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(72) Inventors:  
• **Bosman, Lambertus Bernardus Maria**  
**6941 BL Didam (NL)**  
• **Alards, Rob**  
**5961 EA Horst (NL)**

(74) Representative: **'t Jong, Bastiaan Jacob**  
**Inaday Patent B.V.**  
**Hengelosestraat 141**  
**7521 AA Enschede (NL)**

(71) Applicant: **Rob Alards Holding B.V.**  
**5961 EA Horst (NL)**

(54) **SUPPORT TILE FOR A TILED TERRACE AND COMBINATION OF A SUPPORT TILE AND A TILE**

(57) The invention relates to a support tile for a tiled terrace, which support tile comprises:

- a body with a rectangular base surface, a top surface parallel to the base surface and a peripheral wall extending along the circumference of the base surface and between the base surface and the top surface,
- support flanges extending from the peripheral wall and extending parallel to the top surface, wherein the support flanges are arranged at either of two different distances from the top surface, such that the support flanges of adjacent support tiles can slide interlocking in a direction parallel to the top surface and provide a support in a direction perpendicular to the top surface wherein the support flanges on at least one of the two different distances from the top surface have side surfaces perpendicular to the top surface of the tile, wherein said side surfaces are all parallel to each other, and wherein on the at least one of the two different distances from the top surface the pattern of the support flanges and spacings on opposite sides of the support tile are inverse, such that support flanges on the same distance from the top surface of adjacent support tiles can interlock.

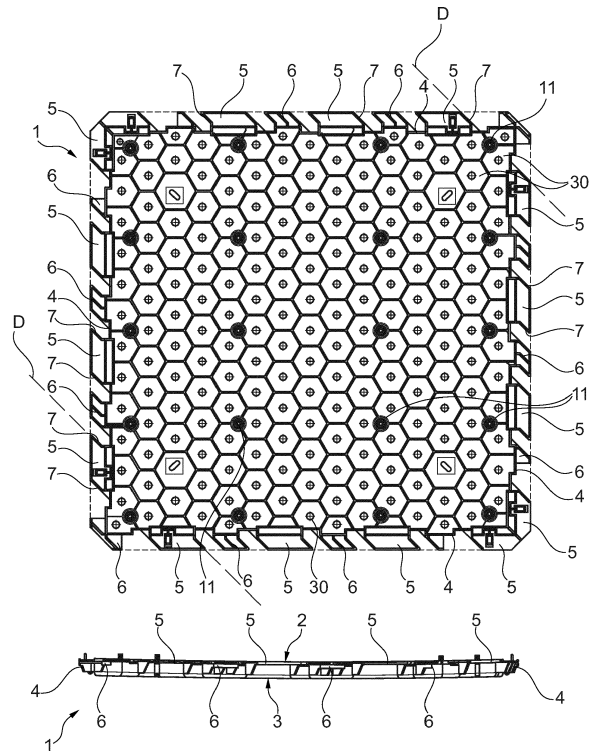


Fig. 1

## Description

**[0001]** The invention relates to a support tile for a tiled terrace, which support tile comprises:

- a body with a rectangular base surface, a top surface parallel to the base surface and a peripheral wall extending along the circumference of the base surface and between the base surface and the top surface,
- support flanges extending from the peripheral wall and extending parallel to the top surface, wherein the support flanges are arranged at either of two different distances from the top surface, such that the support flanges of adjacent support tiles can slide interlocking in a direction parallel to the top surface and provide a support in a direction perpendicular to the top surface.

**[0002]** Such a support tile is known from EP 3231958 of the applicant. This prior art publication describes a support tile for a tiled terrace with support flanges. The support flanges ensure that the support tiles can be interlocked for forces directed perpendicular to the top surface. This allows for the support tiles to take up the loads exerted on the terrace tiles, which are arranged on the support tiles. The support flanges on the other hand allow for changes in dimensions due to heat expansion. If the support tiles would increase in length and width due to heat, such as the sun, the support flanges of adjacent support tiles will slide over each other compensating for the expansion.

**[0003]** The support flanges also provide a barrier in vertical direction between the support tiles, such that when masonry joint material is arranged between terrace tiles supported by the support tiles, the masonry joint material will be prevented from flowing past the support flanges. This allows for providing a terrace with a support tile layer, which has the appearance of a terrace provided directly on a base layer.

**[0004]** When a surface is covered by support tiles of EP 3231958, each next support tile typically has to be interlocked with two adjacent support tiles, i.e. one support tile of the same row and one support tile of the previous row. So, the support flanges of two perpendicular sides of the tile have to slid in two perpendicular directions to be able to connect a support tile to the adjacent support tiles. If relative small support flanges with large spacing is used, then it is possible to interlock the support tiles in both directions at once.

**[0005]** However, small support flanges with large spacing do also allow substantial shifting of two adjacent support tiles, such that the pattern of the support tiles and tiles arranged thereon could be distorted after time.

**[0006]** If the size of the support flanges on a single distance from the top surface of the support tile is chosen such that in interlocked state, the sides of the support flanges of interlocked support tiles abut, it would no long-

er be possible with the support tiles of EP 3231958 to simultaneously connect a support tile to two adjacent tiles, without having to deform the support tile substantially.

5 **[0007]** It is an object of the invention to reduce or even remove the above mentioned disadvantages.

**[0008]** This object is achieved according to the invention with a support tile according to the preamble, which is characterized in that the support flanges on at least one of the two different distances from the top surface have side surfaces perpendicular to the top surface of the tile, wherein said side surfaces are all parallel to each other, and

10 wherein on the at least one of the two different distances from the top surface the pattern of the support flanges and spacings on opposite sides of the support tile are inverse, such that support flanges on the same distance from the top surface of adjacent support tiles can interlock.

20 **[0009]** With the support tile according to the invention, the side surfaces of the support flanges on all sides of the support tile are parallel and therefore in the same direction. This allows for one, single sliding direction for all sides of the support tile. As a result, a support tile can be slid in interlocking state with two adjacent support tiles on two perpendicular sides of the support tile being slid.

25 **[0010]** Furthermore, as the pattern of the support flanges and spacings on opposite sides of the support tile are inverse, two adjacent support tiles can interlock, and when interlocked there is no substantial play left for the adjacent support tiles to shift relative to each other. This ensures that the pattern of support tiles and tiles arranged thereon is maintained even after prolonged time.

30 **[0011]** In a preferred embodiment of the support tile according to the invention the side surfaces of the support flanges are arranged under an angle of 45° with the peripheral wall of the body.

35 **[0012]** The 45° angle allows for an even insertion direction on both sides when a support tile is interlocked with adjacent support tiles. As a result both interlocking connections can be obtained as easily.

40 **[0013]** In a further embodiment of the support tile according to the invention the distance of the bottom of the support flanges closest to the top surface to the top surface of the support tile is substantially equal to the distance of the top of the support flanges furthest to the top surface of the support tile.

45 **[0014]** When a support tile according to this embodiment is interlocked, there will also be no substantial play in the direction perpendicular to the top surface as the top surface of the bottom flange is at the same level as the bottom surface of the top flange.

50 **[0015]** In still a further preferred embodiment of the support tile according to the invention the body has a honeycomb structure. This provides a relative high strength with a relative low weight and accordingly low costs for material. In addition the honeycomb structure

allows for storage space for water to be drained. Rain water falling on the tiles arranged on the support tiles can easily flow via the joints between the tiles into the support tiles. The collected water can then slowly drain into the bottom below the support tiles. To this end, the walls of the honeycomb structure are provided with drainage holes and the height of the walls does not extend all the way up to the tiles, such that water can flow from one pocket of the honeycomb structure to a next pocket.

**[0016]** In a further preferred embodiment of the support tile according to the invention the top surface is provided with a number of depressions, each provided with at least one through hole extending from the bottom of the depression to the base surface.

**[0017]** The depressions can be filled with an amount of adhesive to adhere a tile to the support tile. Any excess adhesive can be pushed through the through hole. This allows for a correct positioning of the tile on the support tile, independent on the amount of adhesive used.

**[0018]** In yet a further preferred embodiment of the support tile according to the invention a number of lips are arranged on the peripheral edge of the top surface, which lips extend upwardly from the top surface.

**[0019]** These lips allow for correct positioning of a tile on the tile support and also ensures that a sufficient gap or joint is present between adjacent tiles of adjacent support tiles.

**[0020]** Preferably, the lips are resiliently arranged in a direction parallel to the top surface and in a direction perpendicular to the peripheral wall. The resilient arrangement allows for any deviations in dimension to be compensated for.

**[0021]** The invention further relates to a combination of a support tile according to the invention and a tile arranged on the top surface of the support tile, wherein the tile is provided on the base surface with at least one blind hole, wherein the support tile is provided with a corresponding through hole in the support surface, the combination further comprising at least one plug extending through the through hole into the blind hole to secure the tile to the support tile.

**[0022]** Using at least one plug for securing a tile to a support tile allows for a quick connection, without any need for an adhesive to cure, while the tile can also easily be disconnected from the support tile when desired.

**[0023]** Preferably, the plug extends through the through hole with radial play in order to compensate for differences in expansion between the support tile and the tile.

**[0024]** As the support tile is typically made of a plastic, while the tile is typically stone-like, a substantial difference can be present between the coefficient of expansion of both parts. By ensuring some play, the support tile can expand in a direction parallel to the top surface, while the tile is still firmly secured to the support tile.

**[0025]** These and other features of the invention will be elucidated in conjunction with the accompanying drawings.

Figure 1 shows a bottom view and a side view of an embodiment of a support tile according to the invention.

Figure 2 shows a schematic view of the direction in which a support tile according to figure 1 can be interlocked with adjacent support tiles.

Figure 3 shows a detailed perspective view of the support tile of figure 1.

Figures 4A and 4B show cross-sectional views in two positions of a combination according to the invention.

**[0026]** Figure 1 shows a support tile 1 with a body having honeycomb structure and a top surface 2, a bottom surface 3 and a peripheral wall 4.

**[0027]** First support flanges 5 are arranged at a first distance to the top surface 2 on the peripheral wall 4. Second support flanges 6 are arranged at second, larger distance to the top surface 2 on the peripheral wall 4.

**[0028]** The side surfaces 7 of the first flanges 5 are all parallel to each other and parallel to a sliding direction D. The pattern of the first support flanges 5 and spacings on opposite sides of the support tile 1 are inverse, such that the first support flanges 5 of adjacent support tiles 1 can interlock and when interlocked the side surfaces 7 of interlocked first flanges 5 will abut and remove any play.

**[0029]** The second support flanges 6 are embodied substantially smaller than the first flanges 5. These second support flanges 6 will be positioned below the first flanges 5 in interlocked position of support tiles 1.

**[0030]** Figure 2 shows a schematic view of the direction in which a support tile 1 according to figure 1 can be interlocked with adjacent support tiles 1. Because the side surfaces 7 of the first flanges 5 are all parallel to each other and preferably arranged under an angle of 45° with the peripheral wall 4 and aligned with the sliding direction D.

**[0031]** When a first row 8 is already placed and a second row 9 is coupled to the first row 8, a support tile 1 can easily be slid into connection with a support tile 1 of the first row 8 and an adjacent tile 1 of the second row 9 even though the pattern of the first support flanges 5 and spacings on opposite sides of the support tile 1 are inverse.

**[0032]** Figure 3 shows a detailed perspective view of a corner of a support tile 1 according to the invention. The body of the support tile 1 has a honeycomb structure with a plurality of interconnected ribs 10. The top of the pillars 11 of this honeycomb structure 10 provide the top surface 2, while the interconnecting walls are preferably somewhat lower, such that drain water can flow from one pocket 30 of the honeycomb structure 10 to a next pocket 30 over said walls (see also figure 1).

**[0033]** The pillars 11 is provided with a depression 12 having at the bottom a number of through holes 13. An adhesive can be applied in this depression 12 to connect the support tile 1 to a tile. The through holes 13 allow for

any excess adhesive to be pushed away, without influencing the positioning of a tile on the support tile 1.

**[0034]** The first support flanges 5 are furthermore provided with lips 14, which are connected by a resilient part 15 to the support tile 1. The lips 14 define the position of a tile to be arranged on the support tile 1, as well as define a spacing between adjacent tiles, such that a neat joint is provided.

**[0035]** Figures 4A and 4B show a combination of a support tile 1 and a tile 16 arranged thereon. The honeycomb structure body 10 is provided with through holes 17, while the tile 16 is provided with a corresponding blind hole 18. This blind hole 18 has preferably a T-shaped cross-section.

**[0036]** A plug 19 with resilient flanges 20 and resilient fingers 21 is inserted via the through hole 17 into the blind hole 18 (see figure 4A). Then by inserting a pin 22 into the plug 19, the resilient fingers 21 are pushed outwardly, such that the fingers 21 lock into the T-shaped blind hole 18. As a result the tile 16 is reliably secured to the support tile 1.

## Claims

1. Support tile for a tiled terrace, which support tile comprises:

- a body with a rectangular base surface, a top surface parallel to the base surface and a peripheral wall extending along the circumference of the base surface and between the base surface and the top surface,
- support flanges extending from the peripheral wall and extending parallel to the top surface, wherein the support flanges are arranged at either of two different distances from the top surface, such that the support flanges of adjacent support tiles can slide interlocking in a direction parallel to the top surface and provide a support in a direction perpendicular to the top surface

### characterized in that

the support flanges on at least one of the two different distances from the top surface have side surfaces perpendicular to the top surface of the tile, wherein said side surfaces are all parallel to each other, and wherein on the at least one of the two different distances from the top surface the pattern of the support flanges and spacings on opposite sides of the support tile are inverse, such that support flanges on the same distance from the top surface of adjacent support tiles can interlock.

2. Support tile according to claim 1, wherein the side surfaces of the support flanges are arranged under an angle of 45° with the peripheral wall of the body.

3. Support tile according to claim 1 or 2, wherein the distance of the bottom of the support flanges closest to the top surface to the top surface of the support tile is substantially equal to the distance of the top of the support flanges furthest to the top surface of the support tile.
4. Support tile according to any of the preceding claims, wherein the body has a honeycomb structure.
5. Support tile according to any of the preceding claims, wherein the top surface is provided with a number of depressions, each provided with at least one through hole extending from the bottom of the depression to the base surface.
6. Support tile according to any of the preceding claims, wherein a number of lips are arranged on the peripheral edge of the top surface, which lips extend upwardly from the top surface.
7. Support tile according to claim 6, wherein the lips are resiliently arranged in a direction parallel to the top surface and in a direction perpendicular to the peripheral wall.
8. Combination of a support tile according to any of the preceding claims and a tile arranged on the top surface of the support tile, wherein the tile is provided on the base surface with at least one blind hole, wherein the support tile is provided with a corresponding through hole in the support surface, the combination further comprising at least one plug extending through the through hole into the blind hole to secure the tile to the support tile.
9. Combination according to claim 8, wherein the plug extends through the through hole with radial play in order to compensate for differences in expansion between the support tile and the tile.





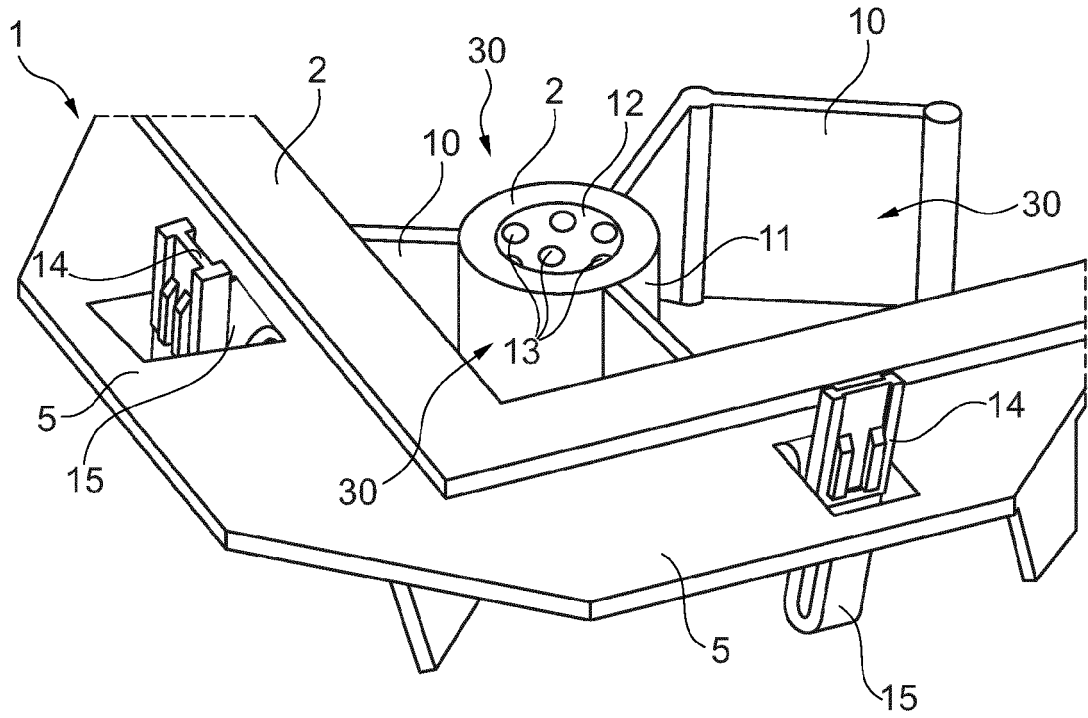


Fig. 3

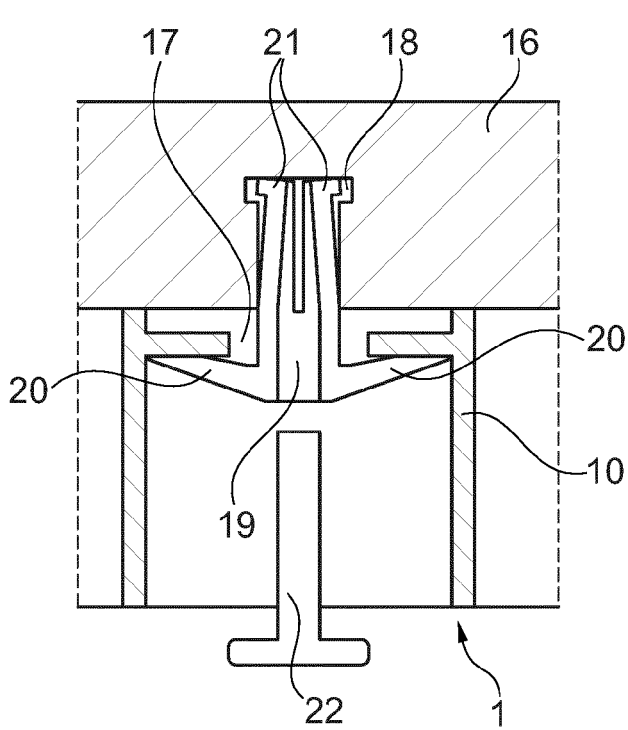


Fig. 4A

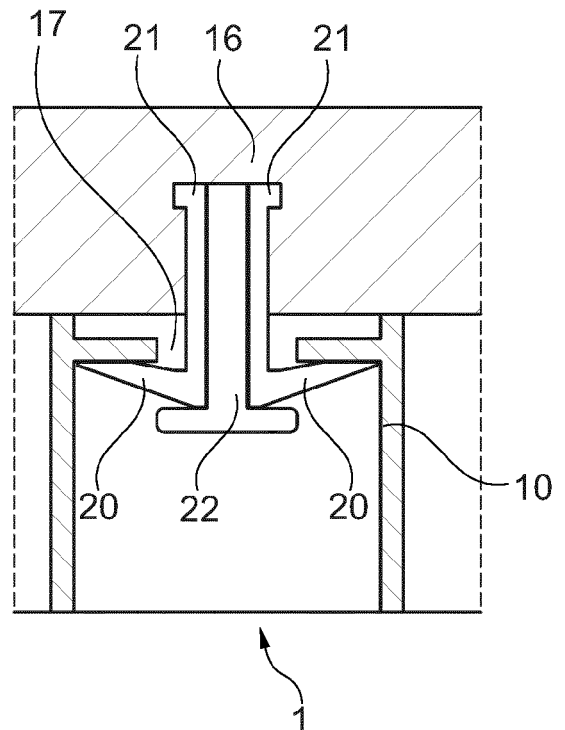


Fig. 4B



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