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(54) **INSTALLATION STRUCTURE OF CURVED TILES**

(57) The present disclosure provides an installation structure of a curved tile, including a first curved tile and a second curved tile which each comprises a tile body, wherein both ends of the tile body are respectively a first curved overlapping portion and a second curved overlapping portion, a curved surface of the first curved overlapping portion faces downward, a curved surface of the

second curved overlapping portion faces upward, the first curved overlapping portion of the first curved tile overlaps on the second curved overlapping portion of the second curved tile, and a waterproof structure is disposed at a position where the first curved tile overlaps with the second curved tile.

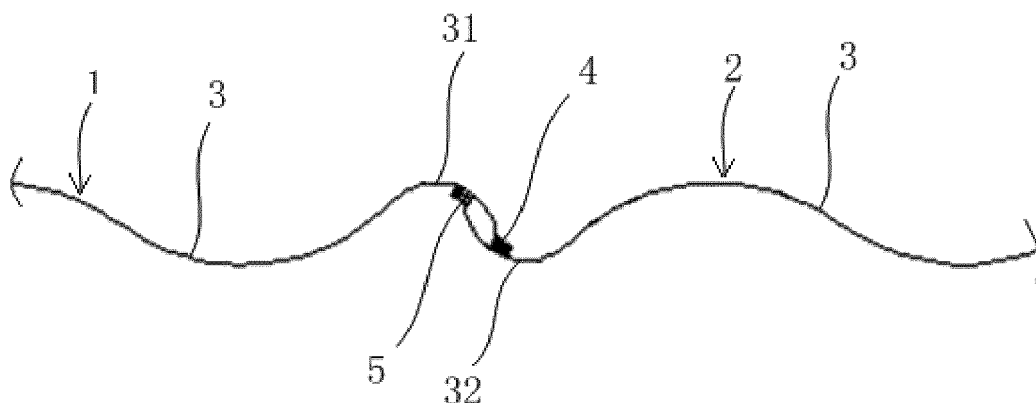


FIG. 2

Description

[0001] The present application claims priority to and the benefit of the Chinese Patent Application No. 201820532271.5, entitled "INSTALLATION STRUCTURE OF CURVED TILE" filed on April 14, 2018, the entire contents of which are incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present disclosure relates to the field of tile installation technologies, and in particular, to an installation structure of a curved tile.

BACKGROUND

[0003] As a kind of roof building material, tiles have functions of rainproof, heat insulation and UV protection. With a long history of development in all ages, the tiles can be divided into types by the materials, such as clay tiles, cement tiles, glazed tiles and new-type metal tiles and glass steel tiles. With the development of technology, roof tiles have been given some new functions, such as energy-saving tiles and solar power tiles.

SUMMARY

[0004] An aspect of the present disclosure provides an installation structure of a curved tile, including a first curved tile and a second curved tile which each includes a tile body, wherein both ends of the tile body are respectively a first curved overlapping portion and a second curved overlapping portion, a curved surface of the first curved overlapping portion faces downward, a curved surface of the second curved overlapping portion faces upward, the first curved overlapping portion of the first curved tile overlaps on the second curved overlapping portion of the second curved tile, and a waterproof structure is disposed at a position where the first curved tile overlaps with the second curved tile.

[0005] In some embodiments, a position where a front end of the first curved overlapping portion of the first curved tile is in contact with the second curved overlapping portion of the second curved tile is a first position, and the waterproof structure includes a first water stop structure disposed at the first position.

[0006] In some embodiments, the first position is higher than a bottom of the curved surface of the second curved overlapping portion of the second curved tile.

[0007] In some embodiments, a height difference between the first position and the bottom of the curved surface of the second curved overlapping portion of the second curved tile is greater than 5 mm.

[0008] In some embodiments, a position where the front end of the second curved overlapping portion of the second curved tile is in contact with the first curved overlapping portion of the first curved tile is a second position

at which a buffer structure is disposed.

[0009] In some embodiments, the second position is higher than the first position.

5 [0010] In some embodiments, a height difference between the second position and the first position is greater than 10 mm.

[0011] In some embodiments, the first water stop structure is bonded at the first position, and the buffer structure is bonded at the second position.

10 [0012] In some embodiments, the first water stop structure and the buffer structure have the same or different materials which are selected from one of a waterproof glue coating or a water stop strip.

[0013] In some embodiments, the water stop strip is a water stop strip made of rubber.

[0014] In some embodiments, a cross-section of the water stop strip is rectangular, L-shaped or U-shaped.

20 [0015] In some embodiments, the water stop strip has an effective thickness greater than or equal to 2 mm, and the effective thickness is a thickness at a position where the water stop strip works between the first curved tile and the second curved tile.

25 [0016] In some embodiments, a position where a front end of the first curved overlapping portion of the first curved tile is in contact with the second curved overlapping portion of the second curved tile is a first position which is higher than a bottom of the curved surface of the second curved overlapping portion of the second curved tile.

30 [0017] In some embodiments, a height difference between the first position and the bottom of the curved surface of the second curved overlapping portion of the second curved tile is greater than 10 mm.

35 [0018] In some embodiments, a gap is provided between the front end of the second curved overlapping portion of the second curved tile and the first curved overlapping portion of the first curved tile.

[0019] In some embodiments, a position where a front end of the second curved overlapping portion of the second curved tile is in contact with the first curved overlapping portion of the first curved tile is a second position, and the waterproof structure includes a second water stop structure which is disposed at the second position.

40 [0020] In some embodiments, the second position is provided with a buffer structure.

[0021] In some embodiments, the second water stop structure and the buffer structure are disposed along the position where the first curved tile overlaps with the second curved tile at intervals.

50 [0022] In some embodiments, the first curved overlapping portion and the second curved overlapping portion have a chord length of 30 to 500 mm and an arch height of 15 to 50 mm.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] The drawings described herein are intended to provide a further understanding of the present disclosure,

and are intended to be a part of the present disclosure. In the drawing:

FIG. 1 is a schematic structural diagram showing a tile installation structure according to an exemplary embodiment of the present disclosure;
 FIG. 2 is a schematic structural diagram showing an installation structure of a curved tile according to some embodiments of the present disclosure;
 FIG. 3 is a schematic structural diagram showing an installation structure of another curved tile according to some embodiments of the present disclosure;
 FIG. 4 is a schematic structural diagram showing an installation structure of another curved tile according to some embodiments of the present disclosure;
 FIG. 5 is a schematic structural diagram showing an installation structure of another curved tile according to some embodiments of the present disclosure;
 FIG. 6 is a schematic diagram showing a positional relationship between a second water stop structure and a buffer structure according to some embodiments of the present disclosure;
 FIG. 7 is a schematic structural diagram showing an installation structure of a curved tile in which a first curved overlapping portion overlaps with a second curved overlapping portion according to some embodiments of the present disclosure;
 FIG. 8 is a schematic structural diagram showing three implementations of a water stop strip of an installation structure of a curved tile according to some embodiments of the present disclosure.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0024] The technical solutions in the embodiments of the present disclosure are clearly and completely described in the following with reference to the drawings in the embodiments of the present disclosure. It is obvious that the described embodiments herein are a part of, rather than all of, the embodiments of the present disclosure. Based on the embodiments of the present disclosure, all other embodiments obtained by a person skilled in the art without creative work will fall within the scope of the present disclosure.

[0025] In the description of the present disclosure, it is to be understood that the terms "center", "upper", "lower", "front", "back", "left", "right", "vertical", "horizontal", "top", "bottom", "inside", "outside" and the like which indicate the orientation or positional relationship are based on the orientation or positional relationship shown in the drawings, and are merely for the convenience of describing the present disclosure and simplifying the description, rather than indicating or implying that the referred device or component must have a particular orientation, or is constructed and operated in a particular orientation, and thus these terms are not intended to be construed as limiting the present disclosure.

[0026] The terms "first" and "second" are only used for

descriptive purposes and are not intended to be construed as indicating or implying relative importance or implicitly indicating the number of technical features indicated. Thus, features defined by "first" and "second" may include one or more of this feature either explicitly or implicitly. In the description of the present disclosure, the meaning of "a plurality" is two or more unless otherwise explained.

[0027] During the production of the tile, various materials are required, and the production processes may also be different. For the tile which cannot realize the concave-convex (wavy) structure in the production process, the waterproofing requirement cannot be met if the direct overlapping installation method is adopted. In order to install a plurality of tiles to achieve coverage of a building, an installation structure of the tiles in the exemplary embodiment of the present disclosure is shown in FIG. 1. The installation of a first tile 01 and a second tile 02 without concave-convex structure is achieved by an installation slot 03 disposed between the first tile 01 and the second tile 02. Specifically, the installation slot 03 is first installed at a designated position, and then the ends of the first tile 01 and the second tile 02 are correspondingly inserted into the installation slot 03, thereby realizing the fixed installation of the adjacent tiles. The "convex pleat structure" described above refers to a structure which is disposed at the edge of the tile to be snapped with other tiles.

[0028] However, in the above embodiment, the installation slot 03 needs to be installed on the roof in one step. After the installation slot 03 is fixed, the specific dimensions of each tile may be different due to thermal expansion and contraction deformation of the tile, such that the relative positions of the two laterally adjacent installation slots 03 are inaccurate when the installation accuracy of the installation slot 03 is low. This may result in that the tiles are not able to be mounted into the installation slot 03, or the installed tiles are separate from the installation slot 03 to cause a probability of water leakage. Therefore, the installation operation is complicated and is prone to water leakage.

[0029] In order to solve the above problems, some embodiments of the present disclosure provide an installation structure of a curved tile, as shown in FIG. 2, FIG. 3, FIG. 4 and FIG. 5. The installation structure of the curved tile includes a first curved tile 1 and a second curved tile 2 each including a tile body 3, and both ends of the tile body 3 are respectively a first curved overlapping portion 31 and a second curved overlapping portion 32 (the second curved overlapping portion 32 of the first curved tile 1 and the first curved overlapping portion 31 of the second curved tile 2 are not shown). The curved surface of the first curved overlapping portion 31 faces downward, and the second curved surface of the curved overlapping portion 32 faces upward, the first curved overlapping portion 31 of the first curved tile 1 overlapping on the second curved overlapping portion 32 of the second curved tile 2. A waterproof structure is disposed at

a position where the first curved tile 1 overlaps with the second curved tile 2.

[0030] In the installation structure of the curved tile of some embodiments of the present disclosure, the installation of the curved tile is completed by the first curved overlapping portion 31 of the first curved tile 1 overlapping on the second curved overlapping portion 32 of the second curved tile 2. The installation of the tile can be simplified, and the molding of the first curved overlapping portion 31 and the second curved overlapping portion 32 no longer requires specific processes and materials. The manufacturing thereof can also be convenient to reduce the cost. Also, for the purpose of waterproof, a waterproof structure may be disposed at the position where the first curved tile 1 overlaps with the second curved tile 2. The structure of the waterproof structure will be described in detail by way of the following embodiments.

[0031] It should be explained that, as shown in FIG. 2, FIG. 3, FIG. 4 and FIG. 5, a partial structure of the position where the first curved tile 1 overlaps with the second curved tile 2 is only shown, while the entire structure thereof is not shown. In other words, only the first curved overlapping portion 31 of the first curved tile 1 and the second curved overlapping portion 32 of the second curved tile 2 are shown, while the second curved overlapping portion 32 of the first curved tile 1 and the first curved overlapping portion 31 of the second curved tile 2 are not shown.

[0032] In some embodiments, as shown in FIG. 2, the waterproof structure includes a first water stop structure 4. The position where a front end of the first curved overlapping portion 31 of the first curved tile 1 contacts with the second curved overlapping portion 32 of the second curved tile 2 is the first position at which the first water stop structure 4 is disposed. The first water stop structure 4 can prevent the water from leaking from the first position, such that the water is isolated inside the second curved overlapping portion 32 having an upwards curved surface, and then is drained away. The first water stop structure 4 may form a waterproof structure.

[0033] In some embodiments, as shown in FIGS. 2, 3, 4, and 5, the curved surface of the second curved overlapping portion 32 faces upward for water delivery. The height difference between a bottom of the curved surface of the second curved overlapping portion 32 and the first position would determine the amount of water to be delivered. If the amount of water is excessive, the first position may be submerged such that the first water stop structure 4 disposed at the first position may be subjected to large water pressure or soaked in the water for a long time, thereby affecting the life of the first water stop structure 4. Therefore, the first position is higher than the bottom of the curved surface of the second curved overlapping portion 32 of the second curved tile 2, such that the height difference between the first position and the bottom of the curved surface of the second curved overlapping portion 32 of the curved tile 2 forms another waterproof structure. For example, when the height difference

is greater than 5 mm, it is generally ensured that the water surface does not touch the first water stop structure 4 at the first position when the water is delivered.

[0034] In some embodiments, since the height difference between the first position and the bottom of the curved surface of the second curved overlapping portion of the second curved tile is relatively large, the height difference may also serve as a waterproof structure. For example, the height difference between the first position and the bottom of the curved surface of the second curved overlapping portion of the second curved tile is greater than 10 mm, and may also serve as a waterproof structure alone. For example, the height difference may be used in a less rainfall region. The combination of the height difference and the first water stop structure 4 can provide an excellent waterproof effect.

[0035] In some embodiments, as shown in FIG. 5, the position where the front end of the second curved overlapping portion 32 of the second curved tile 2 is in contact with the first curved overlapping portion 31 of the first curved tile 1 is a second position. The waterproof structure includes a second water stop structure 6 disposed at the second position. The second water stop structure 6 may be used as a waterproof structure alone, or may be used in combination with the first water stop structure 4, in combination with a waterproof structure formed by the first water stop structure 4 and the height difference between the first position and the bottom of the curved surface of the second curved overlapping portion 32 of the second curved tile 2, or in combination with the waterproof structure formed by the height difference between the first position and the bottom of the curved surface of the second curved overlapping portion 32 of the second curved tile 2. Specifically, in the case where the first water stop structure 4 is in failure or the like, after the water leaks from the first position, the second water stop structure 6 disposed at the second position may prevent the water from leaking from the front end of the second curved overlapping portion 32 of the second curved tile 2, and the second water stop structure 6 further forms a waterproof structure, thereby preventing water from leaking from the upper portion of the curved tile to the lower portion thereof and further into the interior of the building.

[0036] In some embodiments, when the amount of water delivered by the second curved overlapping portion 32 is large, for example in the case of a rainstorm or the like, or when the height difference between the first position and the bottom of the curved surface of the second curved overlapping portion 32 of the second curved tile 2 is small, the sealing performance of the first water stopping structure 4 may be affected due to the large water pressure or long time immersion, so that the water may leak from the first position to enter a space between the first position and the second position. At this time, as long as the amount of water does not exceed the second position, the water is still in the curved surface of the second curved overlapping portion 32, such that the water may

still be delivered. Therefore, in the case where the first water stop structure is in failure, so that the tile may be used normally and the water no longer leaks into the interior of the building, the height of the first position and the second position may be defined, so as to ensure sufficient water delivery. As shown in FIG. 7, for example, the second position is higher than the first position, and the height difference therebetween is greater than 10 mm, such that the height difference between the second position and the first position also forms a waterproof structure which may be combined with at least one of the waterproof structures described above, or may serve as a waterproof structure alone. For example, when this waterproof structure is combined with the first water stop structure 4 and the first water stop structure 4 is in failure, the waterproof structure may be used for waterproofing.

[0037] When the first curved tile 1 overlaps with the second curved tile 2, the front end of the first curved overlapping portion 31 of the first curved tile 1 is in contact with the second curved overlapping portion 32 of the second curved tile 2, and the first water stop structure 4 is disposed at the first position, thereby achieving the installation of the first curved tile 1 and the second curved tile 2 while ensuring waterproof. However, the front end of the second curved overlapping portion 32 of the second curved tile 2 may abut against the first curved overlapping portion 31 of the first curved tile 1 and may be in hard contact with a risk of tile rupture. As shown in FIG. 3, for example, a sufficient gap may be reserved between the front end of the second curved overlapping portion 32 of the second curved tile 2 and the first curved overlapping portion 31 of the first curved tile 1 at the time of installation so as to avoid the hard contact. In addition, due to the thermal expansion and contraction of the tile, the overall size may vary. Even if the gap is reserved, there may be occurrence of the hard contact. Therefore, as shown in FIG. 4, the position where the front end of the second curved overlapping portion 32 of the second curved tile 2 is in contact with the first curved overlapping portion 31 of the first curved tile 1 is a second position at which a buffer structure 5 is disposed. By disposing the buffer structure 5 at the second position, the two tiles are separated, so that the problem of hard contact does not occur even if the size of the tile varies due to thermal expansion and contraction.

[0038] The first water stop structure 4 is disposed in the first position and may function as a waterproof, and at the same time, the occurrence of the hard contact between the front end of the first curved overlapping portion 31 of the first curved tile 1 and the second curved overlapping portion 32 of the second curved tile 2 may also be avoided. Similarly, the buffer structure 5 is disposed at the second position, which may serve as a buffer to prevent the occurrence of hard contact, and may also be a waterproof. Specifically, in the case where the water stop structure 4 is in failure or the like, after the water leaks from the first position, the buffer structure disposed at the second position may prevent water from leaking

from the front end of the second curved overlapping portion 32 of the second curved tile 2.

[0039] In some embodiments, the second water stop structure 6 and the buffer structure 5 are both disposed at the second position. Specifically, as shown in FIG. 6, the second water stop structure 6 and the buffer structure 5 are along the position where the first curved tile 1 overlaps with the second curved tile 2 at intervals. The position where the front end of the second curved overlapping portion 32 of the second curved tile 2 is in contact with a first curved overlapping portion 31 of the first curved tile 1 is not only effective in waterproofing but also has a buffering function.

[0040] In order to ensure that the first water stop structure 4, the second water stop structure 6 and the buffer structure 5 are fixed at corresponding positions and are convenient to operate, the first water stop structure 4 is bonded at the first position, and the second water stop structure 6 and the buffer structure 5 are bonded at the second position. In this way, the bonded connection is convenient at the time of installation, and it may be ensured that the first water stop structure 4, the second water stop structure 6 and the buffer structure 5 are fixed at the corresponding positions.

[0041] The materials of the first water stop structure 4, the second water stop structure 6 and the buffer structure 5 are the same or different, and it is required to ensure waterproof performance and certain elasticity. For example, the first water stop structure 4, the second water stop structure 6 and the buffer structure 5 are waterproof rubber coating or water stop strip. The waterproof rubber coating may be waterproof material such as direct-applying structural adhesive, waterproof silicone and asphalt. The water stop strip may be a water stop strip made of rubber, which is made of sealing materials such as silicone rubber, nitrile rubber, fluorine rubber, EPDM rubber or polyurethane. The water stop strip made of the above materials has a certain elasticity in the case of ensuring sealing, and the elasticity does not affect the waterproofing with weather changes.

[0042] Specifically, the first water stop structure 4, the second water stop structure 6 and the buffer structure 5 may be pasted on the corresponding position of the curved tile by a silicone adhesive or a strong anti-aging tape.

[0043] In the case where the second water stop structure 6 and the buffer structure 5 are both selected from the waterproof rubber coating or the water stop strip, only the second water stop structure 6 or the buffer structure 5 may be disposed at the second position because the waterproof rubber coating or the water stop strip has not only a waterproof function but also a certain elasticity. Thus, in order to simplify the entire installation structure, only one of them may be disposed.

[0044] When the first water stop structure 4, the second water stop structure 6 and the buffer structure 5 are water stop strips made of rubber, the specific shape structure of the water stop strip may be implemented in various

ways. For example, as shown in FIG. 8, the cross section of the water stop strip is a rectangular, L-shaped or U-shaped structural diagram from left to right. The water stop strip needs to isolate the two tiles at the corresponding position and does not affect the waterproofing. On this basis, a structure with various shapes may be disposed. The rectangular water stop strip saves material, and the protective effect of the end of the corresponding tile by the U-shaped water stop strip is better. The specific shape structure may be determined according to needs, and is not limited herein.

[0045] In the case where the water stop strip serves to prevent the occurrence of hard contact problems, in some embodiments, the water stop strip has an effective thickness greater than or equal to 2 mm. The effective thickness of the water stop strip, i.e., the thickness at the position where the water stop strip works, is located between the two tile contact positions, the thickness of which determines the buffering capacity of the water stop strip. When the effective thickness of the water stop strip is greater than or equal to 2 mm, the prevention of the problem of hard contact may be ensured.

[0046] In some embodiments, the waterproof effect may also be achieved only by the height difference between the second position and the first position.

[0047] Referring to FIGS. 2 and 3, the shape and dimension of the first curved overlapping portion 31 and those of the second curved overlapping portion 32 are different, and the overlapping area after the corresponding overlap is also different, which may influence the strength of the tile and the shape after the overlap to a certain degree. Therefore, the shape and dimension of the first curved overlapping portion 31 and those of the second curved overlapping portion 32 also need to be limited in production. If the chord length is too small or the arch height is too large, it may lead to an excessive curvature and a stress concentration, thereby making the tiles brittle. If the chord length is too large or the arch height is too small, it may lead to an excessive overlapping area at the time of the overlap, and the material is wasted. Therefore, in some embodiments, the first curved overlapping portion 31 and the second curved overlapping portion 32 are both 30 to 500 mm, and the arch height is 15 to 50 mm.

[0048] In addition, the installation structure of the curved tile of the embodiment of the present disclosure may be applied to various tiles such as solar tiles, ceramic tiles, metal tiles and so on.

[0049] The above is only the specific embodiment of the present disclosure, however, the scope of the present disclosure is not limited thereto, and any change or replacement that may be easily conceived within the technical scope of the present disclosure by any person skilled in the art should be covered within the scope of protection of the present disclosure. Therefore, the scope of protection of the present disclosure should be determined by the scope of the claims.

Claims

1. An installation structure of a curved tile, comprising a first curved tile (1) and a second curved tile (2) wherein, each of the first curved tile (1) and the second curved tile (2) has a tile body (3), both ends of the tile body (3) form a first curved overlapping portion (31) and a second curved overlapping portion (32), respectively, a curved surface of the first curved overlapping portion (31) faces downward, a curved surface of the second curved overlapping portion (32) faces upward, the first curved overlapping portion (31) of the first curved tile (1) overlaps with the second curved overlapping portion (32) of the second curved tile (2), and a waterproof structure (4, 6) is disposed at a position where the first curved tile (1) overlaps with the second curved tile (2).
2. The installation structure of the curved tile according to claim 1, wherein a position where a front end of the first curved overlapping portion (31) of the first curved tile (1) is in contact with the second curved overlapping portion (32) of the second curved tile (2) is a first position, and the waterproof structure (4, 6) includes a first water stop structure (4) disposed at the first position.
3. The installation structure of the curved tile according to claim 2, wherein the first position is higher than a bottom of the curved surface of the second curved overlapping portion (32) of the second curved tile (2).
4. The installation structure of the curved tile according to claim 3, wherein a height difference between the first position and the bottom of the curved surface of the second curved overlapping portion (32) of the second curved tile (2) is greater than 5 mm.
5. The installation structure of the curved tile according to claim 2, wherein a position where the front end of the second curved overlapping portion (32) of the second curved tile (2) is in contact with the first curved overlapping portion (31) of the first curved tile (1) is a second position at which a buffer structure (5) is disposed.
6. The installation structure of the curved tile according to claim 5, wherein the second position is higher than the first position, and wherein a height difference between the second position and the first position is greater than 10 mm.
7. The installation structure of the curved tile according to claim 5, wherein the first water stop structure (4) is bonded at the first position, and the buffer structure (5) is bonded at the second position.
8. The installation structure of the curved tile according

to claim 5, wherein the first water stop structure (4) and the buffer structure (5) are formed of the same or different materials which are selected from one of a waterproof glue coating or a water stop strip.

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9. The installation structure of the curved tile according to claim 8, wherein the water stop strip has a rectangular, L-shaped or U-shaped cross section.

10. The installation structure of the curved tile according to claim 8, wherein the water stop strip has an effective thickness greater than or equal to 2 mm, and wherein the effective thickness is a thickness at a position where the water stop strip works between the first curved tile (1) and the second curved tile (2).

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11. The installation structure of the curved tile according to claim 1, wherein a position where a front end of the first curved overlapping portion (31) of the first curved tile (1) is in contact with the second curved overlapping portion (32) of the second curved tile (2) is a first position which is higher than a bottom of the curved surface of the second curved overlapping portion (32) of the second curved tile (2).

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12. The installation structure of the curved tile according to claim 1, wherein a gap is provided between a front end of the second curved overlapping portion (32) of the second curved tile (2) and the first curved overlapping portion (31) of the first curved tile (1).

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13. The installation structure of the curved tile according to claim 1, wherein a position where a front end of the second curved overlapping portion (32) of the second curved tile (2) is in contact with the first curved overlapping portion (31) of the first curved tile (1) is a second position, and the waterproof structure (4, 6) includes a second water stop structure (6) disposed at the second position.

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14. The installation structure of the curved tile according to claim 13, wherein the second position is provided with a buffer structure (5).

15. The installation structure of the curved tile according to claim 14, wherein the second water stop structure (6) and the buffer structure (5) are disposed along the position where the first curved tile (1) overlaps with the second curved tile (2) at intervals.

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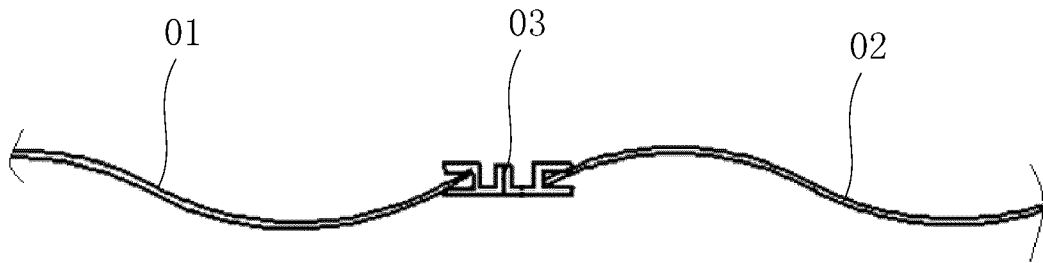


FIG. 1

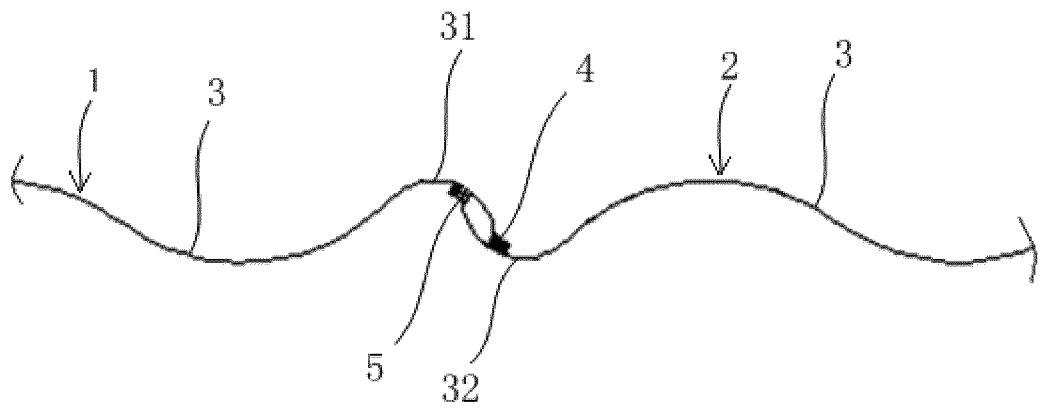


FIG. 2

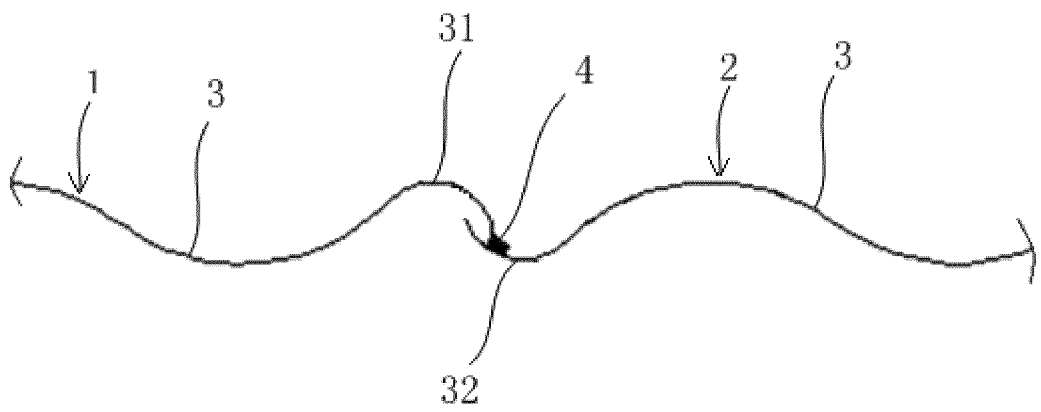


FIG. 3

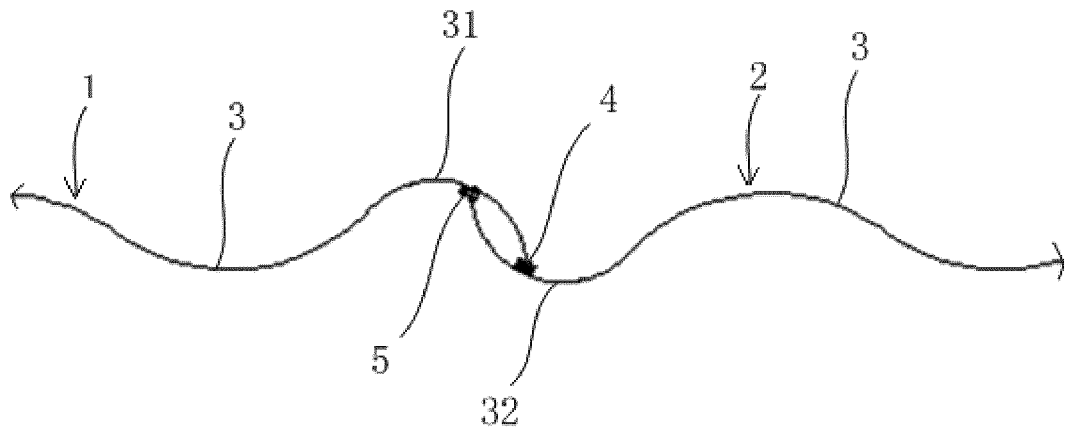


FIG. 4

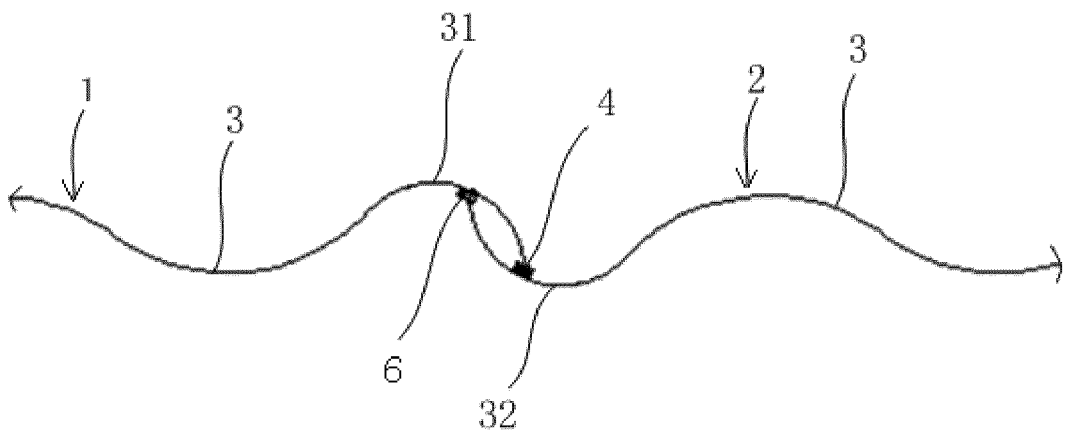


FIG. 5

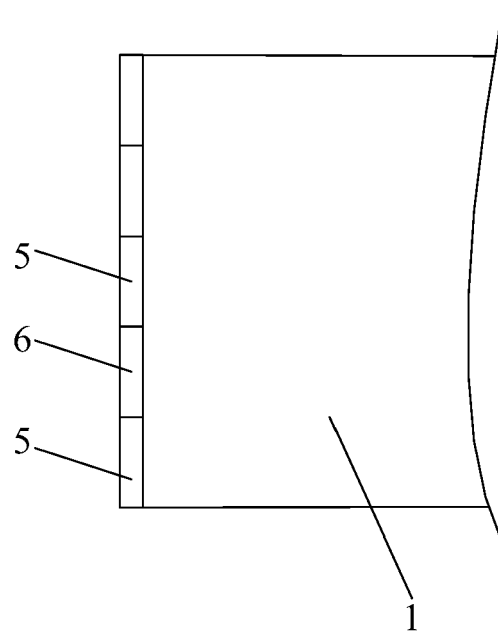


FIG. 6

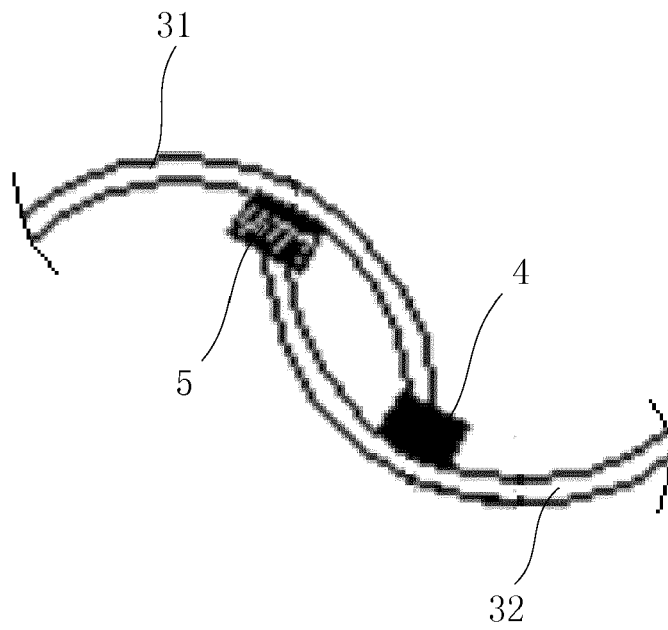


FIG. 7

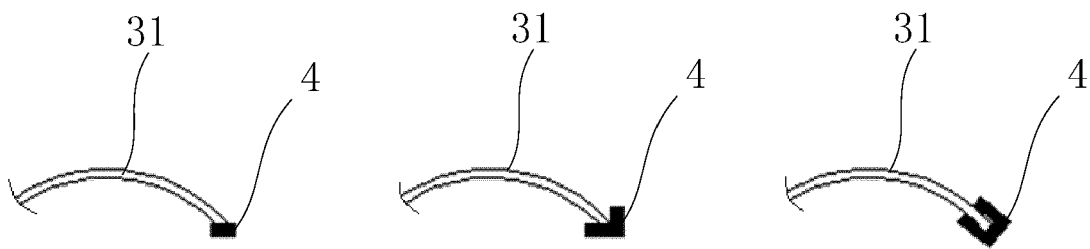


FIG. 8



EUROPEAN SEARCH REPORT

Application Number
EP 18 19 6861

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			TECHNICAL FIELDS SEARCHED (IPC)
			E04D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 17 January 2019	Examiner Leroux, Corentine
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