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(71) Applicant: **Carro Castro, Jose Francisco**
36140 vilaboa (Pontevedra) (ES)

(72) Inventor: **Carro Castro, Jose Francisco**
36140 vilaboa (Pontevedra) (ES)

(74) Representative: **Díaz de Bustamante y Terminel, Isidro**
Arcade & Asociados
C/ Isabel Colbrand, 6-5th floor
28050 Madrid (ES)

(54) **INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES**

(57) INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, for fixing ceramic roof tiles forming grooved rows in roofs and rooftops, configured by a rectangular modular body, with fixed width (a), variable long (b) and undulating upper surface (c) where the roof tiles (2) are fixed by means of glues, formed by, at least, an insulating core (3) of polyurethane, rock wool, cellulose or polystyrene balls, and an external cover (4), on all its faces, of prelacquered plate. On the inside, it incorporates flat bars (5) and/or profiles (6) of steel as a reinforcement with heat-break joints (7). In its two flanks (e, f), it comprises quick fits (10, 11) for lateral coupling of adjacent bases (1). So as to join the longitudinally, the external cover (4) of one of its upper or lower faces protrudes in an overlapping stretch (g).

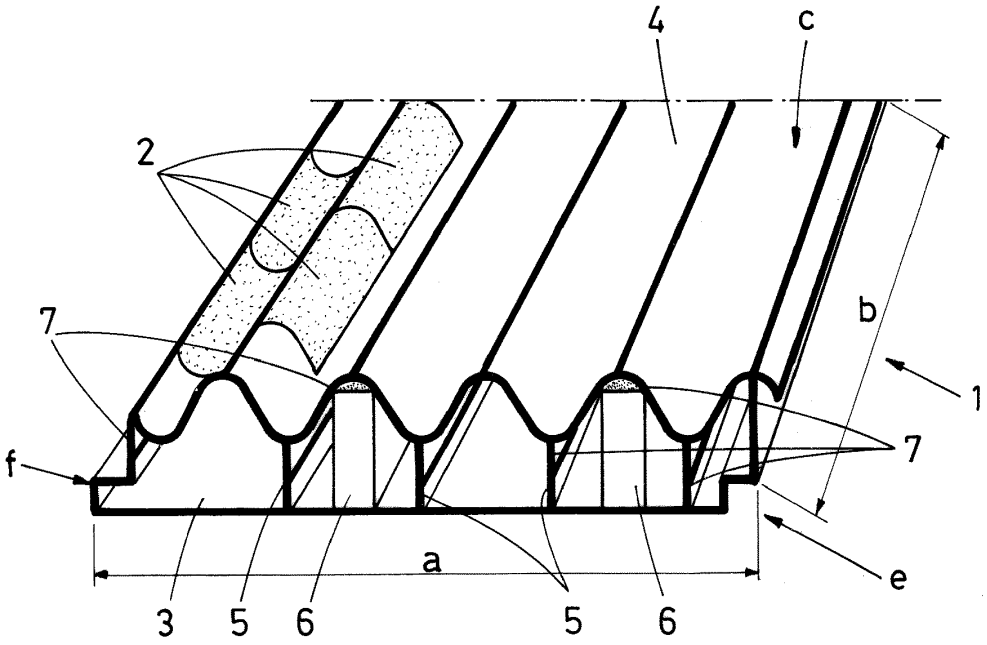

FIG.1

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Description

OBJECT OF THE INVENTION

[0001] The invention, as exposed on the wording of the present specification, relates to an insulating support base for ceramic roof tiles which imparts to the function it is intended to, advantages and characteristics, which will be described in detail below and which mean a remarkable improvement of the current state of the art.

[0002] More particularly, the object of the invention focuses on a base for fixing curved ceramic roof tiles, of which are used in roofs and rooftops, base which, in addition to light support for the roof tiles and the same time acts as an insulating for the roof, for which it comprises, essentially, a core of insulating material coated of pre-lacquered plate and presents a rectangular modular configuration with the undulating upper surface for incorporating the roof tiles and means for easy coupling, both laterally and on its upper and lower ends, by which it is cut to the desired length, so as to cover the whole rooftop surface allowing to take advantage of any remaining piece.

APPLICATION FIELD OF THE INVENTION

[0003] The application field of the present invention is framed within the field of industry dedicated to construction, focusing particularly on the field of support systems for fixing curved ceramic roof tiles in rooftops and roofs.

BACKGROUND OF THE INVENTION

[0004] Referring to the current state of the art, it is worthwhile pointing that, although it is known the existence in the market of various solutions in the form of support bases for the roof tiles of the kind herein concerned, at least on the applicant's part, it is unknown the existence of no one presenting technical, structural and configuration characteristics similar to the ones presented by the insulating support base for ceramic roof tiles herein proposed, as it is claimed.

[0005] In that regard, it is noteworthy that in the market are known sandwich-type panels for fixing tiles, which couple to a polyurethane layer which remains in the centre, on its lower part, a wooden plank of type MDF (*Medium Density Fibreboard),* and on the upper part an asbestos sheet, being these limited to a maximum long of 3 metres, chose main drawback is that they have a very higher weight and forcing to place the supports of metal or concrete purling always at a distance lower than themselves so that they support one on another

[0006] There are too other insulating panels with a polyester upper layer which is painted mimicking the clay or garnet-coloured roof tile, and that, in this case, presents the drawback of, over the course of a pair of seasons, the colour deteriorates forcing to the subsequent repainting maintenance in the roofs.

[0007] It is then the object of the present invention to provide the market a more practical solution effective as a support for the roof tiles and insulating for the roof that avoids the drawbacks of current systems.

EXPLANATION OF THE INVENTION

[0008] Thus, the insulating support base for ceramic roof tiles proposed by the invention is configured as a novelty within its application field, as, according to its implementation and unequivocally the objects previously pointed are achieved, being the distinctive characterizing details which make it possible and which differentiate it suitably enclosed in the final claims accompanying the present specification thereof.

[0009] Specifically, what the invention proposes, as it is pointed previously, is a base deigned for serving as a support for fixing curved ceramic roof tiles, of which are alternately arranged on one side and the other forming parallel grooved rows determining an undulating surface in roofs and rooftops, base which differentiates in that, in addition of being a light but resistant support element for fixing the tiles, at the same time acts as a perfect insulating for the roof as it has, essentially, an insulating material core coated of pre-lacquered plate provided with heat-break points, presenting, as well, a rectangular modular configuration for easy coupling, both laterally and by its upper and lower ends, by which it is cut to the desired length, so as to cover the whole surface of the rooftop.

[0010] To do this, and more specifically, the support base of the invention is configured from a modular body of rectangular floor-plan, with fixed width, preferably one metre, and variable long, according to the needs of each case, as well as with limited thick and undulating upper surface, based on the dimensions of the roof tiles, being said body formed by, at least, a core of insulating material which is covered, on all its faces, by pre-lacquered plate.

[0011] The insulating material of the core, preferably, will be chosen from polyurethane, rock wool, cellulose or polystyrene balls.

[0012] In the undulating upper surface of the modular body, which is fully smooth with the mentioned pre-lacquered plate, are incorporated the curved ceramic roof tiles, which are firmly joined in their entire surface by exerting some pressure thereon, being fixed to said surface by means of epoxy glues so that they don't allow neither longitudinal nor lateral movement. Additionally, it is contemplated the incorporation of non-slip hooks to be placed between the tiles, if so preferred, to ensure their fixation.

[0013] On the other hand, to achieve the necessary union and consistency inside of the modular body of the base, it is provided the existence of a number of flat bars and profiles of rolled galvanized steel which are joined with rubber joints, which determinates a heat-break point.

[0014] More specifically, in the insulating core and coinciding with the valley areas of the undulating surface,

are provided, at least, longitudinally flat bars arranged by vertical pairs separated in their centre by a heat-break rubber joint.

[0015] And, preferably, furthermore, also interleaved in the insulating material core, are provided longitudinal reinforcement profiles which, incorporated in a preferred mode along and coinciding with the centre of the peak areas of the undulating surface, impart stiffness to the base, especially in case of need of supports when it has long dimensions, being calculated in amount and thickness according to the characteristics to be covered in each case. Furthermore, at least the upper edge of these profiles incorporates also rubber joints as a heat-break point among them and the pre-lacquered plate of the undulating upper surface.

[0016] On the lower part, the modular body forming the support base of the invention can be, either fully smooth and flat, with the pre-lacquered plate of any desired colour, as the customer demands, and, optionally, provided of holes for screwing de wooden strips so as to place false ceiling of frieze or other decorative elements.

[0017] In any case, the modular body has, on its respective lateral edges, quick-fitting means for the lateral coupling of bases adjacent to one side and another, consisting said fitting means of an angled longitudinal mortising, of about more or less 30°, provided along one of the sides of the base, and a longitudinal projection of complementary angle which, provided along the opposed side, fits in the aforementioned mortising of the contiguous plate, preventing any lateral movement between them.

[0018] And in the heads, that is, in the upper and lower ends of the modular body of the base, when it is necessary longitudinally join more than one of them, the core is cut to a price of 10-15 cm and the pre-lacquered plate is cut only in one of its upper or lower faces or surfaces, letting the pre-lacquered plate of the opposed face projecting a portion equal to the cut stretch, which permits overlapping said protruding sheet stretch over the core of the adjacent base to be joined. This permits the cutting of the support bases to any size and taking advantage and reusing any remaining piece.

[0019] Finally, it is noteworthy that the support over concrete or metal purling will be separated depending on the angle of descent of the rooftop and always with the need for resistance and calculation of the same.

[0020] The described insulating support base for ceramic roof tiles represents an innovative structure with structural and constitutive characteristics unknown so far to this end, reasons which in combination with its practical utility, provide it with enough basis to obtain the exclusivity privilege which is applied for.

DESCRIPTION OF THE DRAWINGS

[0021] In order to complement the description being fulfilled of the invention and with the aim of helping to a better understanding of the characteristics of the invention, the present specification is accompanied, as an integral part thereof, by a set of plans, in which by way of illustration and not of limitation, is represented the following:

Figure number 1.- Shows un upper perspective view of an example of the insulating support base for ceramic roof tiles, object of the invention, being visible the main parts and elements it comprises, as well as their configuration and arrangement.

Figure number 2.- Shows a lower perspective view of the insulating support base for ceramic roof tiles, according to the invention, being visible an option thereof with wooden frieze in the surface of the lower base.

Figure number 3.- Shows an enlarged perspective view of the lateral edges of opposed sides of both adjacent bases, according to the invention, showing the configuration thereof for their mutual coupling.

[0022] And figure number 4.- Shows a sectioned perspective view, by means of a longitudinal vertical section, of the joining of two adjacent panels by their respective upper and lower ends, showing the cutting of the insulating filling and of the pre-lacquered plate only in one of the surfaces so as to facilitate the coupling of both bases by overlapping the sheet stretch which projects from each base to the insulating filling of the other one.

PREFERENTIAL EMBODIMENT OF THE INVENTION

[0023] In light of the mentioned figures, and according to the numbering taken on them, it can be seen a non-limiting example of the proposed insulating support base for ceramic roof tiles, which comprises the parts and elements indicated and described in detail below.

[0024] Thus, as it is seen in said figures, the base (1) in question is configured form a modular body of rectangular floor-plan, with fixed width (a), preferably one metre, and variable long (b), and that can be cut to the desired size according to the needs of each case, and which, provided with an undulating upper surface (c), based on the dimensions of the roof tiles (2) for which it is intended, is made up of, at least, an insulating core (3) and an external cover (4), on all its faces, of pre-lacquered plate.

[0025] The insulating core (3), preferably, is made of polyurethane, rock wool, cellulose or polystyrene balls.

[0026] The curved ceramic roof tiles (2), which are joined in the undulating upper surface (c), are fixed to said surface by means of epoxy glues and, additionally, they incorporate non-slip hooks (not represented).

[0027] On the other hand, inside of the modular body of the base (1), it is provided the existence of flat bars (5) and/or profiles (6) of rolled galvanized steel as reinforcement elements which, furthermore, incorporate

heat-break rubber joints (7).

[0028] More specifically, in the insulating core (3) it incorporates, coinciding with the valley areas of the undulating upper surface (c), some flat bars (5) arranged longitudinally, upright and separated on their centre by a heat-break rubber joint (7).

[0029] And, preferably, furthermore, said insulating core (3), also incorporates some longitudinal profiles (6) incorporated coinciding with the centre of the peak areas of the undulating upper surface (c), with heat-break rubber joints (7) among them and the external cover (4) of pre-lacquered plate of the undulating upper surface (c).

[0030] In the lower part (d), the surface of the modular body forming the base (1) is fully smooth and flat, with the external cover (4) of pre-lacquered plate painted in any colour, according to customer preferences. And, optionally, it has holes for screwing de wooden strips (8) so as to place false ceiling of frieze (9) or other decorative elements.

[0031] In any case, the modular body has, in the edges of its two sides (e, f), quick-fitting means (10, 11) for the lateral coupling of bases (1) adjacent to one side and another, consisting said fitting means of a longitudinal mortising (10) with an angled said (101), of about more or less 30°, regarding the vertical plane of said edge, provided along a first flank (e) of the base, and a longitudinal projection (11) with a side (111) of complementary angle, provided along the second flank or opposed flank (f), which couples in the aforementioned mortising (10) of the contiguous plate preventing its lateral movement.

[0032] And, in the upper and lower ends of the modular body of the base (1), when it is necessary longitudinally join more than one of them, the insulating core (3) and the external cover (4) of pre-lacquered plate of one of its upper or lower faces, are cut so that they are shorter by a piece of 10-15 cm that the external cover (4) of the opposed face, whereby the latter projects by a stretch (g) overlapping on the insulating core (3) and externa cover (4) of the opposed face of the adjacent base (1) to be joined.

[0033] The insulating support base object of this invention can also be manufactured, to reduce costs, without the lower pre-lacquered coating, for example, for lofts that are not used as housing.

[0034] Having sufficiently described the nature of the present invention, as well as a way of putting it into practice, it is not considered necessary to make a more extensive explanation in order that any expert in this area will understand its scope and the advantages that can be derived from it, making known that, within reason it could be put into practice in other embodiments differing in detail from that indicated by way of example, and which will obtain the same degree of protection, provided that they do not alter, change, or modify its fundamental principle.

Claims

1. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, applicable as a support for fixing curved ceramic roof tiles which are alternately arranged on one side and the other forming parallel grooved rows determining an undulating surface in roofs and rooftops, **characterized by** being configured from a modular body of rectangular floor-plan, with fixed width (a) and variable long (b) according to the needs of each case, which, provided with a undulating upper surface (c) based on the dimensions of the roof tiles (2) which are fixed to said surface by means of epoxy glues, is made up of, at least, an insulating core (3) and an external cover (4), on all its faces, of pre-lacquered plate.

2. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to claim 1, **characterized in that** the insulating core (3) is made of polyurethane.

3. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to claim 1, **characterized in that** the insulating core (3) is made of rock wool.

4. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to claim 1, **characterized in that** the insulating core (3) is made of cellulose.

5. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to claim 1, **characterized in that** the insulating core (3) is made of polystyrene balls.

6. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to any of claims 1 to 5, **characterized in that** the modular body of the base (1) has a width (a) of one meter.

7. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to any of claims 1 to 6, **characterized in that,** inside of the modular body of the base (1), it is provided the existence of flat bars (5) of rolled galvanized steel as reinforcement elements which incorporate heat-break rubber joints (7).

8. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to claim 7, **characterized in that** the insulating core (3) incorporates, coinciding with the valley areas of the undulating upper surface (c), the flat bars (5) arranged longitudinally, upright and separated on their centre by a heat-break rubber joint (7).

9. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to any of claims 1 to 6, **characterized in that,** inside of the modular body of the

base (1), it is provided the existence of profiles (6) of rolled galvanized steel, as reinforcement elements, which incorporate heat-break rubber joints (7).

10. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to claim 9, **characterized in that** the insulating core (3) incorporates the profiles (6) arranged longitudinally, coinciding with the centre of the peak areas of the undulating upper surface (c), and with heat-break rubber joints (7) among them and the external cover (4) of pre-lacquered plate of said undulating upper surface (c).

11. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to any of claims 1 to 10, **characterized in that** the surface of the lower part (d) of the modular body forming the base (1) is smooth and flat, with the external cover (4) of pre-lacquered plate painted in any colour.

12. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to claim 11, **characterized in that** the surface of the lower part (d) of the modular body forming the base (1) has holes for screwing de wooden strips (8) so as to place a false ceiling of frieze (9) or other decorative elements.

13. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to any of claims 1 to 12, **characterized in that** the modular body has, on the edges of its two sides (e, f), quick-fitting means (10, 11) for the lateral coupling of adjacent bases (1) adjacent to one side and another.

14. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to claim 13, **characterized in that** the quick-fitting means (10, 11) for the lateral coupling of adjacent bases (1) consist of a longitudinal mortising (10) with an angled side (101), of about more or less 30°, regarding the vertical plane of said edge, provided along a first flank (e) of the base, and a longitudinal projection (11) with other side (111) of complementary angle, provided along the second flank or opposed flank (f), for coupling in the foresaid mortising (10) of the contiguous plate.

15. INSULATING SUPPORT BASE FOR CERAMIC ROOF TILES, according to any of claims 1 to 14, **characterized in that** in the upper and lower ends of the modular body of the base (1), when it is necessary longitudinally join more than one of them, the insulating core (3) and the external cover (4) of pre-lacquered plate of one of its upper or lower faces, are shorter by a piece of 10-15 cm than the external cover (4) of the opposed face, which protrudes in a stretch (g) overlapping on the insulating core (3) and the external cover (4) of the opposed face of the adjacent base (1) to be joined.

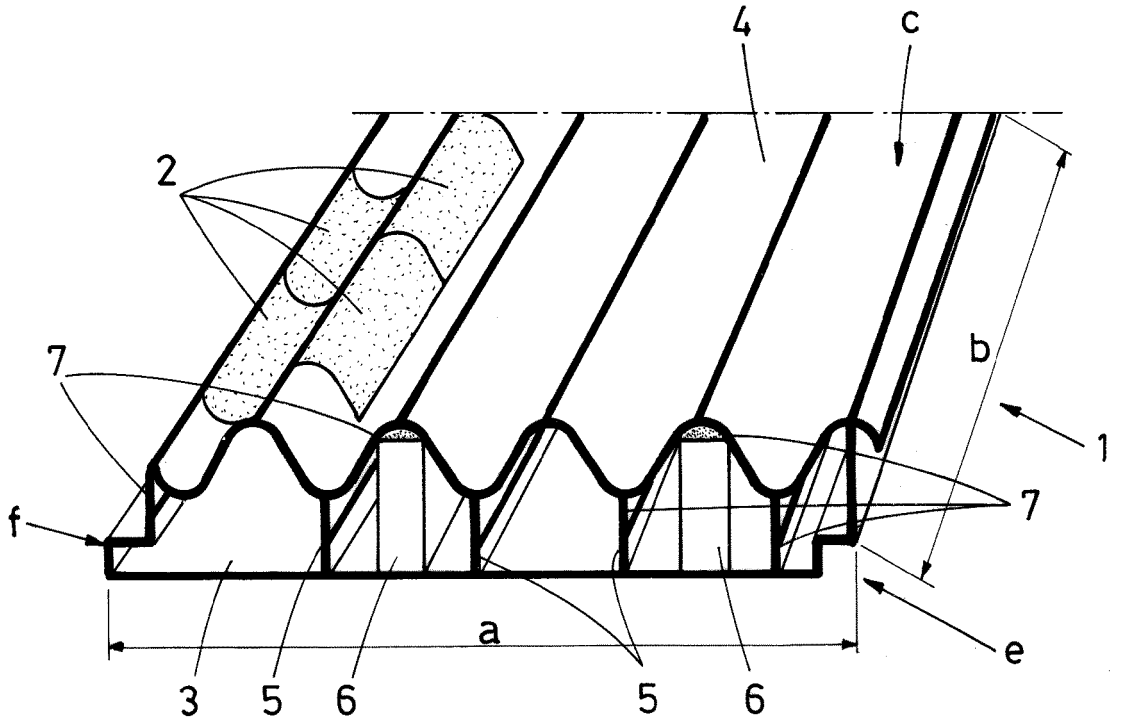

FIG.1

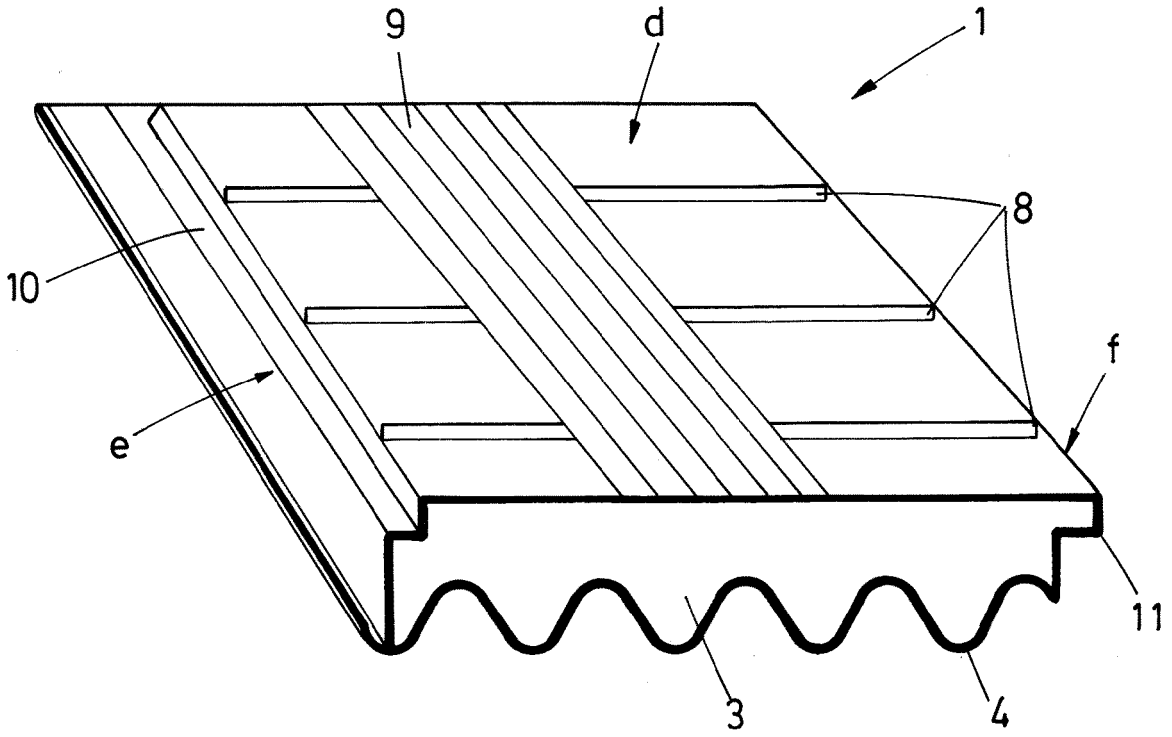

FIG.2

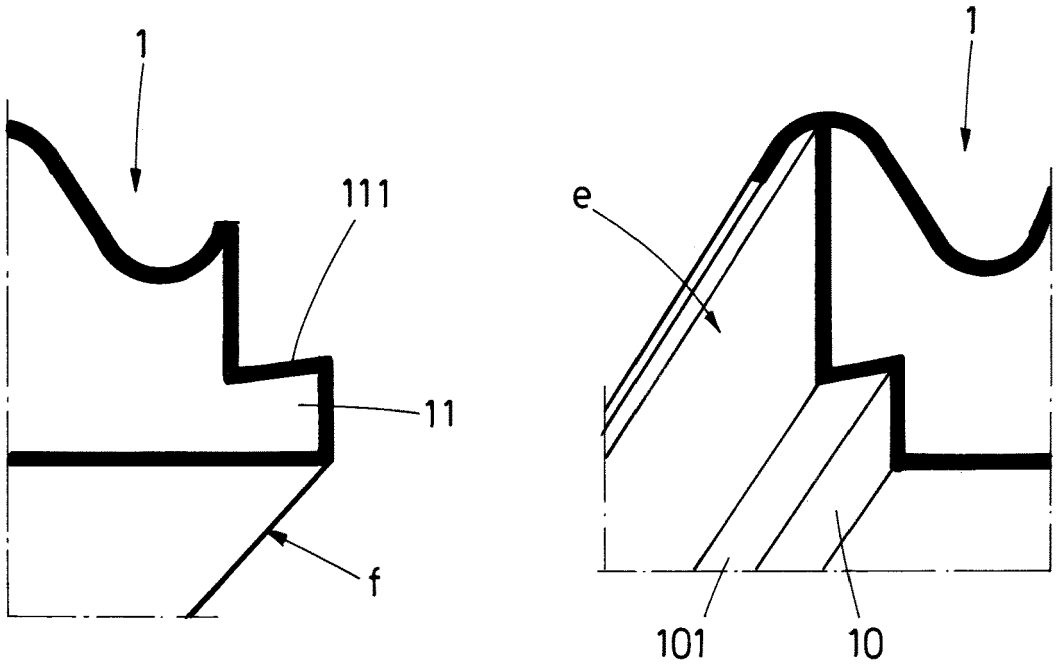

FIG.3

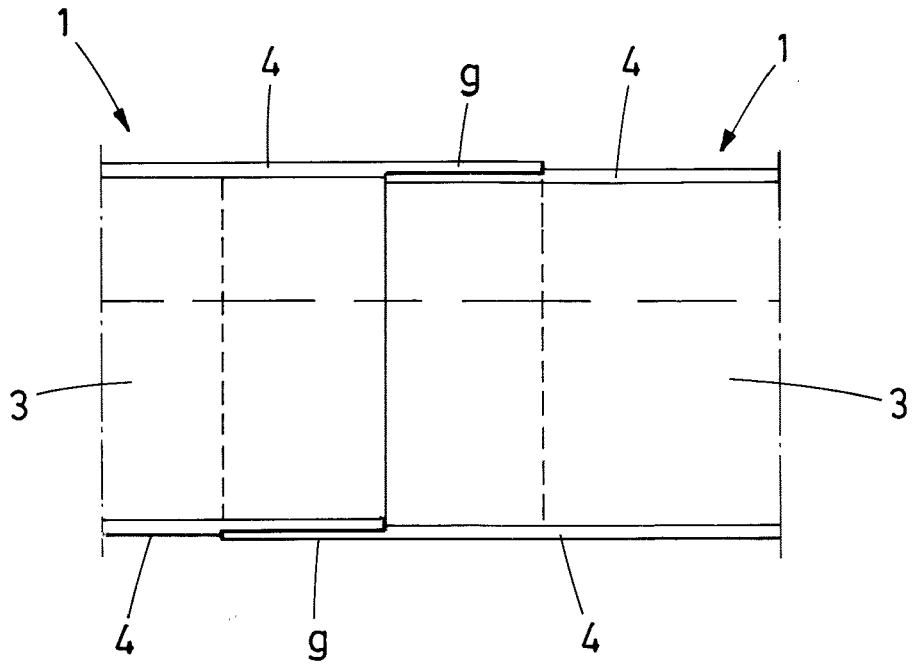

FIG.4

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EUROPEAN SEARCH REPORT

Application Number
EP 17 15 1643

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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
The Hague	21 March 2017	Tran, Kim Lien

CATEGORY OF CITED DOCUMENTS

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