June 27, 1939. W. J. SCHWERTFEGER 2,164,025

PACKING

Filed July 15, 1937

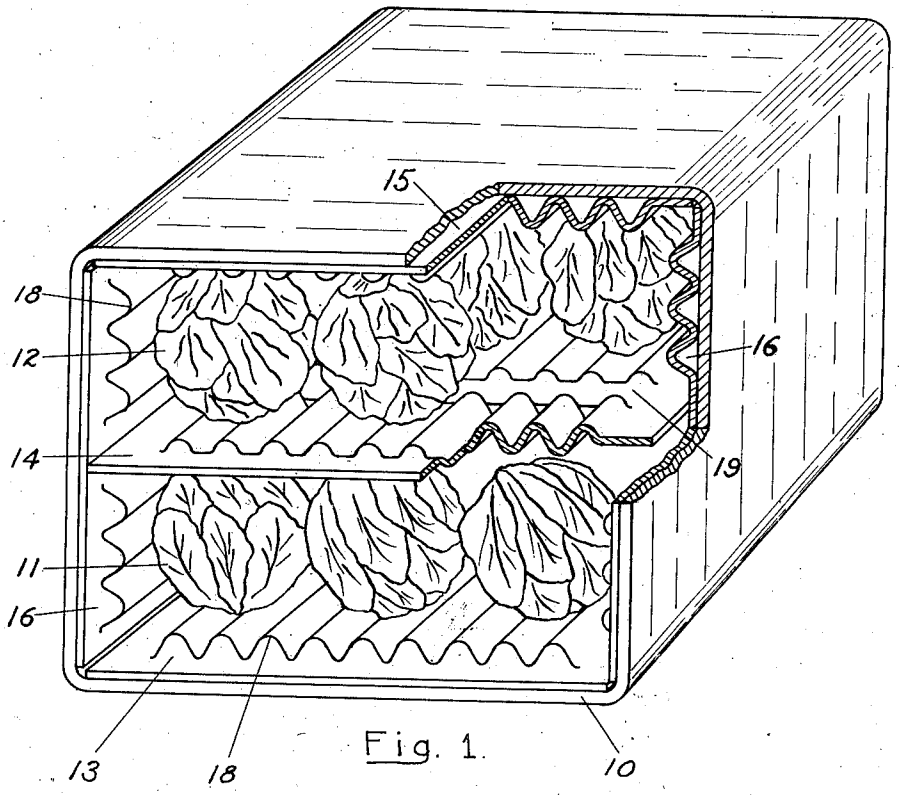


Fig. 1.

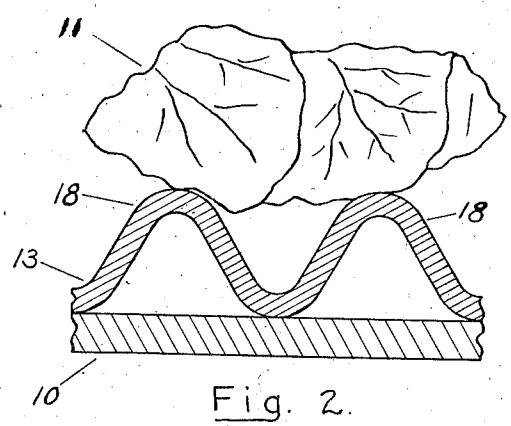


Fig. 2.

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PACKING

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4 Claims. (Cl. 99—171)

In the shipment of certain farm or garden produce such as lettuce, artichokes, cabbage and other greens to their markets it is often desirable to pack the produce in one or more layers within a shipping container.

This is especially true where such produce is to be kept in such packing over a matter of days and yet reach its market in as fresh and attractive a condition as possible.

The requirements for an ideal packing for this purpose are that it should support the produce with the minimum of contact between the packing and the produce; should permit ventilation between the packing and the produce; should provide means for keeping the air in the package as humid as possible during transit, and should have insulating value so as to protect the produce from rapid changes in outside temperatures. Such packing material should also be relatively cheap so that it may be discarded after a single use and should be of such a nature as not to impart objectionable tastes or odors to the produce in contact therewith.

These requirements are met by the packing sheet of the present invention. My packing is made from wood fibre molded to the required shape. This gives in a relatively loose cellular structure the required rigidity and strength to adequately support the weight of the produce with the minimum of surface contact and the maximum of ventilation. My packing also has the property of retaining its shape and required strength when wet or exposed to a humid atmosphere over a considerable period of time. Moreover, due to its uncalendered structure as well as its cellular shape it offers considerable insulating value as well as sufficient rigidity to cushion the produce during transit, thus minimizing bruising thereof due to shocks in shipping and handling.

It has been found that if certain types of garden produce are supported by flat or substantially flat packing surfaces which substantially eliminate ventilation, those areas of the produce which are in contact with the packing discolor and deteriorate, thus detracting from the appearance and saleability of the produce. My packing sheet by providing the minimum of surface contact and the maximum of ventilation between the sheet and the produce substantially eliminates this objection.

It has also been found of advantage that the packing sheets be wetted when the produce is packed so as to maintain a humid atmosphere within the container during shipment. This materially assists in maintaining the produce in a fresh, green, crisp condition during transit. My packing sheet, being molded of loosely felted fibres, is highly retentive of moisture and when wetted acts as a reservoir to replenish the moisture content of the air within the container. Moreover such molded sheet when wetted maintains its required shape and strength as well as holding considerably more moisture than a pressed-up sheet of board or paper which when exposed to dampness tends to return to its original flat shape and furthermore is limited in respect to the distances to which supporting projections can be pressed up from the flat sheet and still give the required rigidity and strength.

In packing a container I may place one of my packing sheets at both top and bottom of the container. Where the produce is packed in more than one layer, I interpose other packing sheets between the layers to separate the same. The produce-contacting projections of all of these sheets are so shaped as to space the produce from the walls of the case and at the same time to provide minimum surface contact between the produce and the sheets themselves as well as affording an air cell structure between the case walls and the produce. Where desired other packing sheets of similar structure may be placed as linings about the side and end walls of the container to both space the produce from the walls of the case and to more completely insulate the produce against outside temperature conditions. All, or as many of the sheets as desired are wetted during packing so as to supply adequate moisture to the air within the container to assist in keeping the produce fresh, green and crisp in transit.

In the accompanying drawing—

Fig. 1 is a fragmentary perspective through a conventional shipping container provided with packing in accordance with my invention, and

Fig. 2 is a fragmentary detail section emphasizing the limited contact with maximum ventilation between packing and produce as well as the adequate spacement between produce and case wall.

I have indicated at 10 a shipping container of conventional type within which the produce is adapted to be packed in one or more superposed layers. As herein shown, I have indicated the produce as packed in two layers 11 and 12, although the number of layers is optional.

Where there are two layers, the bottom layer 11 rests upon a bottom sheet 13 which spaces it from the bottom of the container. The top layer 12 rests upon and is spaced from the bottom layer

11 by an interposed sheet 14 and may be spaced from the top of the container by a top sheet 15 which is preferably inverted and placed upon the top layer 12. The use of such top sheet 15 is of course optional depending upon the nature of the produce which is being packed, as is the use of the side pads 16 and end pads (not shown).

The several packing sheets are preferably individually die-molded from a suitable pulp mixture to the required shape and so dried. The plurality of spaced relatively rigid hollow projections 18 molded in the sheet may be of any desired size, shape and number and may be arranged and spaced in any desired pattern which will give adequate support and ventilation over one or both faces of the sheet.

In the case of a top or bottom pad or a side or end pad, the projections 18 may extend in one direction only from the plane at the sheet a distance adequate for proper support and ventilation of the produce. In the case of a center pad, the projections 18 preferably extend in both directions from the plane of the sheet so as to provide in a single sheet contacting surfaces adapted to contact the layers of produce immediately above and below the sheet.

Although the projections 18 may be variously arranged, I prefer to arrange them in relatively close spaced rows and to form them as ribs of appreciable height (or depth). Preferably, the ribs extend up (or down) from the base sheet as tapering supporting and spacing members which reach their minimum width at their free edges so as to offer the minimum surface contact with maximum ventilation to the produce. Preferably the ribs 18 are inset from the sheet margin and are closed at their ends for reinforcement. The projections 18 being hollow permit nesting of the sheets to conserve space while the sheets are in storage and transit.

To provide maximum ventilation and maximum reinforcement of the sheet, the projections 18 may be interrupted at spaced intervals as indicated at 19.

It will be apparent that where the produce is packed in a container with packing sheets which are dry said sheets as well as the container itself will absorb considerable moisture from the produce. It will therefore be appreciated that by using my moisture-retentive sheets and by wetting the same during packing of produce, said sheets will provide sufficient moisture not only to offset that which may be absorbed by the container but also to act as a reservoir to supply additional moisture to the produce by maintaining a humid atmosphere within the confines of the case, after the case is sealed.

I claim:

1. A shipping pack, comprising a container, a layer of garden produce therein, and a packing sheet spacing said layer from a wall of the container, and consisting of a die-molded sheet of pulp having a plurality of spaced preformed relatively rigid integral hollow projections extending from one face of the sheet to a distance sufficient to space the produce from the base sheet and provide ventilation between the produce and the sheet, said projections being of such size and shape as to provide adequate support with minimum surface contact between the projections and the produce in contact therewith and having the ability to withstand wetting or exposure to humid atmosphere without substantial deformation or collapse during the period of time in which the produce is packed in said container.

2. A shipping pack, comprising a container, superposed layers of garden produce therein, and a packing sheet interposed between said layers, and consisting of a die-molded sheet of pulp having a plurality of spaced preformed relatively rigid integral hollow projections extending in opposite directions from the base sheet distances sufficient to space the layers of produce from the base sheet and provide ventilation between the base sheet and the layers of produce, said projections being of such size and shape as to provide adequate support with minimum contact between the projections and the produce in contact therewith and having the ability to withstand wetting or exposure to humid atmosphere without substantial deformation or collapse during the period in which the produce is packed in said container.

3. The method of packing and shipping moisture-bearing garden produce, which comprises placing within a shipping container a packing sheet having a plurality of spaced preformed relatively rigid integral hollow supporting and ventilating projections extending from one face of the sheet and of such size and shape as to provide adequate support with minimum surface for a layer of garden produce placed thereon, said sheet including its projections being composed of a moisture-absorptive material having the capacity of withstanding wetting or exposure to humid atmosphere without substantial deformation or collapse of the sheet or its projections during the time in which the produce is packed in the container, placing a layer of moisture-bearing garden produce on said sheet, creating a supply of surplus moisture within said container for absorption by said sheet to offset the absorption of moisture from the garden produce by the container and sheet and to assist in maintaining a humid atmosphere within the container during shipment, and sealing said container.

4. The method of claim 3, the sheet being prewetted to provide a surplus of moisture.

WALTER J. SCHWERTFEGER.