Oct. 1, 1940. J. R. GRANT 2,216,193

EGG CASE FLAT AND FILLER ASSEMBLY

Filed Jan. 22, 1938 2 Sheets-Sheet 1

Fig. 1.

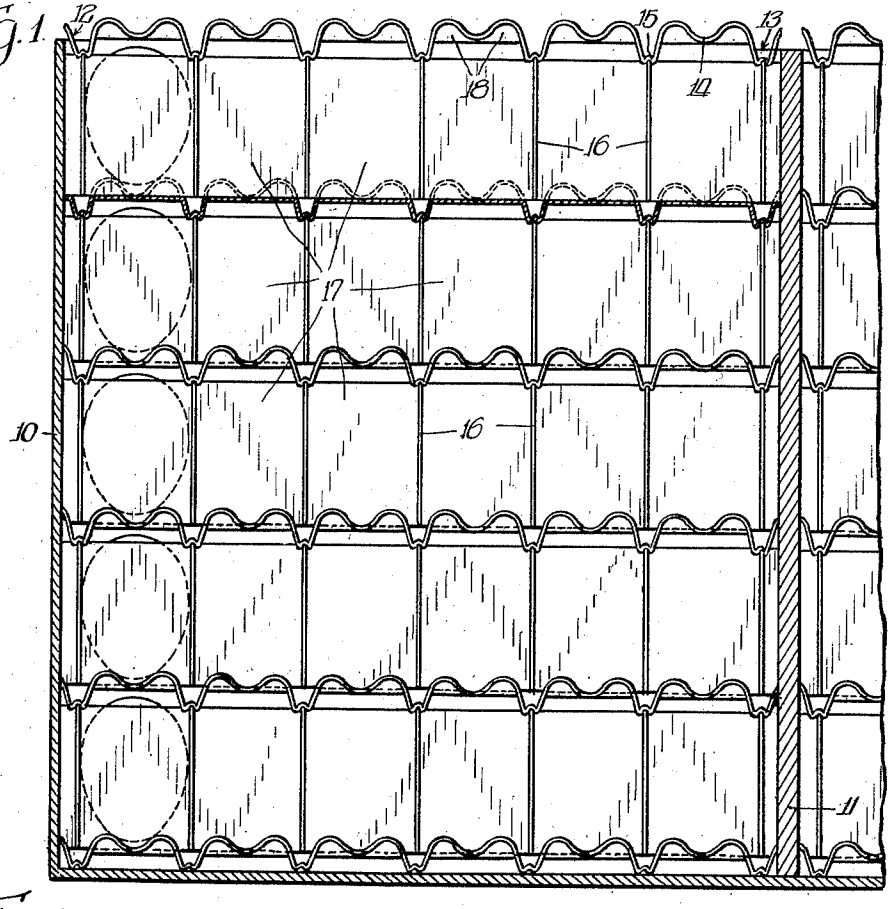
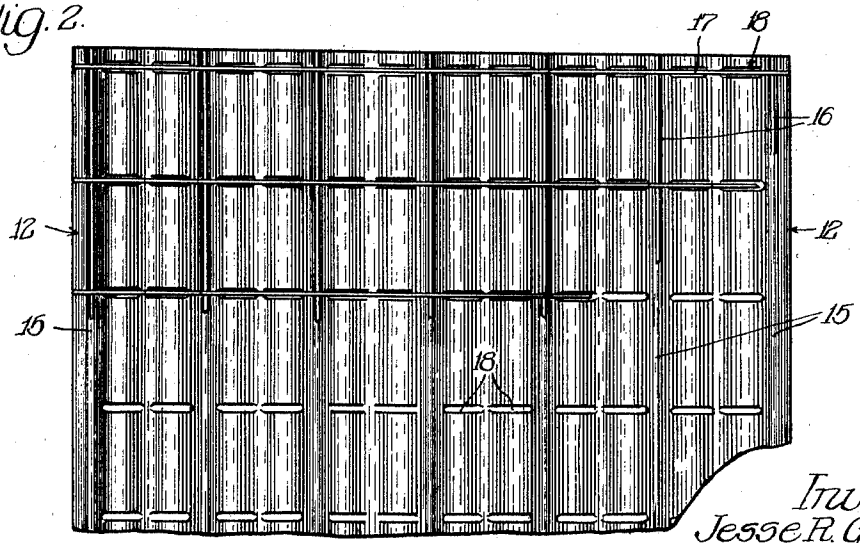


Fig. 2.



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Fig. 3.

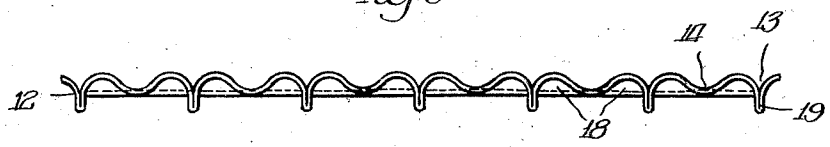


Fig. 4

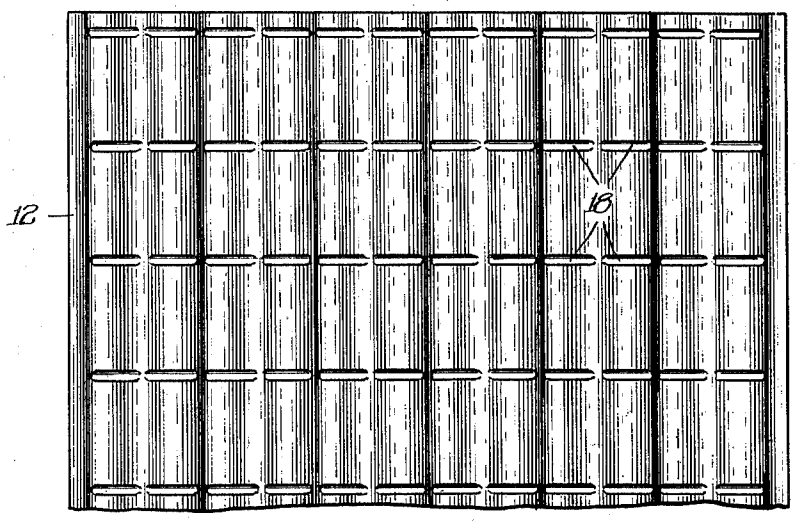
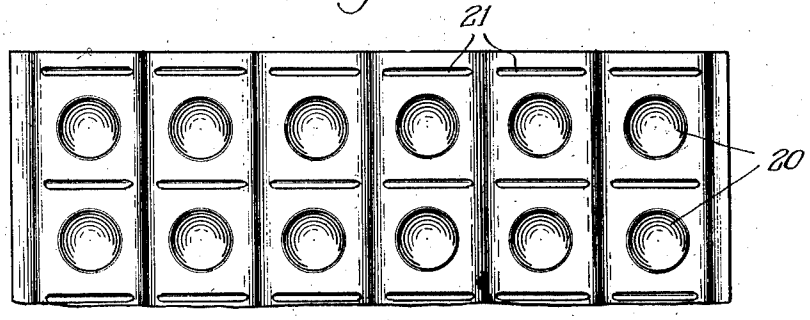


Fig. 5.



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Patented Oct. 1, 1940

2,216,193

UNITED STATES PATENT OFFICE

2,216,193

EGG CASE FLAT AND FILLER ASSEMBLY

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Application January 22, 1938, Serial No. 186,353

8 Claims. (Cl. 217—26)

The present invention relates to the packaging of eggs in standard cases and has particular reference to the provision of an improved type of egg case of flat and filler construction.

A principal object of the invention is the provision of an improved flat and filler arrangement whereby eggs may be packaged safely in cases without the necessity of providing the customary type of extra heavy cushioning members at the top and bottom of the case.

An additional object of the invention is the provision of an egg case flat which will effect a spacing of the fillers in an egg case and provide for a maximum of egg-carrying space, the flat being of such construction as to provide the sole cushioning and carrying means needed in the case.

Still another object of the invention is to provide an improved pressed or molded flat having relatively deep channels running parallel in one direction for receiving corresponding filler strips and relatively shallow parallel channels running in the opposite direction to receive the oppositely directed filler strips and to space the filler strips above the filler strips of the next lower layer in the case.

These and other objects will be evident upon a consideration of the following description of a preferred embodiment of the invention and by reference to the accompanying drawings, in which

Fig. 1 is a side view of an open egg case packed with flats constructed in accordance with the present invention and the usual type of filler mechanism, the view being of only one-half of the case;

Fig. 2 is a fragmentary top view of one of the flats shown in Fig. 1 with the filler strip in assembled relation;

Fig. 3 is an end view of a modified form of the improved flat;

Fig. 4 is a top view of the flat shown in Fig. 3; and

Fig. 5 is a top view of another modified form of the flat.

In the packaging of eggs in cases it has been customary for some time to employ a bottom cushion member of greater thickness than the thickness of the flats which are used in the interior of the case between the various layers of eggs. The intermediate layers of the eggs are positioned on flats which have more or less of a cushion effect and the eggs on each flat are maintained in proper position by the use of fillers of conventional construction. Customarily the filler strips are positioned in closely adjacent vertical relation with respect to each other and form substantially continuous connections throughout the height of the case. At the top of the case another relatively thick cushioning pad is placed over the eggs and the top of the case is nailed in position slightly to compress the assembled construction together to prevent or retard the shaking of the eggs.

In accordance with the present invention there is provided an assembled flat and filler construction in which it is unnecessary to use these separate relatively thick top and bottom pads and at the same time additional room is provided for receiving eggs in the case. The construction is such that the flats effect a spacing apart of the filler members in the different egg-carrying layers.

In the embodiment of the invention shown in Fig. 1 the crate 10 represents a conventional wooden egg case of the type which holds 30 dozen eggs, a central partition 11 being provided to space the case into two sections each carrying five layers of three dozen eggs.

With the improved flat of the present invention it is not necessary to use a separate and extra large or high flat or cushion in the bottom of the case. The flat shown in Figs. 1 and 2 may be formed by molding paper fibre or by compressing sheet material into the illustrated shape. This shape consists of a series of relatively deep channels extending in one direction, these channels being spaced apart a distance corresponding to the distance between adjacent filler strips. In the drawings the flats indicated generally at 12 are provided with a plurality of parallel relatively deep channels 13. These relatively deep channels alternate with parallel relatively shallow channels 14 which preferably are shaped to receive the end of an egg as shown in Fig. 1 and to provide a cushion therefor. The bottom of the relatively deep channels 13 are provided with the small reverse channels 15 which are designed to receive the upper ends of the filler strips 16 of the next lower layer upon which the flats are positioned. The interlock between these reverse channels 15 and the tops of the filler strips retard the filler strips from being shaken relative to the flat.

The oppositely extending filler strips 17 extend into and form an interlock with the depressed portions 18 of the flat. These channels extend in a direction perpendicular to the channels 13 and are of substantially less depth than the latter. As will be seen from Fig. 2, the aligned de-

pressed portions 18 form channels which are spaced apart a distance equal to the distance between the filler strips 17. Thus, the bases of depressed portions 18 and the channels 13 form intersecting lines of different elevation and mark the cells for receiving eggs.

In packing an egg case with the improved flat and a filler of conventional structure, one of the flats is placed in the bottom of the case and a filler is assembled with it in such a manner that the filler strips 17 enter into and form an interlock with the depressed portions 18 and the filler strips 16 partially enter into the longitudinally extending channels 13. A second flat is placed above the lower filler strip in the manner shown in Fig. 1 with the reversed portions 15 interlocked with the upper edge of the filler strips 16. A second filler is assembled with this flap in the manner described and the second layer of eggs is packed. This procedure is continued until the case is completely packed with eggs. Before securing the top of the case in place another flat is placed on the top layer of eggs so that it extends slightly above the upper edge of the case, as shown in Fig. 1.

A standard egg case is approximately 12½ inches high. Standard fillers are approximately 2¼ inches high, and as there are only five of these fillers to be used in an egg case it will be seen that there exists a space of about 1¼ inches which heretofore has been taken up by the extra large lower and upper cushion flats. There is, then, a considerable waste of space in the egg case. In my improved flat and filler assembly this space is utilized for carrying eggs. An assembly in which this space is so utilized is possible in the case of a flat of the type shown in Figs. 1 and 2 of about $\frac{5}{16}$ of an inch height over all. This overall height is reflected in the depth of the channels 13. The depressed portions or creases 18, on the other hand, are of considerably less depth than the channels 13. By providing a creased or depressed portion 18 of about $\frac{1}{16}$ inch depth and positioning the filler strips 17 in this crease, it will be seen that the bottoms of the filler strips are spaced apart approximately ¼ of an inch from the tops of the next lower filler strips.

The relatively shallow channels 14 may be of similar depth to the creases or depressed portions 18 and as these channels 14 carry the bottom of the eggs it is possible for the tops of the eggs in the next lower layer to extend upwardly above the filler strips and into the spaces below the egg-receiving channels 14. The top flat then will extend above the upper edge of the egg case before the top of the latter is secured in place. When the top is secured in position the assembled flat and fillers are compressed downwardly, thereby insuring a tight pack.

In the embodiment of the invention shown in Fig. 3 the legs of the longitudinal channels 13 are glued together by an adhesive such as silicate of soda. The glue line, indicated at 19 in the drawings, extends up to approximately the lower position of the creases 18. This glued construction is adapted for flats produced from preformed sheets by corrugating or pressing the sheets into the desired shape while wet. The glue line materially strengthens the construction and is of value where the flat is to be used in a warm, humid atmosphere.

The flat shown in Fig. 5 is of the molded type in which the egg-receiving sections 20 are round depressions of approximately the shape of the lower end of an egg and the relatively shallow depressed portions 21 corresponding to the creases 18 extend substantially all the way across each of the cells. In this embodiment the fillers extend into and rest against the bottom of the depressed portions 21, and the latter are spaced above the bottom of the relatively deep channels 13 a distance sufficient to space the fillers, provide for extra egg-carrying space and to make unnecessary the use of the heavy flats or cushions at the bottom and at the top of the case. The dimensions of this embodiment of the flats may be somewhat the same as those discussed heretofore in connection with the embodiments shown in Figs. 1 and 2.

It will be seen from the drawings and the above description that the structure of the improved flat may be changed considerably without departing from the scope of the invention. The particular dimensions specified are desirable but it is not essential that they be followed strictly. Other configurations than those shown may be used for the flats. In any case, the flats and fillers are assembled in such a relation that the fillers in adjacent layers are spaced apart. The means whereby this relation may be obtained without the use of special cushions at the bottom and top of the egg case are described herein with sufficient particularity to enable reproduction in various forms without departing from the scope of the appended claims.

I claim:

1. In an egg case assembly, flats and fillers arranged in mutually supporting relation in superimposed layers, said fillers being composed of intersecting strips having edges in substantially the same plane, said flats having relatively deep downwardly extending members running in one direction and resting upon the upper edges of the next lower filler, and the lower edges of the filler strips running transversely to said members being positioned on the upper side of said flats sufficiently above the lower portion of said members to provide a distance between said flats greater than the height of said filler strips.

2. In an egg case assembly, flats and fillers arranged one over the other in superimposed mutually supporting layers, said fillers being composed of intersecting cell-forming strips having edges in substantially the same plane, and said flats having relatively deep downwardly extending members running substantially parallel to certain of said filler strips and being positioned on the upper edges of the next lower filler and relatively shallow interrupted grooves on their upper side running transversely of said members and parallel to certain other of said filler strips, the lower portions of said grooves being in a higher plane than the lower portions of said members, said other filler strip being positioned in said grooves in vertically spaced relation to the next lower filler.

3. A flat and filler assembly comprising five vertically spaced strip fillers of the type having intersecting edges in the same plane and six only duplicate flats, one of said flats being positioned on top of said fillers, another of said flats being positioned below said fillers, and the remaining flats being interposed between said fillers, said interposed flats being provided with means engaging the lower edges of upper fillers and other means engaging the upper edges of lower fillers and for spacing all of the lower edges of the strips of each of said fillers above all of the upper edges of each of the lower fillers a dis-

tance greater than the thickness of the material of the flat and sufficiently great to compactly fill an egg case, and egg seats positioned above said other means.

4. In an egg case assembly, six only counterpart flats and five fillers arranged in mutually supporting relation in superimposed layers, said fillers being composed of intersecting strips having edges in substantially the same plane, spaced supporting means for eggs on said flats, means on the lower side of said flats substantially below and between said supporting means for engaging the upper edges of the next lower filler, and other means on the upper side of said flat between said egg-supporting means for engaging the lower edges of the next upper filler, said filler-engaging means on the upper and lower sides of said flat respectively being constructed and spaced apart sufficiently to space the upper and lower edges of adjacent fillers apart vertically a distance greater than the thickness of the flat and sufficient to compactly fill an egg case.

5. An egg case flat and filler assembly, comprising five superimposed fillers of the type having intersecting strips with edges in the same plane, and six counterpart flats positioned below and above each of said fillers, said flats being formed of one integral layer of paper fiber and having relatively low means for engaging the upper edges of filler strips when positioned thereon, relatively high means for supporting the lower edges of filler strips when positioned thereunder, and upstanding egg seats the lower portions of which are positioned above said lower means and the upper portions of which are positioned above said upper means, said upper and lower filler engaging means of said flats being spaced vertically sufficiently to provide between adjacent flats a greater amount of egg receiving space than the height of said filler strips and to compactly fill a standard egg case.

6. A flat and filler assembly, comprising six counterpart flats having five interposed cellular fillers of the type having upper and lower edges in substantially the same plane, said flats having relatively low downwardly extending portions engaging the upper edges of said fillers, relatively high supporting portions engaging the lower edges of fillers positioned thereon, and egg seats positioned above said downwardly extending portions and said supporting portions being spaced apart vertically sufficiently to provide sufficiently more vertical space between said flats than the height of said fillers to compactly fill an egg case in which said assembly is loaded.

7. An egg case flat, comprising a molded pulp member having relatively low downwardly extending portions for engagement of the upper edges of a filler positioned therebelow, relatively high supporting portions for receipt of the lower edges of a filler positioned thereon, and egg seats having their bottoms above said downwardly extending portions and their tops above said supporting portions, said downwardly extending portions and said supporting portions being spaced apart vertically a distance sufficient to provide more egg receiving room between superimposed flats than the height of fillers positioned between said superimposed flats and to compactly fill a standard egg case when six of said flats are assembled with five fillers.

8. A flat of substantially uniform sheet thickness throughout, said flat having portions adapted to be engaged by edges of a standard strip type filler having sets of intersecting strips the upper edges of all of which terminate in one plane and the lower edges of which all terminate in another plane, when said filler is positioned upon the upper side of the flat and other portions adapted to be engaged by edges of a similar standard strip type filler when positioned on the lower side of the flat, egg seats positioned upon the upper side of the flat, the bottoms of which terminate in a plane above those portions of the flat adapted to be engaged by the filler when positioned below the flat, said upper and lower filler strip engaging portions being spaced apart a distance greater than the thickness of the material of the flat and of such magnitude that six of the flats may be assembled with five interposed standard fillers in the compartment of a standard egg case to compactly fill the same and to provide greater height between egg seats than the height of the associated filler.

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