

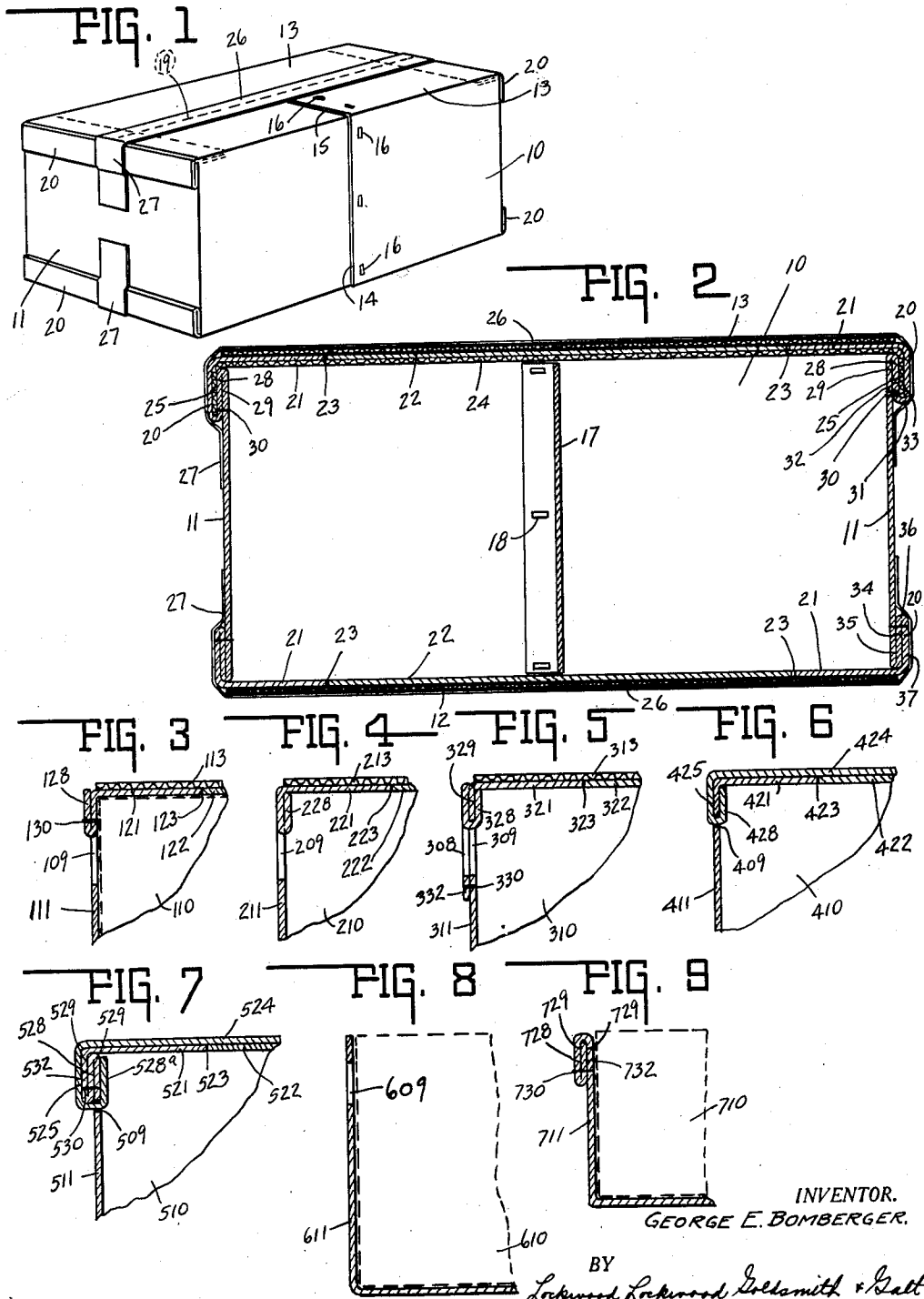
Oct. 24, 1933.

G. E. BOMBERGER

1,932,240

EGG CASE

Filed Feb. 2, 1931



UNITED STATES PATENT OFFICE

1,932,240

EGG CASE

George E. Bomberger, Indianapolis, Ind.

Application February 2, 1931. Serial No. 512,772

4 Claims. (Cl. 229—43)

This invention relates to a corrugated board case suitable for the storage and transmission of eggs.

5 The chief object of this invention is to form a case that will have substantially the same length of life as the present wooden case, will be lighter to handle and will be cheaper than the present wooden cases now employed for eggs.

10 The chief feature of the invention consists in forming a case of corrugated board, indented paper board or other forms of paper board or material which can be creased and folded in a similar manner, and the formation is such that it has substantially all the desirable characteristics of the wooden case now in use and in addition thereto, has the following advantages.

15 It is cheaper to assemble; it has a less initial cost, it provides a practically air tight case, thereby reducing the shrinkage in weight of eggs therein and prevents the acquisition of undesirable odors by absorption; it provides insulation against extreme heat and cold; it provides a greater cushioning than can be obtained in a wooden case; it avoids the possibility of egg molding due to the use of unseasoned timber; it readily takes printing and eliminates stenciling and the like; it eliminates splinters and the possibility of personal injury to the person handling the case, and it can be sealed and opened as often as necessary for inspection and repacking and will always present a good appearance.

20 The adhesive used in forming the board is vermin proof and said adhesive offers serious resistance to rats and mice as well.

25 Another object of the invention is to form the case of corrugated board or similar material in such a manner that suitable hand grips are provided and said hand grips are preferably arranged to form cushions or bumpers at the ends and certain formations of the case are so arranged that the same prevents cocking or tilting of the side walls, and also in special cases the tops and bottoms are reinforced and cushioned so that breakage of the eggs is materially reduced over that obtained with the use of the standard wooden cases.

30 The case can be assembled complete in the box factory with the center or partition board secured therein, and shipped flat to the packer for storage until used, thus saving considerable warehouse space now required when storing wooden cases pending use.

35 The case is made to conform to the standard requirements for egg cases, in so far as these set forth dimensions and minimum crushing

strength and material acceptable for the manufacture of such cases.

Certain compression tests upon the combination case including bumpers and hand grips indicated a compression load of 1480 pounds applied longitudinally compressed the overall length $1\frac{1}{8}$ inches with an interior shortening of the case chamber of but $\frac{1}{8}$ inch, or one inch of the shortening was taken up in and by the cleats and bumpers. Eggs in the case would not be broken if the case were shortened but $\frac{1}{8}$ inch.

65 Upon release from the compression load the cleats or bumpers re-expanded in fine shape and were still available as satisfactory grips and bumpers.

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

In the drawing, Fig. 1 is a perspective view of an egg case, embodying the invention and closed.

75 Fig. 2 is an enlarged longitudinal central sectional view through one form of the case.

80 Fig. 3 is an enlarged longitudinal central sectional view through one corner of a modified case, showing a modified form of board.

Fig. 4 is a similar view of still a further modified form of corner construction.

Fig. 5 is a similar view of still a further modified form of corner construction.

85 Fig. 6 is a similar view of another modified form of corner construction.

Fig. 7 is a similar view of still a further form of modified construction.

90 Fig. 8 is a longitudinal central sectional view through one end of a modified form of case.

Fig. 9 is a similar view of still a further form of the case.

In the drawing there are illustrated several modified forms which have all the advantages previously enumerated and hereinafter such will not be repeated.

95 In the drawing, there is illustrated an egg crate or case which has the two side walls 10, the two end walls 11, the bottom 12 and the top 13. The case is preferably formed from a substantially rectangular blank and in order to reduce the cutting, the case is so made up that one side 10 is formed by two overlapping portions overlapped as at 14 and one of the half top portions 13 as well as one of the half bottom portions is similarly formed as at 15, the overlapped portions being secured together by stapling or the like 16. The case may be formed with the joint at a corner which requires the use of a flap extension for overlap.

110

In a thirty dozen case, a transverse partition 17 is suitably stapled, or stitched, as at 18 to the sides 10. Each side has an upper portion equal to substantially half the width of the case 5 and each of these half portions 13 form the top of the box.

The bottom 12 is similarly formed by the half flap extensions which abut each other along a line substantially similar to the abutting contact, as indicated at 19 of the half tops 13—see Fig. 1 or the flaps for both top and/or bottom may overlap.

Each of the ends have flap extensions which are suitably and multiply scored and associated together to form finger grips and bumper cleats 20. The cleat forming portions include inward extensions 21 and these terminate short of meeting engagement. An additional spacer 22 bridges the space between the two ends 21 and forms a flat surface and the same may abut the flap 21 as at 23. The spacer may be omitted and if desired the flap 21 may extend toward and terminate immediately adjacent each other.

If additional cushioning is desired, a substantially U-shaped reinforcing sheet 24 with angularly turned ends 25 may be provided. The sheet has its corrugations arranged longitudinally of the length of the case. This sheet also reinforces the side walls and prevents cocking or twisting of the case. Sheet 24 distributes the shocks or blows imparted to the adjacent portion of the case, and to the end walls and center partition.

The case is sealed in the usual manner by the sealing strip 26 with angularly turned ends 27 and in this manner, the crate may be sealed in a substantially air tight manner, except for the corners. The flaps may be sealed with an adhesive, or may be closed with metal clamps, clips or other devices.

The bumpers and cleats and hand grips are formed by doubling back the extensions upon the ends of the case. In Figs. 1 and 2 the top cleats and hand grips are illustrated as of slightly different construction from that shown at the bottom. The upper extensions are doubled back upon themselves as at 28 and are suitably secured as by gluing, nailing, stapling or riveting, the first mentioned being indicated as at 29 and the last mentioned as at 30. The portion 28 is reversely bent as at 31 and overlies the initially bent portion as at 32 and terminates in the end portion 21. There is thus formed a groove 33 that receives the angular end 25 of the additional insert 24. The insert 24 preferably has its corrugations running lengthwise of the length of the case. This construction prevents the sides of the box from collapsing inwardly and reinforces the box and also increases the thickness of the hand grip or bumper construction. The lower extension of each end is doubled back upon itself as at 34 and is similarly secured as at 35 and is further doubled back upon itself as at 36 and overlaps as at 37 the initially bent portion. Portion 37 is extended angularly and forms the inwardly extending end portion 21 of the bottom.

It will be apparent from a comparison of the top and bottom construction shown in Fig. 2, that the top has an additional reinforcing layer and that the hand grips at the end are of considerably larger size. The bottom may, however, be fashioned in exactly the same way that the top is formed and be additionally reinforced, or the top may be formed in substantially the same manner that the bottom is formed.

In Fig. 3 there is illustrated a modified form of the invention, wherein the end 111 is apertured as at 109 and the portion 128 is turned back and upwardly and suitably secured to the main body portion as at 130. The extended portion 121 of the end abuts the spacer 122 as at 123 and the top is indicated at 113. This is a simplified form of the invention.

In Fig. 4, a modified form of the invention is illustrated. Herein 211 indicates the end apertured at 209 and the portion 228 is turned to overlap the body portion of the end and is turned inwardly and forms the opening 209 for finger grip purposes. The case end 211 includes an extension 221 which abuts the insert 222 as at 223, if the latter is employed, and the top is formed by the portion 213 in the usual manner.

In Fig. 5 a further modified form of the invention is illustrated, wherein the end 311 is apertured as at 309 and the extension 321 therefrom extends inwardly and reinforces the top and may abut as at 323 an insert 322 and the top is completed by the portion 313. In this form of the invention, however, an additional piece of board, indicated as at 332, is apertured as at 308 and the portion 328 formed thereby is turned angularly, inwardly and upwardly, so as to form a reinforced top edge and bumper and the registering openings 308 and 309 constitute the hand grip. The portion 322 may be suitably secured to the end 311 as by stitching 330, and the like, and the portion 328 may be secured as by adhesive 329, or the like.

In Fig. 6 a modified form of the invention is illustrated, wherein 411 indicates an end wall and the latter is apertured as at 409 for at least a portion of its width and the reinforcing member 424 having the angular end portion 425, includes a reduced extension 428 that extends through the opening 409. The usual reinforcing strip 422 may be provided and the extension 421 may abut the same as at 423.

In Fig. 7 a further modified form of the invention is illustrated and in this form 511 indicates the end wall, 510 the side and the end wall extension is turned back upon itself as at 528 and is again turned back upon itself in a reverse position as at 532 and the reinforcing member 524 includes the angular portion 525, which is turned inwardly and passes through an opening 509 into the end wall 511 and is turned upwardly as at 528a. The end wall and the reversely extended overlapping portions 528 and 532 are suitably secured together as by adhesive 529 and/or by the stitching 530 or the like. The free end of the extension 521 may terminate adjacent the reinforcing sheet 522 and abut the same as at 523.

In all of the preceding forms of the invention, it is to be understood that both opposite ends may be similarly formed and that the bottom may be formed substantially similar to the top, as illustrated, or may be formed in any one of the other manners herein illustrated, as may be found most expedient, practical and desirable.

It is also to be noted that the openings 109, 209 and 309 in Figs. 3, 4 and 5 respectively, are preferably of a width just sufficient to accommodate a hand of the person who will handle or lift the case. The portions 128, 228 and 328 respectively, turned back from the cut out before mentioned, form a protected bearing edge so that the corrugations and rough portions will not lacerate the hand of the operator or the person lifting the case. Preferably, the openings 109, 150

209 and 309 are substantially D-shaped with the arc or curved portion opening upwardly, so that the bearing or gripping protected edge is substantially horizontal and the upper edge of the opening.

In Fig. 8 a simplified form of construction is illustrated in which the end wall 611 includes the hand grip opening 609. This type of case may be used as an insert for positioning in any one of the other cases and may be of the fifteen dozen capacity, it being understood that the thirty-dozen capacity case is provided with the partition 17—see Fig. 2. This partition may also be omitted in such cases where the insert, shown in Fig. 8, is employed.

In Fig. 9, a modified form of the invention is illustrated, wherein the insert case is provided with a hand grip by having the end 711 turned back upon itself as at 728 and thence in reverse direction turned back upon itself and tucked inwardly between the initially reversed portion, as at 732, and the parts may be suitably secured together by adhesive, or the like, as at 729 or may be suitably stitched, stapled, or otherwise secured together as at 730, for forming the hand grip in this manner.

Except where specifically set forth in the specification and claims wherein the terminology is employed and particular reference is had to the position or direction of corrugating, the term corrugated paper board, is intended to include indented paper board or other suitable paper stock material.

The invention claimed is:—

1. In an egg case including unitary opposite end walls, opposite side walls, a bottom and a pair of top forming side wall supported flap means, the combination of inturned flaps integral with the end walls and adapted for positioning beneath the top forming flap means, each of said end walls and its inturned flap including a pair of parallel reversely directed portions for forming a combination bumper and hand grip on the end wall immediately adjacent the edge common to the top and end, and a substantially U-shaped member having its midportion of substantially the same area as the top of the case, said end wall being arranged at the bumper formation to receive the free ends of the U-shaped member for anchoring the same.

2. In an egg case including unitary opposite end walls, opposite side walls, a bottom and a pair of top forming side wall supported flap means, the combination of inturned flaps in-

tegral with the end walls and adapted for positioning beneath the top forming flap means, each of said end walls and its inturned flap including a pair of parallel reversely directed portions for forming a combination bumper and hand grip on the end wall immediately adjacent the edge common to the top and end, and a substantially U-shaped member having its midportion of substantially the same area as the top of the case, said end wall and bumper forming a groove to nest the free end of the U-shaped member therein.

3. In an egg case including unitary opposite end walls, opposite side walls, a bottom and a pair of top forming side wall supported flap means, the combination of inturned flaps integral with the end walls and adapted for positioning beneath the top forming flap means, each of said end walls and its inturned flap including a pair of parallel reversely directed portions for forming a combination bumper and hand grip on the end wall immediately adjacent the edge common to the top and end, a substantially U-shaped member having its midportion of substantially the same area as the top of the case, and a spacing member of a width equal to the width of the case and of a length substantially equal to the spacing between the inturned end flaps and interposed therebetween, said U-shaped member and spacing member lying in superposed relation.

4. In an egg case including unitary opposite end walls, opposite side walls, a bottom and a pair of top forming side wall supported flap means, the combination of inturned flaps integral with the end walls and adapted for positioning beneath the top forming flap means, each of said end walls and its inturned flap including a pair of parallel reversely directed portions for forming a combination bumper and hand grip on the end wall immediately adjacent the edge common to the top and end, a substantially U-shaped member having its midportion of substantially the same area as the top of the case, said end wall and bumper forming a groove to nest the free end of the U-shaped member therein, and a spacing member of a width equal to the width of the case and of a length substantially equal to the spacing between the inturned end flaps and interposed therebetween, said U-shaped member and spacing member lying in superposed relation.

GEORGE E. BOMBERGER.