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(72) Inventor: **Rutten, Mechteld Geertruida Maria
5211 VS 's-Hertogenbosch (NL)**

(74) Representative: **Louet Feisser, Arnold et al
Arnold & Siedsma,
Sweelinckplein 1
2517 GK Den Haag (NL)**

(71) Applicant: **Mars B.V.
5466 AE Veghel (NL)**

(54) **Packaging bag with easy-open seal**

(57) A package of a flexible material which has been formed into an envelope (1), which package comprises an access opening, which is closed by means of a seal (4) which has been formed by bonding together two or more contacting layers of the material in a particular ar-

ea. The package can be opened by pulling apart two bonded-together layers of material in said area. To that end the flexible material is provided with an engagement (7) portion and the portion of the seal (4) area that is positioned closest to said engagement portion (7) has a convex edge.

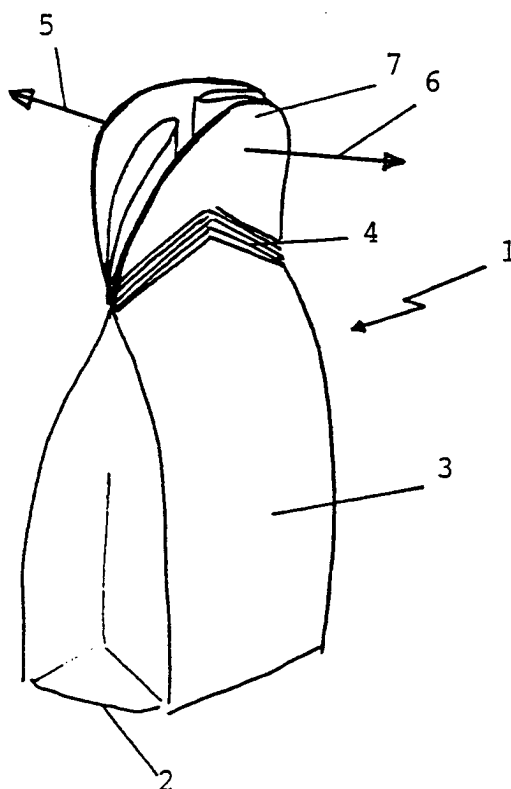


FIG. 3

Description

[0001] The invention relates to a package of a flexible material which has been formed into an envelope, which package comprises an access opening, which is closed by means of a seal which has been formed by bonding together two or more contacting layers of the material in a particular area, which package can be opened by pulling apart two bonded layers of material in said area, to which end the flexible material is provided with an engagement portion. The package usually consists of one or more layers of paper and/or plastic material, which form a container which is sealed at least at one end thereof for the purpose of being opened at that end. The seal has been formed by bonding together areas of the flexible material by heating said areas and/or interpolating an adhesive, so that an airtight seal is obtained. Usually, such a seal forms a straight, elongated strip.

[0002] A package of this kind may be used for packaging sweets or candy bars, for example. The package must be easy to open, for example by pulling loose the seal, with the package functioning as a container for the sweets after being opened, from which the sweets can be removed by the user.

[0003] The drawback of the known package is that a great deal of force must be exerted for pulling apart the bonded layers of material, and that uncontrolled movements resulting from said great exertion of force may lead to the contents falling out of the package, or that the package, once it has been opened, is no longer suitable for use as a container, for example because it is torn.

[0004] The objective of the invention is to provide a package which is easy to open with less force, and/or wherein the bonded layers can be pulled apart in a controlled manner.

[0005] In order to accomplish that objective, the portion of the seal area that is positioned closest to the engagement portion has a convex edge. As a result of this, the layers of material will first be pulled apart in a small part of the seal area when the seal is pulled loose, which requires relatively little force. Once said pulling loose has commenced, it can be continued in a larger part of the aforesaid area. Generally, the engagement portion can be recognized by the shape of and/or the print on the package.

[0006] In one embodiment, said convex edge comprises two substantially straight edge portions, which include an angle with each other. Preferably, said edge portions bound a V-shaped area. As a result of this arrangement, opening of the seal will commence in the point of the V-shape, using a minimum pulling force, and will then continue in the legs of the V-shape. In another embodiment, the convex edge is substantially curved. The remaining portion of the seal may extend in the form of a straight strip.

[0007] In one embodiment, said area has substantially the same width along its length, as a result of which

the force required for opening the package will remain constant during said opening, which helps to have said opening take place in a controlled manner. In another embodiment, said area is wider near the edges of the access opening than near the engagement portion. This reduces the risk of the package being torn beyond the edges of the access opening upon being opened.

[0008] Preferably, the seal is substantially in the form of a stripe, in particular a V-stripe, also called a chevron.

[0009] As a result of this, the access opening extends over a limited area, which makes the package especially suitable for use as a bag-like container after opening.

[0010] The flexible material may extend beyond said area, seen from the packaged product, and said engagement portion is thereby positioned in said further extending material. This makes for easy opening of the package, since it will be immediately apparent to the user that he must pull at the "flaps" thus formed, which can easily be moved apart. Preferably, the flaps are made up of a continuous strip, which extends beyond the seal, thus reducing the risk of the package being torn beyond the access opening.

[0011] In another embodiment, said engagement portion is positioned in the part of the package which is intended for enveloping the packaged product. This makes it possible to realise a seal while using a minimum amount of flexible material. Sufficient flexible material must be present at the location of the engagement portion, however, in order to enable the user to take hold of it with his fingers.

[0012] Preferably, the package substantially consists of one piece of flexible material. Thus, a package which is easy to produce and which provides a strong container after opening is obtained.

[0013] The invention also relates to a method for producing a package of a flexible material, wherein two or more contacting layers of the material are bonded together in a particular area, in such a manner that the package can be opened by pulling apart two bonded layers of material in said area by engaging said flexible material at the location of an engagement portion, wherein the part of the area located closest to said engagement portion is provided with a convex edge.

[0014] The invention also relates to a method for packaging a product, wherein the product is enveloped with a flexible material, wherein two or more contacting layers of the material are bonded together in a particular area, in such a manner that the package can be opened by pulling apart two bonded layers of material in said area by engaging said flexible material at the location of an engagement portion, wherein the part of the area located closest to said engagement portion is provided with a convex edge.

[0015] Furthermore, the invention relates to a method for opening a package of a flexible material, which package is closed by means of a seal which has been formed by bonding together two or more contacting layers of the material in a particular area, wherein the bonded mate-

rial is pulled loose, starting at a portion of the area where the edge of said area has a convex shape.

[0016] Hereafter a number of embodiments of a package will be described by way of illustration, wherein reference is made to the drawing, in which:

Figure 1 is a perspective view of a package according to prior art;

Figure 2 is a side view of the package according to Figure 1;

Figure 3 is a perspective view of a package according to the invention;

Figure 4 is a perspective view of an embodiment; and

Figures 5 - 10 are front views of embodiments.

[0017] The drawings are essentially schematic representations, wherein like parts are indicated by the same numerals.

[0018] Figure 1 is a perspective view of a package which contains sweets or candy bars, which are packaged in an airtight manner therein. Figure 2 shows the same container in side view. The package consists of container 1 of plastic foil, comprising a bottom 2, four upright walls 3 and a seal 4. Seal 4 is formed by folding the upright walls 3 at their upper ends after the container has been filled with the product to be packaged, in such a manner that the ends will be in contact with each other along a straight strip, and subsequently heating the strip and/or interpolating an adhesive, after which the wall ends are bonded together by compression. Usually, seal 4 consists of four layers of material on the sides as the result of this manner of bonding, whilst it consists of two layers in its central portion.

[0019] The package can be opened by taking hold of it with the fingers near arrows 5, 6 and pulling in the direction of arrows 5, 6. If said pulling takes place with sufficient force, this seal will tear loose, thus opening the package.

[0020] Figure 3 and Figure 4 show in perspective view a package according to the invention. The area of seal 4 thereby has a convex V-shape, seen from the engagement portion, so that if the package is opened in accordance with that which has been discussed with regard to the package according to Figures 1 and 2, seal 4 will come loose whilst only a small force is exerted, starting in the point of the V-shape on the upper side of seal 4, and continuing from there to the bottom of the point. Following that, said opening is continued in a controlled manner towards the ends of seal 4.

[0021] In these embodiments, the layers of flexible material extend beyond seal 4, thus forming "flaps" 7. Said "flaps" 7 function as an engagement area for opening the package, which is done by engaging the "flaps" 7 with the fingers and pulling in the direction of arrows 5, 6. It will be apparent that a relatively large force is required thereby, because a long edge of the seal is pulled loose along its entire length in one go. In the var-

iant shown in Figure 4, said flaps are made up of a continuous strip, which extends beyond the seal.

[0022] Figure 5 is a side view of an embodiment comprising a V-shaped seal without "flaps" 7. Figure 6 shows another embodiment of a package, wherein seal 4 is made up of a substantially straight strip, and wherein an arched or curved seal portion is provided in the central part, which functions as a starting point for opening the package.

[0023] Figures 7, 8, 9 and 10 show further embodiments of a package, now provided with "flaps" 7. Furthermore, various possible embodiments of a seal are shown by way of illustration, wherein the edges of the seal area comprise arched or curved portions and straight edge portions, which include an angle with each other. As is shown in Figure 10, it is possible to combine straight edge portions and curved edge portions. The seal forms which are shown in Figures 7 - 10 are similar in that they are all convex, as a result of which opening will commence at the point located closest to the engagement portion, after which said opening will continue in a controlled manner towards the ends of the seal area. It is also possible to use these seal forms in the embodiments which do not comprise "flaps", as shown in Figures 5 and 6.

[0024] The above-described embodiments are to be considered examples of a package according to the invention.

Claims

1. A package of a flexible material which has been formed into an envelope (1), which package comprises an access opening, which is closed by means of a seal (4) which has been formed by bonding together two or more contacting layers of the material in a particular area, which package can be opened by pulling apart two bonded-together layers of material in said area, to which end the flexible material is provided with an engagement portion (7), characterized in that the portion of the seal (4) area that is positioned closest to said engagement portion (7) has a convex edge.
2. A package according to claim 1, characterised in that said convex edge comprises two substantially straight edge portions, which include an angle with each other.
3. A package according to any one of the preceding claims, characterised in that said convex edge is substantially curved
4. A package according to any one of the preceding claims, characterised in that said area has substantially the same width along its length.

5. A package according to any one of the preceding claims, characterised in that the width of said area near the engagement portion (7) is smaller than near the edges of said access opening. 5
6. A package according to any one of the preceding claims, characterised in that said seal (4) is substantially in the form of a stripe.
7. A package according to claim 6, characterised in that said seal (4) is substantially in the form of a V-stripe. 10
8. A package according to anyone of the preceding claims, characterised in that said flexible material extends beyond said area, seen from the packaged product, and said engagement portion (7) is thereby positioned in said further extending material. 15
9. A package in according to anyone of the claims 1 - 7, characterised in that said engagement portion is positioned in the part of the package which is intended for enveloping the packaged product. 20
10. A package according to anyone of the preceding claims, characterised in that said package substantially consists of one piece of flexible material. 25
11. A method for producing a package of a flexible material, wherein two or more contacting layers of the material are bonded together in a particular area, in such a manner that the package can be opened by pulling apart two bonded layers of material in said area by engaging said flexible material at the location of an engagement portion (7), wherein the part of the area located closest to said engagement portion (7) is provided with a convex edge. 30 35
12. A method for packaging a product, wherein the product is enveloped with a flexible material, wherein two or more contacting layers of the material are bonded together in a particular area, in such a manner that the package can be opened by pulling apart two bonded layers of material in said area by engaging said flexible material at the location of an engagement portion (7), wherein the part of the area located closest to said engagement portion (7) is provided with a convex edge. 40 45
13. A method for opening a package of a flexible material, which package is closed by means of a seal (4) which has been formed by bonding together two or more contacting layers of the material in a particular area, wherein the bonded material is pulled loose, starting at a portion of the area where the edge of said area has a convex shape. 50 55

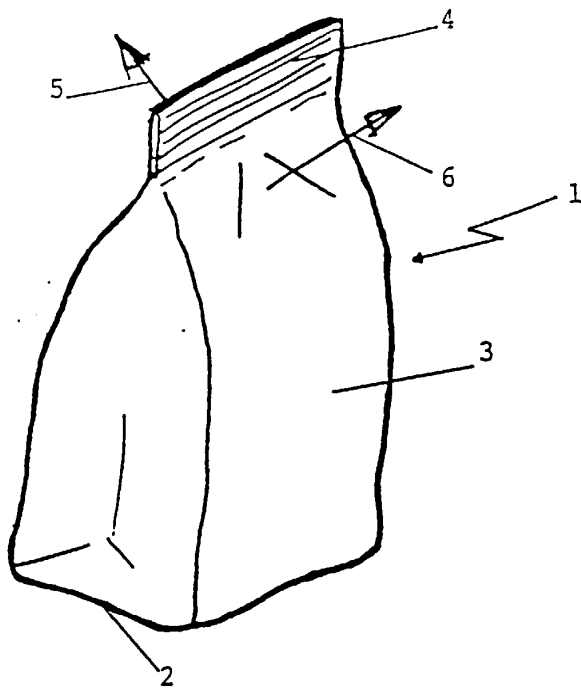


FIG. 1

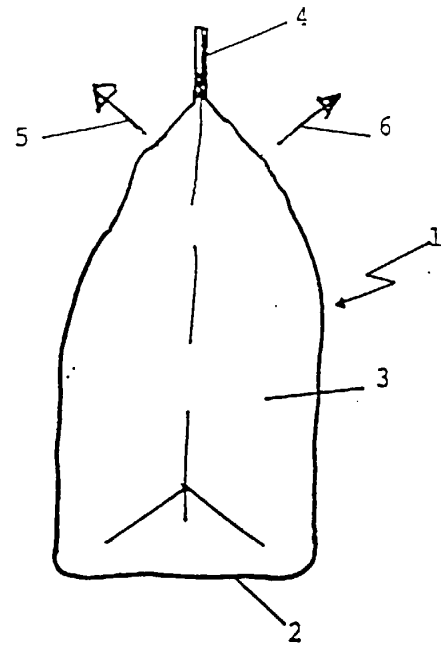


FIG. 2

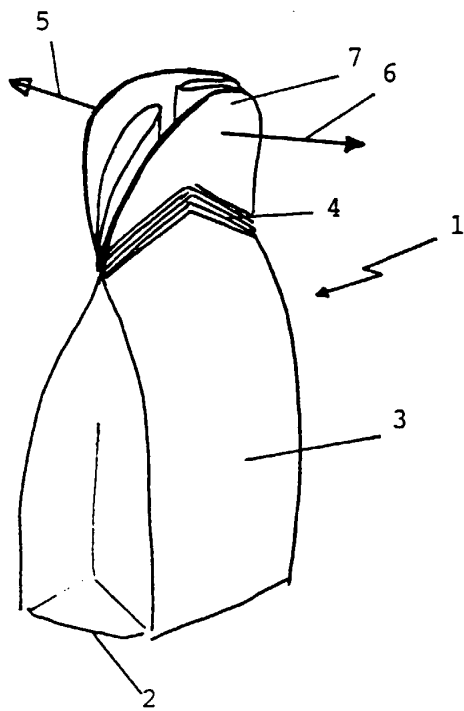


FIG. 3

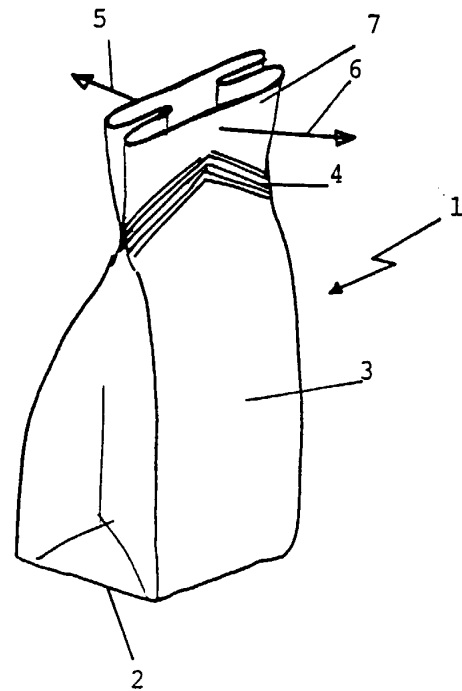


FIG. 4

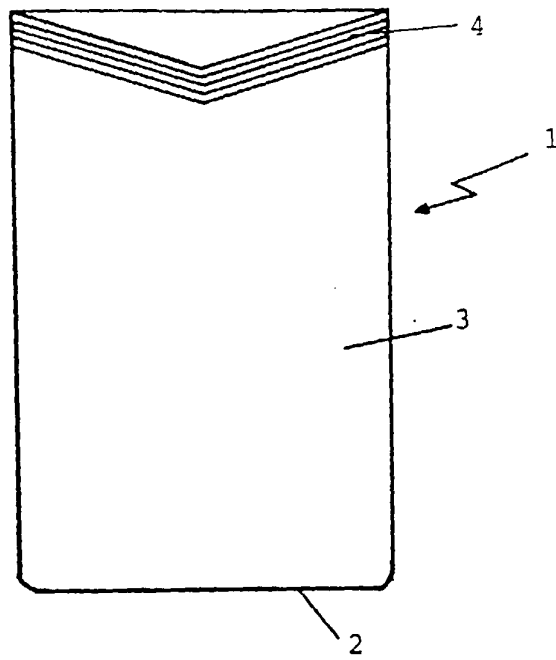


FIG. 5

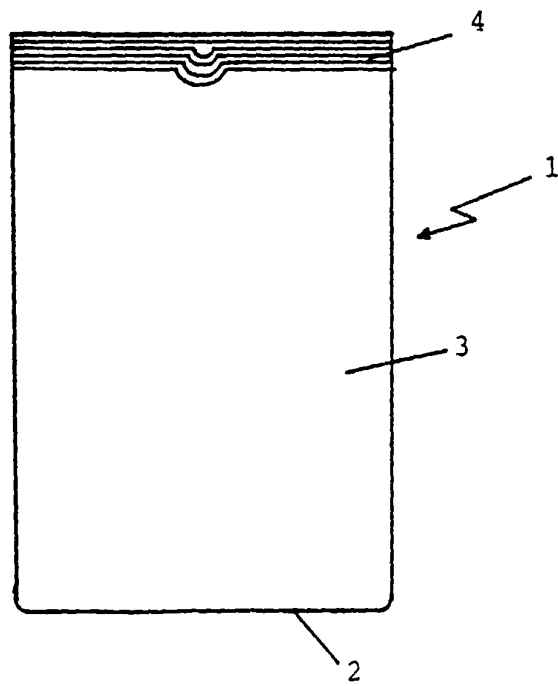


FIG. 6

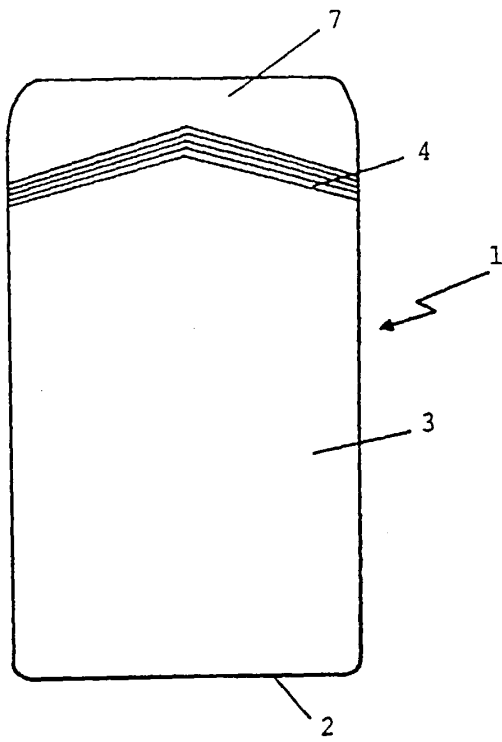


FIG. 7

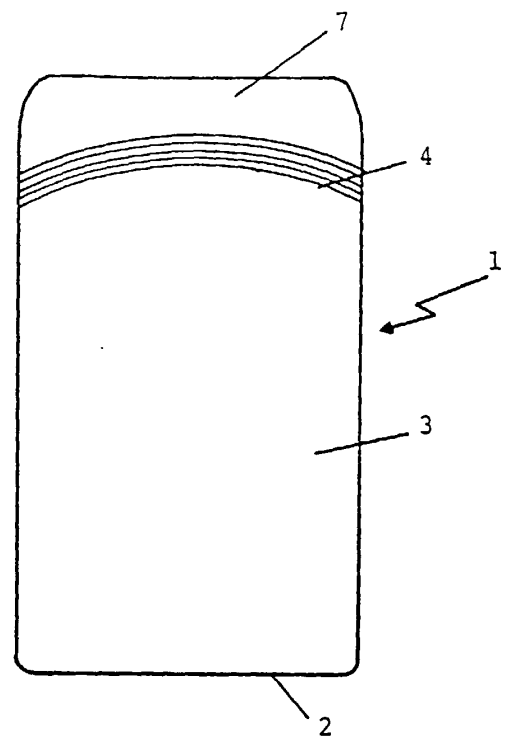


FIG. 8

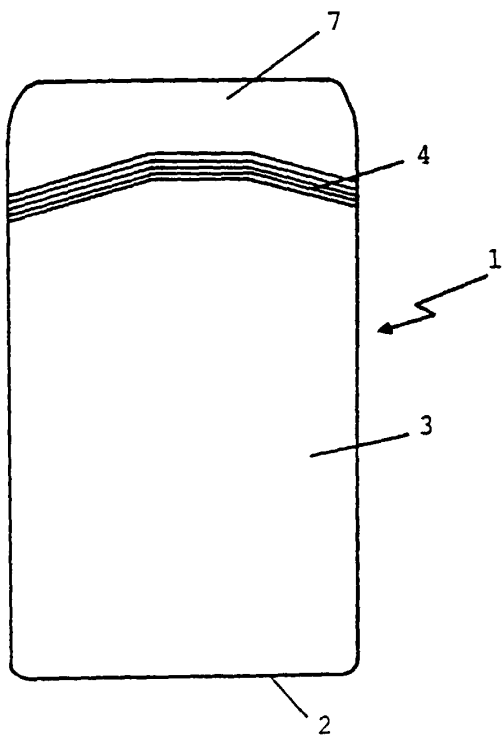


FIG. 9

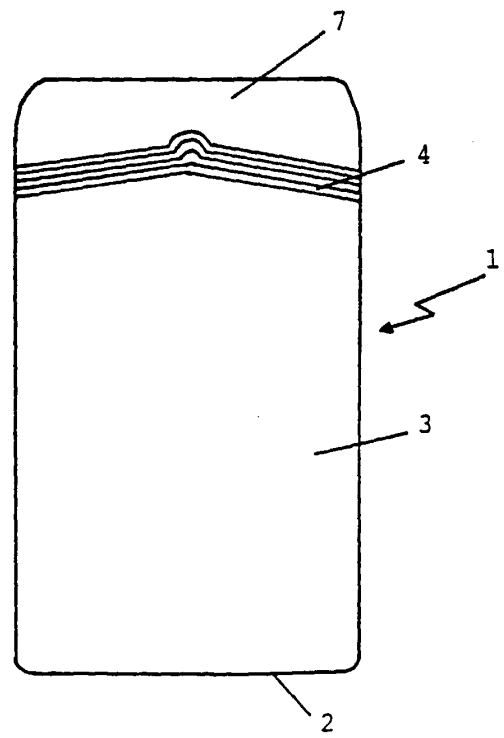


FIG. 10



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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 0859

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION
X	EP 0 343 629 A (HAG GF) 29 November 1989 (1989-11-29) * column 3, line 50 - column 4, line 41; figures * ---	1-4,6-13	B65D75/58
X	GB 620 354 A (SALFISBERG) * page 3, line 8 - line 55; figures 1,5 * ---	1-8, 11-13	
X	US 4 176 746 A (K00I) 4 December 1979 (1979-12-04) * column 5, line 7 - line 36; figures 3,4 * -----	1	
			TECHNICAL FIELDS SEARCHED
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 5 August 1999	Examiner Newell, P
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 99 20 0859

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05-08-1999

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