March 17, 1942. E. W. BONFIELD 2,276,820

CONTAINER

Filed May 16, 1940 2 Sheets-Sheet 1

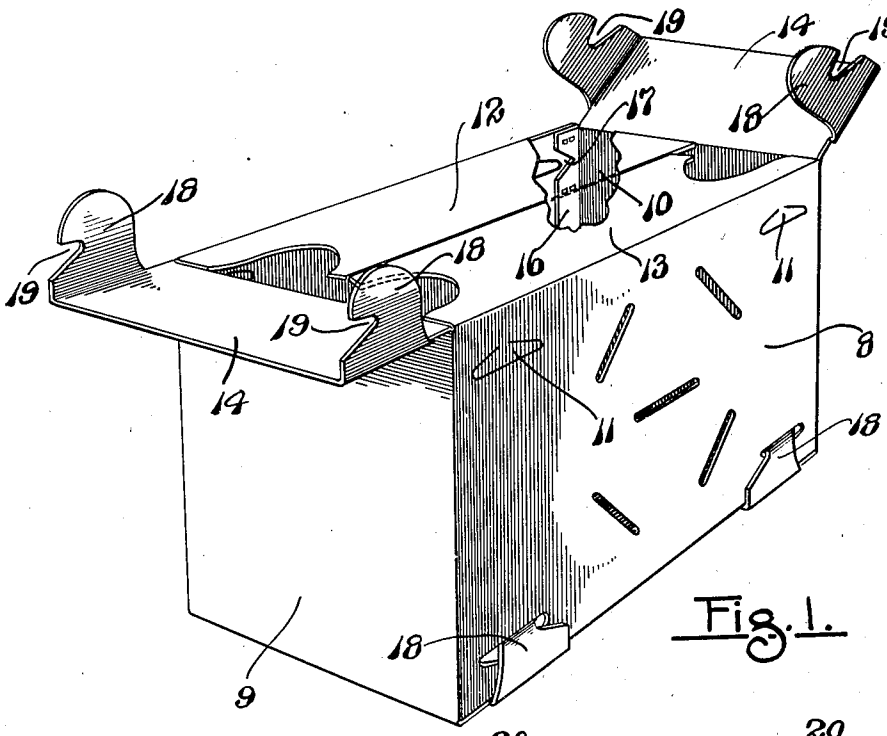


Fig. 1.

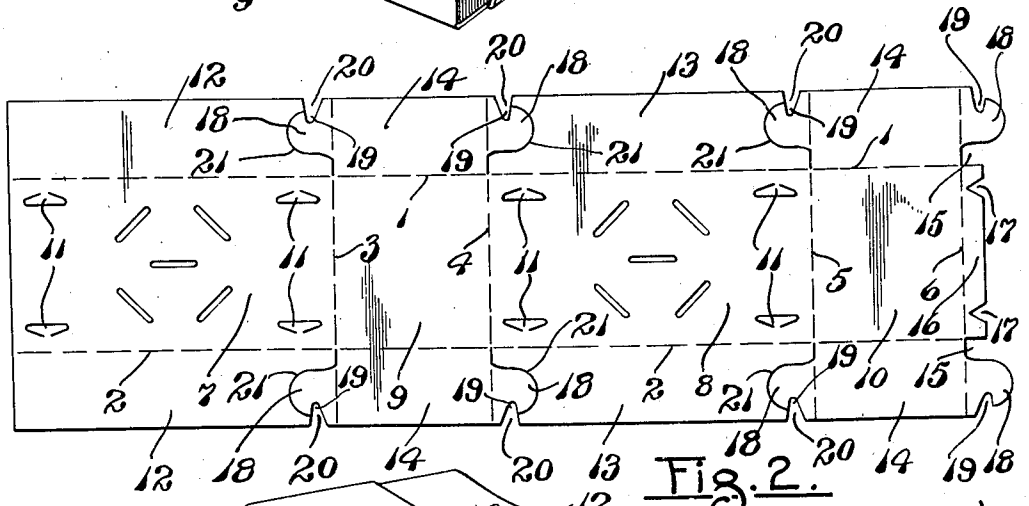


Fig. 2.

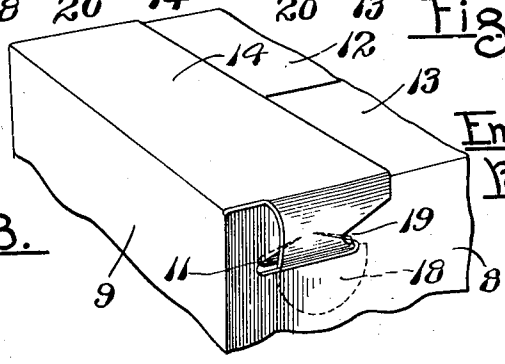


Fig. 3.

Inventor
Emmons W. Bonfield
By Dinsmore and Van Antwerp
Attorneys

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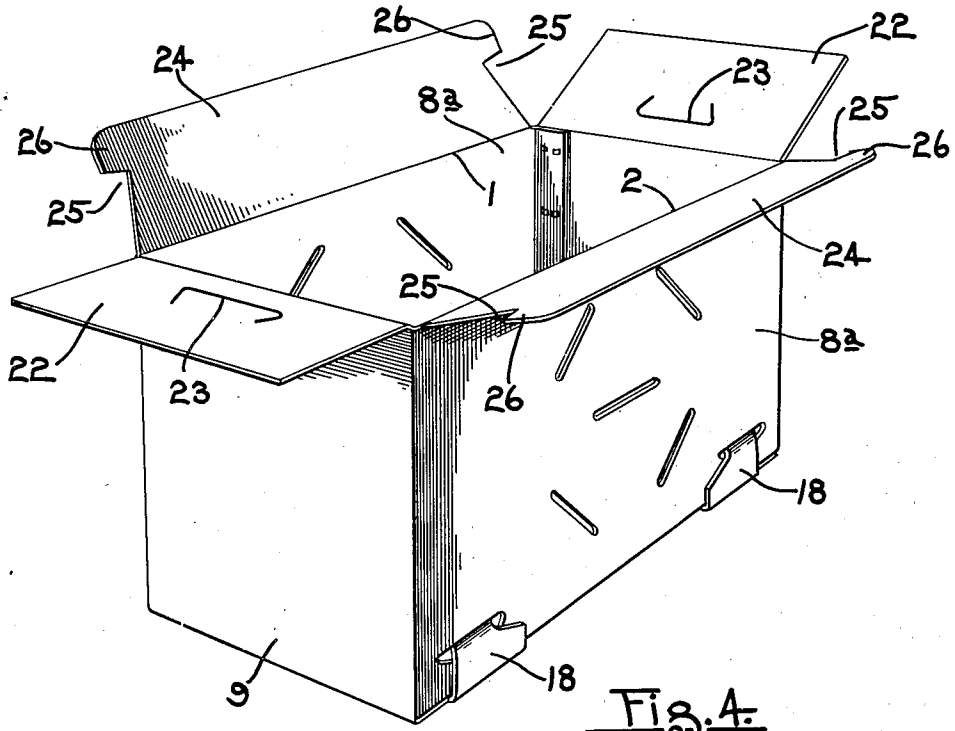
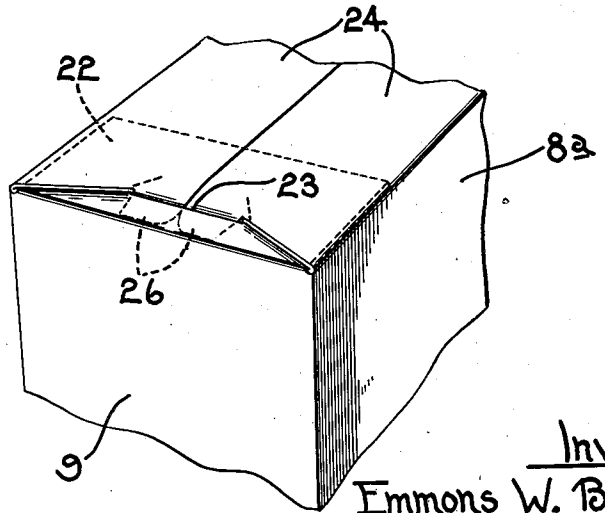


Fig. 4.

Fig. 5.



Inventor
Emmons W. Bonfield
By Lorance and Van Antwerp
Attorneys

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UNITED STATES PATENT OFFICE

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CONTAINER

Emmons W. Bonfield, Grand Rapids, Mich., assignor to American Box Board Company, Grand Rapids, Mich., a corporation of Michigan

Application May 16, 1940, Serial No. 335,496

2 Claims. (Cl. 229—38)

This invention is directed to a novel construction of shipping container or box, designed to be made from paper board using a single rectangular piece of paper board material with a minimum of waste in fashioning said rectangular material so that by folding it along predetermined lines it may be very quickly and readily made into a box or container adapted to hold merchandise and which can be closed for transporting the same from one place to another.

One primary object of the present invention is to provide a container of the class indicated, of a novel structure which, when it is shaped into its box-like form, is strongly reinforced against distortion out of shape and is also of particular strength in resisting any disconnection of the parts such as might come, for example, from the weight of the merchandise held within the container pressing against the bottom thereof.

The construction which best embodies my invention is disclosed in the following description taken in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of the completed container with the top partly open.

Fig. 2 is a plan view of the blank made from a rectangular section of paper board stock which may be folded along predetermined lines to make the container shown in Fig. 1.

Fig. 3 is a fragmentary perspective view of the upper portion of one end of the closed box or container.

Fig. 4 is also a perspective view of the container but showing a different form of closure means for one end thereof, and

Fig. 5 is a fragmentary perspective view of the container shown in Fig. 4, but showing the closure means in closed position.

Like reference characters refer to like parts in the different figures of the drawings.

As shown in Fig. 2 a single rectangular sheet of suitable paper board material is provided, longer than it is wide. This piece of material is scored longitudinally on parallel lines 1 and 2 which are parallel to the side edges of the sheet, and is further scored transversely on the lines indicated at 3, 4, 5 and 6. It is along these lines that the material will be bent or folded. The two sections 7 and 8, which will make the vertical sides of the box, are separated from each other by an end section 9 and at the end of one side section 8 is a similar end section 10. In each of the four corner portions of the vertical side sections 7 and 8 triangular shaped portions 11 are cut which remain connected with the sheet of material at the corners of said parts 11 as shown. Outwardly beyond the horizontal scorings 1 and 2 and connected with the vertical side sections 7 and 8 are the flaps 12 and 13 respectively, which are substantially one-half of the width of the receptacle to be made. Other flaps 14 are integrally connected with the end sections 9 and 10 having the same width as the flaps 13 and, as shown in Fig. 2, lying in alinement therewith.

At one end of the rectangular material sheet, notches 15 are cut leaving a narrow flap 16 integrally connected with the end section 10 and foldable along the line 6. In the outer edge of the flap 16 two triangular notches 17 are cut for a purpose which will hereafter appear. Outwardly beyond the notches at 15 and integral with the ends of the adjacent flaps 14, lock-tongues 18 are formed of the shape shown, each having a notch 19 therein as shown.

At the opposite ends of the flaps 14 where they join the flaps 12 and 13 respectively, similar flaps 18 are made by cutting inwardly the notches 20, and cutting a line cut as at 21 in the shape shown which joints at one end with the notches 20, is curved around and comes to the scoring lines 3, 4 and 5 and follows said lines inwardly until the scoring lines 1 and 2 are reached. The inner portions of the notches 20 provide similar notches 19 in the locking tongues 18 to the notches in the tongues 18 first described.

The flaps 14 may be turned at right angles to the sections 9 and 10 by bending on the scoring lines 1 and 2. The flaps 12 and 13 may likewise be bent to right angles to the vertical sides 7 and 8 of the box. The sheet may also be bent upon the lines 3, 4 and 5 to form the sides and ends of the box, as shown in Fig. 1, the flaps 12 and 13 turned inwardly toward each other and the flap 16 turned at right angles to lie inside the free end portion of the side section 7 and be stapled thereto, as in Fig. 1. The flaps 14 with the locking tongues 18 turned at right angles thereto (Fig. 1), are then turned to lie over the ends of the flaps 12 and 13, the locking tongues entering through the openings provided by the cutting of the triangles at 11, the free end portions of said locking tongues beyond the notches 19 passing to the inner side of the box, and the notches providing an interlock with the sides of the box as best shown in Fig. 3. This is done at both the top and bottom of the box. The notches at 17 in the member 16 are made so as not to interfere with the triangular parts 11.

Such construction of box may be shipped in the flat as in Fig. 2 and the box very readily shaped by folding along the scoring lines, the bottom closed, the material which it is to hold placed therein and then the top closed. This box is particularly adapted for holding certain vegetables such as celery, celery cabbage and the like which should have access of air thereto, therefore the vertical sides of the box are shown with ventilating slots. These, however, form no part of the invention and the box or container is not limited in use for holding any one thing.

The locking tongues 18 embracing the outer sides of the box reinforce it at its corner portions and serve to help maintain it against any distortion out of shape. The locking provided by the notches at 19 reinforce both the top and bottom of the box, either one of which may become the bottom of the box and have to sustain the weight of whatever is inside thereof, and provide a strong resistance against any disconnection of said tongues from the openings through which they pass. It is evident that very little of material is cut from the rectangular sheet shown in Fig. 2 so that the waste is reduced to a minimum. The construction is very practical and useful.

Having particular reference now to Figs. 4 and 5 wherein a different form of closure means is disclosed, it should be here noted that this construction may be applied either to the top or bottom side of the container or to both. For the purposes of this disclosure, however, the structure will be described with reference to the top only.

As shown, the container itself is provided with the ends 9 and the bottom flap 10 as shown in Fig. 1, the side members are indicated by the numeral 8a inasmuch as the upper ends thereof are not provided with the openings 11. Connected to each end 9 are the end flaps 22 which are provided with the cut away portions or slots of the configuration shown at 23. Each side member 8a is provided at its upper ends with the integral side flaps 24. One flap extends outwardly from the scored line 1 and the other extends from the scored line 2. Each end of the flap 24 is notched as at 25 which notch extends downwardly from the end of one flap to the scored line 1 and on the other flap down to the scored line 2. These notches provide the ears 26 at each end of the end flaps 24 and extend outwardly therefrom.

When these various flaps are in closed position they appear substantially as shown in Fig. 5. The end flaps 22 are folded inwardly first and then the side flaps 24 are folded on top thereof and the ears 26 which are on the same end of the opposing side flaps 24 are inserted in the common slot 23 to thereby lock the various flaps in closed position. It will be obvious that this form of the invention may also be cut from a single length of material as described above with respect to Figs. 1 and 2 but changing the various flaps as disclosed in Fig. 4. The various advantages arising from this form of the invention will be similar to those described above with respect to the first form insofar as lessening the waste material is concerned.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. A receptacle made from a single rectangular sheet of material, said material being longitudinally scored on two spaced parallel lines and transversely scored on three spaced parallel lines whereby when the sheet of material is folded upon said transverse lines of scoring there is provided a receptacle body having parallel vertical sides and parallel vertical ends, and at each of the side edges of said sides there is provided a flap portion adapted to be turned inwardly at right angles to said sides at both their upper and lower edges, and also similar flap portions adapted to be turned inwardly from said ends at both their upper and lower edges, said flaps connected with the ends being separated from those connected to the side of the receptacle by separating cuts made to provide extensions at each end of the flaps connected to the ends of the receptacle, which extensions are cut from the flaps connected with the sides of the receptacle, said extensions being notched in one side to provide locking tongues, and each of the sides of the receptacle at each corner thereof being provided with a cooperating opening through which a locking tongue may pass substantially as and for the purposes specified.

2. A receptacle made from a single rectangular sheet of material, said material being longitudinally scored on two spaced parallel lines and transversely scored on three spaced parallel lines whereby when the sheet is folded upon said transverse lines of scoring there is provided a receptacle body having vertical sides and ends, and at each of the side edges of said sides there is provided a flap portion adapted to be turned inwardly at right angles to said sides at both their upper and lower edges, and also similar flap portions adapted to be turned inwardly from said ends at both their upper and lower edges, the flaps connected with the ends at one side of the receptacle being separated from those connected to the sides at the same side of the receptacle by separating cuts made to provide extensions at each end of the flaps connected to the ends of the receptacle, which extensions are cut from the flaps connected with the sides of the receptacle, said extensions being notched in one side to provide locking tongues, and each side of the receptacle at the corners thereof being provided with a cooperating opening through which a locking tongue may pass substantially as and for the purposes specified.

EMMONS W. BONFIELD.