Dec. 15, 1936. H. C. KRANNERT 2,064,122

CUSHION PAD

Filed Dec. 29, 1934

FIG. 1

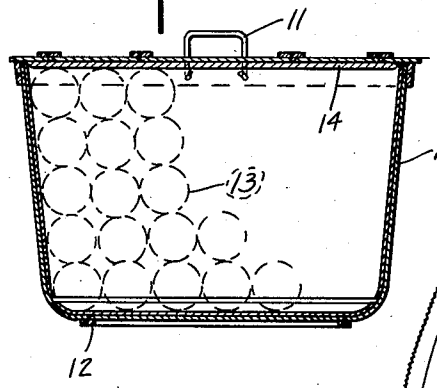


FIG. 2

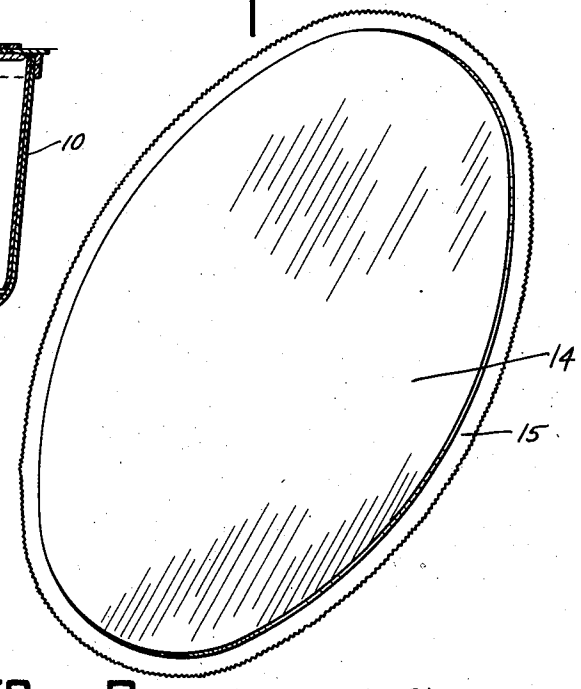


FIG. 3

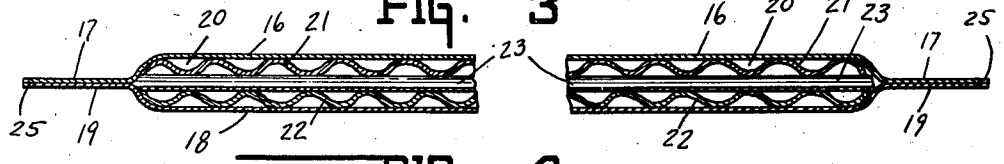
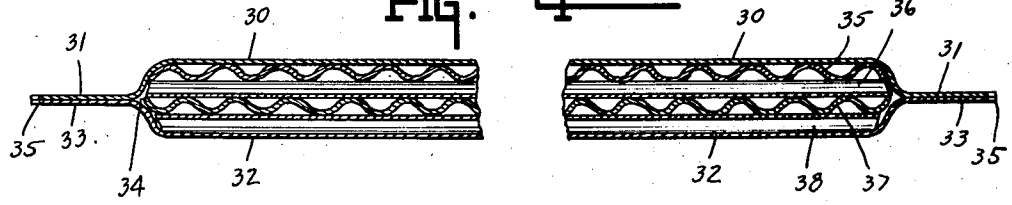


FIG. 4



INVENTOR.
HERMAN C. KRANNERT.

BY Lockwood, Goldsmith & Galt

ATTORNEYS.

Patented Dec. 15, 1936

2,064,122

UNITED STATES PATENT OFFICE

2,064,122

CUSHION PAD

Herman C. Krannert, New Augusta, Ind., assignor to Fruit and Produce Packing, Inc., Indianapolis, Ind., a corporation

Application December 29, 1934, Serial No. 759,710

2 Claims. (Cl. 154—54)

This invention relates to the fruit packing industry and is particularly directed to the top cushion structure.

Within the past several years it is the practice to pack fruit and the like in containers, such as boxes, crates, half and bushel baskets. The containers are usually provided with a liner to protect the fruit from contacting the material of the container and becoming scored or creased thereby, and further from absorbing or becoming tainted with the odor of the material comprising the container, since in many instances green wood has and is now being used for the manufacture of said containers.

In the "Hiatt system" which is represented by several Hiatt patents heretofore granted, the packer completely fills the container so that when the cover or top of the container is placed thereon it slightly compresses the top layer of fruit that substantially fills the container. In other words, the top operatively bears down upon the top layer of fruit. This is known as a full pack.

In shipment and storage these baskets and containers are stacked one upon the other and the additional weight of successive containers bows the top inwardly to a degree, in some instances slight, and in some to a considerable degree, which further compresses the fruit content thereby creasing and marring it. To protect the fruit a cushion pad structure has been utilized.

The present invention is directed to an improved cushion pad suitable for the aforesaid purpose and having all of the advantages of the prior art structures and no one of the disadvantages thereof.

The present invention consists essentially of a pad of the desired outline conforming to the outline of the container (herein shown circular because applied to a bushel basket) and embodying a relatively flat chamber of limited volume and containing corrugated material that is freely expansible, the expansibility being limited by the wall of the chamber. It has been found that two layers of corrugated paper of relatively soft stock is highly satisfactory and it has further been determined that three layers superposed one upon the other is even more satisfactory, forming a pad with a thickness of from 3/8" to 1/2", each corrugated sheet being approximately 1/8" in thickness between the two planes tangent to the oppositely projecting corrugated edges of the corrugated sheet.

No claim is made for a paper board comprising a liner, adhesively or otherwise secured to a corrugated sheet. No claim is made for a product itself comprising a plurality of corrugated sheets adhesively secured together with their corrugations positioned angularly of each other.

The reason for the non-suitability of such paper board structures for cushion pad purposes is that this material being secured substantially along each corrugation to another corrugated sheet or to a liner, as the case may be, or to both, when subjected to pressure can only yield in the particular corrugation by deforming that particular corrugation and when it yields it forms a creasing or folding of that deformed material between the other two immediately adjacent connections of adjacent corrugations and this creased or deformed portion mars the fruit.

The present invention is directed to a construction in which two or more immediately adjacent corrugations can readily flatten out or deform at the desired area in contact with the fruit and the excess material resulting therefrom be distributed or taken up at a slight distance therefrom by the remaining corrugations, complete flattening out of all the corrugations being prevented because the cushioning corrugated material is limited in its expansibility by reason of being confined in a chamber structure.

The invention also has the advantage of being of relatively simple construction. A high rate of commercial production is possible, one operator being capable of making approximately two thousand per hour, thereby permitting the pad to be sold at a relatively low cost. The cushioning material being of relatively cheap paper stock that is considerably softer and weaker than the ordinary stock used for the manufacture of corrugated boxes or board permits selling of the caps at a relatively low cost.

The full nature of the invention will be understood from the accompanying drawing and the following description and claims:—

In the drawing Fig. 1 is a central sectional view of a bushel basket provided with a Hiatt or equivalent liner and a bottom pad, if and when desired, the fruit being shown dotted therein and the cushion pad, the subject matter of the invention being shown applied to the top.

Fig. 2 is a perspective view of the pad.

Fig. 3 is an enlarged sectional view of one form of the pad embodying the invention, the latter being shown provided with three corrugated cushion sheets of an outline substantially conforming to the outline of the chamber.

Fig. 4 is a similar view of the form of the invention embodying four sheets.

In the drawing, 10 indicates a suitable container, herein shown in the form of a bushel basket, having the handles 11, the base or support 12, and adapted to contain fruit 13 and to be provided with a cover, not shown. Interposed between the cover and superposed upon the fruit is a cushion pad 14. This type of construction represents the so-called full pack system applied to a container, such as a bushel basket.

In Fig. 2 the pad is illustrated in perspective and is shown provided with a rim portion 15 which is approximately ½" to ¾" in width.

In Fig. 3 the details of the pad construction, the subject matter of this invention, are illustrated. In this figure a liner sheet 16 of thin tough paper and having the desired outline corresponding to that of the container, is provided with a rim portion 17 and another liner 18 is provided with a rim portion 19, the two rim portions abutting each other and being adhesively secured together and provided with an exposed, serrated, free edge 25.

This forms a sealed envelope of the desired outline and volume.

Within the chamber 20 formed by the two liners, there is positioned a plurality of sheets of corrugated soft paper having an outline corresponding to the outline of the chamber 20. The plurality of sheets are so arranged that the longitudinal directions of the corrugations of two adjacent sheets are positioned angularly of each other. In Fig. 3, merely for convenience, this angularity is illustrated as 90°. The upper corrugated sheet is indicated by the numeral 21, the lower corrugated sheet by the numeral 22 and the intermediate corrugated sheet by the numeral 23. As illustrated, sheets 21 and 22 have their corrugations substantially parallel to each other.

It is not essential that the corrugations contacting the liner in the two outer sheets be in substantially vertical alignment. Also, it is not essential that the corrugations in the two outer sheets extend parallel to each other. The intermediate corrugated sheet 23 is of the same character as sheets 21 and 22. In other words, it may be identical therewith but it is positioned in the chamber so that the direction of its corrugation is angularly of that of the direction of the corrugation in sheets 21 and 22.

In Fig. 4 there is illustrated a portion of one form of the invention and herein four plies of corrugated paper are provided. The upper liner may be indicated by the numeral 30, its rim by the numeral 31, the lower liner by the numeral 32 and its rim by the numeral 33, the two rims being adhesively, or otherwise, suitably secured together, to provide an enclosed chamber 34 of limited volume, said rims having serrated edges.

Positioned in the chamber 34 of limited volume is a sheet of corrugated paper of relatively soft stock and indicated by the numeral 35. Therebeneath is a similar sheet 36, the directions of the two corrugations being angular to each other, and herein for convenience, it is illustrated as at 90°. Therebeneath is another sheet of corrugated paper 37 which, in the present instance, is illustrated as having its corrugations substantially parallel to the corrugations of the sheet 35, and therebeneath is another sheet of corrugated paper 38 having its corrugations positioned angularly of the corrugations in sheet 37 and parallel to the corrugations in sheet 36.

After the container 10 has been filled to what is known as "full-pack" capacity, the pad, or pads, sections of which are shown in Figs. 3 and 4, is placed on the fruit and then the cover is applied over the pad and secured to the container. Due to the fact that the corrugations are not fixed, or bonded to a liner, or liners, and also to the arrangement of two or more plies of this unlined corrugated board, having the direction of the corrugations in adjoining sheets angular to each other, whenever the high points of a group of fruit are brought in contact with this type of pad and under pressure, the formation of the corrugations in the various sheets slightly alters in shape, having a tendency to crowd the excess board between the adjoining pieces of fruit, thus building up a nest or cup so that the pressure placed on the receptacle or container and upon the top tier of fruit is not only applied to the fruit at the points of contact, but is gently spread against the adjoining surface of the fruit which normally does not come in contact with the cover of the container. Complete flattening of the pad is prevented because the chamber included within the liners is of limited volume and consequently the cushioning feature is retained, since all of the corrugations cannot flatten out but only that portion of the corrugation sheet in operative bearing contact with the fruit can and does flatten out.

While the invention has been described in great detail in the foregoing, the same is to be considered as illustrative and not restrictive in character and the modifications disclosed herein, as well as others which will readily suggest themselves to persons skilled in this art, are all considered to be within the broad scope of the claims appended hereto.

The invention claimed is:—

1. A cushion cap for cushioning fruit and the like in containers without marring of the fruit, comprising a chamber forming envelope of the desired outline and shallow depth and of relatively thin tough paper providing an interior chamber of limited volume, and compressible means therein and of substantially the same volume as the chamber, said compressible means including a plurality of superposed, independent paper sheets each having the chamber outline and substantially the same area thereof and of a paper stock relatively softer than that utilized in corrugated board formation, each of said sheets having integral deformations therein projecting oppositely from the median plane of the sheet, the deformations in adjacent sheets having a non-nesting arrangement, each deformed sheet being capable of further deformation locally without crease formation, the excess sheet material adjacent the local deformation and resulting therefrom, being transmitted to the immediate adjacent portion in the sheet, progressive transference of such deformation throughout the sheet for enlargement thereof being prevented by sheet confinement within the chamber.

2. A device as defined by claim 1, characterized by the original deformation of each sheet being of corrugated character and the non-nesting arrangement of the corrugations comprising a biased relationship between corrugations of adjacent sheets.

HERMAN C. KRANNERT.