April 4, 1950 A. F. OTTINGER 2,502,586

METHOD OF PACKAGING LUMPED COMMODITIES

Filed June 15, 1944 2 Sheets-Sheet 1

FIG. 1.

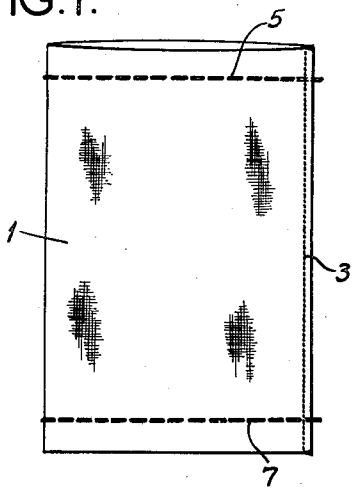


FIG. 2.

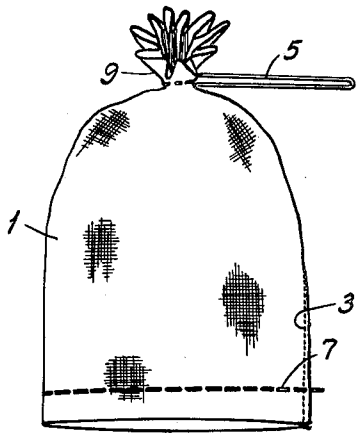


FIG. 3.

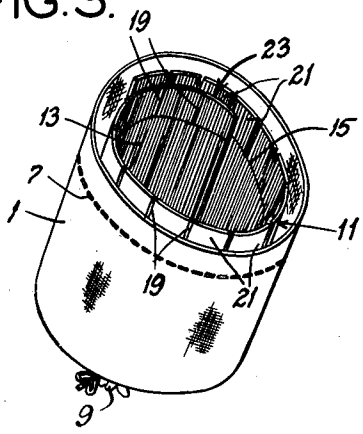


FIG. 4.

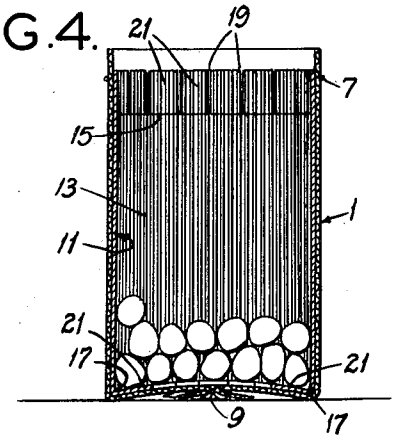
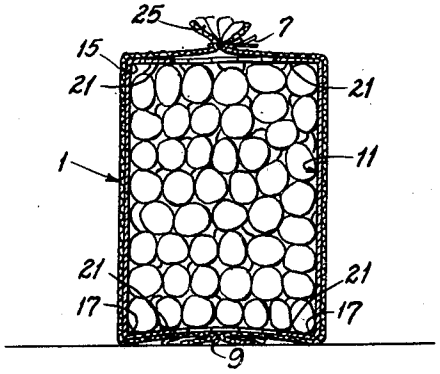


FIG. 5.



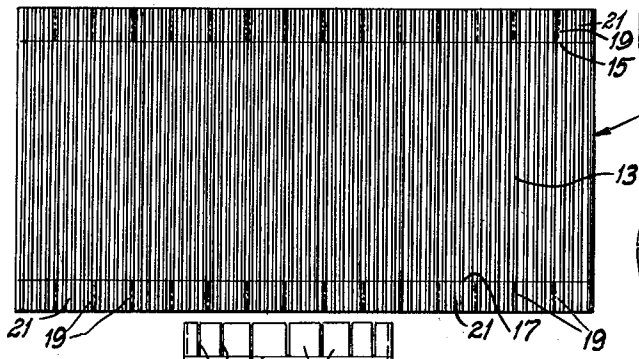
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Filed June 15, 1944 2 Sheets-Sheet 2

FIG. 6.



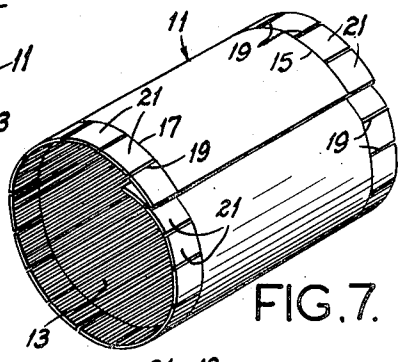


FIG. 7.

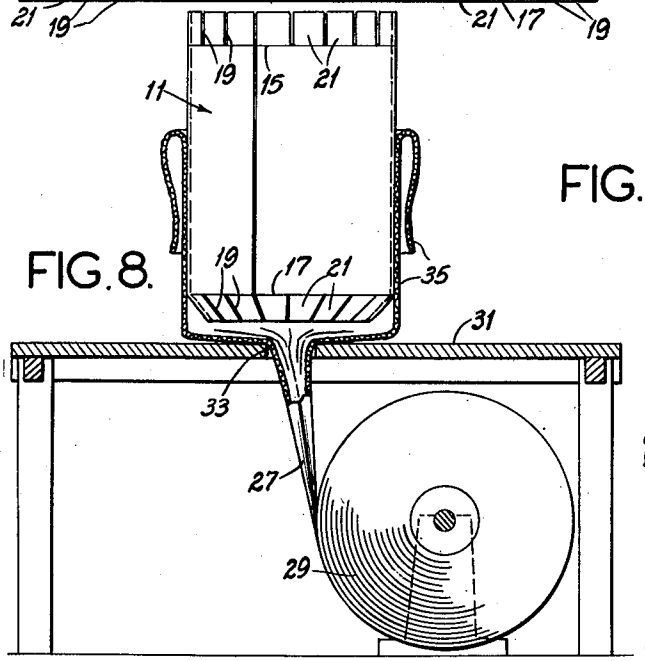
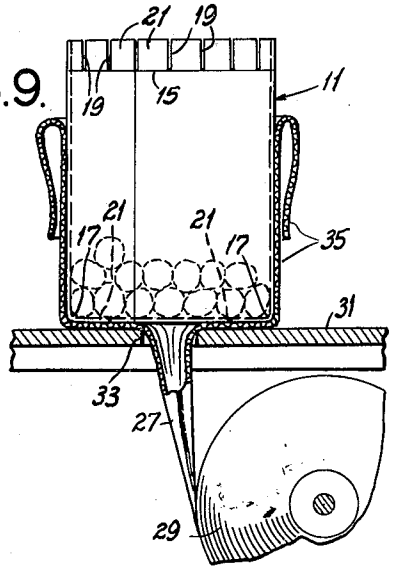


FIG. 8.

FIG. 9.



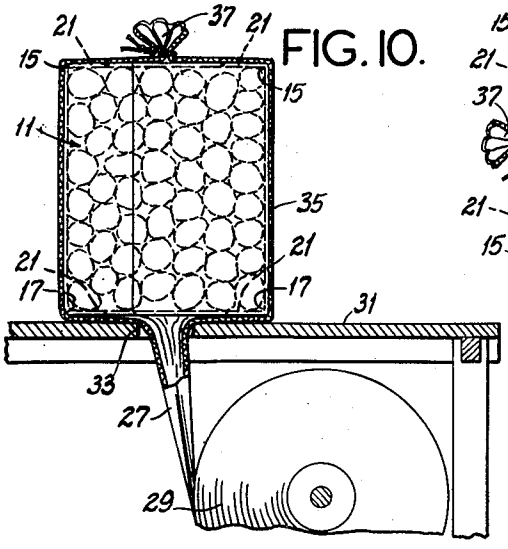


FIG. 10.

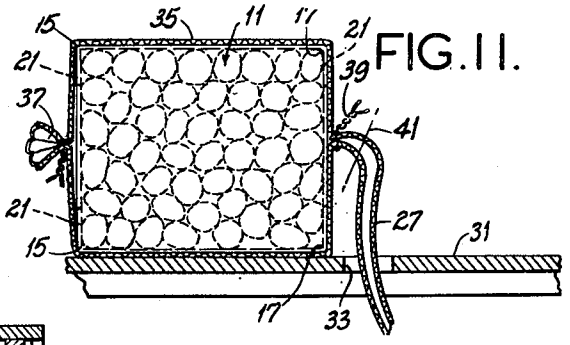


FIG. 11.

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Patented Apr. 4, 1950 2,502,586

UNITED STATES PATENT OFFICE

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METHOD OF PACKAGING LUMPED COMMODITIES

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Application June 15, 1944, Serial No. 540,438

1 Claim. (Cl. 226—51)

1

This invention relates to packages and their formation, and with regard to certain more specific features to a method of making semi-rigid packages for fruit, vegetables and materials of similar lump form.

Among the several objects of the invention may be noted the provision of a method of making an economical, lightweight package for fruit, vegetables and the like which will take the place of crates, baskets and the like; the provision of a readily constructed package of the class described which provides ample protection, drainage, ventilation and visibility for the articles being packaged; and the provision of a package of the class described which may be formed by simple manipulation from easily obtained, inexpensive materials which may themselves be easily shipped, the resulting package having a neat and compact appearance. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, steps and sequence of steps, features of construction and manipulation, and arrangements of parts which will be exemplified in the method hereinafter described, and the scope of the application of which will be indicated in the following claim.

In the accompanying drawings, in which are illustrated several of various possible embodiments of the invention,

Fig. 1 is a plan view in flat condition of an open-mesh tubing used in one form of the invention;

Fig. 2 is a view similar to Fig. 1 showing the said tubing preliminarily closed at one end;

Fig. 3 shows the Fig. 2 object inverted and the insertion therein of a collapsed liner;

Fig. 4 is a vertical section showing the liner expanded and the package partly filled;

Fig. 5 is a view similar to Fig. 4 but showing the package filled and closed;

Fig. 6 is a plan view of the liner in flat condition;

Fig. 7 is a view showing the liner rolled up;

Fig. 8 is a diagrammatic sectional view showing a first step in producing a second form of the invention;

Fig. 9 is a view similar to Fig. 8 showing a subsequent step;

Fig. 10 is a view similar to Fig. 9 showing a preliminary closing step; and,

Fig. 11 is a view similar to Fig. 10 showing final closing and cutting steps.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

2

At present boxes and crates are ordinarily used for packaging of produce for shipment. These are intended to protect the produce while allowing ventilation and drainage. By means of the present invention similar but better protection is obtained at smaller cost and with other materials that are more available than those of which the crates and baskets are composed, and which other materials may be transported with more convenience.

Referring now more particularly to Fig. 1, there is shown at numeral 1 a flat open-mesh weave tube. The term open-mesh is used to distinguish from ordinary closely woven non-ventilating fabric. An open-mesh weave is much more economical for the purpose, is more stretchable and admits of free circulation through the final package of any medium which it is desired shall circulate.

In Fig. 1 the tube is formed by means of a longitudinal seam 3, but if desired increased stretchability may be obtained by use of a bias seam such as shown in U. S. Patent No. 408,858, issued to J. L. Seymour. Woven-in draw cords are shown at 5 and 7 respectively.

The first step in making up a package according to the one form of the invention is to pull up one of the draw cords 5. This produces an end closure 9 as indicated. The draw cord is tied so that this end closure 9 is thereafter permanently maintained.

In Fig. 6 is shown a rectangular sheet of ordinary corrugated board generally indexed 11. This is a cardboard composition. The corrugations are shown on one side at 13. The edges of this cardboard member 11 are marginally scored as shown at 15 and 17, and they are slitted at 19 to form flaps 21 extending from the score lines 15, 17. The corrugations 13, score lines 15 and flaps 21 are related so that when the liner is rolled or curled up as indicated in Fig. 7, the corrugations and flaps become longitudinal axially, while the marginal score lines 15 are located girthwise.

In the first form of the invention this corrugated cylinder is further reduced in diameter by ample spiral lapping as indicated at 23. This operation is facilitated by the corrugations. This spirally wound cardboard is then inserted into the remaining open end of the fabric tube. The innermost flaps 21 are then directed inwardly as shown in Fig. 4 while the liner is allowed to expand to the maximum diameter which will be

permitted by the size of the fabric tube. Under these conditions there should be some remaining lap at the edges of the liner. At this time, as indicated in Fig. 4, filling of the package may be started.

After the lined tube has been filled, the upper flaps 21 are turned inward and the open end of the fabric tube is drawn shut by means of the draw string 7. This forms a second closure 25. The result is a package in which the longitudinally corrugated liner maintains a general cylindric form for making semi-rigid the aggregate of mass of the articles enclosed. The corrugations stiffen the package. The surrounding fabric functions as a tensioning web which holds in the cardboard. Thus the outer fabric tube in cooperation with the corrugated liner maintains a cylindric form of the package which is semi-rigid. No unsightly bulges or slumping exist.

An advantage of using open-mesh fabric is that air may circulate through the produce by way of the openings at its end. This also allows free drainage of moisture, particularly large amounts of it as are encountered when produce is packed with chipped ice which thaws during transportation.

When produce is packed with ice, the bulk shrinks after the ice melts. The present invention is advantageous in this connection because the final package maintains its general shape even with reduction in this bulk.

Produce even without icing has a tendency to shrink in transit, unless waxed or otherwise treated to prevent escape of inherent moisture. Another cause of shrinkage is shifting of the articles into positions wherein they are more compact than the positions they assumed when initially inserted in the package.

If it is desired to prevent any contained moisture from wetting the liner 11, that may be done by waterproofing the liner with wax or some similar material.

Another advantage of the invention is that the character of the contents may be observed through the openings at the end of the package, thus serving as a display package.

The axial positions of the corrugations 13 serve to stiffen the filled package against breaking of its cylindric contour. At the same time these corrugations make the liner flexible so that it may be readily contracted for insertion into the fabric container.

The radial flaps or tongues 21 make a definite corner at the ends of the package. They are useful for properly forming the ends of the package when produce of smaller size is enclosed. However, for larger articles such as for example, rutabaga, cabbage and the like their use is not so important and they may be eliminated.

It is of course clear that any printing that is desired on the package may be pre-printed on the fabric.

The cardboard and fabric materials used are much less expensive than baskets and crates and are easier to handle and transport to the point where packaging occurs. In addition they avoid the use of the large quantities of wood which crates and baskets require.

It will be noted that the closure ties 5 and 7 need not necessarily be constituted by woven-in draw strings but may be exteriorly applied tie wires or cords, not previously woven in.

In Figs. 8–11 is shown another and convenient means for carrying out the invention. In this case a continuous length of open-mesh fabric 27 is drawn from a supply roll 29. This supply roll 29 is mounted beneath a platform 31 in which is an opening 33 through which the length 27 is drawn. The opening 33 may be of any suitable form, such as circular or rectangular like a slit.

As indicated in Fig. 8, a suitable length 35 of the flat tubular fabric is withdrawn through the opening 33 and the rolled liner 11 inserted, with the lowermost flaps or tongues 21 inwardly directed. Then, as indicated in Fig. 9, produce is filled in. After filling, the upper flaps 21 are turned inward and the end of the fabric is bunched and tied with a closure 37.

Finally, as indicated in Fig. 11, the package is tilted on one side and a second tied constriction and closure 39 is effected, after which a cut 41 effects removal of the package from the supply of material 27. The resulting package is similar to that shown in Fig. 5. It is to be understood that the supply of tubing 27 may be axially seamed, bias seamed, or even be of knitted material of a character which will provide the desired open mesh. After completion of the operations shown in Fig. 11, more of the material 27 is drawn up through the opening 33 and the process repeated.

It will be observed that the opening 33 should be small enough so that in view of whatever bunching of material occurs therein, the produce will not fall down into the tubing 27 through the opening 33. If the opening is circular, it may be substantially larger than the produce because of the bunching action of the tubing therein. If it is rectangular, like a slot, then this bunching will not occur and the slot should have a width which is less than the minimum expected diameter of the articles which are being packaged.

It is to be understood that the constriction formed by the opening 33 below the liner in the form of the invention shown in Figs. 8–10 acts as an initial partial closure to prevent the produce from escaping while filling it in, and this fact is to be noted in construing the appended claim.

The invention has advantages over simply introducing the produce into an open-mesh fabric bag. In the latter case the produce forms odd bulges which expose the contents to damage and in addition such a package has very little inherent rigidity and slumps, thus allowing the articles of produce excessively to rub one another. By means of the present invention the corrugated liner acts as a contractible and expansible tubular stiffener, which, with the tension of the cover maintains a semi-rigid substantially smooth cylindric form. This is all done without the introduction of expensive stiffening slats, hoops or the like.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in the above method without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

The method of forming a package of produce or the like comprising the steps of drawing a length of fabric tubing from a continuous supply thereof through a constricting opening, said opening being of such form as to constrict the tubing sufficiently to prevent individual items of

produce from passing therethrough, inserting a liner into said tubing through the open end thereof, filling said liner with produce through said open end, forming portions of said tubing extending beyond the ends of the liner into closures, and cutting the filled package from said continuous supply at a point between the closure adjacent said constricting opening and said supply.

AUGUST F. OTTINGER.

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Photographic copy of roll of tubing for packaging sausage, dated June 1936.