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(54)

A bag dispenser and a bag unit therefor

(57) A bag unit comprising a pad (3) of a stack of overlying bags, the bags each having a front and rear panel, closed sides and a base region and a mouth end providing a mouth opening, and a wicket engagable region (11) proximate to the mouth opening, each bag including a region proximate to the mouth opening providing adhesive (10) for connecting the rear panel to a front panel of each consecutive bags of the stack, a storage and dispensing pouch (18) within which the pad is retained, the pouch including a dispensing opening (23) formed or to be formed in a wall of the pouch, juxtaposed

to the first to be dispensed bag at the front of the pad to reveal only its front panel for dispensing through the opening, wherein the adhesive is of a strength to a) allow separation during dispensing of a bag from the next to be dispensed in a manner where the dispensed bag is removed from the pouch in a mouth opening opened condition, and b) such that the next to be dispensed bag experiences movement during dispensing of the bag to become presented through the opening of the pouch in a partially upstanding condition from the stack for subsequent and easy to grasp complete dispensing thereof.

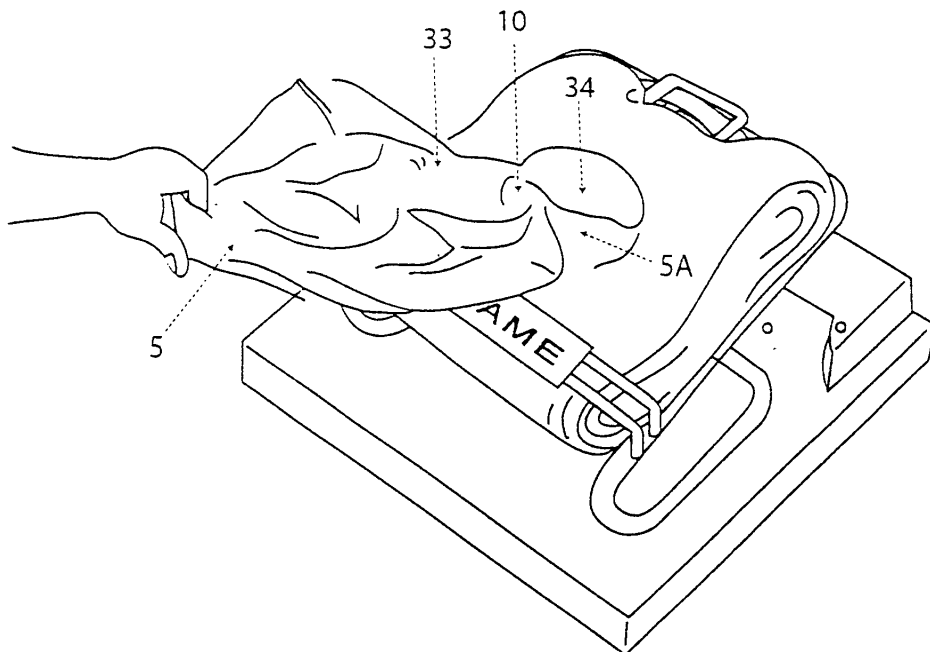


FIG 17

Description

TECHNICAL FIELD

[0001] The present invention relates to a bag dispenser and in particular although not solely to a grocery bag dispenser for dispensing bags of a t-shirt type.

BACKGROUND

[0002] Statistics show that a high percentage of bags are being littered around supermarkets through the improper use of existing bag dispensers by shoppers, thus resulting in loss of bags and hence money. Shoppers when given access to bags for loading groceries, may grab more than one bag at a time and any excess bags that are grabbed may be strewn around the floor causing it is to be messy and unpleasant in appearance at the store or supermarket and certainly causing a loss in bag numbers and hence money. For bags dispensed from a dispensing arrangement as for example shown in US5465845 or US5469970, whilst the intention of the invention is to provide a sequential dispensing one bag at a time, a customer can grab more than one bag from the dispenser and as mentioned this can lead to wastage. Appealing however of the bag dispensers of the above US Patents is the fact that when used correctly, a bag dispensed from the dispenser is removed in a bag top open condition and ready for loading groceries into the interior of the bag. As will be appreciated the thin film material of such bags may often, cling together through static or other adhesion characteristics of the material and it can sometimes be difficult to separate the front and rear plies of the bag. Accordingly the attractiveness of dispensing a bag from a dispenser in a ready to use and open condition is important however for the above mentioned patents this is counterbalanced by the disadvantage of possible wastage.

[0003] One example of a dispensing arrangement where one bag at a time only can be dispensed from a dispenser is shown in US4527693. Indeed this US patent also recognizes the advantage of allowing the dispensing of bags from the dispenser in a bag top open condition. In US4527693 there is provided a pad of bags which are each attached via one of its plies to a severable portion from which bags are sequentially torn during the individual dispensing of bags from the dispenser. During dispensing of a bag from the dispenser, the front panel, not attached to the severable portion, is pulled out through an opening in the dispenser and the continued application of force then severs and removes the entire bag from the severable portion and the dispenser. However during the dispensing of a bag from the dispenser the bag that is being dispensed does not effect the disposition of the subsequent bag to be dispensed. The subsequent bag to be dispensed must hence firstly be manipulated by a user of the dispenser to a condition where it can be conveniently grasped and then removed

from the dispenser. As mentioned, static adhesion or other adhesion such as that which may be created during the formation of the cuts to define the bag may make the grasping of the subsequent bag difficult.

[0004] Accordingly it is an object of the present invention to provide a bag dispenser which overcomes the abovementioned disadvantages or which will at least provide the public with a useful choice.

10 BRIEF DESCRIPTION OF THE INVENTION

[0005] In a first aspect the present invention consists in a bag unit comprising;

15 a pad of a stack of overlying bags, said bags each having a front and rear panel, closed sides and base region and a mouth end providing a mouth opening, each bag including a region proximate to said mouth opening providing adhesive for connecting the rear panel to a front panel of each consecutive bags of said stack,
20 a storage and dispensing pouch within which said pad is retained, said pouch including a dispensing opening formed or to be formed in a wall of said pouch, juxtaposed to the first to be dispensed bag at the front of said pad to reveal only its front panel for dispensing through said opening,
25 said adhesive is of a strength to a) allow separation during dispensing of a bag from the next to be dispensed in a manner where the dispensed bag is removed from said pouch in a mouth opening opened condition, and b) such that said next to be dispensed bag experiences movement during dispensing of said bag to become presented through the opening of said pouch in a partially upstanding condition from said stack for subsequent and easy to grasp complete dispensing thereof.

[0006] Preferably said dispensing opening is provided at a location proximate to said mouth opening of said bags.

[0007] Preferably said bags are handled bags.

[0008] Preferably said bags are of a t-shirt type having spaced handles integral with said front and rear panels and extending from said mouth end of said bag.
45 Preferably said pad is folded about a fold line to place said handles adjacent the rear of said pad.

[0009] Preferably said fold line is transverse to the general longitudinal direction (i.e. mouth to bottom direction) of said bags and is located intermediate of said mouth opening and the distal ends of said handles away from said bags.

[0010] Preferably said pad is folded about a fold line intermediate of said base region and said mouth region to place the base region of each bag adjacent the rear of said pad.

[0011] Preferably said second mentioned fold line is transverse to the general longitudinal direction (i.e.

mouth to bottom direction) of said bags and is intermediate of said bottom region and the region of each said bag revealed or to become revealed for dispensing through said dispensing opening.

[0012] Preferably said pad includes a wicket region provided by a frangible wicket engagable extension region of each bag.

[0013] Preferably said wicket region of said pad is provided intermediate of the first and second mentioned fold lines.

[0014] Preferably said frangible wicket engagable extension region of each bag is severable from its respective bag to become separated from said bag upon it having been dispensed from said unit.

[0015] Preferably said frangible wicket engagable extension region of each bag is severable from its respective bag along a line or lines of weakness between front and rear panels of said bag and said frangible wicket engagable extension region.

[0016] Preferably said pad includes an aperture, extending through said frangible wicket engagable extension regions of each bag, said aperture to receive a wicketing means of a support rack for said bag unit.

[0017] Preferably a pad binding means is provided engaged to said frangible wicket engagable extension region of said pad to bind the bags of said pad together.

[0018] Preferably said pouch includes an opening extending therethrough commensurate with the aperture of said pad to allow said wicketing means to extend through said bag unit.

[0019] Preferably a bag unit binding means is provided engaged through said aperture of said pad and said opening of the pouch to bind the pouch and pad together.

[0020] Preferably said pouch is in a close fitting relationship with and about said pad.

[0021] In a second aspect the present invention consists in a bag dispenser comprising a bag unit as hereinbefore described, supported on a support frame in a condition to present said pouch for use to allow a user to grasp a next to be dispensed bag through the dispensing opening for the dispensing of a next said bag to be dispensed, and

includes a wicketing means to extend through said aperture of said bag unit and said opening of said pouch, to restrain the movement of the frangible wicket engagable extension region of each bag such that during removal of a bag from said pouch, said frangible wicket engagable extension region is severed from said bag.

[0022] In a further aspect the present invention consists in a bag unit as herein described with reference to any one or more of the accompanying drawings.

[0023] In a further aspect the present invention consists in a method of forming a bag unit as herein de-

scribed with reference to any one or more of the accompanying drawings.

[0024] In still a further aspect the present invention consists in a bag dispenser as herein described with reference to any one or more of the accompanying drawings.

[0025] This invention may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, and any or all combinations of any two or more of said parts, elements or features, and where specific integers are mentioned herein which have known equivalents in the art to which this invention relates, such known equivalents are deemed to be incorporated herein as if individually set forth.

BRIEF DESCRIPTION OF DRAWINGS

[0026]

Figure 1 is a perspective view of a preform of a pad of bags wherein a machine is shown to commence operation to provide the form of the pad ready for loading into a pouch,

Figure 2 is a perspective view of a pad of bags illustrating the portions removed by the process of the machine shown in Figure 1,

Figure 3 is a perspective view of the pad of bags in a lay flat condition,

Figure 4 is another perspective view of the pad as shown in Figure 3,

Figure 5 is a detailed view of the severable wicket region of the pad, including a line of weakness,

Figure 6 is a perspective view of a pouch of the present invention,

Figure 7-12 illustrate a sequence of manipulation of the pad for insertion thereof into the pouch,

Figure 13 illustrates the pouch being engaged onto a support frame,

Figure 14 illustrates the bag unit in a condition engaged to a support frame prior to being used for dispensing bags,

Figure 15-19 illustrate a sequence of steps of using the bag unit on the dispenser for dispensing bags to be used for carrying groceries,

Figure 20 illustrates a perspective view of the support frame, and

Figures 21 illustrates a portion of the quick fastening means engaged to the counter top of for example a supermarket counter wherein a moveable pin can travel up to allow for a portion of a support frame to be slid underneath it,

Figure 22 illustrates the pin positioned in a retracted condition, and

Figure 23 shows the pin in a fully protruding position to lock the support frame in place.

[0027] With reference to Figure 12, there is shown a

bag unit 1 in a condition ready for use, the bag unit 1 consists of a pouch 2 which retains a pad of overlying individual bags. Figures 3 and 4 show such a pad 3 in a substantially lay flat condition. The pad 3 provides a plurality of overlying bags of a kind which are preferably of a t-shirt type, each bag consisting of a front panel, rear panel and a side gusset section and sealed bottom end. With reference to the upper most bag shown in Figure 4, the front panel 5 extends between the sides 4 and the bottom 6 and a mouth opening end 7. Whilst the general nature of the bag is rectangular having its major axis extending in the bottom-mouth direction, alternative forms of bags including non t-shirt type bags may be provided in an overlying condition to define the pad 3. However in the most preferred form where the bag is of a t-shirt type the bag includes spaced handles 8, 9 integrally formed from both the front and rear (not shown) panels of each bag. The mouth opening 7 is intermediate of the spaced handles.

[0028] Each bag is adhered to an adjacent bag by the provision of adhesive between the rear panel of one bag and the front panel of the immediately adjacent bag abutting the rear panel of the first mentioned bag. The adhesive is provided proximate to the mouth opening 7 and may be applied as a strip or spot 10 as shown in Figure 4. No adhesive is placed on the rear panel of the last bag. The adhesive is of a type which whilst adhering adjacent bags together is of a strength which can allow for the bags to become separated. Adhesives of this type are well known and the selection of an appropriate adhesive compatible to the material of the bag will be apparent to a person skilled in the art.

[0029] The pad 3 also includes a wicket engagable region 11. The wicket engagable region is preferably also integrally formed as part of the front and rear panels of each bag however is preferably provided in a condition where it is easily severable from the bag. The wicket region of each bag has an opening 12 which defines an aperture extending through the pad and is adapted to receive a wicketing means of a support frame which supports the bag unit of the present invention for use. In an alternative form however the wicket engagable region 11 may itself be of a type which whilst not severing from the bag, is in a form where it can be easily torn. In the alternative the opening 12 may itself be torn open during removal of the bag by a wicketing means.

[0030] However in the most preferred form the entire wicket region 11 is to be severed from the remainder of the bag and accordingly a line of weakness 13 is provided between the region 11 and the remainder of the bag. The line of weakness 13 is preferably a cut provided through each of the bags save bridging connections 14 connecting the wicket region 11 and the remainder of the bag as for example shown in Figure 5. Alternatively however the line of weakness 13 may be of a more regular perforated form or other form where the strength of material between the wicket region 11 and the remainder of the bag is reduced for easy severing.

[0031] With reference to Figures 1 and 2, the pad in the form as shown in Figures 3 and 4 may be formed by a cutting process which removes the components 15, 16 from a preform of the pad bags as shown in Figure 1 and also defines the line of weakness 13 between the wicket region 11 and the remainder of the bag.

[0032] The bag unit further comprises of a pouch 2 as for example shown in Figure 6. In Figure 6 the pouch is shown in a condition where the pad of overlying bags has not been inserted. The pouch 2 is preferably of a film material and provides a front panel 18 and rear panel (not shown) sealed along the sides 19, 20 and the end 21. Prior to insertion of the pad it also includes a mouth open end 22 through which the pad of overlying bags may be inserted. Once the pad is inserted into the pouch, the bottom of the pouch can be closed by for example using an adhesive tape. The pouch 2 includes an opening in its front panel 18, which allows, or is to be formed to allow access to be gained into the interior of the pouch. The region 23 shown in an opened condition is preferably provided in the front panel in a perforated form which can be conveniently perforated to define the appropriately shaped opening defined by the perforations. The pouch further includes an opening 24 which is for example a slot cut through both the front and rear panels of the pouch 2 and is to be positioned to be commensurate with the opening 12 of the wicket region 11 of the pad of overlying plastic bags.

[0033] The pad is preferably inserted into the pouch in a folded condition. Such a folded condition is for example shown in Figure 9 wherein and with reference to Figures 7 and 8, the handled end 25 of the pad is folded about a fold line to place the distal end 26 of the handle adjacent the rear 27 of the pad. Likewise the bag is preferably folded about a fold line intermediate of the bottom 6 and the region of the pad to become exposed through the opening 23 to place the bottom 6 adjacent the rear of the pad. This then leaves presented at the front 28 of the pad the wicket region 11 and the region substantially immediate adjacent thereto, to become presented through the opening 23 of the pouch. With reference to Figures 10 and 11, the pad in its folded configuration is then inserted into the pouch in the orientation where the opening 12 of the wicket region 11 is to become positioned adjacent the slot 24 of the pouch and the front face 28 is to become positioned immediately adjacent the front panel 18 of the pouch to thereby become exposed to the opening 23 in or to be created in the front panel 18 of the pouch.

[0034] The unit as shown in Figure 12 is preferably also bound by a binding means 29 which binds the pouch and the internal pad together. The binding means 29 preferably extends through the aperture of 24 of the pouch and aperture 12 of the wicket region 11 and preferably about the end 21 of the pouch to encompass all of the layers of the pad and the pouch. The binding means may for example be an adhesive tape wound through the aperture of the pouch and the pad. For use

the bag unit 1 is mountable onto a support frame 2 as for example shown in Figure 13. In position, the support frame 2 locates a wicketing means 30 through the aperture as previously referred to to resist the movement of the wicket region 11 of each of the bags of the pad and also locate the pouch in position. The lower end 31 (the end away from the wicket engaging region of the unit) is inserted under a retention means such as the bars 32 shown in Figure 14. This prevents the unit from being uplifted from the support frame during use.

[0035] For use, the bag unit presented engaged on the support frame firstly requires the removal of the section separated from the front panel 18 of the pouch to create the opening 23. This can be done by tearing the section away as for example shown in Figure 15. The top panel 5 of the first to be dispensed bag will then be revealed through the opening. Since the pouch is preferably of a snug fit, this first bag is in immediate juxtaposition to the front panel 18 of the pouch. The front panel of the first bag preferably does not include any adhesive however the rear panel of this first bag does include adhesive adhering it to the front panel of the next to be dispensed bag of the bag unit. The first to be dispensed bag will need to be manipulated so that a person can grasp the front panel as for example shown in Figure 16 for the removal of the first bag from the pouch through the opening 23. However upon removal of the first bag from the pouch, where the first bag is severed from the severable wicket region 11, the adhesive region 10 as well as releasing to separate the front panel 5 of the first bag and the rear panel 33 of the first bag, also drags the front panel 5A of the next to be dispensed bag to a condition where it can then be conveniently grasped. The next to be dispensed bag does not need to be pried for grasping its removal. The adhesive will release to separate the rear panel 33 of the first bag from the front panel 5A of the next to be dispensed bag at a point where no more than the mouth edge 34 of the mouth opening 7 of the next to be dispensed bag becomes revealed through the opening. In such condition that mouth edge 34 will have caused the bridging regions 14 of the line of weakness of at least the front panel of the next to dispensed bag to become separated from the wicket region 11. The bridging regions 14 of the line of weakness 13 of the rear panel of the next to be dispensed bag remain intact until such next to be dispensed bag is grasped by a user for complete removal of that bag from the pouch.

[0036] As the provision of the adhesive is between each of the bags, sequential removal of all bags from the pouch can be achieved. The folding of the pad of overlying bags as shown in Figure 9 provides enhanced frictional resistance between bags which assists in a resistive movement of a bag to be dispensed from the pouch. Such resisted movement aids in an appropriate dispensing of each bag sequentially from the pouch and also ensures that the integrity of the pad remains even whilst the number of remaining bags of the pad is reduc-

ing to being depleted. In the most preferred form the fold to place the bottom 6 of the pad adjacent the rear of the pad positions a larger portion of the lower end of the bag to the rear of the pad than the other end. The other end where the distal end 26 of the handle 25 are folded to be adjacent the rear of the pad is proportionally smaller. Hence in a bag advancing through the opening of the pouch, experiences a greater resistive force from a direction towards its bottom end 6. The greater resistive force in the direction towards its bottom, encourages the mouth edge 34 of the next to be removed bag to move to become revealed to the opening rather than its bottom 6 advancing towards the mouth edge. The bag in being removed from the pouch presents its mouth opening in an open condition ready for loading of groceries or the like and presents the next to be dispensed bag in a manner so that the mouth edge of the front panel is at least partially removed through the opening to allow for a person to conveniently grasp the next to be removed bag. The opening is positioned such that only one bag at a time can be dispensed from the pouch as no other than the bag immediately adjacent the front panel 18 of the pouch is accessible through the opening 23.

[0037] With the pad folded over in the condition as shown it also results in the unit occupying more conveniently shaped space.

[0038] The outer pouch is preferably made of a low density polyethylene. The low density polyethylene has good resistance to tearing and hence through repeated dispensing of bags through the opening, the integrity of the pouch can be maintained. The pad of bags may for example contain in the order of four hundred individual plastic bags and on the support frame may be presented with the face angle being at about 60 to the vertical. The individual bags themselves may be made of any suitable material such as for example a high density polyethylene or an appropriate blend with other materials. The support frame may for example be secured to a counter top at a supermarket by securing means such as screws or bolts or the like. Alternatively a quick release type arrangement as for example shown in Figures 21-23 may be utilised where with reference to Figure 20, the support frame can be slidably inserted beneath the spring loaded locking pins 38 which can travel up and down as and when displaced by a member 39 of the support frame.

Claims

1. A bag unit comprising;

a pad of a stack of overlying bags, said bags each having a front and rear panel, closed sides and base region and a mouth end providing a mouth opening, and a wicket engagable region proximate to said mouth opening, each bag including a region proximate to said mouth open-

- ing providing adhesive for connecting the rear panel to a front panel of each consecutive bags of said stack,
 a storage and dispensing pouch within which said pad is retained, said pouch including a dispensing opening formed or to be formed in a wall of said pouch, juxtaposed to the first to be dispensed bag at the front of said pad to reveal only its front panel for dispensing through said opening,
 said adhesive is of a strength to a) allow separation during dispensing of a bag from the next to be dispensed in a manner where the dispensed bag is removed from said pouch in a mouth opening opened condition, and b) such that said next to be dispensed bag experiences movement during dispensing of said bag to become presented through the opening of said pouch in a partially upstanding condition from said stack for subsequent and easy to grasp complete dispensing thereof.
2. A bag unit as claimed in claim 1 wherein said dispensing opening is provided at a location proximate to said mouth opening of said bags.
 3. A bag unit as claimed in claims 1 or 2 wherein said bags are handled bags.
 4. A bag unit as claimed in any one of claims 1 to 3 wherein said bags are of a t-shirt type having spaced handles integral with said front and rear panels and extending from said mouth end of said bag.
 5. A bag unit as claimed in any one of claims 1 to 4 wherein said pad is folded about a fold line to place said handles adjacent the rear of said pad.
 6. A bag unit as claimed in claim 5 wherein said fold line is transverse to the general longitudinal direction (i.e. mouth to bottom direction) of said bags and is located intermediate of said mouth opening and the distal ends of said handles away from said bags.
 7. A bag unit as claimed in any one of claims 1 to 6 wherein said pad is folded about a fold line intermediate of said base region and said mouth region to place the base region of each bag adjacent the rear of said pad.
 8. A bag unit as claimed in claim 7 wherein said second mentioned fold line is transverse to the general longitudinal direction (i.e. mouth to bottom direction) of said bags and is intermediate of said bottom region and the region of each said bag revealed or to become revealed for dispensing through said dispensing opening.
 9. A bag unit as claimed in any one of claims 1 to 8 wherein said pad includes a wicket engagable region provided by a frangible wicket engagable extension region of each bag.
 10. A bag unit as claimed in claim 9 wherein said wicket engagable region of said pad is provided intermediate of the first and second mentioned fold lines.
 11. A bag unit as claimed in claims 9 or 10 wherein a said frangible wicket engagable extension region is provided adjacent the mouth end of each said bag and is severable from its respective bag to become separated from said bag upon it having been dispensed from said unit.
 12. A bag unit as claimed in any one of claims 9 to 11 wherein said frangible wicket engagable extension region of each bag is severable from its respective bag along a line or lines of weakness between front and rear panels of said bag and said frangible wicket engagable extension region.
 13. A bag unit as claimed in any one of claims 9 to 12 wherein said pad includes an aperture, extending through said frangible wicket engagable extension regions of each bag, said aperture to receive a wicketing means of a support rack for said bag unit.
 14. A bag unit as claimed in claim 13 wherein a bag unit binding means is provided engaged through said aperture of said pad and said opening of the pouch to bind the pouch and pad together.
 15. A bag unit as claimed in any one of claims 1 to 14 wherein said pouch includes an opening extending therethrough commensurate with the aperture of said pad to allow said wicketing means to extend through said bag unit.
 16. A bag unit as claimed in any one of claims 1 to 15 wherein said pouch is in a close fitting relationship with and about said pad.
 17. A bag dispenser comprising
 a bag unit as claimed in anyone of the preceding claims ,
 a support frame supporting said bag unit in a condition to present said pouch for use to allow a user to grasp a next to be dispensed bag through the dispensing opening for the dispensing of a next said bag to be dispensed, and includes a wicketing means to extend through said aperture of said bag unit and said opening of said pouch,
 to restrain the movement of the frangible wicket engagable extension region of each bag such

that during removal of a bag from said pouch,
said frangible wicket engagable extension re-
gion is severed from said bag.

18. A bag unit as herein described with reference to any 5
one or more of the accompanying drawings.

19. A method of forming a bag unit as herein described
with reference to any one or more of the accompa- 10
nying drawings.

20. A bag dispenser as herein described with reference
to any one or more of the accompanying drawings.

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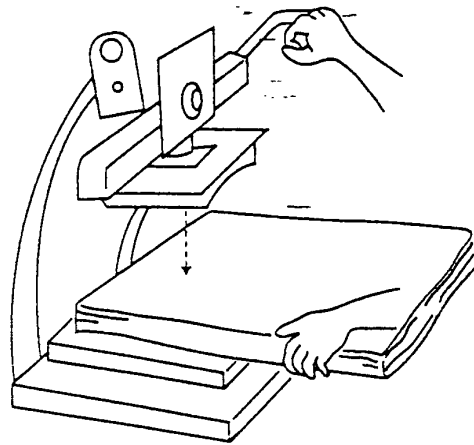


FIG 1

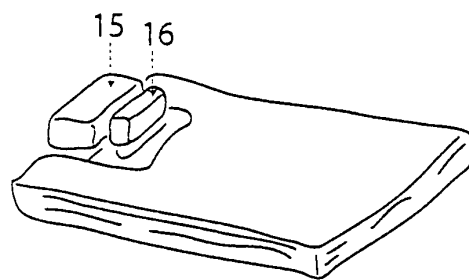


FIG 2

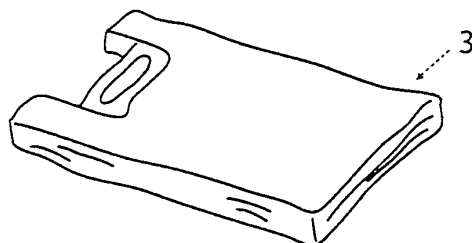


FIG 3

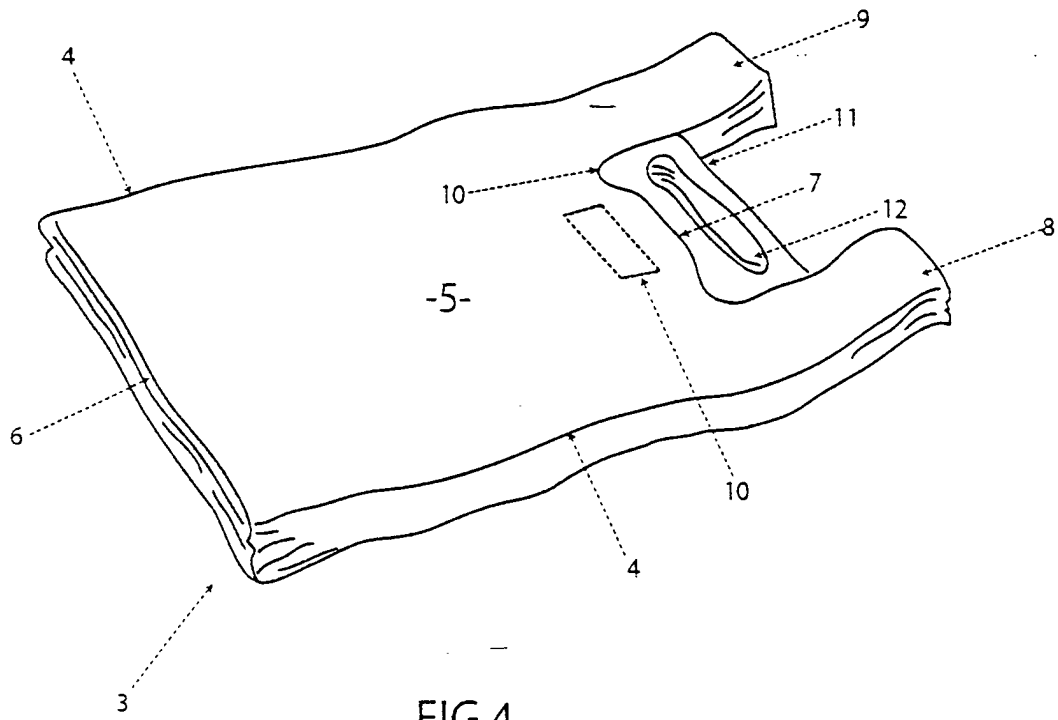


FIG 4

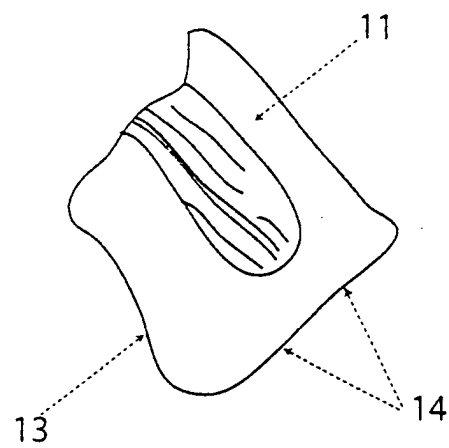


FIG 5

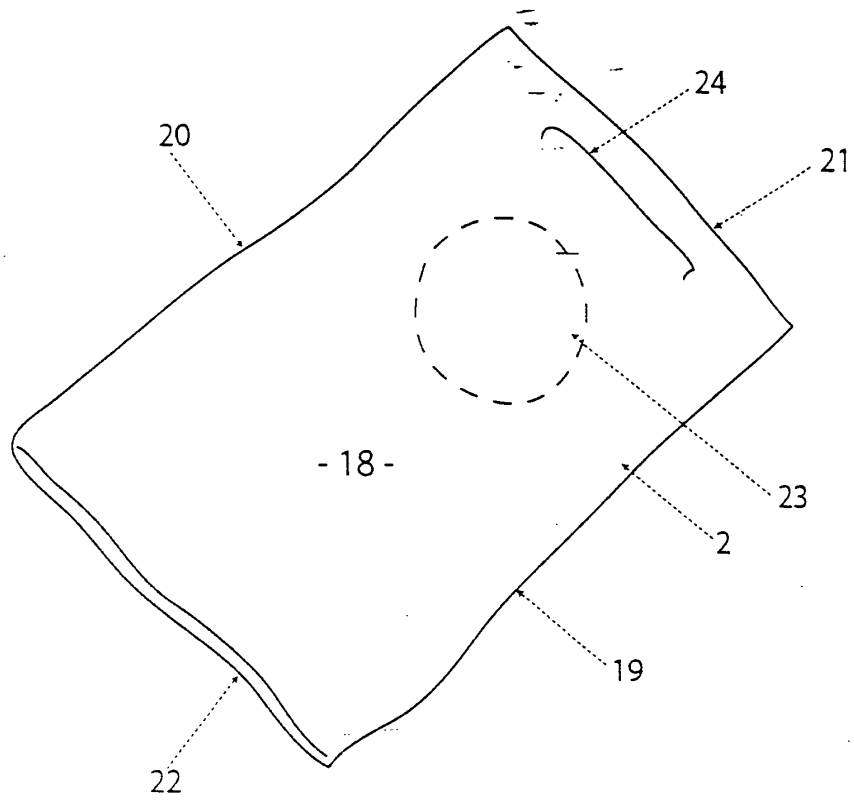


FIG 6

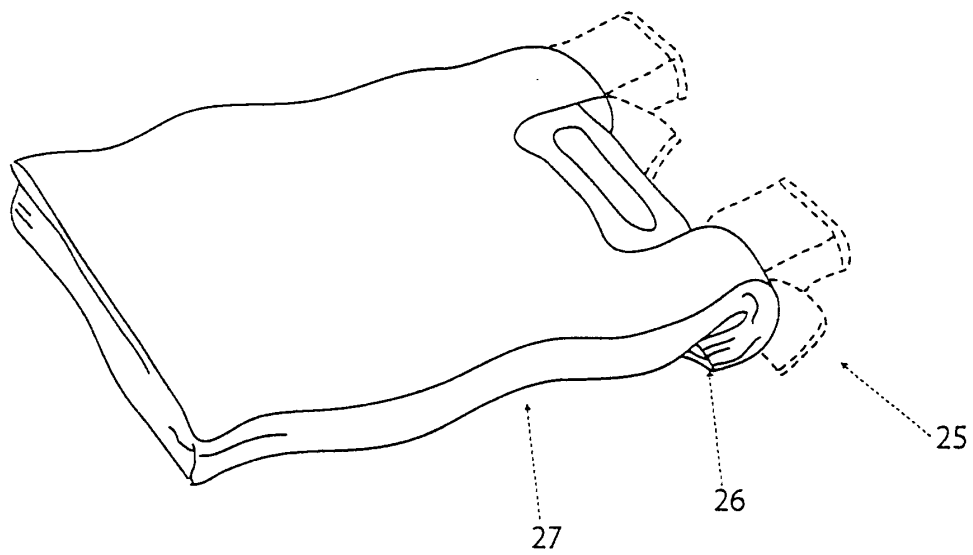


FIG 7

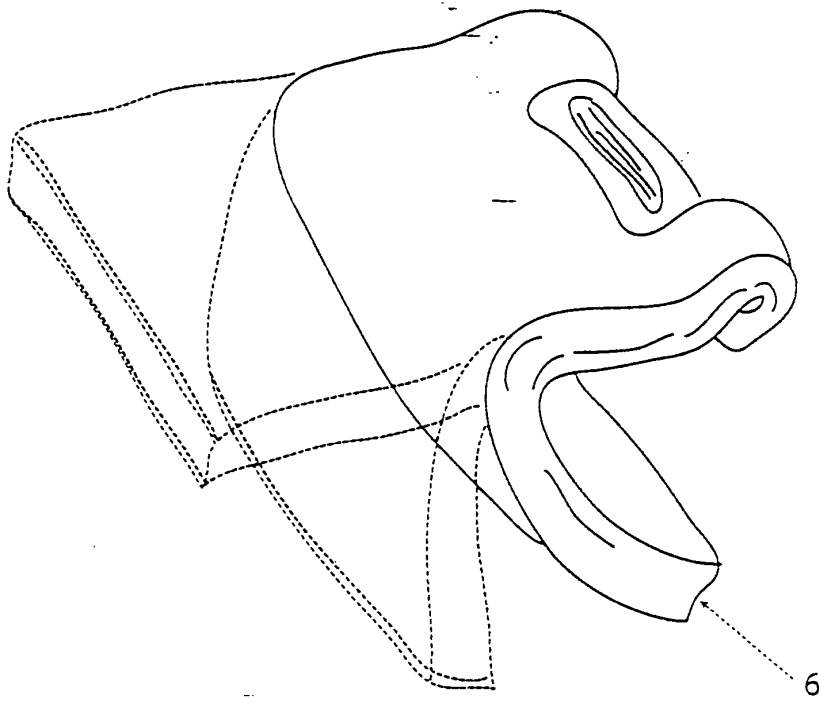


FIG 8

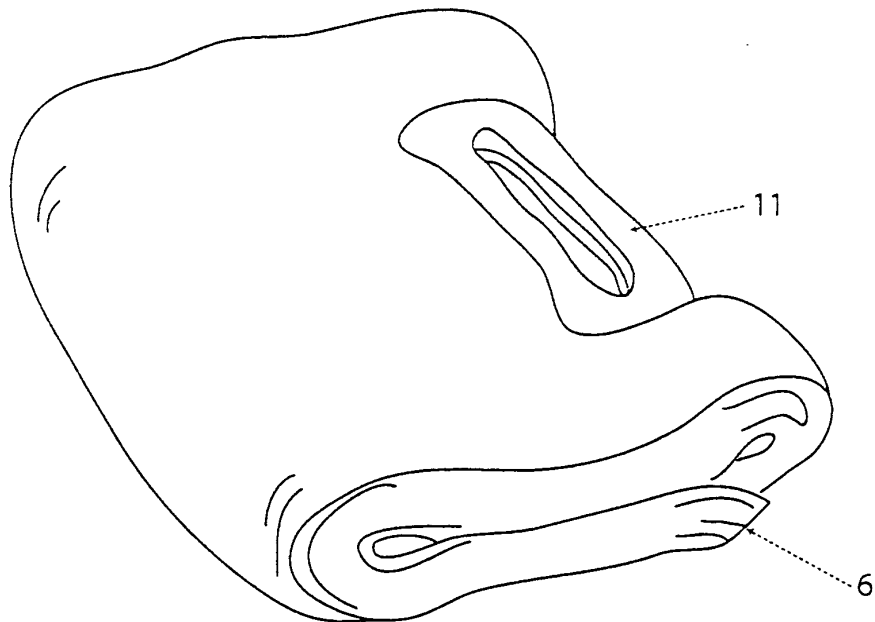
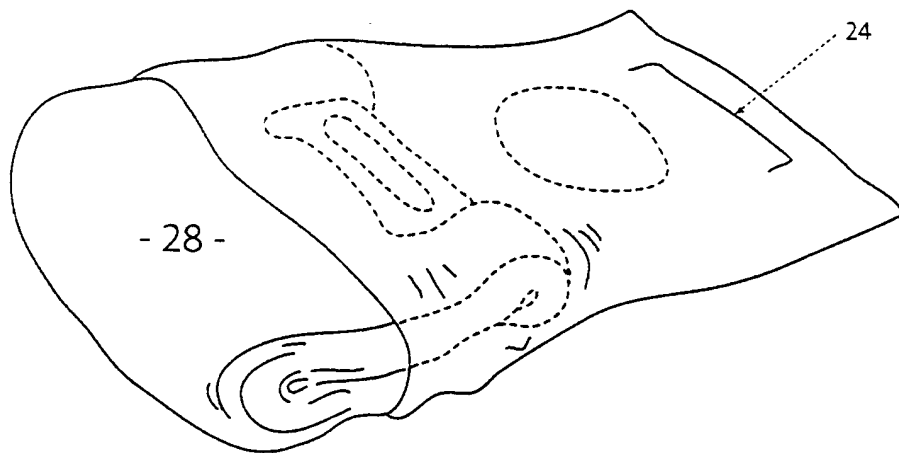
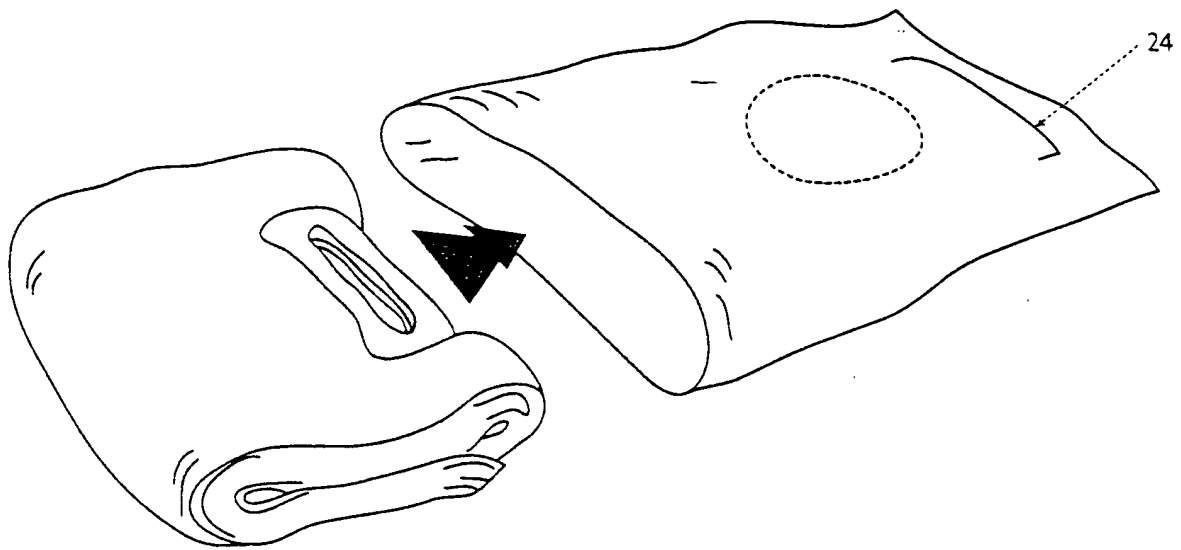


FIG 9



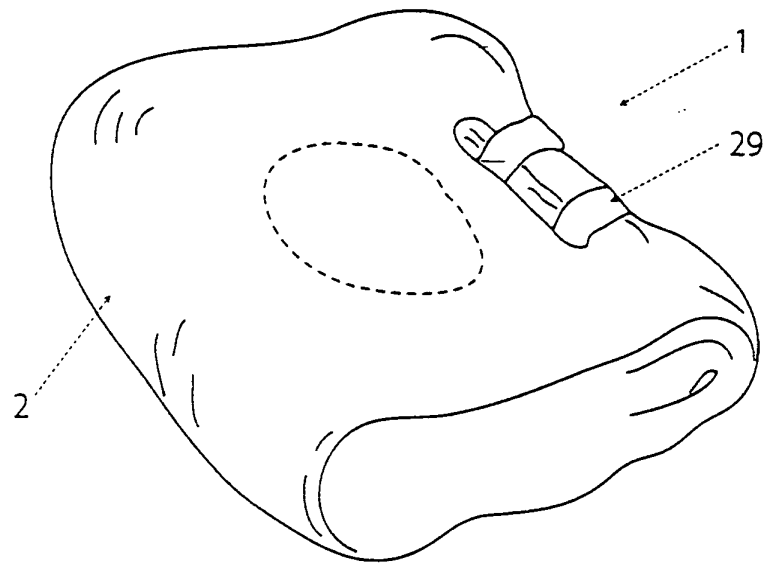


FIG 12

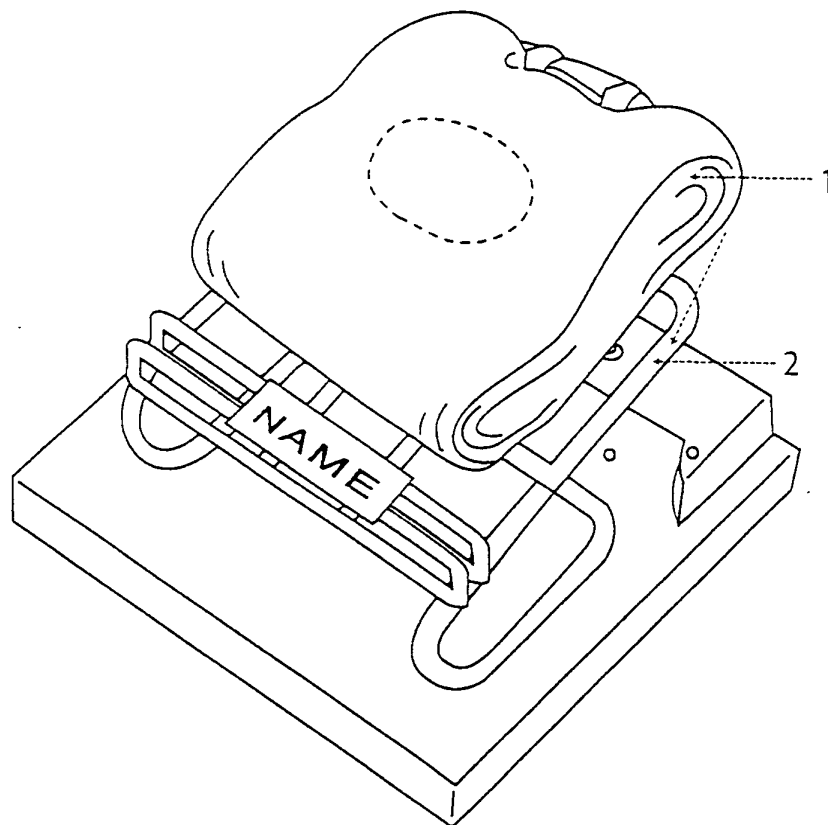


FIG 13

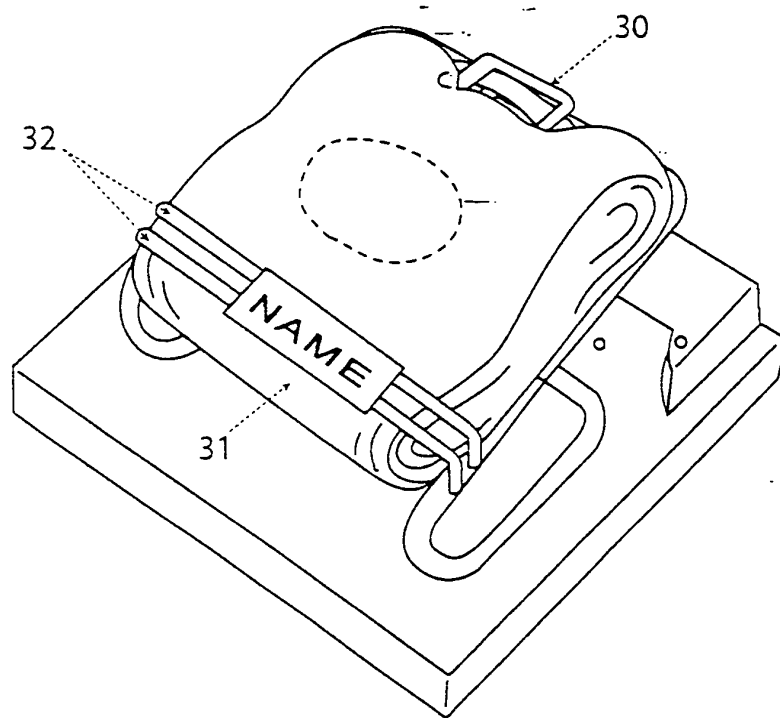


FIG 14

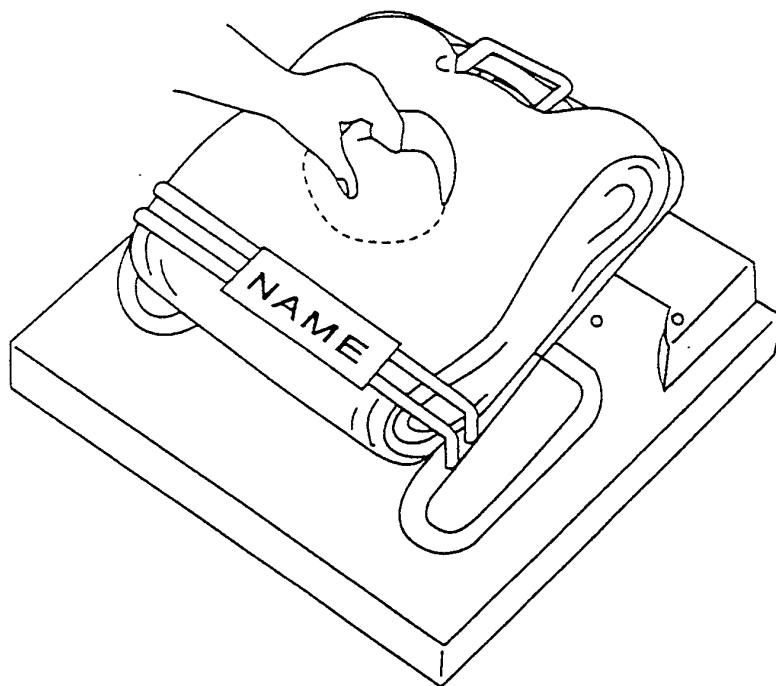


FIG 15

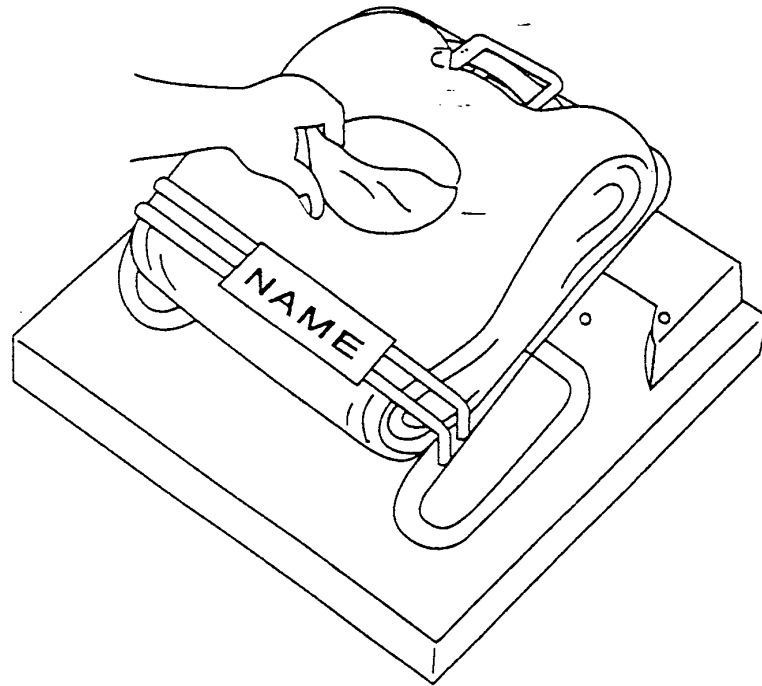


FIG 16

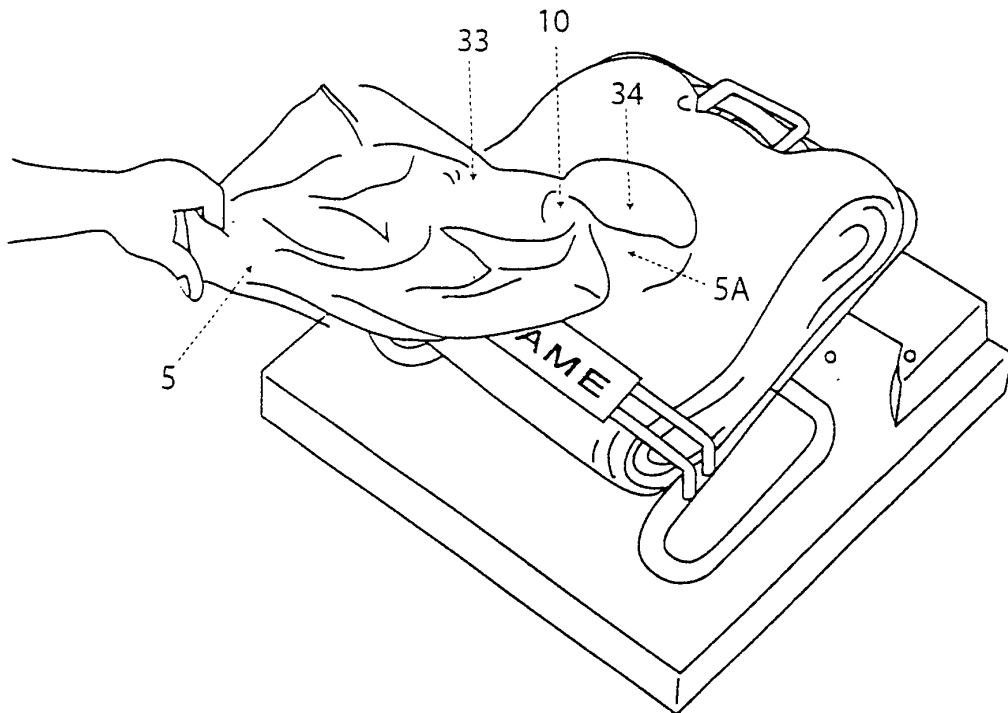


FIG 17

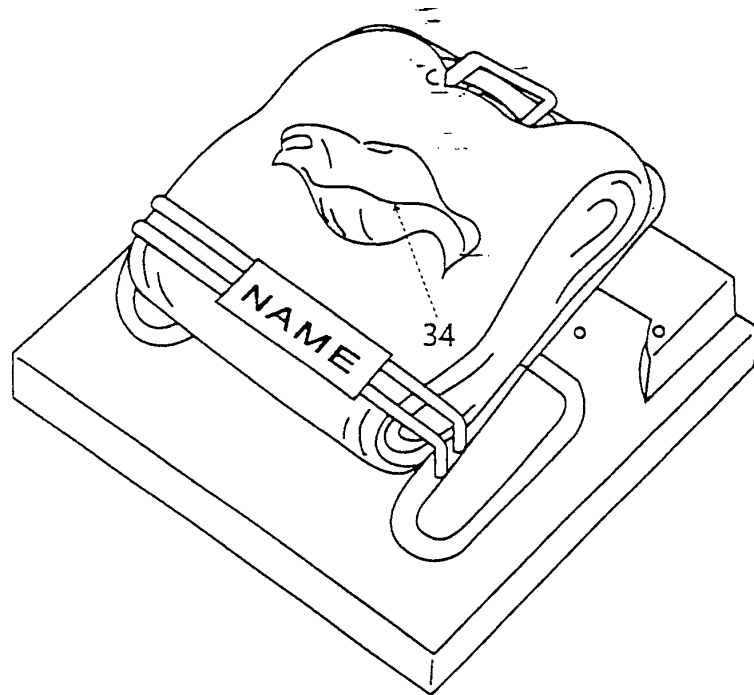


FIG 18

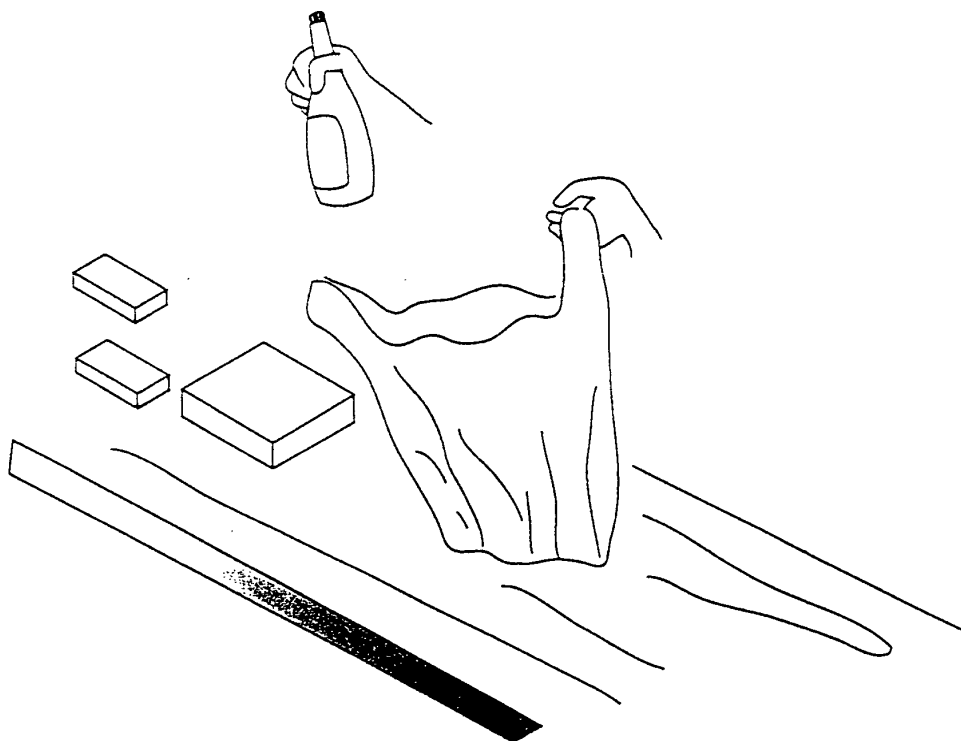


FIG 19

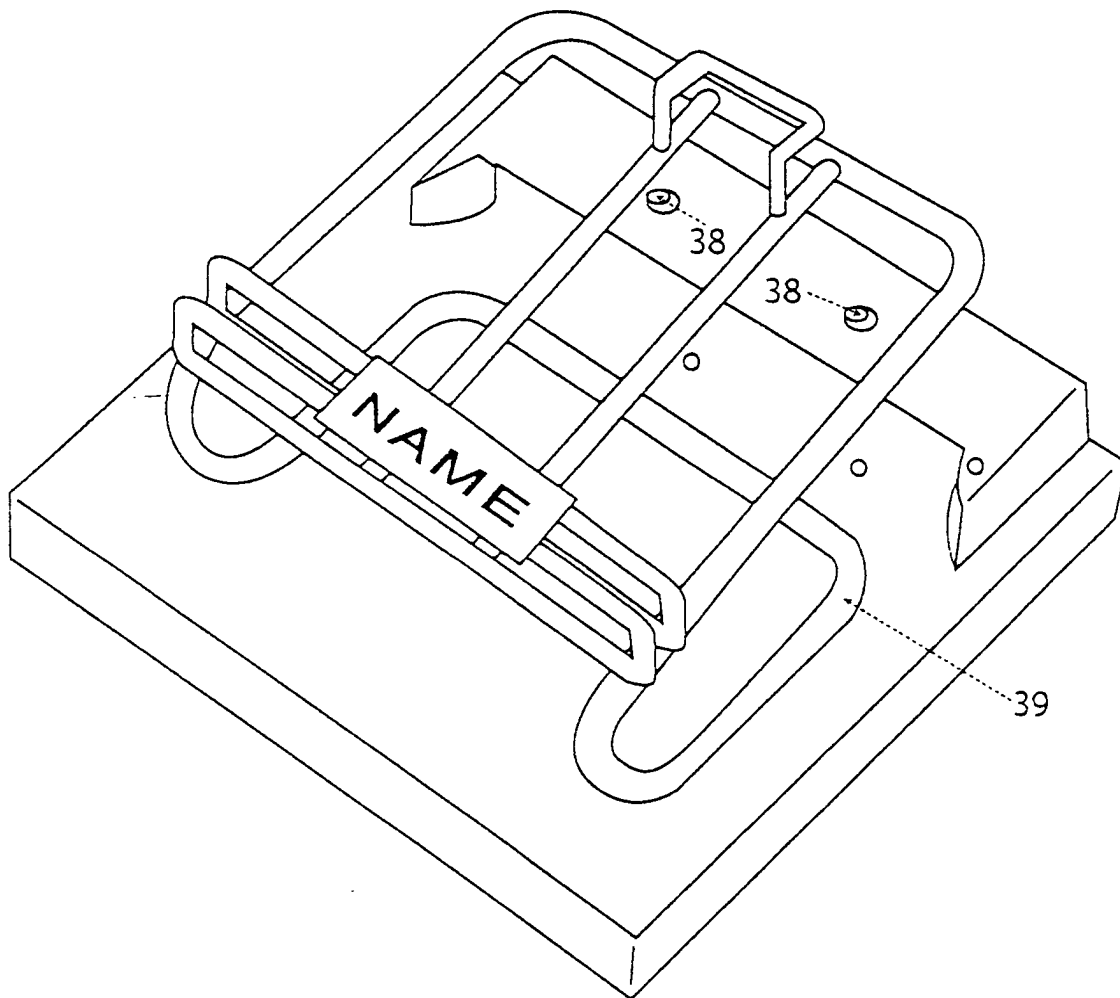


FIG 20

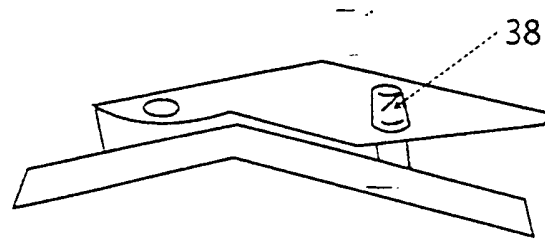


FIG 21

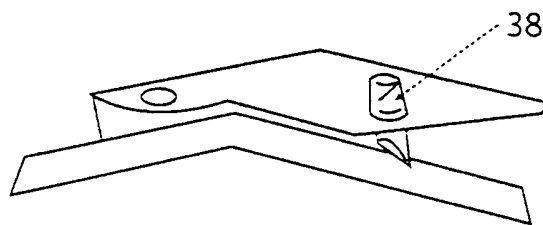


FIG 22

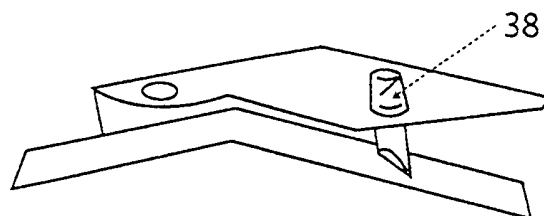


FIG 23



European Patent
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PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

EP 01 12 9811

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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Y	* page 7, line 1 - line 6 *	5-8,10, 14	
A	* page 7, line 22 - page 8, line 24; figure 2 *	17	
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Y	WO 00 15515 A (GLOPAC GLOBAL TRADING PACKING ;DANDA MICHAEL (GB); LEE SIMON (GB);) 23 March 2000 (2000-03-23) * page 8, line 34 - line 38; figure 6 *	14	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65D A47F
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>1-17</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>18-20</p> <p>Reason for the limitation of the search:</p> <p>Claims 18 to 20 do not comply with the requirement of Rule 29(6) EPC.</p>			
Place of search		Date of completion of the search	Examiner
THE HAGUE		13 May 2002	Bridault, A
CATEGORY OF CITED DOCUMENTS		<p>T : theory or principle underlying the invention</p> <p>E : earlier patent document, but published on, or after the filing date</p> <p>D : document cited in the application</p> <p>L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>	
<p>X : particularly relevant if taken alone</p> <p>Y : particularly relevant if combined with another document of the same category</p> <p>A : technological background</p> <p>O : non-written disclosure</p> <p>P : intermediate document</p>			

EPO FORM 1503 03 82 (P04C07)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-05-2002

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