Dec. 10, 1935. I. V. EDGERTON 2,023,783

EGG CRATE TRAY

Filed June 15, 1934

Fig. 1.

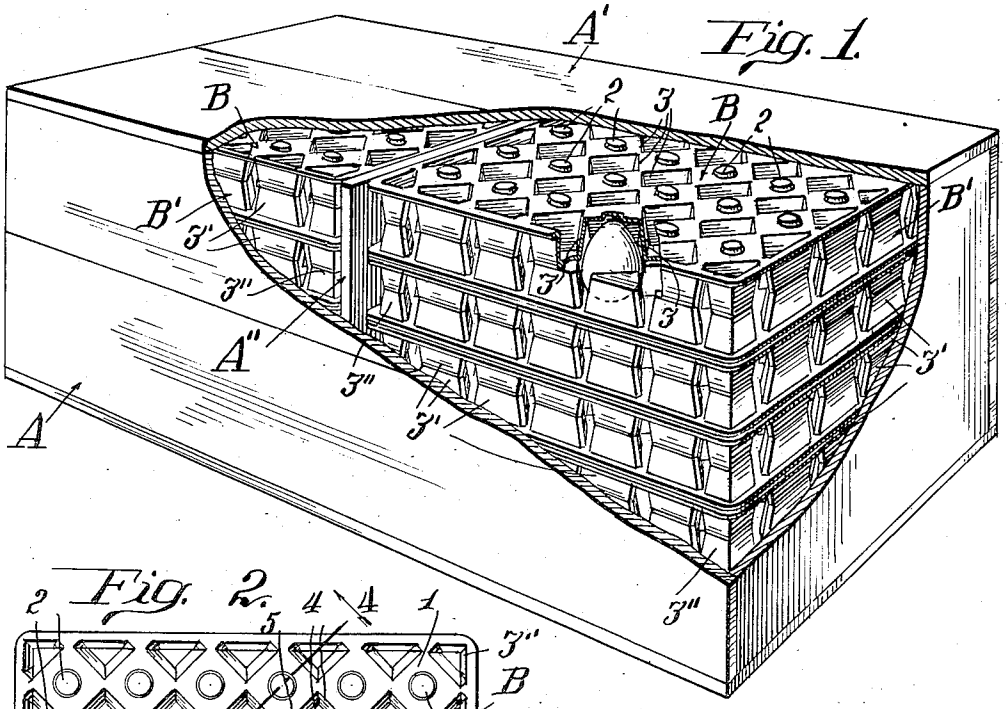



Fig. 2.

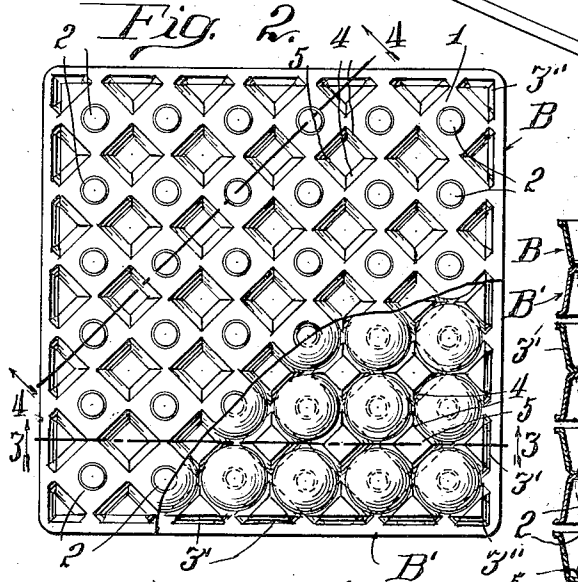



Fig. 3.

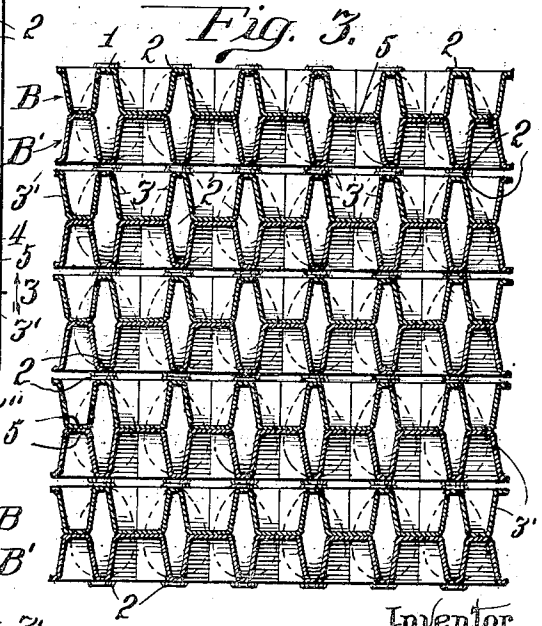
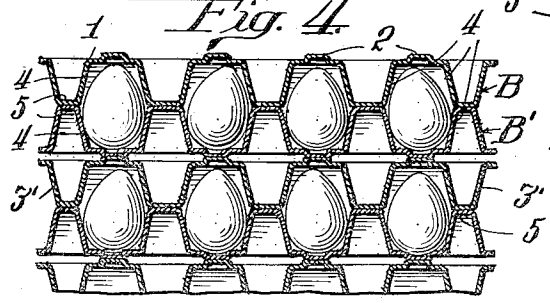



Fig. 4.




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# UNITED STATES PATENT OFFICE

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## EGG CRATE TRAY

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Application June 15, 1934, Serial No. 730,747

6 Claims. (Cl. 217—26.5)

This invention relates to certain new and useful improvements in egg crate trays, and more particularly to an improved form of tray member, and to an assembly and arrangement of such members, for use in packing and shipping eggs.

According to the standard method of packing and shipping eggs, a rectangular crate is used divided by a central vertical partition into two similar substantially cubical compartments. The eggs are packed in each compartment in five layers of three drozen eggs each. In each layer the eggs are arranged vertically on end, in six parallel rows of six eggs each. The ends of the eggs rest on a square or rectangular piece of cardboard known as a "flat", and the eggs are separated by a cellular filler formed of interlocking cardboard strips so as to form thirty-six open-ended compartments, one for each egg. Another "flat" is placed on top of this filler to support the next layer of eggs, and so on up through the five layers of eggs, the stack being completed at the top by an upper "flat".

Various substitutions for, or variations of this standard form of packing have been proposed. Some of these are open to objection in that they depart from the standard packing arrangement (that is five similar layers of three dozen eggs each), or the eggs are differently arranged in the layers so that they cannot be readily transferred to or from a standard type of filler, or to or from other equipment designed to handle the standard shipment of eggs. Other types have the disadvantage of requiring a plurality of different cooperating forms of packing members.

According to the present invention a single form of simple and economical tray member is used, a plurality of these members being assembled to perform the functions of both the flats and fillers heretofore used, and the eggs being positioned within the crate in the standard number and arrangement. The eggs are more completely enclosed and protected, are more easily inspected, assembled or transferred, and the improved packing has numerous other advantages as will be hereinafter apparent.

The principal object of this invention is to provide an improved packing member for eggs, as briefly described hereinabove and disclosed more in detail in the specifications which follow.

Another object is to provide an improved form of egg tray formed of two duplicate members.

Another object is to provide an improved assembly for packing eggs within a crate in the standard number and arrangement.

Other objects and advantages of this invention will be more apparent from the following detail description of one approved form of device constructed and operating according to the principles of this invention.

In the accompanying drawing:

Fig. 1 is a perspective view of a packed egg crate partially broken away to show the assembled eggs and trays.

Fig. 2 is a plan view of the stacked trays, the upper member of the upper tray being partially broken away to show a portion of the next lower tray member and the eggs carried thereby.

Fig. 3 is a vertical section taken substantially on the line 3—3 of Fig. 2.

Fig. 4 is a partial vertical section taken substantially on the line 4—4 of Fig. 2.

The egg crate A may, as usual, be in the form of a rectangular wooden box provided with a removable cover A' and an intermediate vertical partition A'' divided the tray into two similar substantially cubical compartments. In each compartment is positioned a stack of packed eggs consisting of five horizontal layers or trays of thirty-six eggs each, making a total of fifteen dozen eggs in each compartment or thirty dozen eggs in the crate. The eggs in each layer are each positioned vertically on end in six parallel rows of six eggs each, that is five eggs are arranged in substantially vertical alignment in the stack. This is the standard arrangement.

The packing and supporting means in each stack consists of five trays formed by ten similar tray members B and B'. Each tray consists of a pair of members B and B', it being understood that these members are identical in construction, the only difference being that the members B are reversed or turned upside down with respect to the members B'. Since these tray members are all alike, a description of one will suffice for all.

Each tray member may be formed from an integral sheet or piece of any suitable soft or resilient material, but the members are preferably pressed or molded from wood pulp or some similar economical material. Although the various portions of the member project in a plurality of different planes so that the over-all height of a tray member is roughly somewhat greater than half the length of an egg, the tray member may be of substantially uniform wall thickness throughout, for example the thickness of rather heavy pasteboard.

Each member B or B' comprises a substantially flat or horizontal base or plate portion 1 of square outline formed with thirty-six cushions 2 which are similarly spaced apart and arranged in six rows of six cushions each, each row being parallel with an adjacent edge of the plate 1 so that the member is symmetrical, that is any of the four edges of the member may be positioned at any given side or end of the compartment in the crate A.

Each cushion 2 is adapted to support one end of an egg. The cushion might be simply a portion of the flat surface 1, although preferably a small portion (circular or of any other convenient shape) is pressed or moulded so as to project slightly outwardly from the assembled tray. This not only serves as a centering or supporting means for the egg, but the cushions of adjacent trays engage one another to provide additional cushioning means between the trays. Preferably this cushion is of such size or shape that the egg-end does not fit accurately therein, that is the inner edges of the cushion will simply have line contact with the egg. Thus the two mating cushions between two vertically aligned eggs will provide two intervening air-cushions between the eggs in addition to the materials of the cushions themselves.

From a point located centrally between each adjacent set of four cushions 2 a hollow member or post 3 projects inwardly of the tray substantially half the length of the eggs so as to contact with the sides of each of the adjacent four eggs. These projections 3 may be conical, but are preferably in the form of truncated rectangular pyramids, as shown in the drawing. Each side portion 4 of a pyramid is adapted to contact with a side portion of an egg, and the truncated inner end 5 of the pyramid engages the similar end of a pyramid 3 on the other member of the tray when the two tray members B and B' are assembled. It will be noted that this assembly of projections or posts 3 comprises five similar rows of five projections each, but in order to complete the compartments for the outer rows of eggs an outer or peripheral series of partial projections 3' is provided. The projections 3' along each edge of the plate each corresponds to substantially half of one of the projections 3, whereas the corner projections 3'' correspond to one-quarter of a projection 3, all as will be apparent from the drawing.

It will now be noted that all of these tray members are of like construction and that each member is entirely symmetrical, that is it may be positioned in the stack, or in the crate, in any position as long as the proper side is uppermost.

In assembling the trays or packing the eggs, one of these members is positioned in the bottom of the crate in the B' position, that is with the plate 1 and cushions 2 down and the pyramids 3 projecting upwardly. A layer of eggs is then added by positioning one egg in each space between four pyramids 3 with one end of the egg resting on a cushion 2. A second tray member B is then placed in inverted position over the assembled eggs, that is with the pyramids 3 projecting downwardly. The truncated ends of these downwardly extending projections will rest on the similar ends of the upwardly extending projections of the lower member and the cushions 2 of the upper member are positioned to engage the upper ends of the eggs. This completes one tray assembly. It will be noted that this assembly is the same at top and bottom and may be removed as a unit and inverted without in any way changing the form of the assembly or the arrangement of the eggs, except for the fact that the eggs will be inverted end for end.

Another member B' is positioned on the upper member of the first tray so that the outer faces of the cushions 2 of this new member rest upon the outer faces of the cushions 2 of the upper member of the first tray. This second tray is now assembled in the same manner as the first and so on upwardly through the stack.

Although these tray members are formed of light, comparatively thin-walled material, the generally corrugated construction gives considerable strength and rigidity to the members. There are several layers of this cushioning material with interposed air-spaces between each adjacent pair of eggs, both horizontally and vertically, so as to effectively cushion and protect the eggs. The egg compartment formed between a pair of upper and lower cushions 2 and the eight fingers or pyramids 3 fit the egg rather closely with ten separate points of contact with the egg, if the egg is of proper size to accurately fit the compartment. Even with a smaller egg there will be several points of contact and the egg has very little room for movement within the compartment.

By removing the upper member of a tray, the eggs in that tray are very largely exposed for convenient inspection or removal, or for transfer as a unit to or from one of the standard type of fillers.

The tray members, if positioned with all of the pyramids projecting in the same direction, can be nested in a very compact mass for storage or shipment.

It will be noted that only a single universal form of tray member is needed, these members taking the place and serving the functions of both the "flats" and filler members heretofore used.

A tray formed of two of these members, preferably secured together by any approved form of wrapping or tying means, can be used as a unit, outside of the crate, for delivering a smaller number of eggs. For example, by making the tray members with a smaller number of egg compartments, a package for a dozen eggs can be provided in this manner.

I claim:

1. An egg tray comprising two similar tray members adapted to fit together about a symmetrically grouped layer of eggs, each member being formed of a single sheet of cushioning material and comprising a substantially flat square back plate formed with rows of similarly spaced apart cushions, each cushion being adapted to engage one end of an egg, the rows being parallel with each other and with the edges of the plate so that the grouping is similar with respect to any edge of the plate, there being a hollow tapering projection extending from the back plate centrally between each four adjacent cushions so as to engage the side portions of each of the adjacent eggs, the cushions being so spaced and the projections so proportioned that the sides of adjacent eggs in the layer will be in close proximity to one another, there being an outer row of projections adjacent each edge of the plate to engage the outer portions of each outer row of eggs, the upper tray member being inverted with respect to the lower tray member so that the ends of the projections engage adjacent the central side portions of the enclosed eggs.

2. An egg tray comprising two similar tray members adapted to fit together about a symmetrically grouped layer of eggs, each member being formed of a single sheet of molded wood pulp and comprising a substantially flat square back plate formed with rows of similarly spaced apart cushions, each cushion being adapted to engage one end of an egg, the rows being parallel with each other and with the edges of the plate so that the grouping is similar with respect to any edge of the plate, there being a hollow tapering projection extending from the back plate centrally between each four adjacent cushions so as to engage the side portions of each of the adjacent eggs, the cushions being so spaced and the projections so proportioned that the sides of adjacent eggs in the layer will be in close proximity to one another, there being an outer row of projections adjacent each edge of the plate to engage the outer portions of each outer row of eggs, the upper tray member being inverted with respect to the lower tray member so that the ends of the projections engage adjacent the central side portions of the enclosed eggs.

3. An egg tray comprising two similar tray members adapted to fit together about a symmetrically grouped layer of eggs, each member being formed of a single sheet of cushioning material and comprising a substantially flat square back plate formed with rows of similarly spaced apart cushions, each cushion being adapted to engage one end of an egg, the rows being parallel with each other and with the edges of the plate so that the grouping is similar with respect to any edge of the plate, there being a hollow tapering projection in the form of a truncated rectangular pyramid extending from the back plate centrally between each four adjacent cushions so as to engage the side portions of each of the adjacent eggs, the cushions being so spaced and the projections so proportioned that the sides of adjacent eggs in the layer will be in close proximity to one another, there being an outer row of projections adjacent each edge of the plate to engage the outer portions of each outer row of eggs, the upper tray member being inverted with respect to the lower tray member so that the ends of the projections engage adjacent the central side portions of the enclosed eggs.

4. An egg tray comprising two similar tray members adapted to fit together about a symmetrically grouped layer of eggs, each member being fromed of a single sheet of cushioning material and comprising a substantially flat square back plate formed with rows of similarly spaced apart cushions, each cushion being formed by an outwardly bowed portion of the back plate, each cushion being adapted to engage one end of an egg, the rows being parallel with each other and with the edges of the plate so that the grouping is similar with respect to any edge of the plate, there being a hollow tapering projection extending from the back plate centrally between each four adjacent eggs, the cushions being so spaced and the projections so proportioned that the sides of adjacent eggs in the layer will be in close proximity to one another, there being an outer row of projections adjacent each edge of the plate to engage the outer portions of each outer row of eggs, the upper tray member being inverted with respect to the lower tray member so that the ends of the projections engage adjacent the central side portions of the enclosed eggs.

5. An egg tray comprising two similar tray members adapted to fit together about a symmetrically grouped layer of three dozen eggs arranged in six similar rows of six eggs each, each member being formed of a single sheet of cushioning material and comprising a substantially flat square back plate formed with rows of similarly spaced apart cushions, each cushion being adapted to engage one end of an egg, the rows being parallel with each other and with the edges of the plate so that the grouping is similar with respect to any edge of the plate, there being a hollow tapering projection extending from the back plate centrally between the four adjacent cushions so as to engage the side portions of each of the adjacent eggs, the cushions being so spaced and the projections so proportioned that the sides of adjacent eggs in the layer will be in close proximity to one another, there being an outer row of projections adjacent each edge of the plate to engage the outer portions of each outer row of eggs, the upper tray member being inverted with respect to the lower tray member so that the ends of the projections engage adjacent the central side portions of the enclosed eggs.

6. An egg tray comprising two similar tray members adapted to fit together about a symmetrically grouped layer of eggs, each member being formed of a single sheet of cushioning material and comprising a substantially flat square back plate formed with rows of similarly spaced apart cushions, each cushion being formed by an outwardly bowed portion of the back plate, each cushion being adapted to engage one end of an egg, the rows being parallel with each other and with the edges of the plate so that the grouping is similar with respect to any edge of the plate, there being a hollow tapering projection in the form of a truncated rectangular pyramid extending from the back plate centrally between each four adjacent cushions so as to engage the side portions of each of the adjacent eggs, the cushions being so spaced and the projections so proportioned that the sides of adjacent eggs in the layer will be in close proximity to one another, there being an outer row of projections adjacent each edge of the plate to engage the outer portions of each outer row of eggs, the upper tray member being inverted with respect to the lower tray member so that the ends of the projections engage adjacent the central side portions of the enclosed eggs.

ISRAEL V. EDGERTON.