April 14, 1936. K. K. NEWSOM 2,037,428

BOX

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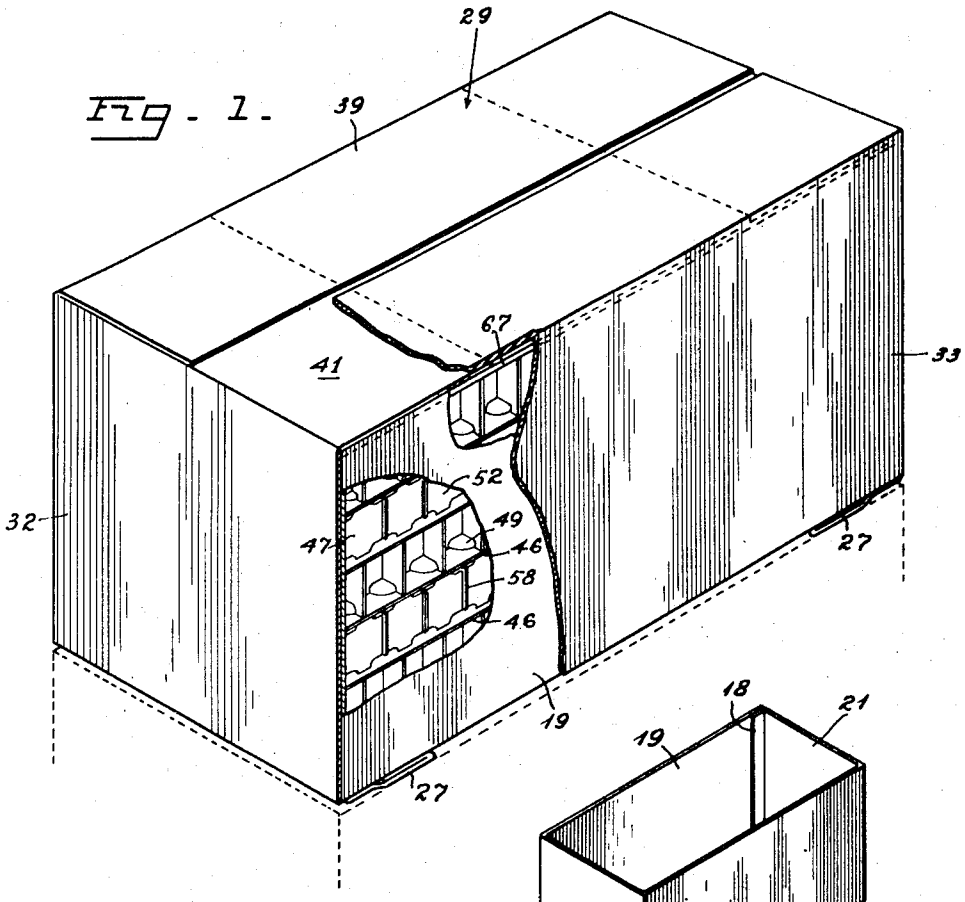
Fig. 1.



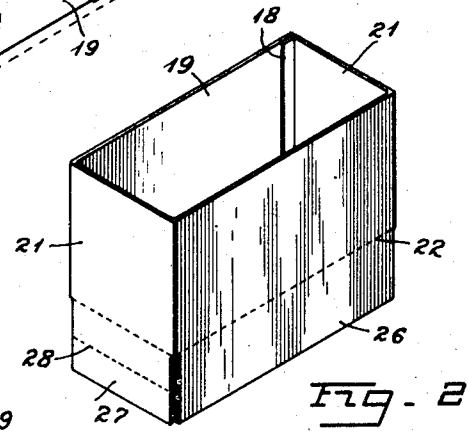


Fig. 2

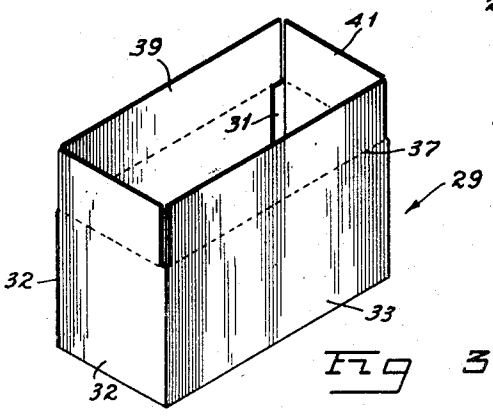


Fig 3

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BOX

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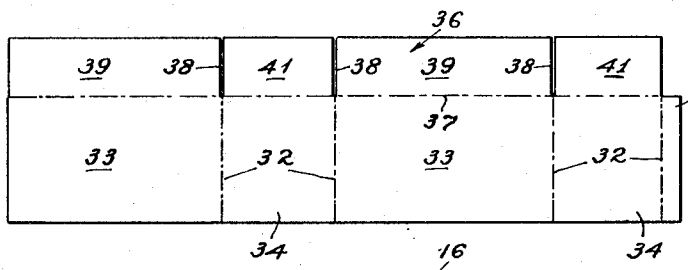

Fig. 4.

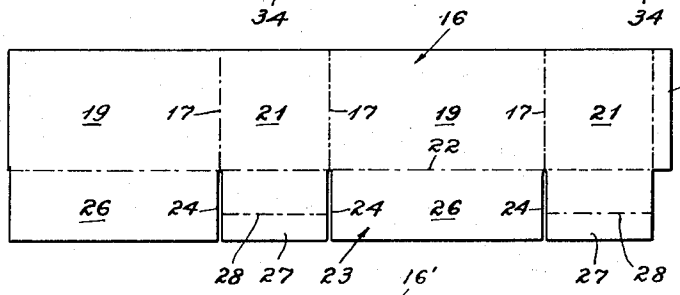

Fig. 5.

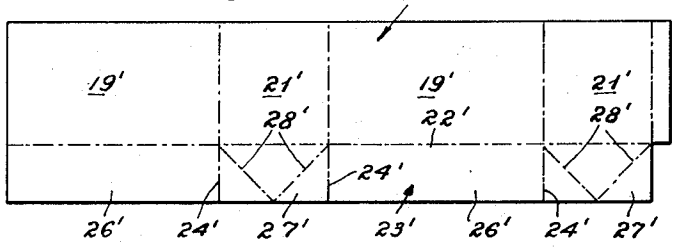

Fig. 6.

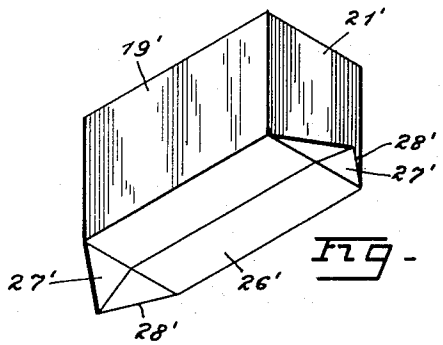

Fig. 7.

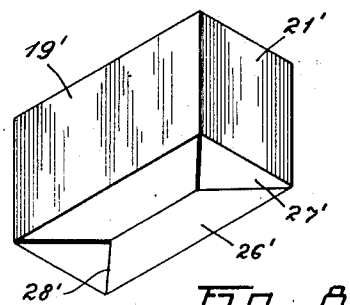

Fig. 8.

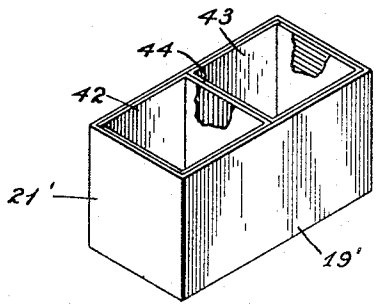

Fig. 9.

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Patented Apr. 14, 1936 2,037,428

UNITED STATES PATENT OFFICE

2,037,428

BOX

Kitchener K. Newsom, San Francisco, Calif.

Application March 8, 1935, Serial No. 10,014

12 Claims. (Cl. 229—23)

This invention relates to boxes for fragile articles and particularly to egg carriers.

The primary object of this invention is to provide a box in which eggs or fragile articles may be packed, stacked, and shipped in such a way that said eggs and articles are completely protected against breakage, without the use of heavy and bulky crating.

Another object of the invention is to provide a box of light material so constructed that stresses caused by stacking are taken up by certain elements of the box without any pressure on the eggs or other articles packed in said box.

Another object of the invention is to provide a box, and cellular packing means in the box in such relationship that a larger number of eggs or other articles can be packed in a given space than heretofore accomplished, yet complete protection is afforded to prevent undue stress on the contents of the box, the box being made of comparatively light material.

Another object of the invention is to provide shipping box and particularly an egg carrier which is highly useful and simple in construction. Convenience of arrangement, lightness and comparative inexpense of manufacture are further objects which have been borne in mind in the production and development of the invention.

I am aware that some change may be made in the general arrangements and combinations of the several devices and parts, as well as in the details of the construction thereof without departing from the scope of the present invention as set forth in the following specification, and as defined in the following claims; hence I do not limit my invention to the exact arrangements and combinations of the said device and parts as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts as illustrated in the accompanying drawings.

The invention is clearly illustrated in the accompanying drawings, wherein

Figure 1 is a perspective view partly in section of an assembled box and packing constructed in accordance with my invention, the upper portion of a lower box in stacked position being shown in broken lines.

Figure 2 is a perspective view of the lower portion of the box with the bottom flaps unfolded.

Figure 3 is a perspective view of the cover of the box with the top flaps unfolded.

Figure 4 is a plan view of the blank for the cover of the box.

Figure 5 is a plan view of the blank for the lower portion of the box.

Figure 6 is a plan view of the blank for a modified embodiment of the lower portion of the box.

Figure 7 is a bottom perspective view of the modified box with the bottom partly folded.

Figure 8 is a bottom perspective view of the modified box with the bottom completely folded.

Figure 9 is a top perspective view of the box, showing the partition linings in position.

In carrying out my invention I make use of a substantially rectangular strip 16, which is provided with spaced, transverse flexible joints 17, by scoring or creasing, to form the corners of the box. At an end of the strip 16 is a transverse flap 18 whereby the ends of the strip 16 are secured to each other in any suitable manner. The flexible joints 17 divide the strip 16 into longer and shorter sides 19 and 21 respectively, the former forming the sides, and the latter the ends of the box.

From the lower edge 22 of the strip 16 extends a flap-strip 23, which is divided by slots 24 into longer and shorter flaps 26 and 27 respectively along the lower edges of the sides 19 and ends 21. The strip 16 and the flap-strip 23 are scored at their joining longitudinal edge to form a longitudinal flexible joint around which said flaps can be folded toward each other. The width of the flap-strip 23 is about one half of the width of the strip 16, or slightly wider. Each end flap 27 is scored or creased longitudinally at about the middle of its face so that each end flap 27 can be folded upon itself around the flexible joints formed by said crease at 28 thereby providing a spacing cushion at each end of the bottom of the box. The bottom flaps 26 and 27 are secured together in any suitable manner.

In the modified embodiment shown in Figures 6, 7, and 8, the flap-strip 23' is scored or creased at 24' to form flexible joints thereat for flaps 26' and 27'. The flaps 27' are the shorter flaps and are scored at an angle, so as to provide a flexible joint 28' from each corner of each flap 27', adjacent the lower edge 22' of the strip 16' converging to a point at about the middle of the free edge of each flap 27'. When assembled the flaps 27' are folded upon themselves around the creases or flexible joints 28', and at the same time the flaps 26' and 27' are folded toward each other, so that the doubled flaps 27' are on the outside of the bottom of the box and form spaced cushions, one at each end of the bottom. The flaps

26' and 27' are secured to each other in any suitable manner.

A cover 29 is also formed of a substantially rectangular strip, which has its ends secured to each other in any suitable manner by the use of an end flap 31. The cover strip is scored or creased transversely to provide flexible joints 32 which form the corners of the cover. The cover 29 is of such size that its longer sides 33 fit over the sides 19 of the lower portion of the box, and the shorter sides 34 fit over the ends 21 of the lower portion of the box. The sides of the cover 29 slidably telescope over the respective sides of the lower portion of the box.

Along the upper edge of the cover 29 is an integral flap-strip 36 joined to the cover by a crease or flexible joint 37, and divided by transverse slots 38 into longer top flaps 39 and shorter flaps 41 respectively opposite to the sides 33 and 34 of the cover. The shorter flaps 41 are folded on the inside of the top under the longer flaps 39 and rest upon the upper edges of the sides 19 and 21 when the cover is on the box so as to space the remaining portions of the top from said edges. The top flaps are secured to each other in any suitable manner.

In the event the boxes are shipped empty both the lower portion of the box and the cover can be diagonally collapsed around their respective flexible corners so that a large number can be shipped or stored flat. If the cover is telescoped over the lower portion of the box, then, before the top and bottom flaps are folded, the cover and the lower portion of the box may be collapsed and flattened together as a unit, if necessary.

As it is the usual practice in egg carriers the box is divided transversely into two equal compartments. This may be accomplished by a single, corrugated sheet that fits across the interior of the box. The box and cover herein are preferably made of corrugated fibre board. In order to reinforce the box I show herein the use of linings 42 and 43. Each lining is preferably made from a strip of corrugated fiber board transversely scored or creased to provide transverse flexible joints which constitute the corners of the lining when the sides between the adjacent joints are folded at right-angles. The strips and sides are of such length that each lining confines a space of substantially rectangular cross-section of about one half of the entire box in cross section. Thus three sides of each lining slidably fit against an end and one half of each adjacent side of the box, and the fourth side of each lining extends parallel with, and intermediate between the ends of the box, and forms a partition. This partition 44 is therefore a double-wall partition securely positioned by reason of the location of the linings 42 and 43. The strips of the linings are so cut that the corrugations of lining 43 are at an angle, preferably at right-angle, to the corrugations of lining 42, so as to provide a more rigid double partition 44.

The box heretofore described provides a highly efficient egg carrier of comparatively light weight and small bulk. The box may be stored in flattened, collapsed position. When in use the bottom flaps can be readily secured together, and the eggs can be packed rapidly. The cover is secured in place, completely telescoped over the sides of the wall. In shipping or storing the full boxes can be stacked one on top of another, but the raised cushions on the bottoms of the boxes space the bottom of the upper box from the top of the box immediately below it, and the load is exerted at the ends of the top of the lower box and taken up through the inner cushion flanges of the top resting on the upper edges of the sides of the box. The spacing of the bottoms of the boxes from the respective tops of the boxes below them by the bottom cushions provides an air space or passage between the superposed boxes of the stack, which allow free circulation of air and facilitates air conditioning or refrigeration around said boxes in shipping or storing. In this manner full protection is afforded to fragile articles, without any use of heavy and bulky cratings.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. A box comprising a substantially rectangular strip having its ends secured to each other so as to form the sides of the box and being provided with transverse flexible joints at the corners of the box, a second strip formed at a longitudinal edge of the first strip and being provided with a flexible joint at said edge, said second strip being divided into flaps of the same length as the length of the respective adjacent sides of the box and being adapted to be folded toward each other at right-angles to the planes of the respective sides, and means to secure said flaps together to form an additional side of said box at right-angle to the sides formed by said first strip, two opposite flaps adjacent the respective edges of opposed sides of the box being provided with additional flexible joints so arranged as to permit the folding of each of said two flaps upon itself and upon the outside of the other two flaps to form spacing cushions for the box, the other two opposite flaps being adapted to form a complete closure for the box.

2. The combination with a box having sides and flaps extended from each of the sides, two of the said flaps adapted to be folded toward each other to form a complete closure for the box, of spaced cushions formed on the other flaps outside and over said closure wall for spacing said wall of the box from the walls of other boxes when the boxes are stacked.

3. In a box of the character described, the combination with the sides of the box formed of a strip of material, of separate flaps extended from each side at the same longitudinal edge of the strip and two of the said flaps adapted to be folded toward each other to form a complete closure wall for the box, the remaining flaps being foldable upon themselves longitudinally to the respective flaps and transversely over the outside of the other flaps to form spaced cushions on said wall.

4. A box of the character described comprising sides and a bottom, a cover for the box including a top, sides extended from said top to completely telescope over the sides of the box, spacing cushions on the outside of the bottom of the box, and spaced cushions on the inner face of the said top resting on the top edges of the sides of the box so arranged that when a plurality of boxes are stacked the cushions on the bottom of an upper box transmit the load through the cushioned portion of the top to the sides of a lower box.

5. A shipping box of the character described comprising sides, and a bottom, a top, and sides extended from said top to telescope over the sides of the box to form a cover for said box, spacing elements on the bottom of the box to space said bottom from a supporting surface, and means on the top to transmit the load of another box stacked on said box from its spacing elements to the sides of the lower box.

6. A box of the character described comprising sides and a bottom, a cover for the box including a top, sides extended from said top to completely telescope over the sides of the box, spacing cushions on the bottom of the box, and spaced cushions on the inner face of the said top resting on the top edges of the sides of the box so arranged that when a plurality of boxes are stacked the cushions on the bottom of an upper box are aligned with and rest over the cushioned portion of the top of a lower box.

7. A box of the character described comprising a substantially rectangular strip having its ends secured to each other so as to form the sides of the box and being provided with transverse flexible joints at the corners of said sides, a flap-strip along a longitudinal edge of said first strip divided into flaps to form the bottom of the box when folded toward each other, a second substantially rectangular strip having its ends secured to each other so as to form sides of a cover slidably disposed around the outside of said first strip and being provided with flexible joints at the corners of the sides of the cover, and a second flap-strip along the longitudinal edge of the second strip farthest from the first flap-strip, and being divided into flaps to form the top of the box, alternating flaps of the first flap strip being folded upon themselves so as to form spaced cushions on said bottom, and alternate flaps on the second flap-strip, aligned with said cushions, being arranged to rest on the respective top edges of the sides formed by the first strip to transmit load from said cushions to said edges of the first strip when boxes are stacked.

8. A box of the character described comprising a substantially rectangular strip having its ends secured to each other so as to form the sides of the box and being provided with transverse flexible joints at the corners of said sides, a flap-strip along a longitudinal edge of said first strip divided into flaps to form the bottom of the box when folded toward each other, a second substantially rectangular strip having its ends secured to each other so as to form sides of a cover slidably disposed around the outside of said first strip and being provided with flexible joints at the corners of the sides of the cover, and a second flap-strip along the longitudinal edge of the second strip farthest from the first flap-strip, and being divided into flaps to form the top of the box, alternating flaps of the first flap strip being folded upon themselves so as to form spaced cushions on said bottom, and alternate flaps on the second flap-strip, aligned with said cushions, being arranged to rest on the respective top edges of the sides formed by the first strip to transmit load from said cushions to said edges of the first strip when boxes are stacked, said first strip and second strip being collapsible together around said flexible joints when said bottom and top flaps are unfolded.

9. An egg carrier comprising an inclosed box, adapted to contain eggs packed therein; a cover for the box including a top, sides extended from the top telescoping over the respective sides of the box to form double walls, means on the top to support the weight of the top on the upper edges of the sides of the box, and spaced cushions on the bottom of the box aligned with said supporting means to space the bottom of an upper box from the top of the adjacent lower box when the boxes are stacked.

10. An egg carrier comprising an inclosed box, adapted to contain eggs packed therein; a cover for the box including a top, sides extended from the top telescoping over the respective sides of the box to form double walls, a cushion on the outside of the bottom at each end thereof, and inner spacers at each end of the top resting on the upper edges of the sides of the box opposite said cushions.

11. A box of the character described comprising a substantially rectangular strip having its ends secured to each other so as to form the sides of the box and being provided with transverse flexible joints at the corners of said sides, a flap-strip along a longitudinal edge of said first strip and being provided with flexible joints in extension of the corners of said sides to divide the flap-strip into flaps, and being foldable around said longitudinal edge, folding joints formed on alternate flaps from a corner of said alternate flaps at said longitudinal edge extending at an angle to the free longitudinal edge of the flap-strip and then at an angle to said first fold to the other corner of the said alternate flaps at said first longitudinal edge so that the alternate flaps can be folded upon themselves when the flaps are folded toward each other, thereby to form a bottom wall for said box with spaced cushions, and a cover for the box comprising sides to telescope over the sides of the box, and a top including spaced flaps adapted to rest on the top edges of the sides of the box so arranged that when a plurality of boxes are stacked the cushions on the bottom of a box above are aligned with and rest over the said last-mentioned flaps.

12. A box of the character described comprising a substantially rectangular strip having its ends secured to each other so as to form the sides of the box and being provided with transverse flexible joints at the corners of said sides, a flap-strip along a longitudinal edge of said first strip and being provided with flexible joints in extension of the corners of said sides to divide the flap-strip into flaps, and being foldable around said longitudinal edge, folding joints formed on alternate flaps from a corner of said flaps at said longitudinal edge extending at an angle to the free longitudinal edge of the flap-strip and then at an angle to said first fold to the other corner of the alternate flaps at said first longitudinal edge so that the alternate flaps can be folded upon themselves and over the outside of the other flaps to form a bottom wall with spaced cushions, and a cover for the box comprising sides to telescope over the sides of the box, and a top including spaced flaps adapted to rest on the top edges of the sides of the box so arranged that when a plurality of boxes are stacked the cushions on the bottom wall of a box above are aligned with and rest over the said last-mentioned flaps.

KITCHENER K. NEWSOM.