April 13, 1954 L. SCHWARTZBERG 2,675,319

EGG SHIPPING CONTAINER

Filed March 21, 1950 2 Sheets-Sheet 1

Fig. 1

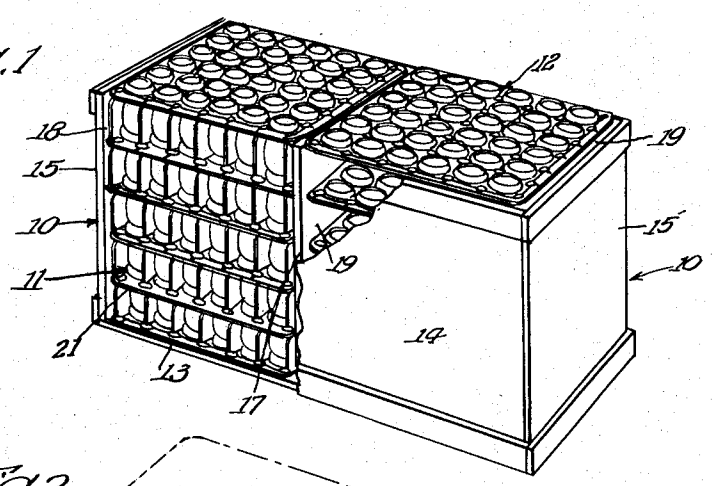


Fig. 2

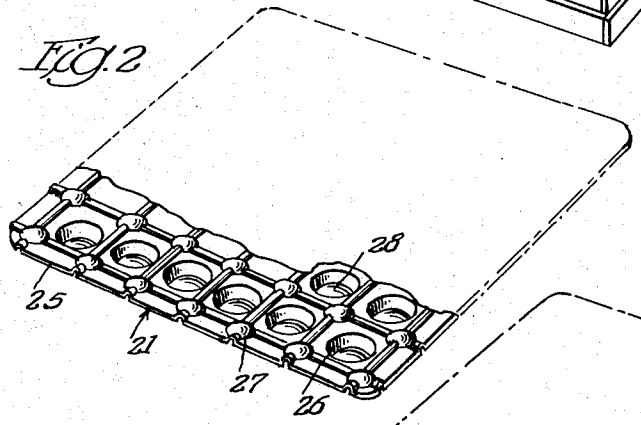


Fig. 3

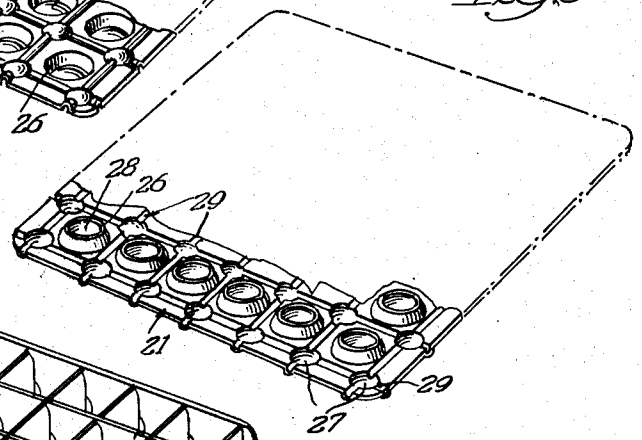
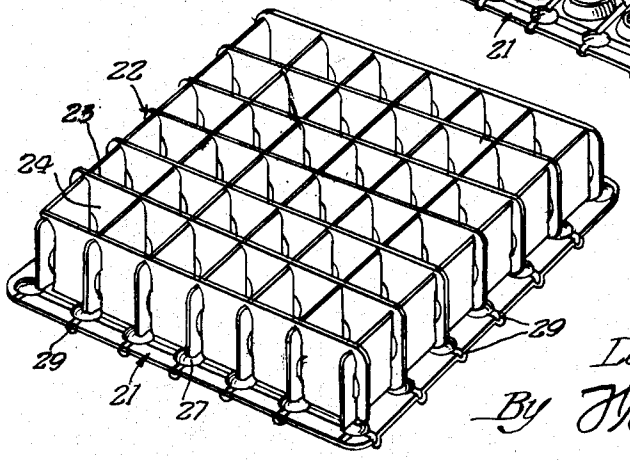


Fig. 4



Inventor
Louis Schwartzberg
By Fred Gerlach Atty.

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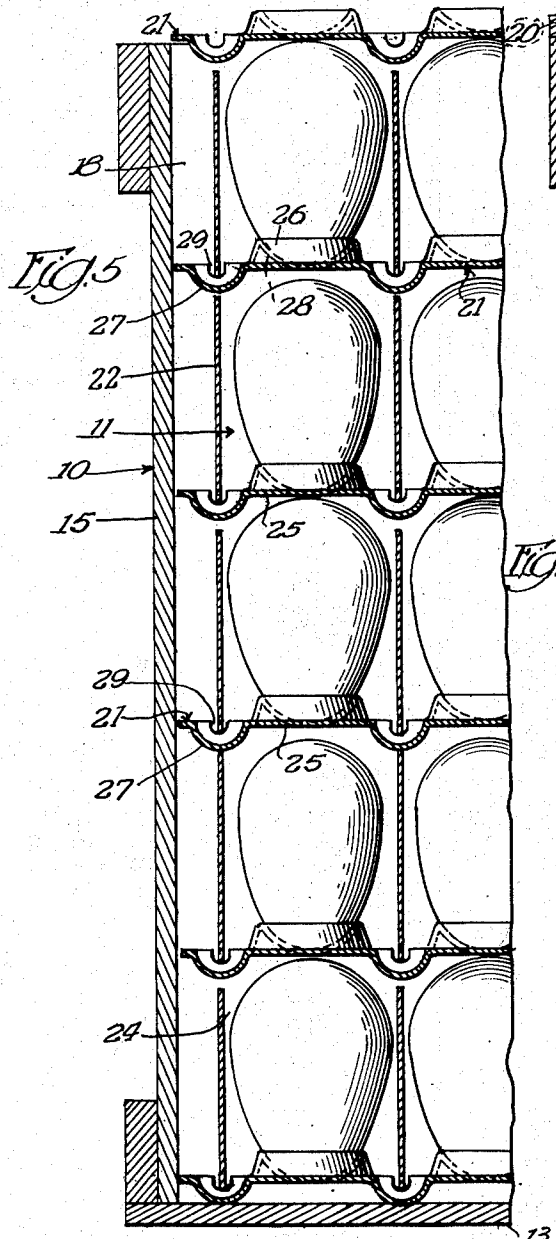


Fig. 5

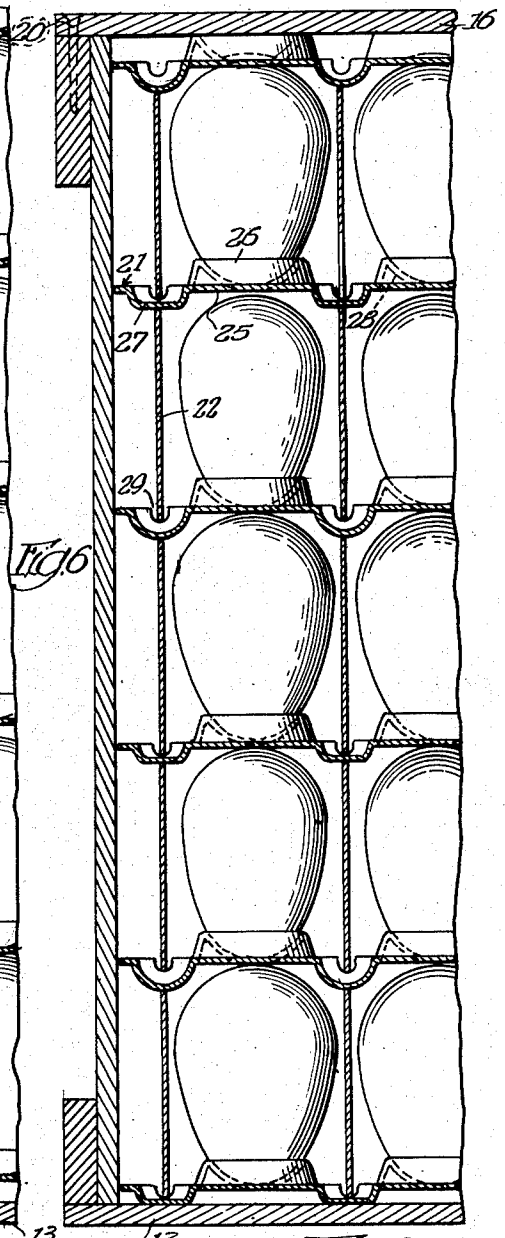


Fig. 6

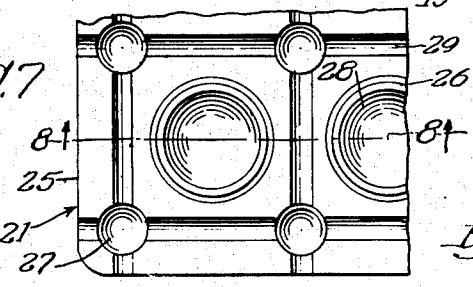


Fig. 7

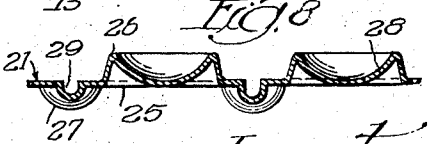


Fig. 8

Inventor:
Louis Schwartzberg
By: Fred Gerlach Atty.

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EGG SHIPPING CONTAINER

Louis Schwartzberg, Chicago, Ill.

Application March 21, 1950, Serial No. 150,900

1 Claim. (Cl. 99—177)

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The present invention relates generally to shipping containers. More particularly the invention relates to that type of container which is expressly designed for use in shipping eggs and comprises a cover equipped case and, in addition, a composite cellulose structure which is disposed within, and fills the interior of, the case and embodies a vertical series of spaced apart flats and an alternating vertical series of cell-forming fillers between the flats.

In a shipping container of this type it has been proposed and is now standard practice to form each of the cell-forming fillers of a series of horizontally elongated, vertically extending, laterally spaced cardboard strips and a second series of horizontally elongated, vertically extending, laterally spaced cardboard strips which are arranged at right angles to the first mentioned strips, define with the latter individual cells for the eggs and are arranged in crossed and interlocked relation with said first mentioned strips. It has also been proposed and is now standard practice to form each of the flats of molded paper pulp and to provide the flat with side by side rows of equidistantly spaced, upwardly extending, frusto-conical boss-like members which fit within the bottom portions of the cells in the subjacent filler and have concave top walls on which rest the bottom portions of the eggs in said cells. In addition it has been proposed and is now standard practice to provide each of the molded paper pulp flats with depending, comparatively shallow, hollow feet which are disposed between the upstanding boss-like egg supporting members and are positioned so that they rest on the intersections of the crossed cardboard strips of the subjacent filler. Heretofore the feet of each flat have had substantially straight side walls and flat bottom walls with the result that they are rigid and hence will not give or compress to any appreciable extent when subjected to downward pressure. If a shipping container, the flats of which have rigid feet of the aforementioned character, is packed with eggs of such large size that the cellular structure as a whole is of greater height than the interior of the case downward pressure on the structure in connection with securing in place of the case cover results in breakage or cracking of many of the eggs within the cells in the fillers.

It is one object of this invention to provide an egg shipping container which is an improvement upon, and eliminates the defects of, previously designed containers of the same general construction and is characterized by the fact that

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the depending hollow feet on the flats are so designed and constructed that when the cellular structure as a whole is subjected to downward pressure they yieldingly and progressively collapse. By having the feet so formed there is no likelihood of the eggs in the cells in the fillers breaking in the event that the cellular structure as a whole is of greater height than the interior of the case and subjected to downward pressure when the cover of the case is secured in place.

Another object of the invention is to provide an egg shipping container in which the depending hollow feet on the molded paper pulp flats are hemispherical in shape to the end that the bottom portions thereof progressively flatten in response to downward pressure or force.

Other objects of the invention and the various advantages and characteristics of the present egg shipping container will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by the claim at the conclusion hereof.

In the drawings which accompany and form a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a top perspective view of a thirty dozen egg shipping container embodying the invention, the cover and a portion of one side wall of the wooden case and certain of the fillers being omitted for purposes of illustration;

Figure 2 is a fragmentary perspective view showing one of the molded paper pulp flats in an inverted or upside down position and illustrating in detail the shape and arrangement of the hollow, hemispherical feet;

Figure 3 is a fragmentary top perspective view of the flat of Figure 2;

Figure 4 is a top perspective view showing the flat of Figures 2 and 3 with a filler superimposed theron;

Figure 5 is a fragmentary vertical longitudinal section of the container showing one of the cellular structures within the case in a vertically expanded condition due to the cells within the fillers being filled with large sized eggs and illustrating the case before nailing in place of the cover;

Figure 6 is a similar fragmentary section showing the case after the cover has been nailed in place and the cellular structure has been downwardly compressed as permitted by progressive collapse or flattening of the depending, hollow, hemispherical feet on the flats;

Figure 7 is an enlarged fragmentary plan view of one of the molded paper pulp flats, illustrating in detail the construction, design and arrangement of the upwardly extending egg supporting boss-like members and the depending hemispherical feet; and

Figure 8 is a vertical transverse section on the line 8—8 of Figure 7.

The shipping container which is shown in the drawings is conventional or standard except for the hereinafter described flats. It is adapted to contain thirty dozen eggs and comprises a case 10 and two side by side but separated cellular structures 11 and 12 in the case.

The case 10 is rectangular. It is perferably formed of wood and comprises a bottom wall 13, a pair of side walls 14, a pair of end walls 15 and a removable cover 16. The side and end walls are connected to, and project upwards from, the side and end marginal portions of the bottom wall 13 and define with a cross partition 17 a pair of side by side cubical compartments 18 and 19. The cross partition 17 is disposed midway between the end walls 15 of the case. It is suitably secured to the bottom and side walls of the case and in effect constitutes another end wall for each compartment. The cover 16 is shaped conformably to, and adapted to rest flatly on, the upper margins of the side and end walls of the case, and is secured in place by way of nails 20.

The cellular structure 11 is disposed within and fills the compartment 18 in the case. It is adapted to retain and support in spaced relation fifteen dozen eggs and consists of a vertical series of six spaced apart flats 21 and an alternating vertical series of five spaced apart cell forming fillers 22. The fillers are of conventional or standard construction and are disposed between, and serve to space apart, the six flats 21. Each of the fillers 22 is square in general configuration and consists of a series of horizontally elongated, vertically extending, laterally spaced cardboard strips and a second series of horizontally elongated, vertically extending, laterally spaced cardboard strips which extend at right angles to the first mentioned strips and are arranged in crossed and interlocked relation with the latter. The strips are designated in the drawings by the reference numeral 23 and define between them rectangular egg receiving cells 24. Each of the fillers consists of seven strips extending in one direction and seven strips extending at right angles to the one direction and hence has thirty-six cells for receiving three dozen eggs. The flats 21 of the cellular structure 11 are substantially square and serve as partitions between the fillers 22. They are all the same in design and construction and are formed throughout of molded paper pulp to the end that they are inherently spongy. Each of the flats consists of a flat intermediate base part 25, side by side rows of equidistantly spaced, upwardly extending, frusto-conical boss-like members 26 and side by side rows of equidistantly spaced, depending, hollow feet 27. The boss-like members 26 of each flat are arranged in six rows of six each and are shaped and positioned so as to fit within the bottom portions of the cells 24 in the superjacent filler. They have concave top walls 28 which are shaped to receive and support the small ends of the eggs in the cells. As shown in the drawings, the boss-like members 26 are spaced apart a distance materially greater than the thickness of the filler forming cross strips 23 and there is one boss-like member 26 within the bottom portion of each cell 24. The depending hollow feet 27 of each flat 21 are forty-nine in number and are arranged in seven rows of seven each. Such rows are arranged in alternating relation with the rows of upwardly extending frusto-conical boss-like members 26 and as a result each of the members is surrounded by four feet. The feet of each flat with the exception of the lowermost flat are positioned or disposed so as to rest directly on the intersections of the crossed cardboard strips 23 of the subjacent filler. They are hemispherical in shape and are of such thickness that when subjected to appreciable downward pressure they yieldingly collapse as the result of progressive flattening of their bottom portions. The depending, hollow hemispherical feet of the lowermost flat of the cellular structure rest on the bottom wall 13 of the wooden case 10 as shown in Figure 1. In a flat of conventional size it has been found in practice that extremely satisfactory results are obtained when the feet are ½ inch in diameter and approximately $\frac{5}{16}$ inch high. The flat intermediate base part 25 of each flat 21 is provided in the top face thereof with straight, upwardly facing grooves 29. The latter extend between and intersect the upper portions of the depending hollow hemispherical feet 27 and are shaped to receive and interlock with the above lower marginal portions of the crossed strips 23 of the superjacent filler in order to prevent relative lateral displacement of the flat and filler. The feet 27 of the flats are sufficiently strong so that they maintain their hemispherical shape when subjected only to the weight of the eggs in the cellular structure 11. It is contemplated that when the fillers and flats are in normal abutting relation the height of the cellular structure 11 will be equal to the height of the compartment 18. Should, however, the cells in the fillers 22 be filled with eggs of such large size as to increase the height of the cellular structure 11 to such an extent that it is higher than the compartment 18, as shown in Figure 5, downward pressure on the structure, due to nailing in place of the cover 16, will result in such collapsing of the feet 27 as to cause reduction in height of the structure without egg breakage or cracking. In other words, if the cellular structure 11, when filled with large sized eggs, is higher than the compartment 18 nailing in place of the cover 16 will exert such downward force as to flatten the feet 27 sufficiently to reduce the overall height of the structure to the point where it fits wholly within the compartment 18 without resulting in breakage or damage to the eggs. The feet compensate for whatever amount of reduction in the height of the cellular structure 11 is necessary to make it possible properly to apply the cover 16 to the upper margins of the side and end walls of the case 10. In effect, the feet 27 constitute yielding cushions which will progressively flatten in response to abnormal downward pressure on the cellular structure 11.

When it is desired to charge or fill the compartment 18 in the case 10 one of the flats 21 is first placed on the case bottom wall 13. Thereafter one of the fillers is placed on the flat and is manipulated so as to bring the portions of the lower margins of the crossed strips 23 that are between the intersections into interfitting or interlocked relation with the upwardly facing grooves 29 in the intermediate base part of the filler. After properly positioning the filler and filling the cells thereof with eggs another flat is placed on the filler and then another filler is

placed on the last mentioned flat and filled with eggs. These steps are continued or repeated until completion of the cellular structure 11. After such structure is completed the cover 16 of the case is nailed in place so as to close the case.

The cellular structure 12 is disposed within and fills the compartment 19 in the case 10 and is exactly the same in design, construction and mode of operation as the cellular structure 11.

The herein described egg shipping container is highly efficient and this is directly attributable to the fact that the flats thereof have the depending, hollow, hemispherical feet which yielding collapse in response to excessive downward pressure. The particular flats are no more costly than conventional flats and provide yieldable cushions between the fillers that are interposed therebetween.

Whereas the invention has been described and illustrated in connection with a shipping case having two compartments with two cellular structures therein it is to be understood that the invention is capable of embodiment in a container having but a single cellular structure and consisting of any number and size of flats and fillers. It is also to be understood that the invention is not to be restricted to the details set forth since these may be modified within the scope of the appended claim without departing from the spirit and scope of the invention.

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

An egg package comprising a case containing eggs of medium and large size, said case being substantially rigid and embodying a bottom wall, a pair of opposed side walls and a pair of opposed end walls, having the side and end walls thereof connected to, and projecting upwards from, the bottom wall and forming with the latter an open top compartment, a removable cellular structure disposed in the compartment and consisting of a vertical series of single spaced apart one-piece flats and an alternating series of fillers disposed between the flats, formed of crossed and interlocked strips, and defining open top and bottom individual cells for eggs, each of the flats being formed throughout of inherently spongy molded paper pulp and consisting of a flat intermediate base part, a plurality of equidistantly spaced rigid hollow boss-like members connected to, and extending upwards from, the base part, corresponding in number to, and fitting within the bottom portions of, the cells in the superjacent filler, if any, and provided with concave egg supporting top walls, and a plurality of hollow rounded or dome-shaped spacer type feet connected to, and depending from, said base part, positioned around, and in laterally spaced relation with, the boss-like members and disposed so that they overlie the intersections of the crossed strips of the subjacent filler, if any, said cellular structure having the height thereof equal to the height of the compartment when the flats and fillers are all in true abutting relation with the feet of the flats resting directly on the intersections of the crossed strips of the fillers, eggs positioned on the boss-like members of the flats, the tops of the medium sized eggs being normally out of contact with the immediately adjacent flat thereabove, while the tops of the large sized eggs are normally in contact with the immediately adjacent flat thereabove, the hollow dome-shaped spacer type feet of the flat on which the large sized eggs are positioned being flattened or collapsed sufficiently to permit the filler supported by said last mentioned flat to substantially contact the flat immediately thereabove, and a substantially rigid cover closing the open top of the compartment and secured in place against the top flat under pressure.

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