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(54) **Method for bundling subpackages together, packages thereby obtained, and use thereof**

(57) The invention relates to a package (1) comprising a number of subpackages (2), which are held together by respective edge parts between two sheet-shaped connecting elements (15A, 15B). These connecting elements (15A, 15B) are locally attached against each other, at the location of through bores (10) provided in the edge parts. The subpackages (2) can each be formed from two sheets (3,5) of film material, which are attached against

each other around a product (4) included therebetween. The sheets of film material (3,5) can be built up from different layers, with different material properties. Such a package (1) can be advantageously used for presenting consumers with foods in individually packaged consumer portions.

The invention further relates to a method for realizing such a package.

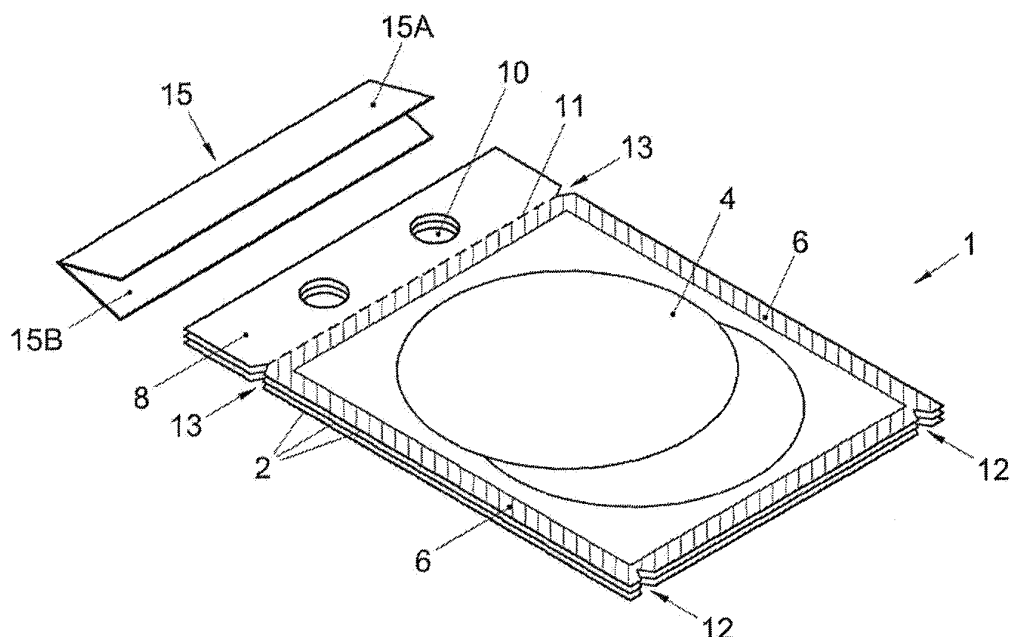


Fig. 3

Description

[0001] The invention relates to a package, comprising a number of subpackages which are held together by respective edge parts.

[0002] Such packages are known. They are for instance used for presenting products, such as foods, in a portioned manner, while each subpackage comprises a particular amount, for instance a single portion, of the respective product. In this manner, a user can each time commence an amount suitable to him, and the other subpackages can remain closed, resulting in that the products included therein can be preserved longer and/or better.

[0003] The subpackages of the known packages can be held together in different manners. It is known, for instance, to staple, glue or seal the edge parts of the respective subpackages together. Each of these connecting techniques has drawbacks. For instance, the edge parts can tear due to the cutting action of the staples and, as a result, come loose prematurely. The use of glue is cumbersome because between each successive edge part, a glue layer is to be applied. Sealing requires the edge parts to be manufactured from sealable material, which considerably limits the choice of packaging material. Furthermore, sealable material is often thicker and/or less transparent which can lead to a less attractive packaging appearance. In addition, sealable material can cause problems when being processed on a packaging machine, for instance a deep drawing machine, in that the sealing knives become rapidly contaminated.

[0004] The object of the invention is to provide a package wherein the subpackages are held together without the above-mentioned drawbacks of the known packages.

[0005] To that end, a package according to the invention is characterized in that edge parts of the respective subpackages are held together between two sheet-shaped connecting elements that are attached against each other at the location of through bores provided in the edge parts. This local attachment can be done by, for instance, glue, while only once, an amount of glue needs to be applied against one or both of the connecting elements. Alternatively, the connecting elements can be locally sealed against each other, while a seal connection is formed through the through bores. To that end, in principle, only one of the connecting elements needs to have a sealable surface. The edge parts that are held together need not be sealable. As the glue and seal connections furthermore have a much larger and less sharp circumferential edge than staples, the risk of the edge parts tearing will be nil, at least be negligible.

[0006] According to an embodiment of a package according to the invention, the subpackages can be formed from two sheets of film material, which are attached against each other around a product placed therebetween. At least one of these sheets of film material can be lengthened in order to form an edge part. As stated, the film material needs not be sealable. Suitable materi-

als are, for instance, paper, plastic, metal or a combination thereof.

[0007] In further elaboration, the sheets of film material can be built up from several layers, with different properties. This offers the possibility of having the film material meet various requirements. An inner layer can, for instance, be manufactured from sealable material so that the sheets of film material can be sealed against each other by these sides. Another layer can be manufactured from, for instance, a relatively strong material, in order to give the film material the required mechanical strength. Still another layer can be manufactured from a material with desired barrier properties, in order to maintain, for instance, a favourable atmosphere within the subpackage or to protect the package contents against harmful substances from outside.

[0008] According to a favourable aspect of the invention, the subpackages are at least partly transparent, so that the content is visible. The subpackages can further be arranged and/or dimensioned such that they overlap only partly. As a result, all subpackages are at least partly visible.

[0009] According to a further advantageous aspect of the invention, the sheet-shaped connecting elements are manufactured from paper or cardboard. Such material is robust and can simply be printed with, for instance, product information or a brand. As a result, the connecting elements can also function as information label and/or suspension label. If desired, an inside of the paper or cardboard can be coated with a sealable layer, so that the elements can be attached against each other through sealing.

[0010] According to a still further advantageous aspect of the invention, the subpackages can be provided with first breaking means for separating the subpackages from their respective edge parts. Further, second breaking means can be provided for opening the subpackages. In a particular embodiment, the first and second breaking means can coincide, so that the subpackages are automatically opened upon separation.

[0011] The invention further relates to a method for bundling together subpackages formed from film material, wherein edge parts of these subpackages are provided with through-bores and are included between two sheet-shaped connecting elements, whereupon these connecting elements are attached against each other at the location of the through bores. Thus, subpackages can be interconnected in a simple manner.

[0012] In the further subclaims, further advantageous embodiments of a package and method according to the invention are described. In clarification of the invention, hereinafter, exemplary embodiments of a package according to the invention, and a method for realizing this are further elucidated on the basis of the drawing. In the drawing:

Fig. 1 shows, in top plan view, an embodiment of a subpackage;

Fig. 2 shows, in cross section, the multilayered structure of a sheet of film material from which a subpackage according to Fig. 1 can be formed;

Fig. 3 shows, in perspective view, a number of subpackages and a connecting element, between which edge parts of the subpackages can be held together in a manner according to the invention; and

Fig. 4 shows a cross section through the connecting elements and edge parts held together therebetween.

[0013] Fig. 1 shows a possible embodiment of a subpackage 2, which can be bundled, together with other subpackages, for forming a package 1 according to the invention. The subpackage 2 shown is built up from two sheets of film material, i.e. a bottom sheet 3 and a top sheet 5. These sheets of film material 3, 5 are attached against each other, around a product 4 placed therebetween, for instance slices of cheese or sausage, by means of a connecting seam 6 closed upon itself. This connecting seam 6 can for instance be formed through gluing, sealing or interlocking clamping profiles.

[0014] At least one of the sheets of film material 3, 5 is lengthened beyond the connecting seam 6 and thus forms an edge part 8. This edge part 8 is provided with one or more openings 10. The edge part 8 is connected by means of first breaking means 11 to the respective sheet 3, 5, so that through breaking, the edge part 8 can be separated therefrom. The first breaking means 11 can for instance comprise a perforation line, as shown, or a different type of weakening line. At the beginning and/or the end of the line, a notch 13 can be provided for simplifying the initiation of the breaking.

[0015] Further, second breaking means 12 are provided, while breaking these allows opening of the subpackage 2. These second breaking means 12 can comprise, for instance, a serrated edge, as shown in Fig. 1, or one or more notches in an edge of the subpackage 2 as shown in Fig. 3. As a result, the film material 3, 5 can be torn open in a simple manner. Alternatively, parts of the sheets of film material 3, 5 located beyond the connecting seam 6 can be designed as pull lips (not shown) while engagement thereof allows pulling the sheets of film material 3, 5, apart while breaking the connecting seam 6. The second breaking means 12 can also comprise a weakening line, such as a perforation line. If desired, the first and second breaking means 11, 12 can coincide. In the exemplary embodiment shown, to that end, the perforation line 11 can be moved such that it intersects the connecting line 6 closed upon itself.

[0016] The sheets of film material 3, 5 can each be manufactured from the same material or from different materials. They can be manufactured from a flexible material or a (semi)rigid material. Suitable materials are, for instance, cardboard, laminated or not laminated with a suitable coating, a metallic film, such as aluminum film, a plastic film or the like. Preferably, the subpackage 2 is at least partly transparent, so that content is visible. The

product 4 can be vacuum packaged. Alternatively, in the package, a modified atmosphere can be realized which is beneficial to, for instance, the shelf life and/or the taste of the product 4.

[0017] When the subpackages 2 are used for packaging foods, the film material 3, 5 must typically meet relatively strict requirements. For instance, the material must not be toxic, give off, or otherwise react with the packaged goods. The material must further be sufficiently strong so that it does not tear open (too) easily. In order to meet all these requirements, the film material 3, 5 can be built up from different layers, as shown in Fig. 2. Each layer 21, 22, 23 can then be manufactured from a different type of plastic, having a property desirable for the film material 3, 5. A first layer 21 can be manufactured from, for instance, a sealable plastic, for instance polyethylene or polypropylene, modified or not modified. Use can also be made of sealable varnishes. Such a layer 21 allows for the sheets of film material 3, 5 to be sealed tight against each other around the packaged product 4. Sealing offers the possibility that no contaminating additives are required, as is the case with gluing. Furthermore, the film material 3, 5 can thus be connected in a gas-tight or virtually gas-tight manner. A second layer 22 can be manufactured from, for instance, a plastic with desired barrier properties whereby passage of certain gasses is not allowed, partially allowed or is indeed allowed. Thus, in the subpackage 2, a particular atmosphere or gas composition can be maintained which helps protect the product and, hence, can positively influence the best-before date. In order to, for instance, maintain a low oxygen percentage in a subpackage 2, of around, for instance, 5% or less, the second layer 22 can be manufactured from, for instance, EVOH (ethylene-vinyl alcohol). A third layer 23 can be manufactured from, for instance, a plastic with a relatively great tensile strength, tear resistance and/or toughness. As a result, the film material 3, 5 can be given the desired mechanical properties, which, during transport, display and further use, can protect the subpackage 2 against external mechanical influences, so that the subpackage 2 does not tear prematurely or becomes otherwise damaged. Suitable plastics for this third layer 23 are, for instance, amorphous polyester, polystyrene or polypropylene. Naturally, the sheets of film material 3, 5 can be built up from more or fewer layers depending on their use and the desired properties. These layers can furthermore extend over only a part of a sheet 3, 5. For instance, the sealable layer 21 can be applied only there where the sheets 3, 5 are sealed against each other.

[0018] In Fig. 3 it is shown how a number of the subpackages 2 described hereinabove can be bundled together for forming a package 1. Thereto, the subpackages 2 are stacked onto each other such that at least the respective edge parts 8 at least partly overlap, and the openings 10 provided therein are located one above the other and form continuous through bores. Alternatively, these through bores 10 can be provided after the sub-

packages 2 have been stacked onto each other by their edge parts 8. Then, two sheet-shaped connecting elements 15A,B are placed against a top side and a bottom side, respectively, of the stack of edge parts 8 and attached against each other via the through bores 10, as shown in Fig. 4. This attaching against each other can be done through, for instance, gluing or sealing.

[0019] The connecting elements 15A,B can be manufactured from, for instance, cardboard or from plastic film material and, as shown in the exemplary embodiment, can form part of a label 15 that has been folded over around the edge parts 8. The connecting elements 15A, B can be provided with information relating to, for instance, the products 4, the supplier, the best-before-date etc. The connecting elements 15A,B can further be provided with suspension means, such as an eyelet (not shown) by which, in use, the package 1 can be lifted and from which it can be suspended, in a shelf or such display provision.

[0020] In the exemplary embodiment shown in Fig. 3, all subpackages 2 have substantially the same dimensions and are stacked in a completely overlapping manner. In an alternative embodiment, the subpackages 2 can be stacked onto each other in a partly overlapping manner, for instance in a row or in a fan-shape, so that each subpackage 2 is at least partly visible. In yet another alternative embodiment, the subpackages 2 can have different shapes and/or dimensions and be stacked for instance from large to small. The subpackages can each comprise the same amount of product 4 but, in alternative embodiments, can also comprise different amounts of the same products. Alternatively, each subpackage 2 can comprise a different product, so that in one package 1, a selection of products can be presented, for instance different types of sandwich fillings.

[0021] Before use, the consumer can separate a desired subpackage 2 from the rest by breaking the first breaking means 11. Here, he does not have to follow the stacking order but can separate any random subpackage 2 from the bundle. Depending on the location of the first breaking means 11, the subpackages 2 can be separated in closed or opened condition.

[0022] The invention is not limited in any manner to the exemplary embodiments represented in the description and the drawing. All combinations of (parts of) embodiments described and/or shown are understood to fall within the inventive concept. Furthermore, many variations thereon are possible within the framework of the invention as set forth in the following claims.

Claims

1. A package comprising a number of subpackages, which are held together by respective edge parts between two sheet-shaped connecting elements, wherein the connecting elements are attached against each other at the location of through bores

provided in the edge parts.

2. A package according to claim 1, wherein the edge parts overlap each other at least partly, and the through bores extend in overlapping parts.
3. A package according to any one of the preceding claims, wherein the subpackages are formed from two sheets of film material, which are attached against each other around a product included therebetween.
4. A package according to claim 3, wherein the film material is built up from different layers with different material properties.
5. A package according to claim 3 or 4, wherein an outer layer of the film material is manufactured from sealable material, for instance modified or not modified polyethylene or polypropylene.
6. A package according to any one of claims 3 - 5, wherein the film material comprises at least one layer with good barrier properties, for instance EVOH (ethylene-vinyl alcohol) suitable for maintaining a particular atmosphere or gas composition in a subpackage, for instance an oxygen percentage that is less than 5% and is preferably less than 2%.
7. A package according to any one of claims 3 - 6, wherein the film material comprises at least one layer with a relatively great strength, suitable for give the film material resistance against mechanical damage during transport, display and further use, such as for instance amorphous polyester, polystyrene or polypropylene.
8. A package according to any one of claims 3 - 7, wherein the subpackages are at least partly transparent.
9. A package according to any one of the preceding claims, wherein the sheet-shaped connecting elements are sealed against each other at the location of the through bores.
10. A package according to any one of claims 1-8, wherein the sheet-shaped connecting elements are glued against each other at the location of the through bores.
11. A package according to any one of the preceding claims, wherein the sheet-shaped connecting elements are manufactured from cardboard.
12. A package according to any one of the preceding claims, wherein the sheet-shaped connecting elements form part of a folded-over label.

13. A package according to any one of the preceding claims, wherein the subpackages comprise first breaking means, while breaking these allows detachment of the subpackages. 5
14. A package according to claim 13, wherein breaking the first breaking means allows, each time, detachment of one subpackage while the remaining subpackages remain interconnected. 10
15. A package according to any one of the preceding claims, wherein the subpackages comprise second breaking means, while breaking these allows opening of the subpackages. 15
16. A package according to claim 13 or 14 and 15, wherein the first and second breaking means substantially coincide.
17. A package according to any one of the preceding claims, wherein, in use, the subpackages are filled with consumer portions of a foodstuff, all of the same sort or, conversely, of different sorts. 20
18. A package according to any one of the preceding claims, wherein the subpackages overlap each other only partly so that, from each subpackage, at least a part is visible, preferably a part providing information about the content of the respective subpackage. 25
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19. A method for bundling together subpackages formed of film material, comprising the following steps:
- A. stacking onto each other edge parts of the subpackages to be bundled; 35
 - B. forming one or more continuous openings in the stacked edge parts;
 - C. providing a sheet-shaped connecting element on both sides of the stacked edge parts; and 40
 - D. attaching the sheet-shaped connecting elements against each other at the location of the at least one continuous opening, wherein the steps A and B can also be carried out in reverse order. 45
20. A method for presenting foods to consumers in individually packaged consumer portions, wherein a number of these individually packaged consumer portions is held together adjacent an edge between two sheet-shaped connecting elements which are locally attached against each other by sides facing each other, at the location of through bores provided in the edges. 50
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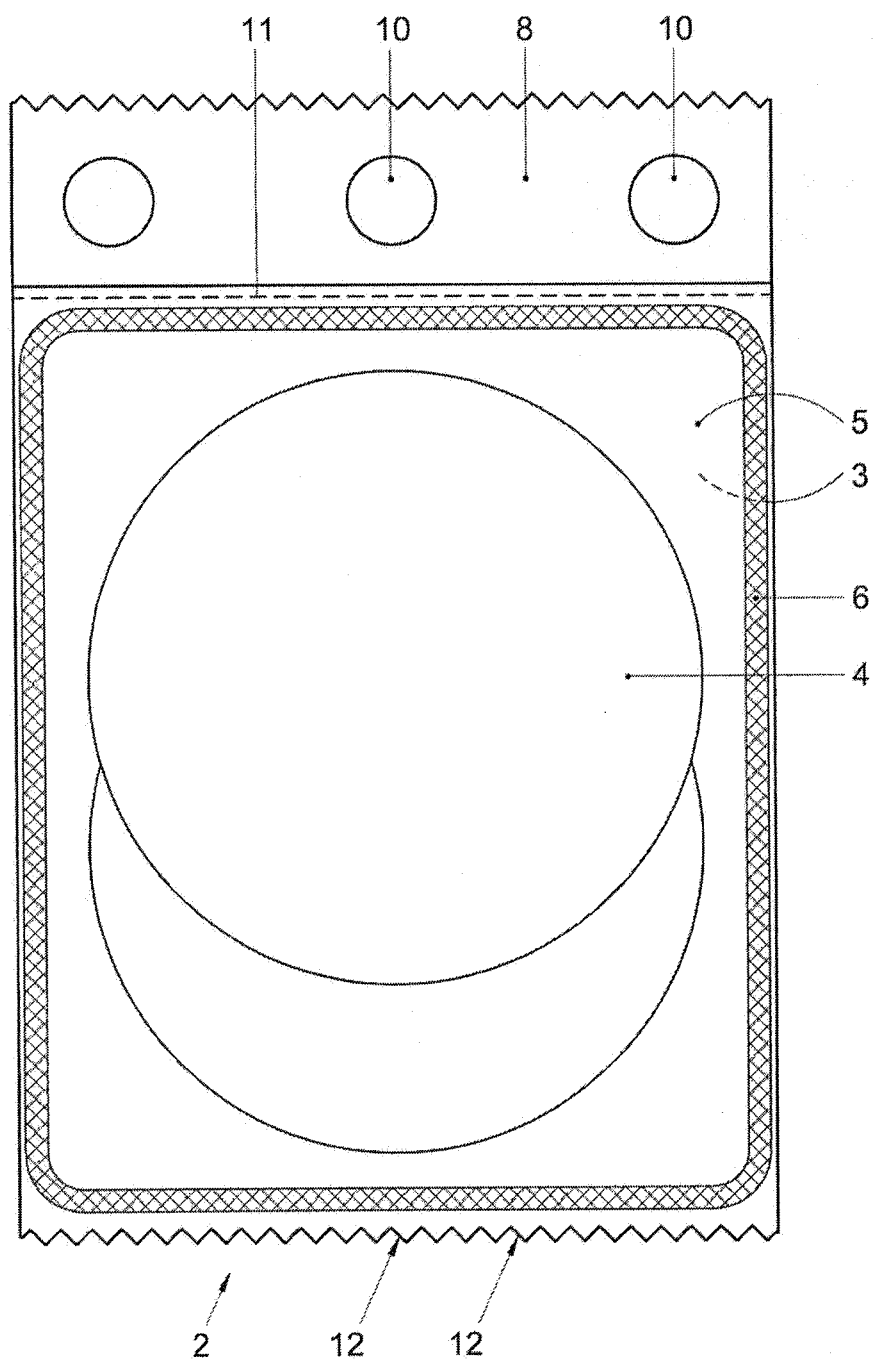


Fig. 1

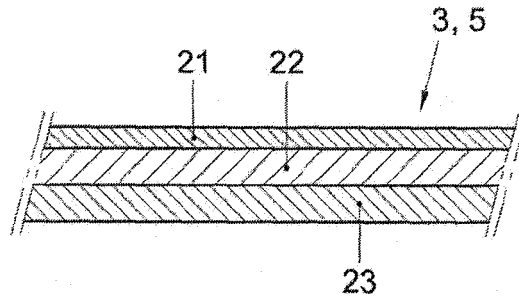


Fig. 2

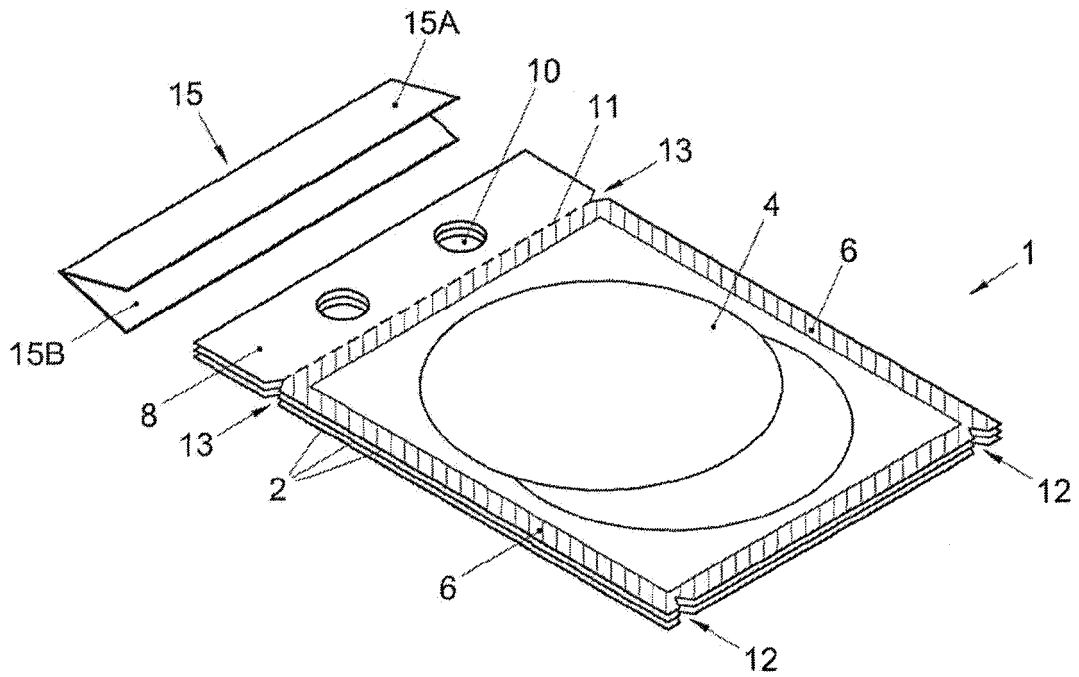


Fig. 3

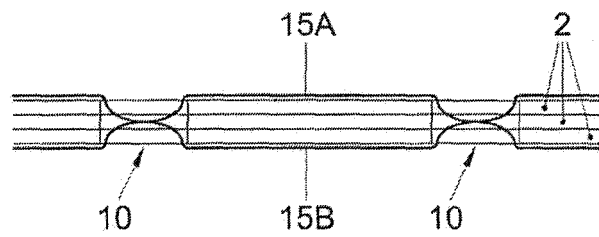


Fig. 4



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 11 3781

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 December 2007	Examiner Leijten, René
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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