(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 375 368 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
02.01.2004 Bulletin 2004/01

(51) Int Cl.[7]: **B65D 33/16**

(21) Application number: **03014050.3**

(22) Date of filing: **23.06.2003**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

(30) Priority: **24.06.2002 DK 200200971**

(71) Applicant: **Schur Packaging Systems a/s**
8700 Horsens (DK)

(72) Inventors:
- **Hansen, Erik**
  8362 Horning (DK)
- **Pape, Henrik**
  8700 Horsens (DK)

(74) Representative: **Nielsen, Leif et al**
Patrade A/S
Fredens Torv 3A
8000 Aarhus C (DK)

(54) Bag with reclosable closing arrangement

(57) The invention concerns a bag with an overlaid front side, a back side and a reclosable closing arrangement provided at the bag opening, where this closing arrangement and the bag sides are made from one film piece, and where the closing arrangement includes a folded part of the film piece forming a flap.

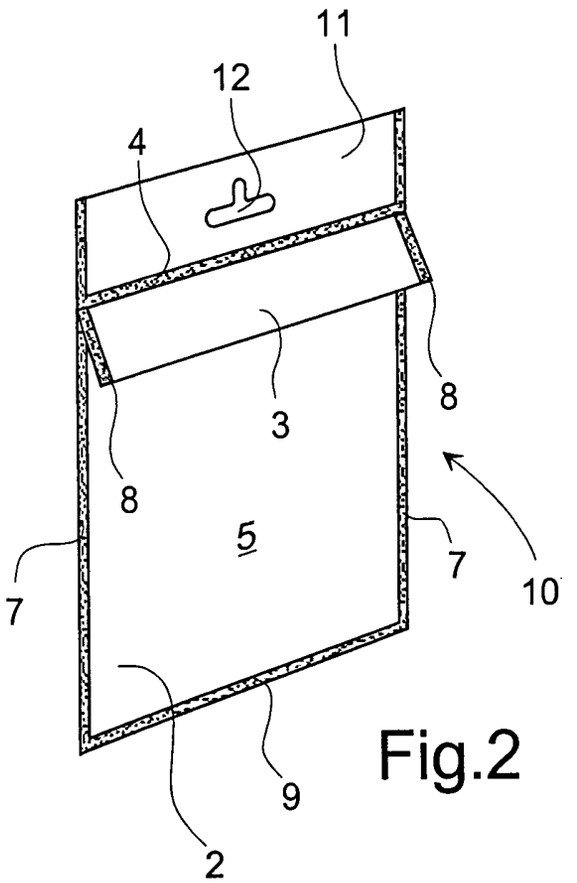

Fig.2

EP 1 375 368 A2

Description

[0001] The present invention concerns a bag including an overlaid front side and a back side and a reclosable closing arrangement formed at the opening of the bag.

[0002] Looking around in e.g. a supermarket or a DIY centre, it appears that articles that are procured in a great number of packets are often packed in e.g. a bag, box or the like, as this is the most suitable packing when an amount of small articles are to be gathered in a packing for delivery of the article. Articles that are packed in a box made of e.g. plastic or carton are often designed so that they may be opened or closed again without breaking the packing.

[0003] The plastic bags are typically made so that they have a bag part in which is a closed arrangement that may be opened and closed up to several times. These closing arrangements are typically made as a kind of snap fasteners/zip fasteners moulded in the plastic material of which the plastic bag is made. A snap fastener made of plastic provides that bags can be hermetically closed again after opening. Furthermore, these plastic bags often have a top part in which is embedded either a piece of cardboard where the data of the article are printed or on which is printed a label with the data of the article and in which is a hole for suspending on a stand so that the article may be displayed in the shops.

[0004] A disadvantage of these bags is that a snap fastener of the above mentioned kind is expensive and difficult to make.

[0005] There are other examples of reclosable bags without snap fastener. From e.g. US 5 908 243 and FR 2 097 616 there is thus known a bag where reclosing occurs by means of a strip of adhesive. The use of adhesive strips is also expensive, and the user has to rely on the reclosing ability of the adhesive. This ability may deteriorate by dirtying the adhesive.

[0006] It is therefore the purpose of the invention to provide a bag which is cheap and easy to produce and which repeatedly may be opened or closed completely or partly hermetically.

[0007] This is achieved by a bag according to the invention which is characterised in that the closing arrangement and the bag sides are provided from one piece of film, where a central part connecting the bag sides includes a number of edge lines and at least one weakening line, whereby a first folded part of the film piece forms a flap extending transversely of the bag sides and is overlaid one bag side, that the end edges of the flap are fastened to the bag side, and that the weakening line is disposed at a position between the bag side and the flap.

[0008] In the present description of the invention, the following expressions are defined:

- fastening line: a preferably narrow linear area for mutual securing of two or more film layers;
- edge line: a preferably straight line marking where the film piece is to be folded;
- weakening line: a preferably straight line where the film piece is weakened, e.g. by a perforation so that it is possible to open the bag.

[0009] The folded bag flap will include a double-layered material so that it is stronger than the bag itself, providing the flap to endure somewhat more than a flap of a single layer of material.

[0010] The weakening line disposed between the flap and one bag side of the bag is provided so that it is possible to break this weakening line for opening the bag and accessing the contents of the bag. This weakening line is typically disposed right at the transition between the flap and the bag side, which makes it easy to find and to break the weakening line. The weakening may be perforation.

[0011] In an alternative embodiment of the invention, this weakening line may be designed so that the film material is so weakened that it is only holding together during formation of the bag itself. This means that when the bag is formed, it is actually open immediately. Such a bag may be used for the items where it is not strictly required that the bag is hermetically closed; it could be e.g. screws and so on.

[0012] Such a bag is, however, unsuited for articles requiring hermetical closing, either because the articles are to be confined, or because one will ensure that articles are not taken out from the bag before sale. The flap formed by a folded part of the film piece will extend transversely of the bag side at the end where an opening for taking out articles is desired. Since the end edges of the flap are fastened to the bag side, a dispenser opening formed by breaking the weakening line may be reclosed when the flap is folded into contact with the bag side. This occurs without relying on the function of mechanical closing means such as adhesives and snap fasteners.

[0013] In a preferred embodiment, the bag according to the invention is rectangular, and the length of the flap corresponds to the width of the transition between the bag side and the flap, and the width of the flap extends beyond the weakening line. When the bag is rectangular, for production reasons it will be easy to make an endless film web where the piece of material is folded so that the flap goes down over the bag part, after which the sides are fastened. This process may be performed automatically in a fold-ing/welding machine adapted therefor.

[0014] In order that the flap is to be used as closing arrangement for the bag, it is to have a certain length beyond the weakening line. This extension beyond the perforation line provides that the flap, even when the weakening line is broken, forms a retainer for the articles in the bag when the bag is turned with the opening downwards. Thereby the flap secures against waste of items.

[0015] In an alternative embodiment of the invention,

the bag is peculiar in that the bag is rectangular, where the length of the flap corresponds to the width of the transition between the bag side and the flap, and that the width of the flap is extending beyond the weakening line, and that one or more fastening lines are provided on the flap, the fastening lines producing the width of the opening appearing by overlaying flaps at one bag side.

[0016] This design of the bag provides a pocket with reduced access to the bag, whereby the bag may be used for e.g. an automatic feeder or bird feeder by hanging it up with the flap part of the bag downwards, after which the weakening line is broken, and an animal may access the feed in the bowl formed by the pocket which is the free part of the flap.

[0017] In order to provide a hermetically closed bag, means for fastening the flap to the side of the bag are provided on the bag side and/or on the overlaid flap. These fastening means may be a peeling layer, possibly a hotmelt, which by compressing the flap against the bag side causes the bag to close. An alternative to such closing may be a glue line or a weak adhesive strip.

[0018] In an embodiment of the invention, the bag is designed so that the bag part and the flap are made in a material with a fastening line transversely of the bag separating the flap and the bag part, where the weakening line lies at the top edge of the front side of the bag part before the fastening line and the flap.

[0019] In an alternative embodiment, the part of the film piece forming the back side is continued past the first folded part and hereby forms a second folded part (top part) provided with at least one transverse fastening line to the bag side and/or the flap. At the top part is provided a hole so that one may suspend the bag on a stand for display in a shop. Furthermore, the top part may be used as the area on the bag where the properties of the article are described, as mentioned in the introduction.

[0020] This top part is a continuation of the back side of the bag after providing the transverse fastening line in double material. The fastening line separating the top part from the bag part is furthermore used for separating the top part from the flap, thereby enabling the edge line, which is between the bag part and the flap, to be used as weakening line.

[0021] In order to provide a bag which is cheap in production and includes a readily opening and closing arrangement, the film piece for the bag is made of a plastic material. This makes is very easy to design a bag and to fold the flap down and possibly provide an outer folded part for a top part.

[0022] As alternative to the plastic material, the bag may be made of e.g. a fabric or of a paper material. By making the bag of fabric or paper material it is to be prepared or to have a film laid in order to be air tight/water tight.

[0023] In general to be able to assemble a bag from a film piece, fastening of the bag side and the flap is to be effected, where the means for fastening the bag side, the edges of the flap and the top part is/are welding, bonding and/or sewing. In the preferred embodiment of the invention, the bag is made of a plastic material, and advantageously there may be used a heat welding of the side edge and the flap edges and the fastening lines. With a bag med of paper of fabric, gluing and/or sewing may be used with advantage.

[0024] In order to make a bag of one piece of material, and simultaneously easily and comfortably making a large number of bags, the film piece is a section of an endless film web which is provided with a number of edge lines and at least one weakening line, either before or during formation of a number of bags. These edge lines and weakening lines are typically applied to the film piece before it is rolled up into an endless film web. Rolling up to an endless film web is to occur either before the film piece is folded for forming a flap or during formation of the flap.

[0025] In order to provide a bag fulfilling the purpose of the invention, the bag is made according to the following process steps:

a) an endless film piece is provided with a number of edge lines and at least one weakening line,
b) the film piece is provided with at least one transverse fastening line that separates the flap and the bag sides,
c) the film piece is folded along the edge lines, and the bag sides are mutually fastened so that a bag with an opening and a flap is formed, where the end edges of the flap are fastened to a bag side, and where the weakening line is disposed at a position between the bag side and the flap,
d) the bag is filled with the desired items or material, and the bag opening is closed,
e) the closed bag is cut off the endless film web.

[0026] This method is suited for making a bag with a bag section and a flap. Alternatively, the film piece without edge lines may be inserted into an apparatus for making bags, where the apparatus may take an endless film piece and insert it into a folding arrangement where the flap is folded.

[0027] In most cases, the bag will be filled with the desired articles or materials in the lowermost part of the bag, i.e. the edge part opposite the edge part provided with the flap. Experiments have shown that this is the most suitable method if the bags are made in an apparatus continuously producing bags from an endless film web, where bags are disposed side by side.

[0028] Alternatively, the bags may be filled through the sides, i.e. down along one of the edge sides. This method may be used if the bags are made in a machine producing the bags in a vertical flow of and endless film web.

[0029] In the embodiment where the bag has a top part, the method for making the bag will cause that the

film piece after process step c) is folded after preceding indication, and the bag sides are mutually fastened. Thereby is formed a bag with an opening and a flap, where the end edges of the flap are fastened to a bag side and a top part which is a separate extension of the back side of the bag.

[0030] The invention is explained in detail in the following with reference to drawings, where:

Fig. 1 shows a perspective view of a bag with an overlaid flap according to the invention,
Fig. 2 shows a perspective view of a bag with a top part according to the invention,
Fig. 3 shows an endless film web for making a bag as shown in Fig. 1,
Fig. 4 shows an endless film web for making a bag as shown in Fig. 2,
Fig. 5 shows a side view of a bag as in Fig. 1,
Fig. 6 shows a side view of a bag as in Fig. 2,
Fig. 7 shows a film piece for a single bag as shown in Fig. 1,
Fig. 8 shows a film piece for making bags as shown in Fig. 1, and
Fig. 9 shows an alternative embodiment of the bag according to the invention.

[0031] Fig. 1 shows a bag 1 having a bag part 2 and a flap 3, where the bag part 2 is separated from the flap 3 with a welded fastening line 4. The front side 5 and the back side 6 of the bag part 2 (see Fig. 3) are fastened to each other by means of the weldings 7. The bag 1 is not finished in the shown Figure, since the welded end edges 8 of the flap 3 are not yet fastened to the edges of the front side 5. When this has been done, and material has been filled into the bag, the front side 5 of the bag and the back side of the bag (not shown) will be closed with a bottom welding 9.

[0032] Fig. 2 shows a bag 10 including a bag part 2 with a flap 3 and a top part 11. As shown, the front side 5 and the back side 6 of the bag 2 (see Fig. 4) are welded together at the edges with weldings 7 and at the bottom with weldings 9, and the flap, the top part and the bag are each connected with the welding 4. On the top part 11 is provided a hole 12 for suspending the bag on a stand. The bag is not finished here either, as the edges 8 of the flap 3 are not fastened to the side edges of the bag 10.

[0033] Fig. 3 shows a detail of an endless film web for making a bag as shown in Fig. 1. It is seen that the bag is made of a film material where a part of the film piece forms the front side 5 that continues into the flap 3, which is of double-layered material, which then continues down into the part of the film piece forming the back side. Between the flap 3 and the front and back sides 5 and 6 there is provided a welding 4 separating the flap 3 and the bag part 2. In the bag part, at the front side and before the welding 4 there is provided a perforation line 21 which can be seen in the bend. There is provided a welding 7 transversely of the endless film web. When the bag has been cut off the endless film web, this weld 7 constitutes the side weldings of the bag.

[0034] Fig. 4 shows how the bag shown in Fig. 2 is made from a endless web 30. Here, it may be seen again how the bag is made of one film piece, where a part of the film piece is constituting the front side 5 continuing into the flap 3, which in turn continues into the top part 11 that is a logical extension of the back side 6, where the welding 4 is separating the top part and the flap and the bag part. Under the flap 3 there is provided a perforation line 21. In this the fastening line 7 and 8, which run transversely of the endless web, will constitute the side edges of a bag 2 when this has been cut off the endless web.

[0035] Figs. 5 and 6 show the bags depicted in Figs. 1 and 2, respectively, in a side view.

[0036] On Fig. 5 is seen how the bag has a front side 5 and a back side 6 which at the bottom is closed with a welding 9 and at the top is closed with a welding 4 separating the bag part 2 from the flap 3, where a perforation line 21 is disposed at the top of the bag part 2 before the welding 4.

[0037] Fig. 6 shows how the bag depicted in Fig. 2 is made with a front side 5 and a back side 6 that is closed at the bottom with a welding 9, where a top part 11 is provided in continuation of the back side 6 and separate from flap and bag part 2 by means of a welding 4. Between the flap and at the front side of the bag part, a perforation line 21 has been disposed at the top of the front side 5 of the bag part 2.

[0038] Fig. 7 shows a film piece for making a bag as shown in Fig. 1. The film piece 40 is part of an endless film web. The film piece is intended for making a rectangular bag where a first part of the film piece is used for making the front side 5, where a central part of the film piece is used for making the folded part 3 (the flap) and where the last part of the film piece is used for making the back side 6, where a number of edge lines 41 and at least one perforation line 21 have been provided transversely of the film piece.

[0039] Fig. 8 shows a film piece 31 which is used for making a bag according to the invention as shown in Fig. 2, where the lowermost part of the film piece is used for the front side 5 and where the central part 3 is used for making the flap, and where a second central part 11 constitutes the front side on the op part, which is folded at the edge line 41 so that a part of the back side 6 constitutes the back side of the top part 11. A perforation line 21 has been provided as separation between the front side 5 and the central part 3.

[0040] Figure 9 shows a bag 50 having a bag part 2, flap 3 an a top part 11. The difference between the bag 50 and the bag 10 (shown in Fig. 2) is that on the flap 3 there is laid two weldings 51 together centrally forming a pocket 52 having a dimension less than the width of the bag 50. Close to the bottom 52 there is provided a weakening line 5, either in the pocket 52 or the front side

5.

[0041] The invention is not limited to the above described embodiments shown in the Figures. Other embodiments containing other embodiments of the shape of the bag part, the shape of the flap and shapes of weldings are conceivable with the scope of the invention and the features specified in the claims.

Claims

1. Bag, including an overlaid front side and back side, and a reclosable closing arrangement provided at the bag opening, **characterised in that** the closing arrangement and the bag sides are provided from one piece of film, where a central part connecting the bag sides includes a number of edge lines and at least one weakening line, whereby a first folded part of the film piece forms a flap extending transversely of the bag sides and is overlaid one bag side, that the end edges of the flap are fastened to the bag side, and that the weakening line is disposed at a position between the bag side and the flap.

2. Bag according to claim 1, **characterised in that** the bag is rectangular, where the length of the flap corresponds to the width of the transition between the bag side and the flap, and that the width of the flap is extending beyond the weakening line.

3. Bag according to claim 1, **characterised in that** the bag is rectangular, where the length of the flap corresponds to the width of the transition between the bag side and the flap, and that the width of the flap is extending beyond the weakening line, and that one or more fastening lines are provided on the flap, the fastening lines delimiting the width of the opening appearing by overlaying the flap at one bag side.

4. Bag according to any of claims 1 - 2, **characterised in that** means of fastening the flap to the bag side are provided at the bag side and/or the overlaid flap.

5. Bag according to any of claims 1 - 4, **characterised in that** the part of the film piece forming the back side is continued past the first folded part and forms a second folded part (top part) which is provided with at least one transverse fastening line for the bag side and/or the flap.

6. Bag according to any preceding claim, **characterised in that** the means for fastening the bag sides, the flap edges and the top part may be welding, bonding and/or sewing.

7. Bag according to any preceding claim, **characterised in that** the film piece of the bag is of a plastic material.

8. Film piece for making a bag according to any preceding claim, **characterised in that** the film piece is a section of an endless film web which is provided with a number of edge lines and at least one weakening line, either before or during formation of a number of bags.

9. Method for making a bag according to claim 1 from a film piece according to claim 8, **characterised in that** the bag is made according to the following process steps:

   a) an endless film piece is provided with a number of edge lines and at least one weakening line,
   b) the film piece is provided with at least one transverse fastening line that separates the flap and the bag sides,
   c) the film piece is folded along the edge lines, and the bag sides are mutually fastened so that a bag with an opening and a flap is formed, where the end edges of the flap are fastened to a bag side, and where the weakening line is disposed at a position between the bag side and the flap,
   d) the bag is filled with the desired items or material, and the bag opening is closed,
   e) the closed bag is cut off the endless film web.

10. Method for making a bag according to claim 4 from a film piece according to claim 8, **characterised in that** the film piece in process step c) is folded along the edge lines, and the bag sides are mutually fastened so that a bag with an opening and a flap is formed, where the end edges of the flap are fastened to a bag side, and a top part, which is a separate extension of the back side of the bag, is formed.

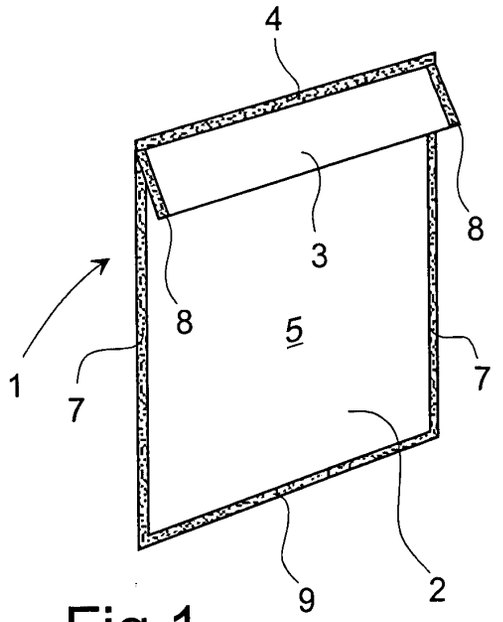

Fig.1

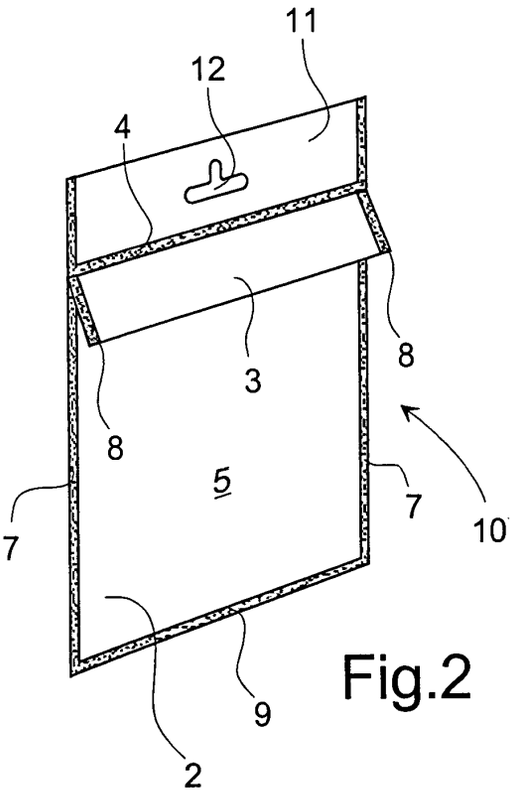

Fig.2

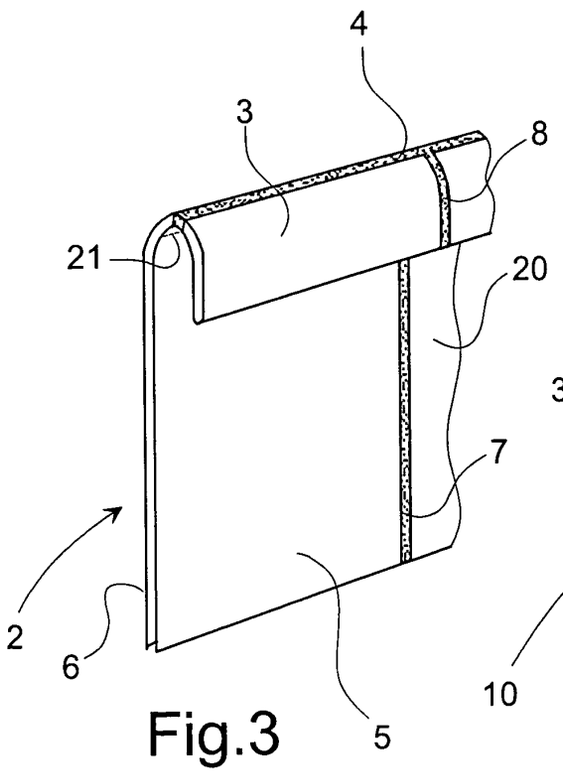

Fig.3

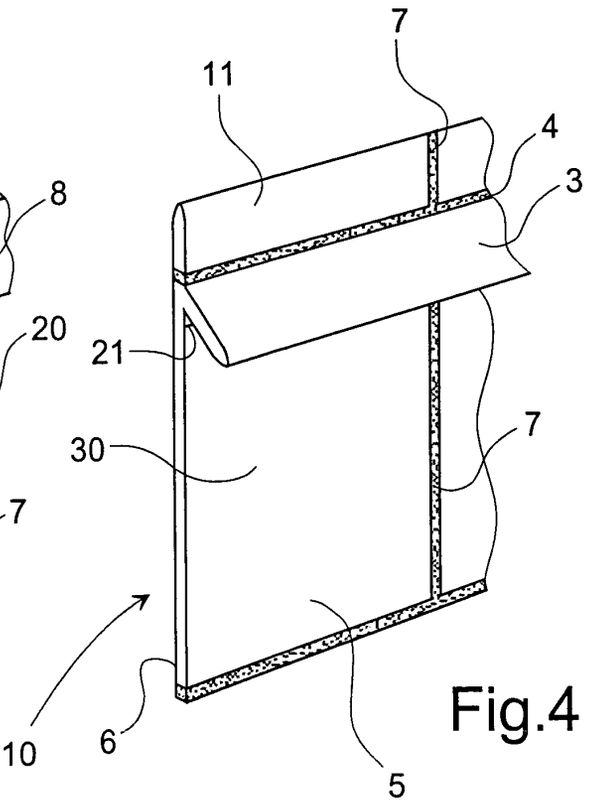

Fig.4

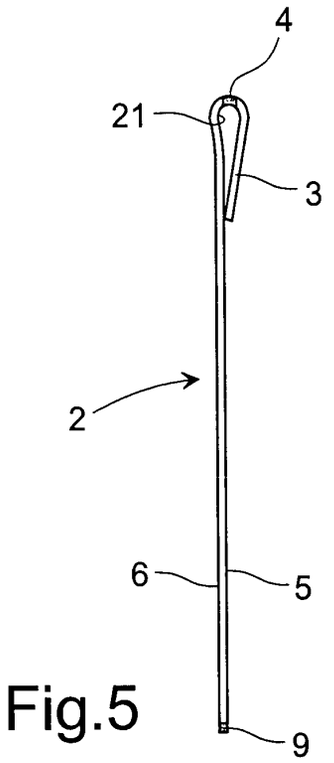

Fig.5

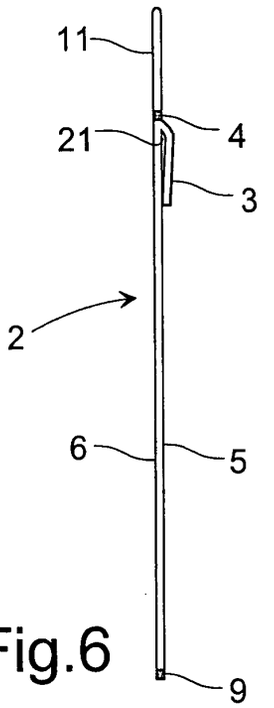

Fig.6

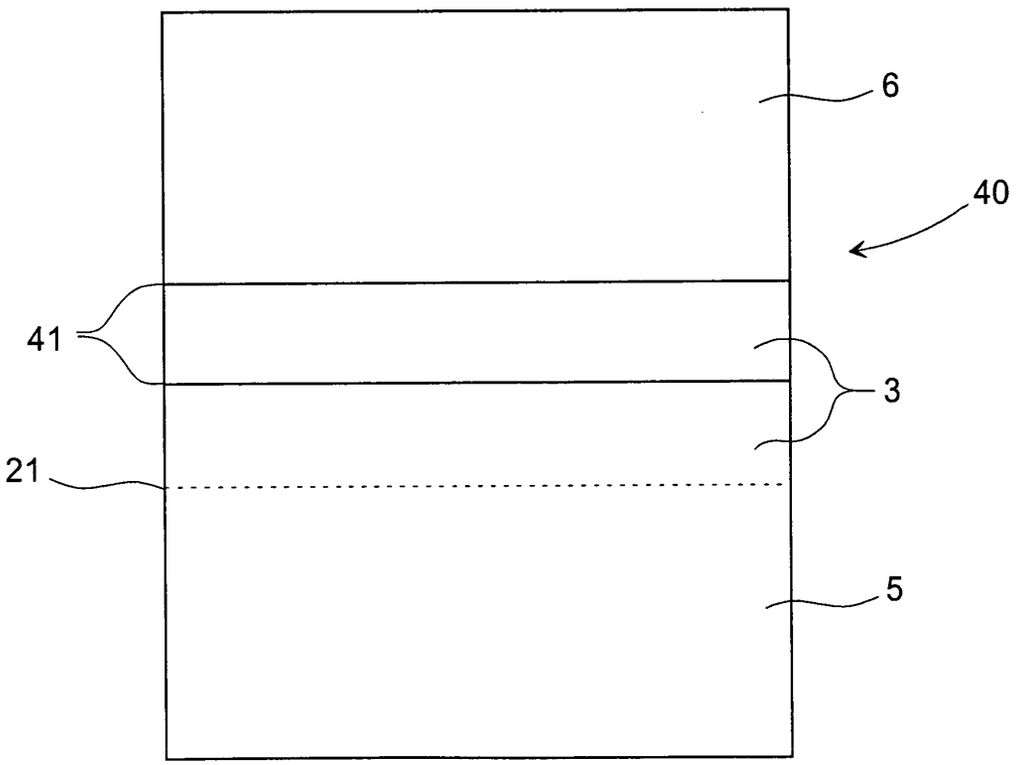

Fig.7

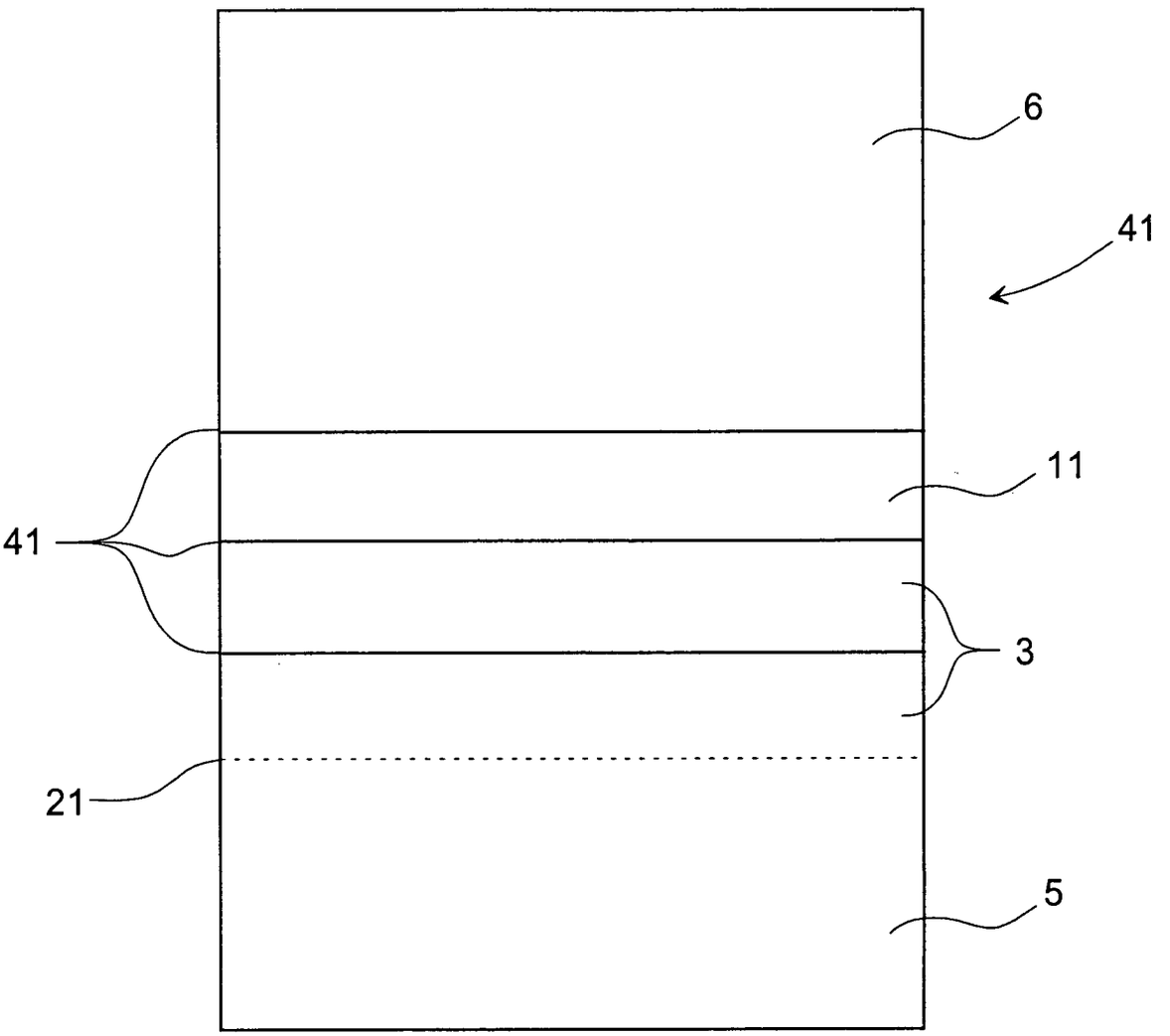

Fig.8

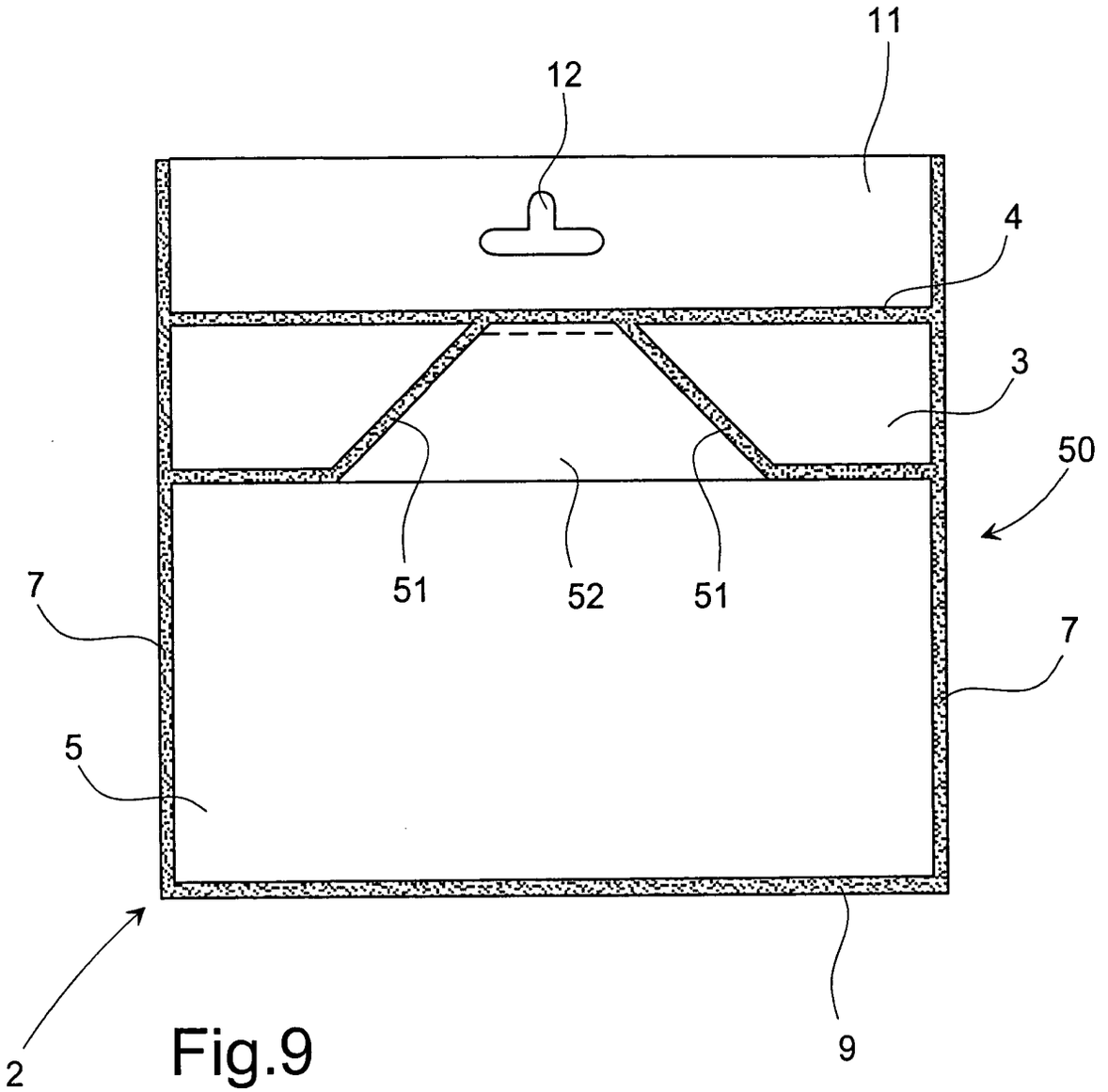

Fig.9