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(54) **Floor drain assembly and method of installation of a floor drain**

Bodenablaufanordnung und dazugehörige Einbaumethode

Ensemble d'écoulement de sol et méthode d'installation associée

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Description

[0001] The present invention relates to a drain assembly, particularly for a walk-in shower, which drain assembly is intended for building into a tile floor. The invention further relates to a method for building-in of a drain.

[0002] A known problem of the existing drains for tile floors is associated with making the connections between the drain and the tiles watertight. The development of drains typically takes place from the viewpoint of the plumber. Insufficient attention is paid here to the convenience of placing for a tiler.

[0003] US 2008/229494 A discloses a shower drain adapter system configured to allow use of a bondable waterproof membrane with a shower pan drain system comprising a drain body and an integrated bonding flange extending upwardly from the drain body.

[0004] Similar constructions are known from NL 2001410C and EP 0763634 A.

[0005] The present invention has for its object to provide a drain assembly which can be placed easily and properly by a tiler and with which leakage and/or moisture problems can particularly be avoided.

[0006] The invention relates for this purpose to a drain assembly which is distinguished in that it comprises the following components:

- a drain body which can be built into the floor and which has at the top an inlet zone with a periphery;
- a peripheral flange with an upper surface, extending substantially in a horizontal plane from this periphery;
- a water-sealing layer arranged adheringly on the upper surface of the peripheral flange;
- a sealing mat intended for placing around the periphery, wherein a portion of the sealing mat overlaps at least the outer periphery of the water-sealing layer.

[0007] A minimal overlap zone will typically be necessary along the whole outer periphery of the water-sealing layer in order to guarantee an adequate water sealing. Such a drain assembly will ensure that penetration of water due to capillary action in the tile floor is largely prevented. The water-sealing layer will more particularly provide for a good water sealing close to the drain, this without the tiler having to be particularly experienced. This water-sealing layer is after all pre-adhered watertightly to the peripheral flange, and the sufficient overlap between this layer and the water-sealing mat will in this way bring about an efficient sealing.

[0008] According to a preferred embodiment, the water-sealing layer extends along the periphery so as to form a peripheral zone with a minimal width. The whole peripheral flange is more preferably covered with the water-sealing layer.

[0009] According to an advantageous embodiment, the sealing mat is dimensioned to extend from the periphery of the inlet zone to a position beyond the outer periphery of the peripheral flange. In this way it will be immediately apparent to a tiler how this sealing mat must be placed. A smaller overlap part will however generally be technically sufficient to realize an adequate sealing. In the case that a KERDI material (see below) is used for the sealing layer and mat, use will typically be made of for instance a minimal overlap of 5 cm.

[0010] According to a preferred embodiment of the invention, the peripheral flange is provided close to the outer periphery thereof with an upright edge, this such that water seeping in along the sealing layer is held back by this upright edge. This will further improve the watertightness and reduce the overlap necessary in determined embodiments.

[0011] According to an advantageous embodiment, the water-sealing layer and/or the sealing mat comprises polyethylene. The sealing mat and/or the water-sealing layer are typically adapted to be water-sealing and to adhere well to tile adhesive, and comprise for instance polyethylene, wherein a fleece webbing is provided on both sides for a good anchoring in tile adhesive. According to a possible embodiment, the water-sealing layer and/or the sealing mat are manufactured from a KERDI material manufactured by the Schlüter company.

[0012] According to a preferred embodiment, the drain body is a moulded plastic article.

[0013] According to a possible embodiment, the water-sealing layer consists of a KERDI mat material which is arranged on the drain body by means of an adhesive. This adhesive must particularly realize a watertight adhesion of the KERDI mat material to the peripheral flange.

[0014] According to a further developed embodiment, the drain body can be provided on its underside with a number of protrusions for stabilizing the drain body during placing thereof in a floor material such as mortar. The inlet zone can further be provided on the inner side with one or more support edges for supporting a grate assembly along which the water flows from the floor to the inlet zone.

[0015] According to a possible embodiment, the drain body is substantially elongate with a substantially rectangular inlet zone, although other designs are also possible. The inlet zone can further be provided with one or more buffer zones for controlling the flow rate to the outlet. A modified design can be chosen for these buffer zones depending on the form of the drain body. In the case of a rectangular inlet zone the sealing mat for instance takes form of a frame with an inner periphery fitting around the periphery.

[0016] Finally, the invention relates to a method for placing a drain, comprising of:

- selecting a drain body having an inlet zone with a periphery and a peripheral flange with an upper surface extending substantially in a horizontal plane from this periphery;
- connecting a water-sealing layer adheringly to the upper surface of the peripheral flange;

- arranging the drain body in a floor material such that the underside of the peripheral flange is arranged in the floor material;
- placing the sealing mat around the periphery,

wherein a portion of the sealing mat overlaps at least an outer peripheral zone of the water-sealing layer.

[0017] The present invention will be further elucidated on the basis of a number of non-limitative exemplary embodiments, with reference to the accompanying drawings, in which:

figure 1 is a schematic perspective view of a first embodiment of a drain assembly according to the invention;

figure 2 is a schematic perspective view of the drain body of figure 1 as seen from below;

figure 3 is a schematic perspective view of the drain body illustrated in figure 1 as seen from above;

figure 4 is an exploded schematic perspective view of a grate assembly for use with the drain assembly of figure 1;

figure 5 shows a cross-section along line A-A in figure 3, wherein two connecting laid tiles are also shown;

figures 6A-D illustrate schematically an embodiment of the method according to the invention; and

figure 7 is a schematic perspective view similar to the view of figure 3 of a second variant of a drain assembly according to the invention;

figure 8 shows a partially schematic cross-section similar to the cross-section of figure 5 of a third variant of a drain assembly according to the invention.

[0018] A first embodiment of a drain assembly according to the invention will be illustrated hereinbelow with reference to figures 1-5. The drain assembly comprises a drain body 1 with an upper side 3 and an underside 2. Drain body 1 is provided on its upper side 3 with an inlet zone 4 with a periphery 5. This periphery 5 transposes into a substantially horizontally extending peripheral flange 6. Underside 3 of drain body 1 is preferably intended to be arranged directly into a floor material such as mortar. The underside of peripheral flange 6 is thus placed directly against the floor material here, as will be further illustrated with reference to figures 6A-D.

[0019] The drain body is preferably manufactured from a plastic which adheres to the typical floor materials such as mortar, and preferably from a mouldable plastic. It is however also possible to manufacture the drain body from metal. An example of a suitable material is a mouldable plastic on the basis of polyester resins and aluminium trihydrates. Such a plastic is already used nowadays for the moulding of other bathroom components, such as shower trays.

[0020] Arranged on the upper surface of peripheral flange 6 is a water-sealing layer 7 which can be connected adheringly to a sealing mat 8 using for instance a tile adhesive. Water-sealing layer 7 preferably extends over substantially the whole upper surface of peripheral flange 6. This water-sealing layer can for instance be a KERDI mat cut to size which is connected with a suitable adhesive to peripheral flange 6 of the drain body. Such KERDI mats are sold by the manufacturer Schlüter and are manufactured from a soft polyethylene material, wherein a special fleece webbing is arranged on both sides of the mat for a good anchoring with tile adhesive and other trowel-applied covering materials or plaster layers.

[0021] The water-sealing layer is arranged on the upper surface of the peripheral flange in adhering manner such that water is prevented from being able to permeate under the water-sealing layer. According to a possible embodiment, the sealing layer is arranged by arranging a KERDI mat material on the peripheral flange using a suitable adhesive. This adhesive must therefore preferably ensure a good watertight adhesion of the water-sealing layer to the drain body. An example of a suitable adhesive is an acrylate adhesive with a high adhesive strength. It is for instance possible here to envisage two-sided adhesive transfer tapes (for instance Transfertape 3M Scotch 969/950). A layer of adhesive of between 0.05 and 0.5 mm is typically provided, and for instance a layer of adhesive of about 0.13 mm.

[0022] The first embodiment of the drain assembly further comprises a sealing mat 8 intended for placing on the upper surface of peripheral flange 6 around periphery 5. In the shown embodiment the inlet zone 4 of the drain body is substantially rectangular and sealing mat 8 takes the form of a frame with a recess 9, the dimensions of which substantially correspond to those of inlet zone 4. When placed on peripheral flange 6, sealing mat 8 will in this way extend from periphery 5 beyond outer periphery 10 of peripheral flange 6. This sealing mat will typically be sold together with the other parts of the drain assembly and arranged by a tiler around periphery 5 before arranging of the tiles, as will be further illustrated with reference to figure 5 and figures 6A-D. In this way the sealing mat can form a kind of bridge to other parts of sealing mats used under the tiles.

[0023] According to an advantageous embodiment, peripheral flange 6 is provided close to its outer periphery 10 with an upright edge 11. This edge 11 will particularly ensure that, should water nevertheless seep under or over sealing layer 3, this water will in any case be held back by this edge.

[0024] In order to guarantee a good water sealing, it is typically appropriate in the case KERDI materials are used to make use of a minimal overlap of 5 cm between adjacent mats. Similarly, a sufficient overlap is required between the sealing layer and the sealing mat. When the

drain body is provided with an upright edge 11, it is possible to in most cases to opt for a smaller overlap.

[0025] As illustrated in figure 2, the underside of the drain body can be formed so as to enhance a stable placing thereof in a floor material. Underside 2 of the drain body is provided centrally with a recessed portion 12 in which a siphon (not shown) can be provided which carries the water to outlet 14. In the shown embodiment the underside is further provided with a number of protrusions 13 intended for a more stable placing of the drain body. The skilled person will appreciate that more or fewer protrusions can be provided depending on the design of the drain body. The skilled person will further appreciate that the invention not only relates to substantially rectangular drain bodies as shown in figures 1-5, but also to square drain bodies, round drain bodies, etc.

[0026] Inlet zone 4 can be provided on its inner side with a plurality of support edges 15, 16 for supporting a grate assembly. A possible embodiment of a grate assembly is shown in figure 4. The grate assembly is formed here from substantially two parts 40, 41, being a substantially rectangular frame 40 and a U-profile 41 fitting therein. The water can flow to the inlet zone between walls 43 of the U-profile and the inner walls of frame 40. In order to arrange the grate assembly in inlet zone 4 a number of supports 44 are typically provided which are intended to support on a support edge 15, 16 of the drain body. These supports 44 are for instance formed in order to receive and position frame 40 and U-profile 41. Additional support blocks 45 can further be added. Such additional support blocks allow the height of the grate assembly to be adjusted to the thickness of tiles 50. This can be seen in detail in figure 5.

[0027] Figure 5 further illustrates how the drain assembly of figure 1 is built into a tile floor, wherein tiles 50 extend to a position against frame 42 of grate assembly 40. Sealing mat 8 is here arranged over flange 6 to which a sealing layer 3 has been adhered beforehand (i.e. prior to being built into the floor). In this way a watertight connection can be guaranteed without a tiler having to perform complicated operations.

[0028] Figures 6A-D illustrate an embodiment of the method according to the invention. In a first step (figure 6A) the drain body is positioned on the floor. An auxiliary part 60 (for instance of expanded polystyrene) is typically arranged here in the inlet zone. After the drain assembly has been built in, this auxiliary part will be removed and grate assembly 40, 41, 44 will be placed. In a second step (figure 6B) a floor material such as concrete is arranged around the drain body. Sealing mat 8 is then arranged over the drain body, after which the rest of the floor and/or wall(s) can be finished in the usual manner using additional sealing mats (figure 6D). The tiles can now be placed, these tiles extending as shown in figure 5 to a position beyond the outer periphery of inlet zone 4 of the drain assembly.

[0029] Figures 7 and 8 illustrate a second and third embodiment of the drain assembly according to the invention. The difference with the first embodiment lies in the provision of a second upright edge 117 close to the periphery 105 of inlet zone 104, wherein a sealing layer 103 extends from this second upright edge 117 in the direction of the outer periphery of peripheral flange 106. In the variant of figure 7 the upright edge 111 is located along the outer periphery of flange 106, while in the variant of figure 8 it is displaced further inward. Sealing layer 103 and sealing mat 108 further do not overlap fully but only over an outer peripheral zone of sealing layer 103, this applying to both the second and third variant.

[0030] The skilled person will appreciate that many modifications to the above described exemplary embodiments are possible without departing from the scope of the invention, this scope being defined solely by the following claims.

Claims

1. Drain assembly for building into a floor, comprising:

   - a drain body which can be built into the floor and which has at the top an inlet zone with a periphery;
   - a peripheral flange with an upper surface, extending substantially in a horizontal plane from this periphery;
   - a water-sealing layer arranged adheringly on the upper surface of the peripheral flange; **characterized in that** the drain assembly further comprises:
   - a sealing mat with the form of a frame with an inner periphery fitting around the periphery, wherein a portion of the sealing mat overlaps at least the outer periphery of the water-sealing layer;
   wherein the sealing mat and the water-sealing layer are adapted to be water-sealing and to adhere well to tile adhesive.

2. Drain assembly as claimed in claim 1, **characterized in that** the sealing mat and the water-sealing layer each comprise polyethylene.

3. Drain assembly as claimed in claim 1 or 2, **characterized in that** the sealing mat and the water-sealing layer are each provided on both sides with a fleece webbing for a good anchoring in the tile adhesive.

4. Drain assembly as claimed in claim 3, **characterized in that** the sealing mat and the water-sealing layer are KERDI mats cut to size.

5. Drain assembly as claimed in any of the foregoing claims, **characterized in that** the water-sealing layer is arranged on the upper surface of the peripheral flange by means of an acrylate adhesive with high

adhesive strength; or is arranged on the upper surface of the peripheral flange by means of a two-sided adhesive transfer tape.

6. Drain assembly as claimed in any of the foregoing claims, **characterized in that** the water-sealing layer is arranged on the upper surface of the peripheral flange by means of a layer of adhesive with a thickness of between 0.05 mm and 0.50 mm.

7. Drain assembly as claimed in any of the foregoing claims, **characterized in that** the peripheral flange has an outer periphery and that the sealing mat is dimensioned to extend from the periphery to a position beyond the outer periphery of the peripheral flange.

8. Drain assembly as claimed in any of the foregoing claims, **characterized in that** the peripheral flange is provided with an upright edge, preferably close to the outer periphery of the peripheral flange.

9. Drain assembly as claimed in any of the foregoing claims, **characterized in that** the drain body is a moulded plastic article or is manufactured from metal.

10. Drain assembly as claimed in any of the foregoing claims, **characterized in that** the drain body is provided on its underside with a number of protrusions for stabilizing the drain body during placing thereof in a floor material such as mortar.

11. Drain assembly as claimed in any of the foregoing claims, **characterized in that** the sealing layer extends over the whole upper surface of the peripheral flange.

12. Drain assembly as claimed in any of the foregoing claims, **characterized in that** the sealing mat is dimensioned to overlap a peripheral zone of the sealing layer, the peripheral zone having a width of at least 2 cm, preferably at least 3 cm and more preferably at least 5 cm.

13. Method for placing a drain, comprising of:

- selecting a drain body having an inlet zone with a periphery and a peripheral flange with an upper surface extending substantially in a horizontal plane from this periphery;
- connecting a water-sealing layer adheringly to the upper surface of the peripheral flange prior to building into the floor; **characterized in that** the method further comprises:
- cutting to size a sealing mat with the form of a frame with an inner periphery fitting around the periphery, this prior to building into the floor, wherein the sealing mat is dimensioned such that a portion of the sealing mat overlaps at least the outer periphery the water-sealing layer;
- arranging the drain body in a floor material such that the underside of the peripheral flange is arranged in the floor material;
- placing the sealing mat around the periphery and connecting the sealing mat adheringly to the sealing layer by means of tile adhesive, wherein a portion of the sealing mat overlaps at least the outer periphery of the water-sealing layer.

14. Method as claimed in claim 13, **characterized in that** the sealing mat and the water-sealing layer are cut to size from KERDI mats.

Patentansprüche

1. Ablaufrinnenanordnung für Einbau in einen Fußboden, umfassend:

- einen im Fußboden einbaubaren Ablaufkörper der an der Oberseite eine Einlasszone mit einer Umrandung hat,
- einen sich ab dieser Umrandung hauptsächlich in einer waagerechten Fläche erstreckenden Rundflansch mit einer Oberseite;
- eine Wasserdichtungsschicht, die haftend auf der Oberseite des Rundflansches angebracht worden ist;

dadurch gekennzeichnet, dass die Ablaufinnenanordnung weiter umfasst:

- eine Dichtungsmatte mit der Form eines Rahmens mit einem Innenumfang, der um die Umrandung passt, wobei ein Teil der Dichtungsmatte sich mit mindestens dem Außenumfang der Wasserdichtungsschicht überlappt;
wobei die Dichtungsmatte und die Wasserdichtungsschicht eingerichtet sind, um wasserdichtend zu sein und gut an Fliesenkleber zu haften.

2. Ablaufrinnenanordnung gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Dichtungsmatte und die Wasserdichtungsschicht beide Polyethylen umfassen.

3. Ablaufrinnenanordnung gemäß Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Dichtungsmatte und die Wasserdichtungsschicht beide an beiden Seiten mit einem Fliesgewebe für eine gute Verankerung im Fliesenkleber versehen.

4. Ablaufrinnenanordnung gemäß Anspruch 3, **dadurch gekennzeichnet, dass** die Dichtungsmatte und die Wasserdichtungsschicht maßgeschnittene KERDI-Matten sind.

5. Ablaufrinnenanordnung gemäß einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Wasserdichtungsschicht mittels eines Akrylatklebers mit hoher Klebekraft auf der oberen Fläche des Rundflansches angebracht worden ist, oder mittels eines zweiseitig klebenden transfer tape auf der Oberfläche des Rundflansches angebracht worden ist.

6. Ablaufrinnenanordnung gemäß einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Wasserdichtungsschicht mittels einer Kleberschicht mit einer Stärke zwischen 0,05 mm und 0,50 mm auf der Oberfläche des Rundflansches angebracht worden ist.

7. Ablaufrinnenanordnung gemäß einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der Rundflansch einen Außenumfang hat und dass die Dichtungsmatte abgemessen ist, um sich ab der äußeren Begrenzungslinie bis am Außenumfang des Rundflansches vorbei zu erstrecken.

8. Ablaufrinnenanordnung gemäß einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der Rundflansch mit einem stehenden Rand versehen ist, vorzugsweise in der Nähe des Außenumfangs des Rundflansches.

9. Ablaufrinnenanordnung gemäß einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der Ablaufkörper ein gegossenes Kunststoffteil oder aus Metal hergestellt ist.

10. Ablaufrinnenanordnung gemäß einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der Ablaufkörper an seiner Unterseite mit einer Anzahl von Ausstülpungen zur Stabilisierung des Ablaufkörpers bei dessen Anbringung in ein Fußbodenmaterial wie Mörtel versehen ist.

11. Ablaufrinnenanordnung gemäß einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Dichtungsschicht sich über die vollständige Oberfläche des Rundflansches erstreckt.

12. Ablaufrinnenanordnung gemäß einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Dichtungsschicht abgemessen worden ist, um sich mit einer Umrandungszone der Dichtungsschicht zu überlappen, welche Umrandungszone eine Breite von mindestens 2 cm, vorzugsweise von mindestens 3 cm und noch mehr vorzugsweise von mindestens 5 cm hat.

13. Verfahren zum Einbauen einer Ablaufrinne, umfassend:

- Auswählen eines Ablaufkörpers, der eine Einlasszone mit einer Umrandung und einen sich ab dieser Umrandung hauptsächlich in einer waagerechten Fläche erstreckenden Rundflansch mit einer Oberseite hat;
- haftend Anbringen einer Wasserdichtungsschicht auf der Oberseite des Rundflansches, vor dem Einbauen in den Fußboden;

dadurch gekennzeichnet, dass das Verfahren auch umfasst:

- auf Maß Schneiden einer Dichtungsmatte mit der Form eines Rahmens mit einem Innenumfang, der um die Umrandung passt, vor dem Einbauen in den Fußboden, wobei die Dichtungsmatte so abgemessen wird, dass ein Teil der Dichtungsmatte sich mit mindestens dem Außenumfang der Wasserdichtungsschicht überlappt;
- so Anbringen des Ablaufkörpers in ein Fußbodenmaterial, dass die Unterseite der Umrandung im Fußbodenmaterial fasst;
- Anbringen der Dichtungsmatte um den Außenumfang und haftend verbinden der Dichtungsmatte mit Fliesenkleber an die Wasserdichtungsschicht, wobei ein Teil der Dichtungsmatte sich mit mindestens dem Außenumfang der Wasserdichtungsschicht überlappt.

14. Verfahren gemäß Patentanspruch 13, **dadurch gekennzeichnet, dass** die Dichtungsmatte und die Wasserdichtingsschicht maßgeschnittene KERDI-matten sind.

Revendications

1. Ensemble d'écoulement pour intégration dans un sol, comprenant :

- un corps d'écoulement qui peut être intégré dans le sol et qui a, au niveau du dessus, une zone d'entrée munie d'une périphérie ;
- un rebord périphérique muni d'une surface supérieure, s'étendant sensiblement dans un plan horizontal à partir de cette périphérie ;
- une couche étanche à l'eau agencée par adhérence sur la surface supérieure du rebord périphérique ; **caractérisé en ce que** l'ensemble d'écoulement comprend en outre :
- une natte d'étanchéité ayant la forme d'un cadre avec une périphérie intérieure s'ajustant autour de la périphérie, dans laquelle une partie de la natte d'étanchéité chevauche au moins la périphérie extérieure de la couche étanche à l'eau ;

dans lequel la natte d'étanchéité et la couche étanche à l'eau sont conçues pour être étanches à l'eau et bien adhérer à la colle à carrelage.

2. Ensemble d'écoulement selon la revendication 1, **caractérisé en ce que** la natte d'étanchéité et la couche étanche à l'eau comprennent chacune du polyéthylène.

3. Ensemble d'écoulement selon la revendication 1 ou 2, **caractérisé en ce que** la natte d'étanchéité et la couche étanche à l'eau sont chacune munies des deux côtés d'un non-tissé pour un bon ancrage dans la -colle à carrelage.

4. Ensemble d'écoulement selon la revendication 3, **caractérisé en ce que** la natte d'étanchéité et la couche étanche à l'eau sont des nattes KERDI découpées à la dimension.

5. Ensemble d'écoulement selon n'importe laquelle des revendications précédentes, **caractérisé en ce que** la couche étanche à l'eau est agencée sur la surface supérieure du rebord périphérique au moyen d'un adhésif acrylique ayant une résistance adhésive élevée ; ou est agencée sur la surface supérieure du rebord périphérique au moyen d'une bande de transfert adhésive double face.

6. Ensemble d'écoulement selon n'importe laquelle des revendications précédentes, **caractérisé en ce que** la couche étanche à l'eau est agencée sur la surface supérieure du rebord périphérique au moyen d'une couche d'adhésif avec une épaisseur entre 0,05 mm et 0,50 mm.

7. Ensemble d'écoulement selon n'importe laquelle des revendications précédentes, **caractérisé en ce que** le rebord périphérique a une périphérie extérieure et **en ce que** la natte d'étanchéité est dimensionnée pour s'étendre depuis la périphérie jusqu'à une position au-delà de la périphérie extérieure du rebord périphérique.

8. Ensemble d'écoulement selon n'importe laquelle des revendications précédentes, **caractérisé en ce que** le rebord périphérique est muni d'un bord vertical, de préférence proche de la périphérie extérieure du rebord périphérique.

9. Ensemble d'écoulement selon n'importe laquelle des revendications précédentes, **caractérisé en ce que** le corps d'écoulement est un article en plastique moulé ou est fabriqué à partir de métal.

10. Ensemble d'écoulement selon n'importe laquelle des revendications précédentes, **caractérisé en ce que** le corps d'écoulement est muni sur sa face inférieure d'un certain nombre de protubérances pour stabiliser le corps d'écoulement pendant son placement dans une matière pour sol telle que du mortier.

11. Ensemble d'écoulement selon n'importe laquelle des revendications précédentes, **caractérisé en ce que** la couche d'étanchéité s'étend au-dessus de la totalité de la surface supérieure du rebord périphérique.

12. Ensemble d'écoulement selon n'importe laquelle des revendications précédentes, **caractérisé en ce que** la natte d'étanchéité est dimensionnée pour chevaucher une zone périphérique de la couche d'étanchéité, la zone périphérique ayant une largeur d'au moins 2 cm, de préférence au moins 3 cm et plus de préférence au moins 5 cm.

13. Procédé pour placer un écoulement, comprenant :

- la sélection d'un corps d'écoulement ayant une zone d'entrée avec une périphérie et un rebord périphérique muni d'une surface supérieure s'étendant sensiblement dans un plan horizontal à partir de cette périphérie ;
- la liaison d'une couche étanche à l'eau par adhérence à la surface supérieure du rebord périphérique avant intégration dans le sol ; **caractérisé en ce que** le procédé comprend en outre :
- la découpe à la dimension d'une natte d'étanchéité ayant la forme d'un cadre avec une périphérie intérieure s'ajustant autour de la périphérie, cela avant intégration dans le sol, dans lequel la natte d'étanchéité est dimensionnée de sorte qu'une partie de la natte d'étanchéité chevauche au moins la périphérie extérieure de la couche étanche à l'eau ;
- l'agencement du corps d'écoulement dans une matière pour sol de sorte que la face inférieure du rebord périphérique est agencée dans la matière pour sol ;
- le placement de la natte d'étanchéité autour de la périphérie et la liaison de la natte d'étanchéité par adhérence à la couche d'étanchéité au moyen de colle à carrelage, dans lequel une partie de la natte d'étanchéité chevauche au moins la périphérie extérieure de la couche étanche à l'eau.

14. Procédé selon la revendication 13, **caractérisé en ce que** la natte d'étanchéité et la couche étanche à l'eau sont découpées à la dimension à partir de nattes KERDI.

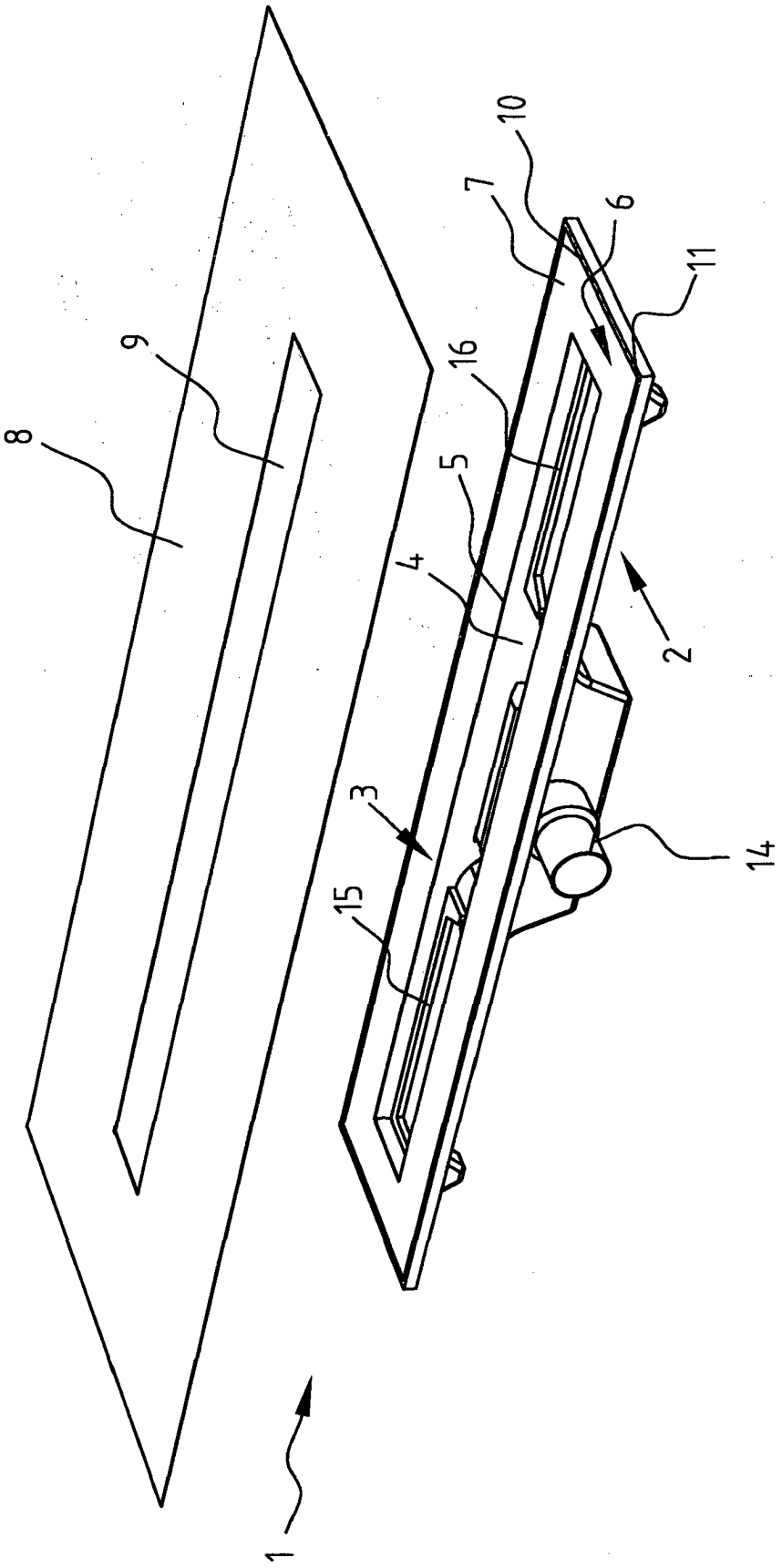

FIG. 1

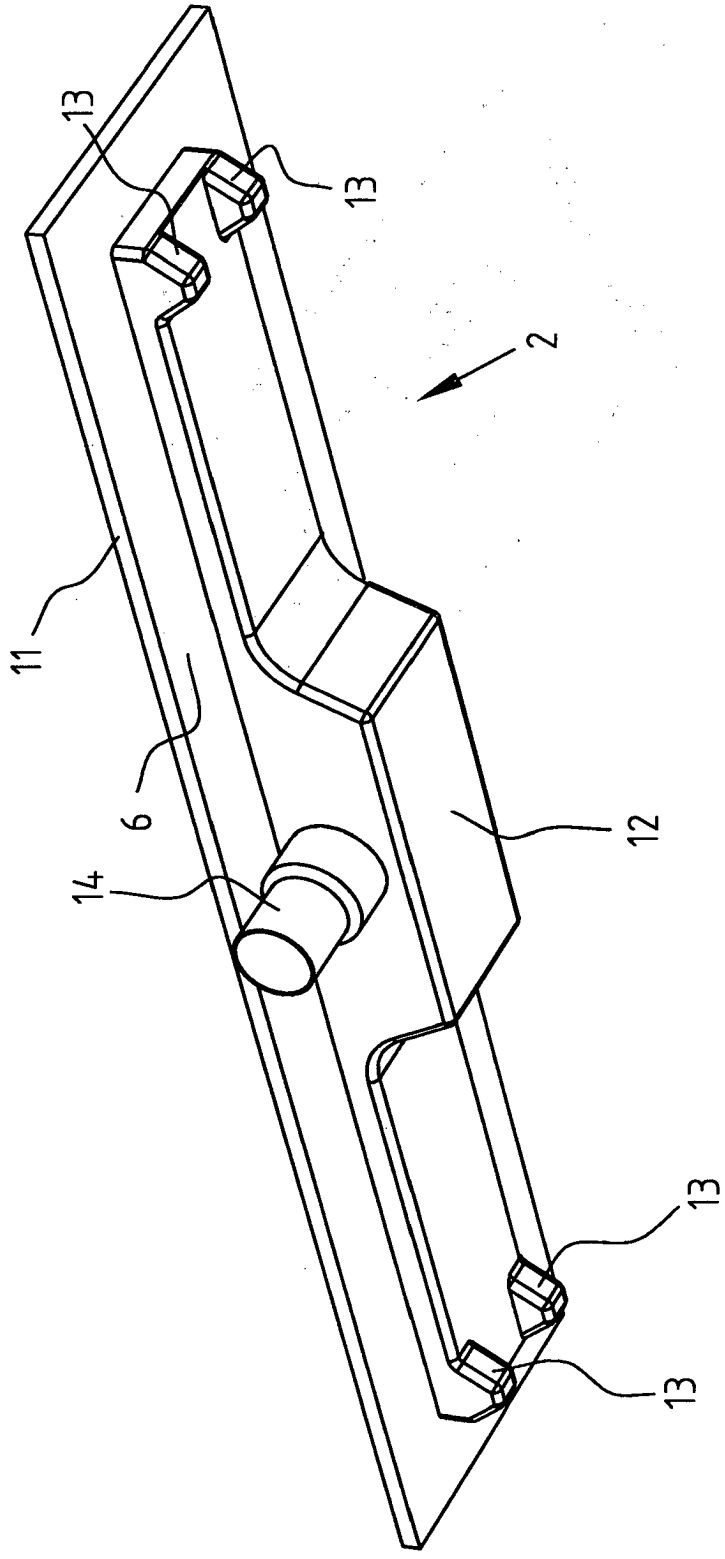

FIG. 2

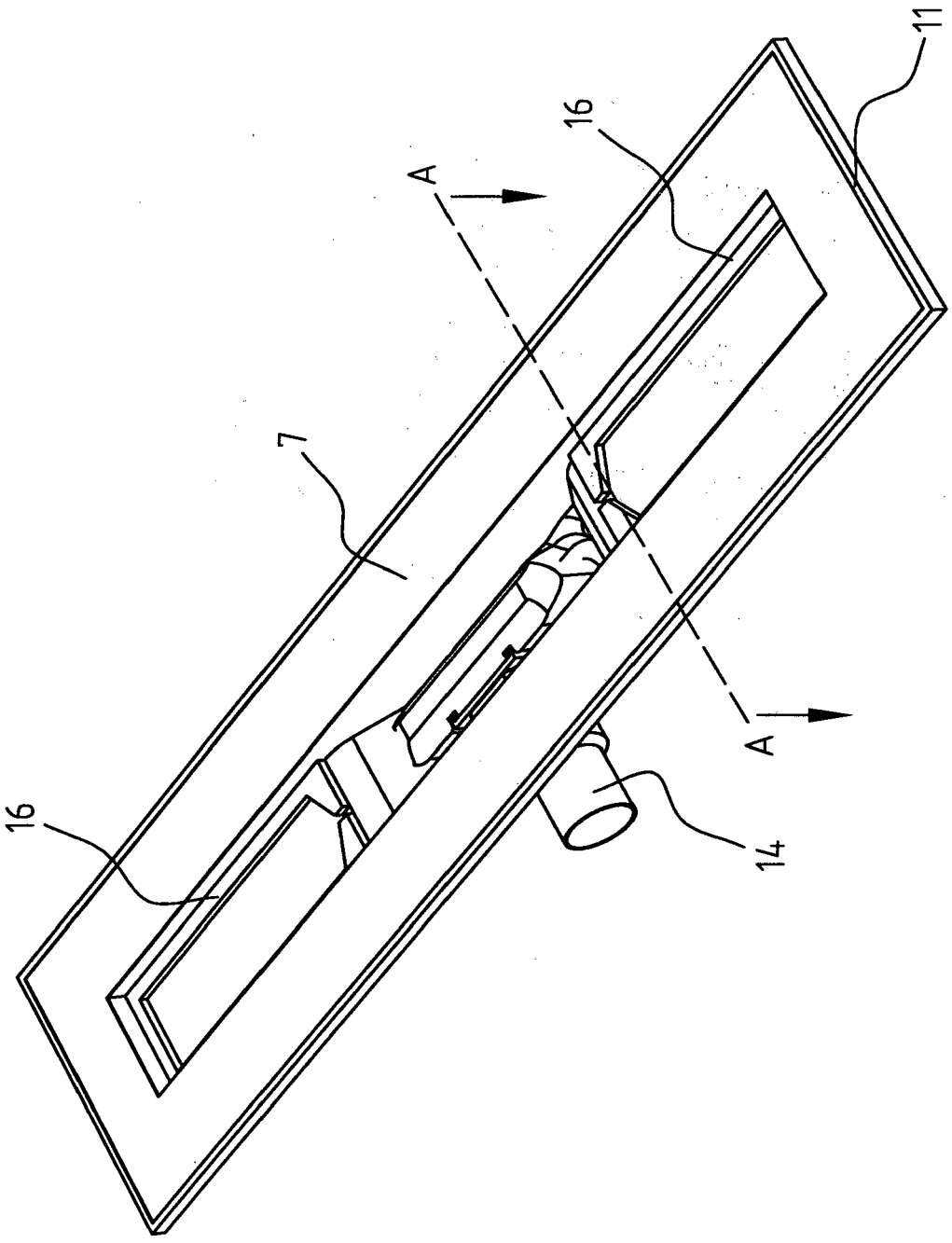

FIG. 3

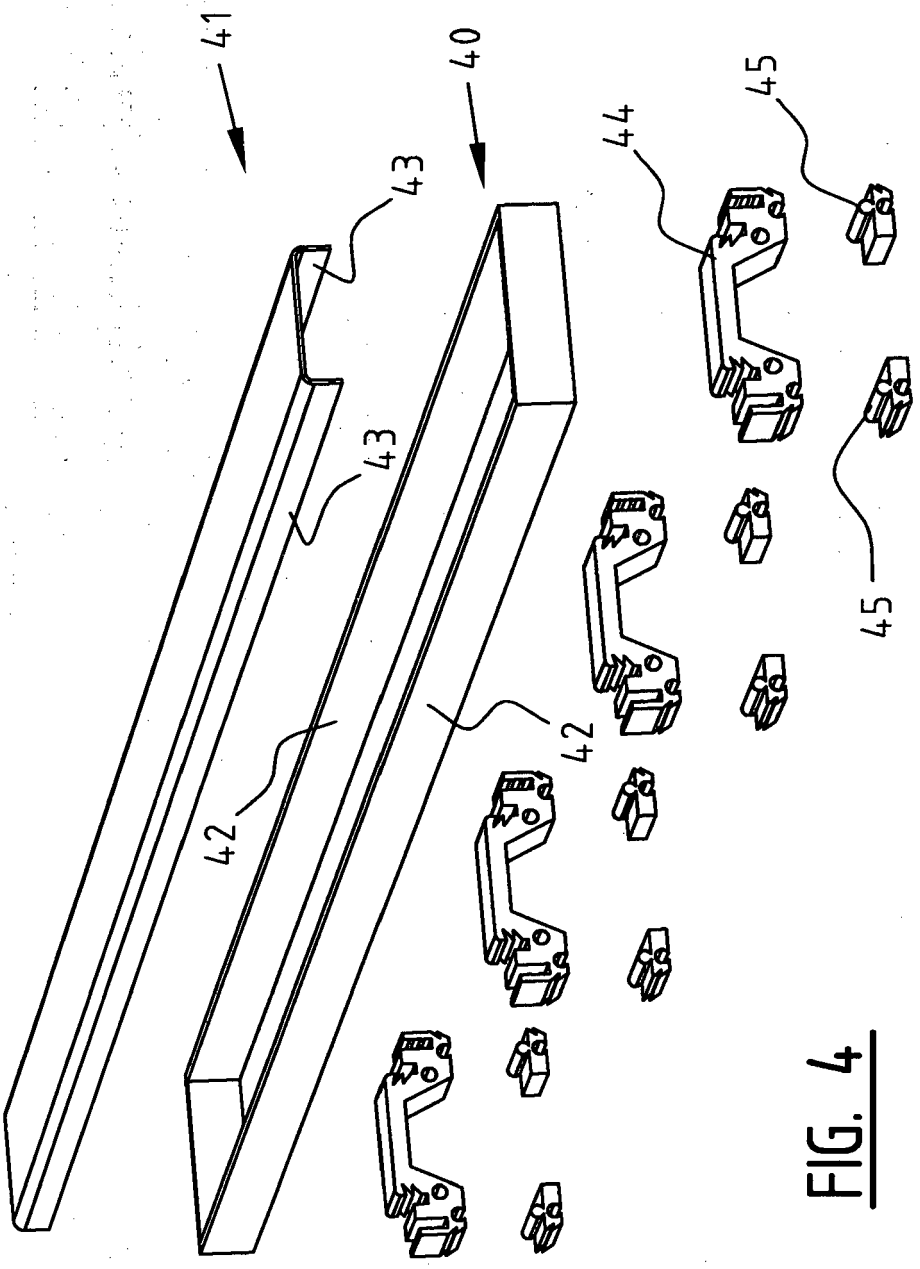

FIG. 4

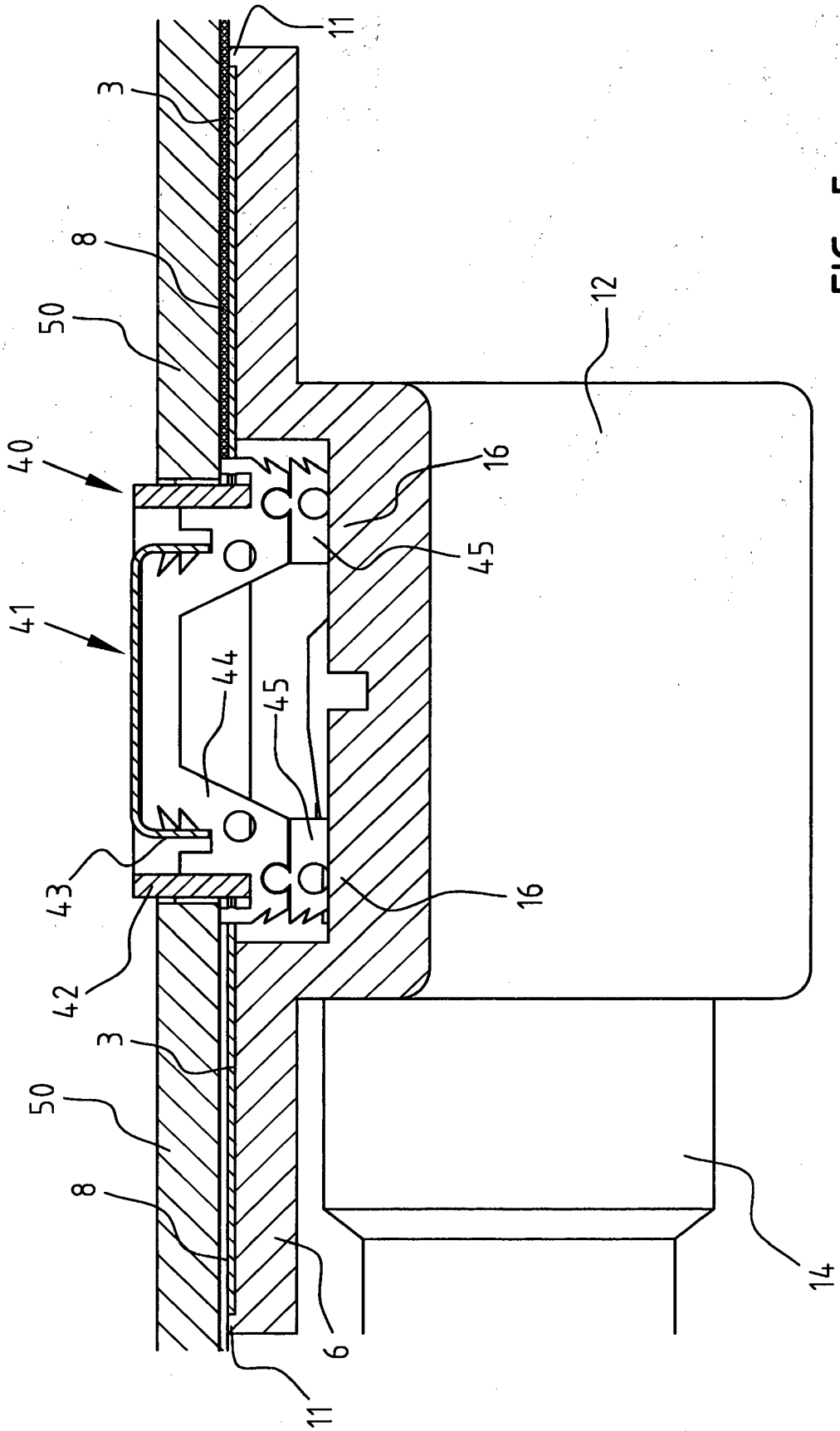

FIG. 5

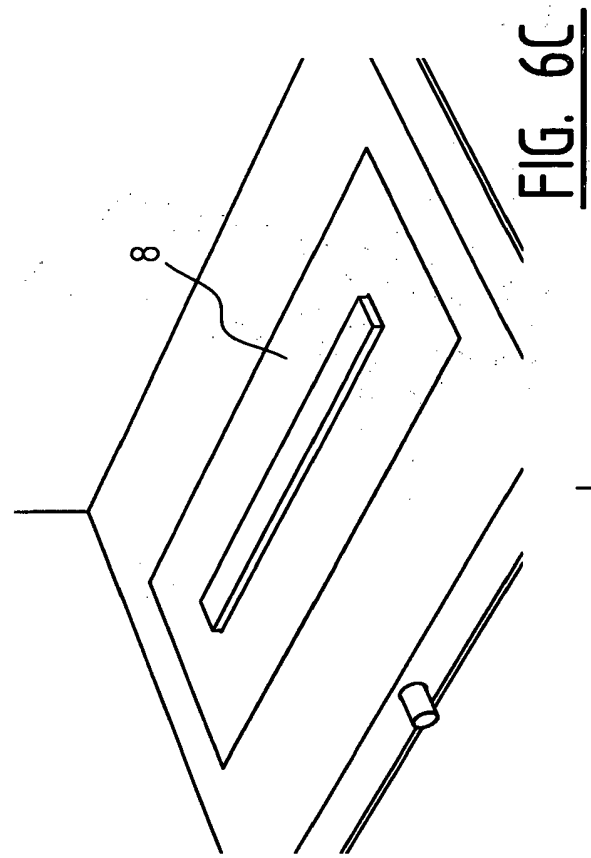

FIG. 6C

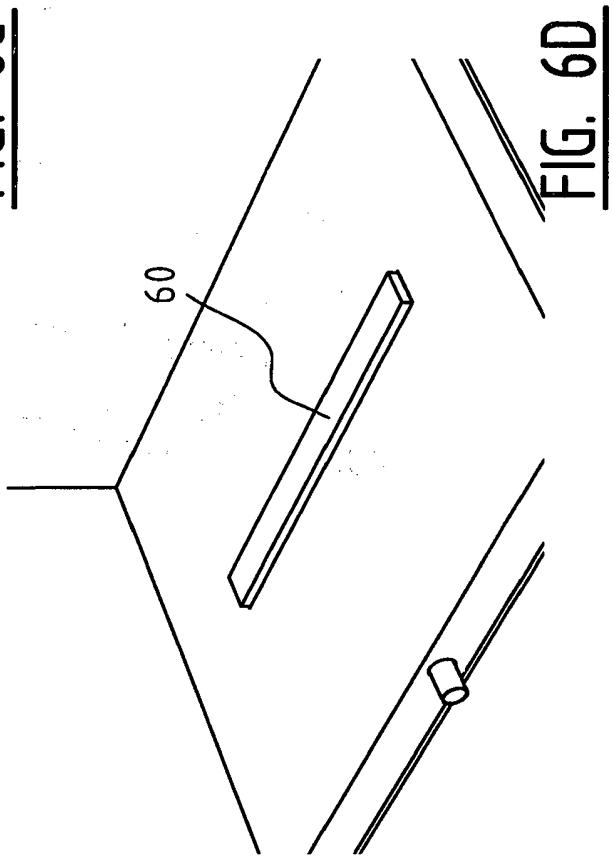

FIG. 6D

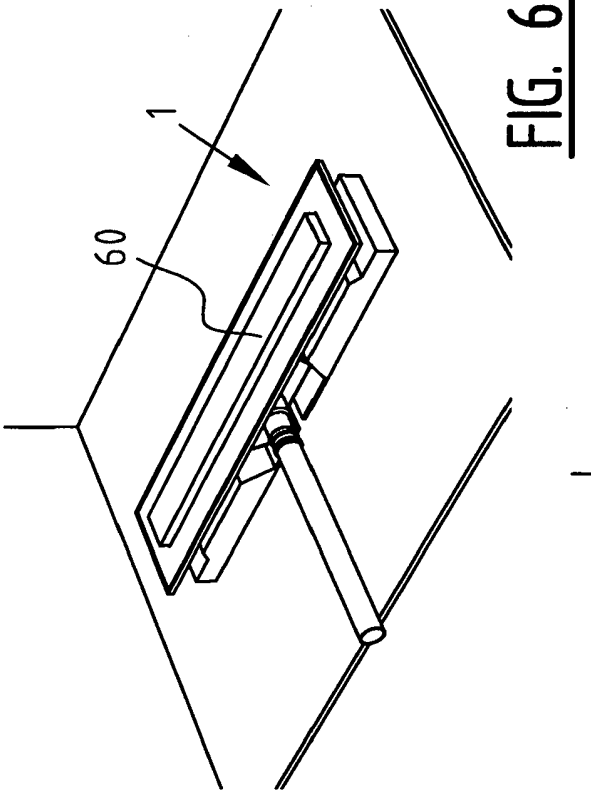

FIG. 6A

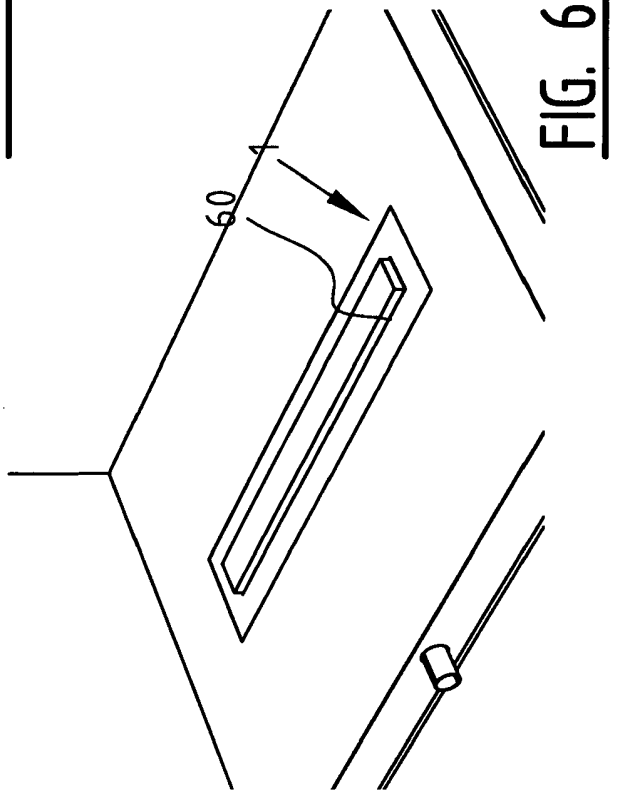

FIG. 6B

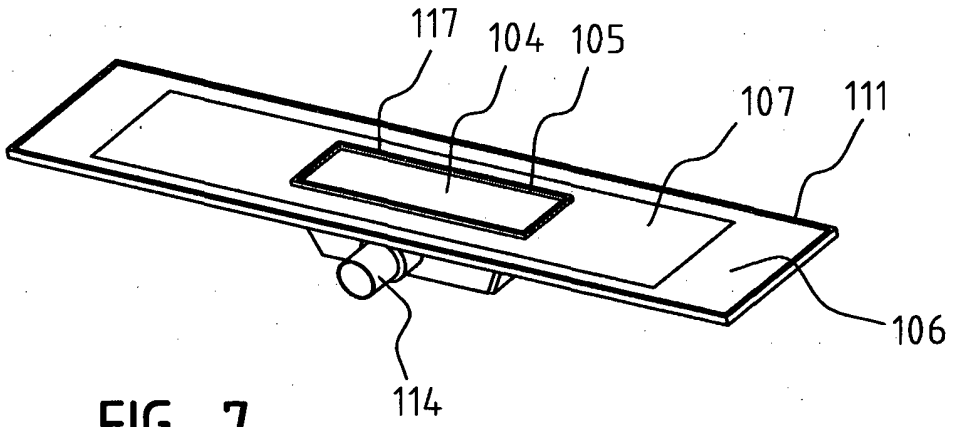

FIG. 7

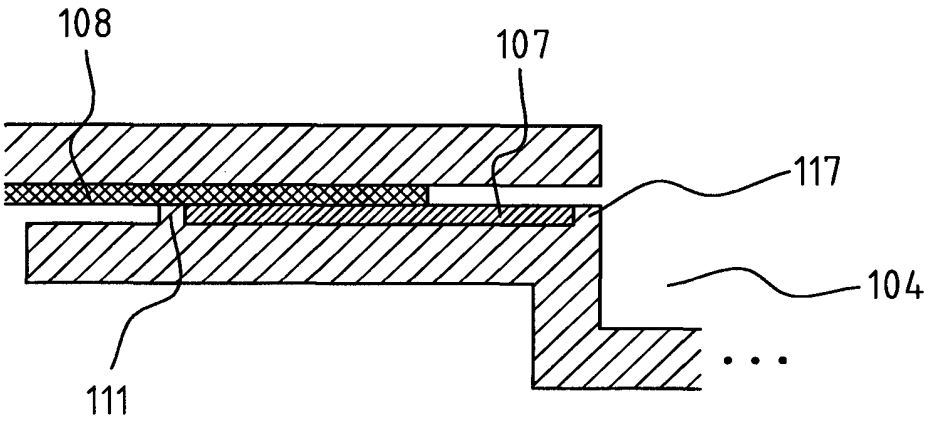

FIG. 8

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- NL 2001410 C **[0004]**
- EP 0763634 A **[0004]**