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(71) Applicant: **PROTOCAS3D, S.L.U.**
12006 Castellon Castellon de la Plana (ES)

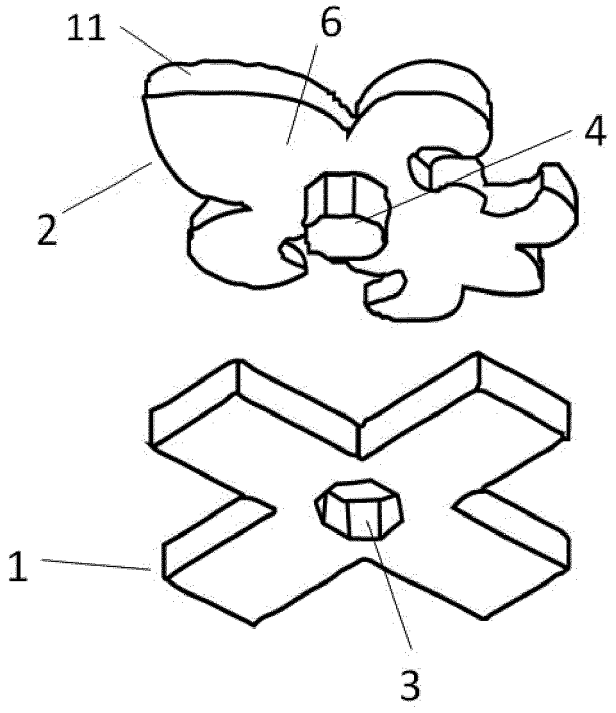
(72) Inventor: **Güimil Vazquez, David**
12006 Castellón (ES)

(74) Representative: **Soler Lerma, Santiago**
Vitoria de Lerma Asociados
International Department
C/Poeta Querol nº 1 pta 10
46002 Valencia (ES)

(54) **IMPROVED FASTENING DEVICE**

(57) The device object of this invention comprises a crosspiece (1) that is intended to remain integrated into the building works and which has a double use, since on the one hand it performs the usual function of crosspieces, contributing to maintain the distance between tiles and aiding in their alignment, and on the other hand, due to the possibility of incorporate an external element (2), it allows providing the tiled surface with a decorative or functional finish without having to drill the tiles that are covering such surface. To do this it comprises a base that remains attached to the building work and an outer body that incorporates the decorative or functional element, such base and body being joined by the same geometry of a pedestal (4) joined to the outer body and an opening provided in the base.

FIG. 1



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Description

[0001] This invention, as the name implies, relates to a fastening device comprising a crosspiece that is suitable for aligning and separating tiles from one other in the tiling of surfaces, especially walls and floors.

[0002] The device object of this invention comprises a crosspiece that has a double use, since on the one hand it performs the usual function of crosspieces, contributing to maintain the distance between tiles and aiding in their alignment, and on the other hand, due to the possibility of incorporating an external element, it allows providing the tiled surface with a decorative or functional finish without having to drill the tiles that are covering such surface.

[0003] Of the functional elements that can be incorporated we can highlight non-slip elements, elements for lighting, electricity transmission or any others. In another use of the device, the covered surface is simply provided with a decorative finish.

[0004] The field of the art to which it belongs is that of construction parts.

BACKGROUND OF THE INVENTION

[0005] It has always been preferable to avoid drilling holes in ceramic or stoneware tiles since on the one hand there is a risk of breaking or loss of enamel from the drilling operation, and on the other hand the structure of the ceramic or stoneware tile is weakened, making it more fragile against blows or loads and on the other hand, once the hole has been made, even if later filled with sealant, the mark will remain visible for the entire life of the tile, in contrast to holes made on masonry, which can be covered with sealant and be hidden by painting over them.

[0006] With this invention we intend a device which, making use of the joints existing between the tiles, allows providing the tiled surface with decorative or functional elements.

[0007] To do this, the device proposed comprises a suitable part to be inserted in the spaces between the tiles during their installation, performing a double function, since it contributes to separating and aligning contiguous tiles and also favours the incorporation of a decorative or functional element.

[0008] Crosspieces as an element for aligning tiles and maintaining the distance between contiguous tiles during building operations have been known since time immemorial.

[0009] These devices comprise a series of radial elongations, where it is very common that they comprise four elongations that start from a central point and are arranged at 90º angles with respect to one another such that when placed in the meeting point of four tiles, the corners of the tiles that are closest to one another are housed in each of the spaces defined between each two elongations of the crosspiece.

[0010] There are other types of crosspieces, and so we find the T-shaped crosspiece if only two tiles converge or the Y-shaped crosspiece if three tiles converge, and thus infinite shapes according to the number of tiles and the angles they form.

[0011] The space that will remain between the contiguous tiles separated by the crosspiece will correspond to the width of the aforementioned elongations. There are multiple crosspieces in the market, the most common of which are those whose elongations exhibit a width between 1mm and 10mm.

[0012] One embodiment chooses the crosspiece to remain permanently in the building, covered by joining or filling material, whereas in other cases crosspieces have been designed with insertions that allow them to be removed once they have fulfilled their mission of separating and aligning the tiles.

[0013] One example of a conventional crosspiece can be found in Spanish utility model ES1032795U, which describes a crosspiece the structure of which has a body in a general cross configuration, the arms of which, having any geometry, constitute separators between the tiling plates.

[0014] There are several examples of crosspieces that incorporate means for their handling and/or removal.

[0015] Accordingly, U.S. Patent US4793068 relates to a crosspiece comprising a rod that is perpendicular to the elongations and adequate for facilitating the removal thereof.

[0016] U.S. Patent US5359783 also discloses a crosspiece that is apparently adequate for different tile sizes and which incorporates a rod, also perpendicular to the elongations and the purpose of which is to facilitate the operations of installing and removing the crosspieces.

[0017] Spanish utility model ES1015211U has as its object a crosspiece provided with a handle such that as the installation proceeds the crosspiece is removed in order to be used on the following tile to be installed.

[0018] U.S. Patent US2012198789 is an example of several improvements that have been introduced in crosspieces, although it is totally unrelated to that which is the subject matter of the present invention. In said Patent the crosspiece exhibits in its lower section a surface with a series of vertical walls such that it also achieves the superficial alignment of the tiles.

[0019] Another patent regarding a crosspiece to which means have been incorporated to facilitate its handling and removal is U.S. Patent US20030126815, such means being in this case a ring or thimble.

[0020] From all the above we can deduce that in crosspieces that are going to be used as spacers during installation of the tiles but which shall later be removed it is not rare to find elongations serving as handles or grips to facilitate their removal once the tiles have been set.

[0021] However, we have not found any crosspieces of the kind intended to remain integrated in the building and having the double function of spacing and serving as a base for decorative or functional elements.

DESCRIPTION OF THE INVENTION

[0022] The invention proposed relates to a device comprising a crosspiece of the type that remain integrated permanently in the building work, to which a decorative or functional element is joined.

[0023] It thus incorporates in the surface covered by the tiles an added decorative or functional element that makes use of the joints between the tiles in order to remain fixed to the wall by its base and at the same time can be used to align and separate contiguous tiles.

[0024] The device comprises:

1. A base comprising a series of elongations, preferably radial at least at their origin, from a central point.
2. A body comprising:

    a. A pedestal
    b. an outer block, such outer block being seated upon the pedestal.

[0025] In one possible simple implementation, the base and the body are solidly connected, the pedestal being included either differentiated or undifferentiated in the base. It would be assumed that such base/pedestal would have the shape of a crosspiece. In this implementation, the change in the body will also involve the substitution of the base, which is why this is not contemplated as a preferred embodiment but is mentioned as an option and example.

[0026] In any other implementation the body can be separated from the base, the base and the pedestal being perfectly differentiated.

[0027] The base is housed in the space existing between the tiles, preferably in a fixed manner.

[0028] The width of the elongations shall define the separation between contiguous tiles.

[0029] The height of the elongations shall be preferably equal or less than the thickness of the contiguous tiles.

[0030] These elongations may adopt several geometries or be made in different materials.

[0031] The outer block is permanently joined to the pedestal and the pedestal in turn is joined to the base in a permanent or removable manner.

[0032] The body can have a merely decorative use or it may add a use to the tiled surface.

[0033] In its decorative capacity the body can provide an aesthetic finish to the tile joints as well as, for example, contributing to hiding a corner of a tile that might have been chipped during transport or handling, thus obtaining less waste of ceramic material.

[0034] In its simplest functional capacity the body may incorporate for example a hanger, reflective or non-slip material, an air freshener or shock absorbing material amongst others, or even a handle to facilitate tile alignment operations, after which the handle may be removed, leaving the base inserted in the building work.

[0035] In a more complex functional variant, the body may incorporate light, for which the base must allow the relevant electrical installation.

[0036] As can be seen, there are several applications, such that this device prevents the need of drilling the tiles in order to provide the wall with any of the aforementioned functionalities or decorations.

[0037] The body and the base can be joined permanently via the pedestal or via a removable joint, preferably via geometry and pressure or by a clip, although we do not rule out any other type of joints such as a magnetic joint, for example.

[0038] In a preferred implementation the block and the pedestal are part of the body, whereas the base is separate from them such that the body can be easily replaced at the user's will, without requiring any type of building work.

[0039] In order to favour the hold of the base to the building work it is recommended that the base has recesses in the area related to the works, such recesses to be understood as a geometry presenting additional gripping surfaces that can be covered by joining material to the building work such as a dovetail, slots, grooves, openings or roughness, amongst others.

BRIEF DESCRIPTION OF THE DRAWINGS

[0040]

Figure 1 shows an exploded view of the device comprising a base (1) that is the crosspiece itself and a body (2), which in this case is decorative and comprising a block (11) and an octagonal pedestal (4) such that the block (11) shows here its lower side (6), showing that the base has an octagonal hole (3) that is suitable for insertion of the pedestal (4) existing in the lower section of the block and which is shown here with a lug shape.

Figure 2 shows an implementation of the device identical to that of Figure 1, also in exploded view but now showing the visible side (5) of the block (11).

Figure 3 shows an implementation, also decorative, showing devices, one showing the lower side of the block and the other showing the visible side thereof.

Figure 4 shows an exploded view of a different implementation of the device, in this case a functional implementation wherein the body (2) comprises a hook (7) and the base (1) is located amongst a series of tiles (8), not shown in their entirety but only partially, which shall adjust their geometry to the geometry of the base in order to remain, in this position, joined to the building work together with the base, and wherein the base exhibits an octagonal orifice (3) that is suitable for housing the octagonal pedestal (4).

Figure 5 shows a different implementation and thus the body (2) exhibits a ring-shaped outer block (12) and a blade-shaped pedestal (9) that is suitable for insertion in a blade-shaped hole (10) present in the base (1).

Figure 6 shows an implementation, similar to that of Figure 5 wherein the body comprises a blade-shaped pedestal that would work both for its fastening to a base such as that shown in Figure 5 or rather such that said pedestal remains directly integrated in the building works, this implementation being one of those possible.

Figure 7 shows a photograph of a series of decorative devices fastened to a surface covered with tiles.

Figure 8 shows an implementation wherein there is a hollow base (14) that allows the passage of installations, for example wiring, such that they can be coupled thereto, for example guides for LED lights (13).

Figure 9 shows an example of a base that has a channel-shaped recess (15) which, when filled with fastening material, favours and reinforces the joint between the base and the building work.

Figure 10 shows different examples of recesses, showing a recess made in an intermediate point (16) of the elongation or a recess made on the end of the elongation that can be greater (17) or smaller (18), as well as openings provided on the sides (19).

DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

[0041] We shall now describe an embodiment of the invention that is not limiting but explanatory.

[0042] The fastening device comprises:

1. A base (1) comprising:

    a. Four coplanar arms arranged at right angles to one another.
    b. An octagonal opening.

2. A body (2) comprising:

    a. An outer block (11)
    b. An octagonal pedestal (4)

Wherein the width of the arms defines the separation between contiguous tiles and remains integrated in the building works between the tiles (8) that it separates.

[0043] The pedestal is octagonal (4) and suitable to be inserted in a tight manner into an octagonal opening (3) present in the base (1).

[0044] The body (2) comprises the octagonal pedestal (4) and the outer block (11) permanently united, the octagonal pedestal (4) being intended to be inserted into the base (1) and thus remaining united, by pressure, in a solid but removable manner.

[0045] The base remains permanently joined to the building work, such union being favoured by a series of recesses (15) made on the sides of the base; however the body, since it is fixed by pressure and geometry, is removable, which allows the user to change it at will.

[0046] Another example of an embodiment of the invention is a hollow base that allows the installation of connections such as electric wiring such that bodies can be incorporated thereto the outer block of which comprises an LED light.

Claims

1. A FASTENING DEVICE intended to be installed between ceramic or flooring tiles of tiled surfaces that is partially permanently integrated into the building work **characterised in that** it comprises:

    1. A base (1) comprising a series of radial elongations and at least one opening (3) on its upper side.
    2. A body (2) comprising:

        a. A pedestal (4)
        b. an outer block (11), such outer block being seated upon the pedestal.

2. A FASTENING DEVICE according to Claim 1 **characterised in that** the geometry of the outer perimeter of the pedestal (4) coincides with the internal geometry of the opening (3).

3. A FASTENING DEVICE according to Claim 1 **characterised in that** the height of the elongations of the base is equal to or less than the thickness of the tiles contiguous to it.

4. A FASTENING DEVICE according to Claim 1 **characterised in that** the element that remains permanently integrated in the building work is the base.

5. A FASTENING DEVICE according to Claim 1 **characterised in that** the base comprises electrical connections.

6. A FASTENING DEVICE according to Claim 1 **characterised in that** the body and the base are solidly joined to one another, the pedestal being integrated in the base.

7. A FASTENING DEVICE according to Claim 1 **characterised in that** the base comprises, in the area

related to the building works, at least one hollow.

FIG. 1

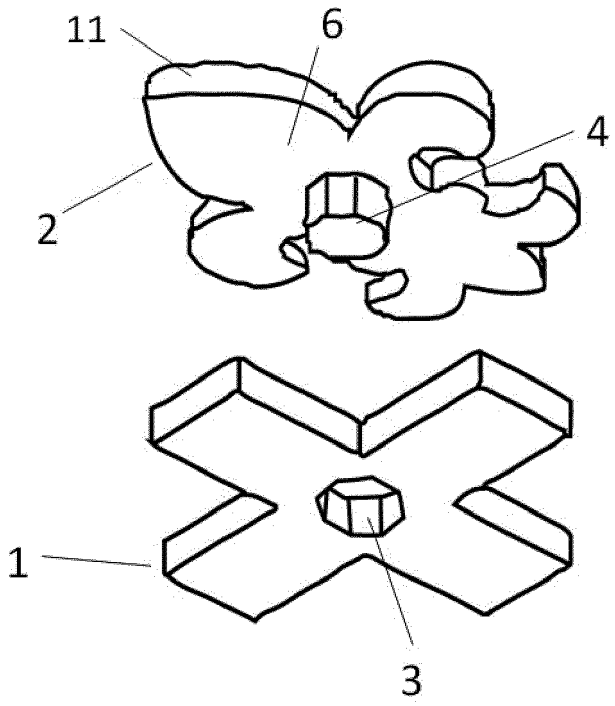


FIG.2

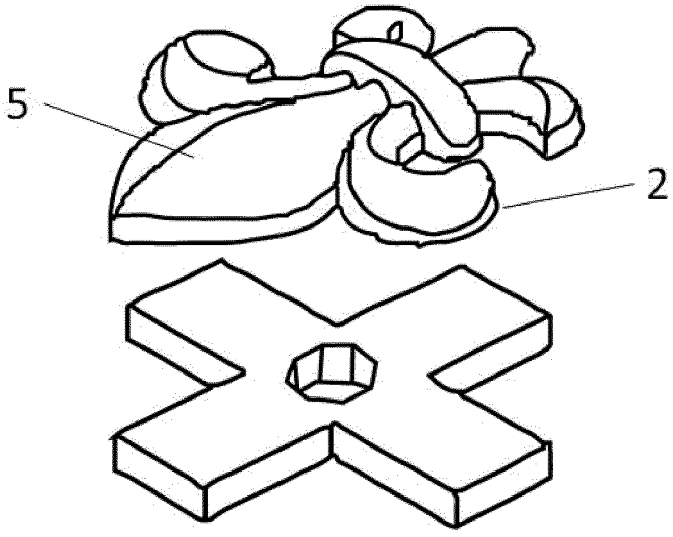


FIG.3

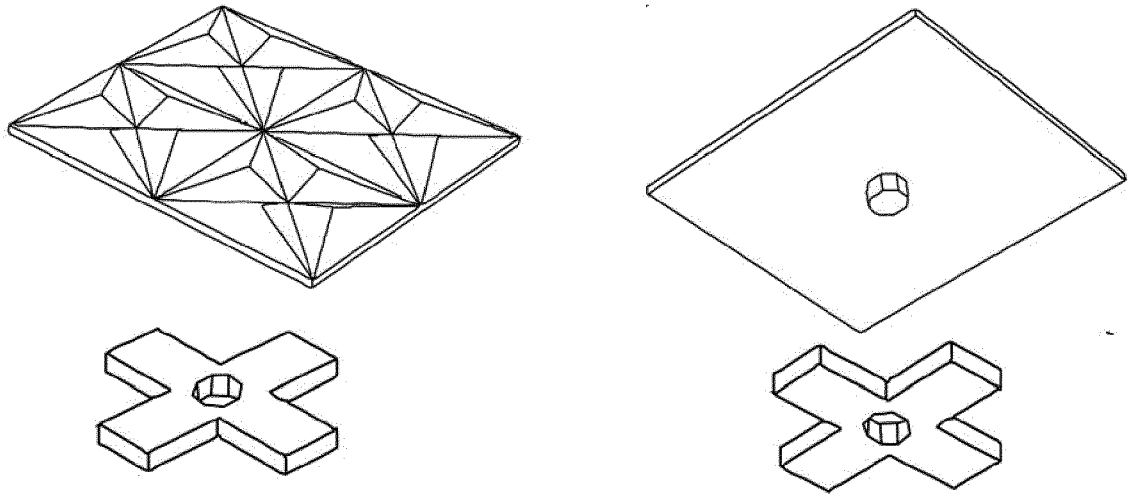


FIG.4

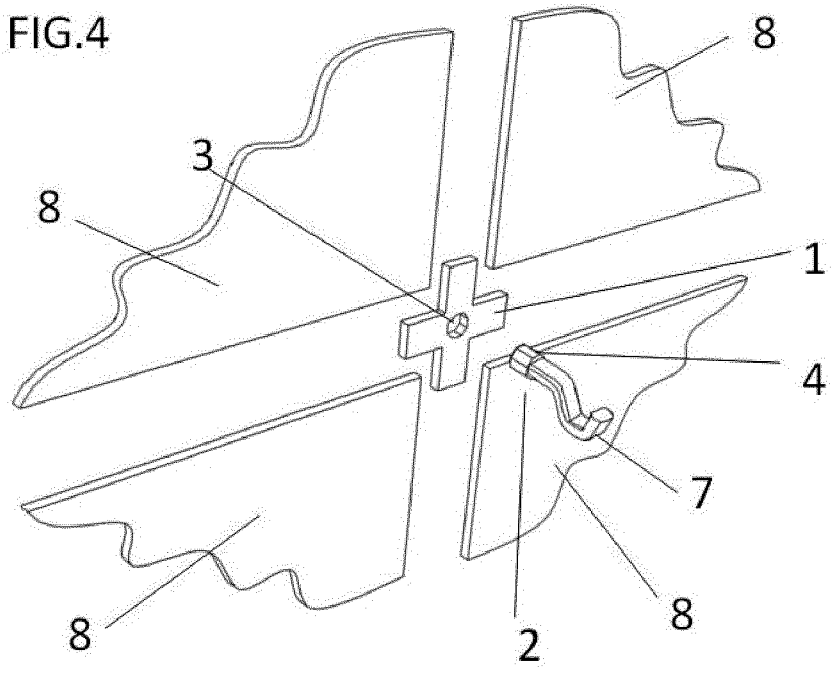


FIG.5

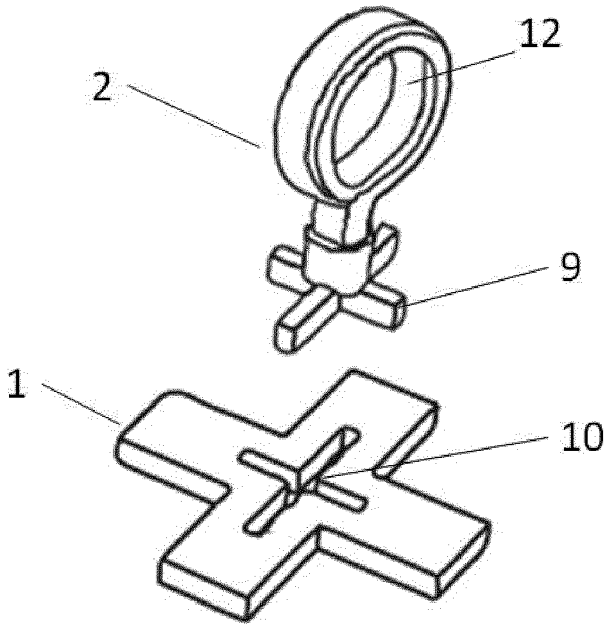


FIG.6

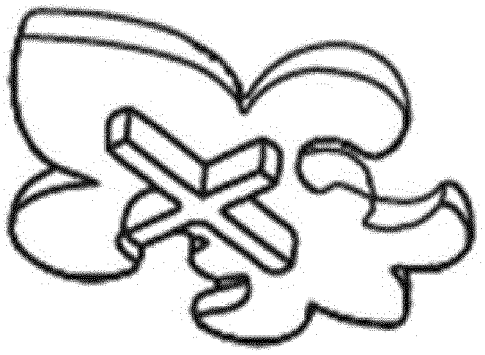


FIG.7

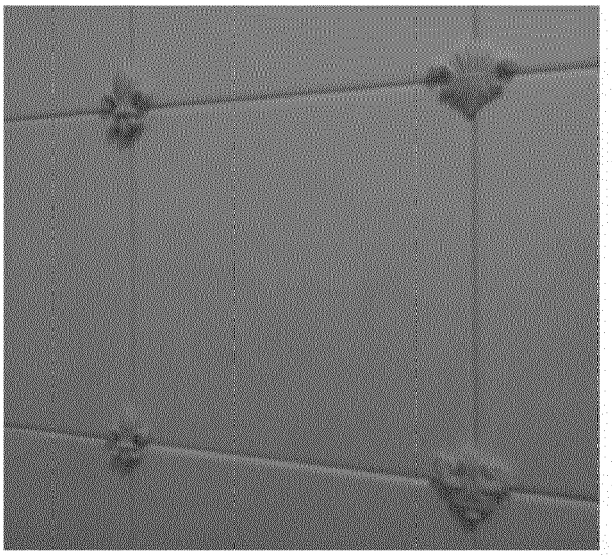


FIG.8

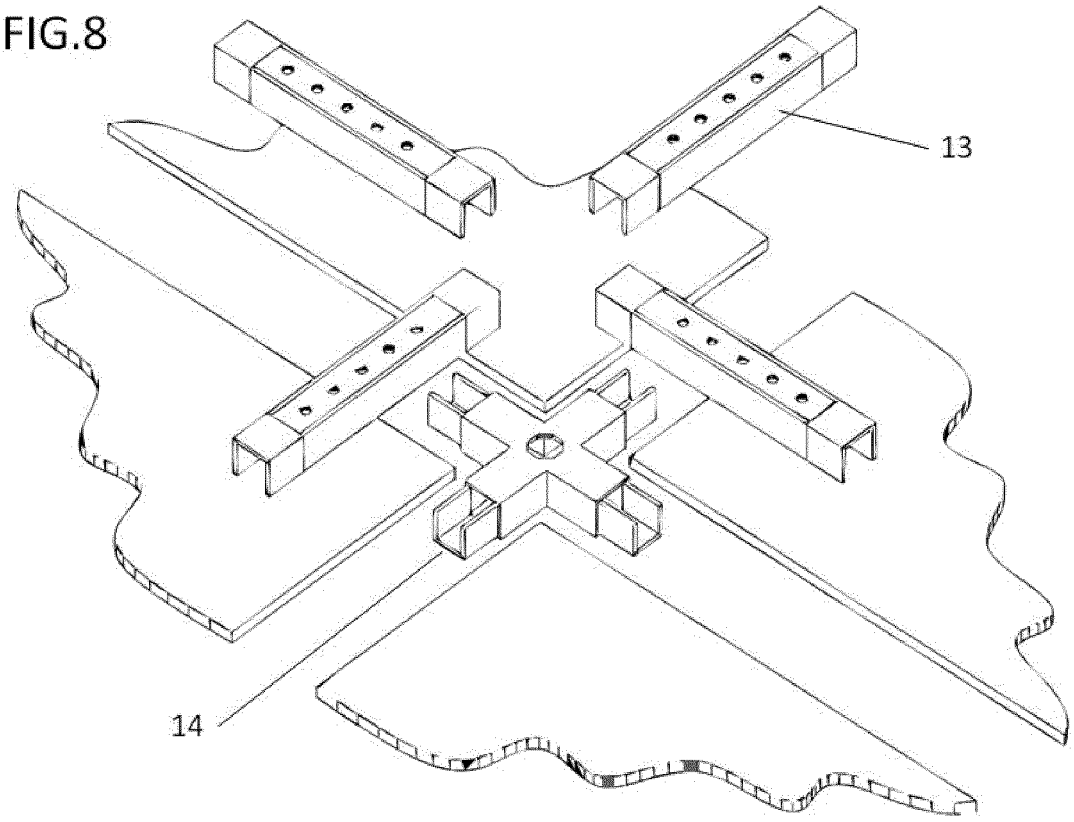


FIG.9

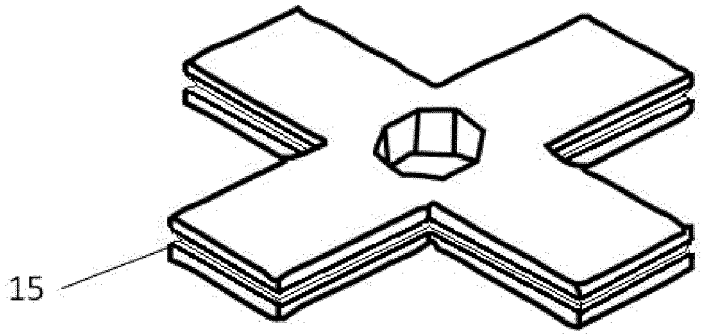
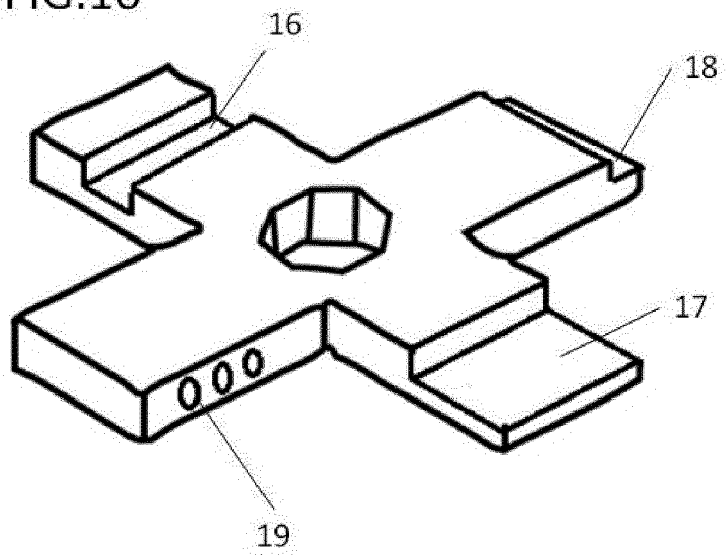


FIG.10



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EUROPEAN SEARCH REPORT

Application Number
EP 16 16 4985

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	22 September 2016	Bourgoin, J

CATEGORY OF CITED DOCUMENTS

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