Aug. 18, 1964 L. M. HARTMANN ETAL 3,144,972

CONTAINER OF FIBROUS MATERIAL FOR HENS' EGGS

Filed Jan. 3, 1962

Fig. 1

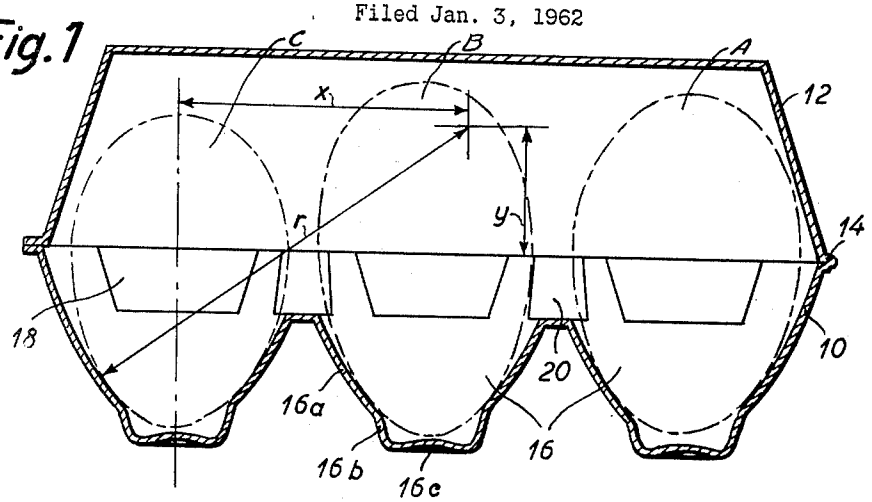
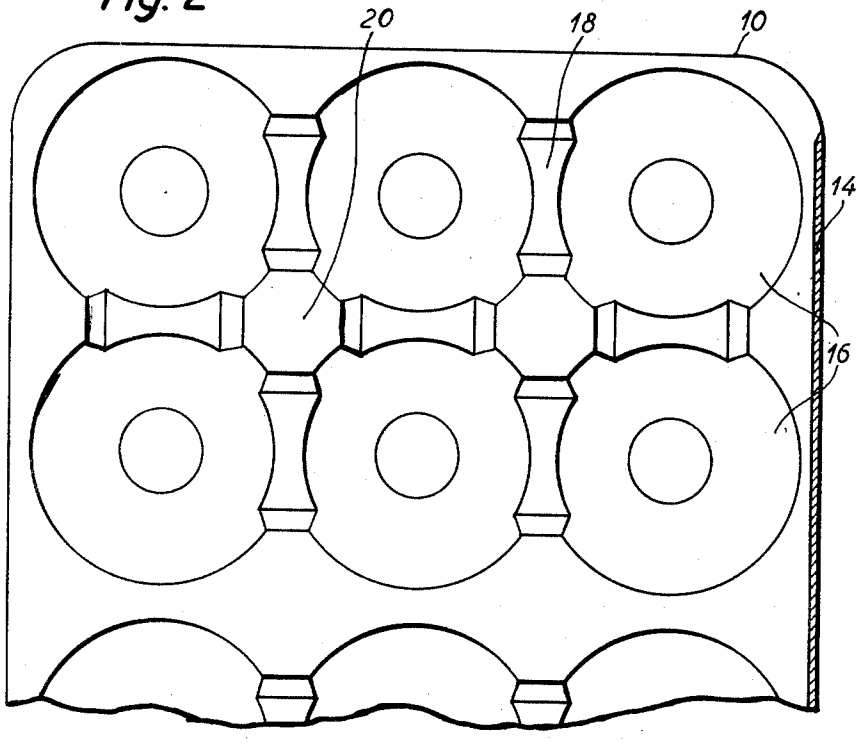


Fig. 2



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CONTAINER OF FIBROUS MATERIAL FOR HENS' EGGS

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2 Claims. (Cl. 229—2.5)

The present invention relates to a resilient support for hens' eggs to be packed, and the invention has special reference to a container of fibrous material for hens' eggs, in which the eggs are arranged between an upper part and a bottom part of the container, the bottom part being provided with individual cells constituting seats for the lower portions of the eggs and comprising an egg supporting portion shaped like a truncated cone-like body wtih an inward concavely curved generatrix.

The object of the invention is to indicate a support of the kind in question in which the cells are so formed that the eggs are supported in such a manner that the abutment pressure between the eggs and the adjacent surface of the cells is distributed uniformly over a relatively great area independent of the size of the eggs.

Up to the present the said cells have been shaped in accordance with the most common form of hens' eggs. A normal egg then abuts nearly the whole area of the walls of the cell and is well supported, whereas a more elongated egg rests on its narrow end in the cell and a rounder egg hangs on the upper edge thereof. So in the last two cases the contacting areas are very small and the eggs run a risk of being crushed when the container is shaken or subjected to rough handling.

Containers are also known having angular cells, e.g. truncated pyramidal cells, or cells provided with inwardly projecting ribs. The purpose of such a design is to provide a number of spaced supporting areas capable of yielding.

According to the present invention the curvature of the generatrix of the egg supporting portion of the cell is less than the curvature of the adjoining surface of any of the eggs to be packed. This results in a very lenient support for the eggs, since the support is in the form of a belt-formed surface in the cell. The vertical location of the said surface will depend on the shape of the egg.

The accompanying drawings show a preferred embodiment of a container according to the invention.

In the drawings

FIG. 1 is a vertical cross section through the container, and

FIG. 2 is a plane view of part of the bottom part of the container.

The container may be manufactured by precipitating fibre pulp by means of suction on a mould having a reticulated or perforated surface, so that the container will have substantially the same thickness all over.

In the embodiment shown, the container consists of two halves, viz. a lower half **10** and an upper half **12**, which are hinged together along a fold line **14**. The lower half is provided with a number of cells **16**, the number of cells being adapted to the desired size of the container, whereas the mutual distance of the cells is arbitrary. Each cell is deisgnated to receive the lower portion of an egg. Between adjoining cells **16** the material is set back, so that, as seen from the inside of the lower half, a notch **18** is produced, and between four adjacent notches there is an upstanding projection **20**. In this way a stiffening connection is obtained between the individual cells **16**, which facilitates the manufacture of the container according to the above mentioned method and strengthens it as well.

Each cell **16** has a main portion **16***a* and a lower portion **16***b*. The main portion is in the form of a truncated cone-like body having an inwardly concavely curved generatrix. In the shown embodiment the generatrix is curved according to an arc of a circle having a radius r=90 mm., the centre of the circle lying at a distance x=57.5 mm. from the vertical axis of the cell, and at a distance y=27 mm. from the upper surface of the lower half **10**, see FIG. 1.

FIG. 1 shows three differently sized eggs A, B and C arranged in the cells **16** and shown in dot and dash lines. A is the largest egg in a certain weight group, C is the smallest, whereas B is the slenderest. In the main portion **16***a* the egg is supported by a belt-formed supporting face, because the egg and the supporting face both are curved to the same side, and because their radii of curvature only differ slightly. The vertical location of the supporting face will vary dependent on the size and the shape of the egg.

The described shape of the supporting face is a very appropriate one, since an egg can resist great pressure through forces distributed evenly along its surface. It is also an advantage that the said supporting face has a certain axial height, even though the height is small. The belt shaped supporting face will be retained even if the egg is tilted in the cell when the container is shaken.

The lower portion **16***b* of the cell is so shaped that the egg normally does not touch its inner surface. The bottom **16***c* of the lower portion is slightly dome-shaped so that it can be pressed slightly downwards when touched by the narrow end of an egg without coming into direct contact with the surface supporting the container.

In the shown embodiment the upper half **12** is trough-shaped, but it may have any expedient form. It may be provided with supporting surfaces in a manner known per se, said surfaces being e.g. arranged on hollow studs projecting downwards between the eggs.

The shape of the upper part of the container is not of decisive importance for the invention. This part need not be hinged to the bottom part and need not be connected to this part at all. Both parts may be in the form of so-called egg-trays which may be arranged between layers of eggs in a shipping container or egg crate.

Having now fully described our invention, we calim as new and desire to secure by Letters Patent:

1. A resilient support for hens' eggs to be packed comprising a structure provided with a number of cells constituting seats for the lower parts of hens' eggs to be packed, each cell including an egg-supporting part having a truncated, generally cone shape with an inwardly concavely-curved generatrix curved according to an arc of a circle being located above the level of the cell and at a distance of about 57 mm. from the axis of the cell.

2. In a container of fibrous material for hens' eggs to be packed, including an upper part and a bottom part between which the eggs are to be packed, the improvement in which the bottom part of the container comprises a structure provided with individual truncated, generally

con-shaped cells constituting seats for the lower portions of hens' eggs to be packed in the container, each of said cells including an annular belt-shaped egg-supporting face having an inwardly concavely-curved generatrix curved according to an arc of a circle having a radius of about 90 mm., the center of the circle being located above the level of the generatrix and at a distance of about 57 mm. from the axis of the cell and at a distance of about 27 mm. from the upper surface of the bottom part of the container.

References Cited in the file of this patent

UNITED STATES PATENTS

1,990,145	Swift	Feb. 5, 1935
2,933,227	Vahle	Apr. 19, 1960
2,978,162	Lambert	Apr. 4, 1961

FOREIGN PATENTS

785,914	Great Britain	Nov. 6, 1957

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,144,972 August 18, 1964

Louis Martin Hartmann et al.

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 65, for "is deisgnated" read -- 16 is designed --; column 2, line 51, for "calim" read -- claim --; line 59, after "circle" insert -- having a radius of about 90 mm., the center of the circle --.

Signed and sealed this 26th day of January 1965.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents