K. FUKUMURA.

FOLDING PARTITIONS FOR CRATES.

APPLICATION FILED JAN. 25, 1915.

1,174,844.

Patented Mar. 7, 1916.

2 SHEETS—SHEET 1.

FIG. 1

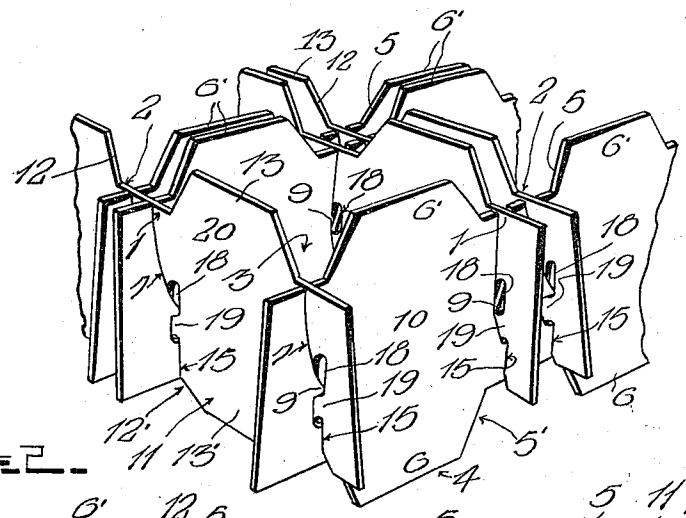
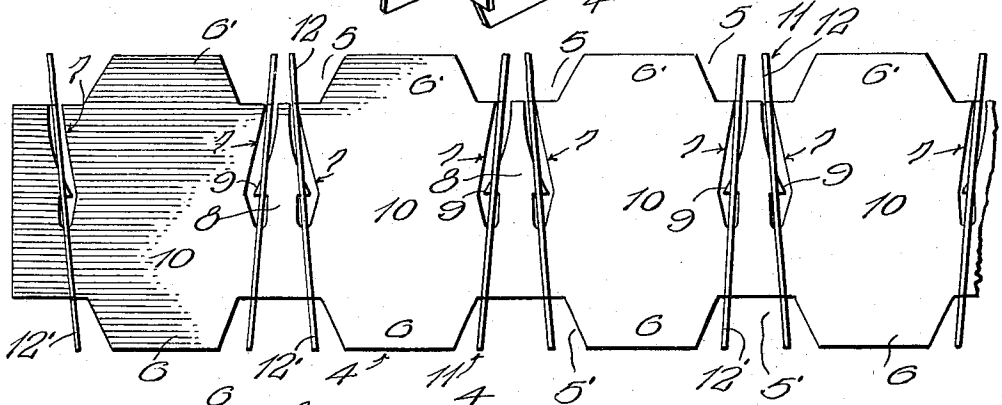


FIG. 2



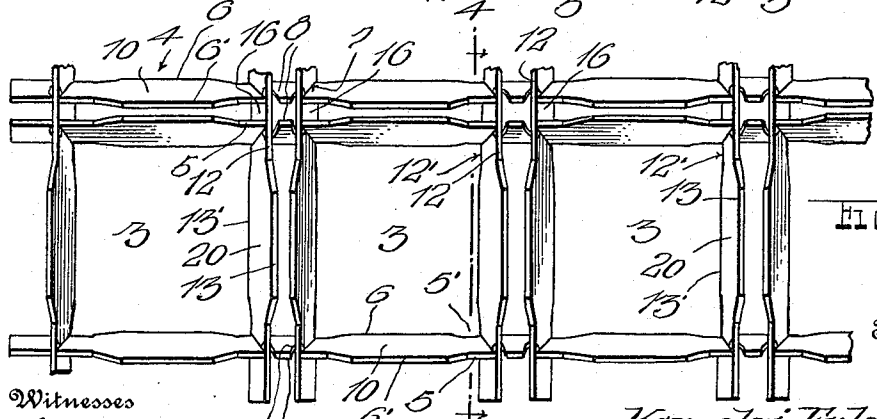


FIG. 3

Witnesses

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2 SHEETS—SHEET 2.

FIG. 4

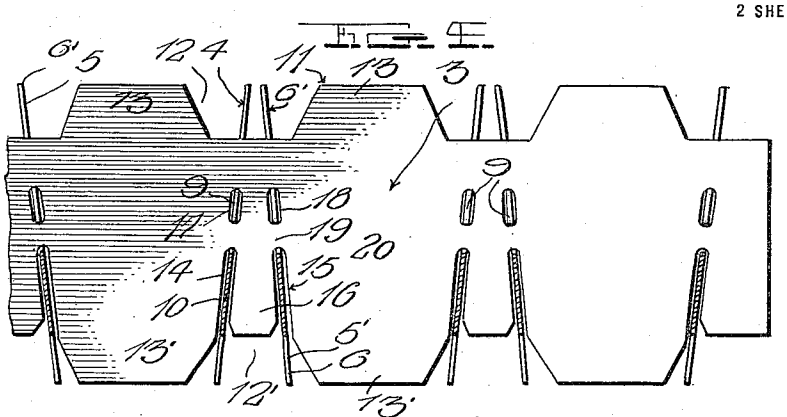


FIG. 5

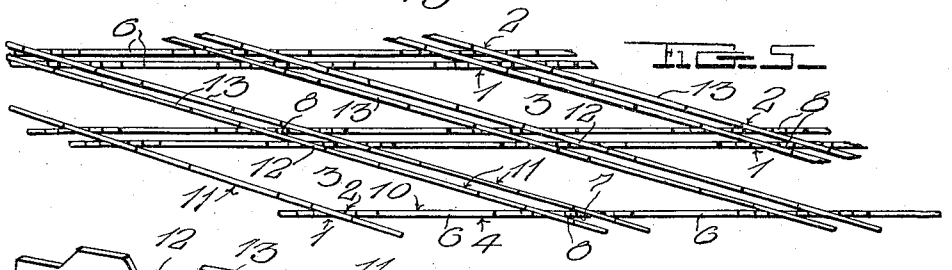


FIG. 6

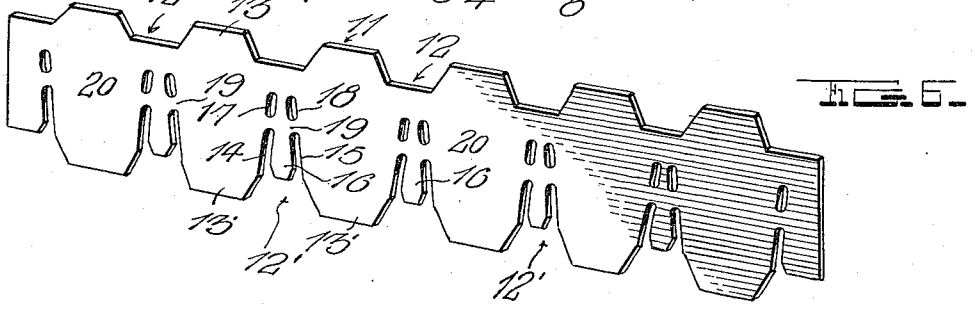
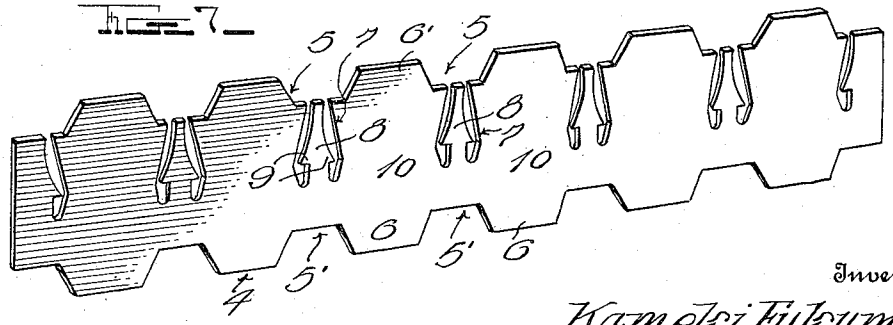


FIG. 7



Witnesses

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FOLDING PARTITIONS FOR CRATES.

1,174,844. Specification of Letters Patent. Patented Mar. 7, 1916.

Application filed January 25, 1915. Serial No. 4,253.

To all whom it may concern:

Be it known that I, KAMEKI FUKUMURA, a subject of the Emperor of Japan, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Folding Partitions for Crates; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in compartment cases which are adapted for the transportation of eggs or other frangible or perishable substances.

The object of the invention is to provide an egg crate with simply constructed collapsible partitions constructed to form when in operative position, elastic walls for cushioning the articles carried in the compartments to prevent bruising or breakage thereof during transportation.

Another object is to provide improved means for connecting the partitions so that they will be reliably held in open operative position and yet permit them to readily fold when collapsed.

With the above and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings:—Figure 1 represents a perspective view of a portion of a crate, with the partitions constructed in accordance with this invention and shown in open position; Fig. 2 is a side elevation thereof with the partitions in open position; Fig. 3 is a top plan view of a portion thereof; Fig. 4 is a transverse section taken on the line 4—4 of Fig. 3; Fig. 5 is a plan view of a portion of a crate with the partitions partially folded; Fig. 6 is a detail perspective vie wof one of the partitions; Fig. 7 is a similar view of one of the intersecting partitions which are designed to extend at right angles to those shown in Fig. 6.

The compartments are made of strips of cardboard or other suitable material crossing each other at right angles as shown at 1 and 2. These strips are fitted to cross each other in pairs, each two parallel strips which form a side of one of the compartments being sufficiently far apart so that they will present elastic surfaces upon all sides against which the eggs or other articles rest and by which the separated articles are prevented from pressing against or bruising each other and also to admit articles of different and irregular sizes. These compartments or cells 3 are made of any size suitable for the articles to be conveyed, being preferably of a size to receive an egg and firmly retain it against wabbling.

As shown, the compartments 3 are formed by pairs of cardboard strips 4 and 11, the strips 4 being provided on their opposite edges with a plurality of longitudinally spaced recesses 5 and 5′ which may be of any desired configuration, being here shown semi-hexagonal in form, thereby providing tapering supports 6 and 6′ disposed on their opposite edges, the ends of which are cut off and arranged in alinement to adapt them to efficiently engage supporting surfaces such as the bottom of a box or a horizontal partition arranged between the compartments, the supports 6 as here shown, being designed to rest on a supporting surface and those 6′ at the opposite edge, being designed to support a horizontal partition disposed above them.

Opening downwardly from the recesses 5 at the upper edge of the strips 4 are substantially diamond shaped recesses 7 having tongues 8 projecting upwardly from the lower walls thereof, said tongues being here shown in the form of arrow heads having laterally extending downwardly curved hooks 9 formed at the base of the heads and arranged opposite the widest portion of the recesses 7 and which are designed for interlocking engagement with slots formed in the strips which intersect the strips 4 as will be hereinafter further described. As shown, the free ends of these tongues 8 project substantially flush with the bottoms of the recesses 5 in the upper edges of the strips 4.

The solid portions 10 of the strips which are disposed between the diamond shaped recesses 7 thereof, are of a width substantially equal to the width of an ordinary sized hen's egg but it is obvious that the width of these portions may be varied, according to the articles which are to be shipped in the crates, of which they form a part.

The strips 11 which are designed to intersect the strips 4 at right angles when arranged in operative position, are here shown each provided in its upper and

lower edges with semi-hexagonal recesses 12 and 12′ of the same size as the recesses 5 and 5′ of the strips 4 and disposed the same distances apart so that they will aline with the recesses in the strips 4 when said strips are superposed thereon, to provide for a number of said strips being struck out in a single operation. Disposed between the recesses 12 at the upper edge of the strips 11, are tapered truncated supports 13 of the same size and shape as the supports 6′ of the strips 4, and similar supports 13′ are formed between the recesses 12′ in the lower edge of the strip 11. Upwardly and inwardly inclined slots 14 and 15 are formed in the lower edge of each strip 11 extending from the inner ends of the straight inner wall of the semi-hexagonal recesses 12′ thereof, said slots 14 and 15 thus converging toward their inner ends and thereby forming depending tongues 16 which have downwardly and outwardly inclined side edges with the corners thereof beveled to facilitate their engagement with the coöperating strips 4. By so forming the slots 14 and 15, the tongues 16 are produced with enlarged free ends which form spacing members for two of the adjacent parallel strips 4 which are designed to be mounted in said slots 14 and 15 and which when assembled force the lower edges of said pairs of strips apart and cause their upper edges to converge as shown in Fig. 4 to assist in forming cells 3 which conform to the shape of an egg when the eggs are disposed therein with their small ends down, in which way they are usually packed.

Slots 17 and 18 are disposed between the solid portions 20 of each strip and extend transversely of said strip, substantially in alinement with the slots 14 and 15 formed in the lower edge thereof, said slots 17 and 18 being spaced slightly from the inner ends of the open slots 14 and 15 and which are designed to receive the hooks 9 of the tongues 8 of the strips 4 when said strips 4 and 11 are assembled. The strips 19 between the slots 17 and 14 and 18 and 15 respectively, are slightly shorter in length than the shank of the tongues 8 between their bases and the hooks 9 thereof to facilitate the connecting and disconnecting of the strips 4 and 11.

In assembling the strips to form the various compartments 3, a plurality of strips 4 are arranged in pairs and are connected by means of the strips 11 which cross them in planes at right angles and have the slots 14 and 15 thereof passed downwardly into opposite sides of the recesses 7 between the hooks 9 of the tongues 8 and the adjacent side walls of said recesses and are lowered until the inner ends of the slots 14 and 15 engage the inner ends of the recesses 7 and when in this position, the slots 17 and 18 of the strips 11 are disposed opposite the hooks 9 of the tongues 8 and said hooks spring through said slots and interlockingly engage the strips 4 and 11 and hold them against accidental separation, and yet permit them to be freely swung laterally relatively to each other to provide for the collapsing of the partitions or strips when the crate is to be folded for storage or for returning them to the owner after the contents have been sold or disposed of. When these strips are assembled as above described, it will be obvious that the tongues 8 will space the pairs of longitudinal parallel strips 11 from each other a distance equal to the width of the base of the tongue and the tongues 16 of the strips 11 will space the strips 4 apart a distance equal to the width of the free end of the tongues 16 and thus provide elastic cushioning walls for the compartments 3 so that these walls will yield slightly to prevent the contents thereof from being crushed or jammed, and also to accommodate irregularity in the articles disposed therein. The converging side walls at the outer ends of the recesses 7 engage the upper portions of the pairs of strips 11 and thus force their lower edges apart to adapt the partitions formed by the pairs of strips 11 to coöperate with the intersecting pairs of strips 4 to form the egg-shaped cells 3 which are smaller at their bottoms and flare toward their upper ends for the above described purpose. The recesses 5 and 5′ formed in the strips 4 and the recesses 12 and 12′ formed in the strips 11, provide ventilating spaces for the free circulation of air through the crate between the supports which are disposed above and below these partitions. To disassemble the strips for any purpose, the strips 11 are inclined outwardly to disengage the slots 17 and 18 from the hooks 9 of the tongues 8 and said strips may then be merely slipped upwardly out of the slots or recesses formed at the opposite sides of these tongues. From the above description, it will be obvious that after these coöperating strips 4 and 11 have been assembled as above described, they may be readily collapsed or folded by swinging the strips 11 on the strips 4, whereby they are positioned substantially in superposed relation, side by side with the tapered supports of the respective strips and recesses between them, arranged substantially in alinement as is shown in Fig. 2.

I claim as my invention:—

A crate comprising compartments formed of double longitudinally parallel strips having recesses in its opposite edges with truncated tapering supports arranged therebetween, the recesses in one of said edges extending transversely of the strip and having a tongue in the form of an arrow head extending outwardly from the inner wall of

the same, corresponding double longitudinally parallel strips having recesses in their opposite edges with truncated tapering supports arranged therebetween, said last named strips having longitudinally spaced pairs of transversely extending opening slots, said pairs of slots converging inwardly from either end of said recesses, pairs of closed slots arranged substantially in alinement with said open slots for interlocking engagement with the arrow head tongues on the first mentioned strips when said strips are disclosed in intersecting planes.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

KAMEKI FUKUMURA.

Witnesses:
JAMES E. SHELTON,
ICHYI AKAHOSHI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."