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(54) Process for the production of artefacts incorporating laminar elements of precious metal

(57) A process for the production of artefacts in substantially flexible material incorporating laminar decorative elements (3) made of precious metal comprising the following phases: laminating a sheet of said precious metal with intermediate and final annealing; hammering the foil so obtained; shearing or laser-cutting the hammered foil to obtain decorative elements of a pre-established shape; applying an attachment pin (4) by means of welding to each one of said elements; deoxidising the decorative elements thus obtained; applying said deoxidised decorative elements to a flexible substrate (1, 6) in such a manner that they will not project from the surface of said substrate, particularly within appropriate impressions (2) produced in the substrate or between superposed layers (7).

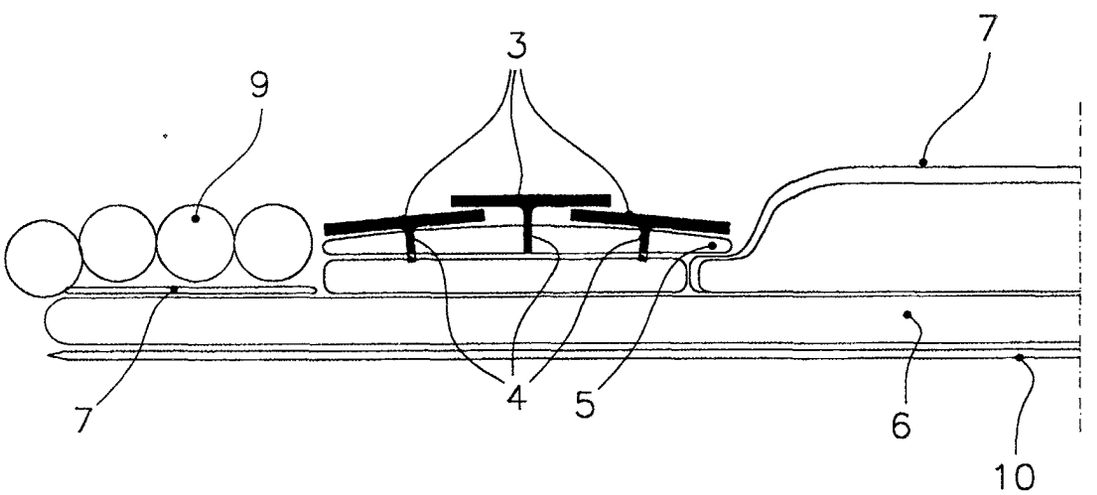

Fig.8

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Description

[0001] The present invention concerns a process for the production of artefacts made of substantially flexible material, in one or more layers, and incorporating laminar elements of precious metals.

[0002] The invention concerns also articles realized with such artefacts, especially articles forming part of such sectors as fashion, leather goods and clothing, jewellery, furnishing and personal and environmental ornaments in general.

[0003] Up to the present the application of ornamental elements made of precious metals to articles intended for the fashions sector, especially such articles made of leather as belts and handbags, has been realized exclusively by means of surface attachment of elements fixed either mechanically or by sewing. Very common are also appliqués in Dutch gold, for example, elements with paillette decoration applied to handbags by means of sewing. Quite apart from the question of cost in case of ornamental appliqués made of precious metals, this type of product has always been associated with a great drawback that has *de facto* limited its use. The decorative metal elements, being in relief on the surface of the product, are easily damaged when they are brushed against and may become detached as the result of an impact. The damage, of course, is always greater when the damaged or detached decorative element is made of precious metal.

[0004] On the other hand, precisely in view of the limited use that is made of these articles on account of the drawback recalled above, combinations of decorative elements in precious metal, in particular laminar decorative elements, with such flexible supports as leather offer a commercial potential that is very great and open a practically unlimited range of creative possibilities.

[0005] It is therefore an object of the present invention to provide a process for the production of artefacts in substantially flexible material incorporating laminar elements made of precious metals that is not associated with the drawbacks that beset the solution known to prior art.

[0006] Another object of the present invention is to provide articles for use in the fashions sector, especially clothing and leather wear, jewellery and furnishing, realized in accordance with the process that constitutes the object of the invention.

[0007] These aims are attained by means of the process in accordance with the invention of which the essential characteristics are specified in Claim 1 hereinbelow. Further important characteristics of the invention are set out in the dependent claims.

[0008] Other characteristics and the advantages of the process for the production of artefacts in substantially flexible material incorporating laminar elements made of precious metal in accordance with the present invention will be brought out by the description given below of some particular embodiments, which are to be considered as examples and not limitative in any way, said description making reference to the attached drawings of which:

- Figure 1 shows a schematic view of a flexible substrate on a part of which there have been mounted the laminar decorative elements in accordance with the invention;
- Figures 2-6 show the various phases and the components for realizing a bracelet by means of the process in accordance with the invention;
- Figure 7 shows a bracelet obtained by means of the process in accordance with the invention;
- Figure 8 shows a schematic view of part of a cross section through the bracelet of Figure 7.

[0009] According to a particular embodiment of the present invention, the process envisages the use of decorative elements made of precious metal foils of minimal thickness to be applied to a flexible support. The flexible support may be leather, leatherette or plastic material and must have a sufficient thickness to permit the formation on it of an impression capable of accommodating the decorative element, as will be explained in greater detail later on. Depending on the softness of the support, this thickness may be as little as 0.5 mm and may generally be of the order of 1 mm. The precious metal to be preferentially employed is gold in its various chromatic gradations, but silver and platinum and alloys of these metals may also be advantageously used, always provided that they can be reduced to the thickness of a foil.

[0010] The first step consists of the lamination of a sheet of gold to the point where a foil of the requested thickness (down to 0,05 mm) is attained, passing through several intermediate and final annealing stages. Given its very small thickness, the foil obtained in this manner is of an inadequate consistency and, in accordance with an important characteristic of the present invention, the foil is then subjected to hammering to render it more robust and more plastic. To this end it was found that a hammer with a spherically shaped head proved particularly advantageous. Following the hammering, the foil is sheared to size to obtain decorative elements of the desired shape and the resulting elements are then deoxidised by means of known techniques and subjected to sanding to confer a satin appearance upon them, this treatment rendering them less liable to become damaged when they are brushed against during their subsequent use. One or more attachment pins 4 is/are then applied to the face of each element opposite to the one that has been hammered to permit their being connected to the substrate, which is shown only in Figure 8.

[0011] As regards the application of the decorative elements produced in this manner, the invention envisages two operating modalities.

[0012] According to a first operating modality, illustrated by way of example in Figure 1, on a flexible substrate

1, which may be made of leather for example, there are produced impressions 2 having the same shape as the decorative elements to be applied, said impressions being produced by simply compressing the leather with the help of an appropriate punch. The bottom of each impression is then scratched to roughen its surface and this is followed by the application of a layer of glue to it. A decorative element is then introduced into each impression, after which the entire substrate is moderately heated to activate the glue. The fixing is obtained by means of the combined effect of the glue and the attachment pin that engages in the bottom of the impression. Impression 2 has a depth such as to assure that the decorative element 3, once it has been housed in the impression, will be perfectly flush with the surface of substrate 1. The artefacts obtained in this manner may be preferably employed in the clothing and leather goods sectors for realizing articles that have substantially flat or moderately curved faces, cases in point being handbags, belts, footwear or articles of leather clothing, or also in the furnishing sector, where they can be used for realizing decorative panels, table articles and similar. The artefacts can also be used for realizing articles with a small radius of curvature, bracelets being a case in point.

[0013] Another operating modality, alternative to the one just described, is schematically illustrated by Figures 2-7, which show the production steps for realizing a bracelet.

[0014] In this case the product obtained is constituted by several layers of materials, which may also differ from each other, while the laminar decorative elements obtained as described above are arranged between them. The laminar elements 3 are attached, one at a time and in accordance with a pre-established sequence, a particular possibility being the partial superposition shown in Figure 4, on carrier strips, for example on two such carrier strips, indicated in Figure 3 by the reference number 5, on which there have been arranged appropriate seatings that can engage with the various attachment pins 4 projecting from the face not in view of decorative laminar element 3. Carrier strips 5, in their turn, are then applied to a tubular substrate 6 by means of gluing and in positions appropriately spaced with respect to each other. Tubular substrate 6 is preferably made of leather and appropriately prepared for the desired function. In particular, this preparation consists of conferring the desired shape upon the substrate by wetting it, forming it under pressure and then allowing it to dry. A lining 10 is then applied to the inside face. Between the two strips 5 and by their sides there are then glued three further strips 7 of high-quality leather, crocodile skin for example, which for purely decorative reasons, as shown in the figures, may assume a wavy pattern. Lastly, above the two lateral strips 7 there may be applied a cladding consisting of a strip 9 of sapphires threaded on gold wire and anchored to the two strips 7 by means of sewing. The loose and open pattern of the sapphires makes it possible to glimpse the decoration of the leather beneath them.

[0015] Attention should here be drawn to the importance of the operation of hammering the laminar decorative element in precious metal. In fact, apart from rendering it more robust and plastic, this treatment also confers a pleasant hammered appearance upon the surface of the element, which, among others, has the advantage of masking the signs of the welding of the pin: though this is applied to the face not in view, the welding marks, given the minute thickness of the foil, would be visible also on the other side. The subsequent sanding treatment assures conservation of the colour, the cleanliness and the splendour typical of the precious metals.

[0016] It is also important to note that, thanks to the process in accordance with the invention, which avails itself of decorative elements of a minimal thickness and therefore also of a minute weight, the necessary quantity of precious metal can be minimized, while yet obtaining striking and extensive ornamental effects, thus limiting the cost of the product.

[0017] Though the present invention envisages obtaining the laminar decorative elements by means of shearing of the metal foil, it is also possible to obtain the same result by means of laser cutting, a technique that, among others, implies smaller setting up costs and does not damage the surface hammering treatment.

[0018] Depending on their size, the laminar decorative elements may also be provided with two or more attachment pins, all applied by means of welding as above.

[0019] Of course, the layout of the various strips and their number may vary according to the designer's fancy, but in each cases the golden laminar elements are arranged in such a way that their edges are covered by the adjacent strata. Obviously, the sapphire strips can also be replaced by strips of other precious stones or, alternatively, they can be omitted altogether or substituted by other decorative elements or motifs.

[0020] Numerous variations and/or modifications could be brought to the process for the production of artefacts in substantially flexible material, in one or more layers, incorporating laminar elements made of precious metals in accordance with the present invention without for this reason going beyond the scope of the invention as defined by the claims hereinbelow.

Claims

1. A process for the production of artefacts in substantially flexible material incorporating laminar elements made of precious metal, **characterized in that** it comprises the following steps:

   - laminating a sheet of said precious metal with both intermediate and final annealing;

- hammering the metal foil obtained in this manner;
- obtaining decorative elements (3) of a pre-established shape from the hammered foil by means of shearing or laser cutting;
- applying by means of welding at least one attachment pin (4) to the non-hammered face of each decorative element produced;
- deoxidising the decorative elements thus obtained;
- applying said deoxidised decorative elements to a flexible substrate (1, 6) in such a way that they will not project from the surface of said substrate.

2. A process in accordance with claim 1, wherein on said substrate there are obtained impressions (2) of the same shape as said decorative elements (3), where the bottom of said impressions is scratched and then covered with glue; the decorative elements are then inserted in said impressions and remain fixed therein due to the combined effect of the glue and the attachment pin (4).

3. A process in accordance with claim 2, wherein the impressions (2) are obtained by means of compression.

4. A process in accordance with claims 2 or 3, wherein the adhesive effect of the glue is activated by means of heating.

5. A process in accordance with the preceding claims, wherein a hammer with a ball-shaped head is used for the hammering.

6. A process in accordance with the preceding claims, wherein the deoxidised decorative elements are subjected to sanding.

7. A process in accordance with any one of the preceding claims, wherein the thickness of said substrate is at least 0.5 mm.

8. A process in accordance with claim 1, wherein said decorative elements (3) are fixed on at least one carrier strip (5) by means of their respective attachment pins (4) in accordance with a pre-established sequence, said strip being subsequently fixed to said substrate (6), with further decorative strips (7) being then applied by the sides of said carrier strip in such a way as to protect the lateral edges of said sequence of decorative elements.

9. A process in accordance with claim 8, wherein said decorative elements are arranged so as to be partially superposed on the adjacent elements.

10. A process in accordance with claims 8 to 9, wherein or said decorative elements are applied on several strips arranged with appropriate interspacing on said substrate.

11. A process in accordance with claim 10, wherein said strips carrying said sequences of decorative elements are glued to said substrate.

12. A process in accordance with claims 8 to 11, wherein said further decorative strips are clad with ornamental stones.

13. A process in accordance with claim 12, wherein said ornamental stones are strung together to form a relatively wide pattern (9), said further decorative strips (7) beneath them being made of high-quality materials.

14. A process in accordance with any one of the preceding claims, wherein the thickness of said metallic material is at least 0.05 mm.

15. A process in accordance with any one of the preceding claims, wherein said substrate is leather, leatherette or plastic material.

16. A process in accordance with claims 1 to 14, wherein said substrate is of tubular form and is made of leather.

17. Articles of the sector of fashions, leather goods, clothing, jewellery, furnishing and personal and environmental ornamentation in general that are produced by means of a process in a accordance with any one of the preceding claims.

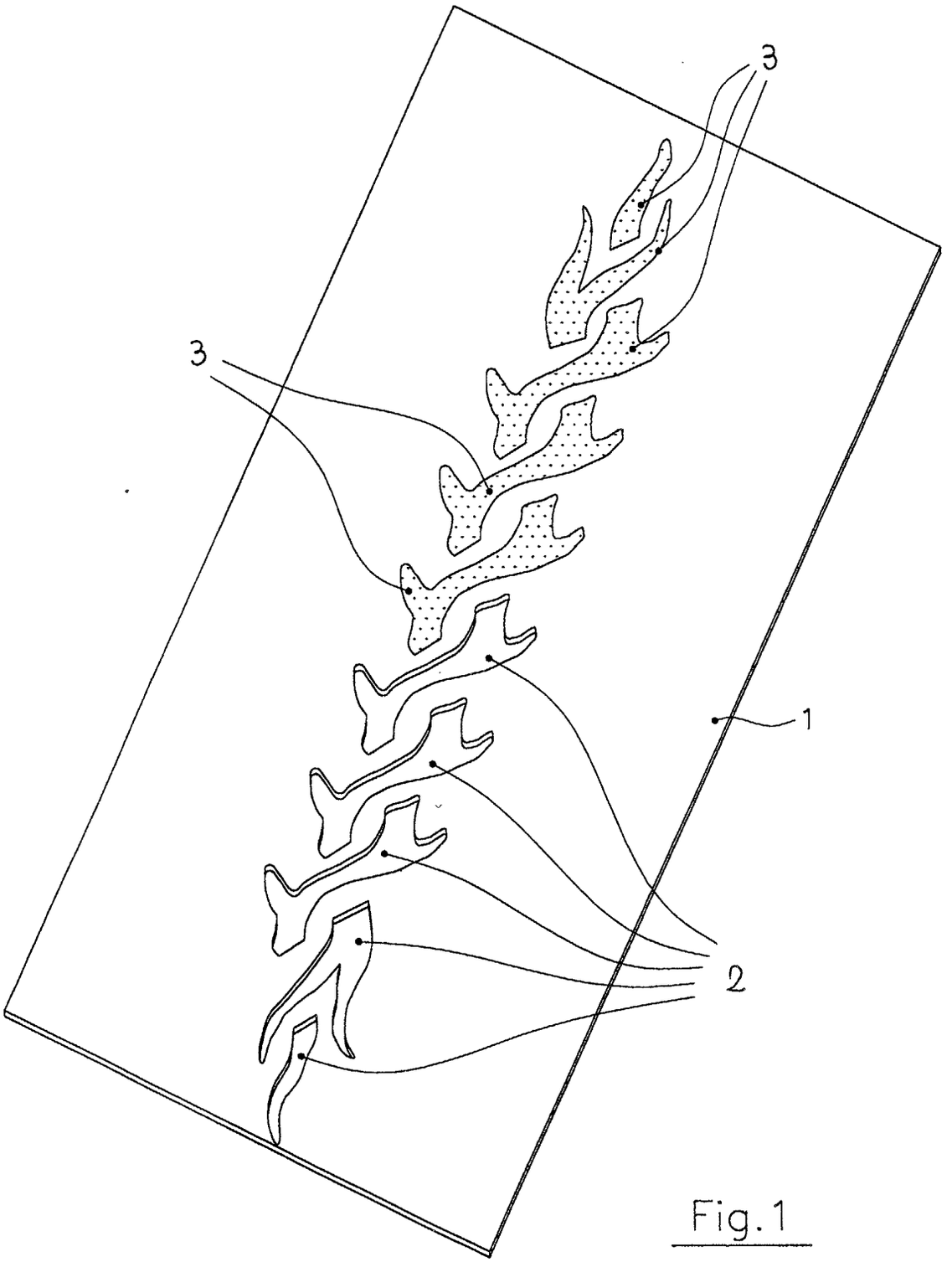

Fig.1

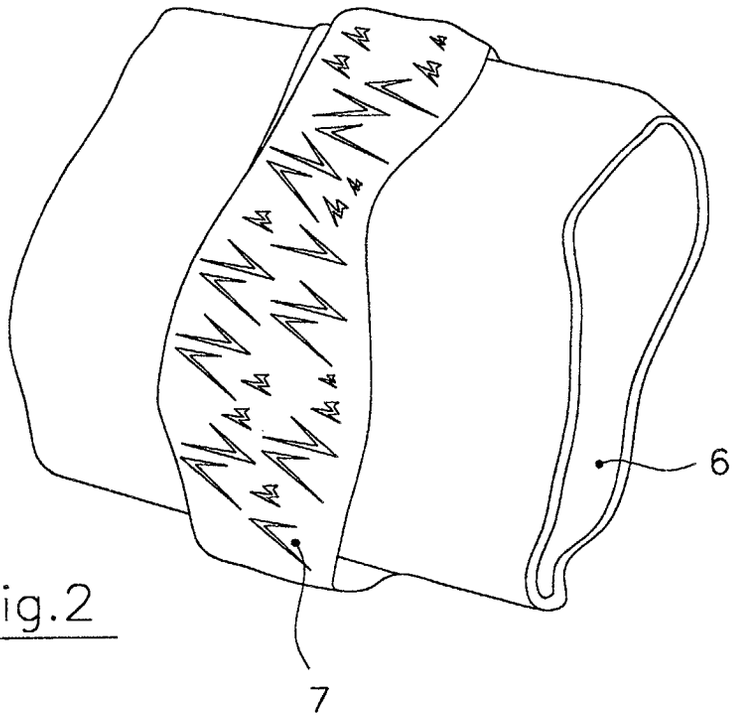

Fig.2

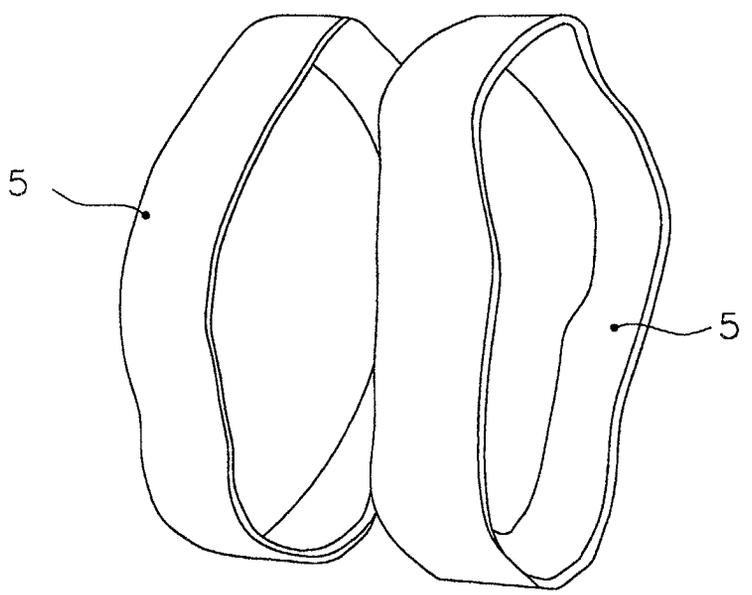

Fig.3

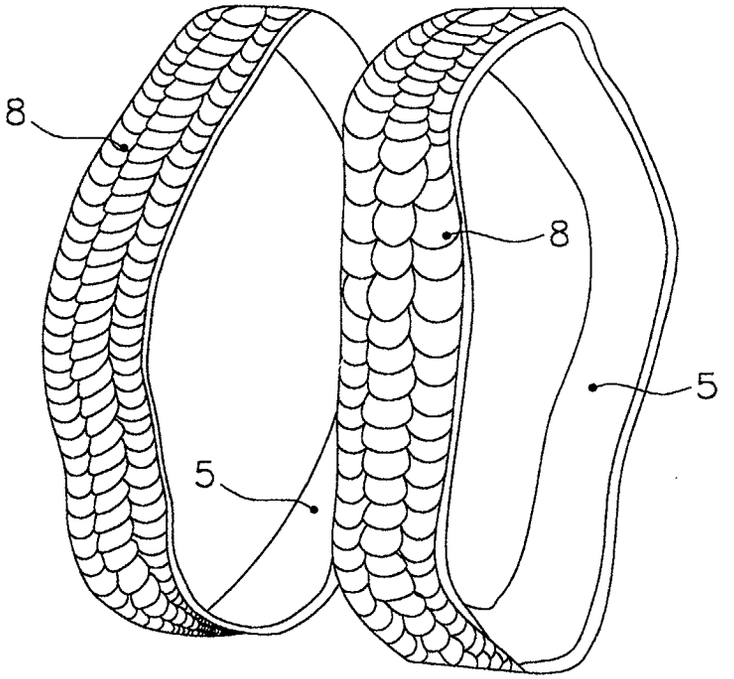

Fig.4

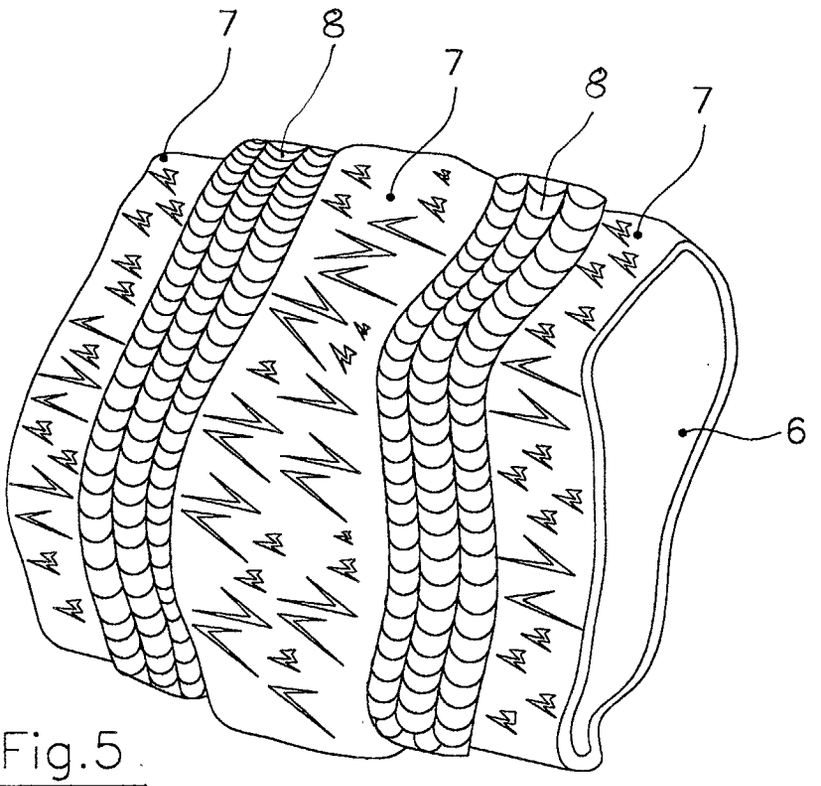

Fig.5

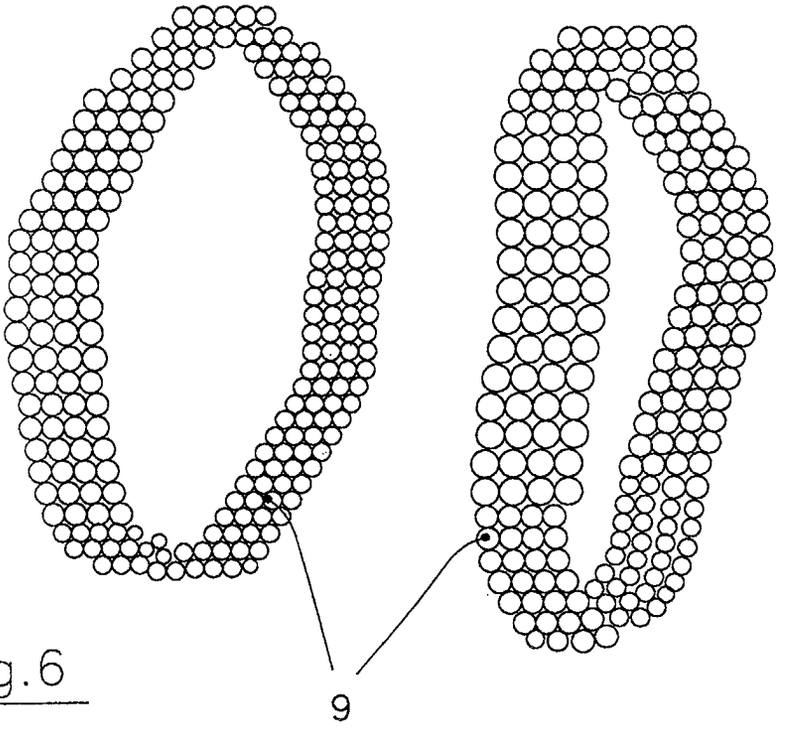

Fig.6

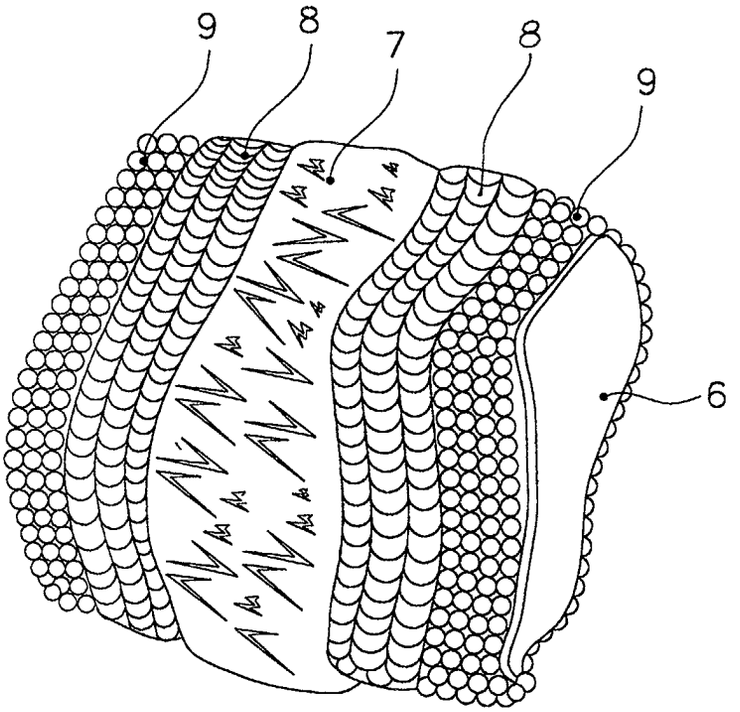

Fig.7

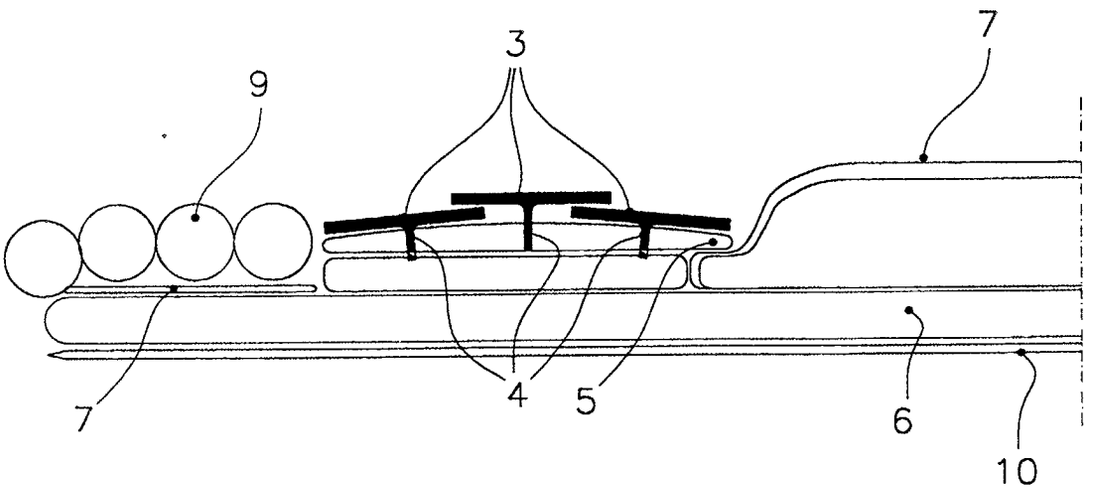

Fig.8

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Application Number
EP 02 42 5213

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	26 February 2003	Greiner, E

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