

Title: System for forming a tiled floor on an outdoor subsurface, combination of a tile and a corner element, tiled floor, method for assembling a tiled floor

5 The invention relates to a system for forming a tiled floor on an outdoor subsurface, according to the preamble of claim 1.

10 A system of this type is used to create a tiled surface, such as a terrace, or tiled path, on a roof, a balcony, or an outdoor corridor, such as an open corridor of an apartment buildings with outside entrances. A corner element is bonded to a corner of a tile, with bonding means such as glue or a double-sided adhesive tape, and the tile with the corner element is positioned on a tile support. The tile support rests directly on the outdoor subsurface, or on a pedestal. A suitable pedestal is a simple block of material, e.g. an elastic material such as rubber. Another suitable pedestal is a height-adjustable pedestal, such as known in the art.

15 A system of this type is known from EP-1.897.994. The document discloses a tiled floor. The tiles have adjusting elements arranged under their corners. The adjusting element comprises a quarter disc-shaped plate which is provided on the straight sides with upright walls. The adjusting element is provided at a corner with a upright strip. A concave recess is arranged in the upright strip. Adjusting elements are for instance arranged on the underside of the corners of the tiles by means of glueing. The upright walls herein connect to the side walls of the tiles. Adjusting elements with tiles thereon are arranged on a disc-shaped support element. The support element is  
20 preferably of an elastic material, such as rubber or an elastic plastic, in order to damp vibrations. A coupling element is arranged connecting to upright strips of different support elements. The coupling elements comprise an elastic, beam-like middle part which is enclosed between two harder clamping parts. A bolt is arranged through coupling element and has a screw head which can be reached above clamping part. The coupling element can be compressed by means of the bolt.  
25 The middle part can expand correspondingly, wherein the side walls of the middle part connect to the upright strips and the recesses arranged therein. This system has proved to work very well on tiled surfaces that are used for parking cars and comprises relative heavy tiles. The compressed elastic middle part of the coupling elements fixes the tiles together, and at the same time allows some freedom of movement in the vertical direction in order to prevent breaking of the tiles or the  
30 coupling element under the heavy load of a passing car.

A disadvantage of the known system is that it is not safe under all circumstances, in particular when using relative small or light tiles. Tiles at an edge of the tiled surface may tilt when a load is applied at an edge, and it is possible to lift a tile out of the system. This creates undesired opportunities for vandalism, and may lead to very dangerous situations if someone lifts a tile, and

throws it from the elevated roof of corridor downwards, which could be lethal for a person walking downstairs.

The invention aims to solve at least one of these problems, or at least to provide an alternative. In particular, the invention aims to provide a system that is more safe.

5 This aim is achieved by a system according to claim 1.

A system for forming a tiled floor on an outdoor subsurface, such as a roof, balcony, or an outdoor corridor, comprises a tile support for supporting at least two tiles and a corner element for receiving a lower corner of a tile. The corner element comprises a corner plate with an upper side and a lower side, the upper side being connectable to the lower corner of the tile and the lower  
10 side being dimensioned such as to be received by the tile support. The tile support comprises an upper receiving face for receiving at least two corner elements and a lower face which is placeable on the outdoor subsurface, or on a pedestal positioned on the outdoor subsurface. The corner element comprises at least one fixing pin which extends vertically from the lower side. The tile support comprises at least one pin receiving hole with an inner shape and dimensions that  
15 corresponds to the outer shape and dimensions of the fixing pin. In an assembled state of the system, the lower side of the corner element rests on the upper receiving face of the tile support and the fixing pin extends fittingly in the pin receiving hole.

Thanks to the fixing pin in the pin receiving hole, a tile that is connected to the corner element cannot tilt anymore as it can move only vertically with respect to the tile support. This not  
20 only prevents unwanted tilting at the sides of a tiled surface, but it makes it also more difficult to lift a tile from the tile support, as manual lifting by unauthorised people usually involves grapping a tile at one side and then tilting it before completely lifting it.

Preferred embodiments are defined in the dependent claims.

In an embodiment, the fixing pin comprises a protrusion. A protrusion further improves the  
25 connection between the corner element and the tile support.

In an embodiment, the fixing pin is a locking pin, and the tile support comprises a locking element provided at the pin receiving hole. The locking element is movable from an open position to a locking position, and the locking element engages the locking pin in the locking position for locking the locking pin in the pin receiving hole. A movable locking element prevents even a vertical  
30 displacement of the corner element with respect to the tile support, making it impossible for unauthorised people to lift a tile out of the tile surface. Only authorised people, who know where the locking element is and how to operate it, can disengage the locking element if a tile needs to be removed for maintenance purposes.

In particular the locking element is rotatable from the open position to the locking position. A rotating movement can easily be applied, e.g. by a screwdriver or an Allen key through the limited space that is available between the tiles.

5 In particular, the protrusion of the locking pin is a restricted protrusion with a length which is less than a length of the locking pin, the restricted protrusion is provided at a lower end of the locking pin, and the locking element engages an upper face of the restricted protrusion for locking the locking pin in the pin receiving hole in the locking position. The cooperation between the upper face of the restricted protrusion and the locking element provides a simple and reliable locking.

10 In an embodiment, the fixing pin is a jamming pin, and the protrusion is a continuous protrusion which extends in a length direction of the jamming pin, in particular along substantially the full length of the jamming pin, and the pin receiving hole has a continuous cross section which corresponds to the cross section of the jamming pin with the continuous protrusion. The continuous protrusion on the jamming pin and the corresponding cross section of the pin receiving hole results in a friction fit between the jamming pin and the pin receiving hole at even smaller tilt angles than with a regular fixing pin.

15 In an embodiment, the corner element comprises multiple fixing pins, and the tile support comprises multiple corresponding pin receiving holes. This further increases the reliability of the system.

20 In particular, at least one of the multiple fixing pins is a locking pin, and at least one other one of the multiple fixing pins is a jamming pin. This provides both the jamming and the locking function to one and the same system. If either fails, the other still prevents tilting and/or lifting.

25 In an embodiment, the corner element comprises at least one positioning wall for positioning the tile on the corner element. The positioning wall ensures an accurate and rapid positioning of a tile on the corner element when they are bonded together. In particular the corner element comprises two positioning walls, preferable at right angles, so that the position of tile relative to the corner element is fully determined.

In an embodiment, the tile support comprises a positioning ridge along an edge of the upper receiving face for positioning the corner element on the tile support along the positioning ridge. This ensures a proper placement of the corner element, and prevents it from sliding away.

30 In an embodiment, the tile support comprises at least one tile spacer which extends from the upper receiving face. A tile spacer ensures a predetermined space between adjacent tiles.

In particular, the tile support comprises at least two tile spacers, and the tile support and corner element are dimensioned such that the corner element fits between the positioning ridge

and the tile spacers. This ensures an easy and proper placement of the corner element on the tile support.

The invention further relates to a combination of a tile with multiple lower corners and at least one corner element, according to claim 12. The at least one corner element comprises a corner plate with an upper side and a lower side. The upper side is fixedly connected to one of the lower corners of the tile and the lower side is dimensioned such as to be received by a tile support. The corner element comprises at least one fixing pin which extends from the lower side. Such a combination provides the same technical effects as described above in relation to the inventive system, as it can be used in combination with the tile support as defined for the system. Moreover, the same preferred features as defined for the system are preferred features for the combination. Further preferred embodiments are defined in the dependent claims.

In particular the fixing pin comprises a protrusion, which more in particular extends in a length direction of the fixing pin and/or is a restricted protrusion with a length which is less than a length of the fixing pin and is provided at a lower end of the fixing pin.

In an embodiment of the combination, the tile is rectangular and is provided with multiple corner elements, in particular four corner elements.

In an embodiment, the tile is made of a ceramic material. Ceramic is a light weight material, relative to its strength, and very suitable for surfaces that have a limited load-bearing capacity.

The invention further relates to a tiled floor, according to claim 15.

A tiled floor comprises multiple combinations of a tile and at least one corner element, as defined above and in claims 12-14, and multiple tile supports provided at corners of the tiles. The tile supports each comprises an upper receiving face for receiving at least two corner elements and a lower face which is placeable on the outdoor subsurface, or on a pedestal positioned on the outdoor subsurface. The tile support comprises at least one pin receiving hole with an inner shape and dimensions that corresponds to the outer shape and dimensions of the fixing pin. The lower side of the corner element rests on the upper receiving face of the tile support, and the fixing pin extends fittingly in the pin receiving hole.

The inventive tiled floor has the same technical effects, and may have the same preferred features, as the system which has been defined above and in claims 1-11.

The invention further relates to a method, according to claim 16.

A method for assembling a tiled floor above an outdoor subsurface, such as a roof, balcony, or an outdoor corridor, comprises the steps of:

- providing multiple tiles with corner elements under at least one of the respective tile corners, wherein the corner elements each comprises at least one fixing pin which extends vertically from the lower side of the corner element,
- providing tile supports, wherein the tile supports each comprise at least one pin receiving hole with an inner shape and dimensions that corresponds to the outer shape and dimensions of the fixing pin,
- positioning the tile supports in a grid-like configuration corresponding to the dimensions of the tiles, either directly on the outdoor subsurface or on a pedestal placed on the outdoor subsurface,
- placing each of the multiple tiles with a vertical movement on the tile supports, such that the fitting pins enter the respective pin receiving holes until the corner element rests on the tile support, in particular followed by a step of:
  - moving, in particular rotating, a locking element of the tile support in order to lock the fitting pins relative to the pin receiving holes.

15 This method results in a tiled floor with the same or similar technical effects as described above.

The invention, its effects, and advantages will be explained in more detail on the basis of the schematic drawing, in which:

20 Fig. 1 shows a schematic cross sectional view of a tiled floor according to the invention on a roof;

Fig. 2 shows a system according to the invention in an exploded perspective view;

Fig. 3 shows an upper perspective view of a corner element of the system of fig. 2;

Fig. 4 shows a lower perspective view of the corner element of the system of fig. 2;

25 Fig. 5 shows an upper plan view of the corner element of the system of fig. 2;

Fig. 6 shows a lower plan view of the corner element of the system of fig. 2;

Fig. 7 shows a partial cross-sectional view VII-VII from fig. 6;

Fig. 8 shows a detail VIII from fig. 6;

Fig. 9 shows a cross-sectional view IX-IX from fig. 8;

30 Fig. 10 shows an upper plan view of a tile support of the system of fig. 2;

Fig. 11 shows an upper plan view of the tile support of the system of fig. 2;

Fig. 12 shows a lower plan view of the tile support of the system of fig. 2;

Fig. 13 shows a lower perspective view of a locking element of the system of fig. 2;

Fig. 14 shows a lower plan view of the locking element of the system of fig. 2;

Fig. 15 show a cross-sectional side view of the system of fig. 2 in an open state; and  
 Fig. 16 show a cross-sectional side view of the system of fig. 2 in an locked state.

The figures show a system according to the invention, which is denoted in its entirety by  
 5 reference number 1. Figure 1 shows the system 1 for forming a tiled floor 2 on an outdoor  
 subsurface, in this embodiment a roof 3. The system 1 is shown in more detail in figure 2 and  
 comprises a tile support 4 and a corner element 5. The corner element 5 is designed for receiving a  
 lower corner of a tile 6, in this embodiment a rectangular composite tile. The tile support 4 is  
 designed to receive the tiles 6, in this embodiment four tiles 6, via the respective corner elements 5  
 10 (see fig. 1).

Referring to figs. 2-9, the corner element 5 comprises a corner plate 7 with an upper side 8  
 and a lower side 10. The upper side 8 is connectable to the lower corner of the tile 6 and the lower  
 side 10 is dimensioned such as to be received by the tile support 4. The tile support 4 comprises an  
 upper receiving face 12 for receiving the four corner elements 5 of tiles 6 and a lower face 14 which  
 15 in this embodiment is placed on a pedestal 15 which is positioned on roof 3. The corner element 5  
 comprises three fixing pins, in this embodiment one locking pin 16 and two jamming pins 18, 20.  
 The locking pin 16 and jamming pins 18, 20 extend vertically from the lower side 10 of the corner  
 element 5. In this embodiment, the corner element 5 further comprises two positioning walls 22.  
 The system of this embodiment further comprises adhesive double-sided tape 24.

The tile support 4 is shown in more detail in figs. 10-14 and comprises three pin receiving  
 20 holes 26, 28, 30 with an inner shape and dimensions that corresponds to the outer shape and  
 dimensions of the locking pin 16 and the jamming pins 18, 20. In this embodiment, the tile support  
 further comprises a service hole 31. In the assembled state of the system, as indicated with dotted  
 lines in fig. 2, the lower side 10 of the corner element 5 rests on the upper receiving face 12 of the  
 25 tile support 4 and the locking pin 16 and jamming pins 18, 20 extend fittingly in the pin receiving  
 holes 26, 28, 30.

The tile support 4 comprises a locking element 32 which is rotatably provided at one of the  
 pin receiving holes 26 (figs. 2, 13, and 14). The locking element 32 is rotatable from an open  
 position to a locking position, as will be explained below in more detail with reference to figs. 11  
 30 and 12.

In this embodiment, the locking pin 16 has a part annular cross-section, and a restricted  
 protrusion 34 with a length which is less than a length of the locking pin 16 (fig. 6, 8, and 9). The  
 restricted protrusion 34 has a part annular cross-section as well, is provided at a lower end of the  
 locking pin 16, and comprises an upper face 36 (note that in fig. 9 the locking pin is displayed upside

down). The locking element 32 engages the upper face 36 of the restricted protrusion 34 for locking the locking pin 16 in the pin receiving hole 26 in the locking position.

In this embodiment, the jamming pins 18, 20 each have a round cross-section, and a continuous protrusion 38 with a trapezoid cross-section. The continuous protrusion 38 extends in a length direction of the jamming pin 18, 20 along the full length of the jamming pin 18, 20 (fig. 6 and 7). The respective pin receiving holes 28, 30 have a cross section which is continuous in the length direction of the pin receiving holes 28, 30 and corresponds to the cross section of the jamming pin 18, 20 with the continuous protrusion 38.

In this embodiment, the tile support 4 comprises a positioning ridge 34 along an edge of the upper receiving face 12 of the tile support for positioning the corner element 5 on the tile support 4 along the positioning ridge 34. The tile support 4 further comprises four tile spacers 36 which extend vertically from the upper receiving face 12. The tile spacers 36 may be broken away from the corner element in order to provide a free upper receiving face 12. The tile support 4 and the corner element 5 are dimensioned such that the corner element 5 fits between a quarter part of the positioning ridge 34 and two of the tile spacers 36.

The rotatable locking element 32 of this embodiment is shown in more detail in figs. 13-14 and comprises a flat disc 40, a hollow pivot bulb 42, and four part-annular locking slits 44 with insert openings 46, and a hexagonal operative hole 48 inside the hollow pivot bulb 42. The rotatable locking element 32 is provided with the hollow pivot bulb 42 pointing downwards, in a space in the tile support 4 (figs. 15-16).

In use, a tiled floor is assembled above an outdoor subsurface, such as a roof, balcony, or an outdoor corridor, by means of the following steps. Multiple tiles 6, corner elements 5, tile supports 4, and pedestals 15 are provided.

The corner elements 5 are bonded to at least some of the corners of the multiple tiles 6 with the adhesive double-sided tape 24. The pedestals 15 are provided on the roof 3 at regular intervals, forming a grid with dimensions corresponding to the dimensions of the tiles 6. Tile supports 4 are placed on each pedestals 15. The insert openings 46 of the locking slits 44 are aligned with the pin receiving holes 26, if necessary by rotating the locking element with respect to the tile support 4. Each of the tiles 6 is placed with a vertical movement on four tile supports 4, such that the fitting pins 16, 18, 20 enter the respective pin receiving holes 26, 28, 30 until the corner elements 5 rest on the respective tile support 4. In this position, the restricted protrusion 34 has passed beyond the locking element 32, i.e. the upper face 36 of the restricted protrusion 34 is below the flat disc 40.

The placing of the tiles 6 is preferably followed by inserting an Allen key through the service hole 31 of the tile support 4 into the operative hole 48 of the locking element 32, and rotating the locking element 32 of the tile support with the Allen key from the open position, as shown in fig. 15 to the locking position, as shown in fig. 16. In this position, the upper face 36 of the restricted protrusion 34 is under a closed part, next to the part-annular locking slit 44, of the flat disc 40, so that the locking pins 16 are locked relative to the pin receiving holes 26.

Several variants are possible within the scope of the attached claims. The features of the above described preferred embodiment may be replaced by any other feature within the scope of the attached claims, such as the features described in the following paragraphs.

The shape of the tiles may be square, rectangular, triangular, hexagonal, or octagonal. The tile supports of a system for such tiles will be suitable to receive a corresponding number of tile corners. The material of the tiles may be concrete, natural stone, or a composite material, instead of the preferred ceramics. The system is suitable for any outdoor situation.

In an embodiment, the system is used without a pedestal. In an embodiment, the corner element is provided without a positioning wall. In an embodiment, the tile support is provided without a tile spacer and/or without a positioning ridge. In an embodiment, the tile is bonded to the corner element with glue. In an alternative embodiment, tile is formed from a fluid material, such as concrete, and the corner element is provided with protrusions in its upper side which are put inside the soft concrete and after hardening forms a bond between the tile and the corner element.

In an embodiment, the corner element is provided with only one fixing pin, either a locking pin or a jamming pin. In an embodiment, the corner element is provided with two fixing pins, either a locking pin and a jamming pin, two locking pins, or two jamming pins. In an embodiment, the corner element is provided with more than three fixing pins. In each of these embodiments, the tile support is provided with at least the same number of pin receiving holes as the number of fixing pins.

In an embodiment, the cross section of the fixing pin is oval, triangular, square, or any other regular or irregular polygon shape. In an embodiment, the cross section of the protrusion is oval, triangular, square, or any other regular or irregular polygon shape. In an embodiment, the restricted protrusion is formed by a notch in the locking pin. In an embodiment, the locking element engages the locking pin in the locking position by means of friction, so that a restricted protrusion is not required. In an embodiment, the locking element is slidable sideways, instead of rotatable. In an embodiment, the locking element is elastic and forms a snap connection.



## CLAIMS

1. System for forming a tiled floor (2) on an outdoor subsurface (3), such as a roof, balcony, or an outdoor corridor, comprising a tile support (4) for supporting at least two tiles (6) and a corner element (5) for receiving a lower corner of a tile (6), wherein
- 5 the corner element (5) comprises a corner plate (7) with an upper side (8) and a lower side (10), the upper side (8) being connectable to the lower corner of the tile (6) and the lower side (10) being dimensioned such as to be received by the tile support (4),
- 10 the tile support (4) comprises an upper receiving face (12) for receiving at least two corner elements (5) and a lower face (14) which is placeable on the outdoor subsurface (3), or on a pedestal (15) positioned on the outdoor subsurface (3), **characterised, in that**
- the corner element (5) comprises at least one fixing pin (16, 18, 20) which extends vertically from the lower side (10), and
- 15 the tile support (4) comprises at least one pin receiving hole (26, 28, 30) with an inner shape and dimensions that corresponds to the outer shape and dimensions of the fixing pin (16, 18, 20), wherein in an assembled state of the system, the lower side (10) of the corner element (5) rests on the upper receiving face (12) of the tile support (4) and the fixing pin (16, 18, 20) extends fittingly in the pin receiving hole (26, 28, 30).
- 20 2. System according to claim 1, wherein the fixing pin (16, 18, 20) comprises a protrusion (34, 38).
3. System according to claim 1, or 2, wherein the fixing pin is a locking pin (16), and the tile support (4) comprises a locking element (32) provided at the pin receiving hole (26), the locking element (32) is movable from an open position to a locking position, and the locking element (32) engages
- 25 the locking pin (16) in the locking position for locking the locking pin (16) in the pin receiving hole, in particular the locking element (32) is rotatable from the open position to the locking position.
4. System according to claim 2 and 3, wherein the protrusion of the locking pin (16) is a restricted protrusion (34) with a length which is less than a length of the locking pin (16), the restricted protrusion is provided at a lower end of the locking pin (16), and the locking element (32) engages an upper face (36) of the restricted protrusion for locking the locking pin (16) in the pin receiving hole in the locking position.
- 30

5. System according to claim 2, wherein the fixing pin is a jamming pin (18, 20), and the protrusion is a continuous protrusion (38) which extends in a length direction of the jamming pin (18, 20), in particular along substantially the full length of the jamming pin (18, 20), and the pin receiving hole (28, 30) has a continuous cross section which corresponds to the cross section of the jamming pin (18, 20) with the continuous protrusion.
6. System according to any one, or more, of the preceding claims, wherein the corner element (5) comprises multiple fixing pins (16, 18, 20), and the tile support (4) comprises multiple corresponding pin receiving holes (26, 28, 30).
7. System according to claims 3, or 4, and 5 and 6, wherein at least one of the multiple fixing pins (16, 18, 20) is a locking pin (16), and at least one other one of the multiple fixing pins is a jamming pin (18, 20).
8. System according to any one, or more, of the preceding claims, wherein the corner element (5) comprises at least one positioning wall (22) for positioning the tile (6) on the corner element (5), in particular the corner element (5) comprises two positioning walls (22).
9. System according to any one, or more, of the preceding claims, wherein the tile support (4) comprises a positioning ridge (34) along an edge of the upper receiving face (12) for positioning the corner element (5) on the tile support (4) along the positioning ridge.
10. System according to any one, or more, of the preceding claims, wherein the tile support (4) comprises at least one tile spacer (36) which extends from the upper receiving face (12).
11. System according to claims 9 and 10, wherein the tile support (4) comprises at least two tile spacers (36), and the tile support (4) and corner element (5) are dimensioned such that the corner element (5) fits between the positioning ridge (34) and the tile spacers (36).
12. Combination of a tile (6) with multiple lower corners and at least one corner element (5), wherein the at least one corner element (5) comprises a corner plate (7) with an upper side (8) and a lower side (10), the upper side (8) is fixedly connected to one of the lower corners of the tile (6) and the lower side (10) is dimensioned such as to be received by a tile support (4), and the corner element (5) comprises at least one fixing pin (16, 18, 20) which extends from the lower

side (10), in particular the fixing pin (16, 18, 20) comprises a protrusion (34, 38), which more in particular extends in a length direction of the fixing pin (16, 18, 20) and/or is a restricted protrusion (34) with a length which is less than a length of the fixing pin (16, 18, 20) and is provided at a lower end of the fixing pin (16, 18, 20).

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13. Combination according to claim 12, wherein the tile (6) is rectangular and is provided with multiple corner elements (5), in particular four corner elements (5).

14. Combination according to claim 12, or 13, wherein the tile (6) is made of a ceramic material.

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15. Tiled floor (2), comprising multiple combinations of a tile (6) and at least one corner element (5), as defined in claims 12-14, and multiple tile supports (4) provided at corners of the tiles (6), wherein the tile supports (4) each comprises an upper receiving face (12) for receiving at least two corner elements (5) and a lower face (14) which is placeable on the outdoor subsurface (3), or on a pedestal (15) positioned on the outdoor subsurface (3), the tile support (4) comprises at least one pin receiving hole (26, 28, 30) with an inner shape and dimensions that corresponds to the outer shape and dimensions of the fixing pin (16, 18, 20), the lower side (10) of the corner element (5) rests on the upper receiving face (12) of the tile support (4), and the fixing pin (16, 18, 20) extends fittingly in the pin receiving hole (26, 28, 30).

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16. Method for assembling a tiled floor above an outdoor subsurface, such as a roof, balcony, or an outdoor corridor, comprising the steps of:

- providing multiple tiles with corner elements under at least one of the respective tile corners, wherein the corner elements each comprises at least one fixing pin which extends vertically from the lower side of the corner element,
- providing tile supports, wherein the tile supports each comprise at least one pin receiving hole with an inner shape and dimensions that corresponds to the outer shape and dimensions of the fixing pin,
- positioning the tile supports in a grid-like configuration corresponding to the dimensions of the tiles, either directly on the outdoor subsurface or on a pedestal placed on the outdoor subsurface,
- placing each of the multiple tiles with a vertical movement on the tile supports, such that the fitting pins enter the respective pin receiving holes until the corner element rests on the tile support, in particular followed by a step of:

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- moving, in particular rotating, a locking element of the tile support in order to lock the fitting pins relative to the pin receiving holes.

## ABSTRACT

A system for forming a tiled floor on an outdoor subsurface comprises a tile support 4 and a corner element 5, which receives a tile 6. The corner element 5 comprises a corner plate 7 with an upper side 8 and a lower side 10. The upper side 8 is connectable to the lower corner of the tile 6. The tile support 4 comprises an upper receiving face 12 and a lower face 14 which is positioned on an outdoor surface. The corner element 5 comprises fixing pins 16, 18, 20, which extend vertically. The tile support 4 comprises pin receiving holes 26, 28, 30. In the assembled state of the system, as indicated with dotted lines, the corner element 5 rests on the tile support 4 and the fixing pins 16, 18, 20 extend fittingly in the pin receiving holes 26, 28, 30.

Fig. 2

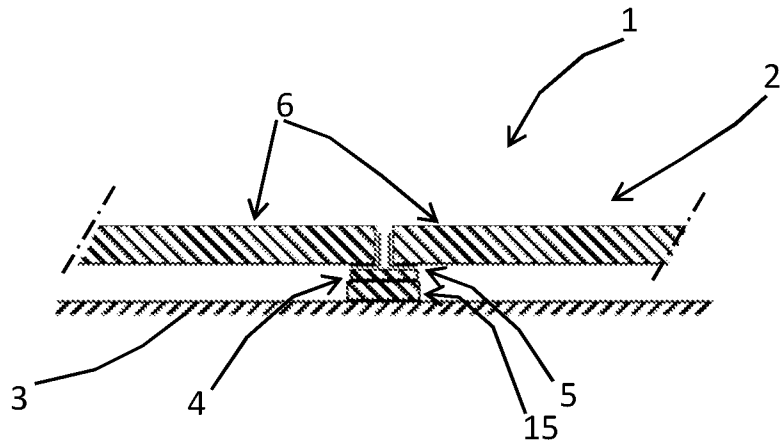


Fig. 1

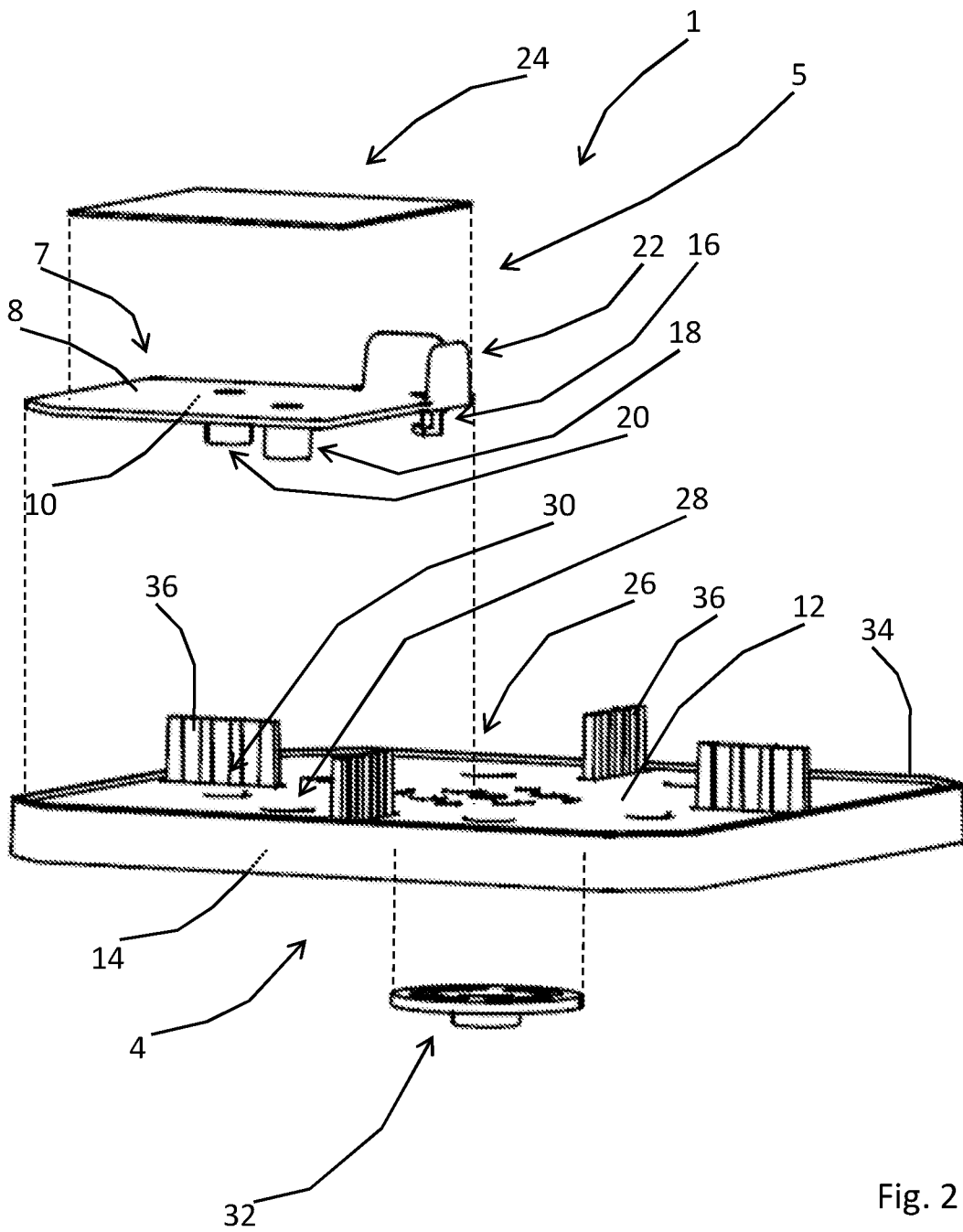


Fig. 2

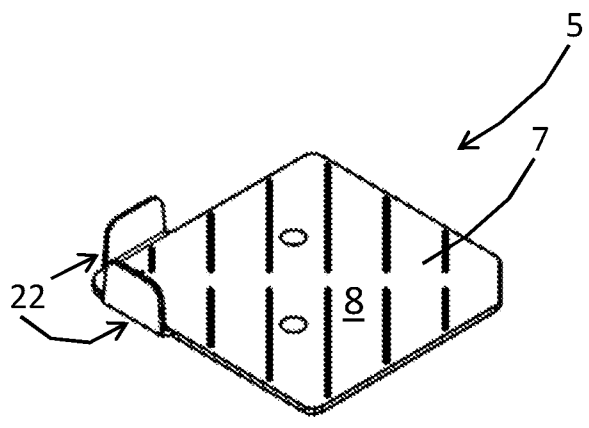


Fig. 3

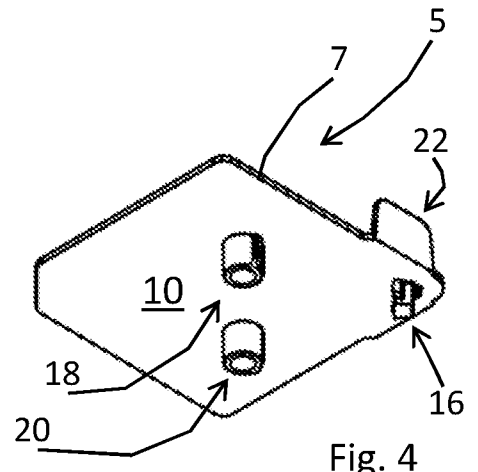


Fig. 4

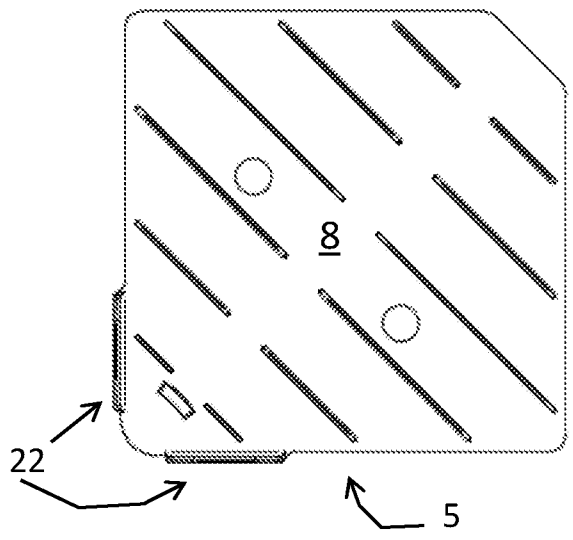


Fig. 5

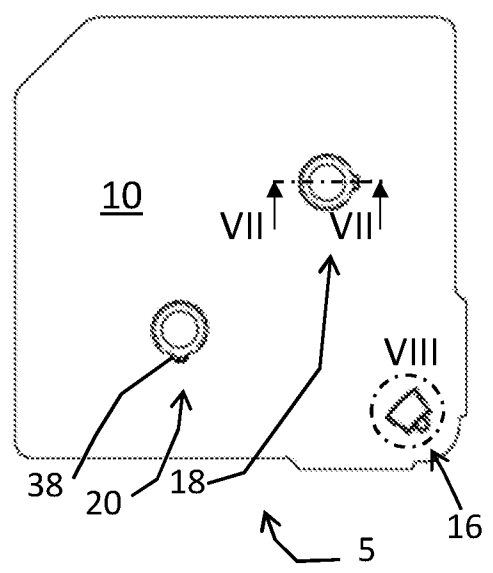


Fig. 6

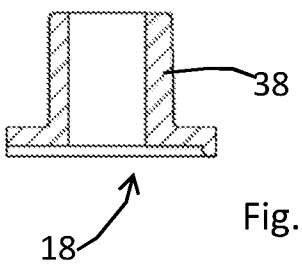


Fig. 7

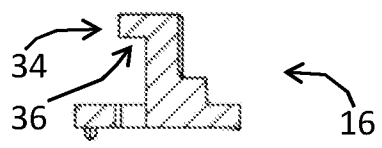


Fig. 9

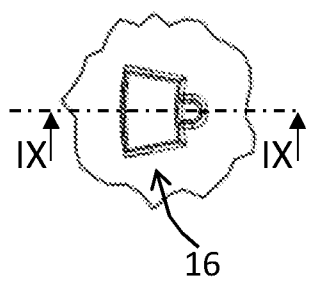


Fig. 8

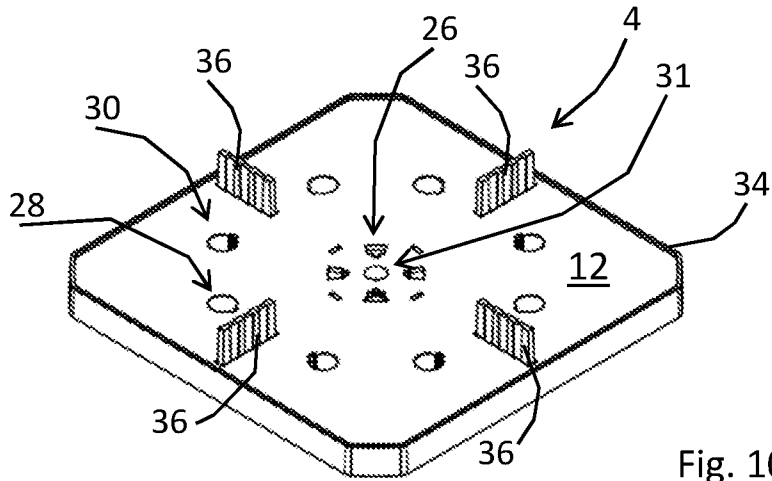


Fig. 10

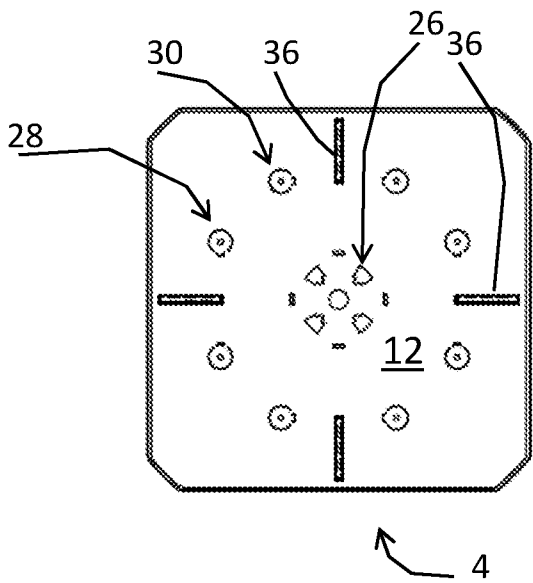


Fig. 11

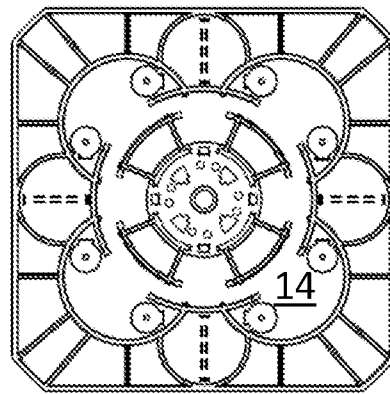


Fig. 12

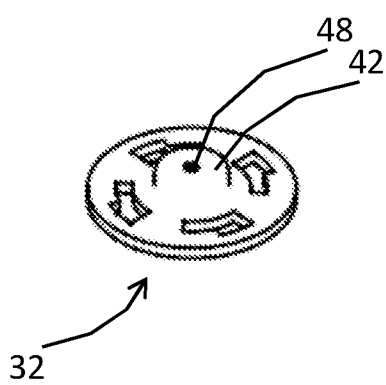


Fig. 13

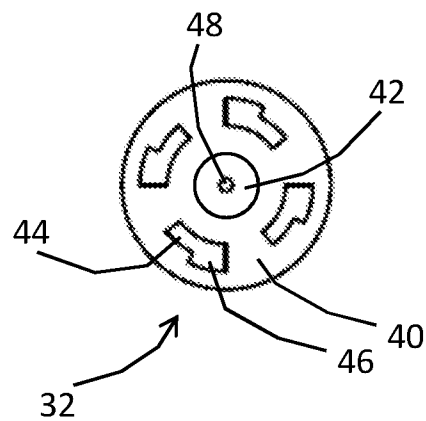


Fig. 14



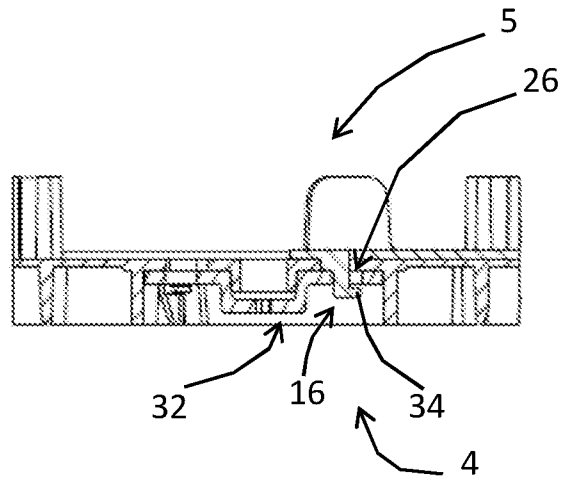


Fig. 15

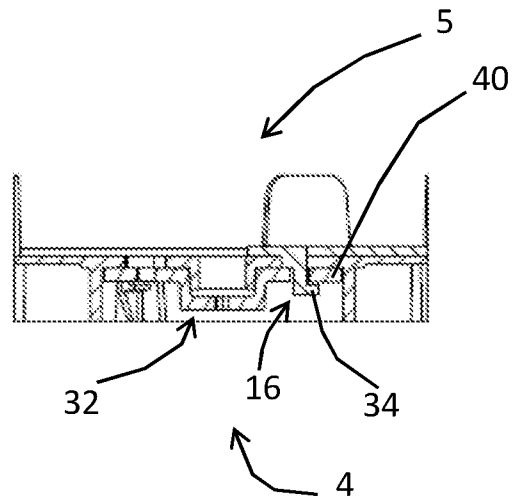


Fig. 16