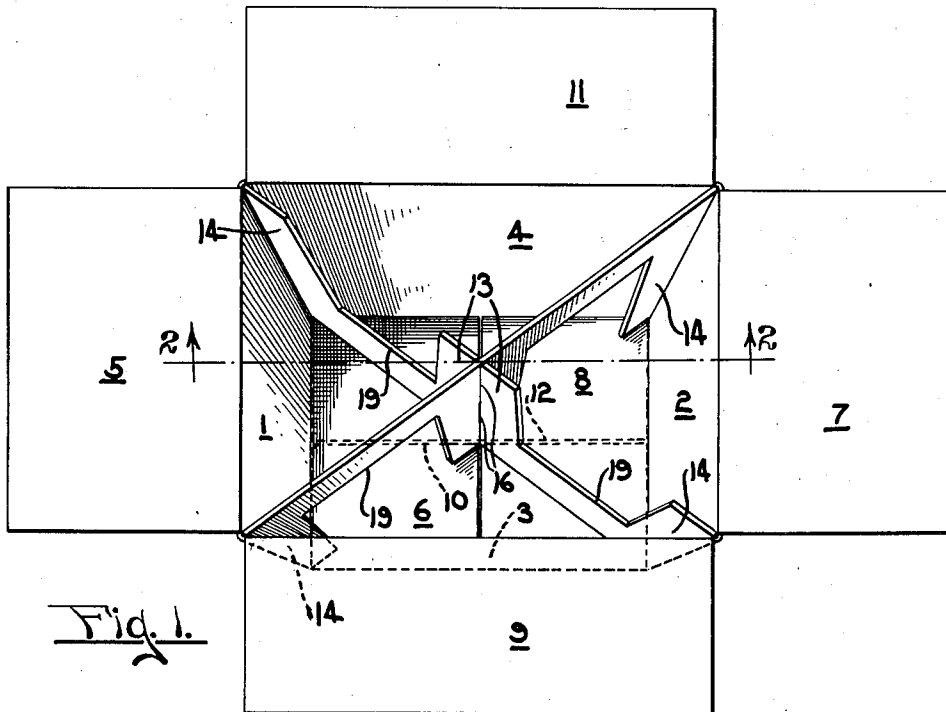


Fig. 1.

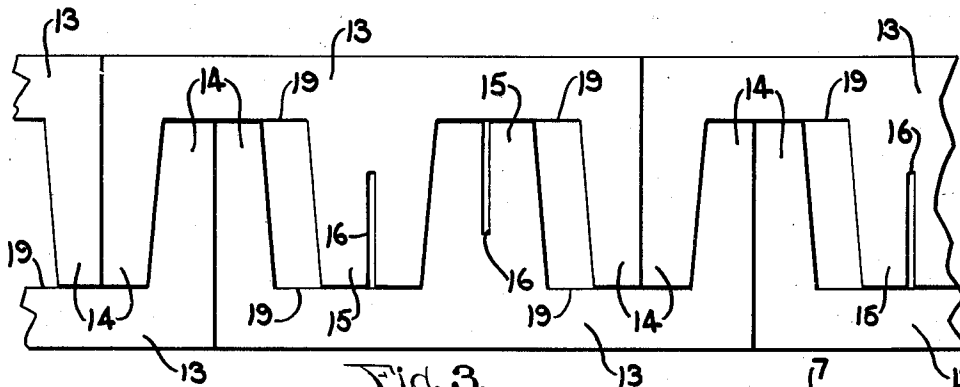


Fig. 2.

Fig. 3.

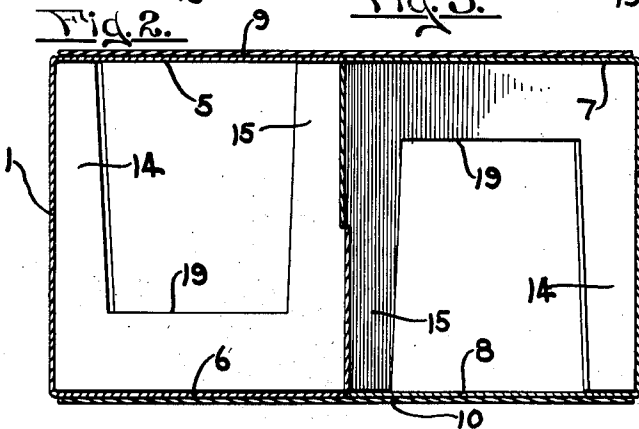
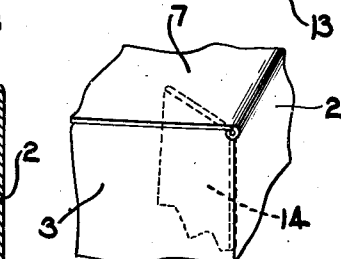


Fig. 5. Inventor
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BULK LOADING BOX

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4 Claims. (Cl. 229—15)

This invention relates generally to boxes and more particularly to reinforcing means located therein.

One of the primary advantages of my invention resides in the simplified form of reinforcing, this preventing crushing of the carton or box.

Another primary advantage of my invention resides in the diagonal positioning of the reinforcing, such receiving the contents of the box therebetween whereby the pressure against the several sides of the box is reduced and consequently bulging of the box is prevented.

A third primary advantage resides in the positioning of the reinforcing partitions at the several corners of the box whereby leakage from the corners is prevented as will be later described.

Another advantage lies in the placing of openings through the reinforcing means whereby the contents of the box may flow from one part of the box to the adjacent portions thereof.

Still another advantage resides in the construction of the partitions, these being identical in character whereby they are not only easily manufactured but they are also easy to insert in their positions in the box.

Other advantages will become apparent as the description proceeds.

In the drawing:—

Fig. 1 is a perspective view of a box or carton having my improved reinforcing means therein.

Fig. 2 is a cross sectional view taken along the line 2—2 of Fig. 1.

Fig. 3 is a diagrammatic view illustrating the method of manufacturing the reinforcing partitions from a single length of material, preferably corrugated cardboard.

Fig. 4 is a perspective view showing how the partition closes any corner opening in the box.

Similar numerals refer to similar parts throughout the several views.

Referring to Fig. 1, numerals 1 and 2 indicate the ends of a box having sides 3 and 4. As clearly shown in Fig. 1, the end 1 has an upper flap 5 and a lower flap 6 and the end 2 has an upper flap 7 and a lower flap 8. The upper flaps 5 and 7 are shown as extending outwardly while the lower flaps 6 and 8 extend toward one another to form the bottom of the box.

As shown in Fig. 2, the side 3 of the box has an upper flap 9 and a lower flap 10 while the side 4 has an upper flap 11 and a lower flap 12.

Referring now to Fig. 3, numerals 13 indicate the reinforcing partitions, these being die cut

from a single piece of material and being formed with end members 14 which have a height substantially equal to the depth of the box. Also, a central portion 15, having a slot 16 therein, is formed as shown and these partitions 13 are adapted to be interlocked together as clearly shown in Fig. 1, the openings 19 being in staggered or reverse position as shown. Thus, there will always be two openings 19 in reverse fashion to the other two openings 19 whereby the contents of the box, which may be bulk starch or the like, can be expediently flowed into the box during the filling process but yet which will be held from excessive lateral movement during the shipment of the box. Also, the end portions 14 of the two partitions come against the interior corners of the box, see Fig. 4, to prevent the leakage of any of the bulk material from the box.

In use, the box is loaded with bulk material, such as starch, bulk candy, and the like, by means of a spout, if desired, which spout is moved about above the upper open end of the box until the box is level full. In regard to the ease of filling it will be noted that the two interlocked partitions really only divide the box into two separate bins inasmuch as one of the partitions is cut away along its upper edge as is clearly shown in Fig. 1 of the drawing.

Also, along this same line, it is to be noted that the other partition is cut away at the greater portion of its lower edge whereby the bulk material may be easily distributed throughout the box. The cut away parts of the partitions, it will be realized, materially aid in the easy loading of the box because they permit the bulk material to roll or flow laterally under the influence of gravity.

However, it is desired to clearly bring out the fact that applicant does not sacrifice one of the main purposes of the partitions by his inclusion of the openings in the partitions. That is, the partitions still function to increase the strength of the box and this is very necessary as the boxes are stacked one upon the other until the lower boxes may carry a dead weight of perhaps a ton. This strength of the box is attained not only when the box is completely full of the bulk material but also when the bulk material has settled the usual amount, say, 10 percent. This desideratum is a very important one because this settling always occurs due to several facts, not recited, and thus the upper part of the box is empty. If applicant's strengthening partitions were not used, the

weight of the upper boxes upon those beneath would cause the latter to be bulged outwardly and distorted from shape with a consequent breakage of the boxes and leakage of material therefrom.

In applicant's improved box, it will be noted that the settling of the bulk material does not reach below the openings in that partition which has its openings faced downwardly and consequently this partition is buttressed and held in place by the bulk material on each side thereof and also the bulk material which flows underneath the upper edges of the cut away portions. Thus, even though the bulk material has settled its full amount, nevertheless the one partition will have its complete upper edge firmly held and supported in position against lateral movement and the other partition will likewise furnish a very substantial supporting means whereby the boxes created by applicant are indeed very much superior to those now utilized.

The diagonal partitions also serve to break up the load within the box and when the boxes are being handled the shifting of the load therein is divided into a number of components inasmuch as the partitions act in the nature of baffle plates and this prevents excessive impacts of the bulk material against a single wall of the carton or box.

Having thus revealed this invention, I claim as new and desire to secure the following combinations and elements, or equivalents thereof, by Letters Patent of the United States:

1. In combination, a paper box adapted to contain bulk starch or the like, and reinforcing means therefor, said reinforcing means comprising two diagonally located partition members, each of said members having a relatively large opening therethrough, each opening being staggered with respect to adjacent openings for the purpose described.

2. In a box having four sides located substantially in rectangular relation, each side having a flap adapted to be folded towards the other sides to substantially the same plane as the other flaps, the combination of, two partitions crossing each other, the opposite edges of the partitions snugly engaging the respective corners of the box to prevent leakage and the flaps engaging against the partitions.

3. In combination, a paper box having a reinforcing structure diagonally located therein, said reinforcing structure comprising a member having two end portions of substantially the same height as the depth of the box to which it is applied and a central portion having a slot extending substantially half way therethrough, said member being cut away between said ends and central portion to form relatively large openings whereby the contents of the box may flow therethrough and a second member having means interlocked with the said slot, said second member having relatively large openings, the openings in one of said members terminating flush with one side of the box and the openings in the other of said members terminating flush with the opposite side of the box.

4. In combination, a rectangularly shaped carton having a horizontal bottom, vertical partitions crossing each other and extending into the several corners of the box, said partitions being substantially equal in height to the vertical dimension of the box, one of said partitions being cut away from its bottom edge at each side of its point of crossing the other partition, these cut away portions terminating at a point not higher than three quarters of the vertical dimension of the carton for the purpose described and the other partition being similarly cut away but in reversed fashion.

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