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(54) **A COMBINATION CLOTHING FROM FABRIC AND FUR AND THE PRODUCTION METHOD THEREOF**

EIN KOMBINATIONSTOFF AUS TUCH UND PELZ UND SEIN HERSTELLUNGSVERFAHREN  
VETEMENT COMBINE DE TISSU ET DE FOURRURE ET PROCEDE DE FABRICATION

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- **DATABASE WPI Week 198644, Derwent Publications Ltd., London, GB; AN 1986-287627, XP002907400 'Water and oil repelling agent - comprises random copolymer poly:fluoroalkyl gp. contg. vinyl monomer alkoxy:silyl -contg. vinyl monomer and another polymerisable monomer' & JP 61 209 286 A (NIPPON OIL & FATS CO LTD) 17 September 1986**

Remarks:

The file contains technical information submitted after the application was filed and not included in this specification

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## Description

**[0001]** The invention relates to a method for manufacturing wet-cleanable combination clothing of fabric and fur according to claim 1.

**[0002]** The invention also relates to combination clothing of fabric and fur, enduring repeated wet cleaning, according to claim 8.

**[0003]** The invention further relates to a semi-finished product enduring wet cleaning according to claim 5. **[definition(s)]**

**[0004]** In the following explanation and claims, fur refers to a dressed, genuine natural fur or dressed genuine fur raw material. The concept of combination clothing of fabric and fur refers to a piece of clothing with a fabric part and a fur part. Clothing again refers both to combination clothing and separate clothes, such as a scarf, shirt, coat, etc. The concept of fur hair refers to the hair side of the fur, and the concept of fur pelt refers to the pelt side of the fur. The fur part again refers to fur which is used in combination clothing or semi-finished product and which has been processed to be wet-cleanable.

**[0005]** In the clothing industry, different kinds of combination clothing of fabric and fur have been available for a long time. From the point of view of the user of clothing it would be easiest that such combination clothing could be cleaned with water, as this is a method of cleaning familiar to all. Dry cleaning of clothing causes considerably more cost and trouble. However, wet-cleanable combination clothing of fabric and fur is not known in the clothes manufacturing industry, in which one has traditionally concentrated mainly in the development and design of clothing designs and collections, and in the knitting and sewing of clothing from existing clothing materials. On the other hand, clothing manufacturers have generally not been very interested in how fur materials have been processed in the manufacture, and due to this, various fur material processing methods have remained rather unknown for the clothing manufacturers.

**[0006]** Again, the industry processing clothing materials knows different kinds of methods for processing textile and fur materials, with which the final materials, such as fabric, leather and fur, used by the clothes manufacturing industry, may be separately processed water- and dirt-repellent, using different organic fluorochemicals. Such methods have been described, for example, in the GB patent publications 1 015 630 and 999 975, the US patent publications 3 994 951 and 3 330 812, the publication JP-08081883, the FI patent publication 43980, and the SE patent publication 214 815. However, the patent documents mentioned above only disclose treating certain individual materials with solutions containing fluorocompounds so that the said materials are made water- and/or dirt-repellent. They do not describe the processing of such a fur material, in which the pelt side and the hair side of fur are in a fixed connection

with each other. Neither do they disclose such pieces of clothing meant to be wet-cleanable, in which the clothing would contain a fur part, the fur pelt and fur hair of which would be in a fixed connection with each other.

**[0007]** Because the materials processing industry has not had to offer any finished, repeatedly wet-cleanable fur material for the industry manufacturing fur clothing, which could be directly joined to fabric for manufacturing wet-cleanable combination clothing of fabric and fur, such combination clothing of fabric and fur has simply not been available for consumers, either.

**[0008]** When one has wished to clean combination clothing of fabric and fur, the fabric part and the fur part of the clothing have had to be dry cleaned, or the fur part has had to be detached from the fabric part of the clothing, and subsequently the fur part has had to be dry cleaned and the fabric part has had to be wet cleaned. The above drawback results from that the genuine natural fur and fabric behave differently when wet cleaned. If they are fixedly joined to each other, and if they then are subjected to wet cleaning, the physical and aesthetic properties of the fur pelt of the fur change so that the appearance of the combination clothing suffers. Although furs can temporarily be made water- and dirt-repellent by spraying their surface with different chemicals (e.g. with fluorochemicals mentioned in the above state-of-the-art description), the effect of these chemicals is not permanent, and on the other hand, the use of temporary solutions in spray form for cleaning the clothing cannot be expected from a normal consumer. Due to the above cleaning problems, it has not been possible to offer combination clothing of fabric and fur as fixed combinations, but it has been necessary to arrange the fur part to be detachable from the fabric part.

**[0009]** The first object of the invention is to remove the above described drawbacks in the previously known combination clothing of fabric and fur. The first object of the invention is to provide combination clothing of fabric and fur, which can be wet cleaned as a combination. The second object of the invention is to provide combination clothing of fabric and fur, which can be repeatedly cleaned with water without additional treatments. The third object of the invention is to provide combination clothing of fabric and fur, in which fur and fabric are fixedly joined to each other to form a piece of clothing enduring wet cleaning.

**[0010]** The above objects are achieved with the manufacturing method of the invention for combination clothing and with the combination clothing manufactured by the said method. The method of the invention for manufacturing wet-cleanable combination clothing is based on the surprising observation that by treating the hair and pelt side of the fur separately with a solution containing an organic fluorocompound and by attaching the resulting water-repellent layer onto the surface of the material by drying and/or treating with heat, a fur is provided, which may be attached to a preferably wet-cleanable fabric material. Thus, combination clothing of fabric

and fur is provided, which may be cleaned with water without detaching the fur part and the fabric part of the combination clothing from each other. By fastening the water-repellent layer to the surface of the material by drying and using heat treatments, the material is made to endure repeated wet cleaning processes as a combination.

**[0011]** The above described processing method for fur material differs from the separate processing methods for fur hair and fur pelt known in the state of the art principally mainly in that that, in the method disclosed in this application and in the products made with this method, the fur pelt and fur hair are in fixed connection with each other. The fur hair and the fur pelt have substantially different physico-chemical properties, and because of this, on the basis of individual material treatments made to pelt and hair, no very far-extending conclusions may be drawn, whether the said procedure is suitable for the arrangement of fur hair and fur pelt fixedly connected to each other.

**[0012]** The method of the invention for manufacturing wet-cleanable combination clothing of fabric and fur is characterised in what is shown in claim 1. **[deletion(s)]**

**[0013]** In the method for manufacturing wet-cleanable combination clothing of fabric and fur the pelt side of fur is moistened with a solution containing an organic fluorocompound, and dried and/or treated with heat so that a permanent, microscopically thin water-repellent layer is generated on the surface of the collagen fibre of the pelt. Also the hair side of fur is moistened with a solution containing an organic fluorocompound and dried with heat treatment so that a permanent, microscopically thin water-repellent layer is generated on the surface of the keratin fibre of the fur hair. After this, the fur part processed to endure wet cleaning is attached to the wet-cleanable fabric part of the clothing either fixedly or detachably. The fur part is preferably attached to the fabric part of the clothing in a fixed way. The method may also comprise conventional dressing and dyeing treatments of fur and/or fabric and/or combination clothing. The fur part processed to endure wet cleaning is attached to the clothing either directly from the pelt or from a piece of fabric of suitable width attached to the pelt. The latter method of fastening is suitable when manufacturing combination clothing from wet-cleanable semi-finished products.

**[0014]** In an advantageous form of embodiment, the fur is shaped to be a longitudinal and relatively thin, uniform fur decoration strip before or after processing it with organic fluorochemicals. Fur decoration strips are typically used as lining decorations for fur clothing.

**[0015]** In the wet-cleanable combination clothing of fabric and fur of the invention, the fur part has been made wet-cleanable by processing it with the method of the invention. The fabric part of the combination clothing preferably endures repeated wet-cleaning, and it is fixedly attached to the fur pelt of the fur part.

**[0016]** The invention also relates to a wet-cleanable

semi-finished product used in the manufacture of (repeatedly) wet-cleanable combination clothing of fabric and fur. The semi-finished product comprises a fur part, the fur hair of which has been made repeatedly wet-cleanable by moistening the hair side with a solution containing an organic fluorochemical, and by subsequently drying the hair side of the fur with heat treatment. The fur pelt of the fur part has again been made wet-cleanable by moistening the fur pelt with a solution containing organic fluoride and by then drying and/or treating it with heat. After this, it is possible to fasten a fabric of desired width to the fur pelt of the fur part. The wet-cleanable semi-finished product, either with or without fabric, is very useful taking into consideration specifically the needs of the clothing industry, because the semi-finished product may be directly knitted or sown from the fabric to the desired fabric material without it being necessary to separately process the materials.

**[0017]** In an advantageous form of embodiment the semi-finished product is a fur decoration strip. A strip of fabric of desired width is fixedly attached to the pelt side of the fur decoration strip. A wet-cleanable decoration of fur and fabric thus achieved may be used as a semi-finished product in the manufacture of wet-cleanable combination clothing of fabric and fur decoration strip.

**[0018]** Another advantageous form of embodiment concerns a wet-cleanable fur decoration strip, which comes from a roll of fur decoration strip.

**[0019]** With a roll of fur decoration strip the advantage is achieved that the clothes manufacturer may cut a decoration strip of just the desired length to the products. This way of using fur decorations is completely new in the manufacture of fur clothing. It usually is necessary for the manufacturing industry to order the decoration strips cut to size, i.e. the length of the fur decoration has to be given to the manufacturer in advance.

**[0020]** It may be noted of the further advantages of combination clothing manufactured with the method of the invention that the combination is water-repellent in all weather conditions. The fur part of the combination clothing is further dirt-repellent, which makes it easier to keep the clothing clean. Because the pelt side of the fur part is treated with the solution, the clothing also endures steam ironing.

**[0021]** The invention is next described in more detail, referring to the enclosed drawings in which:

Figures 1A - 1D schematically present the manufacture of combination clothing of fabric and fur;

Figure 2 is a longitudinal section of combination clothing of fabric and fur of the invention, and ;

Figures 3A - 3D show diagrammatically the manufacturing stages of a roll of fur decoration strip.

**[0022]** Figs. 1A - 1D present different stages in the manufacture of wet-cleanable combination clothing of

fabric and fur. In Fig. 1A, fluoric resin is sprayed onto the pelt side, i.e. the fur pelt 2 of the fur 1. In Fig. 1B, the fur is dried, the fur pelt of which has been treated with fluoric resin. Fig. 1C is a longitudinal section along the line 1C-1C of Fig. 1B, and it shows the treatment of the fur side 3 of the fur with a solution containing fluoric resin. In Fig. 1D, the fur side 3 of the fur is dried by using heat treatment.

[0023] Fig. 2 shows combination clothing 7, which is formed by joining the fur 1 processed in the way described in Figs. 1A-1D to the fabric 5.

[0024] Figs. 3A-3D visualize a form of embodiment for using the fur processed with the method of the invention for the manufacture of combination clothing of fur and fabric, and semi-finished products used in the manufacture of combination clothing. Fig. 3A presents the cutting of the fur 1 processed to be wet-cleanable with the method of the invention into fur strips 11, 12, 13, 14, etc. Fig. 3B shows the structure of a fur decoration strip 10; 10a manufactured of joined fur strips 11, 12, 13, 14 (semi-finished product). In Fig. 3C, there is again shown the structure of a fur decoration 10; 10b of fabric and fur (semi-finished product). Fig. 3D presents a roll of fur decoration strip 10; 10c (semi-finished product), in which the semi-finished product 10; 10b is used.

[0025] In accordance with Figs. 1A-1D, the fur pelt 2 of the fur 1 of a blue fox is first moistened thoroughly and evenly with an aqueous solution of fluoric resin with a pH of approx. 5. Thereafter the fur is hung to dry on a support by tautening it with fasteners 4. After the fur pelt 2 has dried, the fur is removed from the support, and the fur hair 3 is sprayed with a similar aqueous solution of fluoric resin as the fur pelt. Next, the fur is dried in a heat oven at about 70 degrees for 1.5 hours.

[0026] 0.5 dl of fluoric resin concentrate is typically added for one dry weight kilo of fur material, however, taking into consideration the physico-chemical differences of the fur hair and the fur pelt. The concentrate is mixed with water and dosed to the fur hair and fur pelt according to the instructions of the manufacturer of the fluoric resin.

[0027] The fur treated in the way described above may still be shaped mechanically and sown to the fabric 5 from the fur pelt 2 to manufacture fixed combination clothing of fabric and fur 7. In this case, the fabric part 5 is a combination of wool and silk. Because of the preliminary treatment of the pelt 2 and hair 3 of the fur 1 with a fluorocompound, the combination clothing of fabric and fur keeps its shape also after wet cleaning. The combination clothing may be, for example, a hood of an out-door jacket, a scarf, etc.

[0028] It is also possible to make a semi-finished product of the fur 1, which has been processed to be wet-cleanable, by knitting a piece of fabric of suitable width to the fur pelt 2. Of the semi-finished product, again, the above described combination clothing 7 of fabric and fur is produced by knitting the semi-finished product thus achieved to the fabric part 5 of the clothing

from its fabric.

[0029] In the embodiment presented above, the moistening solution contains fluoric resin as the organic fluorocompound. Instead of fluoric resin, the fur pelt and fur hair of the fur may be processed to be water-repellent also with other fluorocompounds known in the art. Other possible fluorocompounds comprise, for example, fluorated hydrocarbons or fluorated aromatic hydrocarbon derivatives, however, without limiting to these. The hair side and the pelt side of the fur may be processed either separately or simultaneously with a solution containing a fluorocompound. Also the heat treatment may be conducted either simultaneously or separately. In the above form of embodiment, the fur pelt is processed with a solution containing an organic fluorocompound before the fur hair is processed, but the fur hair can as well be processed before processing the fur pelt.

[0030] In the form of embodiment shown in Figs. 3A - 3D, the fur 1 is cut into suitable fur strips 11, 12, 13, 14... (Fig. 3A) after it has been processed with a solution containing fluoric resin in the manner described above, and the fur strips 11, 12, 13, 14... are sown to form a longitudinal and relatively narrow fur decoration strip 10; 10a, by sewing the fur strips together from the pelt side 12, 22, 23, 24. The fur decoration strip 10a is then sown to the fabric 5a of desired width from its pelt 2 to form a decoration 10; 10b of fabric and fur strip. The purpose of the fabric 5a is, on the one hand, to act as the fastening point when fastening the decoration of fabric and fur strip to the fabric part 5 of a desired clothing and, on the other hand, to cover the seam places 6 of the fur pelt 2. Because of the preliminary treatment of the fur pelt and fur hair of the fur part 10, the pelt 2 of the decoration 10; 10b of fabric and fur strip endures well repeated wet cleaning, and the appearance of the decoration does not change to an unfavourable direction. In this case, the fabric part 5a is a mixture of wool and silk. Already at this stage, the length of the decoration of fabric and fur strip is equal to the length of the roll of fur decoration strip to be manufactured. Finally, the fur decoration 10b is rolled to form a roll 10; 10c of fur decoration strip to be delivered to the clothing manufacturer.

## Claims

1. Method for manufacturing combination clothing comprising a fur part and a fabric part, **characterised in that**

- the fur part is treated in separate steps with a fluorochemical so, that
  - the fur side is treated to become wet-cleanable by applying an organic fluorochemical and heat treating as required for a fur material, and
  - the pelt side is treated to become wet-cleanable by applying an organic fluorochemical

- cal and heat treating as required for a pelt material, and
- the fur part is fastened to a wet-cleanable fabric part.
2. Method according to claim 1, **characterised in that** the fabric part is wet cleaned before the fur part is fastened to the fabric.
  3. Method according to claim 1 or 2, **characterised in that** the fluorochemical is a fluoric resin or a fluorated hydrocarbon.
  4. Method according to any claim 1 -3, **characterised in that** before or after processing with an organic fluorochemical, the fur is cut into longitudinal fur strips, which are sewn together by their ends.
  5. Wet cleanable semi-finished product of fur and fabric, **characterised in** being manufactured by a method according to any claim 1-4.
  6. Wet cleanable semi-finished product according to claim 5, comprising a longitudinal fur decoration strip permanently fastened by its pelt side to a fabric part.
  7. Wet cleanable semi-finished product according to claim 5 or 6, **characterised in** being provided as a roll.
  8. Wet cleanable clothing product, **characterised in** including a combination clothing according to any claim 1-4 or a semi-finished product according to any claim 5-7.

#### Patentansprüche

1. Verfahren zum Herstellen von Kombinationskleidung mit einem Pelzteil und einem Gewebeteil, **dadurch gekennzeichnet, dass**
  - der Pelzteil in separaten Schritten mit einer Fluorchemikalie derart behandelt wird, dass die Pelzseite durch Anwenden einer organischen Fluorchemikalie und Wärmebehandeln, wie es für ein Pelzmaterial erforderlich ist, derart behandelt wird, dass sie nass reinigbar wird, und die Hautseite durch Anwenden einer organischen Fluorchemikalie und Wärmebehandeln, wie es für ein Hautmaterial erforderlich ist, derart behandelt wird, dass sie nass reinigbar wird, und
  - der Pelzteil an einem nass reinigbaren Gewebeteil befestigt wird.

2. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** der Gewebeteil nass gereinigt wird, bevor der Pelzteil an dem Gewebe befestigt wird.
3. Verfahren nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Fluorchemikalie ein Fluorharz oder ein Fluorkohlenwasserstoff ist.
4. Verfahren nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** vor oder nach der Verarbeitung mit einer organischen Fluorchemikalie der Pelz in längliche Pelzstreifen geschnitten wird, die an ihren Enden zusammengenäht werden.
5. Nass reinigbares Halbfertigprodukt aus Pelz und Gewebe, **dadurch gekennzeichnet, dass** es durch ein Verfahren nach einem der Ansprüche 1 bis 4 hergestellt ist.
6. Nass reinigbares Halbfertigprodukt nach Anspruch 5, das einen länglichen Pelzdekorationstreifen umfasst, der mit seiner Hautseite dauerhaft an einem Gewebeteil befestigt ist.
7. Nass reinigbares Halbfertigprodukt nach Anspruch 5 oder 6, **dadurch gekennzeichnet, dass** es als Rolle vorgesehen ist.
8. Nass reinigbares Kleidungsprodukt, **dadurch gekennzeichnet, dass** es eine Kombinationskleidung nach einem der Ansprüche 1 bis 4 oder ein Halbfertigprodukt nach einem der Ansprüche 5 bis 7 umfasst.

#### Revendications

1. Méthode de fabrication d'un vêtement combiné comprenant une partie de fourrure et une partie de tissu, **caractérisée en ce que** :
  - la partie de fourrure est traitée en étapes séparées avec un produit chimique fluoré de façon que
    - le côté fourrure soit traité pour être nettoyable en phase humide par application d'un produit chimique fluoré organique et traitement thermique requis pour un matériau de fourrure, et
    - le côté peau soit traité pour être nettoyable à sec par application d'un produit chimique fluoré organique et traitement thermique requis pour un matériau de peau, et
  - la partie de fourrure est fixée à une partie de tissu nettoyable en phase humide.
2. Méthode selon la revendication 1, **caractérisée en ce que** la partie de tissu est nettoyée en phase hu-

mide avant que la partie de fourrure ne soit fixée au tissu.

3. Méthode selon la revendication 1 ou 2, **caractérisée en ce que** le produit chimique fluoré est une résine fluorique ou un hydrocarbure fluoré. 5
4. Méthode selon une quelconque revendication 1-3, **caractérisée en ce qu'**avant ou après traitement avec un produit chimique organique fluoré, la fourrure est découpée en bandes longitudinales de fourrure qui sont cousues ensemble par leurs extrémités. 10
5. Produit semi-fini nettoyable en phase humide de fourrure et de tissu, **caractérisé en ce qu'**il est fabriqué par une méthode selon l'une quelconque revendication 1-4. 15
6. Produit semi-fini nettoyable en phase humide selon la revendication 5, comprenant une bande de décoration longitudinale en fourrure fixée en permanence par son côté peau à une partie de tissu. 20
7. Produit semi-fini nettoyable en phase humide selon la revendication 5 ou 6, **caractérisé en ce qu'**il est prévu en forme de rouleau. 25
8. Produit de vêtement nettoyable en phase humide, **caractérisé en ce qu'**il comprend un vêtement combiné selon l'une quelconque revendication 1-4 ou un produit fini selon l'une quelconque revendication 5-7. 30

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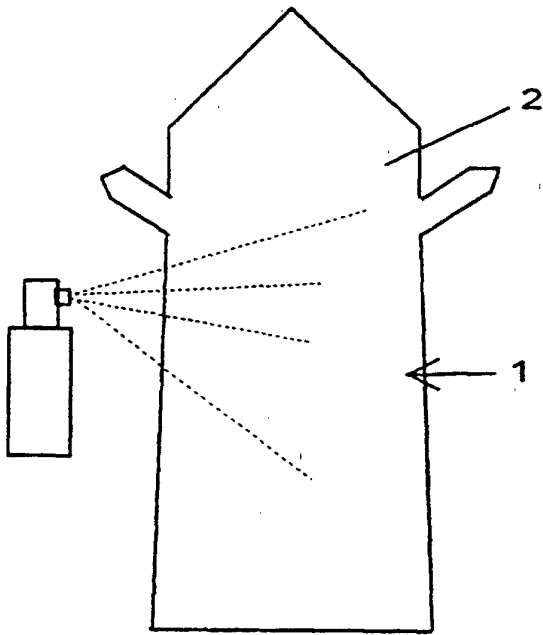


Fig 1A

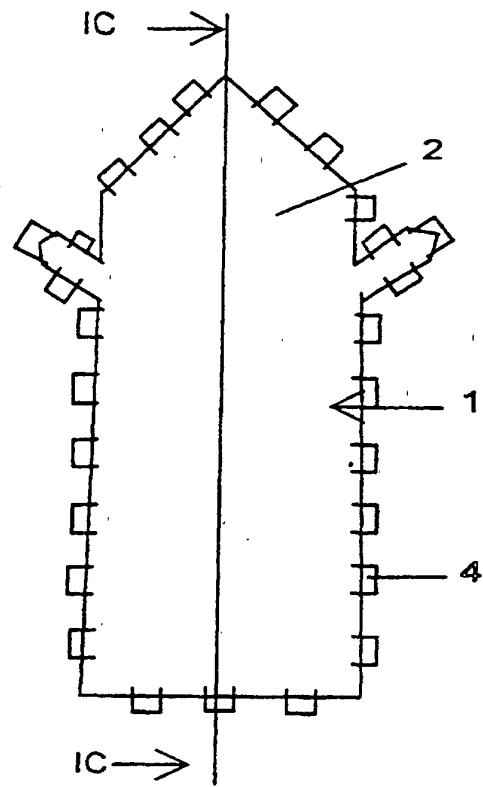


Fig. 1B

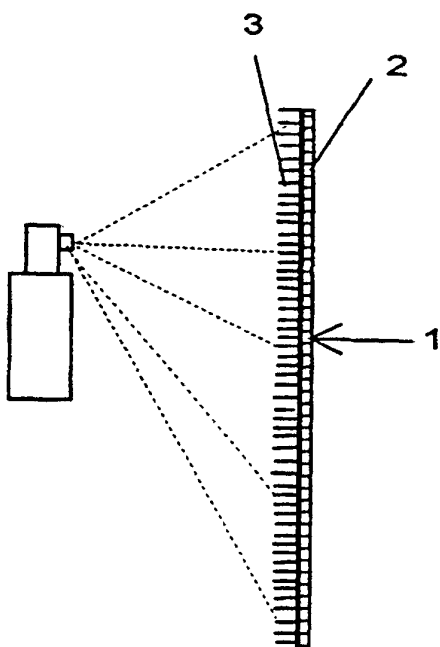


Fig. 1C

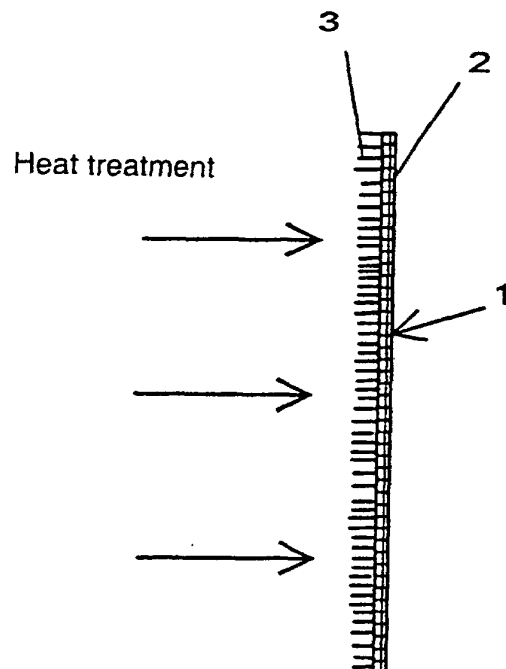


Fig. 1D

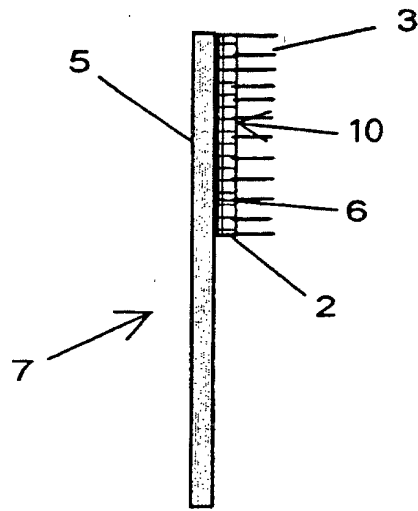


Fig. 2

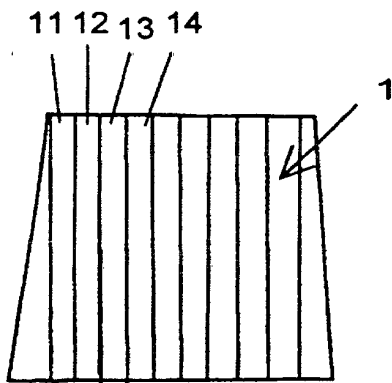


Fig. 3A

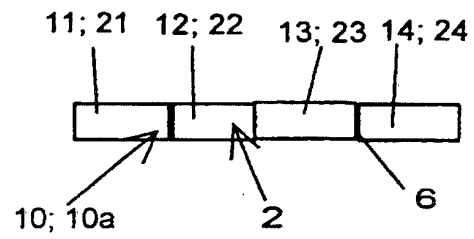


Fig. 3B

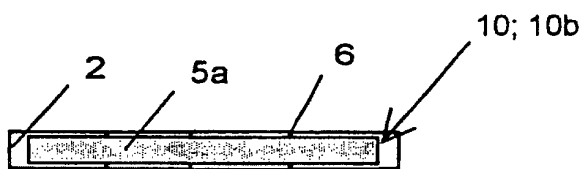


Fig. 3C

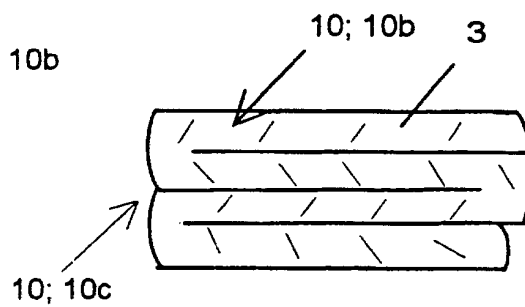


Fig. 3D