

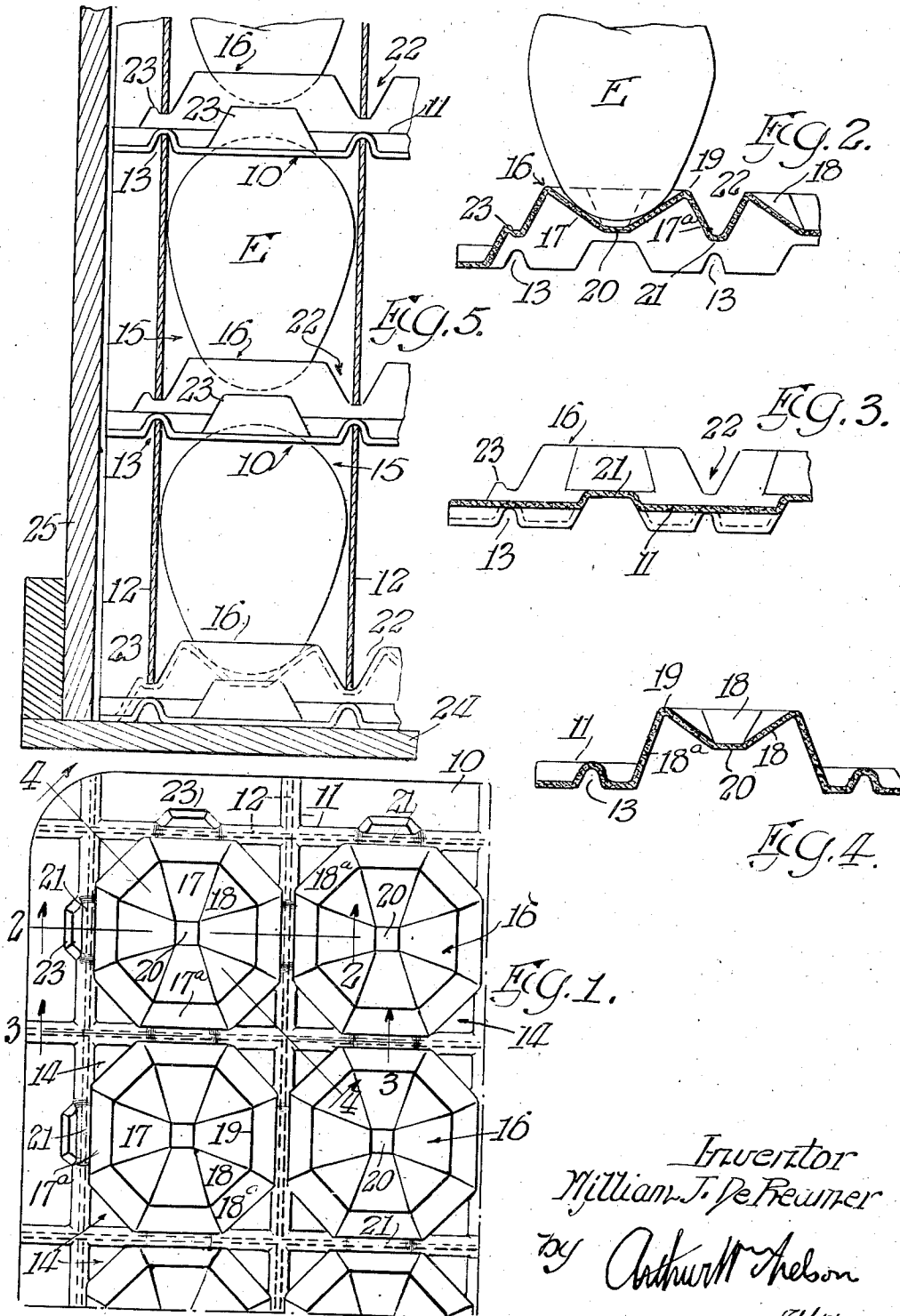
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MOLDED PULP CUSHION PAD

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MOLDED PULP CUSHION PAD

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This invention relates to improvements in packing material and it consists of the matters hereinafter described and more particularly pointed out in the appended claims. The material herein shown and described is in the form of a molded pulp cushion pad especially adapted for use in connection with upper and lower cellular fillers in a conventional egg case.

One of the objects of the invention is to provide a pad of this kind which is so constructed as to engage parts of the strips of cellular fillers, used above and below the same, in a manner coacting to lock each other against relative lateral shifting and thus prevent rocking action of the eggs under impact and which would otherwise cause a breakage of the eggs.

Another object of the invention is to provide a pad of this kind which is provided with egg receiving cups or seats of novel construction on its upper surface, having at least eight egg engageable areas that accommodate several sizes of eggs, with a similar number of channels between said areas for a free air circulation under and around the bottom end of the egg placed in the cup or seat.

A further object of the invention is to provide a pad of this kind having an octagonally shaped egg receiving cup or seat, which has a better resistance to downward pressures, tending to crush or collapse the same, than has heretofore been possible.

Also, it is an object of the invention to provide a pad of this kind wherein the egg receiving cups or seats are so shaped as not only to resist deformation but also to provide greater areas therebetween to make it easier to form in said areas grooves or channels which lock parts of the fillers used with the pad against lateral shifting.

Again, it is an object of the invention to provide a pad of this kind which not only readily nests with others in a stack, but which provides a better pack for eggs by tying all of the pads and fillers together in a case as a unit to prevent lateral shifting or slipping therebetween.

Still furthermore, it is an object of the invention to provide in a pad of this kind a novel filler strip locking groove or channel around the outer rows of egg cups or seats, and which holds the outer strips of the filler against the adjacent side of said cups thereby adding strength to these parts of said filler strips.

The above mentioned objects of the invention, as well as others, together with several advantages thereof will more fully appear as the specification proceeds.

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In the drawing:

Fig. 1 is a plan view on a full size scale, of the egg receiving side of a corner fragment of the improved pad, a part of a cell forming filler used therewith appearing in dotted lines thereon.

Fig. 2 is a detail vertical sectional view through a part of the pad fragment appearing in Fig. 1 as taken on the line 2-2 thereof.

Fig. 3 is another detail vertical sectional view through a part of the pad fragment as taken on the line 3-3 of Fig. 1.

Fig. 4 is still another detail vertical sectional view through a part of the pad fragment as taken on the line 4-4 of Fig. 1.

Fig. 5 is a fragmentary view in side elevation of a number of pads disposed, with associated cellular fillers between them, in a part of a standard egg case.

Referring now in detail to that embodiment of the invention illustrated in the drawing, each pad, which is made of molded pulp material, is a scant $11\frac{1}{2}$ inches square and is of uniform stock thickness throughout on the order of $\frac{1}{8}$ inch. It includes a flat sheet-like body 10 and upon the upper face of the body is a plurality of longitudinal and transverse intersecting upwardly raised molded hollow ribs 11-11 respectively. These ribs, which extend to the edges of the body are spaced apart to accord with the spacing between the intersecting strips 12-12 of a conventional egg case filler, and provide downwardly facing or opening channels 13-13 in the underface or bottom of the body. The raised hollow ribs 11-11 are interrupted to provide the saddles 21 later described.

The upwardly raised ribs 11-11 and saddles 21 define a plurality of square areas 14 (see Fig. 1) on the body which register with the cells 15 (see Fig. 5) formed by the strips 12 of the fillers used with the pad.

Within each area is formed an egg receiving cup or seat 16 of octagonal shape and which is constituted of alternate and intermediate pairs of inner and outer walls 17-17a and 18-18a respectively, which converge toward the top to join as a top end ridge 19. The inner walls 17 and 18 of said pairs of walls converge inwardly and downwardly from the ridge 19 and join with a rectangular bottom 20 for each cup or seat, and which bottom is disposed in a plane above the plane of the top of the ribs 11-11 as best appears in Fig. 2.

The outer side walls 17a of each alternate pair of walls extend downwardly and outwardly from the ridge 19 to merge into saddle parts 21 (see

Fig. 3) disposed above the top of the adjacent ribs but in line therewith so as to define upwardly opening channels 22 between adjacent cups or seats, as best appears in Figs. 2 and 3. It will be noted from said figures that said channels are relatively wide at the open top end and relatively narrow at the closed bottom end as provided by the saddle parts 21—21. The outer walls 17a of the alternate pairs of walls that merge into the parts 21 along those ribs adjacent the edges 12—12 of the body 10 have associated therewith shoulder-like parts 23—23, which define stops engaged by bottom marginal parts of the associated outer filler strips to prevent their lateral shifting or movement in the direction of the plane of the body.

The outer wall parts 18a of the intermediate pairs of walls 12—18a extend downwardly and outwardly from said ridge 19 to join the inside corner parts of the body near the intersection of the hollow ribs 11—11 and also merging into said ribs.

At the intersecting parts of the hollow ribs 11—11, between each four adjacent cups or seats 16—16, said parts of said ribs define in the underside of said body intersecting grooves of substantial length to receive and hold the top marginal intersecting parts of the filler below.

In Fig. 5 I have illustrated a fragment of a pack comprising the improved pads and associated fillers when disposed in a part of a standard egg case, the bottom of which is indicated at 24 and one end of which is indicated at 25.

In arranging a pack as mentioned, one of the improved pads is placed with its body 10 engaged on the bottom 24 of the egg case. A cellular filler, composed of sets of intersecting strips 12—12, is then placed in the case with those bottom marginal parts of the strips thereof, between the intersections of the strips, resting upon the saddle parts 21—21 of the pad, in line with but above the hollow ribs. In this respect it will be noted that the open side of the grooves 22—22 will guide said parts of the filler strips into engagement upon the saddle parts.

An egg E is placed in each cell 15, preferably bottom end down, which end will engage at eight points or areas on the inner walls 17 and 18 of the associated cup, the meeting corners of said walls providing air circulation channels about that end of the egg placed in the cup. When the egg is placed in the cup and has the eight point support on the walls 17 and 18, the bottom extremity of the egg will be spaced slightly above the bottom 20 of each cup, as best appears in Fig. 2.

With the egg supported at the eight points or areas mentioned, it cannot readily rock in its cell and at the same time a relatively free circulation of air is afforded about the bottom end of the egg.

It will be understood that Fig. 1 shows but a part or fragment of the face of the entire pad, the complete pad being approximately $11\frac{1}{2}$ inches square and having six rows of egg seats, each row containing six egg seats, thus providing thirty-six egg seats on each pad. The appearance of the complete pad will be readily understood from the fragmentary illustration.

After eggs have been placed in all the cells associated with seats of the first pad, another pad is placed upon the top edges of the strips of the filler with the top marginal parts adjacent the intersection of said strips engaged in the intersecting parts of the downwardly facing grooves

13—13 as formed by the hollow ribs 11—11. Thus the pad and the eggs contained in the seats or cups 16 are supported from the filler below upon the strongest pressure resisting parts of the filler and which are the intersecting parts of the strips thereof.

Additional sets of intersecting fillers and associated pads are used until there are five layers of eggs, thirty-six eggs per pad layer. At the top of the stack a final pad is positioned, preferably with the egg seats facing upwardly as in the other pads. However, under certain conditions, such for example as when the eggs in the top layer are relatively small, the upper pad may be inverted i. e. with the egg seats facing downwardly.

In any event, irrespective of which way the seats face, the interlocking feature between parts of the edges of the filler strips and parts of the pad is maintained. Thus the lower edge portions of the filler strips on the top side of each pad are confined within the channels 22 between adjacent egg seats and in the channels formed between certain sides of the egg seats and hollow ribs or shoulder parts 23. Also the top edges of the filler strips on the underside of any given pad are received in the channels 13—13 formed by the hollow ribs 11—11.

With the seats arranged as described, there is provided relatively deep inverted pockets into which the top end of the eggs on the pad below may project as apparent from Fig. 5. Thus "long" eggs may be accommodated as readily as the "shorter" ones.

In viewing the seats 16 from above, as in Fig. 1, it is to be noted that the continuity of the pairs of walls is broken up by the substantially radiating junctions thereof. Thus they cannot "roll" inwardly under a downward pressure and collapse because said junctions function as bracing struts. Hence, the cups or seats afford great resistance to collapse under pressure and the eggs are better protected against breakage.

The structure described is such that it can be readily made by means of foraminous dies in connection with vacuum apparatus available in the ground pulp moulding art since there are no holes in the pad and since the pad material at every point is of the same thickness.

From the foregoing, it is evident that the novel pad has among other the following advantages:

The octagonal egg cup or seat has eight flat areas for engagement with the egg providing eight equally spaced ventilating channels allowing a free circulation of air around the egg.

The octagonal egg cup or seat provides a structure of greater strength and will withstand a greater downward pressure before collapsing.

The arrangement of the octagonal cups is such that there is provided, on the upper face of the pad, channels of substantial length defined by flat faces on one side of adjacent egg cups bottomed by the saddles on which the lower edges of the filler strips rest. There is thus provided a very substantial overall support for the bottom edges of the filler strips which prevent the same from cutting through the saddles. Similar support is also provided by the saddle areas between the upstanding hollow shoulder-like parts 23—23. The filler strips being thus confined are prevented from lateral shifting, being firmly confined or limited by the said opposed flat faces of the adjacent cups where they meet the saddle parts and the said flat faces and the hollow shoulder parts with respect to the outer sides of the egg cups

immediately adjacent the outer edges or sides of the pad.

The octagonal cups, as arranged, provide square areas between four adjacent cups, the sides of the square being defined by one side of each cup. This enables the formation of the hollow ribs 11-11 (providing the channels 13 on the underside), diagonally of such square areas. Thus channels of considerable length are available to receive the top edges of the filler strips which in the assembly enter such channel areas. In the aggregate there is thus provided a large area of interengagement between the top edges of the filler strips and the said channel spaces. Lateral shifting of the fillers is thus effectually prevented because, as before explained, the bottom edges of the same fillers are engaged and confined within the channels associated with the saddle areas of the pad immediately therebelow. This relatively large square area between the contiguous egg cups or seats also makes it easier properly to form the channels during the moulding of the pad from the pulp material.

The octagonal cup flat arrangement and disclosed related features provides a substantially better pack as it ties all pads and fillers together throughout the case and effectively prevents slipping of the pad and filler relative to each other, which has heretofore been the cause of considerable egg breakage in commercial shipping practice.

While the pad has a number of improved features lending greater strength, improved egg receiving and holding capacity, it is of such design it can be used in a standard egg case with standard type fillers and the pads may also be nested for shipment to points where the eggs are packed.

The above and other advantageous features of the construction will be appreciated by those skilled in the art to which this invention relates.

While in describing the invention I have referred in detail to the form, arrangement and construction of the parts involved, the same is to be considered only in the illustrative sense and therefore I do not wish to be limited thereto except as may be specifically set forth in the appended claims.

I claim as my invention:

1. A packing material for use in connection with upper and lower fillers comprising intersecting cell forming strips, said material being in the form of an even thickness molded pulp cushion pad having a rectangular sheet-like body with angularly shaped egg receiving seats projecting above and spaced in longitudinal and transverse rows on the upper face of the body portion to register with the cells formed by the fillers, each seat including pairs of inner and outer walls that join as a ridge from the top of the seat, and extend parallel with the edges of said body portion, parts on the upper surface of the body portion between and parallel with the outer walls of adjacent seats coacting therewith in forming upwardly opening channel-like portions for supporting and holding against lateral shifting bottom marginal portions of the strips of the upper filler between the intersections thereof, and other parts of said body portion between and in line with said first mentioned parts being formed to provide downwardly facing intersecting channel-like portions in the bottom face of the body portion for receiving and holding against lateral shifting the intersecting top marginal portion of the strips of the lower filler upon which the pad is engaged and supported.

2. A packing material for use in connection with upper and lower fillers comprising intersecting cell forming strips, said material being in the form of an even thickness moulded pulp cushion

5 pad having a rectangular sheet-like body with angularly shaped egg receiving seats projecting above and spaced in longitudinal and transverse rows on the upper face of the body portion to register with the cells formed by the fillers, each seat including pairs of inner and outer walls that join as a ridge for the top of the seat, and extend parallel with the edges of said body portion, parts on the upper surface of the body portion between and parallel with the outer walls of adjacent seats coacting therewith in forming upwardly opening channel-like portions for supporting and holding against lateral shifting bottom marginal portions of the strips of the upper filler between the intersections thereof, and other parts of said body portion between and in line with said first mentioned parts being formed to provide downwardly facing intersecting channel-like portions in the bottom face of the body portion for receiving and holding against lateral shifting the intersecting top marginal portion of the strips of the lower filler upon which the pad is engaged and supported, and still other parts on the upper face of the body portion and extending outwardly from an outer wall of the seats about the margin of the body portion being formed to coact with said outer walls of the last mentioned seats in forming upwardly opening channel-like portion for supporting and holding against lateral shifting bottom marginal portions of the outer strips of the upper filler.

3. A packing material for use in connection with upper and lower fillers comprising sets of intersecting cell forming strips, said material being in the form of an even thickness moulded pulp pad having a rectangular sheet-like body portion with side and end edges, means rising from and forming on the upper face of the body portion longitudinal and transverse rows of octagonal egg receiving seats that register with the cells formed by the fillers, each seat including alternate and intermediate pairs of oppositely inclined inner and outer walls that join as a ridge for the top of the seat, the alternate pairs of walls extending parallel with the edges of the body portion and the intermediate pairs of walls extending diagonally of said edges, the inner walls of each seat providing eight points of support for the egg engaged thereon with an air circulating channel between each two adjacent points of supports, parts of the body portion between the outer alternate walls of adjacent seats providing upwardly opening channel-like portions for receiving and holding against lateral shifting bottom marginal portions of the strips of the upper filler between the intersections thereof, and other parts of the body portion between and in line with the first mentioned parts being formed to provide downwardly facing intersecting channel-like portions in the bottom face of the body for receiving and holding against lateral shifting the intersecting top marginal portion of the strips of the lower filler, upon which the pad is engaged and supported.

4. A packing material for use in connection with upper and lower fillers comprising intersecting cell forming strips, said material being in the form of an even thickness moulded pulp pad having a sheet-like body portion, means providing spaced longitudinal and transverse intersecting hollow rib portions on the upper face of the body portion and elevated saddle portions uniting

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spaced hollow rib portions, said hollow rib portions and connected saddle portions being disposed in the pattern of the fillers, and defining longitudinal and transversely extending rows of square areas in said body portion, means rising from and forming in each of said areas an octagonally shaped egg receiving seat, which seats register with the cells formed by the fillers, each seat including alternate and intermediate pairs of oppositely inclined inner and outer walls that join as a ridge for the top of the seat, the alternate pairs of walls extending parallel with said ribs and being interconnected by said saddle portions and the intermediate pairs of walls extending diagonally of said ribs, the outer walls of the alternate pairs of said walls of said seats merging into parts of the ribs therebetween and coacting with the upper surface portions thereof in forming upwardly opening channel-like portions for supporting and holding against lateral shifting the bottom marginal portions of the strips of the upper filler between the intersections thereof, and parts of said hollow ribs between the first mentioned parts thereof defining between each four adjacent seats, downwardly opening intersecting channel-like portions for receiving and holding against lateral shifting the intersecting top marginal portion of the strips of the lower filler upon which the pad is engaged and supported.

5. A packing material for use in connection with upper and lower fillers comprising intersecting cell forming strips, said material being in the form of an even thickness moulded pulp pad having a sheet-like body portion, means providing spaced longitudinal and transverse intersecting hollow rib portions on the upper face of the body

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portion, and elevated saddle portions uniting spaced hollow rib portions, said hollow rib portions and connected saddle portions being disposed in the pattern of the fillers, and defining longitudinal and transversely extending rows of square areas in said body portion, means rising from and forming in each of said areas an octagonally shaped egg receiving seat, which seats register with the cells formed by the fillers, each seat including alternate and intermediate pairs of oppositely inclined inner and outer walls that join as a ridge for the top of the seat, the alternate pairs of walls extending parallel with said ribs and the intermediate pairs of walls extending diagonally of said ribs, the outer walls of the alternate pairs of said walls of said seats merging into parts of the ribs therebetween and coacting with the upper surface portions thereof in forming upwardly opening channel-like portions for supporting and holding against lateral shifting the bottom marginal portions of the strips of the upper filler between the intersections thereof, and parts of said hollow ribs between the first mentioned parts thereof defining between each four adjacent seats, downwardly opening intersecting channel-like portions for receiving and holding against lateral shifting the intersecting top marginal portion of the strips of the lower filler upon which the pad is engaged and supported, and means associated with parts of the outer ribs adjacent the edges of the body parts and extending parallel therewith and providing shoulder portions rising from said parts of said ribs for holding bottom marginal parts of the outer strips of the upper filler against lateral shifting.

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