

(19)



(11)

EP 2 087 813 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
18.08.2010 Bulletin 2010/33

(51) Int Cl.:
A47B 13/08 (2006.01)

(21) Application number: **09001384.8**

(22) Date of filing: **02.02.2009**

(54) **A table and tabletop**

Tische und Tischplatte

Table et dessus de table

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK TR**

(30) Priority: **05.02.2008 SE 0800270**

(43) Date of publication of application:
12.08.2009 Bulletin 2009/33

(73) Proprietor: **Materia AB
573 24 Tranås (SE)**

(72) Inventor: **Strömgren, Sigrid
415 17 Göteborg (SE)**

(74) Representative: **Wallengren, Yngvar
Patentbyran Wallengren AB
Box 116
331 21 Värnamo (SE)**

(56) References cited:
**FR-A- 2 733 891 FR-A- 2 761 709
FR-A- 2 826 248 FR-A- 2 847 441
US-A- 2 044 588 US-A1- 2002 134 615**

EP 2 087 813 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

TECHNICAL FIELD

[0001] The present invention relates to a tabletop comprising a core and a fixedly disposed, sound-damping mat, cf. e.g. FR-A-2847441. The present invention also relates to a table.

BACKGROUND ART

[0002] Noise pollution problems have long been well-known, not least in large premises where many people gather and, for example, eat or work together. Some of the noise that occurs is naturally traceable to talk and external noise sources, for example from traffic, but a considerable proportion of the noise is attributable to jolts and bumps against tabletops, for example from cutlery, glassware, plates, working equipment or the like.

[0003] Prior art methods of remedying, or at least reducing, the noise problems include laying cloths, possibly supplemented with a subjacent so-called table felt, on the tables. This may work satisfactorily in certain contexts, but entails a number of drawbacks, such as a major labour input being needed for washing and ironing or mangling the cloths. Moreover, textiles materials on the surface top of a table do not satisfy particularly well the requirement that tables in some contexts need to be wiped off.

[0004] Attempts have been made in the art to lay rubber-like mats on the upper surface of tabletops. For some practical applications this may per se function well, but this type of mat also occasionally entails a number of drawbacks. In certain cases, the rubber-like mats are dimpled or roughened or provided with some other surface structure, which implies that they are unsuitable, for instance, as a writing underlay or in other situations where a completely smooth substrate is required. Certain types of materials are quite sensitive to wear, partly to mechanical wear and partly to such wear as is associated with the use of various cleaning agents. Often, the mats are too soft to function satisfactorily as a writing underlay, and there is a risk of pushing the pen through the paper and then damaging the table surface. A number of rubber-like mats may be difficult to wipe off, on the one hand because of possibly occurring uneven surface structure and on the other hand because of quite high friction, which makes it difficult to wipe or brush away crumbs or other table litter from the table.

PROBLEM STRUCTURE

[0005] There is thus a need in the art to realise a sound damping for tabletops, which at the same time however must be easily maintained, easily cleaned and generally usable.

SOLUTION

[0006] The objects forming the basis of the present invention will be attained if the tabletop intimated by way of introduction is **characterised in that** a surface layer of a smooth material is disposed superjacent the sound-damping mat.

[0007] Regarding the table proper, the objects forming the basis of the present invention will be attained if the table includes a tabletop as defined in any of appended Claims 1 to 8.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

[0008] The present invention will now be described in greater detail hereinbelow, with reference to the accompanying Drawings. In the accompanying Drawings:

Figs. 1a, 1b are schematic top plan views of tabletops according to the present invention;

Fig. 2 is a section taken along the line A-A in Figs. 1a and 1b respectively; and

Fig. 3 is a detailed view of one end of the section according to Fig. 2.

DESCRIPTION OF PREFERRED EMBODIMENT

[0009] Referring to the Drawings, Fig. 1a shows a rectangular tabletop 1 with rounded corners, which is a quite conventional shape for a tabletop. A circular tabletop is shown in Fig. 1b. The tabletop 1 is constructed from a base structure which is load bearing panel 1 and also offers anchorage possibilities for table legs or an under frame. These anchorage possibilities are intimated in Fig. 1a and 1b by markings for screw holes 3 where legs can either be secured in the corners, symmetrically beneath the tabletop 1 or a column centrally positioned beneath the tabletop 1. Other leg or frame solutions are also conceivable in principle. These have no major bearing on the present invention, and as a result need no further detailed discussion.

[0010] A panel-shaped core 4 in the tabletop 1 consists, in the preferred embodiment, of an MDF panel. The core 4 is provided on its underside with a thinner MDF panel 8 which makes the construction symmetric in the vertical direction and reduces the risk of stresses in the finished tabletop 1. Such stresses could otherwise deform the tabletop 1. On the underside of the thinner panel 8, there is a barrier laminate 9, and on the upper side of the tabletop 1 there is provided a surface layer 5 which, in the preferred embodiment, is a laminate. The surface layer 5 is smooth and may be wiped and has a hardness which entails that it functions well as a writing underlay or substrate etc. Its coefficient of friction is quite low, with the result that crumbs or other table litter may readily be

brushed off the table or wiped off. Liquids do not penetrate down through the laminate 5, which implies that it is simple to wipe off and insensitive to spillage. Laminates 5 of the type employed in the preferred embodiment may be given a multiplicity of different appearances, which affords to the manufacturer major possibilities for different designs, in order to satisfy as many different customer groups as possible.

[0011] The core 4 and the surface layer 5 are particularly well shown in Fig. 2.

[0012] Between the core 4 and the surface layer 5, there is disposed a sound-damping mat 6. The sound-damping mat, which is thicker than the surface layer 5 but typically thinner than the core 4, is resiliently yieldable, which implies that it does not propagate sound which occurs in the surface layer 5 down to the core 4. Thus, no resonance is created, neither in the tabletop 1 nor in the table as a whole, and noise that occurs when various objects come into contact with the surface layer 5 will consequently be restricted. In order for the tabletop 1 to function well and be perceived as usable, for instance as a writing surface, the surface layer 5 should be quite hard. However, it should be able to withstand jolts, since the support of the surface layer 5 from beneath is limited, because of the fact that the sound-damping mat 6 is yieldable. A brittle material would run the risk of crush damage in the event of receiving severe jolts.

[0013] In the preferred embodiment, the sound-damping mat 6 is manufactured from a felt-like material. The fibres included in the felt-like material consist, in the preferred embodiment, to 100% of polyester, which limits the suction absorption property of the material, since the fibres per se do not absorb any liquid by suction in, for example, gluing. The felt-like material is quite "smooth combed", which implies that its surface structure is quite smooth and lacks excessively large holes and cavities between the fibres. Together, these properties in the felt-like material contribute to a good gluing readiness against, on the one hand, the core 4, and on the other hand, the surface layer 5. The suction capability of the material is limited, on the one hand by the chemical composition of the fibres and, on the other hand by the but limited porous structure. A water based contact glue would, as a result, generally function satisfactorily. A person skilled in the art could select with the greatest reliability a glue that is suitable for the relevant situation. In the preferred embodiment, a contact glue which is marketed under the brand name Floor Star 7291 has been used with good results.

[0014] In the edge regions of the tabletop 1, there is disposed, between the core 4 and the surface layer 5, a rim 7 which is visible in the sectional view in Fig. 2 and in the detailed view in Fig. 3. The rim 7 extends one or a few centimetres inwards on the upper side of the core 4 and is of a thickness which corresponds to the thickness of the sound-damping mat 6. The idea is that the surface layer 5 will be able to be glued, without any visible transition, on both the upper side of the rim 7 and the upper

side of the sound-damping mat 6. The primary purpose in providing a rim 7 at the edge of the tabletop 1 is to render the edge region stronger and more easily processed than if the sound-damping mat had extended all the way out to the edge. Moreover, coating or cladding of the edge side is facilitated. Such a cladding may consist of an edge bead or strip of plastic or some other suitable material. However, it is also conceivable to paint or laminate the edge surface. An edge strip or bead is applied on the side edge, and the strip must not therefore be excessively hard, but it must be capable of being curved and bent so that it forms itself to fit the corners 2 of the tabletop.

[0015] The above-described design of the tabletop 1 functions as follows. Jolts against the table surface will take place at irregular intervals on use of the tabletop. These jolts are in general unintentional and in actual fact not particularly hard, but in prior art tabletops, they give rise to quite high levels of noise. The noise that occurs on jolts against the surface layer 5 in the design according to the present invention propagate only in the surface layer 5 proper in this design. The sound-damping mat 6 which, in the preferred embodiment, is a type of felt, is far too yieldable to be able to propagate sound waves further and cause a resonance in the table. Consequently, the noise in the tabletop is not amplified, but is rather damped and extinguished by the sound-damping mat 6. The result will be a considerably quieter environment in those places where the tabletop 1 according to the invention is used.

[0016] The tabletop 1 according to the present invention is manufactured in the following manner: the core 4 is cut out of a starting material, which, in the preferred embodiment, is a MDF (Medium Density Fibreboard) material and has dimensions which slightly exceed the finished tabletop. Thereafter, a correspondingly cut-out thinner panel 8 is glued to the underside of the core 4. The rim 7 which, in the preferred embodiment, also consists of a MDF material, is glued at the same time against the core 4 together with the sound-damping mat 6 which has also been cut to suitable shape. In the preferred embodiment, the sound-damping mat 6 comprises a felt material. The "smooth combed" structure of the felt material implies that its surface has a limited porosity, which entails that the glue coated surface will have a large contact surface, on the one hand with the core 4 and on the other hand to the later applied surface layer 5 in the form of a laminate.

[0017] The gluing of the edge 7 and the sound-damping mat 6 to the core 4 is advantageously put into effect using a PVAC glue, also called white glue. After application of the glue to the different parts and their assembly to one another, the glue is allowed to dry under compression and gentle heating, preferably to approx. 50°C, for roughly 10 min.

[0018] Thereafter, the surface layer 5 which, in the preferred embodiment, is a laminate, is glued to the upper side of the sound-damping mat 6 and the upper side of

the rim 7, whose upper sides (as has been described above) lie flush with one another. In the same working phase, the barrier laminate 9 is also glued to the underside of the thinner panel 8 on the underside of the tabletop 1. The same glue as previously is employed, and the tabletop is once again allowed to dry under compression and gentle heating for approx. 10 min.

[0019] A shaping of the edges, such as rounding of the corners, is then carried out. Possibly, the side edge may be angled or bevelled, in relation to that illustrated in Fig. 2 and 3, where an angle of approx. 90° exists at the transition between the edge side and the upper and lower sides of the panel, respectively. A bevelling may advantageously be put into effect so that the angle between the side edge and the upper side of the tabletop is acute, while the angle between the side edge and the underside is obtuse. In such instance, the side edge will face obliquely downwards. The shaping of the glued panel is carried out in those regions where the edge is fixedly glued to the core 4 and, for example, takes place with the aid of water cutting or plasma cutting. Since a rim 7 is glued to the core 4 in all of those regions that are intended to function as edge regions of the finished tabletops 1, the division takes place only through the MDF material and the glue joints therebetween. This implies that it is possible to obtain a homogeneous and smooth surface in the edge portion. No problems occur with a torn sound-damping mat on cutting, or a yieldable zone which is formed therefrom in the edge region, since no cutting takes place through the sound-damping mat.

[0020] The side edge is then finally treated, for example by being lacquered, retrolaminated or provided with a plastic bead or strip so that an easily maintained and aesthetically attractive appearance of the tabletop 1 will be obtained. Advantageously, the forming and application of an edge strip or bead may take place in one and the same machine in a coordinated process. In one preferred embodiment, the edge strip is manufactured from ABS plastic and is applied to the tabletop with the aid of hot melt adhesive. The application of an edge strip is preferably put into effect on edge surfaces that make substantially a right angle with the upper and lower surfaces of the tabletop 1, respectively.

[0021] Finally, holes 3 are made in the underside of the tabletop 1 in accordance with one or more of the hole patterns illustrated by way of example in Figs. 1a and 1b.

DESCRIPTION OF ALTERNATIVE EMBODIMENTS

[0022] In Fig. 1a, the tabletop 1 has been shown as a rectangle with rounded corners. Naturally, other shapes are also conceivable, such as for example circular, as shown in Fig. 1b, or square. In such instance, the shape of the rim 7 must already be adapted to fit on gluing onto the core 4. Possibly, a number of shapes, such as the circular shape in Fig. 1b, involves increased material losses, since the areas between cut-out circles of the tabletop material must be rejected.

[0023] In addition to MDF board, the material of the core 4 may be chipboard, plywood board, laminated particle board or laminated plywood board.

[0024] Another method of modifying the present invention is to employ some other sound-damping mat 6 than felt material. Certain synthetic, foamed materials could in such instance be used, such as rubber-like materials, or woven or non-woven textile materials. When necessary, the glue may need to be adapted to function for gluing other materials than illustrated and described in the preferred embodiment.

[0025] Yet another respect in which the present invention may be modified, both with and without other modifications to the present invention, is that the surface layer 5 be manufactured from some other material than a laminate. Such materials could comprise thin layers of plastic and/or metal. The essential feature is that not excessively brittle materials are employed. It must always be taken into account that the sound-damping mat is soft, and permits an outward flexing of the surface layer of the same order of magnitude as its thickness, and that the surface layer material is not supported by any direct surface abutment against the core 4. Hence, the surface layer 5 must withstand a certain repeated flexing.

[0026] The surface layer and the sound-damping mat are, in certain embodiments, integrated and, already on manufacture in large sheet, have been disposed in one piece combination with each other. The requirements that the surface layer function satisfactorily as, for example, a working- or writing surface, remain in place, as well the requirements on an adequate sound-damping performance.

[0027] The present invention may be modified further, without departing from the scope of the appended Claims.

Claims

1. A tabletop comprising a core (4) and a fixedly disposed, sound-damping mat (6), wherein a surface layer (5) of a smooth material is disposed superjacent the sound-damping mat (6), and a rim (7) is disposed on an edge region of the core (4); where the sound-damping mat (6) is disposed inside the rim, **characterised in that** the upper side of the rim (7) and the upper side of the sound-damping mat (6) extend in substantially the same plane, so that the surface layer (5) is gluable thereon.
2. The tabletop as claimed in Claim 1, **characterised in that** the sound-damping mat (6) comprises a felt material.
3. The tabletop as claimed in Claim 2, **characterised in that** the felt material (6) is a smooth synthetic material.

4. The tabletop as claimed in any of Claims 1 to 3, **characterised in that** the surface layer (5) comprises a laminate.
5. The tabletop as claimed in Claim 1, **characterised in that** the surface layer (5) and the sound-damping mat (6) are of one piece manufacture.
6. The tabletop as claimed in any of Claims 1 to 5, **characterised in that** an edge bead or strip is disposed along the edge of the tabletop (1) at an angle to its major plane of extent.
7. The tabletop as claimed in any of Claims 1 to 6, **characterised in that** pre-drilled holes (3) are provided in the core (4) on the side thereof facing away from the surface layer (5) for securing legs, support frameworks, under frames or the like.
8. A table including a tabletop as claimed in any of Claims 1 to 7.

Patentansprüche

1. Tischplatte, die ein Kernstück (4) und eine fixiert angebrachte, schalldämpfende Matte (6) aufweist, wobei eine Oberflächenschicht (5) aus einem glatten Material auf der schalldämpfenden Matte (6) angrenzend aufliegt und ein Rand (7) auf dem Kantenbereich des Kernstücks (4) vorgesehen ist, wobei die schalldämpfende Matte (6) im Innern des Randumfanges untergebracht ist, **dadurch gekennzeichnet, dass** sich die obere Seite des Randes (7) und die obere Seite der schalldämpfenden Matte (6) im Wesentlichen in der gleichen Ebene erstrecken, so dass die Oberflächenschicht (5) darauf verleimt werden kann.
2. Tischplatte gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die schalldämpfenden Matte (6) aus einem Pressfilzmaterial besteht.
3. Tischplatte gemäß Anspruch 2, **dadurch gekennzeichnet, dass** das Pressfilzmaterial (6) ein gleichförmiges Synthetikmaterial ist.
4. Tischplatte gemäß einem beliebigen der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** die Oberflächenschicht (5) aus einem Schichtverbundwerkstoff besteht.
5. Tischplatte gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Oberflächenschicht (5) und die schalldämpfende Matte (6) in einem Stück gefertigt sind.
6. Tischplatte gemäß einem beliebigen der Ansprüche

1 bis 5, **dadurch gekennzeichnet, dass** ein Kantenbördel oder Kantenstreifen längs der Umfangskante der Tischplatte (1) in Bezug auf deren Hauptumfangsebene mit einem abgewinkelten Bereich angebracht ist.

7. Tischplatte gemäß einem beliebigen der Ansprüche 1 bis 6, **dadurch gekennzeichnet, dass** Vorbohrungen (3) in dem Kernstück (4) in der zur Oberflächenschicht (5) entgegengesetzten Seite zum Befestigen von Tischbeinen, zum Tragen und Unterstützen von Tischrahmen, Unterrahmenkonstruktionen oder dergleichen bereitgestellt sind.
8. Tisch, welcher eine Tischplatte gemäß einem beliebigen der Ansprüche 1 bis 7 aufweist.

Revendications

1. Plateau de table comprenant une âme (4) et un matelas insonorisant agencé à demeure (6), dans lequel une couche de surface (5) en un matériau lisse est agencée de manière surjacente sur le matelas insonorisant (6), et une bordure (7) est agencée sur une zone de bord de l'âme (4) ; dans lequel le matelas insonorisant (6) est agencé à l'intérieur de la bordure, **caractérisé en ce que** la face supérieure de la bordure (7) et la face supérieure du matelas insonorisant (6) s'étendent sensiblement dans le même plan, de sorte que la couche de surface (5) peut être collée sur ces dernières.
2. Plateau de table selon la revendication 1, **caractérisé en ce que** le matelas insonorisant (6) comprend un matériau à base de feutre.
3. Plateau de table selon la revendication 2, **caractérisé en ce que** le matériau à base de feutre (6) est un matériau synthétique souple.
4. Plateau de table selon l'une quelconque des revendications 1 à 3, **caractérisé en ce que** la couche de surface (5) comprend un laminé.
5. Plateau de table selon la revendication 1, **caractérisé en ce que** la couche de surface (5) et le matelas insonorisant (6) sont de fabrication unitaire.
6. Plateau de table selon l'une quelconque des revendications 1 à 5, **caractérisé en ce qu'**une nervure ou une bande de bord est disposée suivant le bord du plateau de table (1) sous un certain angle par rapport à son plan principal d'extension.
7. Plateau de table selon l'une quelconque des revendications 1 à 6, **caractérisé en ce que** des orifices préalablement percés (3) sont agencés dans l'âme

(4) sur la face de celle-ci opposée à la couche extérieure (5) afin de fixer des pieds, des châssis de support, des structures secondaires et analogues.

8. Table comportant un plateau de table selon l'une quelconque des revendications 1 à 7. 5

10

15

20

25

30

35

40

45

50

55

Fig 1a

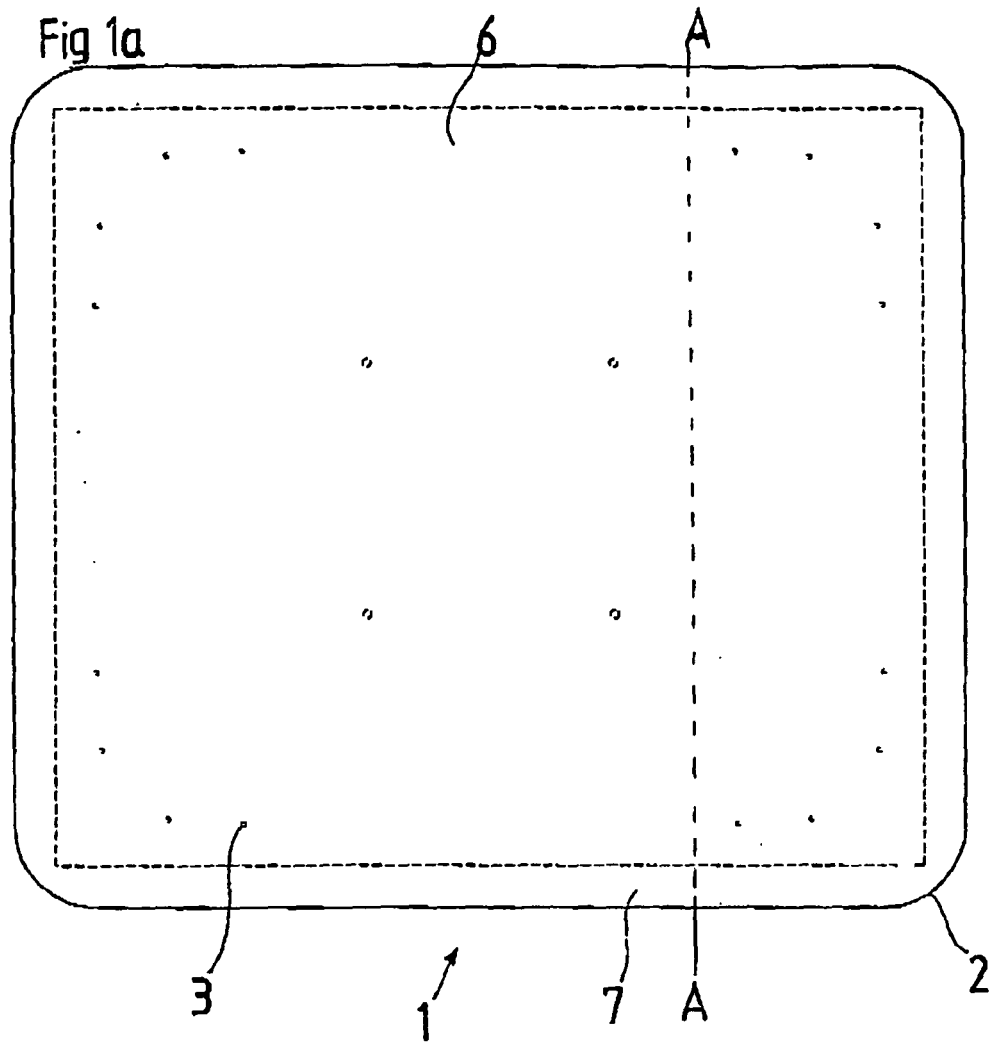


Fig 2

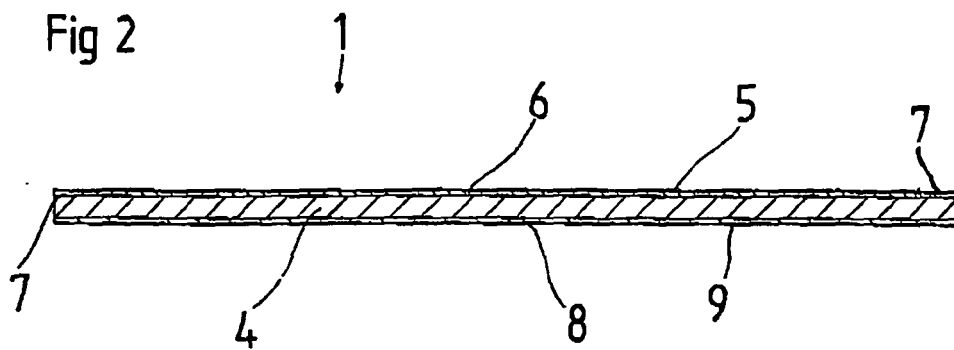


Fig 1b

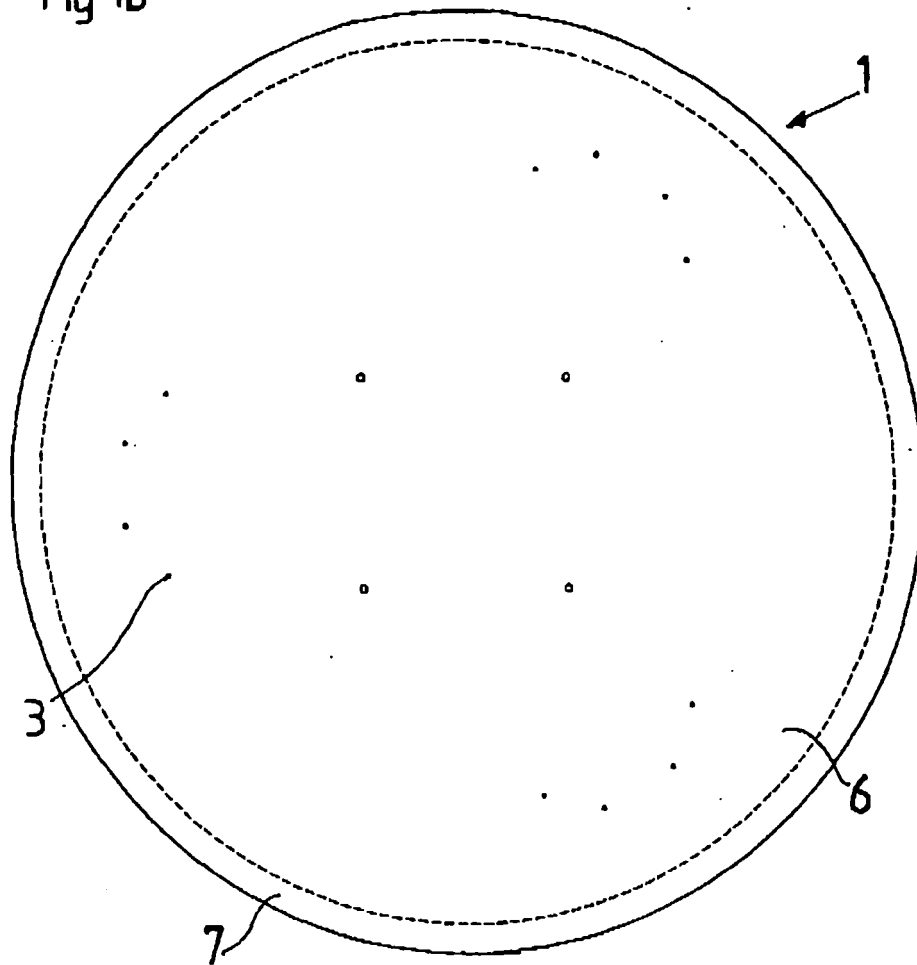
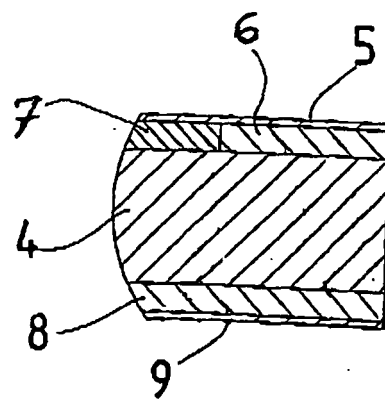


Fig 3



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- FR 2847441 A [0001]