C. E. LANE.

SHIPPING CASE.

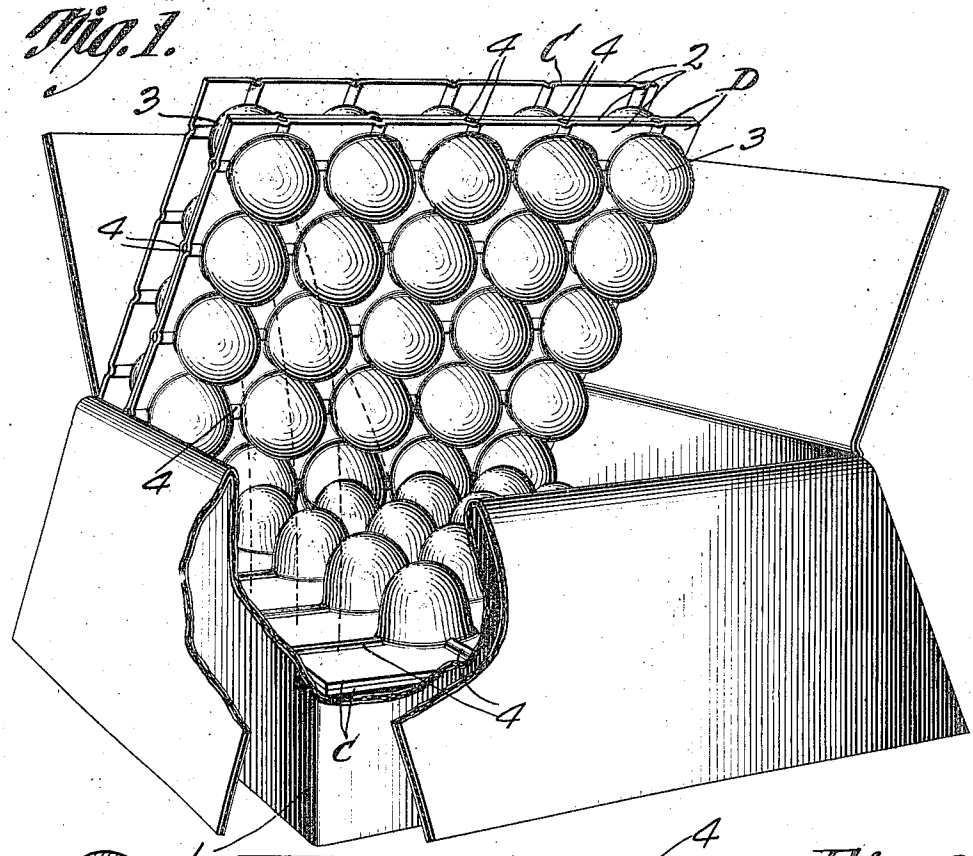
APPLICATION FILED JULY 11, 1914.

1,173,114.

Patented Feb. 22, 1916.

2 SHEETS—SHEET 1.

Fig. 1.



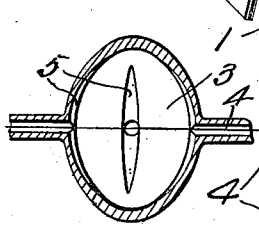


Fig. 6.

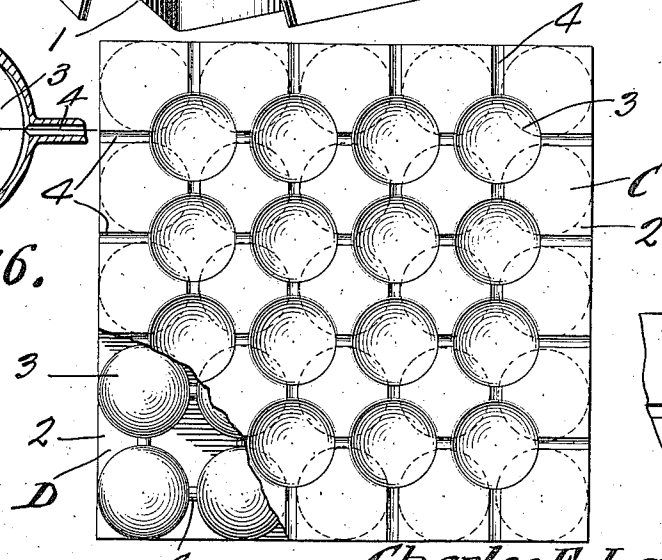


Fig. 2.

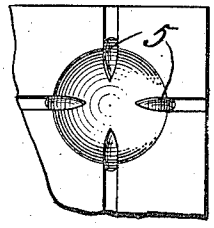


Fig. 5.

Witnesses

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2 SHEETS—SHEET 2.

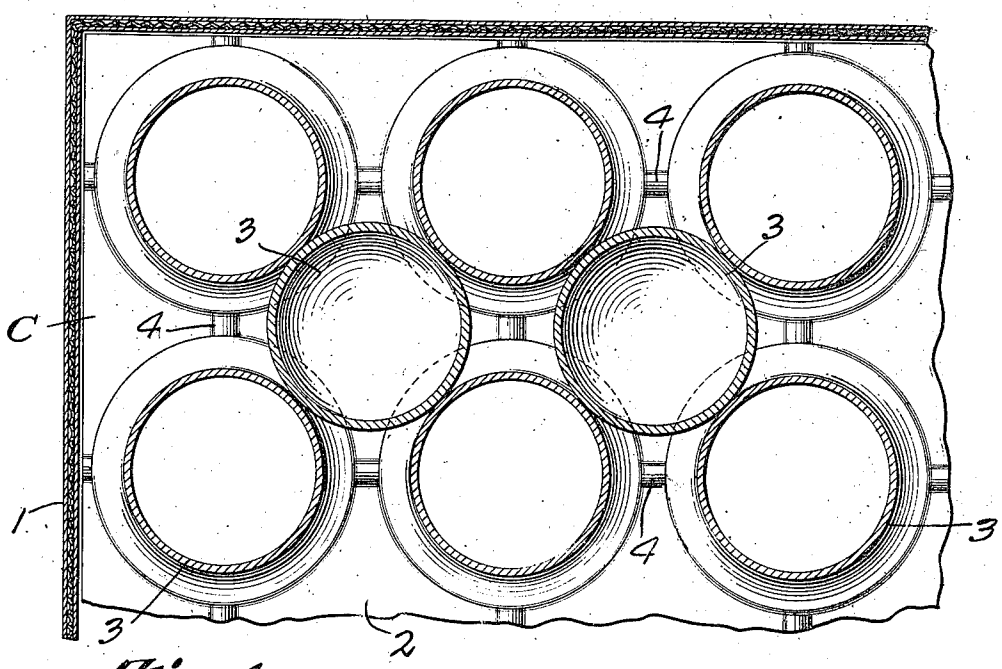
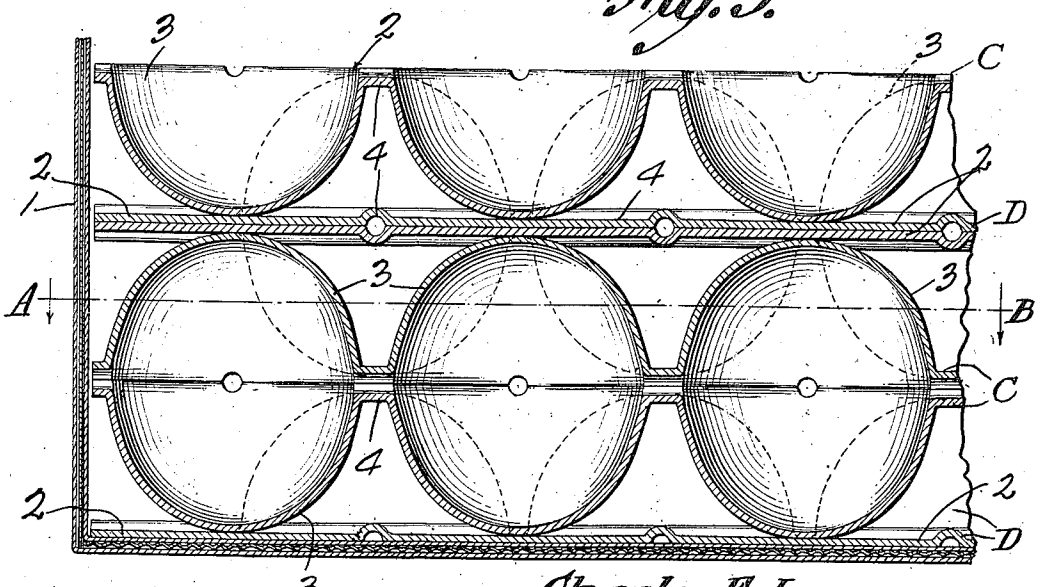


Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES E. LANE, OF NEW YORK, N. Y., ASSIGNOR TO HARRY J. THOMPSON, OF NEW YORK, N. Y.

SHIPPING-CASE.

1,173,114. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed July 11, 1914. Serial No 850,401.

To all whom it may concern:

Be it known that I, CHARLES E. LANE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Shipping-Case, of which the following is a specification.

This invention relates to shipping cases especially designed for use in the transportation of eggs, fruits and the like, one of the objects of the invention being to provide novel forms of trays, which, when assembled, will nest compactly and will not only completely house the contained articles, the walls of the trays practically conforming to the contours of the articles, but will also so cushion the articles in all directions, as to prevent the same from becoming jolted to an undesirable extent and broken during the transportation of the case.

A further object is to provide trays, the interfitting portions of which are braced both laterally and vertically, thus providing a body the units of which reinforce one another with the result that the case and its contents will not crush even though subjected to excessive pressures.

A further object is to provide a shipping case the nesting units of which are light and durable, cheap to manufacture, and can be readily assembled without the formation of any undesirable waste spaces.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement 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 can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a perspective view of a shipping case embodying the present improvements, certain of the trays being elevated out of their normal positions and a portion of the carton or container being broken away. Fig. 2 is a plan view of two superposed trays, a portion of the upper tray being broken away. Fig. 3 is a vertical longitudinal section taken through certain of the pockets or cells of certain of the trays and showing the arrangement of end bearings for the cells. Fig. 4 is a section on line A—B Fig. 3 and showing how each cell is provided with four lateral bearings. Fig. 5 is a plan view of a portion of a slightly modified form of tray. Fig. 6 is a section through portions of two opposed trays such as shown in Fig. 5.

Referring to the figures by characters of reference, 1 designates a carton or container which can be of any suitable material and construction and which is adapted to contain a plurality of superposed trays or units such as constitute the present invention. All of the units are of the same general construction and each of them includes a flat body or sheet 2 having parallel rows of semi-ovoid cells or pockets 3. The number of these cells in each tray or body depends upon the size of the article to be contained in the case and the number of articles. In the present instance, the case is designed for holding eggs and the trays have been provided with sixteen and twenty-five cells respectively. In other words, one tray is provided with five parallel rows or cells, each row containing five similar semi-ovoid pockets or cells while another tray has four parallel rows of similar pockets or cells, each row being made up of four of these cells or pockets. The tray containing the sixteen cells or pockets has been indicated at C while the tray containing the twenty-five cells or pockets has been indicated at D. The cells in the tray C are so located that, when the two trays C and D are oppositely disposed, the cells extending toward each other, those cells on the tray C will project between the cells on the tray D, each cell on the tray C bearing laterally against four of the cells on the tray D and each of the cells on the trays C and D bearing at its end against the opposed tray, as clearly shown in Fig. 3. The lateral bearings of the cells have been illustrated in Fig. 4.

In assembling the trays within a carton,

one of the trays D is first placed upon the bottom of the carton with its cells 3 projecting upwardly. The second tray C is then placed on the lower or first tray D and with its cells 3 extending downwardly between the upwardly projecting cells on the lower tray D. Thus each of these downwardly projecting cells on the second tray C will have four lateral bearings upon the upwardly projecting cells on the lower tray D and will also bear at their bottoms upon the lower tray D. The eggs to be shipped are then placed in the cells in the second tray C after which a third tray C is placed in inverted position so that the eggs will be completely housed between the two trays C. A fourth tray D is then placed, with its cells extending downwardly between the upwardly projecting cells on the third tray C, each of these depending cells on the fourth tray D having four lateral bearings upon the upwardly projecting cells of the third tray C and also bearing downwardly upon said third tray C between the cells. Each of the cells in the fourth tray D is then filled with an egg, after which another or fifth tray D is placed in an inverted position within the carton so that the eggs will thus be housed between the two trays D. Another or sixth tray C is then placed on the fifth tray D with its cells extending downwardly between the upwardly extending cells on the fifth tray D. Thus it will be seen that the foregoing operation can be repeated until a number of superposed trays have been arranged within the carton, every pair of opposed trays housing between them a plurality of eggs or other articles to be shipped.

By reason of the fact that each cell has four lateral bearings upon the cells of the adjoining tray and also has an end bearing upon the adjoining tray at a point between the cells, it will be apparent that the body formed by building up the trays one upon the other, will be of considerable rigidity and will have the power of resisting extreme pressures. In practice the various trays are made of paper pulp molded in proper form and in spite of the fact that each tray is made of this light and comparatively weak material, it has been found in practice that a plurality of trays built up in the manner herein described is capable of supporting 150 pounds or more placed thereon.

As the cells nest in the manner set forth, it will be seen that the waste space is reduced to the minimum and as the cells conform substantially to the contours of the contained articles, it will be seen that said articles will be held against excessive movements and, consequently, jolting of the article is practically prevented. In actual tests of a shipping box such as herein described, it has been found that eggs are so fully protected thereby that no breakages have thus far occurred during the transportation of the boxes either by express or by parcel post.

The use of paper pulp in the formation of the trays is especially desirable not only in view of the cheapness of the material and the ease with which it may be molded but also because it forms an effective cushion.

By utilizing the semi-ovoid cells or pockets, the power of resisting external pressures is rendered much greater than where cells are made of flat partition strips, this power of resistance being dependent both upon the dome-like contours of the cells and the fact that each cell is formed with a plurality of lateral bearings as well as an end bearing. In other words, collapse of any cell is resisted by its lateral bearing against the adjacent cells.

When the case is used for the purpose of holding fruit it is desirable to provide some means whereby air may circulate freely between the trays. For this purpose indentures or channels may be extended radially from the different cells so as to form a means of communication between the cells. These indentures or channels have been indicated at 4 and are adapted to register when the trays are superimposed in the manner set forth heretofore, thus to provide air passages or vents for the purposes stated. The indentures can, if desired, be extended short distances into the cells as shown at 5 in Figs. 5 and 6.

What is claimed is:—

1. A shipping case having superposed trays formed with cells and disposed in pairs, the trays of each pair being oppositely disposed with their cells registering, and the cells of one tray of each pair being extended between and bearing laterally against the cells of one of the trays of an adjoining pair.

2. A shipping case having superposed trays formed with cells and disposed in pairs, the trays of each pair being oppositely disposed and having their cells registering, and the cells on one tray of each pair being extended between and bearing laterally against the cells on a tray of the next adjoining pair and bearing against said tray at points between its cells.

3. A shipping case having superposed pairs of trays formed with cells and with radial channels opening into and constituting connections between the cells, the trays of each pair being oppositely disposed and having their cells and channels registering, the cells on one tray of each pair being extended between and bearing laterally against the cells on a tray of the next adjoining pair and bearing against said tray at points between its cells.

4. A shipping case having superposed

pairs of trays formed with cells, and with radial channels constituting connections between the cells, said channels being extended downwardly within the cells, the trays of each pair being oppositely disposed and having their cells and channels registering, the cells on one tray of each pair being extended between and bearing laterally against the cells of a tray of the next adjoining pair and bearing against said tray at points between the cells.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CHARLES E. LANE.

Witnesses:
F. M. CENDEN,
MOSES J. WEBER.