

[54] PACKING ASSEMBLY AND METHOD OF ITS MANUFACTURE

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[58] Field of Search 53/30; 206/45, 33, 60 A, 206/62 R, 65 R, 65 S, 46 BK; 229/DIG. 12

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[57] ABSTRACT

A packing assembly including a plurality of single packings each containing one or more articles and being surrounded by a plastic foil. The assembly is surrounded wholly or partly by two layers of plastic foil which are shrunk by heat. The invention also relates to a method of manufacturing a packing assembly of said type, in which a stack of single packings is surrounded by two plastic foils which are subsequently shrunk by heat.

5 Claims, 4 Drawing Figures

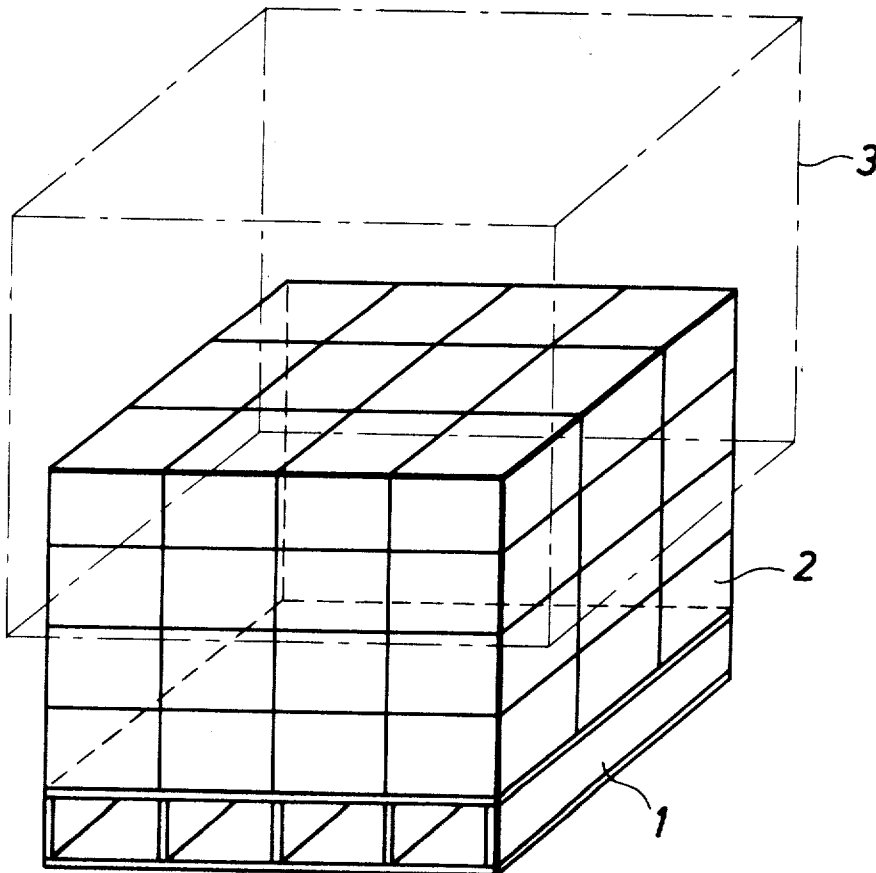


Fig. 1

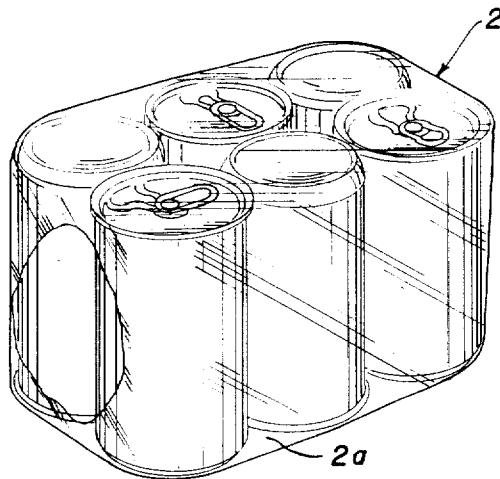
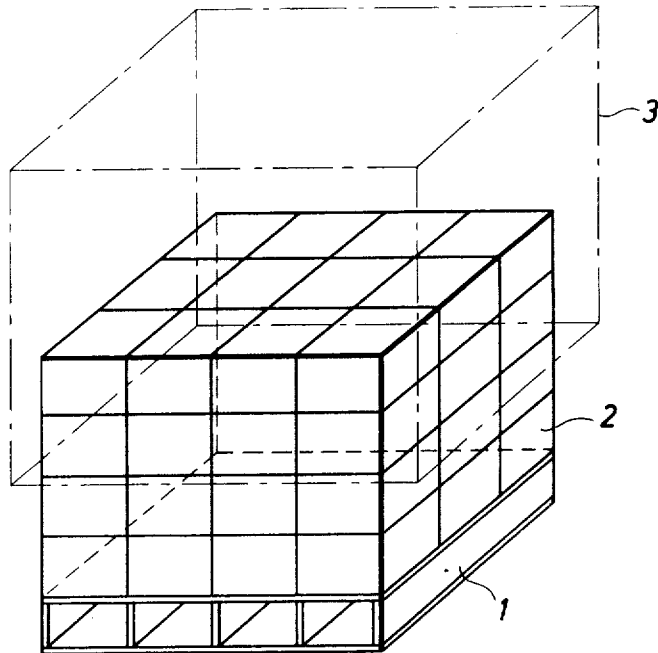


Fig. 1a

Fig. 2

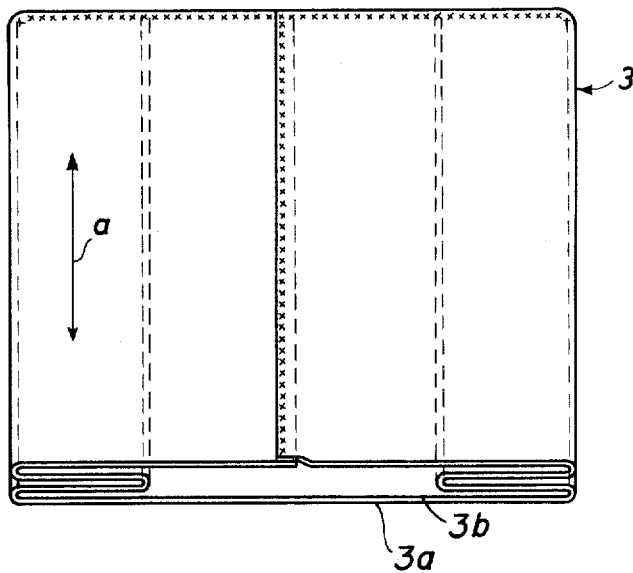
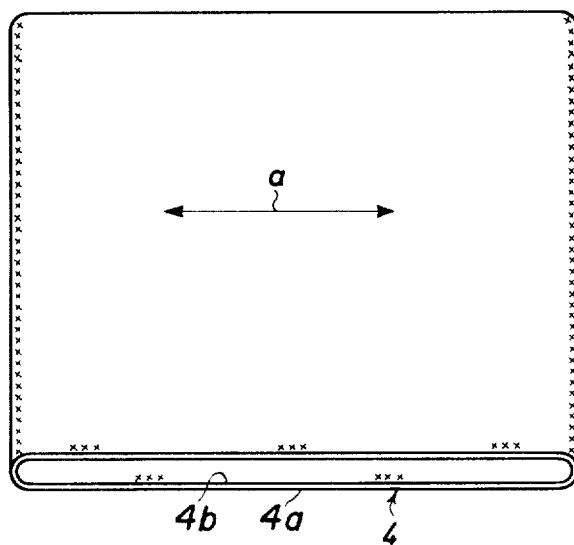


Fig. 3



PACKING ASSEMBLY AND METHOD OF ITS MANUFACTURE

The use of a shrinking foil for protecting and retaining goods has several advantages over the packing methods hitherto used. Thus, by means of a comparatively cheap material requiring very little space, adequate protection and interconnection may be provided between a comparatively large number of packings so that means hitherto used such as cardboard or wood cases may be dispensed with.

As a result, a comparatively large number of packings, each comprising, for example, six bottles partly enclosed in a shrinking foil, may be stacked on a pallet, and the whole stack subsequently enclosed in a plastic foil which, after being shrunk, will retain the goods to the pallet so that this can be handled and shipped in a normal manner. The plastic foil is generally used in the form of a bag-formed hood substantially of the form and size of the stack and manufactured in usual manner by continuous treatment of a string-formed bag tube with weldings and transverse cuttings.

It has been found, however, that on shrinking the outer foil it is impossible to avoid a plastification of the foil on the individual packings, as a result of which the outer foil enclosing the whole stack of packings is locally welded to the inner foils enclosing the individual packings. This is not permissible, however, since it will be impossible to separate the foil in such manner that the individual packings remain intact, and the whole advantage of the aforesaid packing method would thereby be lost since the purpose is to render the individual packings fit for handling and transporting straightaway by shop staff and customers after removal of the outer foil.

To avoid the aforesaid adhesion between the outer foil and the foil of the individual packings, various complicated and cost-increasing devices have been tried. Thus, an attempt has been made to use a foil of a special material, an ordinary foil coated with a separating agent, or a foil having a definite thickness, but these methods involve such enhanced costs that they are difficult to use in practice.

According to the present invention the foil enclosing the assembly of packings consists of at least two layers, of which the outer layer may be a shrinking foil and the inner layer a different foil.

With this embodiment of the outer foil the surprising effect obtained is that there is no adhesion, and the shrinkage of the outer foil may therefore take place straightaway in the usual manner, and when the group of packings is to be separated, this may be effected without difficulty simply by cutting up the outer shrinking foil, after which all the single packings may be removed in fully intact state.

In a packing assembly according to the invention the inner layer of the multiply outer foil acts as a screen between the sources of heat in the shrinking zone and the foil around the individual packings, but in particular the layer of air between the layers of the multiply outer foil acts as an insulation preventing adhesion between the inner layer of the outer foil and the foils enclosing the individual packings. The said insulating layer of air is further activated because it will expand when the assembly is introduced into the shrinking heat zone and provide a comparatively large space between the foils.

In general, use is made of a double-walled foil in which the inner foil is substantially thinner than the outer foil, and since the hood-like or bag-formed objects used for enclosing the goods may be manufactured in conventional manner, although they are multi-walled, the packings according to the invention will only involve a negligible additional cost for manufacturing the additional layer of foil in the outer foil.

The invention is also concerned with a method of packing a plurality of single packings in which each packing is at first enclosed wholly or partly in a plastic foil, the single packings which are wholly or partly enclosed in the foil being subsequently placed beside and/or on top of one another to form an assembly of packings, and an essential feature of the said method according to the invention is that the assembly of packings is enclosed wholly or partly in a double or multiply plastic foil and subsequently subjected to heat shrinking.

The outer wrapping may conveniently be provided in that as hoods or bags are manufactured in a conventional manner with two or more layers, but the outer wrapping may also be made in another manner, for example on the basis of continuous webs of plastic foil placed on the group of merchandise and, if desired, welded together on the sides and on top to form a hood or bag.

An exemplary embodiment of a packing according to the invention will now be described with reference to the drawing, in which

FIG. 1 is a schematic representation of a packing assembly, viewed in perspective, and

FIG. 1a is a somewhat schematic representation of a single packing, namely a battery of six cans, constituting one of the packings of the assembly shown in FIG. 1, and

FIG. 2 shows a hood or bag of the side-folded type, viewed partly in perspective, and

FIG. 3 shows a hood or bag of the side-welded type, viewed partly in perspective.

FIG. 1 shows a pallet 1 on which are stacked four layers of single packings 2 which, for example, may be bottle batteries, each comprising six bottles standing side by side and retained in that position by a shrinking foil 2a which is partly enclosing the bottle battery and may be provided with carrying means (not shown) permitting the packing to be seized directly and carried by the consumer. As a matter of example, FIG. 1a shows a single packing 2 with its surrounding 2a, adapted to form part of the assembly of FIG. 1. Each layer comprises 12 such packings so that the assembly of packings consist of a total of forty eight such packings which may be sold each of them separately as an individual unit of merchandise.

After the single packings having been stacked as indicated in FIG. 1, they are provided with a hood 3 of plastic foil, indicated by dot-dash lines, the said hood being capable of enclosing the five sides of the box-shaped packing, that is, the hood extends substantially down to the support on which the pallet is resting.

The hood or bag 3 may be of the side-fold type as indicated in FIG. 2 and consists of at least of two layers of plastic foil, of which the inner layer 3b is preferably substantially thinner than the outer layer 3a. The bag shown in FIG. 2 may be manufactured by a continuous process of a known kind, two foil webs intended to form the two layers of the bag being joined and the

outer layer folded around the inner layer and welded longitudinally before the foils are subjected to the usual foldings and weldings and cut through.

The bag may also be of the side-welded type as indicated in FIG. 3. The direction of extruding the foil is indicated in FIGS. 2 and 3 by the arrow "a." 4 denotes short welded seams. The two layers of plastic foil are identified in this bag by numerals 4a and 4b, respectively.

When the hood or bag 3 has been passed down over the stack of packings, the pallet with the packings is passed through a heating zone, by which the foil 3a, 3b shrinks, thereby retaining the packings 2 to one another and to the pallet 1, so that the pallet may straightaway be handled in usual manner for transportation and storing.

When the packings 2 are to be used, the outer shrinkage foil 2a is cut open, and the packings 2 may then be removed, each of them separately.

In one embodiment according to the invention use was made of a pallet having a surface area of 800 by 1,200 mm on which were stacked forty eight single packings in four layers, each containing 3 by 4 packings. The said packing consisted of bottle batteries, each containing six bottles partly enclosed by a shrinkage foil. The material used for this foil was a 50/ μ polyethylene foil.

The said stack of packings and the pallet were then enclosed in a two-layer hood of plastic foil. The outer layer was a foil having a thickness of 150/ μ and a melting index of 0.4-0.6. The shrinkage effect was 60/5 in MD/TD%. The inner layer of the hood was formed by a foil having a thickness of 30/ μ and a melting index of 1.6-1.8.

After wrapping the stack of packings was passed through a shrinking zone having a temperature of 180°C, the shrinking lasting for 1 minute and 26 seconds.

The hood or bag used was made in a conventional manner by folding, welding and cutting through a continuous bag tube manufactured by laying together two webs of foil corresponding to the two layers of the hood. The finished hoods had a length of 2,200 mm and a height of 1,400 mm.

After being shrunk, the outer, double-walled foil formed a very tightly fitting wrapper for the assembly of packings, protecting it from being separated and permitting it to be handled by means of fork trucks etc., as an ordinary package.

When the outer shrinkage foil was cut open, no adhesion was found between the outer wrapper and the shrinking foil wrapped around the individual packings which, by the way, were found perfectly intact and without any trace of a plastification having taken place.

We claim:

1. A method of wrapping at least two items, comprising the steps of first enclosing at least one of the items at least partly in an inner plastic foil, subsequently placing the enclosed items adjacent one another, thereby forming a group of items, then enclosing the group of items at least partly in an outer shrinking foil, disposing an intermediate heat protecting foil between the outer shrinking foil enclosing the group of items, and the inner plastic foil enclosing the items, thereby forming a screen, constituted by the intermediate foil, against excessive heat passage and for preventing the shrinking and the plastic foils from sticking together in the subsequent step, and subjecting the outer shrinking foil to heat shrinking.

2. The wrapping method as defined in claim 1, further comprising the steps of forming a double-walled bag tube of a plastic foil, by laying two plastic foil webs together, subsequently converting the bag tube into double-walled bags, placing the latter as a hood over the group of items, and subjecting the bags to heat shrinking.

3. The wrapping method as defined in claim 1, further comprising the step of placing a two-layer foil on the group of items, then wrapping the foil around the group, and subsequently welding the foil in the sides and at the top, thereby forming a hood for the group of items.

4. A packing assembly including at least two adjacently placed items, at least one of the items being at least partly enclosed in an inner plastic foil, the packing assembly being at least partly enclosed in an outer plastic shrinking foil, and an intermediate heat protecting foil arranged between said outer shrinking foil enclosing the packing assembly and said inner plastic foil enclosing the items, said intermediate foil constituting a screen against excessive heat passage and preventing said shrinking and said plastic foils from sticking together.

5. The packing assembly as defined in claim 4, wherein said inner plastic foil is thinner than said outer shrinking foil.

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