



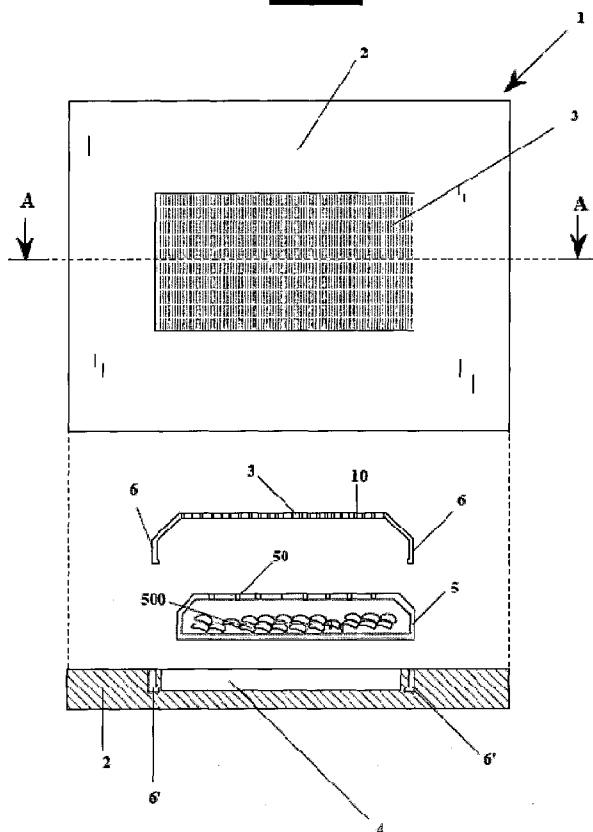
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[Continued on next page]

(54) Title: TILE FOR EMITTING A SCENT

**Fig. 1**



(57) Abstract: The present Invention concerns a tile (1), applicable either on vertical walls or on flooring, characterized in that it comprises a receiving seat ( 4 ) configured to be able to hold inside it, in an exchangeable manner, one or more diffusion elements of fragrance (5; 500).

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TITLE

## TILE FOR EMITTING A SCENT

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Technical field

The present invention concerns the technical field relative to building constructions.

10 In particular, the present invention refers to an innovative tile which is configured in such a way as to be able to gradually release fragrance in rooms.

Background art

15 Tiles for the realization of walls or floorings in rooms have long been known. It is also known that there exists a variety of tiles which are realized of different materials (for example fired ceramic) and having different decorative styles.

20 Just as a way of example, we here remember ceramic tiles, which are then appropriately enameled and on which different decorative elements are then portrayed.

The tile has the advantage of being a decorative element itself, since it protrudes from the wall and creates a nice aesthetic effect. For this reason, it is widely used for the realization of walls and floorings, for example in bathrooms, kitchens, lunchrooms, and basically in any room where one wishes to place them. For example, it is common use to realize walls partially covered with tiles and partially covered with plaster. The contrast in fact creates a nice aesthetic effect. Moreover, as already said, the tile lends itself well to the realization of decorative designs which are portrayed on it as a sort of mosaic.

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It is also known that many of such rooms to which

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the tiled walls are destined have to be filled with an adequate fragrance. For example, the bathrooms of public places, such as hotels and restaurants, are often perfumed thanks to the use of multiple fragrance devices. Some of these can comprise baskets of dry scented leaves and flowers (commonly known in Italy as "purpurea"). In other cases, fragrance devices are used consisting of small bottles containing a scented liquid which, gradually, releases fragrance through automatized spraying systems or simple sticks that gradually release the fragrance.

In order to avoid the specific use of external fragrance devices, some solutions have been thought which have been described in different patent applications that in fact foresee the realization of a perfumed tile, that is a tile capable of releasing a perfumed essence in the room.

Patent application KR20040101119, for instance, describes a tile which is basically of the perfumed and disinfectant type thanks to a specific compound with which it is realized and containing Nano Silver and other perfuming and disinfectant substances according to pre-determined percentages.

In this way, by using one or more of these tiles, in the realization of a wall the use of external fragrance devices is avoided since the function of perfuming is fulfilled by the tile itself.

Nevertheless, a technical problem relative to such a type of tile concerns the fact that it is applied to a wall in a permanent manner together with the other ones by using lime or cement. As time goes by, the substances of which it is composed tend to deteriorate and to lose efficiency. At this point, however, it is impossible to replace it because the tile is built into and cemented to the wall. In order to remove it, it would be necessary to

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make a real break in the wall and it is clear that such a solution results economically impracticable. Moreover, it would also be impossible to make a change of perfumed essence since it would imply, also in this case, the  
5 integral removal of the tile and the replacement thereof with another one with a different essence.

In a second solution, for example in US4720409, the application of an adhesive layer is foreseen on the external surface of the tile, which releases the perfume.  
10 This solution requires that the user removes the thin perfuming sheet every time the perfumed essence is exhausted. The operation of attachment of the sheet to the external surface of the tile is not an easy operation and the continuous removal of adhesive sheets can cause the  
15 formation of residues of dirt on the surface of the tile itself that can cause the premature detachment of the sheet itself.

A third solution, particularly complex, is presented in WO2010/046810, which does not describe a building tile  
20 that releases perfume but a complex electronic apparatus of diffusion of fragrance, eventually applicable to the wall as if it were a tile. It foresees a box-like container (called "housing"), inside which a unit of diffusion of the fragrance is lodged, containing specific  
25 perfume dispensers, and a control unit in communication with the diffusion unit of the fragrance to control the release of perfumed essences. The dispensers, considering the complex electronic connections between the walls, are not removable from the internal seat but instead fixed to  
30 it and eventually fillable with new perfumed essences when it is required.

This solution, therefore, is complex and expensive. Moreover, although this device can be combined with others to form a wall surface, it can lend itself badly to the

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replacement of the classic tile since, once fixed with the permanent cement, it cannot be removed in case of failure. It is clear that such a complex apparatus can require replacements and maintenance and therefore such a solution  
5 is poorly functional. Moreover, it is very expensive, therefore the covering of wide areas of wall results expensive.

#### Disclosure of invention

It is therefore the aim of the present invention to  
10 provide an innovative type of building tile that solves at least in part said technical inconveniences.

In particular, it is the aim of the present invention to provide an innovative tile that, once applied to the wall, allows a change or a continuous regeneration  
15 of its perfuming substances without for this requiring the integral removal of the tile from the wall where it is applied.

It is also the aim of the present invention to provide an innovative tile which, in an economical and  
20 structurally simple manner, allows to release a gradual fragrance in the rooms, still fulfilling the functions of a classic tile.

These and other aims are therefore reached with the present building tile as per claim 1.

Such a building tile (1) presents an excavation (4),  
25 obtained through its thickness (2), in such a way as to form a receiving seat (4). In accordance with the invention, the receiving seat (4) holds, in a removable manner, one or more diffusion elements of the fragrance  
30 (5; 500; 300, 301; 300', 301').

The diffusion elements of the fragrance can have the shape of perfuming cartridges 5, for example, containing perfuming elements, or free perfuming material in the form of "purpurea" leaves 500, tablets, grains or perfume salts

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contained in a removable box. The tile, once applied, remains fixed to the wall exactly like all the other tiles in a permanent manner.

This solution solves all the problems of the background art described.

In particular, a simple building tile, appropriately provided with a receiving seat, will be able, in a simple manner, to fulfill the function of fragrance device, though being integrated perfectly well to other tiles and though fulfilling at the same time its own function of tile. Not being foreseen complex electronic apparatus (as for example the control unit described in WO2010/046810) the cost is reduced. The risk of breakdowns disappears as well and a quick exchangeability of the cartridge is sufficient to regenerate the diffusion of the fragrance. The system is therefore simple and functional, unlike the background art described in WO2010/046810, wherein the breakdown would imply high costs and renders impossible the application of the apparatus to the wall in a permanent manner in replacement of a classic building tile.

For the change of essence, it will be sufficient to remove the seat into which the diffuser element is applied and replace it with a new one.

Other advantages can be deduced from the dependent claims.

#### Brief description of drawings

Further characteristics and advantages of the present tile, according to the invention, will result clearer with the description that follows of some embodiments, made to illustrate but not to limit, with reference to the annexed drawings, wherein:

- Figure 1 describes a top view and a relative section A-A of the tile which separates all the structural

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elements comprising the cover 3 and the cartridge 5 in accordance with a first possible embodiment;

- Figure 2 shows the same section of figure 1, assembled;
- Figure 3 and figure 4 show a cover 3 to level and a  
5 different configuration of cartridge;
- Figure 5 shows an axonometric schematization of the single cartridge;
- Figure 6 and figure 7 show in detail a cover in section with a portion of box-like element whose holes are  
10 inserted in the holes found on the cover;
- Figure 8 shows a plane view from the top and section of a second configuration of the invention;
- Figure 9 shows the same section of figure 8 with the perfuming material inserted in the seat;
- 15 - Figure 10 shows a vertical wall provided with tiles in accordance with the present invention (in all its variants);
- Figures 11 and 12 show a third variant with the cartridge inserted in the seat and without the cover;
- 20 - Figure 13 and figure 14 show a fourth variant with a hinged cover;
- Figures from 15 to 17 show a further variant of the invention that foresees an unhooking system of a box 301, closed by a cover, and wherein the perfuming material is  
25 inserted;
- Figures from 18 to 20 show a variant which is the same as the one described in the preceding figures from 15 to 17 but wherein the buttons and the unhooking mechanisms of the box from the seat of the tile are placed on the box  
30 itself;
- Figures 21 and 22, last, describe unhooking mechanisms.

#### Description of some preferred embodiments

With reference to the annexed figures, a tile 1 is described in accordance with the invention.



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The tile, as discussed in the preamble of the background art, is realized of different building materials, such as fired ceramic, enameled ceramic but also metal eventually covered with mortar.

5 The tile, generally quadrangular, rectangular or of any other shape, foresees a surface 2 which presents an excavation 4 that forms a receiving seat 4. In particular, through its thickness 2, a receiving seat 4 is found that serves to hold, in a removable manner (therefore also  
10 exchangeable), one or more diffusion elements of the fragrance, as described in detail below.

In particular, in a first configuration of the invention, the diffusion element of the fragrance is in the form of a cartridge 5.

15 The cartridge 5 is in fact a box-like element which, as shown in the section of figure 1, foresees inside it a containment seat for the perfumed essence 500 which can be, for example, in the form of "purpurea", perfumed salts or tablets. The box-like element is then provided with a  
20 plurality of holes 50 for allowing the exit of the fragrance generated by the perfuming substances 500 contained inside it.

Alternatively, the cartridge 5 can foresee the containment of perfumed essences but can lack holes 50  
25 since it is realized of an odor-transpiring material.

In a further embodiment, the cartridge 5 could be realized full (therefore without essences 500 contained inside it) and integrally made of a material soaked with perfume (for example, absorbing cardboard). Also in this  
30 case, there would be no need for perspiration holes 50.

The section of figure 1 anyway shows the preferred embodiment of the cartridge 5, which is a box-like element having an internal seat to contain inside it perfuming material.

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The cartridge 5, as then shown in the subsequent figure 2, is lodged inside the receiving seat 4 and closed with a perforated cover 3 (cover provided with a plurality of holes 10) and that serves as retain element for the  
5 cartridge.

Preferably, the cartridge has such a shape and size as to be applied perfectly inside the seat 4 with a small gap or with a pre-determined degree of mechanical interference. The cover 3, as shown in figure 3, is  
10 configured in such a way as to follow perfectly the profile of the cartridge 5 that it closes, becoming in contact with it.

In this case, the holes 10 found on the cover 3 must coincide (or be in axis) with those of the cartridge 5  
15 when the cartridge is applied into the seat 4 and closed with the cover (see figure 2). Otherwise, the obstruction of the holes would be caused.

Such a solution, shown precisely in figure 2, guarantees less dispersion of the perfumed essences since  
20 it reduces to the minimum the empty space interposed between cartridge and cover, thus making the holes of the cartridge face directly on the holes of the cover in contact with them.

On the understanding of what has been described so  
25 far, the cartridge can be such as to result protruding from the surface 2 (see figure 1 and 2), or be at level with the surface 2 (see figure 3), or even internal to the surface 2 (see figure 4).

The advantage of a cartridge that is protruding from  
30 the surface 2 is that of rendering it easily graspable by a user to change it for a new one. Similarly, the removal of the coupled cover 3 is rendered simple as well.

The advantage of a cartridge at level with the surface 2 or even internal, instead, is that a cover at

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level can be realized also with the surface 2 and therefore being less visible when the tile is applied in use to a wall. In this case, further, the tile can be applied to surfaces that can be walked on.

5           In order to render the cover 3 more easily removable, above all in the configuration at level, one or more handles hinged to the cover can be foreseen, or that are connected to it in a removable manner, for example by directly taking advantage of the holes 10 if these are  
10 present. The solution of the hinged handles, and in particular of the removable ones, renders the walking on the tile safe, avoiding the risk of tripping.

          The cover 3 can be realized of any material and color but, preferably, it is made of a non-transparent  
15 material and of the same color of the surface 2 in such a way as to camouflage itself well with the rest of the surface 2 and not to create a visual detachment effect.

          Going back to figure 1, therefore, the cover 3 is applied in a removable manner to the surface 2 in such a  
20 way as to allow selectively the access to the seat 4, the integral replacement of the cartridge 5 and its closure.

          In this way, the perfuming material, that can be purchased in commerce as spare parts, in the form of perfumed recharges, can be inserted in the seat and closed  
25 inside it.

          To that aim, in a first variant, the cover 3 foresees two legs 6, which are inserted in appropriate receiving seats 6' found in the surface 2 in such a way that the cover can be blocked in a removable manner to the  
30 surface 2.

          The seats 6' can, for example, be dimensioned in such a way as to hold the legs 6 with a pre-determined degree of mechanical interference.

          Alternatively, the seats can be provided with a

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magnet that attracts a metal part found or placed on the legs 6 (or vice-versa).

Another solution can foresee that the legs 6 are provided with an appendix that fits in an equivalent widening found in the seat 6', in such a way as to realize a sort of fitting.

A solution without legs 6 (and therefore without seat 6') would be possible simply by applying a simple magnet directly on the surface 2 and that grips the cover 3 lacking legs but provided with a ferrous metal (or vice-versa). In this way, a particularly simple constructive solution would be realized.

The figure 5 schematizes the single cartridge 5 in the form of a box and provided with holes 50.

In a possible variant of the cartridge, valid for all the forms described until now, the holes 50 can be realized in the form of protruberances or tubulars that rise from the surface itself of the cartridge in such a way as to be inserted perfectly in the respective holes 10 of the cover 3 (see for that purpose also the section of figure 6 and figure 7).

In this case, the tendency is to further minimize the loss of essence since the gap between cartridge and cover is basically annulled due to the fact that the hole of the cartridge is inserted in the hole of the cover.

Although disposable cartridges 5 have been described, nothing would impede, alternatively, the use of rechargeable cartridges. In fact, it would be enough to realize a cartridge having at least a side or part thereof selectively openable and closable in such a way as to allow the emptying of the old perfuming material 500 and the recharge with the new one. The advantage of this solution is that it allows the use of loose material, therefore allowing the user to purchase, mix and create

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fragrances at will (exactly as in the case of straight re-  
fill of the seat 4 with loose material as per figure 9)  
but with the advantage provided by the use of the  
cartridge (facility in charging the seat with new  
5 perfuming material, as described below).

Figure 10 shows, as a way of example, a wall 100  
composed of a plurality of tiles 110, two of which (they  
could be also just one or more than one) are of the  
perfuming type, as described.

10 Figure 10 is indicative for all the described  
configurations of the invention.

A second configuration of the invention is wholly  
identical to the preceding one except for the fact that,  
as shown in figure 8 and in figure 9, the cartridge 5 is  
15 not present. The perfumed essences 500 (for example, in  
the form of tablets, salts or "purpurea") are directly  
inserted inside the seat 4.

It is anyway clear that the first preferred  
embodiment of the invention presents an advantage due to  
20 the use of the cartridge. The operation of replacement of  
the cartridge 5 is in fact quick. The cover is opened, the  
run-out cartridge is removed, a new cartridge is inserted  
in the seat 4 and last the cover is closed again.

Unlike what has been described, the second  
25 embodiment can render the change of the material 500  
rather difficult because, on a vertical wall, it would be  
difficult to maintain the new perfuming material inside  
the seat before closing it with the cover and without the  
risk that the material spills, at least some of it, on the  
30 floor.

With particular reference to the solution without  
cartridge, inside the seat light sources can be foreseen,  
for example LEDs, which, apart from creating a light  
effect that lights the essences, allow to verify the

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condition of the perfuming essences themselves placed inside it. In this case, preferably, the cover 3 should be transparent.

The same LED could be anyway used also in the other configurations described, for example by using a cartridge in a transparent material that displays the perfuming material contained in it and, naturally, a transparent cover 3.

A third configuration of the invention is described in figure 11 and figure 12.

In this case, the cartridge 5 is applied in the seat 4 but without the cover 3 that serves as retain. The cartridge therefore faces directly the outside.

In this case, therefore, the application takes place with a pre-determined degree of mechanical interference.

Alternatively, or also in combination with such a mechanical interference, the use of magnets can be foreseen also in this case.

In this configuration, directly a tablet would be anyway usable as a perfuming element (therefore avoiding the construction of a box-like element containing perfumed essences and perforated), which is applied directly with a certain degree of mechanical interference in the receiving seat 4.

Last, also in this case the overall height of the box-like element (or of the tablet) can be variable, that is risen with respect to the surface 2 when inserted in the seat 4, at level of the seat or entirely inside into the seat.

A fourth configuration of the invention is shown in figure 13 and foresees the use of a cover 303, as per the configuration of figure 1 and figure 9, but of the type hinged to the seat through simple hinges 305. Two handles 306 are foreseen for the opening of the two respective

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doors 303. In this way, unlike in the first configuration, it is not necessary to remove the cover integrally.

As it has already been described, inside the seat the perfuming material is arranged, which can be in the form of a cartridge, in the form of a tablet, salts, "purpurea", etc.

The closure can be secured through simple magnets, like the closure of traditional doors of wardrobes.

Figure 14 shows the example of the two doors (one open and one closed) and of a perfuming element in the form of a tablet or also of a cartridge that is inserted inside it.

Last, the same two doors can be reduced to a single one hinged on one side and of such an area as to cover the entire width of the opening 4.

A fifth configuration of the invention can also foresee a connection of the cover to the surface 2 through a sliding system similar to the one for the opening of drawers. Through such a system the cover slides in a parallel manner to the surface 2 between a closure position, wherein it closes the seat 4, and an opening position, wherein it liberates the seat 4. In the closing position the cover can maintain the position, for example thanks to the use of magnets.

In all the configurations described, the perfuming substances can anyway be mixed with disinfectant substances for the rooms in such a way as to obtain a double effect.

The tile can therefore be sold and applied in loco without any perfuming element inside it which, in an exchangeable manner, can be purchased separately as a recharge or replacement element.

The figures from 15 to 18 show a further configuration of the invention deemed a preferred one.

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In particular, a cover 300 is foreseen that is applied in a removable manner to a box-like element 301. The box-like element, closed by the cover, serves to contain the perfume that can be either loose or, as described, in the form of a replaceable or re-fillable cartridge, or in any other form. Just for descriptive simplicity, figure 16 does not highlight perfuming elements placed in the box-like element. In the present description, therefore, the assembly of the cover 300 with the box-like element 301 containing perfume is to be considered precisely a diffusion element of the fragrance.

The cover, as shown in figure 15, is easily applicable/removable to/from the underlying box-like element through appropriate hooks 305 that are easily controlled in extraction/retraction through buttons 306. The hooks 305 engage in appropriate openings 307 belonging to the underlying box 301.

The underlying tile, through the seat 4, therefore holds the box-like element 301. The blockage takes place, for example, through teeth 310 maintained extracted from an elastic return spring 350 and that engage into appropriate complementary seats 311 found precisely in the box-like element 301.

A button 312 controls the retraction of the teeth 310 for allowing the removability of the box-like element 301 and, obviously, of the cover applied to it.

In use, therefore, the user inserts a perfuming cartridge (solid or liquid) or other forms of perfume in the box 301, which is then closed by the cover. The user can then apply the perfuming assembly thus obtained directly in the receiving space of the tile, fitting it by means of the teeth 310. When it is necessary to replace the fragrance, it is enough to push the button 312 to remove the box 301 and its cover 300, to then remove the



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cover and replace the fragrance easily.

On the surface of the seat 4, interposed between the seat and the box 301, elastic means can further be arranged, for example compression springs, to facilitate  
5 the expulsion of the box 301 in correspondence of the pressure of the buttons 312.

The described solution has the advantage of resulting of easy change, it does not cause fall or dispersion of the fragrance and allows to operate also  
10 when the tile, as it usually happens, is placed on an ordinary vertical wall.

Obviously, for example in horizontal walls, nothing would impede to directly remove the cover 300 to replace/re-fill the box-like element with new fragrance.

15 Figure 21 structurally describes in detail a solution which, through the pressure on the button 312, allows the retraction of the teeth 310 and, when it is released, allows the return of the tooth in extended position through the action of the spring 350. To that  
20 aim, an angle 351 is foreseen, preferably of metal, interposed between tooth 310 and spring 350. The angle is hinged to the point 352 and is constrained (hinged as well) to the tooth 310 in the point 353. By pressing the button 312 the end of the button slides on an eyelet 354,  
25 causing the rotation of the angle 351 around the point 352 and therefore causing a translation of the tooth 310 in the direction of figure 18. When the button is released, the spring 350 takes the tooth again to the initial position.

30 A variant is further described in the figures attached from 18 to 20. This solution is substantially identical to the one described in the preceding figures from 15 to 17, except for the fact that the hooking/unhooking buttons 312' of the box are now arranged

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on the cover itself and control the teeth 310', now arranged on the box 301. To that aim, the button 312' activates a piston that grips the angle 351, which is arranged now in the box 301.

5           This variant has the advantage of eliminating any mechanism from the body of the tile, therefore reducing or even eliminating the risk of breakdowns and replacement thereof. Once it has been fixed to the wall, there is no more risk of having to remove it for a repair  
10 intervention.

A further variant is described in figure 22. This solution has a different and simplified unhooking system of the box 301 and is operated through a button 322' that is inserted inside the box itself, therefore  
15 unconstraining itself from the external wall of the tile. The button 322' is provided with a return spring that takes it again in position and the underlying springs 800 push the box towards the outside of the seat when the button 322', precisely, is completely inside the box.

20           In all the configurations of the invention described it is possible to foresee, in the seat 4 or applied externally, further perfume sprayers and timed vaporizers.

In all the configurations described of the invention, it is also possible to integrate electrical  
25 resistances which heat the perfume cartridges and favor the diffusion of the fragrance in the rooms.

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CLAIMS

1. A building tile (1) **characterized in that** it comprises  
5 an excavation (4) obtained through its thickness (2)  
and that forms a receiving seat (4), the receiving  
seat (4) holding, in a removable manner, one or more  
diffusion elements of fragrance (5; 300, 301; 500).
- 10 2. A building tile (1), according to claim 1, wherein a  
cover (3) is foreseen to close the seat (4), said  
cover being selectively removable, in such a way as to  
allow to insert inside the seat said one or more  
diffusion elements of fragrance (5; 500), and  
15 subsequently applicable to close said seat (4).
3. A building tile (1), according to claim 1 or 2,  
wherein a diffusion element of fragrance (5; 500) is  
foreseen, at choice in the form of:
- 20 - Box-like cartridge (5), which is applied directly  
to the seat (4) in an exchangeable manner;  
- Free perfuming material (500) placed directly  
inside the seat (4).
- 25 4. A building tile (1), according to claim 3, wherein in  
case of a cartridge, it has such a size as to be  
inserted in the receiving seat (4), at choice:
- With a pre-determined degree of mechanical  
interference;
- 30 - By means of magnetic elements;  
- A combination of mechanical interference and  
magnetic elements.
5. A building tile (1), according to claim 3 or 4,

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wherein the cartridge (5) contains inside the perfuming material (500) and has an external surface at least partially perforated to allow the diffusion of the fragrance.

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6. A building tile (1), according to one or more of claims from 2 to 5, wherein said cover is transpiring to the fragrance and, preferably, perforated to allow the perspiration of the perfumed essence.

10

7. A building tile (1), according to one or more of the preceding claims from 2 to 6, wherein the cover (3) foresees one or more legs (6) that are inserted in receiving seats (6') found in the surface (2) and through which the cover is fixed to the tile.

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8. A building tile (1), according to one or more of claims from 2 to 6, wherein the cover (3) is hinged to the surface (2).

20

9. A building tile (1), according to one or more of claims from 2 to 6, wherein the cover (3) is assembled slidingly in a parallel manner with respect to the surface (2).

25

10. A building tile (1), according to one or more of claims from 2 to 6, wherein one or more magnetic elements are foreseen to allow the application of the cover (3) on the surface (2).

30

11. A building tile (1), according to one or more of the preceding claims, wherein the diffusion element of fragrance (300, 301) comprises a box-like element (301) closed by a removable cover (300), the box

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element being able to contain essences.

5 **12.** A building tile (1), according to claim 11, wherein the seat (4) foresees one or more teeth (311) elastically retractable/extractable to engage with the box-like element (301).

10 **13.** A building tile (1), according to claim 12, wherein means (312, 350, 354) are foreseen to control the retraction of the tooth (311) and allow the removal of the box-like element.

**14.** A building tile (1), according to claim 13, wherein said means (312, 350, 354) comprise:  
15 - A button (312) connected to the tooth (310) through an angle (351) interposed between tooth and button;  
- A spring (350) fixed to an end and fixed by the opposite end to the angle (351);  
- The angle being contextually hinged to a fixed  
20 point (352) and hinged to the tooth (310).

**15.** A building tile (1), according to claim 14, wherein the button is connected in a sliding manner to an eyelet (354) of the angle.  
25

**16.** A perfuming cartridge (5) **characterized in that** it is configured to release a perfumed essence in the room and to result applicable in an exchangeable manner to a tile, as per one or more of the preceding claims  
30 from 1 to 15.

**17.** A perfuming cartridge (5), according to claim 16, wherein the cartridge is openable in such a way as to realize an access inside it for the change of the

perfuming material (500) contained.

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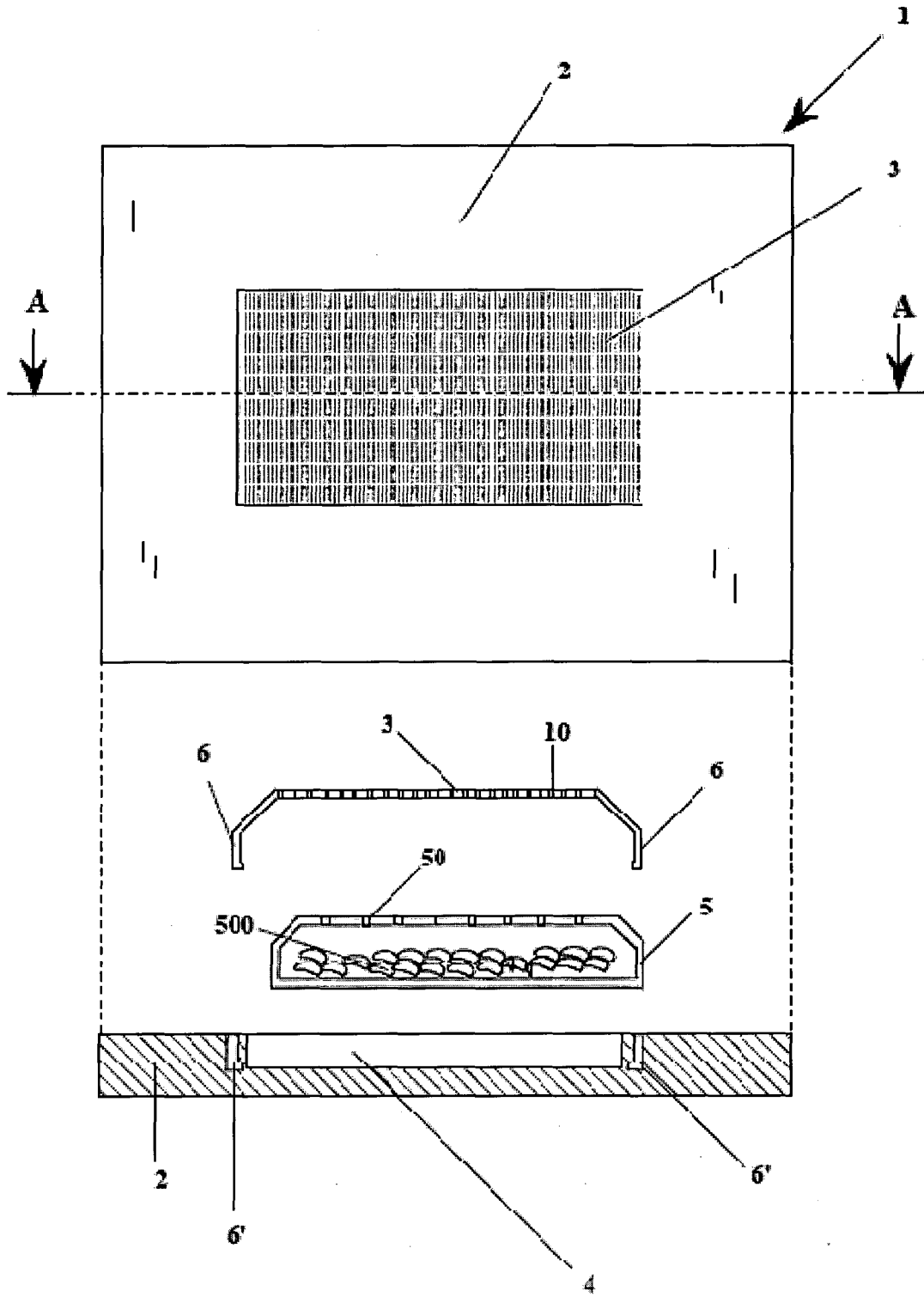
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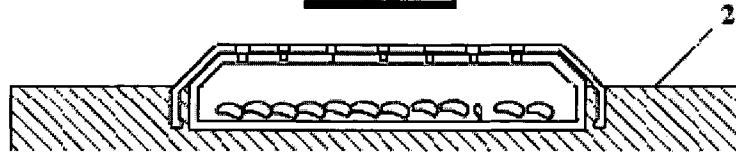
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**Fig. 1**



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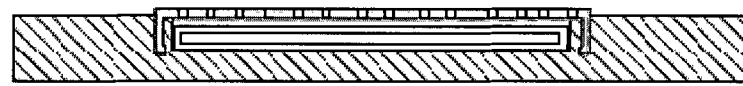
**Fig. 2**



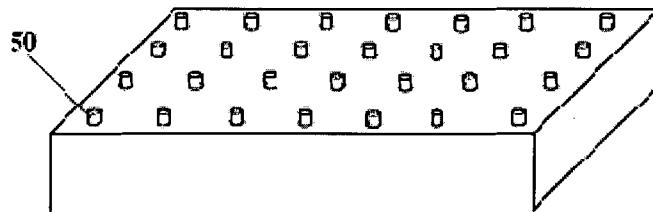
**Fig. 3**



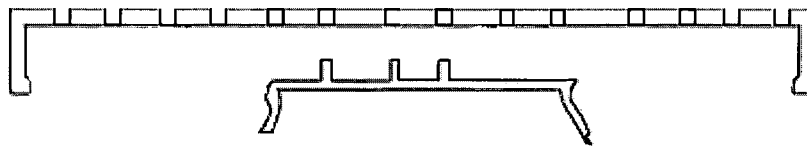
**Fig. 4**



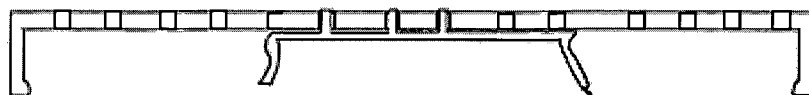
**Fig. 5**



**Fig. 6**

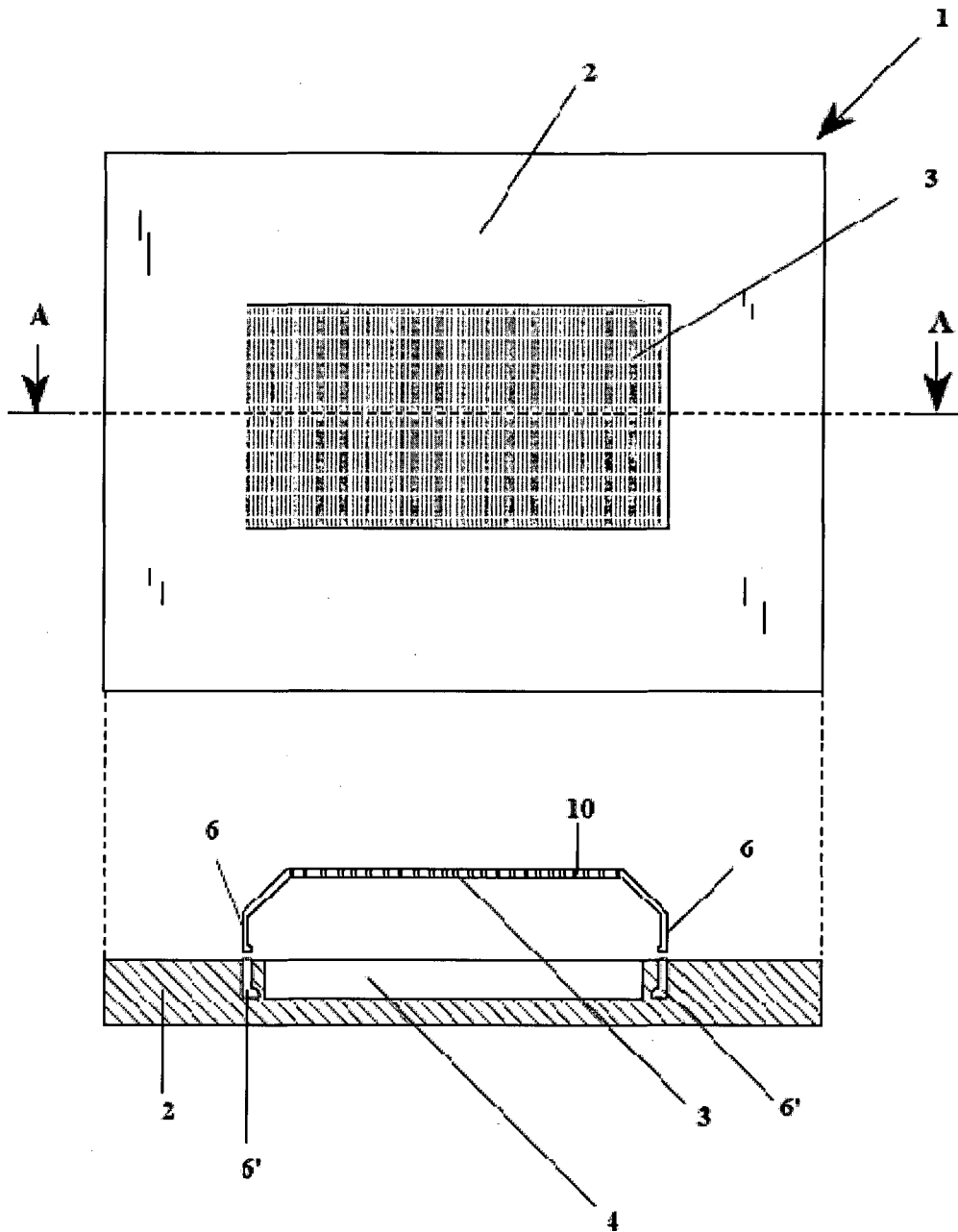


**Fig. 7**



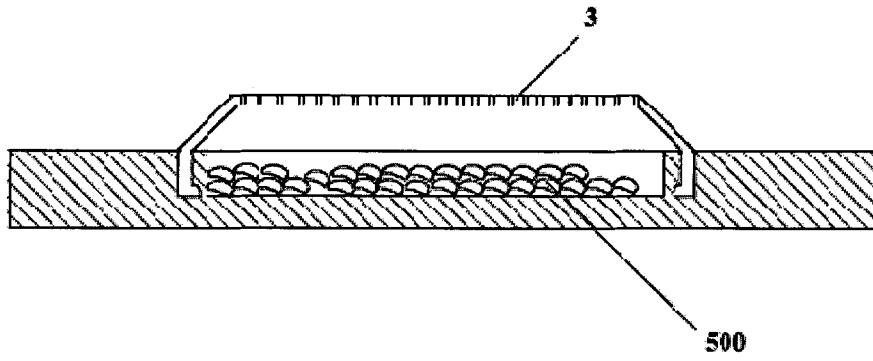


**Fig. 8**

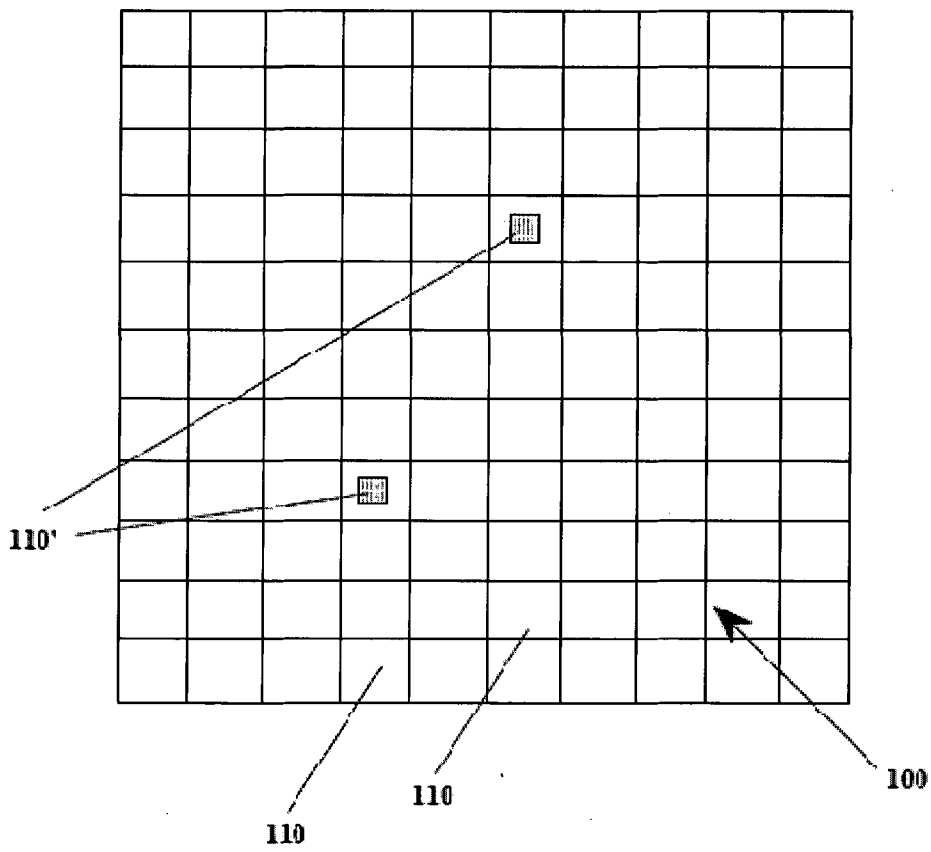


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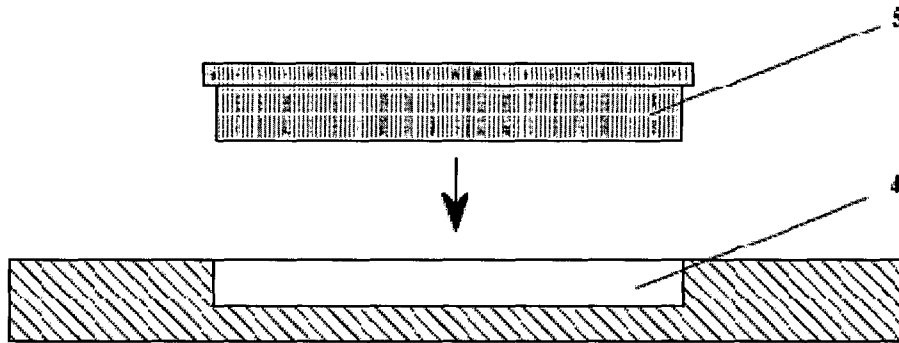
**Fig. 9**



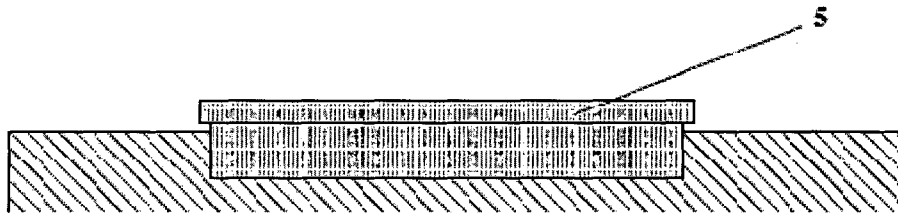
**Fig. 10**



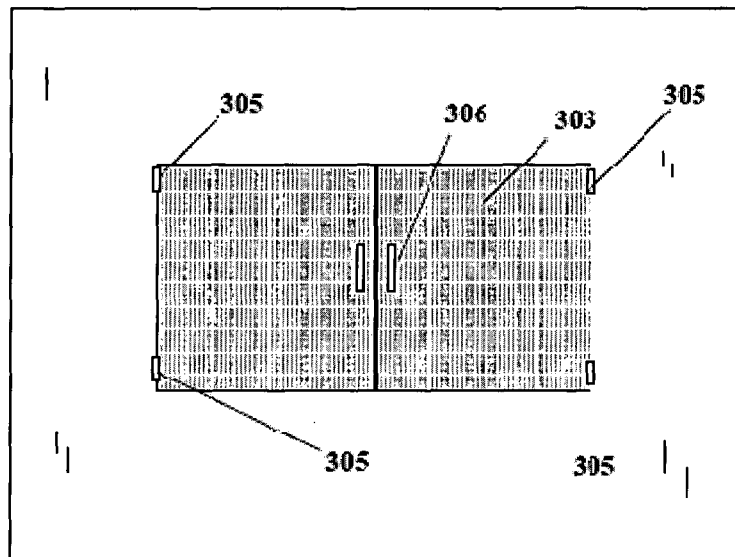
**Fig. 11**



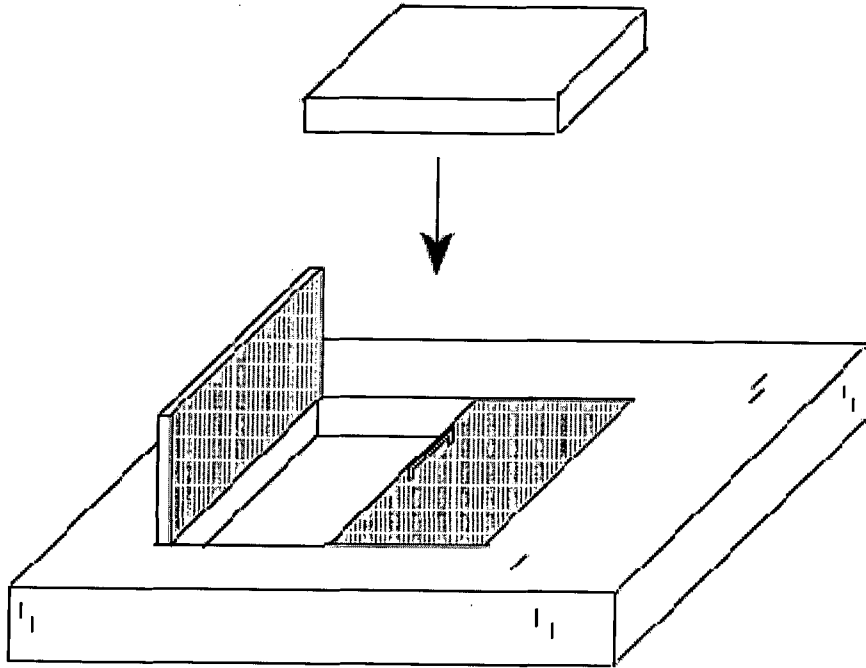
**Fig. 12**



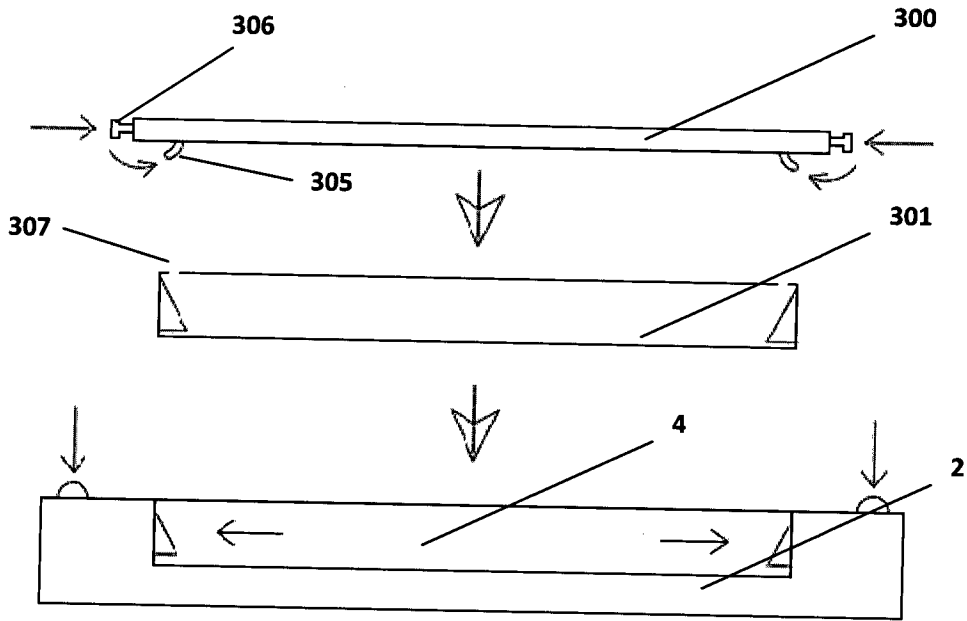
**Fig. 13**



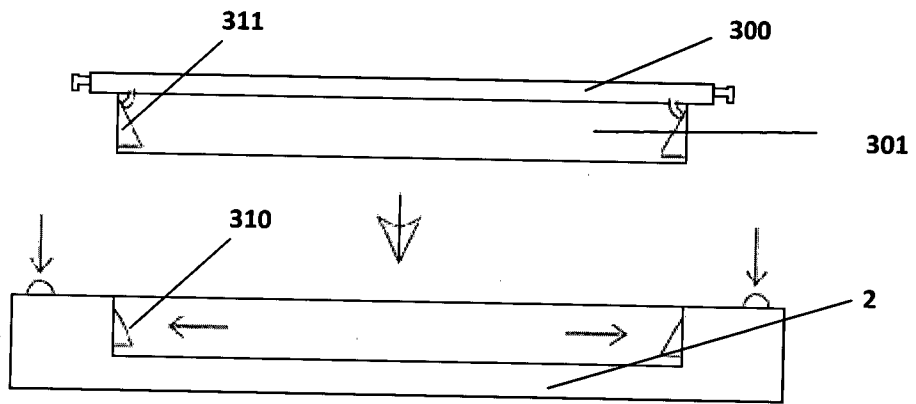
**Fig. 14**



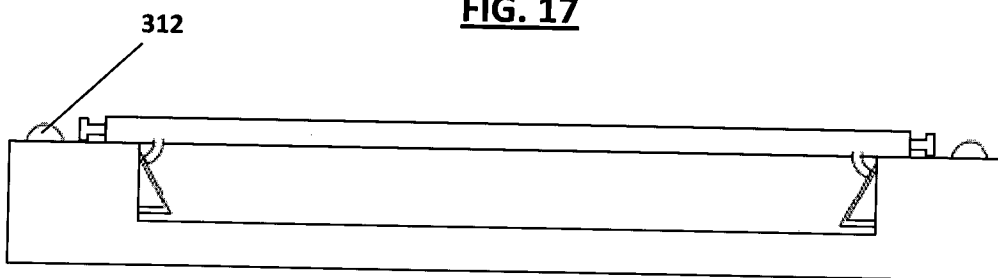
**FIG. 15**



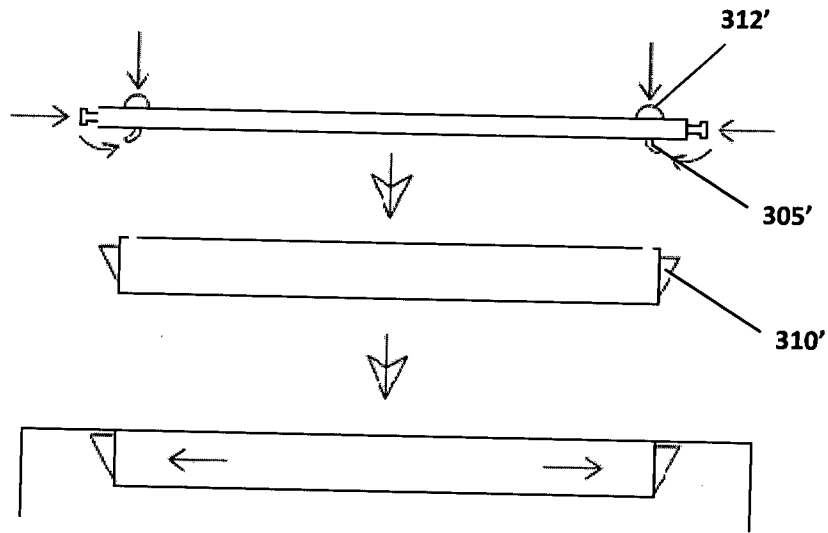
**FIG. 16**



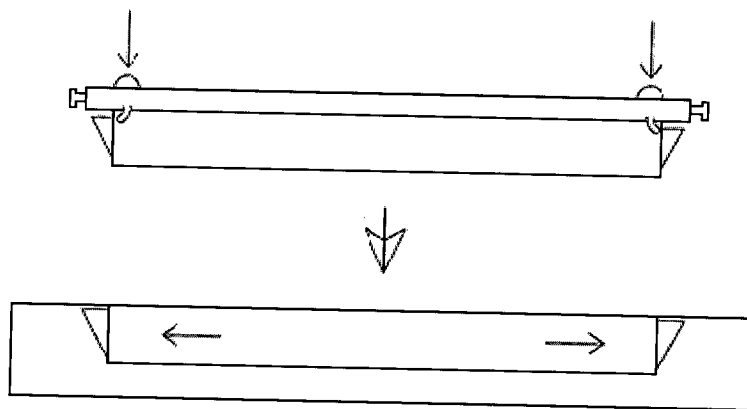
**FIG. 17**



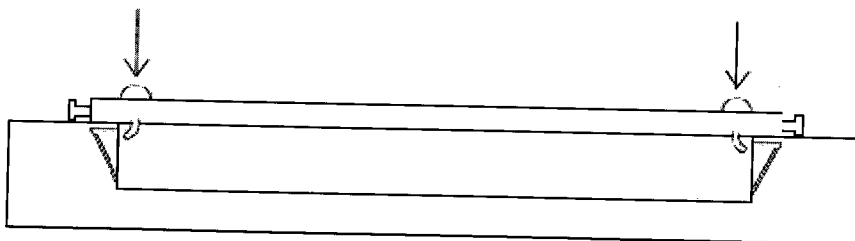
**FIG. 18**



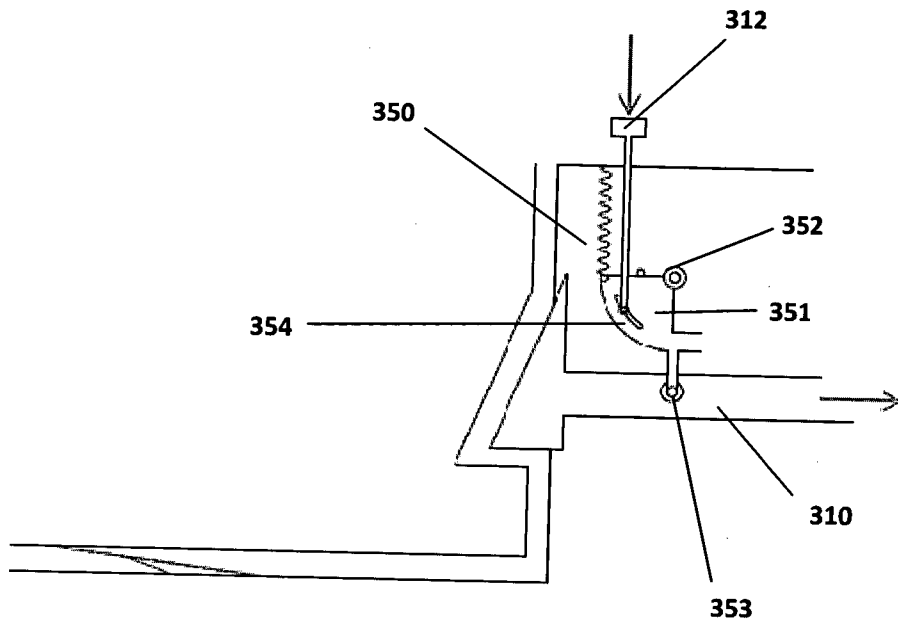
**FIG. 19**



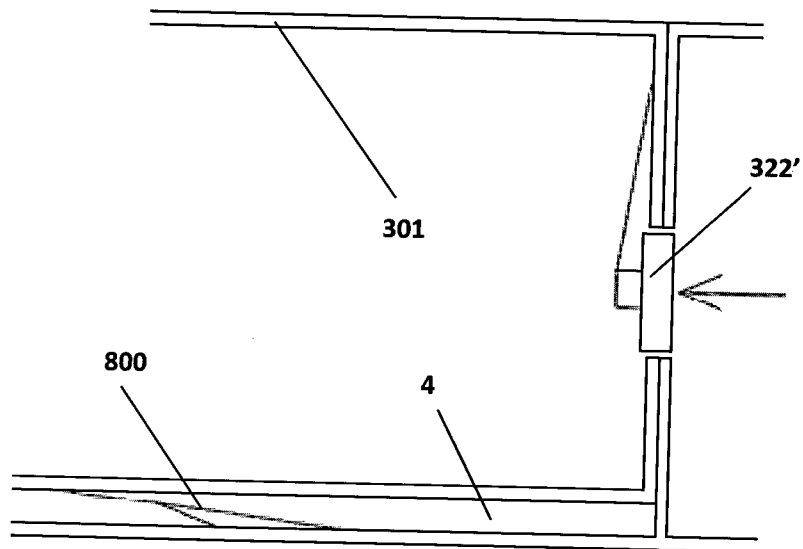
**FIG. 20**



**FIG. 21**



**FIG. 22**



**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/IB2012/054763

A. CLASSIFICATION OF SUBJECT MATTER  
INV. A61L9/12 E04D1/00 E04F15/00  
ADD.  
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED  
Minimum documentation searched (classification system followed by classification symbols)  
A61L E04D E04F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                        | Relevant to claim No. |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X         | US 4 824 707 A (SPECTOR DONALD [US])<br>25 April 1989 (1989-04-25)<br>column 3, line 48 - line 56; figure 2<br>claims 5,6<br>-----                                                                        | 1-6,8,9,<br>11        |
| X         | DATABASE WPI<br>Week 200866<br>Thomson Scientific, London, GB;<br>AN 2008-L15390<br>XP002670014,<br>& CN 101 081 386 A (NANSHENG PLASTIC IND<br>CO LTD) 5 December 2007 (2007-12-05)<br>abstract<br>----- | 1                     |
| A         | US 4 720 409 A (SPECTOR DONALD [US])<br>19 January 1988 (1988-01-19)<br>column 3, line 35 - line 45; figure 3<br>-----<br>-/--                                                                            | 1                     |

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

|                                                                                   |                                                                      |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Date of the actual completion of the international search<br><br>21 November 2012 | Date of mailing of the international search report<br><br>11/02/2013 |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------|

|                                                                                                                                                                      |                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Name and mailing address of the ISA/<br>European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040,<br>Fax: (+31-70) 340-3016 | Authorized officer<br><br>Fischer, Michael |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|



# INTERNATIONAL SEARCH REPORT

International application No  
PCT/IB2012/054763

| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |                                                                                                       |                       |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------|
| Category*                                            | Citation of document, with indication, where appropriate, of the relevant passages                    | Relevant to claim No. |
| A                                                    | US 4 696 844 A (SPECTOR DONALD [US])<br>29 September 1987 (1987-09-29)<br>abstract; figure 1<br>----- | 1                     |

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2012/054763

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-15

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-15

A building tile characterized in that it comprises an excavation obtained through its thickness and that forms a receiving seat, the receiving seat holding, in a removable manner, one or more diffusion elements of fragrance.

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2. claims: 16, 17

Fragrant cartridge for releasing a perfumed essence and to be applicable in an exchangeable manner to a tile according to invention 1.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2012/054763

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|----------------------------------------|------------------|-------------------------|------------------|
| US 4824707                             | A                | 25-04-1989              | NONE             |
| -----                                  |                  |                         |                  |
| CN 101081386                           | A                | 05-12-2007              | NONE             |
| -----                                  |                  |                         |                  |
| US 4720409                             | A                | 19-01-1988              | NONE             |
| -----                                  |                  |                         |                  |
| US 4696844                             | A                | 29-09-1987              | NONE             |
| -----                                  |                  |                         |                  |