

Aug. 30, 1966

H. MERS
EGG CONTAINER

3,269,634

Filed Feb. 12, 1965

3 Sheets-Sheet 1

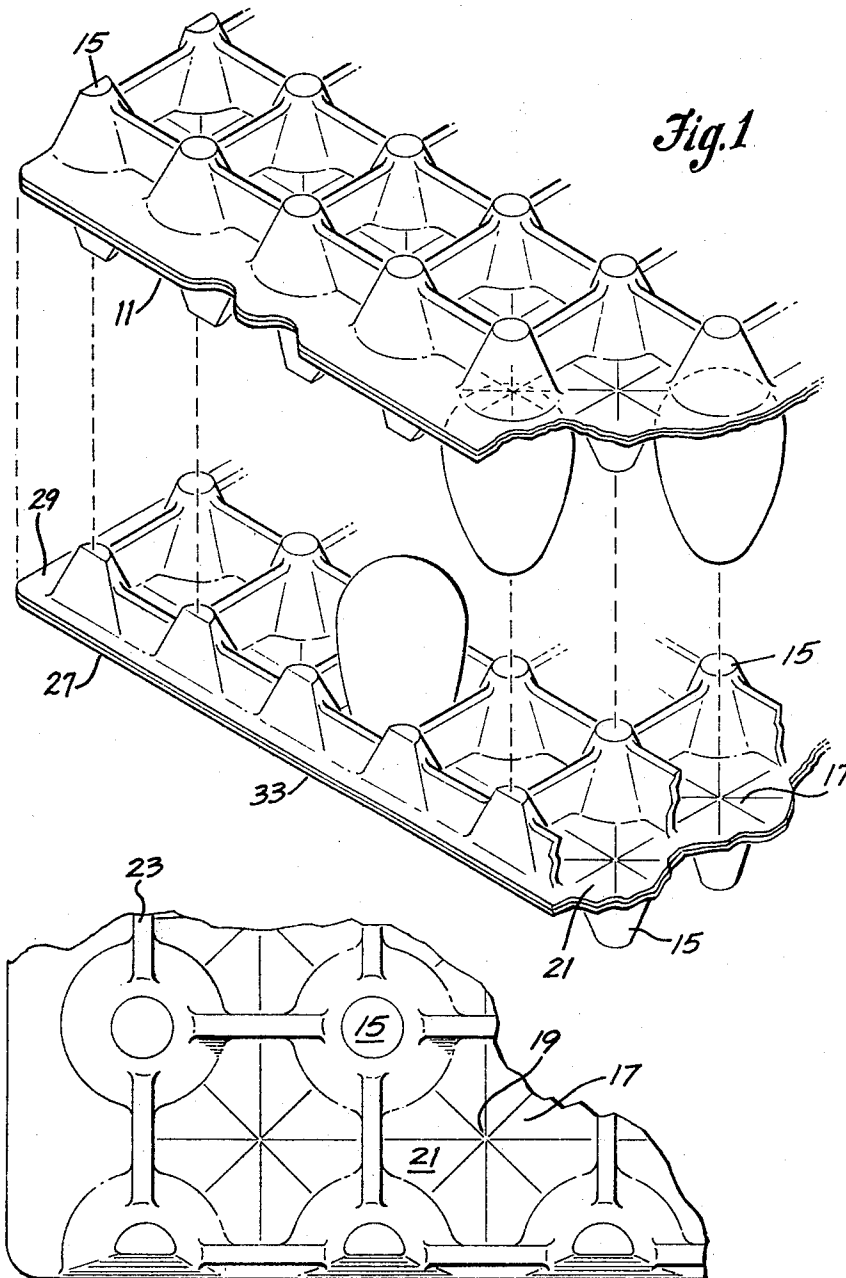


Fig. 5

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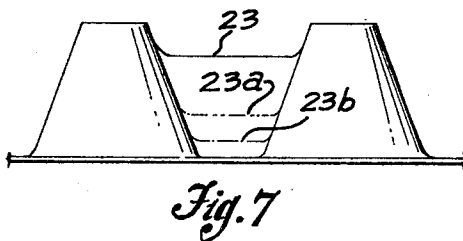
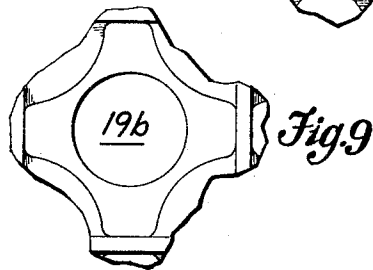
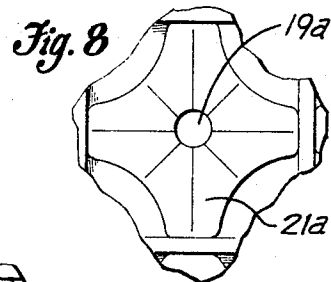
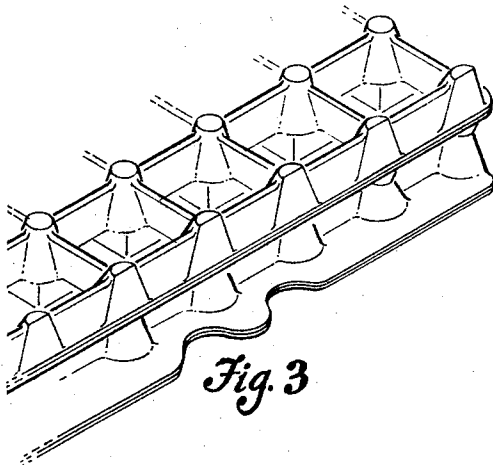
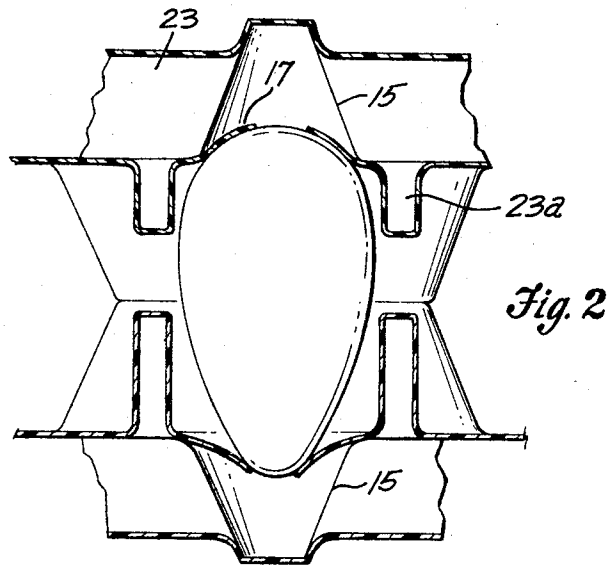
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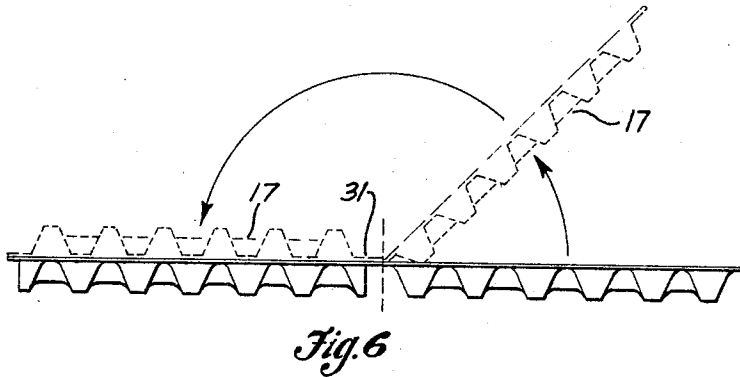
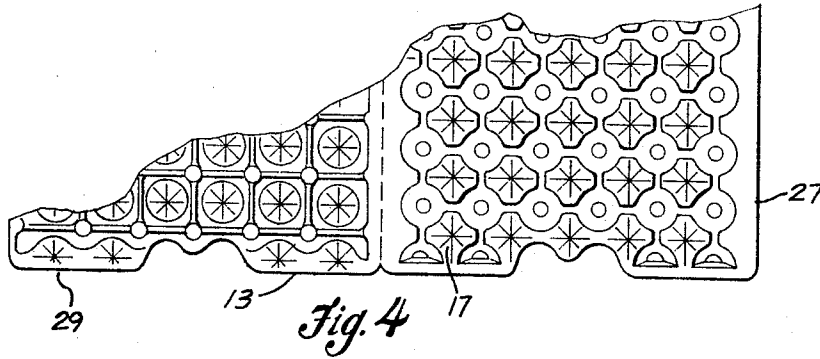
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EGG CONTAINER

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1

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EGG CONTAINER

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9 Claims. (Cl. 229-2.5)

The present invention relates to egg containers, and more particularly to egg container structural arrangements used in the automatic packaging of eggs.

At present, eggs are packaged by the dozen or dozens in rectangular containers made of paper pulp. There are usually two matching sections to the container, forming an egg shape holder between the sections. The eggs are deposited so that they stand vertically in the holders. Naturally, these containers are produced cheaply and only the cheapest paper pulp is used. These containers are highly absorbent and very rigid. There is absolutely no give or resilience to the container. As a result, if an egg is smashed during packaging or during transportation, usually the entire package is thrown away. It is often impossible to stop the machinery to remove the good eggs. If the package with the broken egg is not soon removed from the assembly line, other packages are likely to have egg yoke spilled thereon with the result that even though these other packages have no broken eggs, they are unmarketable, or will not command the full price. Attempts have been made therefore to substitute plastic containers for the paper pulp containers, but without success. Plastic tends to be more expensive than paper and, although there is no problem in designing an expensive plastic container, the price is prohibitive. Although attempts have been made to provide a plastic container for packaging eggs, none, as far as I am aware have ever been successful when put into practice commercially on a large scale industrial production.

It has now been discovered that a plastic container can be provided with considerable resiliency and which will compare favorably from the price standpoint with a paper pulp container. This plastic container is non-absorbent and can be readily washed or spray washed to remove any yoke from broken eggs. Furthermore, the eggs can be packaged in the plastic container by the same mechanical methods or using the same hand methods as are presently used to package the eggs in paper pulp containers.

Therefore, the principal object of the present invention is to provide a resilient, washable egg container which is inexpensive to produce and which can be used in present automated egg packaging procedures.

With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention. Furthermore, other objects and advantages will become apparent from the following description when taken in connection with the accompanying, in which:

FIGURE 1 is a partially exploded perspective view of the egg container arrangement contemplated herein;

FIGURE 2 is a sectional explanation of how eggs are retained in the egg container arrangement shown in FIGURE 1;

FIGURE 3 is a perspective view of a portion of the egg container arrangement shown in FIGURE 1, when eggs are retained therein;

FIGURE 4 illustrates a top view of how plastic sheets are formed so as to be used for one structure of the egg container contemplated herein;

FIGURE 5 shows an enlarged view corresponding to a portion of the view illustrated in FIGURE 4 and containing a slight modification;

2

FIGURE 6, by means of a side view, explains the formation of one structure of the egg container from the plastic sheets illustrated in FIGURE 4;

FIGURE 7 shows possible modified versions of one of the features illustrated in FIGURES 4 and 5; and,

FIGURES 8 and 9 are slightly modified versions of some of the features shown in FIGURE 1.

Generally speaking, the present invention contemplates an egg container structure wherein two thin plastic sheets defining a plane have shaped therein a plurality of flat resilient egg supporting means or egg supporting sections regularly spaced in rows and, a plurality of hollow conical egg receiving sections transverse to said defined plane in alternate rows between the rows of egg supporting means, the egg receiving sections being offset from the egg supporting means, said two sheets being juxtapositioned in back to back relationship so that the egg supporting means are disposed over the conical egg receiving sections to form a first structure of the egg container with rows of combined egg receiving sections and resilient egg supporting means; a second identical structure being disposed in face to face relationship with said first structure, the two structures resiliently holding eggs between opposed egg supporting means in said hollow conical egg receiving sections, each of said structures appearing as a flat piece with a plurality of hollow raised and depressed cones on both sides thereof, resilient egg supporting means between each four cones, and walls between adjacent raised cones to give the structure some rigidity.

The egg container arrangement 11, shown in the drawing is made of expanded polystyrene foam material or other formable plastic. A sheet 13 of expanded polystyrene has been formed to provide rows of egg receiving sections 15. Each egg receiving section 15 has a conical or frusto-conical shape, and as used herein these terms are synonymous since the object of the cone is to receive the conical end of an egg and provide a support for the next row to be placed above. The egg receiving sections are disposed in longitudinal rows. Between alternate rows of egg receiving sections are egg supporting sections 17. The egg supporting sections consist of a plurality of radial cuts emanating from a central point 19 between four adjacent conical egg receiving sections. These cuts thus divide the piece of polystyrene material into pie-shaped portions 21. These pie-shaped portions 21 will flex or bend inwardly when subjected to pressure by an egg, so that effectively, the bottom part of the egg will be supported by these sections, and held in the cone. The central part of the egg supporting section need not be a point 19, but can also be a cut out circle 19a shown in FIGURE 8. In which case the pie-shaped portion 21a will have the front thereof slightly cut-off. Or the egg supporting sections may be only a cut out circle 19b as shown in FIGURE 9. To provide some rigidity to the structure, walls 23 are provided between adjacent egg receiving sections at the back thereof. These walls 23 may be almost as tall as the cones or, only partly raised walls 23a, 23b, shown in FIGURE 7, may be provided. The egg container arrangement 11 requires two sets of structures 25. Each structure is made of two thin plastic sheets 27 and 29 which are preferably molded simultaneously but in opposite phase. The two sheets are joined along a connecting strip 31 and one sheet is then folded over the other sheet so that the egg supporting sections 17 will be disposed over the egg receiving sections 15 as illustrated in FIG. 6. When so folded over, the two sheets 27 and 29 form a structure 33. Two such structures when placed in face to face relationship as illustrated in FIG. 1 are then used to pack the eggs. The eggs pierce through the center point 19 of the egg supporting sections in each structure so as to be suspended within two opposed conical egg receiving sections as shown in

3

FIGURE 2. To facilitate handling of the two assembled halves, finger holding spaces 35 are provided to allow the hand to grip the lower half of the arrangement.

Although the egg supporting sections are shown as having radial cuts, it is also possible to construct the structures described with other types of cuts.

The two structure halves of the egg container arrangement can be formed from rectangular plastic sheets in a mold. The cone walls and radial cuts may be made in either one or two operations.

Usually, workpiece sheets of expanded polystyrene in rolls are passed through a machine and heated by heaters on top and bottom of the material. As the workpiece is held in the machine, the mold comes up from underneath. The flat workpiece is drawn down by vacuum and formed. The vacuum is shut off. The mold is withdrawn and the workpiece is taken out. The workpiece is then placed in a die and die cut. However, it is also possible to combine both the forming and die cutting operation.

Although the present invention has been described in conjunction with preferred embodiments, it is to be understood that modifications and variations may be resorted to without departing from the spirit and scope of the invention, as those skilled in the art will readily understand. Such modifications and variations are considered to be within the purview and scope of the invention and appended claims.

I claim:

1. An egg container structure, comprising in combination, a thin plastic sheet defining a plane having shaped therein a plurality of flat resilient egg supporting means regularly spaced in rows and, a plurality of hollow conical egg receiving sections transverse to said defined plane, in alternate rows between the rows of egg supporting means, the egg receiving sections being offset from the egg supporting means, so that when two said sheets are juxtapositioned in back to back relationship said egg supporting means will be disposed over said hollow conical egg receiving means forming said structure, and when two said structures are placed in face to face relationship, eggs will be resiliently supported within said two structure arrangements in the conical egg receiving sections of each structure by the egg supporting means each of said structures appearing as a flat piece with a plurality of hollow raised and depressed cones thereon,

4

resilient egg supporting means between each four rectangularly adjacent cones, and a wall between adjacent cones to give the structure some rigidity.

2. A structure as claimed in claim 1, said wall being of a height which is only a fraction of the height of said raised cones.

3. A structure as claimed in claim 1, said wall being of a height substantially corresponding to the height of said raised cones.

4. A structure as claimed in claim 1, said supporting means being formed by a plurality of radial cuts forming pie-shaped resilient flat sections, the eggs being pressed therein between forcing said resilient means outwards into the hollow conical egg receiving sections.

5. A structure as claimed in claim 1, said egg supporting means being formed by a circular aperture, the egg being pressed in said aperture, said aperture resiliently supporting the egg shell within the hollow conical egg receiving section.

6. A structure as claimed in claim 1, said egg supporting means being formed by a circular aperture having a plurality of outward radial cuts, the egg being pressed in said aperture and being supported within the hollow conical egg receiving section.

7. A structure as claimed in claim 1, said structure being rectangular including hand holding means along two opposite sides thereof.

8. A structure as claimed in claim 1, said structure being made of expanded polystyrene foam.

9. A structure as claimed in claim 1, said structure being made of plastic sheets.

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