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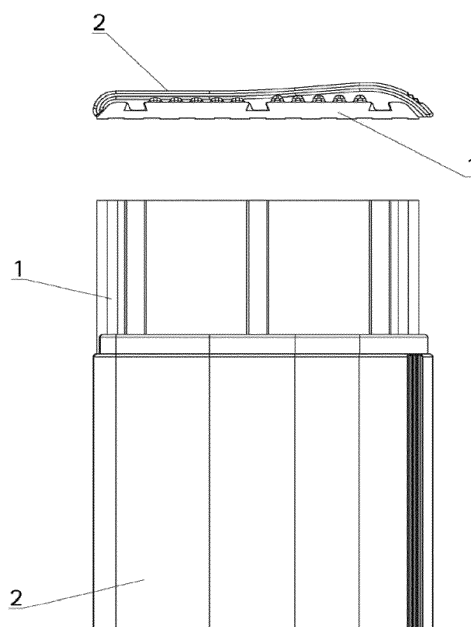
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(54) **SAFETY EDGING FOR SWIMMING POOLS, WATER AREAS AND PLAY AREAS**

(57) This invention is used in swimming pools, water and recreation areas to minimise the risks of accidents and contusions due to slips or falls of bathers, sportsmen or users through the use of a product made up of various configurations of a support or rigid base (1) of cement, ceramic, porcelain material, or other construction material, and an elastic cover (2) of plastic material - polyolefin, silicones, polyurethanes, natural and artificial rubbers, or other types of polymers, combined between themselves or not - with elastic mechanical properties on straight, curved or angular borders of swimming pools, and with waterproof, antiskid, hygienic, aesthetic and/or signage effects.

Fig.1



## Description

### Technical section

[0001] The invention protected in this Utility Model, consists in a safety ledge made up of two parts: a rigid base based on cement extrusion, or on ceramic, metal or plastic material, and an elastic cover affixed to said base in order to encircle the perimeter of swimming pools and water and recreation areas, and to minimise, thanks to it, the risk of accidents and contusions due to impacts.

### Background art

[0002] At present, various protection and safety mechanisms are already known and are in place against accidents involving hitting ledges or slipping in areas of stationary or moving water but all of these include disadvantages both operational and cosmetic as well as functional, particularly because no simple and adequate technical means exist for all types of use or operation, whether they are recreational (swimming pools, play areas in aquatic parks, etc...) therapeutic (spas and baths) or industrial (agricultural irrigation or hydroelectric reservoirs or ponds). Further, the use of media already developed presents a number of limitations with respect to the invention being presented which is more versatile. Thus, while already known as protection or safety features on swimming pools, inventions published in Spain relating to collapsible swimming pools, such as Utility Model ES1036807 by TORRENTE INDUSTRIAL for a Protection adaptable to the hard edges of collapsible swimming pools (1998), Patent ES2257133 by CERAMICAS SUGRAÑES for a group of parts for the construction of the upper edge and culvert in overflowing swimming pools (2006), or Patent ES2170012 by SEVYLOR INTERNATIONAL for a swimming pool's edge profile (2002).

[0003] In other countries inventions have already been published which, in a similar manner to the Spanish inventions mentioned above, emphasize aspects of control and drainage of overflowing water, or the protection of hard parts of collapsible swimming pools. Thus for example Patent US4980934 by DAHOWSKI (1991) for an indicator of swimming pool ledges with fibre optic illumination, a prefabricated swimming pool Patent IT940058 by BUSSATA (1994), or English inventions GB190504369 by MAX WOLFF (1905), GB328775 by AUGUSTE VICTOR KELLER (1930), and GB2171599 by SPENCER BAYLEY (1985), relating to edge profile configurations for ponds and swimming pools.

[0004] All these, as well as all other inventions prior to the invention being presented, are based on very different applications, uses or functions and as inventions all include functional and operational limitations, and as such are different from the design of this invention.

## Technical problem

[0005] One of the principal challenges in the design of swimming pools, tanks, ponds, irrigation reservoirs or water storage tanks is not only the mere fact that they contain a liquid element. It is also to ensure that said designs and inventive concepts satisfy the requirements of recreation, game, sport or work activities that take place in their vicinity and that they resolve issues before accidental slips occur in overflowing swimming pools, in which the water remains on top of the ledge as it overflows into an external gutter; as well as in skimmer type swimming pools, in which the level of water remains below the ledge.

[0006] The variety of uses that can require the control of water means that in fixed and permanent facilities a multitude of activities and actors are involved: swimming pool users, sport swimmers, maintenance and cleaning operators, teaching instructors, first-aiders, crop and livestock farmers, construction operators, etc., whether it is stationary or moving water and regardless of their source, from basins, public supplies or private wells.

[0007] But in all these uses, said functions are not except from a risk of falls or slips of the users or workers which may have fatal consequences for them. As a result, this invention has been designed with the aim to minimising and reducing the risk of accidental falls, of bruises against the ledges while nearing, entering or exiting such swimming pools, ponds or reservoirs, and at the end of the day with the aim of providing a measure of protection and safety to such environments of water containment.

[0008] Further, the risk of accidents increases exponentially when the edges are glazed to achieve an aesthetic effect, or when the passage of time erodes the ledges used. This is in addition to the normal wear and tear, the lack of cleanliness or maintenance that encourages the appearance of mould or seaweeds in some areas, or on the contrary because of a process of excessive cleaning, in which chemical products or abrasive cleaning tools may remove the components adherent to the ledges that were installed initially.

## Technical solution

[0009] Through the use of two technical media: A base of cement, ceramic, porcelain or plastic material or any other construction material of a rigid quality used as support or base. And an elastomeric cover or sleeve fitted over that support to reduce the disadvantages stated.

[0010] Likewise, the elastic cover features an overlay on one of its sides, over the section that is being used to contain the water, while presenting on its lower part a few longitudinal projections (whose aim is to act as a system of fitting mechanism onto the rigid base). In its composition this cover can contain substances that intensify its identification and localisation, as well as safety features (colouring, waterproof additives, adherent additives, fungicides, weed-repellents, etc...).

## Advantageous Effects

**[0011]** Without a doubt, the principal function of this invention is to offer a medium of prevention and safety against accidents, and in particular a measure of protection against bruises or impacts in the event of an accident. However a number of other complementary benefits also exist in addition to this advantage.

**[0012]** In fact, this contribution also facilitates a medium of prevention and safety for risks of work accidents, as well as compliance with the Spanish technical standard relating to the standardisation of swimming pools, and in particular with regard to sports equipment and aquatic attractions (UNE-EN standard 13451 - 2001, 2004) that have specific safety requirements.

**[0013]** Finally, the cover can present benefits in terms of information or advertising since it can easily be replaced for aesthetic reasons, or in order to be used as advertising or signage platform.

## Description of Drawings

**[0014]** For a better understanding of the general characteristics mentioned above, the present invention is accompanied by various drawings that illustrate specifications as follows:

**Figure 1:** View of a group composed of a rigid base (1), and an elastic cover (2).

**Figure 2:** Sectional view of a group composed of a rigid base (1), and an elastic cover (2) installed on the ledge of the basin of a swimming pool - of so-called *skimmer* type - or pond.

**Figure 3:** Sectional view of a group composed of a rigid base (1), and an elastic cover (2) installed on the ledge of a swimming pool or pond - of so-called overflowing type, inside the basin of the swimming pool or pond, with culvert or draining gutter (3) and grate (4).

**Figure 4:** Orthogonal and perspective views of a rigid base (1), with its longitudinal fastening grooves in the feet of the cover (5).

**Figure 5:** Orthogonal and perspective views of an elastic cover (2) with an ascending overlay (8) and its supporting feet (6).

**Figure 6:** Sectional view of a group composed of a piece of rigid base (1), with the longitudinal fastening grooves in the feet of the cover (5) symmetrical with its longitudinal central surface in order to allow fitting on a piece of elastic cover (2) with an ascending overlay (8) and its supporting feet (6), and support for culvert grates in overflowing swimming pools (7).

**Figure 7:** Two projection views of a group joined solidarily by a piece of rigid base (1), with its longitudinal fastening grooves in the feet of the cover (5) in the shape of a dovetail - symmetrical with its longitudinal central surface in order to permit fitting in one direction, as in the opposite direction, by a piece of elastic cover (2) with an ascending overlay (8) and supporting feet (6), and support for culvert grates in overflowing swimming pools (7).

**Figure 8:** Orthogonal and perspective views of a piece of elastic cover (2) with an ascending overlay (8) and supporting feet (6) and support for culvert grates in overflowing swimming pools (7).

**Figure 9:** Sectional view of a piece of an elastic cover (2) with an ascending overlay (8) and supporting feet (6), and support for culvert grates in overflowing swimming pools (7).

**Figure 10:** Combined view of a piece of rigid base (1), with its longitudinal fastening grooves in the feet of the cover (5) in the shape of a dovetail, and of a piece of elastic cover (2) with an ascending overlay (8) and support for culvert grates in overflowing swimming pools (7) interlaced with other pieces with identical characteristics forming a separation or transversal gasket (9), variable in width depending on the length of the swimming pool or pond, and on the number of covers incorporated over the rigid bases.

**Figure 11:** Plan view of a piece of rigid base (1) cut in a rectangular shape in order to create right-angle outlines, and a piece of rigid base (1) cut in a trapeze shape for curved outlines.

**Figure 12:** Plan view a set of pieces of rigid bases (1) cut in trapeze shapes to form a curve.

**Figure 13:** Orthogonal and perspective views of an elastic cover (2) with its overlay for skimmer type swimming pools with curved edges.

**Figure 14:** Orthogonal and perspective view of an elastic cover (2) with its overlay for overflowing swimming pools with curved edges.

**Figure 15:** Orthogonal and perspective view of an elastic cover (2) with a rectangular corner with its overlay (10), its supporting feet (6) for skimmer type swimming pools.

**Figure 16:** Orthogonal and perspective views of an elastic cover (2) of a rectangular corner piece with its overlay (10), its supporting feet (6), and support for culvert grates in overflowing swimming pools (7) for overflowing swimming pools.

**Figure 17:** View of a piece of rigid base (1), cut in order to form a rectangular corner piece and to form the beginning and end section of a curve.

**Figure 18:** Front and perspective views of a set of rigid bases (1) of a rectangular shape and combined between themselves to form a continuous deck, creating a protective elastic floor both extendable and upgradeable

**Figure 19:** Orthogonal and perspective views of a flat elastic cover (2).

**Figure 20:** Perspective view of a swimming pool's ledge with its extension into a deck of flat elastic covers (2).

**Figure 21:** Perspective view of a deck extension with pieces of rigid bases (1) and flat elastic covers (2) for water and recreation areas.

**Figure 22:** Orthogonal and perspective views of a piece of rigid base with culvert or draining gutter (12) and its piece of elastic cover (13).

**Figure 23:** Orthogonal and perspective views of a piece of rigid base with culvert or draining gutter (12) with longitudinal fastening grooves in the feet of the elastic cover (5).

**Figure 24:** Orthogonal and perspective views of a piece of elastic cover (13) with its supporting feet (6) for a piece of rigid base with culvert or draining gutter.

**Figure 25:** Views of the lower part of a piece of elastic cover (13) with its supporting feet (6) for a piece of rigid base with culvert or draining gutter.

**Figure 26:** Views of a piece of rigid base with culvert or draining gutter in a corner piece (14) and of its piece of elastic cover (15), and fixed with the elastic cover's feet or projections (6) coupled to the grooves of the rigid base (5).

**Figure 27:** Views of a piece of rigid base with culvert or draining gutter in a projecting piece (16) and of its piece of elastic cover (17) and fixed with the elastic cover's feet or projections (6) coupled to the grooves of the rigid base (5).

**[0015]** Figures No. 22, 23, 26 and 27 are drawings of a complementary realisation on the innovation of Patent ES2257133 by CERAMICAS SUGRAÑES on a group of elements for the construction of the upper edge and culvert in overflowing swimming pools (2006).

## Best Mode

**[0016]** The safety ledge for swimming pools, water and recreation areas, the latter in areas in contact with water and dry areas, can be carried out and laid out in the following manner:

**[0017]** In accordance with the graphic illustration in Fig. 1, it relates to a group constituted by a rigid base (1) of cement, ceramic, porcelain or plastic material or any other construction material, and an elastic cover (2) of plastic material - polyolefin, silicones, polyurethanes, natural and artificial rubbers, or other types of polymers, combined or not - with elastic mechanical properties, that function as finish and cover.

**[0018]** Depending on the type of swimming pool or pond, tank or reservoir, overflowing or not, the invention concept is installed in the edge of the basin that contains the water - Fig.2 - or inside it - Fig.3 - and may be completed with a culvert or draining gutter (3) and a grate (4).

**[0019]** One of the pieces, the support or rigid base of the ledge (1), consists in a few longitudinal fastening grooves in the feet of the cover (5) in the shape of a dovetail in which the cover's supporting feet are lodged (6) through projections or rhomboid feet that are part of the elastic cover (2). Alternatively, it can also have a rectangular structure - Fig.1, Fig.2, Fig.3, Fig.4, Fig.6, Fig.7, Fig.10, Fig.11, Fig.18 - for square or trapeze areas - Fig.11 for curved areas - Fig.12, Fig.13, Fig.14, and Fig.17 - , or rectangular trapezes for corners - Figs. 15, Fig.16, Fig.26, and Fig.27 -.

**[0020]** Whereas the second piece, the elastic cover (2) is fixed with a mechanical socket between the cover's support feet (6) and the grooves (5) in the shape of a dovetail which can be reinforced with glue or adhesive for square outlines - Fig.1, Fig.2, Fig.3, Fig.5, Fig.6, Fig.7, Fig.8, Fig.9, Fig.10 and Fig.11 - or corners and curves - Fig.13, Fig.14, Fig.15, Fig.16, Fig.17, Fig.26, and Fig.27 -.

**[0021]** Both pieces, the hardness of the ledge (1) and the elasticity of the cover (2) can be combined unlimitedly in both breadth and scale with square covers depending on the perimeter area of the swimming pools, ponds, tanks or reservoirs - Fig.18, Fig.20, and Fig.21 - to be installed, therefore transversal gaskets or separations are created that can be expanded or reduced to adjust to the size of the surroundings - Fig.10 -.

**[0022]** The piece of the elastic cover can contain in its composition chemical, antibacterial, antifungal, antialgae, waterproof or antiskid substances. In addition to its ornamental or aesthetic potential on account of the colouring agents or pigments that can be added as a dye during manufacture or other process, it may also be used as an informative, advertising or signage medium.

## Claims

1. Safety ledge for swimming pools, water and recrea-

- tion areas to minimise risks of accidents and contusions **consisting in** a group made up of a support or rigid base (1) of cement, ceramic, porcelain or plastic material or any other construction material, and an elastic cover (2) of plastic material - polyolefin, silicones, polyurethanes, natural and artificial rubbers, or other types of polymers combined between themselves or not - with elastic mechanical properties. This layer functions both as finish and cover.
2. Safety ledge for swimming pools, water and recreation areas to minimise risks of accidents and contusions in accordance with Claim.1 **consisting in** a support or rigid base of the ledge (1) in a rectangular structure, with some longitudinal fastening grooves in the feet of the cover (5) in the shape of a dovetail in which to lodge the cover's supporting feet (6) via projections or rhomboid feet that are part of the elastic cover (2).
  3. Safety ledge for swimming pools, water and recreation areas to minimise risks of accidents and contusions in accordance with Claim.1 **consisting in** a support or rigid base of the ledge (1) in a rectangular shape to be installed on the perimeter of straight swimming pools, with some longitudinal fastening grooves in the feet of the cover (5) in the shape of a dovetail in which to lodge the cover's supporting feet (6) via projections or rhomboid feet that are part of the elastic cover (2).
  4. Safety ledge for swimming pools, water and recreation areas to minimise risks of accidents and contusions in accordance with Claim.1 **consisting in** a support or rigid base of the ledge (1) in trapeze shape to be installed on the perimeter of curved swimming pools, with some longitudinal fastening grooves in the feet of the cover (5) in the shape of a dovetail in which to lodge the cover's supporting feet (6) via projections or rhomboid feet that are part of the elastic cover (2).
  5. Safety ledge for swimming pools, water and recreation areas to minimise risks of accidents and contusions in accordance with Claim.1 **consisting in** a support or rigid base of the ledge (1) in rectangular trapeze shape for corners, with some longitudinal fastening grooves in the feet of the cover (5) in the shape of a dovetail in which to lodge the cover's supporting feet (6) via projections or rhomboid feet that are part of the elastic cover (2).
  6. Safety ledge for swimming pools, water and recreation areas to minimise risks of accidents and contusions in accordance with Claim.1 **consisting in** an elastic cover (2) that is fastened via a mechanical socket between the support feet of the cover (6) and the grooves (5) in the shape of a dovetail, which can be reinforced with glue or adhesive for square outlines.
  7. Safety ledge for swimming pools, water and recreation areas to minimise risks of accidents and contusions in accordance with Claim.1 **consisting in** an elastic cover (2) that is fastened via a mechanical socket between the support feet of the cover (6) and the grooves (5) in the shape of a dovetail, which can be reinforced with glue or adhesive for corner outlines.
  8. Safety ledge for swimming pools, water and recreation areas to minimise risks of accidents and contusions in accordance with Claim.1 **consisting in** an elastic cover (2) that is fastened via a mechanical socket between the support feet of the cover (6) and the grooves (5) in the shape of a dovetail, which can be reinforced with glue or adhesive for curved outlines.
  9. Safety ledge to minimise risks of accidents and contusions in swimming pools, water and recreation areas in accordance with Claim.1 to 8 **consisting in** the final addition of a culvert or draining gutter (3) and a grate (4).
  10. Safety ledge for swimming pools, water and recreation areas for an unlimited combination in terms of extension and width of surfaces in accordance with Claim.1 to 9 **consisting in** the possibility of the rigid pieces of the ledge (1) and the elastic component of the cover (2) to be combined with straight covers.
  11. Safety ledge for swimming pools, water and recreation areas for a dry technique and aesthetic effect in accordance with Claim.1 to 10 **consisting in** the possibility of the elastic part of the cover (2) to contain waterproof chemical substances in its composition.
  12. Safety ledge for swimming pools, water and recreation areas for a security technical effect in accordance with Claim.1 to 11 **consisting in** the possibility of the elastic part of the cover (2) to contain antiskid chemical substances in its composition.
  13. Safety ledge for swimming pools, water and recreation areas for an hygienic technical effect in accordance with Claim.1 to 12 **consisting in** the possibility of the elastic part of the cover (2) to contain antibacterial, antifungal and antialgae chemical substances in its composition.
  14. Safety ledge to minimise risks of accidents and contusions in swimming pools, water and recreation areas for an aesthetic and/or signage effect in accordance with Claim.1 to 13 **consisting in** the possibility

of the elastic part of the cover (2) to contain colouring chemical substances in its composition.

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Fig.1

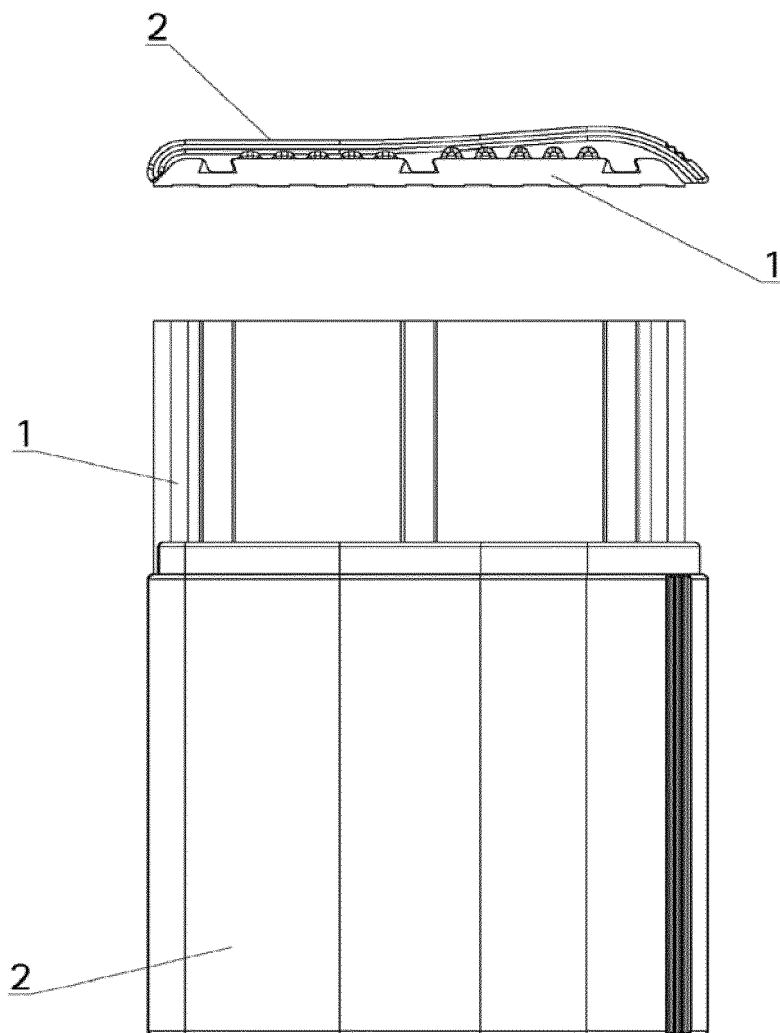


Fig.2

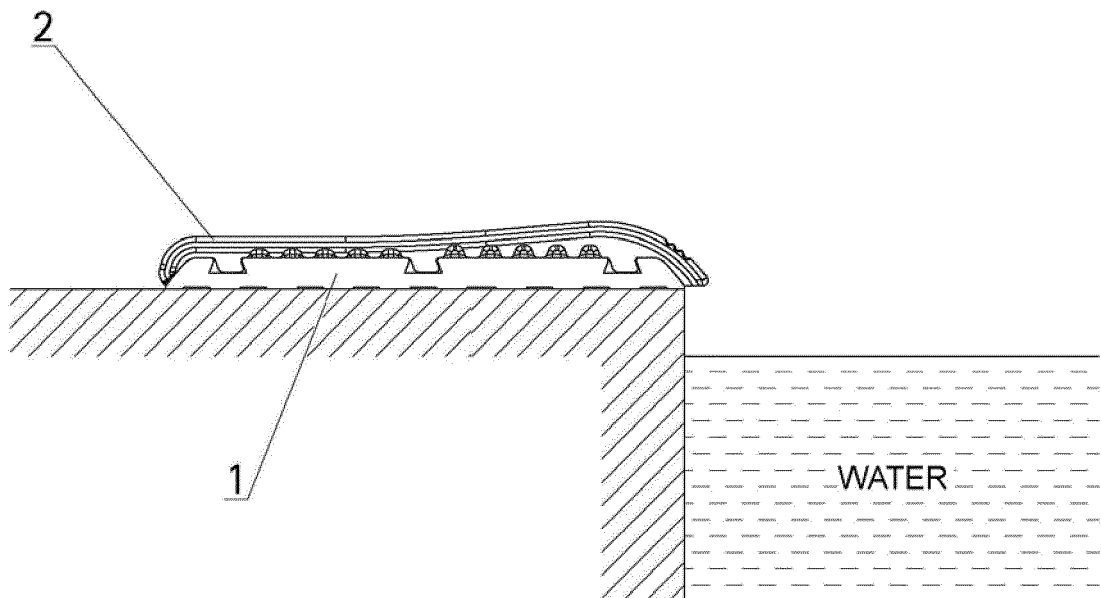




Fig.3

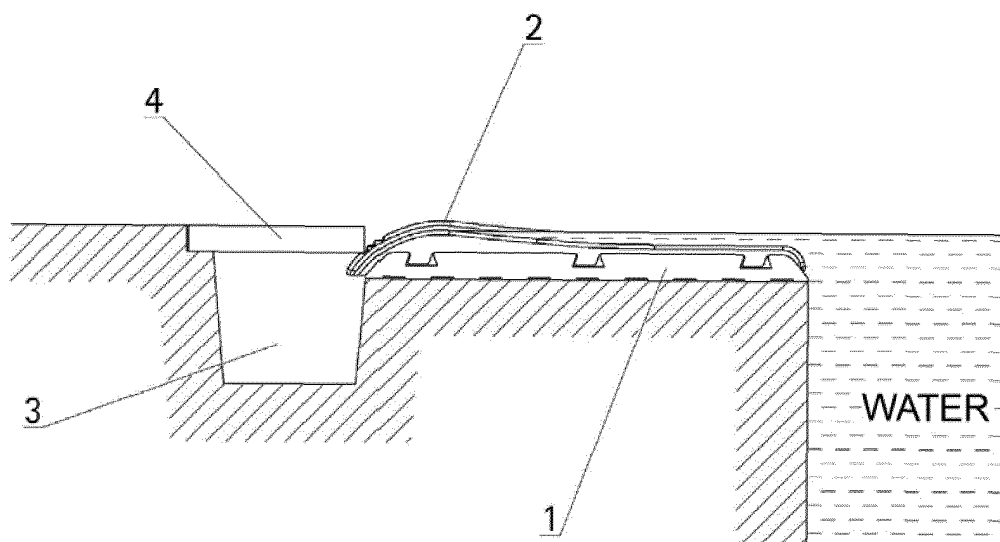


Fig.4

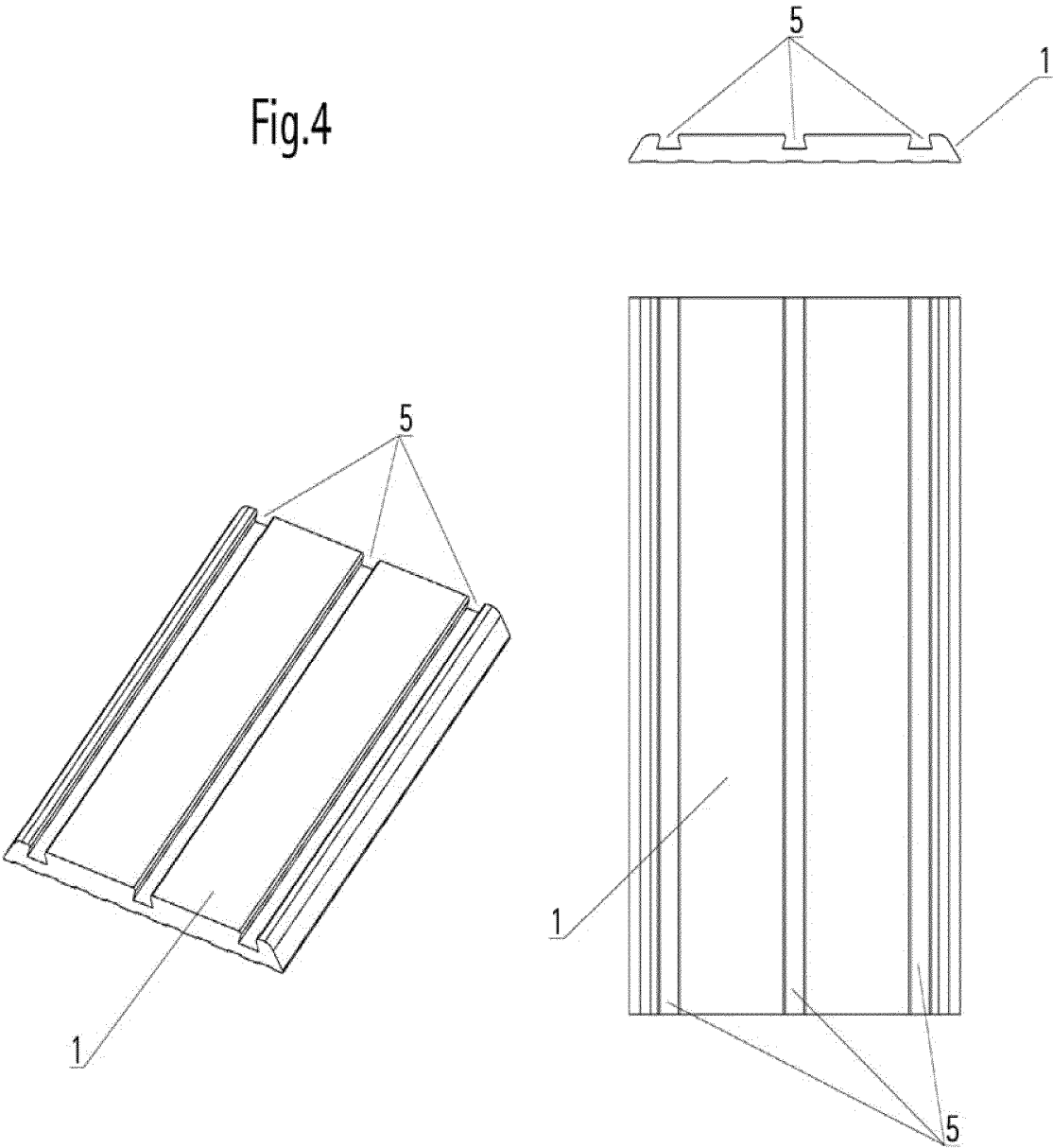


Fig.5

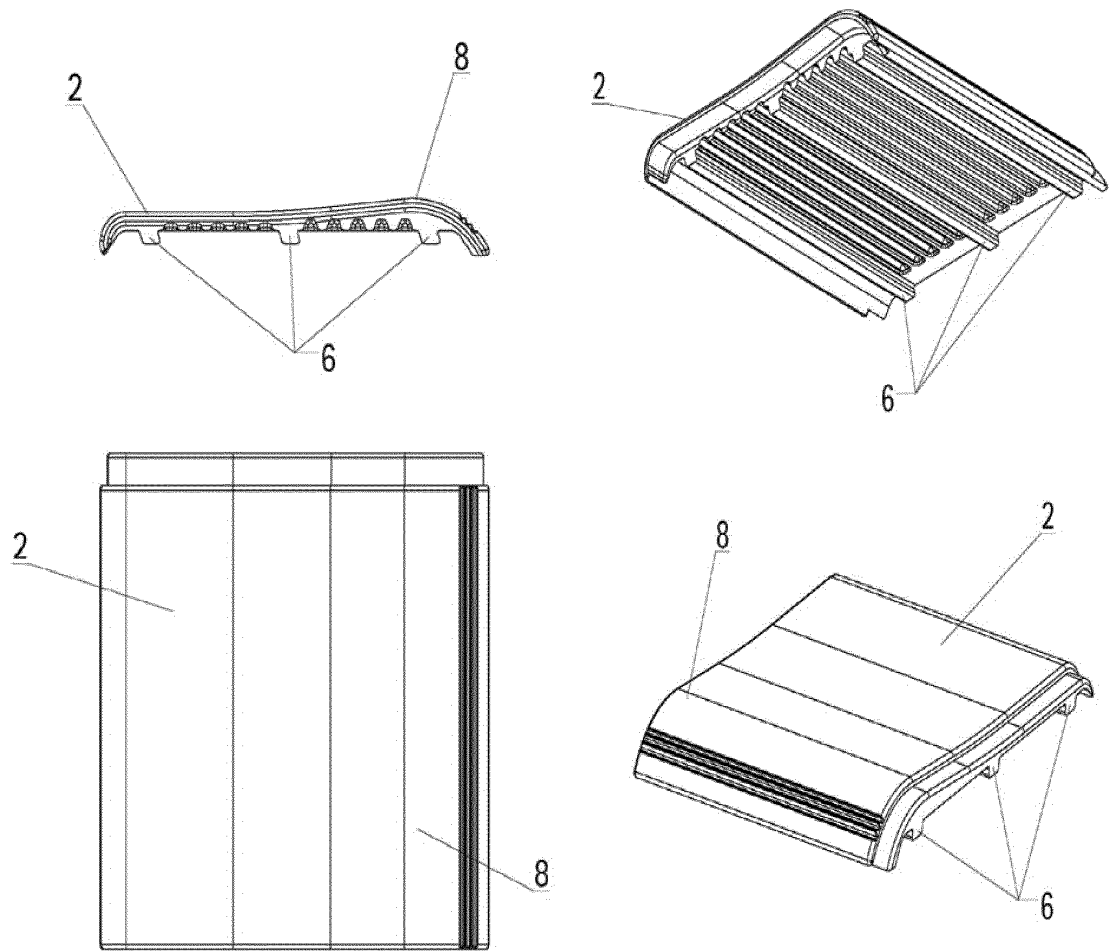


Fig.6

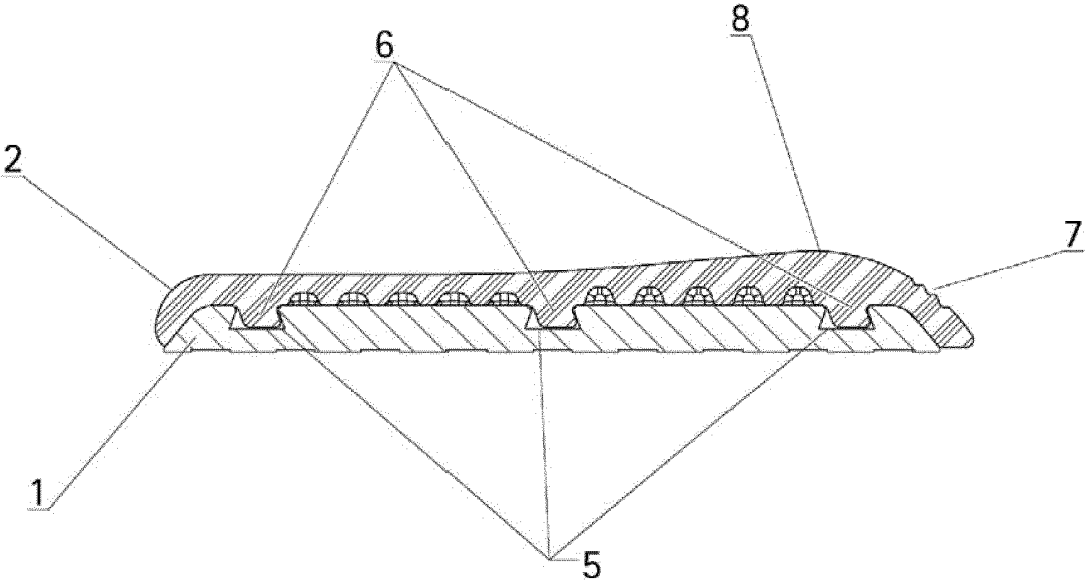


Fig.7

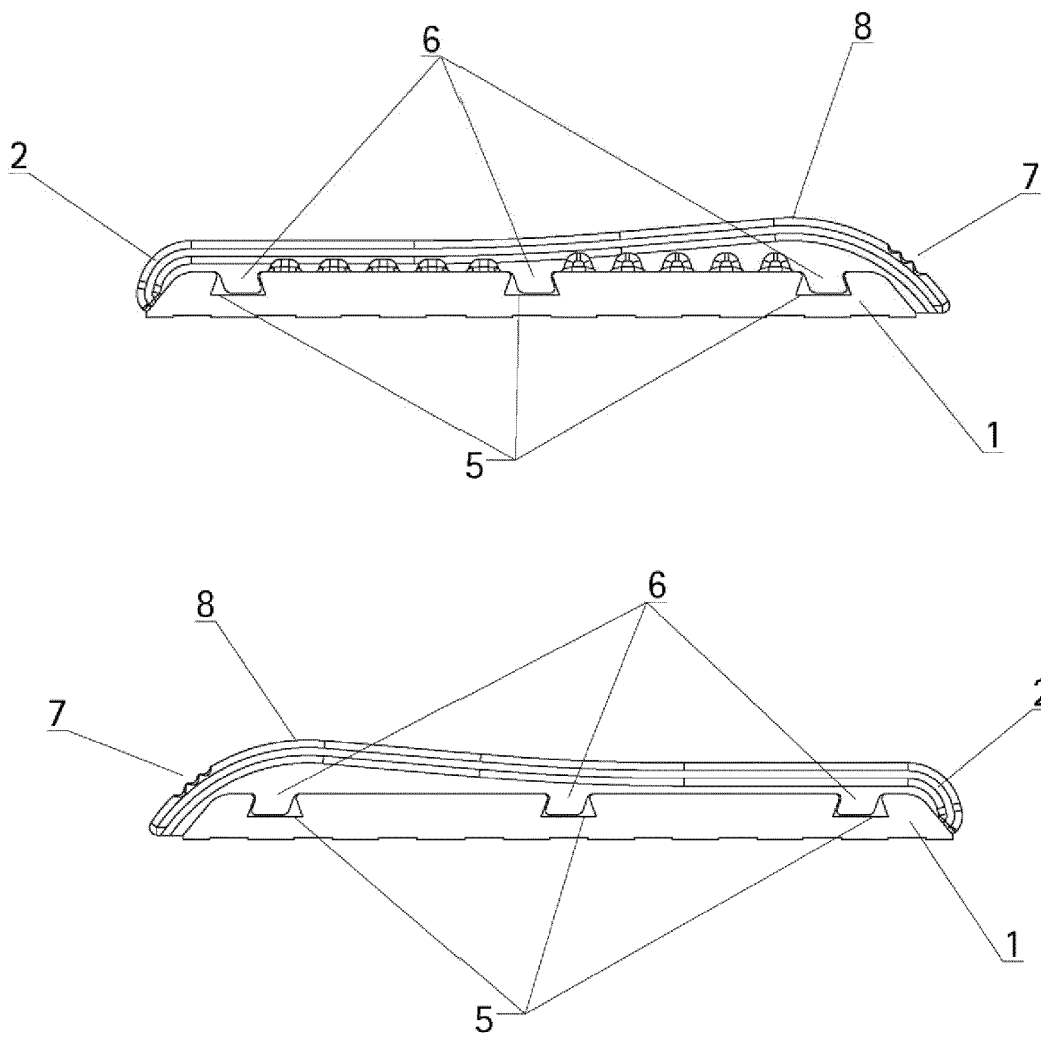


Fig.8

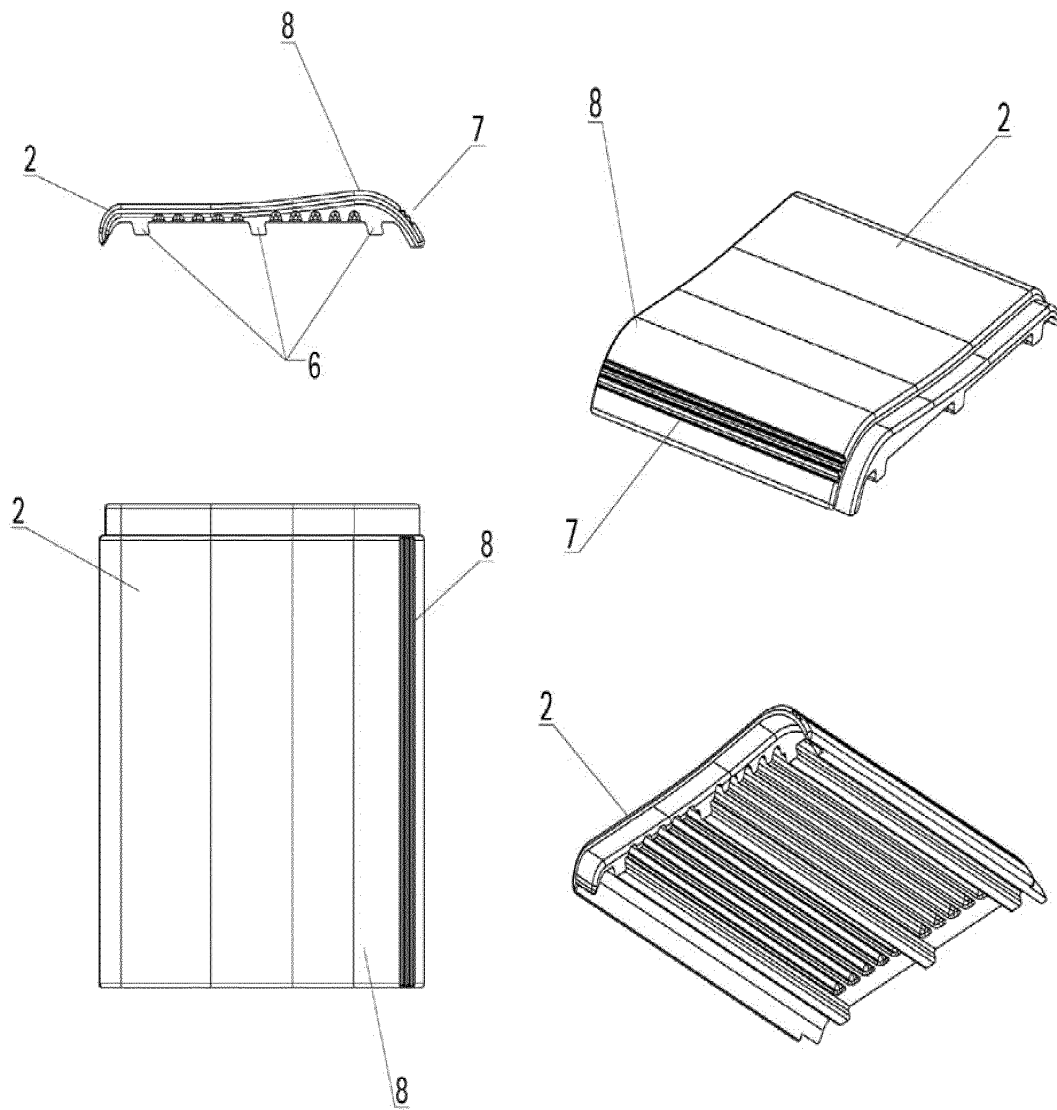


Fig.9

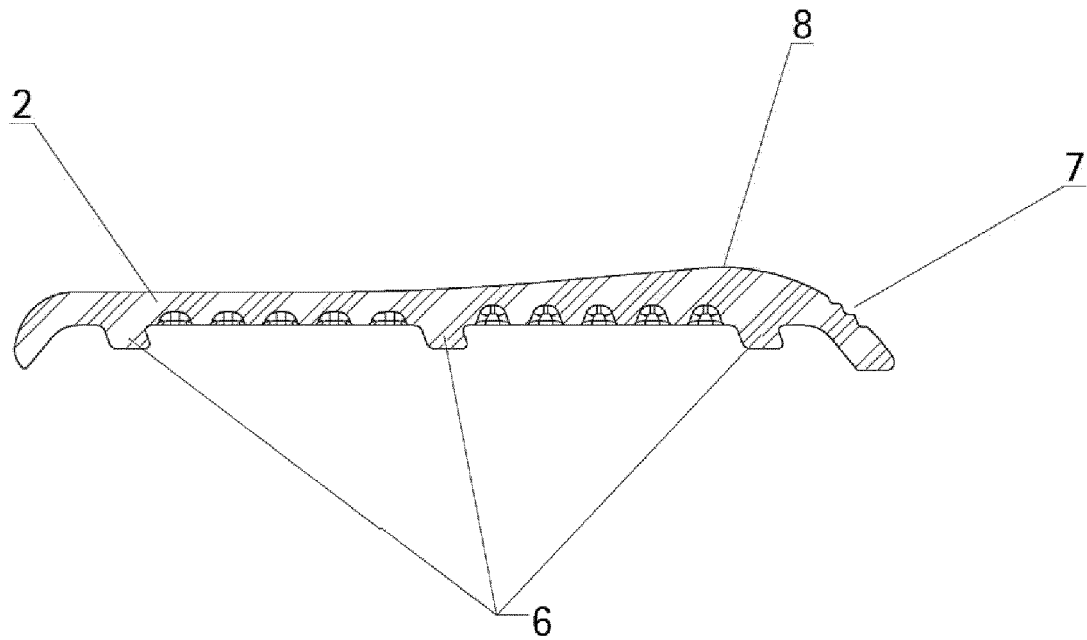


Fig.10

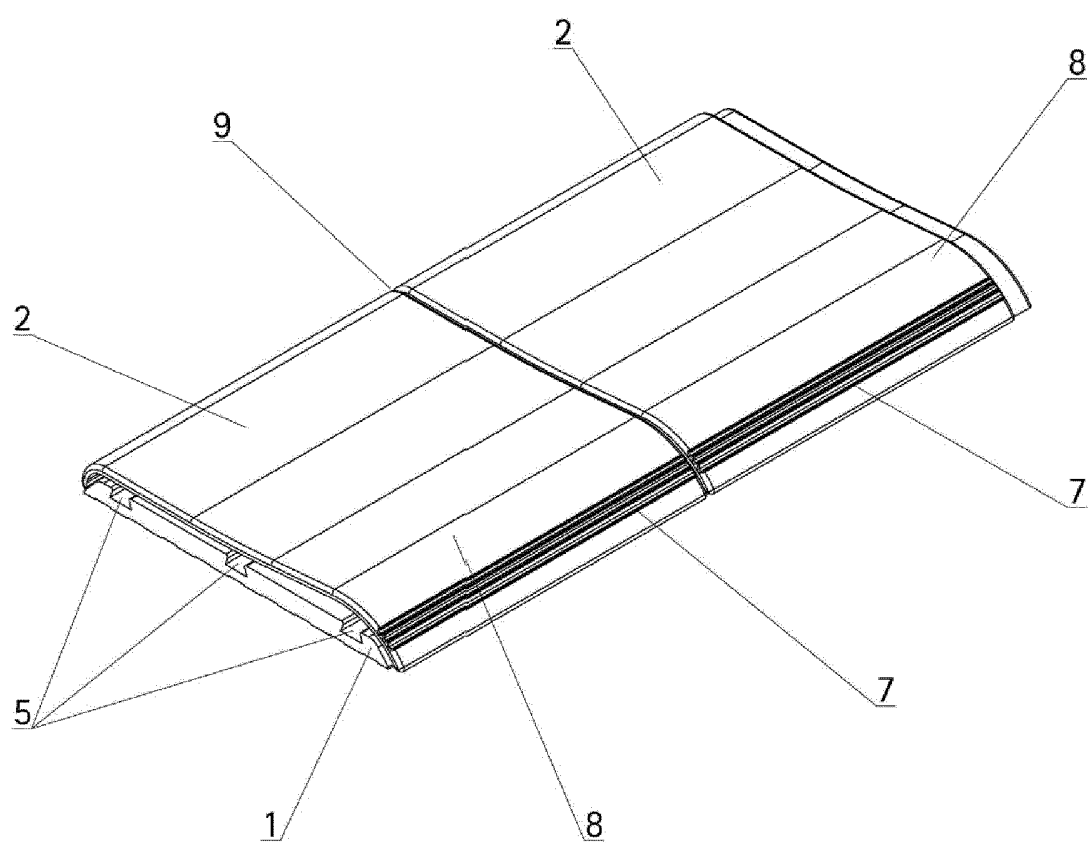




Fig.11

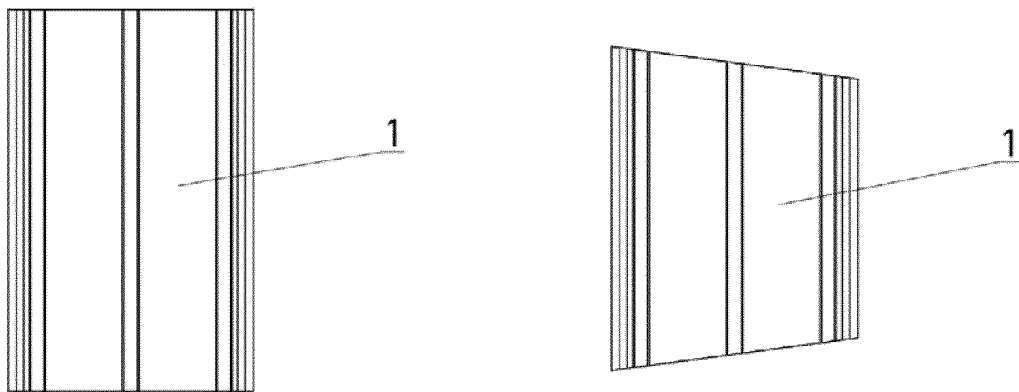


Fig.12

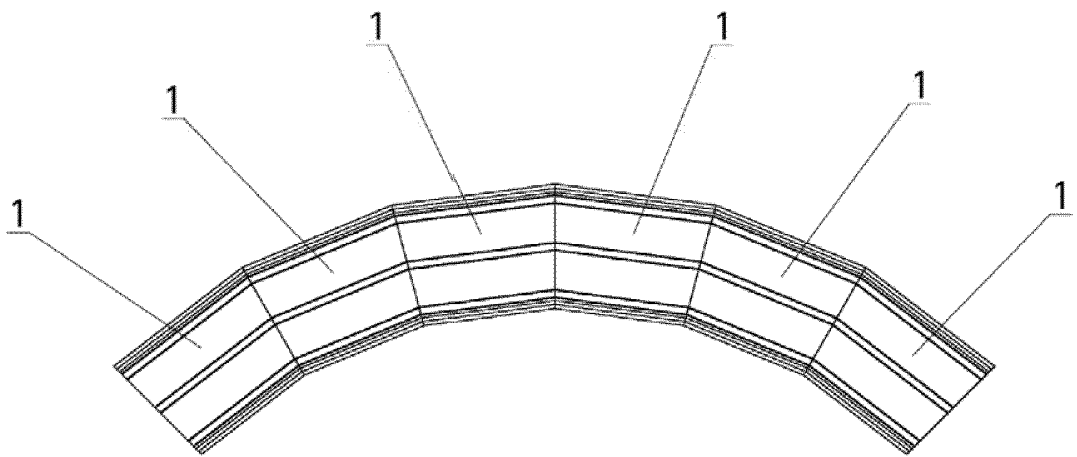


Fig.13

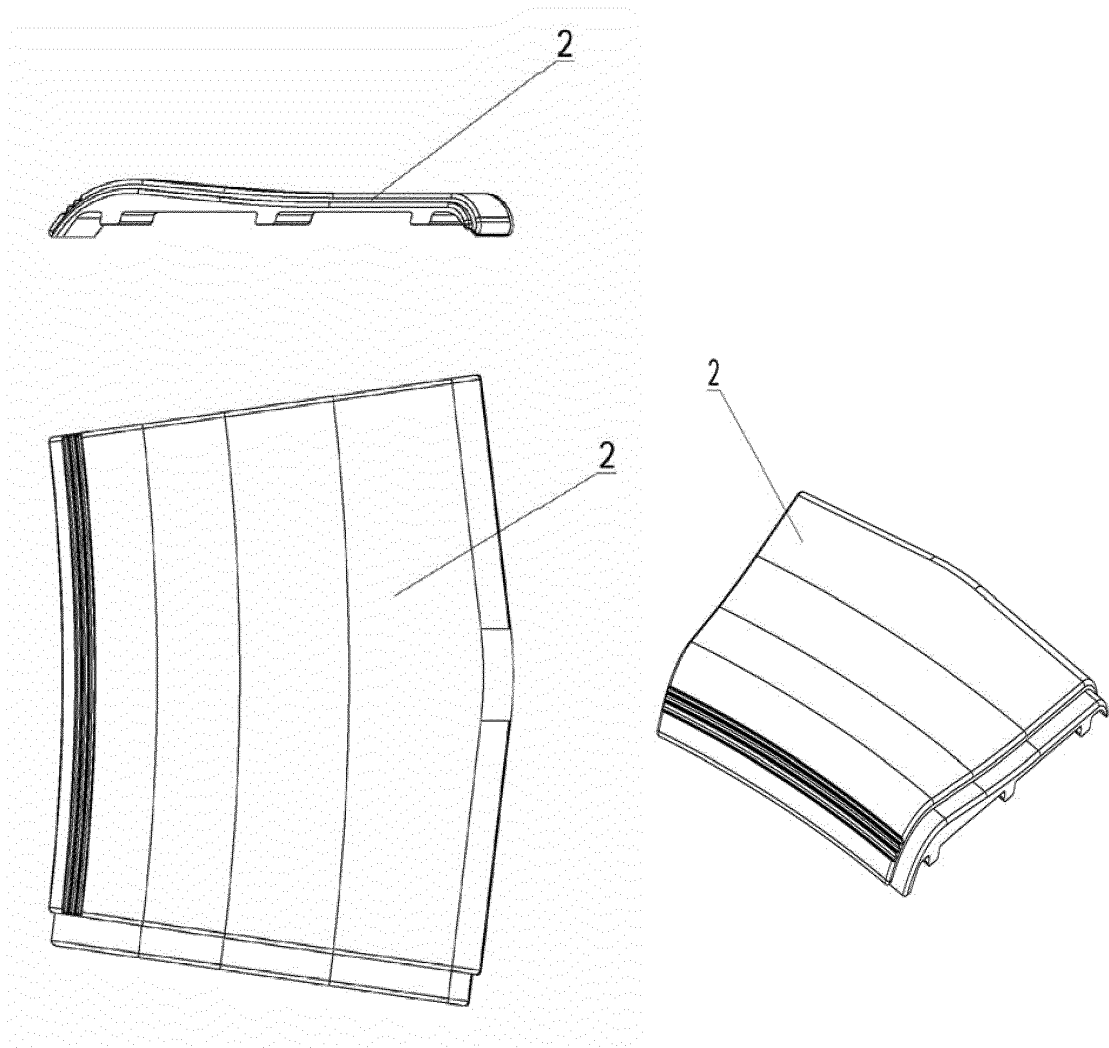


Fig.14

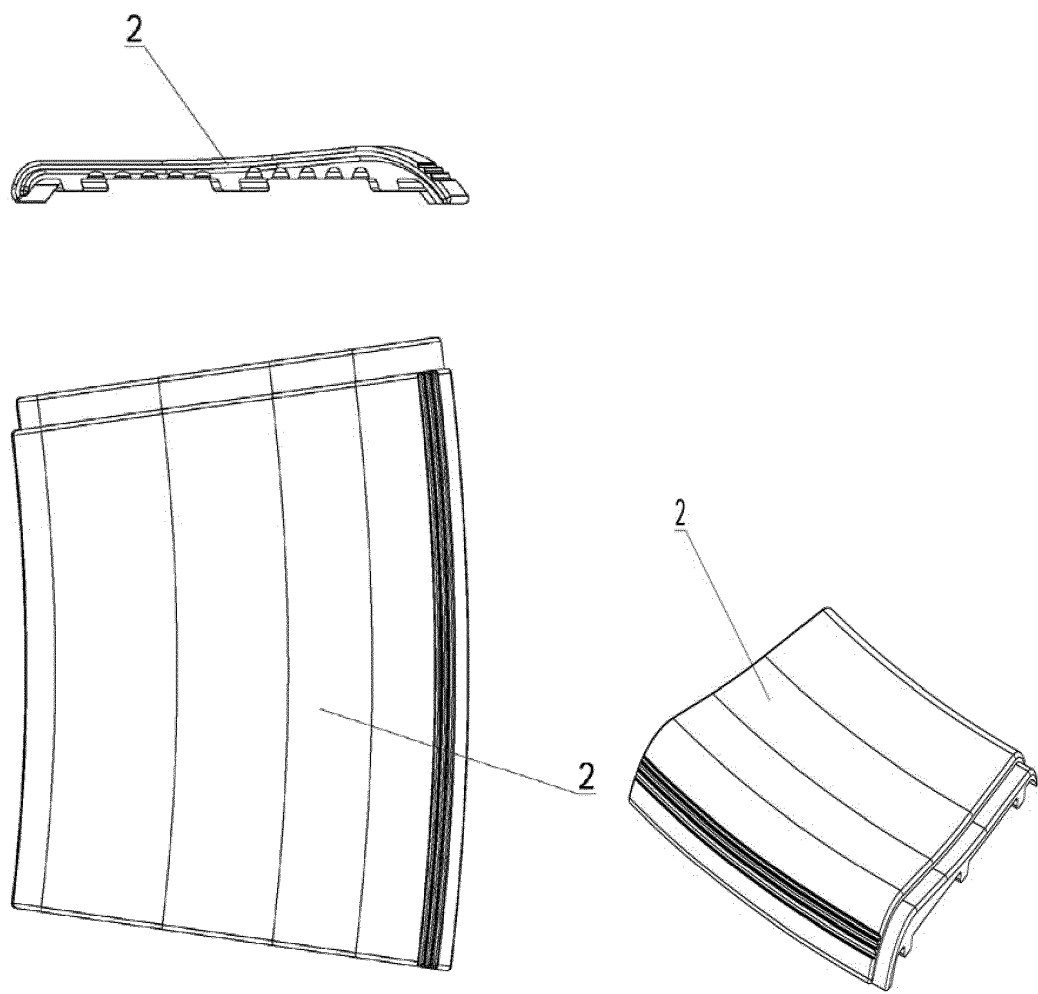


Fig.15

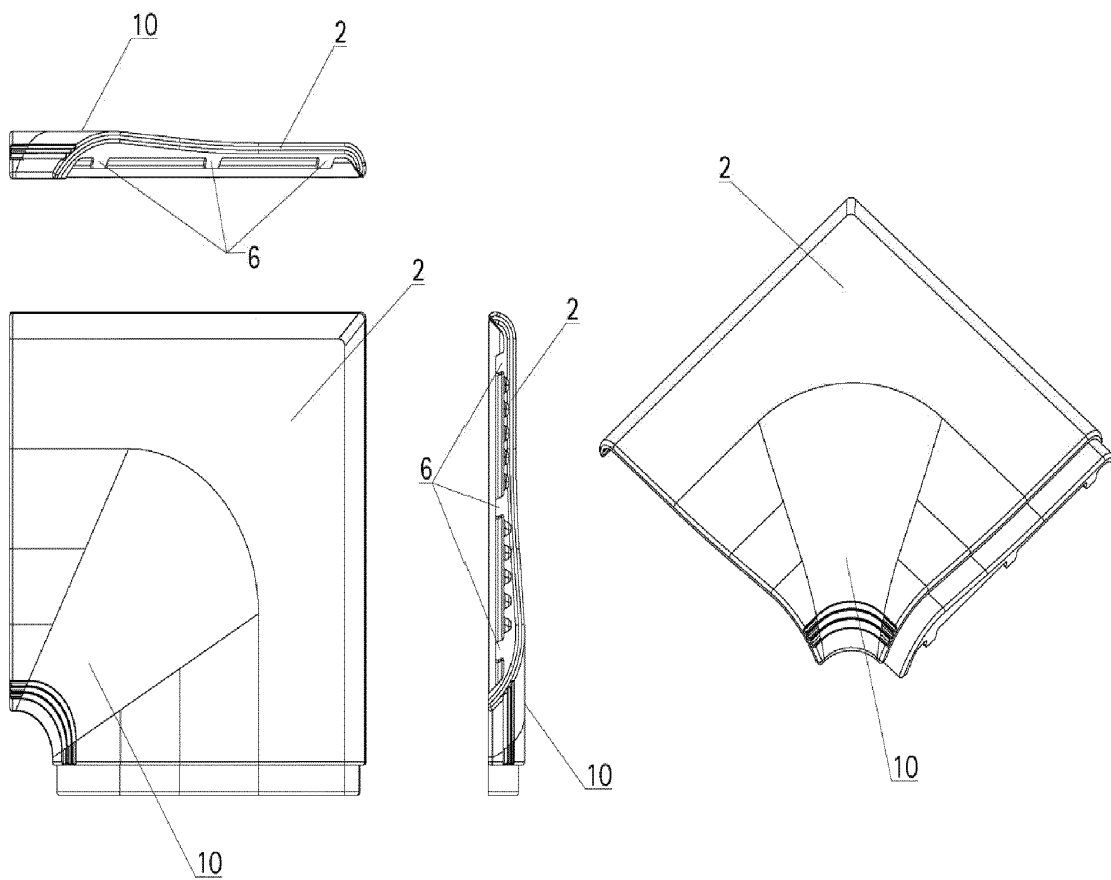


Fig.16

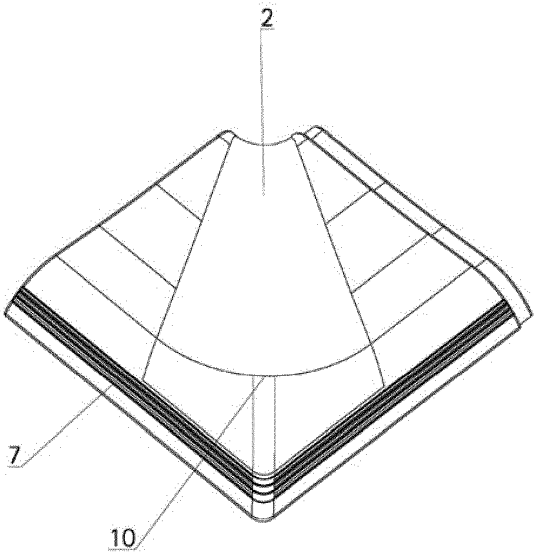
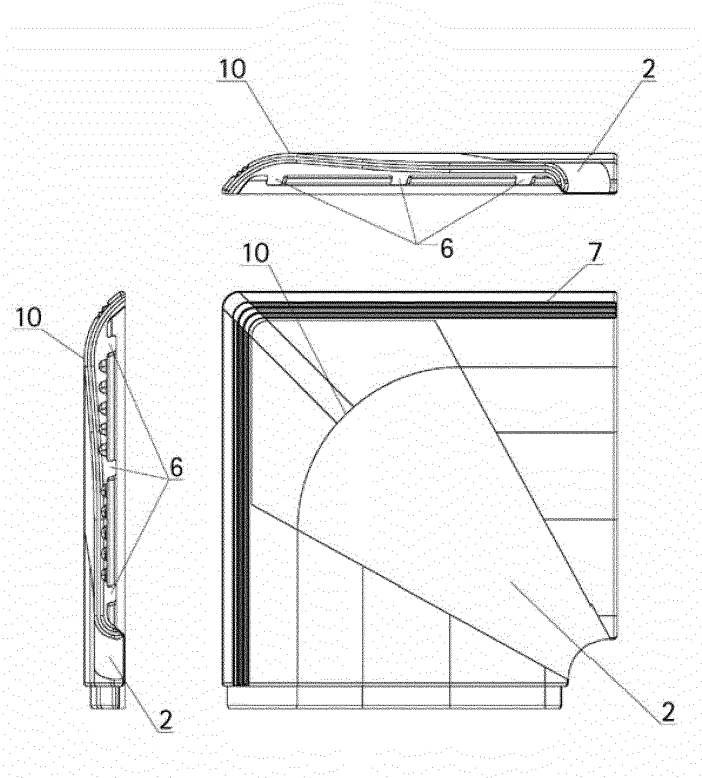


Fig.17

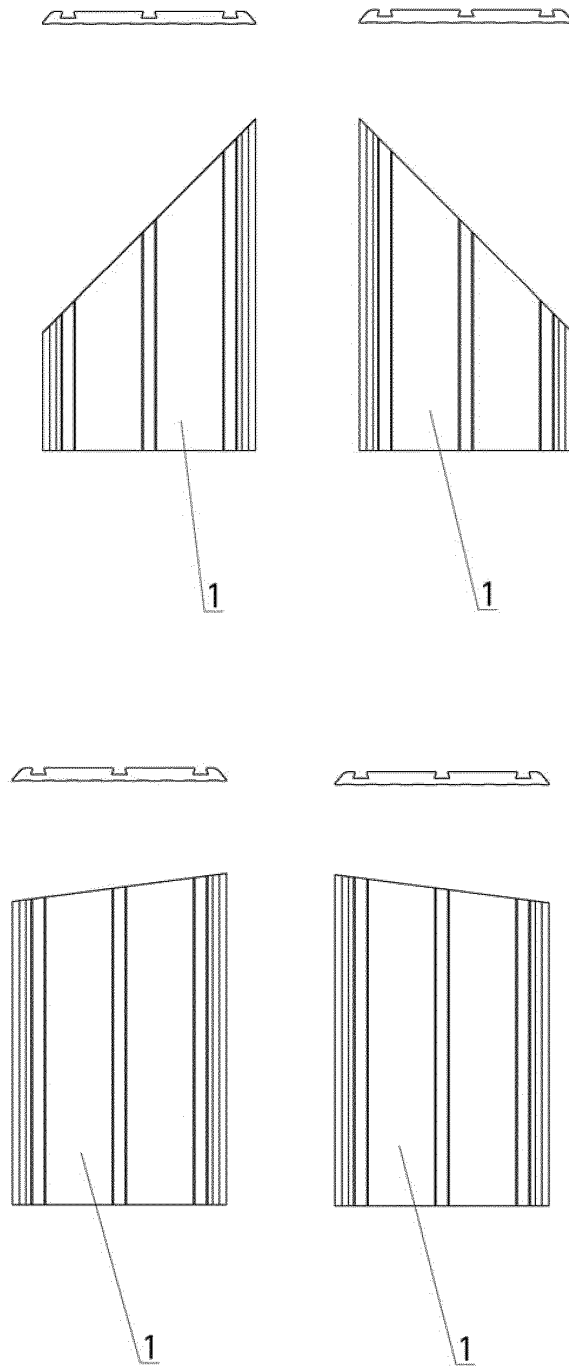


Fig.18

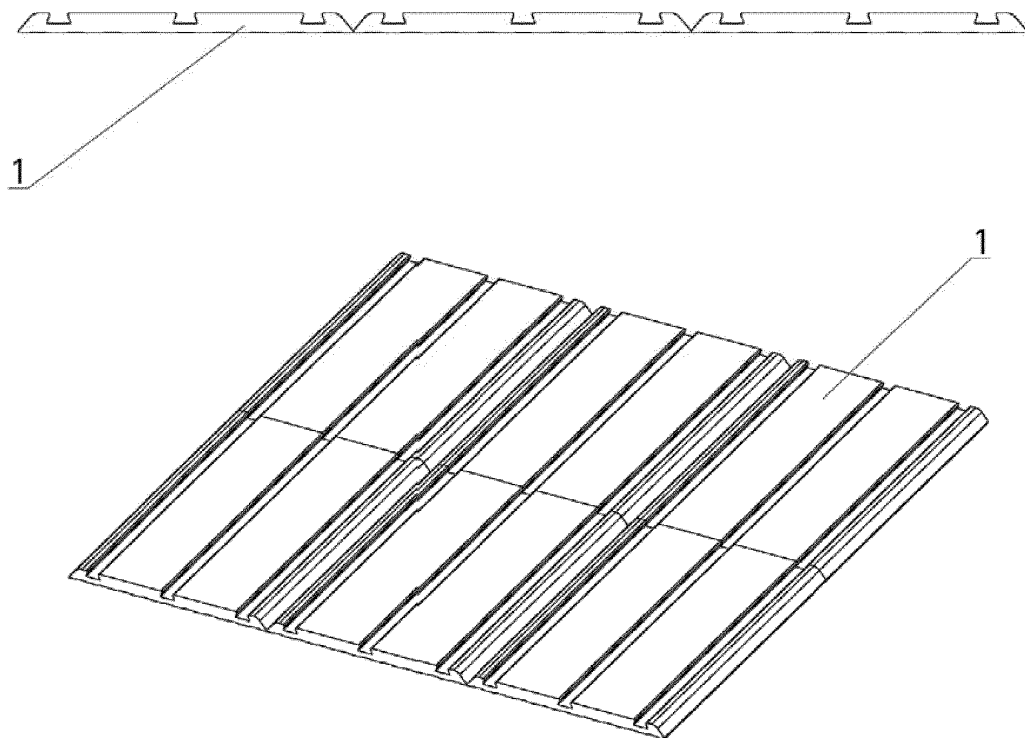




Fig.19

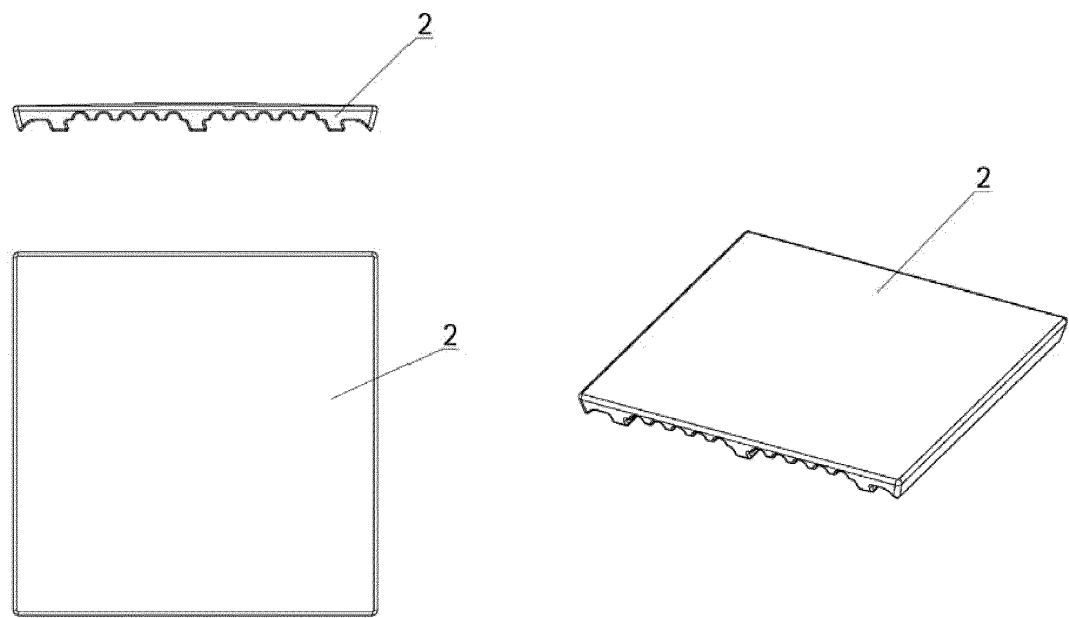


Fig.20

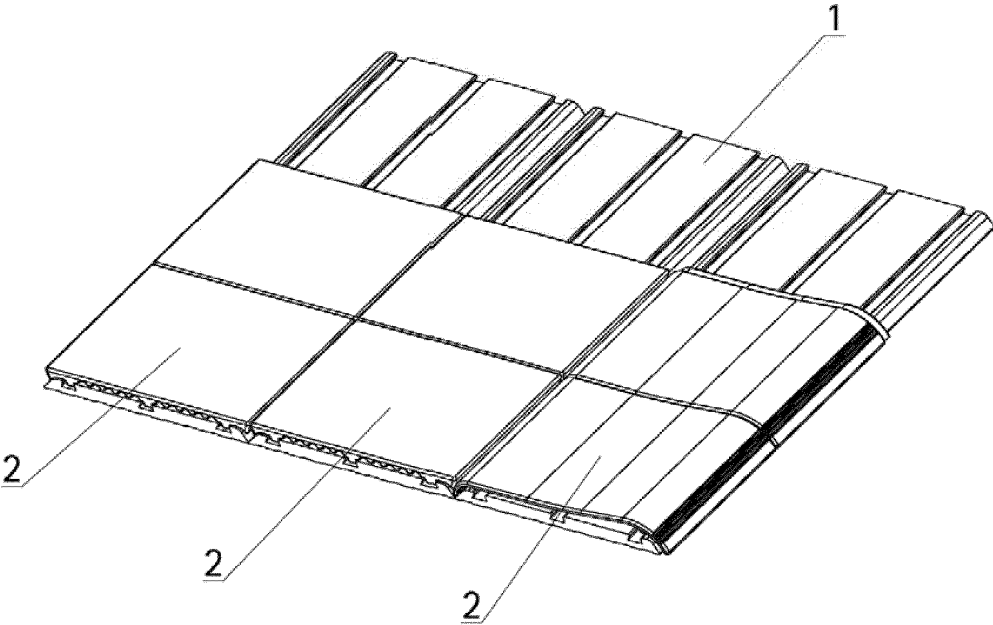


Fig.21

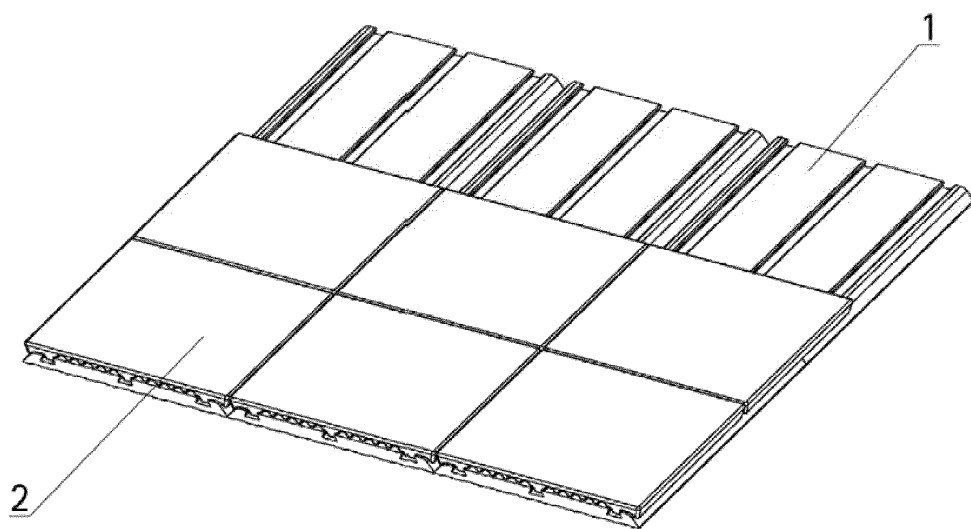


Fig.22

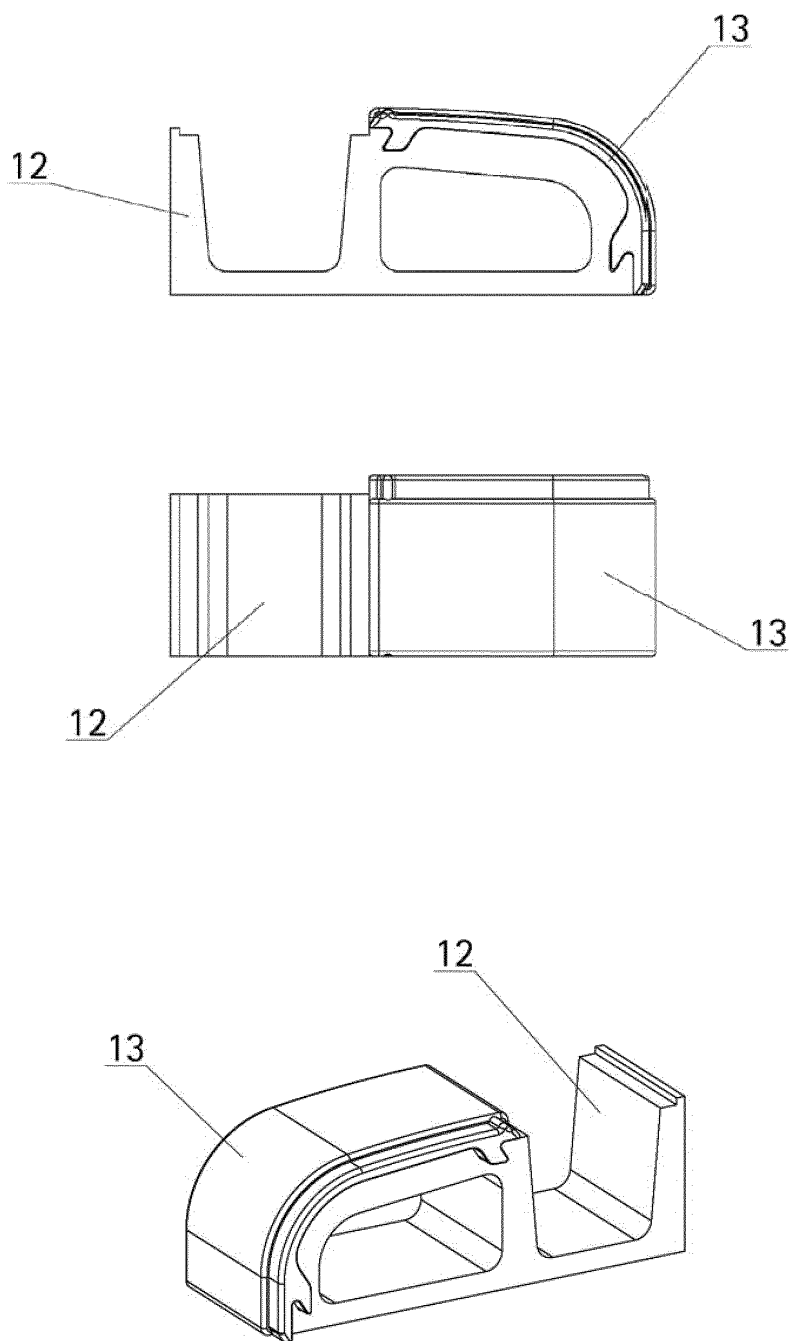


Fig.23

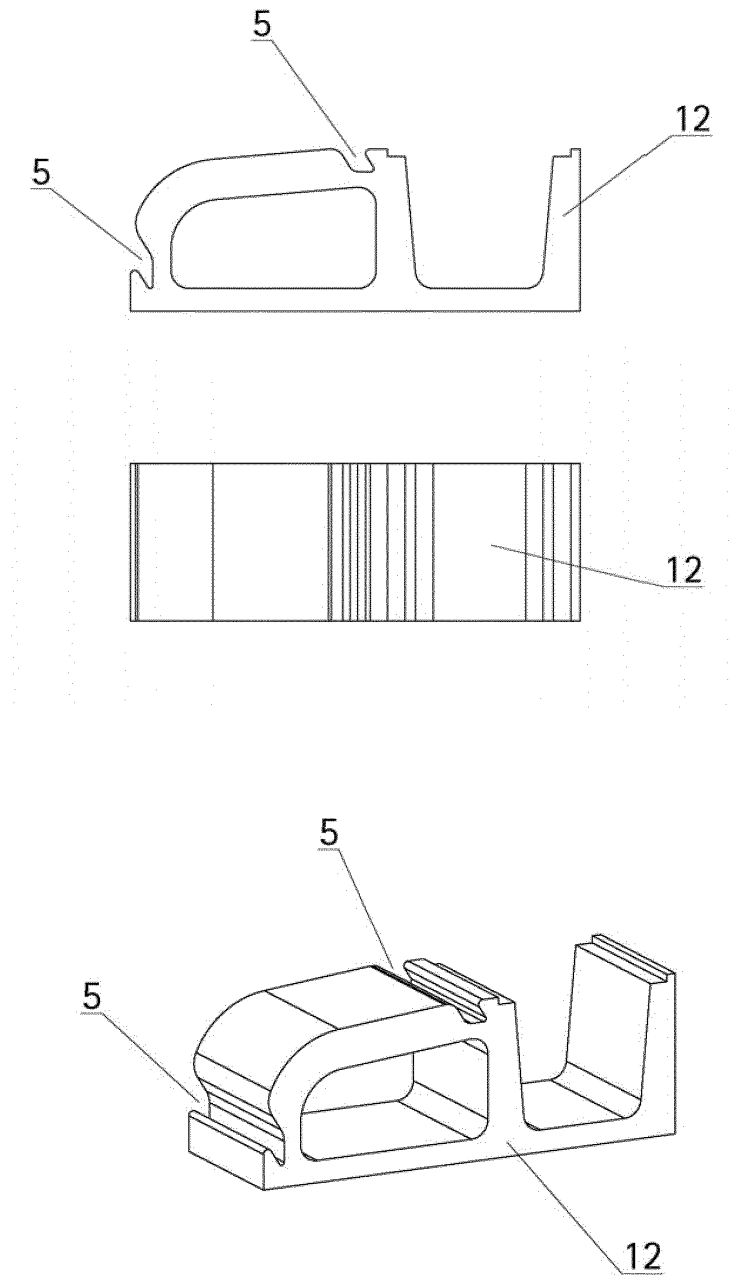


Fig.24

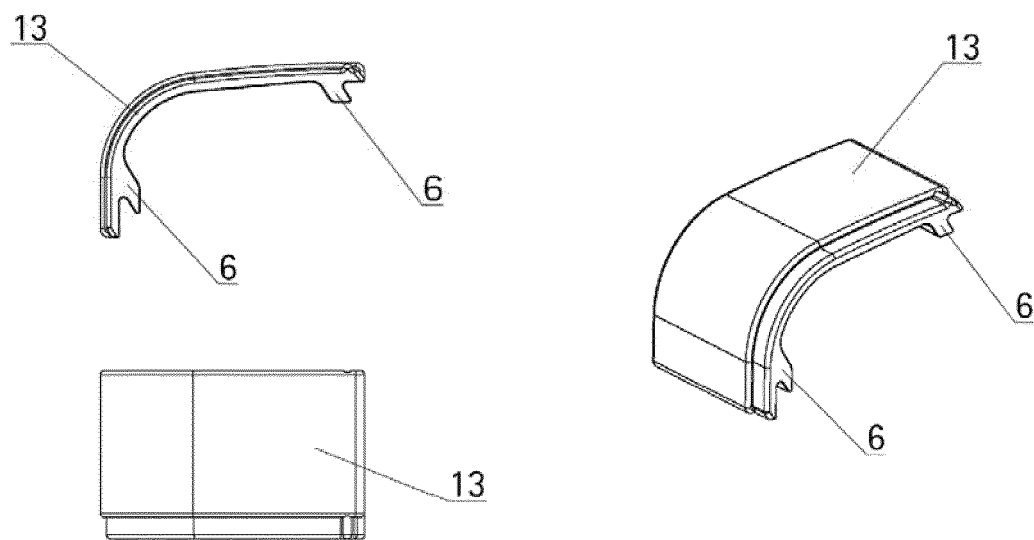


Fig.25

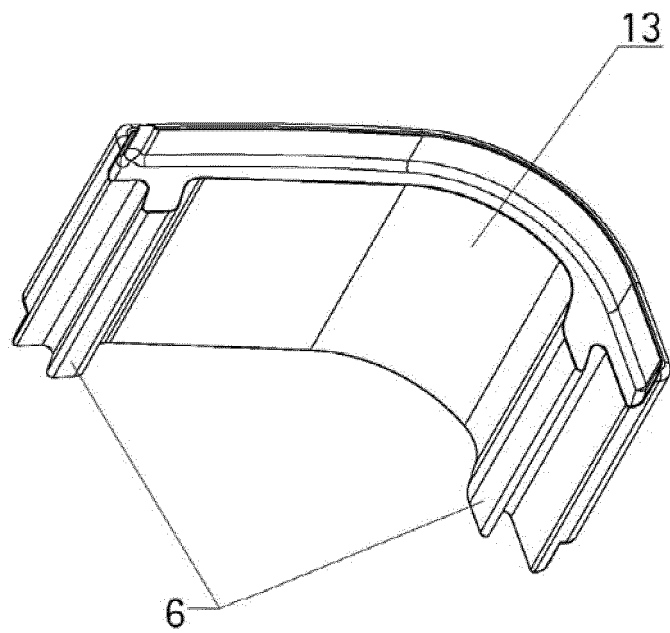


Fig.26

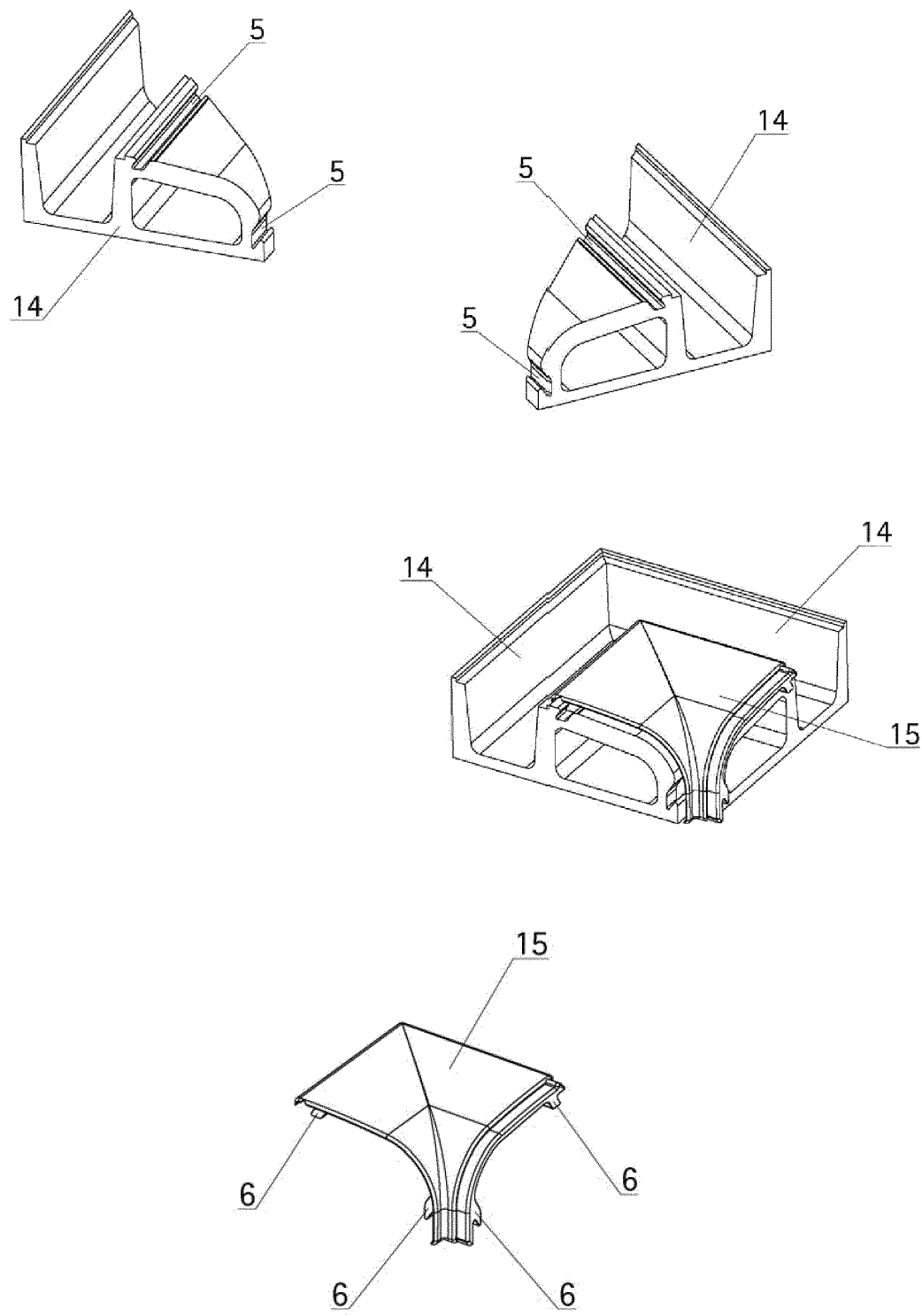
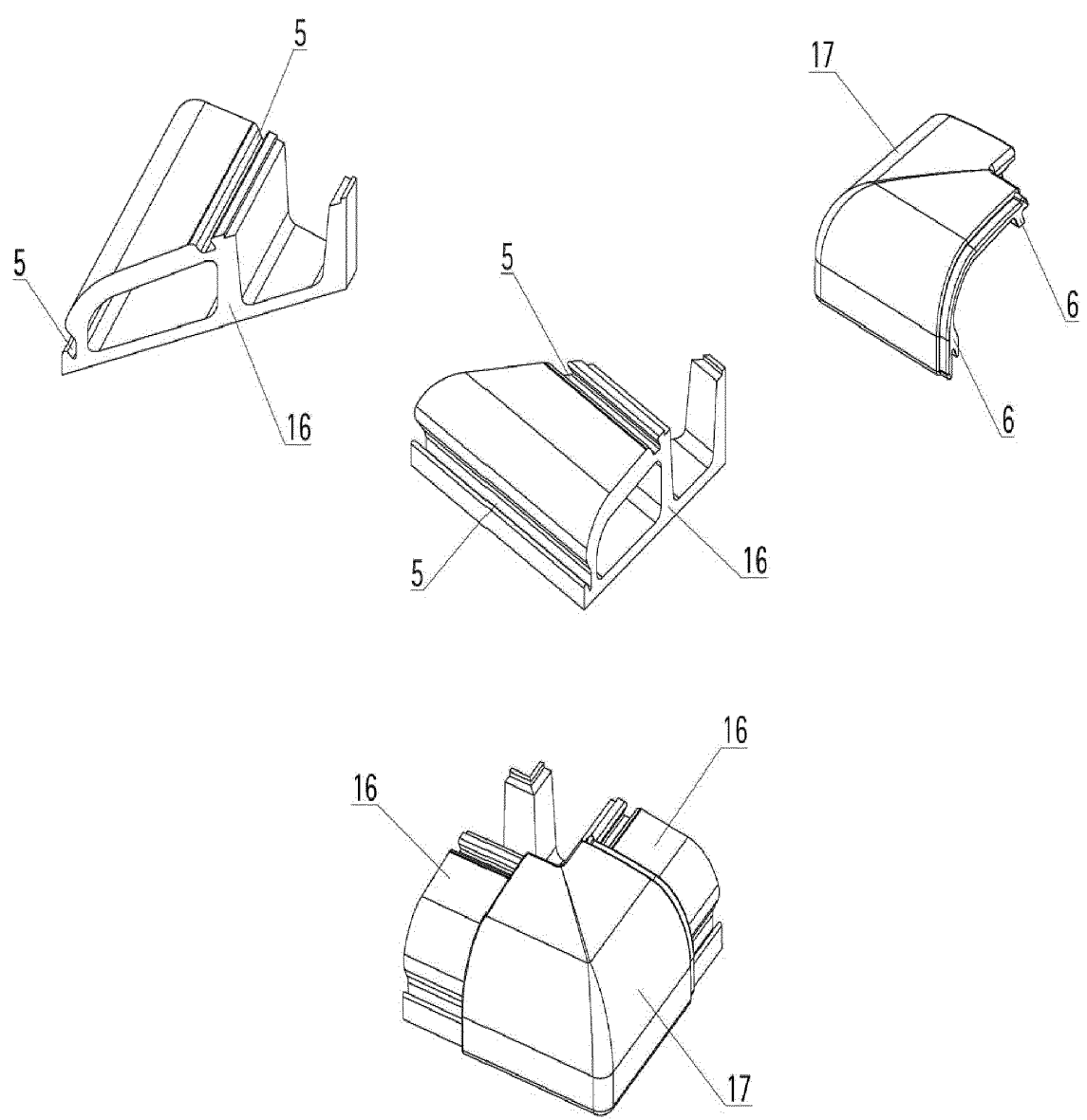




Fig.27



**REFERENCES CITED IN THE DESCRIPTION**

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