

Aug. 14, 1934.

E. L. SHEPARD

1,970,436

COMBINATION FLAT AND FILLER

Filed Feb. 14, 1933

2 Sheets-Sheet 1

Fig. 1

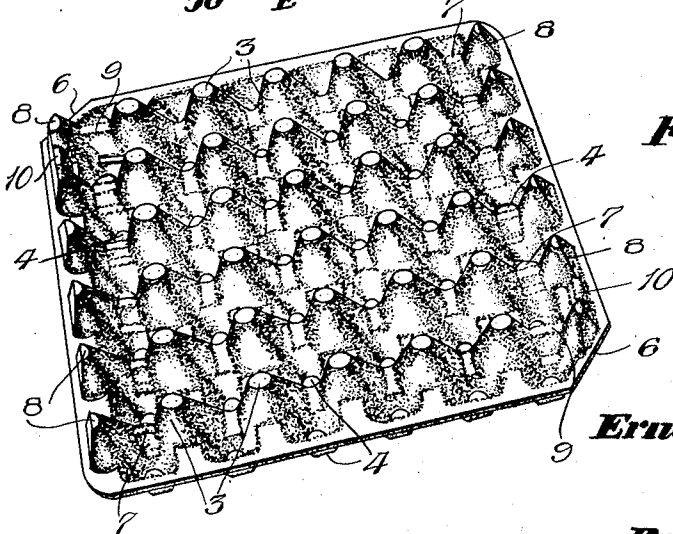
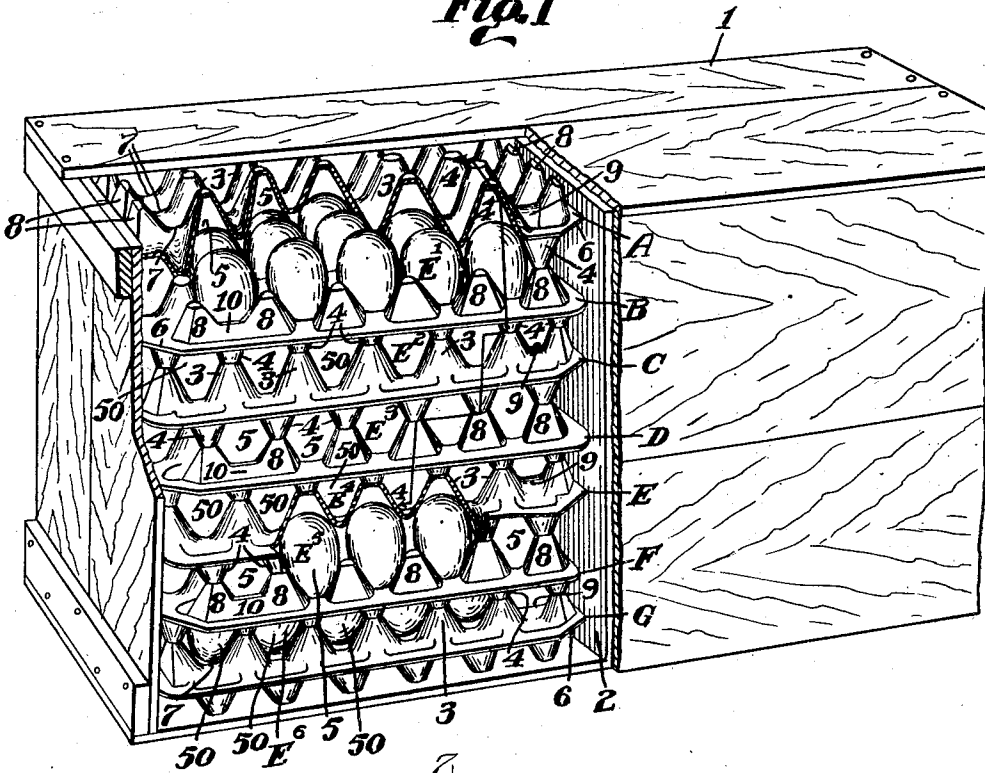


Fig. 3.

Inventor
Ernest L. Shepard

By
Attorney

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E. L. SHEPARD

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2 Sheets-Sheet 2

Fig. 2

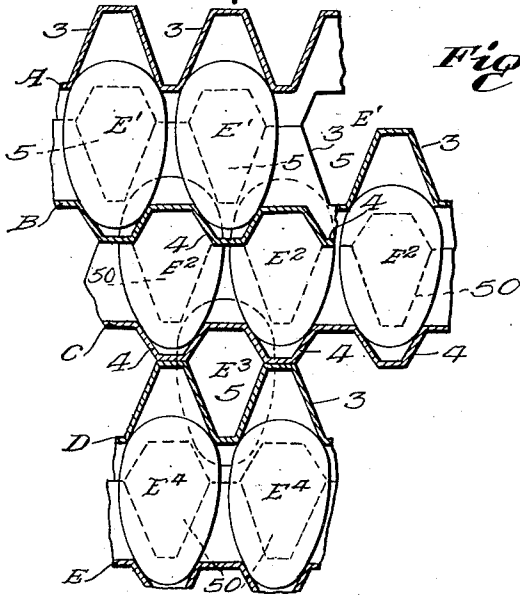
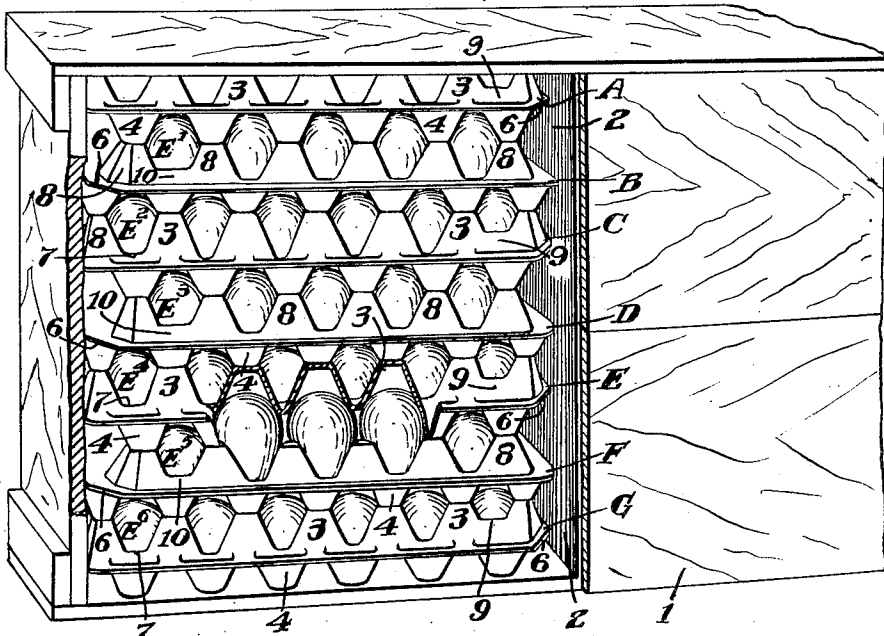


Fig. 4.

Inventor
Ernest L. Shepard

Ernest L. Shepard Jr.

By **Attorney**

UNITED STATES PATENT OFFICE

1,970,436

COMBINATION FLAT AND FILLER

Ernest L. Shepard, Fairfield, Maine, assignor to
Keyes Fibre Company, Inc., Waterville, Maine,
a corporation of Maine

Application February 14, 1933, Serial No. 656,715

4 Claims. (Cl. 217—25.6)

This invention relates to packs for fragile articles, such as eggs, incandescent bulbs, radio tubes, and like ovate articles, and particularly to a combination flat and filler of the type shown in the pending application of Ferdinand Kronenberger, Serial No. 629,293, to which reference is made as containing a full disclosure of the problems in the art.

My present invention is an improvement upon and refinement over the above-identified Kronenberger pack and method of packing, and while embodying the general features of that pack and packing method, nevertheless departs therefrom in several important respects.

In particular, it differs in respect to the matter of pocket spaces. According to this phase of my present invention, such spaces are designed to afford a radially resistant deformability to the endwise insertion of the egg or other object sufficient to cradle the egg snugly therein without however gripping it so tightly as to prevent it from being readily removed therefrom when the pack is being emptied. This involves not only the factor of pocket design whereby to receive eggs which vary greatly from each other in length or diameter or both, but also involves the use of a pocket wall material which under all conditions of climate will offer a uniform pocket resistance and grip to the egg.

As in said Kronenberger flat the packing sheet is provided with symmetrically arranged rows of upwardly and downwardly extending hollow conical projections, those which extend downwardly forming half pocket spaces on the upper side of the sheet, the upward projections being located diagonally in between the downward projections, so that the full pockets in successive layers or tiers of sheets overlap each other vertically, and the upward and downward projections forming in groups of four on each side of the sheet a four-sided pocket.

In my present invention, the sets of upward and downward projections instead of being of equal length as heretofore, are purposely made of different lengths, the upward projections being preferably longer than the downward projections.

From this it results that the half-pockets formed by the downward projections are shallower than those formed by the upward projections. While this does not affect the total length of the combined pocket which results when two sheets are superposed one upon the other, due to the fact that in such superposing the upper sheet is turned through a quarter revolution relative to the lower whereby to bring each deep half-

pocket into registry with each shallow half-pocket, it does affect the gripping action of the combined pocket on the inserted egg. Instead of such pocket gripping the inserted egg so tightly as to make extremely difficult its intentional withdrawal when the device is being unpacked, as frequently results where the combined pocket is formed by two half-pockets of equal depth, as heretofore, my pocket construction admits of ready withdrawal of the inserted egg, even where it may be oversized, and at the same time grips the egg tightly enough to hold it against rattling or other undue looseness in the pocket.

My present invention also contemplates a more effective stiffening and bracing of the entire sheet than heretofore, particularly at diagonally opposite corners where the stresses imposed in lifting a filled sheet from the crate assembly are greatest. Such reinforcement is especially desirable in the form of sheet constituting the subject matter of my present invention in that, according to another phase of my invention the sheet has been slabbed off at such diagonally opposite corners whereby the corners thus slabbed may serve as indicators visually to show the packer when superposing the sheets one upon the other how successive sheets should be turned in the vertical assembly to accomplish the end-to-end abutment of alternate upward and downward pocket-forming projections in successive layers.

As illustrative of the principles involved, I show in the accompanying drawings a form of packing sheet which not only embodies the several features of my invention but has proven highly successful in actual use and well adapted to manufacturing requirements in commercial quantities.

In such drawings:—

Figs. 1 and 2 are perspective views, partly broken away, of a standard egg crate filled with packing sheets made and assembled in accordance with my invention, some of the sheets themselves being broken away to expose the eggs and certain of the eggs which would otherwise obscure the view being omitted for the sake of clearness.

Fig. 3 is a perspective view of one of the packing sheets shown in Figs. 1 and 2 removed, the sheet being seen as viewed from above, and

Fig. 4 is a section on approximately the section line 4—4 of Fig. 1.

The egg crate or case 1 is of standard size and construction. It has the usual vertical partition 2 which centrally subdivides it into two equal-sized compartments each adapted to contain fifteen dozen eggs in horizontal layers, each layer

preferably containing thirty eggs and consisting of a packing sheet, preferably of molded pulp, having thirty half pocket spaces on its upper face and thirty half pocket spaces on its lower face, the pocket spaces on one surface being staggered with reference to those on the opposite surface.

Since the several sheets are duplicates, a description of one will suffice.

Each sheet has a symmetrical series of substantially conical hollow half-pocket forming projections 3 extending upwardly from its upper face, and a similar series of projections 4 extending downwardly from its lower face. The projections 4 are disposed diagonally between and occupy the spaces separating the projections 3 so that when one sheet is superposed upon another, first having been turned through one quarter of a revolution, the respective sets of half-pockets register with each other to define thirty complete pockets between each pair of sheets.

In such relation the downward projections 4 of the top sheet are in end-to-end abutment with the upward projections 3 of the sheet next below, and the upward projections 3 of the top sheet are registered with the downward projections 4 of the sheet next above and define therewith the thirty complete pocket spaces, which for purposes of identification are indicated at 5 in the assembly view of Fig. 1.

As previously noted, one set of projections of each sheet, preferably the upward set 3 is longer than the other set, so that the half-pockets provided by these respective sets of projections are of unequal depth. This avoids to a considerable degree the danger of an inserted egg, particularly if somewhat oversized, from being gripped so securely in the half-pocket into which it is inserted as not to be readily withdrawn when the case is being unpacked.

When alternate sheets are turned through a quarter of a revolution and superposed upon one another, however, the shorter half-pockets of one sheet register with the longer half-pockets of adjacent sheets to furnish the complete pockets 5 of full length.

As a guide and indicator for the packer in registering the half-pockets of alternate sheets with each other, each sheet is slabbed off at diagonally opposite corners as indicated at 6. (Fig. 3). These slabbed corners 6 serve as indicators visually to show the packer which way the successive sheets should be turned and placed upon one another in the vertical assembly.

In order to strengthen the sheet generally, and especially at such slabbed corners 6 one face thereof is provided at two opposite edges with a series of short reinforcing ribs 7. These extend inwardly from the half posts 8 at said edges to the next inner row of projections 3 and serve to stiffen the sheet at said edges. The terminal ribs 9 of said rib series 7 adjacent the slabbed corners 6 are preferably higher than the remaining ribs of the series so as to afford increased stiffness to the sheet at the slabbed corners and the corners are further strengthened by other ribs 10 which connect the two endmost half posts 8 and extend at right angles to the ribs 9 or 7.

Each sheet has six rows of cones 4 or 3 in one horizontal direction and five rows in the opposite horizontal direction. These afford six rows of packing spaces one way of the sheet and five the other way, making thirty spaces in each sheet.

In a complete assembly, as shown in Figs. 1 and 2 there are six layers of eggs. These are designated from E¹ to E⁶ inclusive in said figures. The

layers E¹, E³ and E⁵ are in vertical alignment. The layers E², E⁴ and E⁶ are also in vertical alignment but are disposed in diagonal or staggered relation to the layers E¹, E³ and E⁵, the eggs in said layers E², E⁴ and E⁶ being packed in the pocket spaces 50 which lie diagonally in between the pocket spaces 5 and which in the ordinary flat and filler type of egg pack are simply waste spaces.

To obtain this six layer assembly with thirty eggs in each layer or one-hundred and eighty eggs in each half-compartment of the packing case, I use seven packing sheets, which are indicated from A to G, respectively in Figs. 1 and 2.

The mutual registration of the downward cones 4 of sheets B, D and F with the upward cones 3 of sheets A, C and E forms the full pockets 5 for the layers E¹, E³ and E⁵.

The mutual registration of the upward cones 3 of sheets B, D and F with the downward cones 4 of sheets C, E and G forms the full pockets 50 for the layers E², E⁴ and E⁶.

The closed ends of the respective cones 4 and 3 are preferably flat so as to afford smooth bearing surfaces for the opposing cones of sheets above and below in the assembly. The eggs in any layer are supported by the side walls of the pockets 5 or 50 with their ends definitely spaced from the abutting ends of the pocket-forming posts themselves and the walls of either set of pockets yield laterally to accommodate large eggs packed therein. This yielding action is at four symmetrical points in the pocket wall, and since the pointed end of the egg is received within the shallower half-pockets formed by the short cones 4, there is no danger that the egg will be so tightly jammed therein as to be difficult to removal when the case is unpacked, the egg being supported on the cones 3 entirely above the plane of the sheet and the webs 11 which connect such cones 3 and define the half-pockets formed by the cones limiting the penetration of the egg into said cones.

Various modifications may obviously be resorted to within the spirit and scope of my invention as defined by the appended claims.

What I therefore claim and desire to secure by Letters Patent is:—

1. A combination flat and filler having a plurality of article-containing open spaces on its top arranged in rows, said spaces being tapered with the major area of the spaces facing up, said flat having on its bottom similarly arranged rows of open spaces, certain of said spaces extending within that area which is located within a plurality of adjacent spaces of the opposite side, certain wall portions at a plurality of substantially equally spaced points being so inclined and so proportioned to each other as to produce a wedge-like and supporting action upon the lateral wall of an egg when the same is inserted into such space, the wall portions at one side of the combination flat and filler being longer than those at the other side.

2. A combination flat and filler as claimed in claim 1 wherein the combination flat and filler at two opposite edges is stiffened by a series of stiffening ribs which extend inwardly from the edges of the combination flat and filler at one side thereof and connect with the wall portions in the next outermost row at each of said opposite edges.

3. A combination flat and filler having a plurality of article-containing open spaces on its top arranged in rows, said spaces being tapered with

the major area of the spaces facing up, said flat having on its bottom similarly arranged rows of open spaces, certain of said spaces extending within that area which is located within a plurality of adjacent spaces of the opposite side, certain wall portions at a plurality of substantially equally spaced points being so inclined and so proportioned to each other as to produce a wedge-like and supporting action upon the lateral wall of an egg when the same is inserted into such space, diagonally opposite corners of said combination flat being slabbed off to serve as indicators and the combination flat and filler adjacent said slabbed corners being reinforced by stiffening ribs.

4. A combination flat and filler having a plurality of article-containing open spaces on its top arranged in rows, said spaces being tapered with the major area of the spaces facing up, said flat having on its bottom similarly arranged rows of open spaces, certain of said spaces extending

within that area which is located within a plurality of adjacent spaces of the opposite side, certain wall portions at a plurality of substantially equally spaced points being so inclined and so proportioned to each other as to produce a wedge-like and supporting action upon the lateral wall of an egg when the same is inserted into such space, the wall portions at one side of the combination flat and filler being longer than those at the other side, the combination flat and filler at two opposite edges of one face thereof being stiffened by a series of reinforcing ribs which extend inwardly to the next outermost row of wall portions at each of said opposite edges, diagonally opposite corners of the combination flat and filler being slabbed off to serve as indicators, and said slabbed corners being stiffened by the endmost adjacent rib of each rib series.

ERNEST L. SHEPARD.

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