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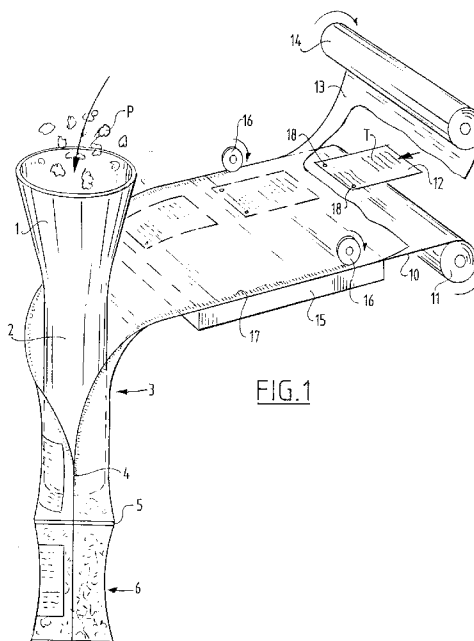
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(54) **Method for manufacturing packaging material for consumer products, method for packing these products with this packaging material and the packaging material.**

(57) A method for manufacturing packaging material for consumer products such as biscuits, tobacco, confectionery and the like, wherein use is made of a transparent foil of weldable material.

According to the invention the foil is unwound from a supply roll as a first web, a sheet of pre-printed material of smaller size than that of the first web is adhered thereto, and a second web of foil is arranged over the sheet and fixedly welded outside it onto the first web.

In preference a sheet-like material is used that is stiffer than the foil used, whereby the sheet-like material can acquire a supporting and protective function in addition to an informative function, wherein according to the invention it is also possible for the sheet-like material to be provided with fold lines. A three-dimensional packaging can hereby be formed in simple manner which is suitable for more costly products such as confectionery.



The invention relates to a method for manufacturing packaging material for consumer products such as biscuits, tobacco, confectionery and the like, wherein use is made of a transparent foil of weldable material.

It is known to wind foil in web form onto a supply roll after it has been printed. This supply roll is subsequently used in a packaging machine to pack products in bags to be formed out of this foil. The contents of the products can be read from the printing on the foil. In view of the carrier material, this is not of very high quality, particularly with respect to the legibility of printed text. It is further known to package products of some value, such as confectionery, in cardboard boxes which are easy to print on but have the drawback that they require much material for manufacture and entail a great deal of inconvenience with respect to the manufacture thereof, wherein the shelf-life of the products is also limited.

The invention has for its object to provide a method for manufacturing packaging material and for packing the products, wherein the above stated drawbacks are obviated.

The method for manufacturing the packaging material according to the invention is distinguished in that the foil is unwound from the supply roll as a first web, a sheet of pre-printed material of smaller size than that of the first web is adhered thereto, and a second web of foil is arranged over the sheet and is fixedly welded outside it onto the first web.

With the packaging thus obtained it is possible to print the sheet very accurately in advance, with sufficient information for the user, which is easily legible and wherein high-quality printing techniques are possible. The transparent foil enables legibility from outside, wherein the packaging material can be fixedly welded once-only around the product such that the shelf-life of the product is considerably increased. The method can optionally be used for the packaging on existing packaging machines for bulk material, for example savouries, wherein the foil material is mutually adhered along longitudinal and transverse welds respectively to form the final packaging.

Through use of sheet-like material that is stiffer than the foil used, the sheet-like material can be given a supporting and protective function in addition to an informative function, wherein according to the invention it is also possible for the sheet-like material to be provided with fold lines. A three-dimensional packaging can hereby be formed in simple manner which is suitable for more costly products such as confectionery. The advantage of a continuous packaging method for products is herein retained since the foil can be adhered easily by welding devices and the packaging can be sealed.

The invention finally relates to a method for packing consumer products making use of the packaging material obtained above, wherein after the three-dimensional shaping of the packaging material the foil

is adhered along longitudinal and/or transverse welds to form a three-dimensional packaging around or for the product.

The invention is further elucidated with reference to the figure description of a number of embodiments hereinbelow. In the drawing:

Figure 1 shows a perspective view of a first method of manufacturing the packaging and the packing of the products therewith according to the invention,

figure 2 is a perspective top view of a second method of manufacturing the packaging according to the invention,

figure 3a and b show respectively a semi-manufactured and finished packaging obtained according to the method of the invention,

figure 4 shows a second embodiment of a portion of a packaging obtained according to the method of the invention during packing of a product,

figure 5 shows the packaging of figure 4 provided with a longitudinal weld,

figure 6 is a perspective top view of the packaging of figure 4 to which a bottom is fixedly welded with associated schematic view of the machine for applying a transverse weld suitable for this purpose,

figure 7 shows a view partially in section of the device of figure 6 in closed position,

figures 8 and 9 each show a standing section of the packaging of figure 4 onto which a cover wall is arranged with associated welding device,

figure 10 is a perspective view of a third packaging method according to the invention for a product,

figure 11 is a perspective top view of the finished packaging of figure 10.

Shown schematically in fig. 1 is a so-called packaging filling machine which comprises a funnel-shaped tube 1 into the top side of which the products P are fed from a chute or conveyor belt (not shown), wherein a foil 3 is folded around the narrow cylindrical bottom end 2 of the feed funnel, which foil 3 is provided with a longitudinal weld 4 and a transverse weld 5 such that in the portion below the transverse weld 5 a finished bag results as packaging 6. This is simultaneously filled with the product P.

The invention has for its object to apply such a known machine for a packaging foil assembled according to the method of the invention.

For this purpose a first web of foil 10 is wound from a supply roll 11 and on this foil web are repeatedly laid sheets 12 which have a smaller dimensioning than the width of the foil web 10, and which have been printed in advance with a text T. The sheet of material 12 is therefore a material which is easy to print on, wherein the foil 10 is deemed transparent. It is noted that the text T on the sheet 12 should also be applied to the underside for reading thereof on the

outside of the packaging 6.

Arranged on the foil 10 is a second web of foil of material 13, which may or may not be transparent and which is unwound from a roll 14. Both foil webs 10 and 13 are mutually adhered by a welding device 15 provided with a co-rotating welding wheel 16, wherein a longitudinal weld 17 is created. Both lengthwise edges of both foil webs are thus welded to one another. The sheets 12 are fixedly adhered to the foil web 13 by means of adhesive points 18 which can be pre-arranged on the sheet 12 and in this way have a fixed position between both foil webs.

The obtained packaging product, on the left of the welding device 15, can then be used in the conventional manner for shaping the bags 6 by folding and welding in the above described manner. Both longitudinal welds 17 therein come to lie one on the other and, with a renewed welding operation, form a definitive longitudinal weld 19, wherein the conventional transverse welds 5 are retained. The packaging differs from the conventional packaging in that the sheet 12 is received therein which offers the advantage of better legibility owing to the better quality printing than is possible directly onto the foil webs 10, 13.

By giving the sheet 12 some stiffness the packaging 6 can not only press the packaging into a cylinder shape but can also offer some protection to the contents thereof if the product P requires this.

In the embodiment according to fig. 1 is shown that the width of the sheets 12 is about half that of the foil web 10, 13. It will be apparent that the sheets 12 may extend almost across the width thereof.

It is noted that the device of fig. 1 can consist of two independent devices, namely a device for forming the packaging material and the filling device itself. The packaging material obtained with the first device can be rolled up and temporarily stored. This roll has to be unwound at a filling device placed elsewhere.

Shown in fig. 2 is a second embodiment for manufacturing a packaging according to the invention. Starting point here is a single web of foil material 10 which is unwound from a roll 11. A second foil web 13 is unwound from the roll 14 and laid on the foil web 10, this in accordance with the method in fig. 1. Insertion of a sheet of material takes place before the joining along the lengthwise edges of both foil webs 10 and 13 at 16. The sheet 20 which is pushed in between the foil webs 10 and 13 here has the form of an H, this such that the intermediate strip 21 extends in transverse direction relative to the foil webs 10 and 13. The H-shaped sheets can be mutually connected and can likewise be inserted separately. After insertion and mutual welding of the lengthwise edges a transverse weld 22 is arranged for welding the foil webs 10 and 13 onto one another along the full width thereof, which weld runs along exactly between the mutually facing edges of the adjacently situated sheets 20.

When the thus assembled foil web is transported

further it arrives at a folding mechanism, which can be embodied in any random manner, and of which the embodiment according to fig. 2 is shown only by way of example. With the folding mechanism 25, consisting of two protruding elements lying mutually opposite, the folding edges 26 of which pleat the sheet of material 20 such that the fold lines 23, 24 arranged in the portion 21 ensure that the middle portion 21 is folded double in the upward sense and is fixedly clamped between the subsequent rollers 27. The remaining part of the sheet 20, that is, the adjoining outer portions thereof, remain lying flat between the foil webs 10 and 13 on the conveyor belt T.

The right-hand part of the assembled foil web is then folded in the transport direction onto the left-hand part thereof, carrying with it the formed protruding element which comes to lie between the two outer portions of the assembled foil web, see position A in fig. 2.

A heat weld is subsequently applied again such that the foil material fuses together, which heat weld is aligned with the previously applied heat weld 22. Applying the heat welds can once again take place with appropriate means, such as for example a hot knife 28.

The parts are then separated from each other by a cutting blade 29, thereby creating separate packaging V.

Such a packaging is shown in fig. 3b. Conversely, fig. 3a shows the semi-manufacture as this is obtained after the applying of the longitudinal welds 22 at the first welding station in fig. 2.

Fig. 3b shows that when the formed packaging is folded out the underside of the packaging is box-shaped, which is brought about by folding out portion 21 of sheet 20 and folding over the protruding portions 20' of the outer strips of the sheet 20 in fig. 2. The whole box-shaped folded sheet 20 is enclosed by a transparent foil that consists of an inner and outer foil 10, 13.

Such a packaging is particularly suitable for receiving confectionery and the like wherein the portion of the foil 10, 13 protruding upward can be finally folded together with a ribbon or the like to close off the packaging. The sheet 20 can of course be printed in any arbitrary manner subject to the contents of the packaging.

Fig. 4 shows a third embodiment of a packaging obtained according to the method of the invention. Here the web obtained from figure 3a is used for forming a wrapping 30 wherein the intermediate layer 31 can consist of corrugated cardboard which may or may not be pre-printed and which, because of the structure of the corrugated card-board, also has a shock resisting function and therefore a protective function for the product to be packed, for example (Dutch) rusks. By cutting through at line E the web of packaging material obtained according to the method

elucidated in figure 2, the end edges 32 and 33 can subsequently be mutually welded to form a longitudinal weld in the obtained cylinder shape.

Figures 7 to 9 show that the packaging of figure 5 can be finished by arranging a bottom plate 35, see fig. 6, and a cover plate 36, see fig. 8. These bottom and cover plates also consist of double-walled transparent foil with circular printable material 37 arranged therebetween, the dimensioning of which is smaller than the circular top and bottom foil layer. The protruding edges of both the bottom and cover plate and the end edges of the cylindrical packaging of fig. 5 can be fixedly welded by the respective heating devices 38 in fig. 6, 7 and 39 in fig. 8, 9, suitable for this purpose. A packaged product is thus created which is not only protected by the special intermediate layer in the form of corrugated cardboard but which is also hermetically sealed, thus ensuring a long shelf-life.

Fig. 10 shows a method of packaging a block product, for example cheese, wherein use is made of a cover plate obtained according to the method of the invention as described for example with reference to fig. 3a, wherein the cover plate is provided with a top and bottom layer of transparent foil 40 and an intermediate layer of printable material 41. The layer of printable material is here also smaller than the dimensions of the foil 40. Use can further be made of a single layer of foil or other material 42 that can be folded around the block Q due to heat deformation, wherein the lengthwise and transverse edges are fixedly welded to the peripheral edges of the layer 40. This can also be carried out in airtight manner, whereby the shelf-life is considerably increased. The cover is easily legible because of the transparent foil layer 40 and the printable intermediate layer 41.

The invention is not limited to the above described embodiments.

Claims

1. Method for manufacturing packaging material for consumer products such as biscuits, tobacco, confectionery and the like, wherein use is made of a transparent foil of weldable material, **characterized in that** the foil is unwound from a supply roll as a first web, a sheet of pre-printed material of smaller dimensions than those of the first web is adhered thereto, and a second web of foil is arranged over the sheet and fixedly welded outside it onto the first web.

2. Method as claimed in claim 1, **characterized in that** the sheet of pre-printed material is adhered to the first or second web of foil before both foil webs are mutually adhered.

3. Packaging material obtained with the method as

claimed in claim 1, **characterized in that** the layer of printable material is stiffer than the material of the foil web.

4. Packaging material as claimed in claim 3, **characterized in that** the layer of printable material is provided with fold lines.

5. Packaging material as claimed in claim 3 or 4, **characterized in that** the layer of printable material is provided with incisions or recesses.

6. Packaging manufactured from packaging material as claimed in claim 3, **characterized in that** the packaging has longitudinal and/or transverse welds for obtaining the three-dimensional form for the packaging.

7. Packaging manufactured from packaging material as claimed in claim 3, **characterized in that** it consists of one piece of packaging material.

8. Method for packing consumer products, such as biscuits, tobacco, confectionery and the like, making use of the packaging material as claimed in claim 3, **characterized in that** the packaging material is folded three-dimensionally around the product for packing and is mutually adhered with the foil edges along longitudinal or transverse welds outside the layer of printable material.

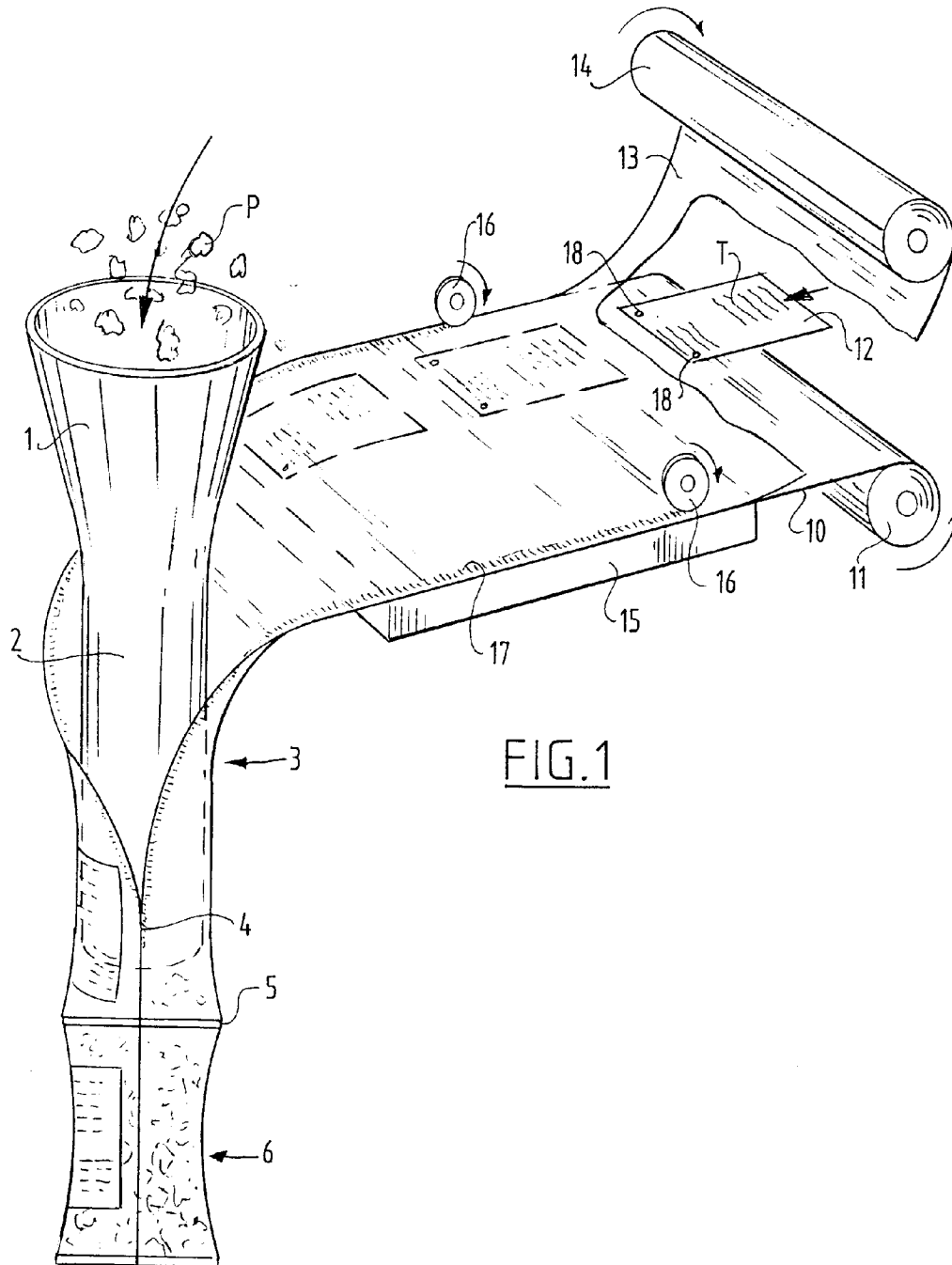
9. Method as claimed in claim 8, **characterized in that** the foil material is cut through after arranging of the longitudinal and/or transverse welds.

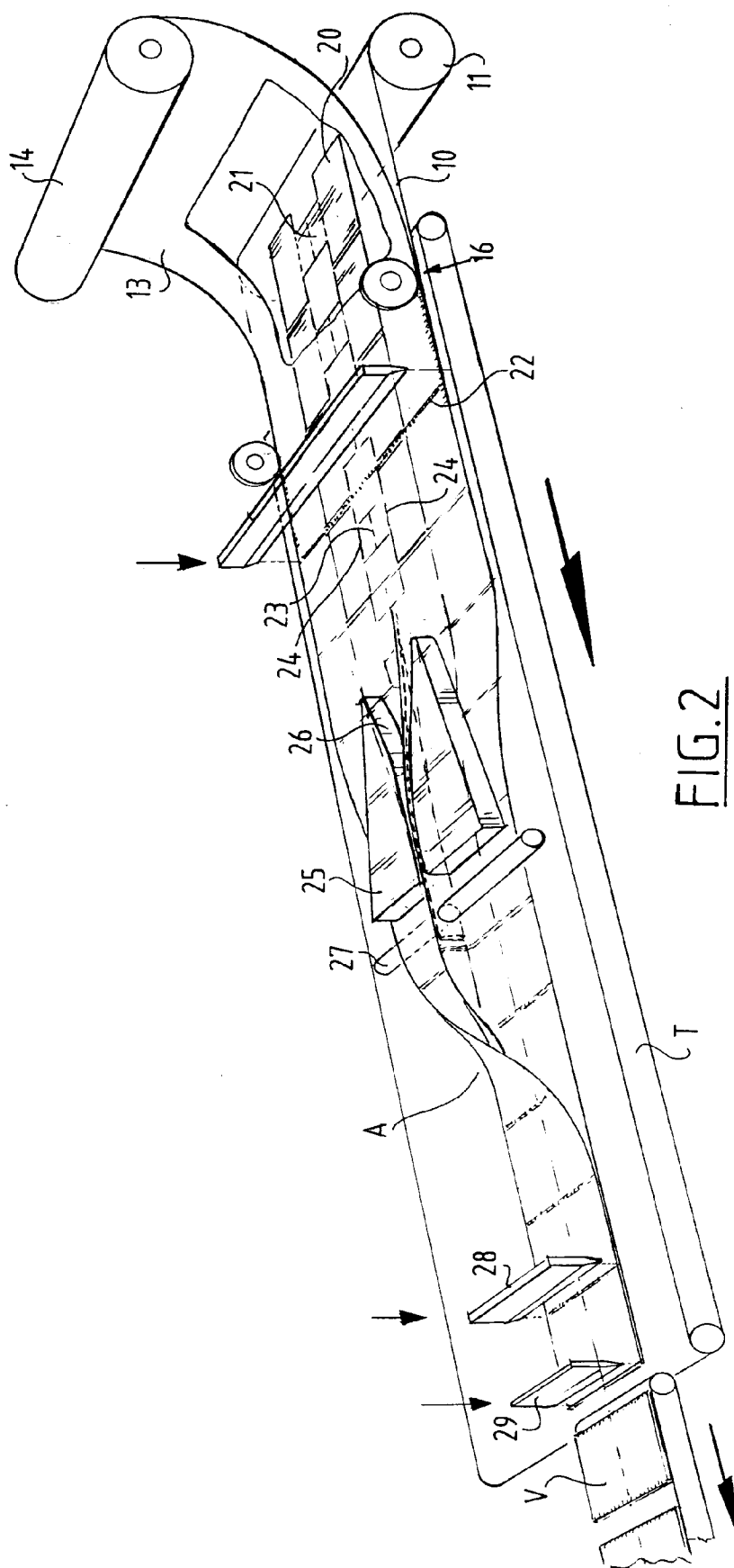
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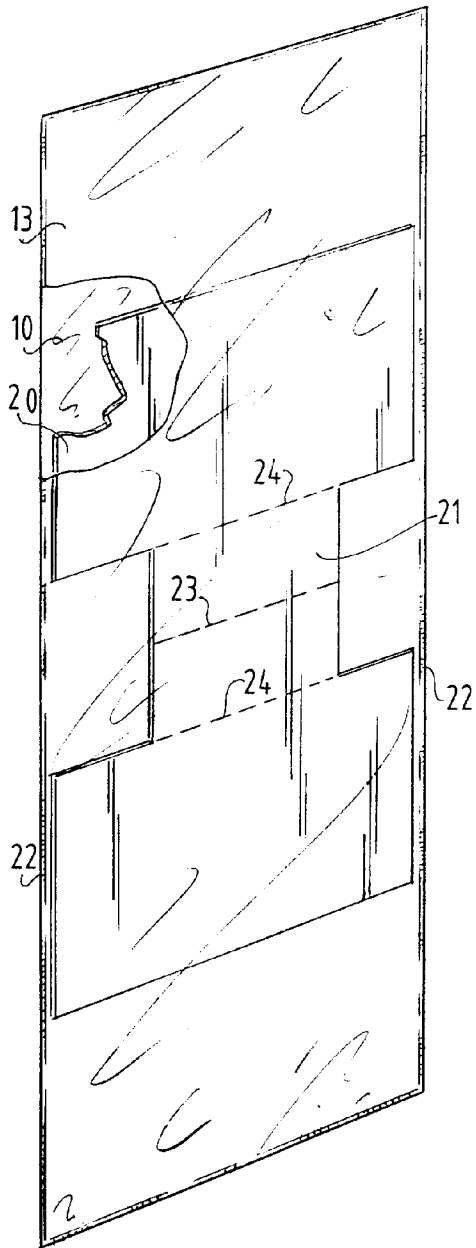


FIG. 3a

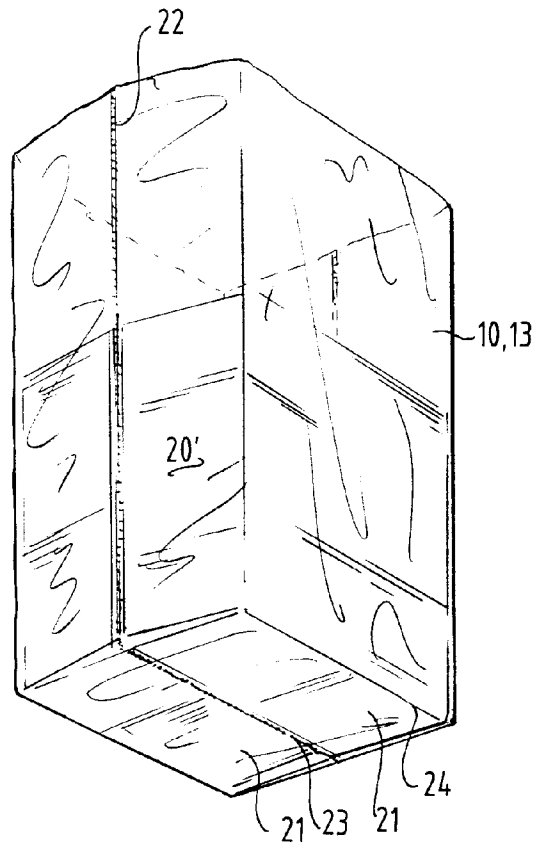
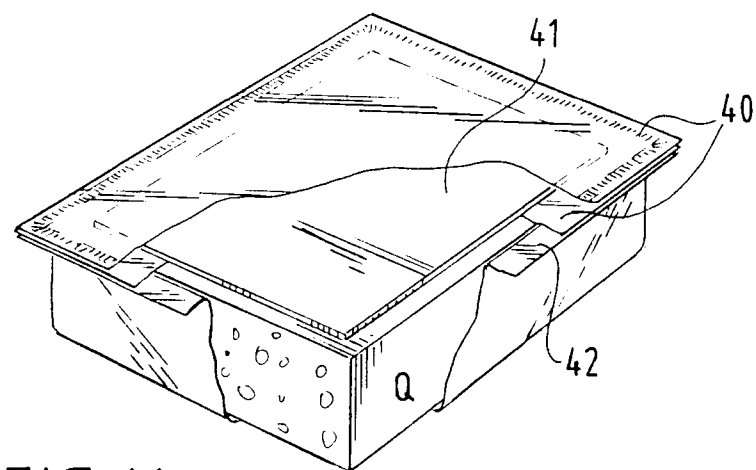
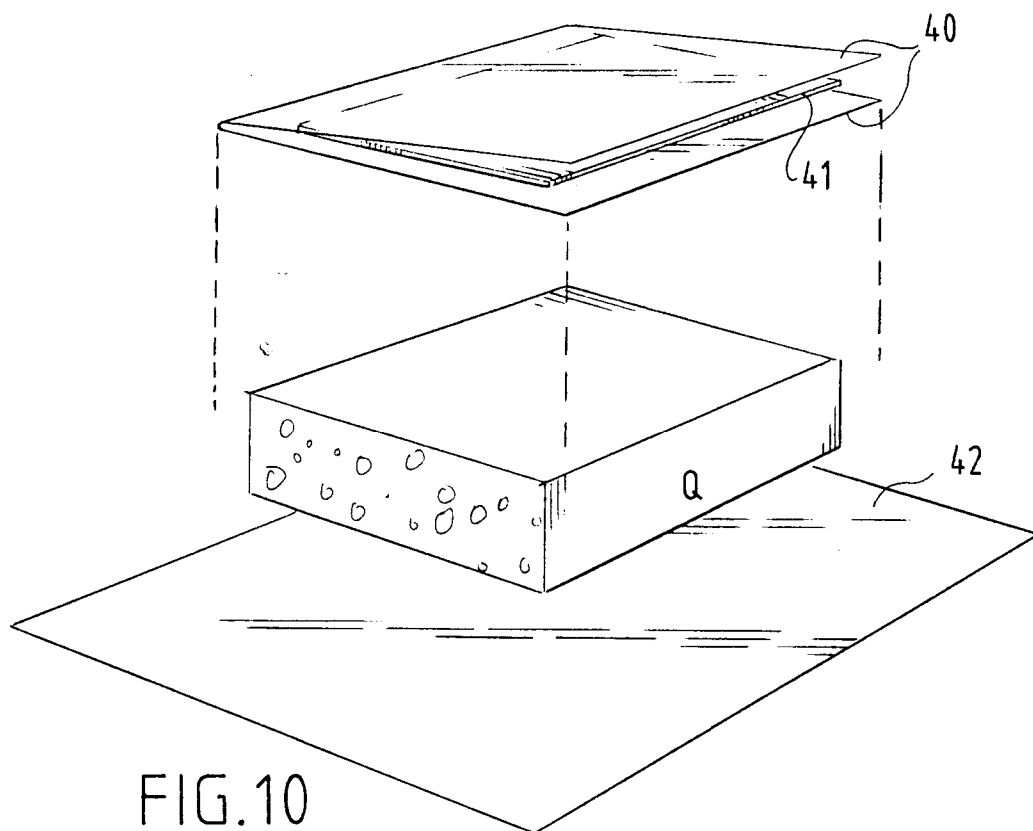


FIG. 3b



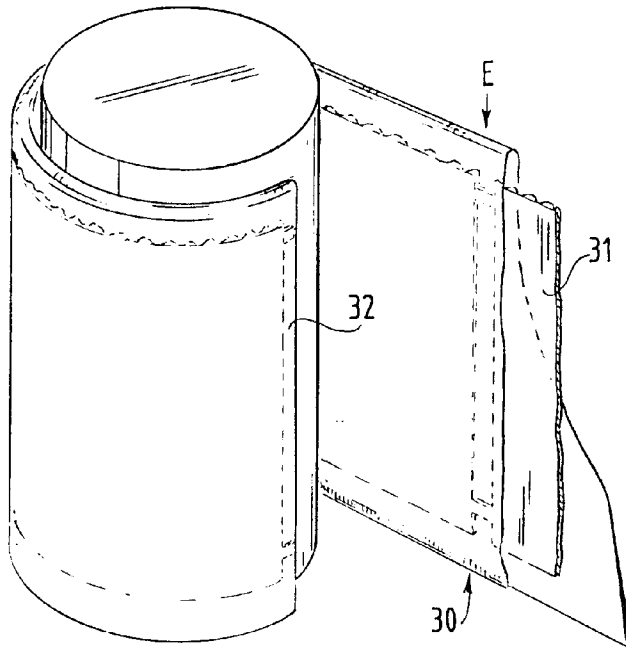


FIG. 4

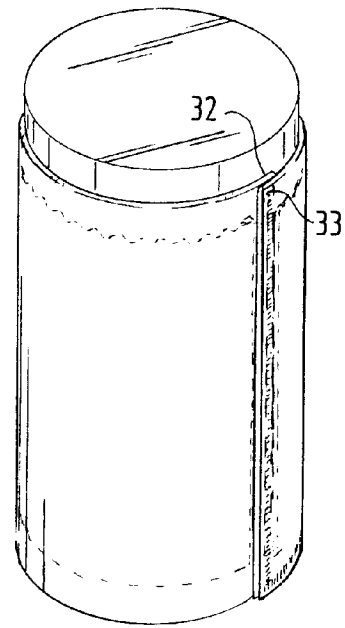


FIG. 5

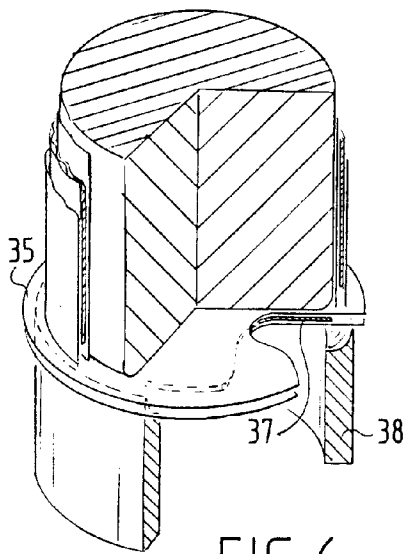


FIG. 6

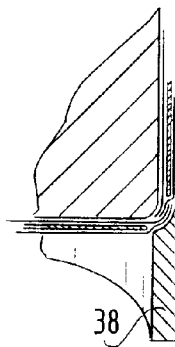


FIG. 7

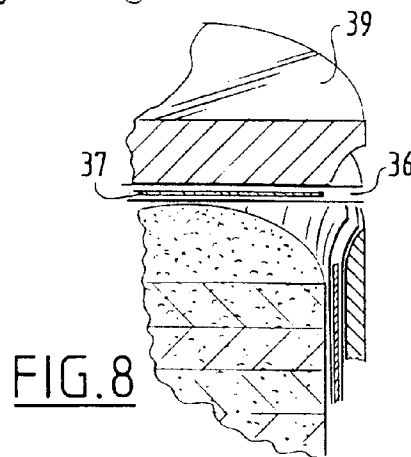


FIG. 8

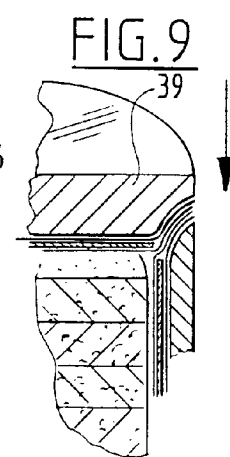


FIG. 9