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(54) **A SPACER ELEMENT FOR FLAT ELEMENTS, SUCH AS SLABS, TILES AND THE LIKE.**

ABSTANDSELEMENT FÜR FLACHE ELEMENTE, WIE ZUM BEISPIEL PLATTEN, KACHELN UND DERGLEICHEN

ÉLÉMENT D'ESPACEMENT POUR ÉLÉMENTS PLATS, TELS QUE DES DALLES, DES CARREAUX ET AUTRES DU MÊME GENRE

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Description

Technical Field

[0001] The invention relates to a spacer element for fixing slabs and the like. In particular, the invention relates to spacers normally used in laying slab coverings, such as for example ceramic tiles, glass panes and the like.

Background Art

[0002] In the laying of ceramic tiles spacers are mainly used which have the function of creating separation lines between the tiles. The market offers cross-shaped elements having a determined number of arms. A spacer is positioned at the corners of each tile so that the arms of the spacer are interpositioned between two tiles located side-by-side. The interpositioning of the spacer arms enables space-lines to be made which are at least as wide as the arms. The spacers can be sunk into the grout filling the lines or can be removed after the grout has hardened to a sufficient extent.

[0003] Known-type spacers have some drawbacks. Firstly, they have a stable shape and are therefore suited to a determined type of laying of the tiles (or slabs in general). These known-type spacers, once more because of their stable shape, are not suitable for laying slabs not having regular shapes, in particular slabs of different shapes, laid in irregular patterns.

[0004] The main aim of the present invention is to provide a spacer which overcomes the drawbacks in the known-type spacers. This aim is attained by the spacer element of the first claim. The spacer enables slabs of various forms to be laid, in patterns which are also various, while maintaining constant-width lines between the slab elements.

[0005] In an especially advantageous preferred embodiment, the spacer of the present invention can be usefully employed for fixing the slabs to a support structure.

[0006] Various devices for fixing slabs to support structures are known in the prior art. All the known device exhibit characteristics which are susceptible to improvement.

[0007] A first type of fixture device is constituted by usually C-shaped hook elements, predisposed to hook to edges of the slabs in order in turn to be fixed to a support structure. The devices of this type exhibit the advantage of not requiring any working of the slabs, but are exclusively suitable for fixing square slabs. In order to fix a slab, at least eight fixing elements (two for each side) are needed, leading to rather long and laborious mounting operations. A second type of fixing device comprises shaped elements which are anchored to the slabs before being fixed to a support structure. Although this type of device exhibits the advantage of being usable with slabs of any shape, it is also true that the anchoring of the shaped elements to the slabs required working on the slabs, including possibly having to bore holes therein,

and/or sinking channels therein. These operations lead to a certain increase in slab production costs.

[0008] DE 3225651 discloses a connecting element, designed as a flat part, for establishing a panel bond. The element is intended to engage into slots provided in the edge faces of the panels.

[0009] EP 1431477 discloses a device for fixing cladding elements on a support structure. The device comprises a locking device connected to the support structure and having at least one first locking element that can removably engage with at least one second locking element arranged on the cladding element.

[0010] FR 2110097 discloses an element intended for fixing panels, particularly cladding panels or insulating panels, onto supporting surfaces.

[0011] The main aim of the present invention is to provide a spacer element which enables fixture of slabs to support structures in a way which obviates the drawbacks of known-type fixing devices. This aim is attained by the spacer element for fixing slabs according to the included claims.

Disclosure of Invention

[0012] Further characteristics and advantages of the present invention will better emerge from the detailed description made herein below with reference to the accompanying figures of the drawings, which are non-limiting and offered by way of example, and in which:

Figure 1 is a plan view of a background embodiment of a spacer element useful for understanding the invention;

Figure 2 is a section view of the element of figure 1, during use; 10

Figure 3 is a simplified plan view of the element of figure 2;

Figure 4 is a plan view of an embodiment of the spacer element of the present invention;

Figure 5 is a section view of the element of figure 4 in a use condition;

Figure 6 is a simplified plan view of the element of figure 5; 15

Figure 7 is a plan view of a further embodiment of the spacer element of the present invention;

Figure 8 is a section view of the element of figure 7 in a use condition;

Figure 9 is a simplified plan view of the element of figure 8.

[0013] With reference to the figures 1,2, and 3 of the drawings, a spacer for fastening flat elements such as slabs, tiles and the like, representing background art, comprises a plate 2 having a rest surface 2a predisposed for partially contacting one or more slabs 30. The spacer further comprises shaped appendages 3 associated to the plate 2. Each of the shaped appendages 3 is mobile with respect to the plate 2 between at least a first position,

in which it does not project with respect to the rest surface 2a and at least a second position in which it projects from the rest surface 2a in such a way as to be interplaceable between two slabs 30 positioned resting on the rest surface 2a.

[0014] The shaped appendages 3 are preferably arranged on a peripheral portion of the plate 2.

[0015] As can be seen in particular in figures 1 and 4, the plate 2 preferably exhibits a circular shape. The shaped appendages 3 are constituted by peripheral sectors of the plate 2, which appendages 3 are separated from one another by radially-developing cuts. The shaped appendages 3 are mobile with respect to the plate 2, preferably by plastic deformation in the joint areas between the shaped appendages 3 and the plate 2. In the first position the appendages 3 are co-planar to the rest surface 2a, so that the plate 2 is flat. In the second position the appendages 3 are bent in order to project with respect to the rest surface 2a at least by a portion thereof. In the second position of the shaped appendages 3, the edges of two slabs 30 can be positioned in contact with two opposite sides of the projecting portion, with respect to the rest surface 2a, of a shaped appendage 3, so that the two slabs 30 are spaced one from another by the projecting portion of the shaped appendage 3.

[0016] As can be seen in figures 2 and 5, some of the shaped appendages 3 are in the first position, while others are in the second position. The different positioning of the appendages 3 can be organised on the basis of the conformation and type of positioning of the slabs 30. In the case illustrated in figure 3, the slabs exhibit various and different shapes. This means that the separation lines 31 between the slabs 30 do not meet up at equal angles. Consequently the shaped appendages 3 indicated by 3a are brought into the second position in order each to be interlaced between two slabs 30 in order to account for the arrangement of the lines 31. At the opposite end of each line 31 a plate 2 as in figure 3 can be positioned, but with shaped appendages 3a in the second position which are different from those illustrated in figure 3, in order to take into account the various arrangements the lines 31 can exhibit at this position.

[0017] In the example illustrated in figure 6, the slabs 30 exhibit a quadrangular shape, and the lines 31 are arranged in right-angles. Therefore, for all the 5 plates 2 arranged at the ends of the lines 31, the shaped appendages 3a in the second position are separated by right angles. In figure 7 a plate 2 is illustrated having a shape that is suitable for quadrangular slabs 30. In this example only four shaped appendages 3 are present, separated by right-angles and delimited by shaped cuts developing not necessarily radially.

[0018] The spacer can be usefully applied for laying ceramic tiles. In a first embodiment the spacer is arranged on the tile laying plane, where the tiles are laid in positions which overlie at least partially the spacer element itself. Thereafter the grout is spread to fill the lines between the tiles. The spacer is consequently sunk into the grout. In

a second embodiment the tiles are laid in succession on the laying plane. The progressive laying of the tiles is added to by the use of one or more spacer, elements which are laid above the tiles already laid in order that the shaped appendages 3 arranged in the second position are applied at the edges of the already-laid tiles. The tiles to be laid are then brought up to the shaped appendages 3 arranged in the second position so that the predetermined lines are formed.

[0019] In the illustrated embodiments of the invention of figures 4 and 7, at least some of the shaped appendages 3 are advantageously provided with a hooking portion 4. The hooking portion 4 is predisposed to be positioned in contact with a front surface 30a of at least a slab 30 positioned in contact with the shaped appendage 3 to which the hooking portion 4 is associated. Each of the hooking portions 4 extends preferably in a transversal direction with respect to the shaped appendage 3 to which it is associated.

[0020] The function of the hooking portion 4, illustrated schematically in figures 5 and 8, is to enable the slabs 30 to be constrained to the plate 2 to prevent direct movements perpendicularly to the rest surface 2a. Each of the hooking portions 4 defines two undercuts 4a. Each undercut 4a faces towards the rest surface 2a in order to define a space in which a slab 30 can be inserted at a portion of edge.

[0021] The hooking portions 4 are preferably arranged and conformed in such a way that the slabs 30 insert by friction in the space defined between the undercuts 4a and the rest surface 2a, so that displacements of the slabs 30 in a plane parallel to the rest surface 2a are limited or prevented. In this case the function of the hooking portions is particularly advantageous as it enables blocking of the slabs 30 while enabling the lines 31 between the slabs 30 to remain empty. A further important advantage is that the blocking of the slabs does not require the performing of any working operations on the tiles themselves.

[0022] In both examples of figures 5 and 8, the hooking portions 4 can be positioned in an application configuration, in which the undercuts 4a face the rest surface 2a, by a plastic deformation of the zone in which the hooking portions 4 are connected with the shaped appendages 3. In the embodiment of figure 5 a single bend is sufficient, bringing the undercuts 4a into a parallel position to the rest surfaces 2a, while in the example of figure 8 two bends are needed to deform the shaped appendages 3 into an S shape so that the undercuts 4a are arranged in a parallel position to the rest surface 2a.

[0023] In an especially advantageous embodiment, the spacer of the present invention comprises means for blocking predisposed to fix the slabs 30 to the rest surface 2a of the plate 2.

[0024] A first example of the means for blocking is illustrated in figure 2. In this example the means for blocking comprise a small plate 5 predisposed to be placed in contact with the front surface 30a of the slabs resting on

the rest surface 2a of the plate 2. Means for fastening are predisposed to draw the small plate 5 towards the plate 2, and thus into contact with the front surface 30a of the slabs 30. The small plate 5 enables blocking the slabs 30 without any special work operations being necessary.

[0025] The means for blocking preferably comprise a threaded element, for example a screw 6 arranged through the small plate 5 and predisposed for screwing into an anchoring element 7 associable to a support structure 32, 33.

[0026] The support structure 32, 33 can be of any type, for example a scaffold of elements, a frame for ventilated walls or a brick wall. Figure 2 illustrates a support structure in which elements 32 are connected to a wall 33. The means for blocking and the means for fastening connect the slabs 30 to the elements 32 in such a way that the slabs 30 are not in contact with the wall 33. Alternatively the screw 6 might engage directly to the wall 33 in a case in which no spacing is envisaged between the slabs 30 and the wall 33.

[0027] The slabs can be mounted in the following stages. The plates 2 required for the fixing of a slab are each engaged to the support structure by means of the anchor element 7 and the screw 6. The slabs 30 are then positioned with respect to the plates 2 and the small plates 5 are positioned with respect to the screws 6 and the slabs 30. At this point by tightening the screws 6 the slabs 30 are blocked to the support surface.

[0028] Concerning the support structure 32, 33 in general, apart from being of any type, it can present any inclination between a vertical position and a horizontal position. In particular the support structure might be arranged horizontally above a space and the slabs 30 might be fixed, by means of the spacer element of the invention, below the support structure, facing onto the underlying space.

[0029] A second embodiment of the means for blocking is illustrated in figure 5. In this embodiment the means for blocking comprise the hooking portions 4, elastic means, predisposed to be interposed between the slabs 30 and the rest surface 2a, and means for fastening predisposed to fix the plate 2 to a support structure 32.

[0030] The elastic means are preferably constituted by elastic shaped appendages 3e located by the side of the hooking portions 4. This shaped appendages 3e are slightly inclined in order to project from the rest surface 2a. The slabs rest on the shaped appendages 3e located by the side of the hooking portions 4 and are slightly distanced from the rest surface 2a. The slabs 30 are thus elastically supported as the elastic shaped appendages 3e are elastically flexible.

[0031] Alternatively, as illustrated in figure 8, the elastic rest for the slabs 30 can be obtained by using an elastic ring 8 positioned between the rest surface 2a and the slabs 30. The presence of the elastic means guarantees an efficient absorbent effect against the impacts or vibrations that the slabs may be subject to.

[0032] In this second embodiment the means for fastening also comprise threaded element or a screw 6 arranged through a small plate 5 and predisposed to tighten in an anchoring element 7 associable to a support structure 32. The small plate 5, in this case, is placed in contact not with the front surface 30a of the slabs 30, but instead with the plate 2, as the fastening of the slabs 30 to the plate 2 is realised by means of the hooking portions 4. The support structure 32 is, schematically described, a shaped element, though as previously mentioned the support structure could be of any type and might be arranged in any way.

[0033] In this case assembly of the slabs can be performed in the following stages. The plates 2 needed for fastening a slab are each engaged to the support structure by means of the hooking element 7 and the screw 6 and the small plate 5. The slabs 30 are positioned with respect to the plates 2. At this point, by tightening the screw 6 the slabs are blocked to the support surface.

[0034] The spacer for fastening flat elements such as slabs, tiles and the like of the present invention offers important advantages.

[0035] Firstly, as already described, it requires no particular working of the slabs to enable fastening. The element also enables fixing slabs of any shape with the interpositioning of lines between the slabs, which can be kept free.

[0036] Realising an elastic rest surface for the slabs means providing absorbency for impacts and vibrations, to which the slabs can be subject during normal use. Interpositioning the shaped appendages between the slabs means allowing the slabs to dilate, preventing the development of deformation and tensions following variations in temperature.

[0037] The spacer of the present invention also enables fixing slabs to support structures of any type and in any position, in particular to the floor, the ceiling and the walls. All mounting and dismounting operations are extremely simple and rapid.

Claims

1. A spacer element for fixing flat elements such as slabs, tiles and the like **comprising**: a plate (2) exhibiting a rest surface (2a) predisposed for partial resting of one or more slabs (30); shaped appendages (3), each of which is mobile with respect to the plate (2) between at least a first position, in which it does not project with respect to the rest surface (2a), and at least a second position, in which it projects from the rest surface (2a) in such a way as to be positioned between two slabs (30) positioned resting on the rest surface (2a), wherein the shaped appendages (3) are arranged on a peripheral portion of the plate (2) **characterized in that** at least some of the shaped appendages (3) are pro-

vided with a hooking portion (4) predisposed to be positioned in contact with a front surface (30a) of at least a slab (30) positioned in contact with the shaped appendage (3) to which the hooking portion (4) is associated.

2. The element of claim 1, wherein the hooking portions (4) extend transversally with respect to the shaped appendage (3) to which the hooking portions (4) are associated.
3. The element of at least one of the preceding claims, wherein the plate (2) exhibits a circular shape and the shaped appendages (3) are arranged on a peripheral portion of the plate (2) and are constituted by peripheral sectors of the plate (2).
4. The element of at least one of the preceding claims, comprising means for blocking predisposed to fix the slabs (30) to the rest surface (2a) of the plate (2).
5. The element of claim 4, wherein the means for blocking comprise a small plate (5) predisposed to be placed in contact with the front surface (30a) of the slabs (30), resting on the rest surface (2a) of the plate (2), means for fastening being predisposed for pressing the small plate (5) against the plate (2).
6. The element of claim 5, wherein the means for fastening comprise a threaded element arranged through the small plate (5) and being predisposed to screw into an anchoring element (7) which is associable with a support structure (32, 33).
7. The element of claim 4, wherein the means for blocking comprise the hooking portions (4), means for fastening being predisposed for fastening and fixing the plate (2) to a support structure (32).
8. The elements of claim 7, wherein elastic means (3e, 8) are predisposed to be positioned between the rest surface (2a) of the plate (2) and one or more slabs (30) positioned resting on the rest surface (2a).

Patentansprüche

1. Abstandselement zum Befestigen von flachen Elementen, wie Platten, Kacheln und dergleichen, enthaltend: einen Teller (2), aufweisend eine Auflagefläche (2a), die vorgesehen ist zum teilweisen Auflegen von einer oder mehreren Platten (30); geformte Ansätze (3), von welchen jeder im Verhältnis zu dem Teller (2) beweglich ist zwischen wenigstens einer ersten Position, in welcher er im Verhältnis zu der Auflagefläche (2a) nicht hervorsteht, und wenigstens einer zweiten Position, in welcher er von der Auflagefläche (2a) auf solche Weise hervorsteht,

dass er zwischen zwei Platten (30) positioniert wird, die auf der Auflagefläche (2a) liegend positioniert sind, wobei die geformten Ansätze (3) an einem umlaufenden Abschnitt des Tellers (2) angeordnet sind, **dadurch gekennzeichnet, dass** wenigstens einige der geformten Ansätze (3) mit einem Hakenabschnitt (4) versehen sind, dazu vorgesehen, im Kontakt mit einer Frontfläche (30a) von wenigstens einer Platte (30) angeordnet zu werden, die sich im Kontakt mit dem geformten Ansatz (3) befindet, welchem der Hakenabschnitt (4) zugeordnet ist.

2. Element nach Patentanspruch 1, bei welchem sich die Hakenabschnitte (4) quer im Verhältnis zu dem geformten Ansatz (3) erstrecken, welchem die Hakenabschnitte (4) zugeordnet sind.
3. Element nach wenigstens einem der vorstehenden Patentansprüche, bei welchem der Teller (2) eine kreisförmige Ausbildung aufweist und die geformten Ansätze (3) an einem umlaufenden Abschnitt des Tellers (2) angeordnet sind, gebildet aus umlaufenden Sektoren des Tellers (2).
4. Element nach wenigstens einem der vorstehenden Patentansprüche, enthaltend Mittel zum Blockieren, die dazu vorgesehen sind, die Platten (30) an der Auflagefläche (2a) des Tellers (2) zu befestigen.
5. Element nach Patentanspruch 4, bei welchem die Blockiermittel eine kleine Platte (5) enthalten, dazu vorgesehen, in Kontakt mit der Frontfläche (30a) der Platten (30) gebracht zu werden, die auf der Auflagefläche (2a) des Tellers (2) liegen, wobei Mittel zum Befestigen vorgesehen sind, um die kleine Platte (5) gegen den Teller (2) zu drücken.
6. Element nach Patentanspruch 5, bei welchem die Befestigungsmittel ein mit Gewinde versehenes Element enthalten, das durch die kleine Platte (5) geführt und dazu vorgesehen ist, sich in ein Verankerungselement (7) einzuschrauben, welches mit einer Trägerstruktur (32, 33) verbunden werden kann.

7. Element nach Patentanspruch 4, bei welchem die Blockiermittel die Hakenabschnitte (4) enthalten, wobei Befestigungsmittel zum Halten und Befestigen des Tellers (2) an einer Trägerstruktur (32) vorgesehen sind.

8. Element nach Patentanspruch 7, bei welchem elastische Mittel (3e, 8) vorgesehen sind, um zwischen der Auflagefläche (2a) des Tellers (2) und einer oder mehreren Platten (30) angeordnet zu werden, die auf der Auflagefläche (2a) liegend positioniert sind.

Revendications

1. Élément d'espacement pour fixer des éléments plats tels que des dalles, des carreaux et autres du même genre, comprenant: une plaque (2) présentant une surface d'appui (2a) prédisposée pour l'appui partiel d'une ou plusieurs dalles (30); des appendices entaillés (3), chacun desquels étant mobile par rapport à la plaque (2) entre au moins une première position, dans laquelle il n'est pas saillant par rapport à la surface d'appui (2a), et au moins une seconde position, dans laquelle il est saillant par rapport à la surface d'appui (2a) de manière à être positionné entre deux dalles (30) positionnées en appui sur la surface d' appui (2a), dans lequel les appendices entaillés (3) sont disposés sur une partie périphérique de la plaque (2), **caractérisé en ce qu'**au moins certains des appendices entaillés (3) sont pourvus d'une partie d'accrochage (4) prédisposée pour être positionnée en contact avec une surface frontale (30a) d'au moins une dalle (30) positionnée en contact avec l'appendice entaillé (3) auquel la partir d'accrochage (4) est associée.

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2. Élément selon la revendication 1, dans lequel les parties d'accrochage (4) s'étendent transversalement par rapport à l'appendice entaillé (3) auquel les parties d'accrochage (4) sont associées.

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3. Élément selon au moins l'une des revendications précédentes, dans lequel la plaque (2) présente une forme circulaire et les appendices entaillés (3) sont disposés sur une partie périphérique de la plaque (2) et sont constitués de secteurs périphériques de la plaque (2).

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4. Élément selon au moins l'une des revendications précédentes, comprenant des moyens de blocage prédisposés pour fixer les dalles (30) à la surface d'appui (2a) de la plaque (2).

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5. Élément selon la revendication 4, dans lequel les moyens de blocage comprennent une petite plaque (5) prédisposée pour être placée en contact avec la surface frontale (30a) des dalles (30), en appui sur la surface d'appui (2a) de la plaque (2), des moyens de fixation étant prédisposés pour presser la petite plaque (5) contre la plaque (2).

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6. Élément selon la revendication 5, dans lequel les moyens de fixation comprennent un élément fileté disposé au travers de la petite plaque (5) et étant prédisposé pour se visser dans un élément d'ancrage (7) qui est associable à une structure de support (32, 33).

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7. Élément selon la revendication 4, dans lequel les

moyens de blocage comprennent les parties d'accrochage (4), des moyens de fixation étant prédisposés pour serrer et fixer la plaque (2) à une structure de support (32).

8. Élément selon la revendication 7, dans lequel des moyens élastiques (3e, 8) sont prédisposés pour être positionnés entre la surface d'appui (2a) de la plaque (2) et une ou plusieurs dalles (30) positionnées en appui sur la surface d'appui (2a).

Fig. 1

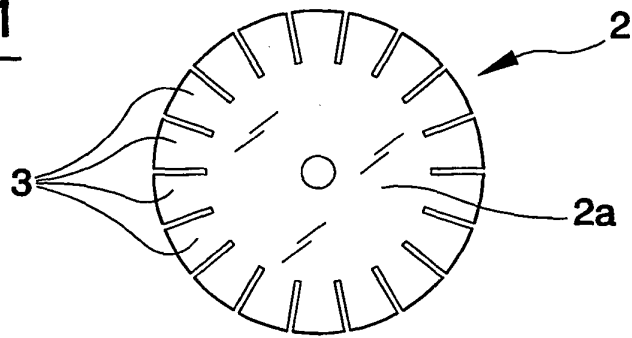


Fig. 2

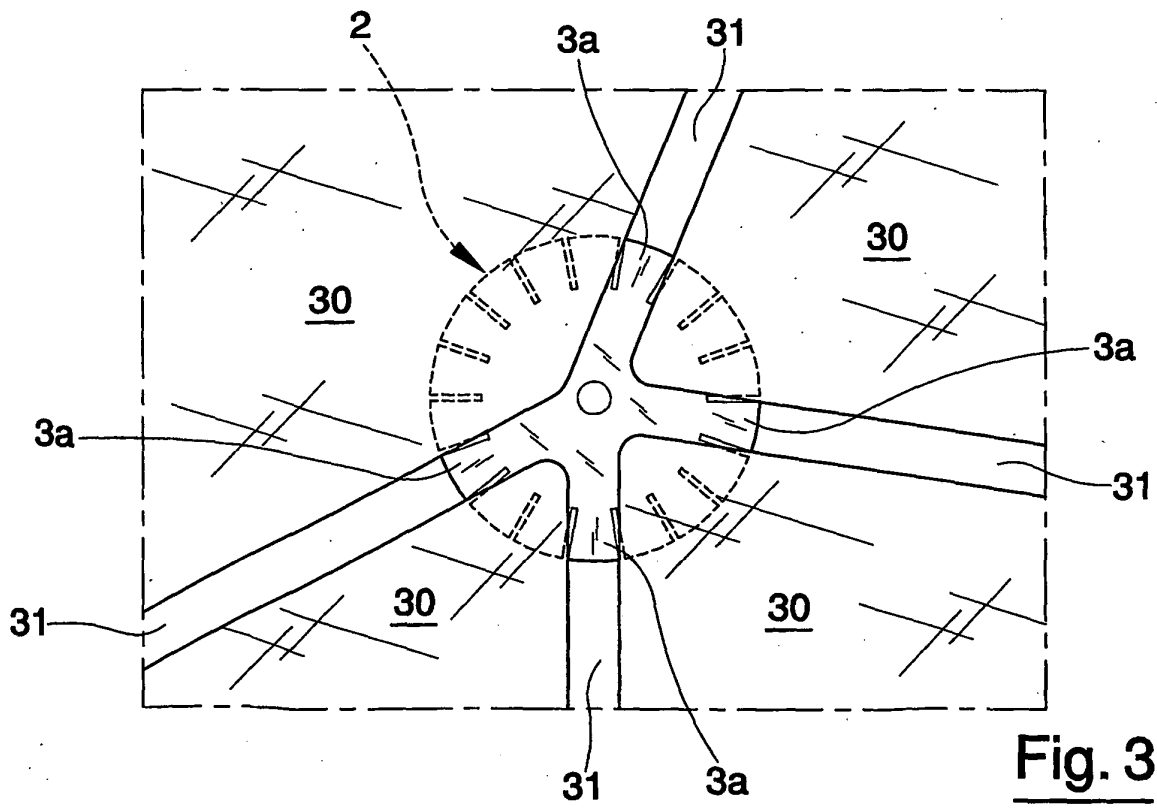
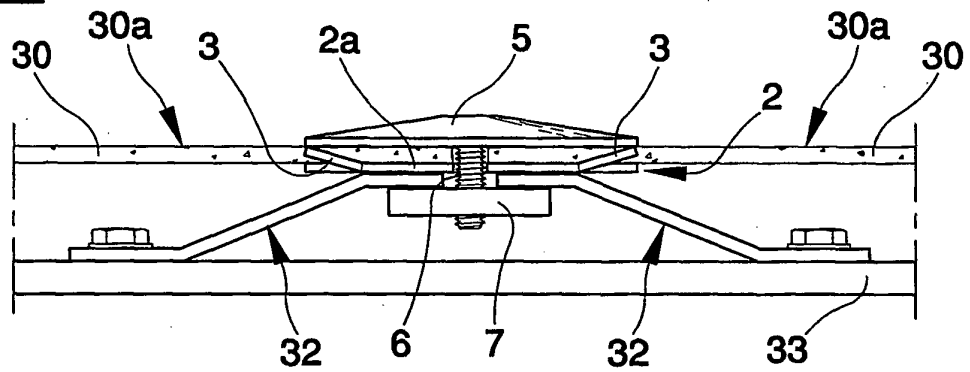


Fig. 3

Fig. 4

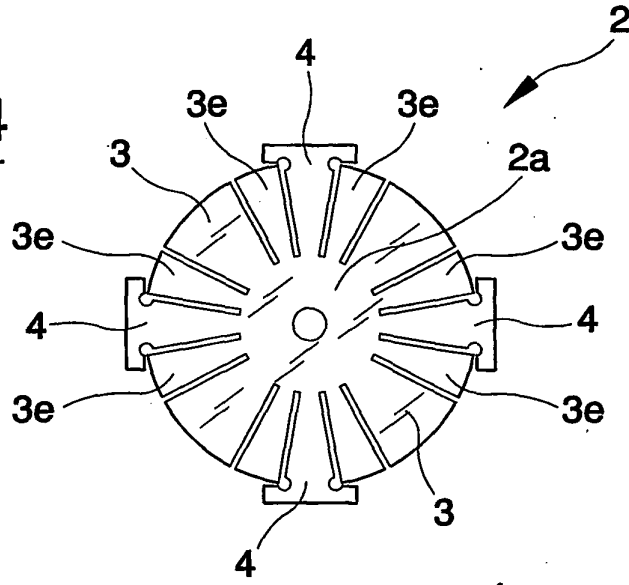


Fig. 5

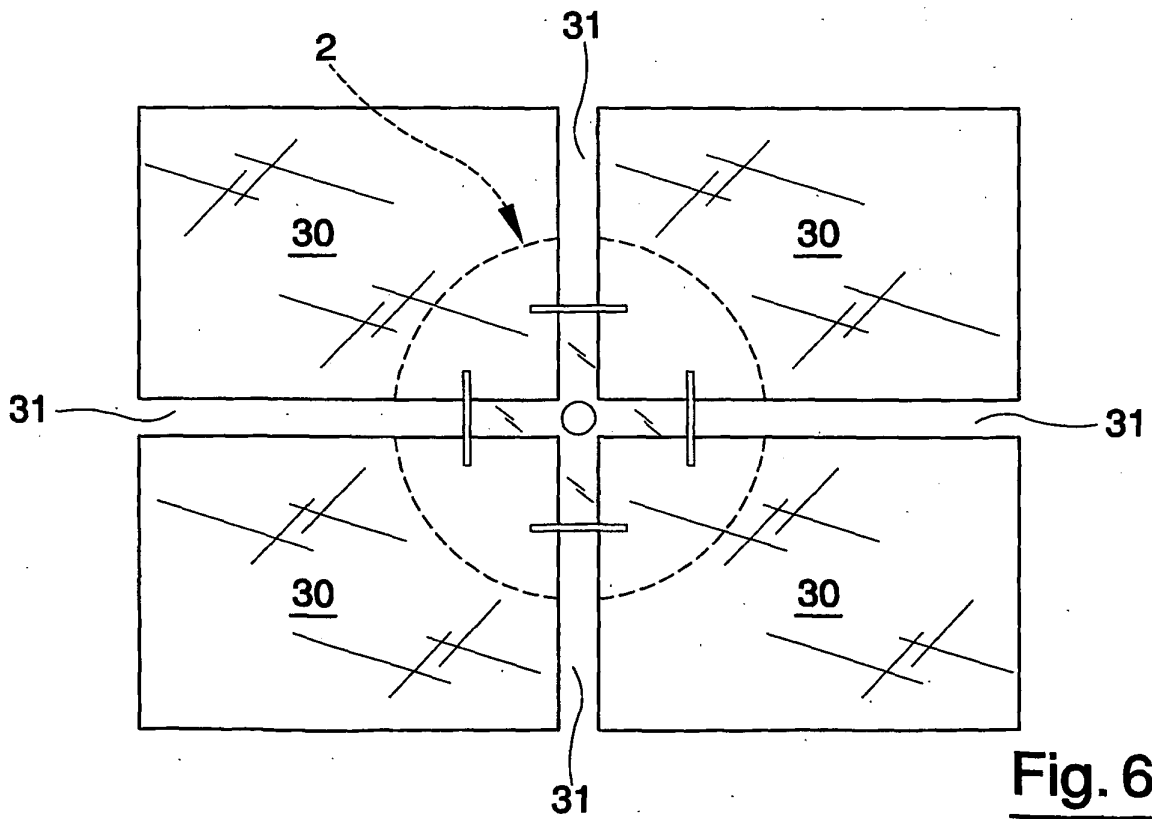
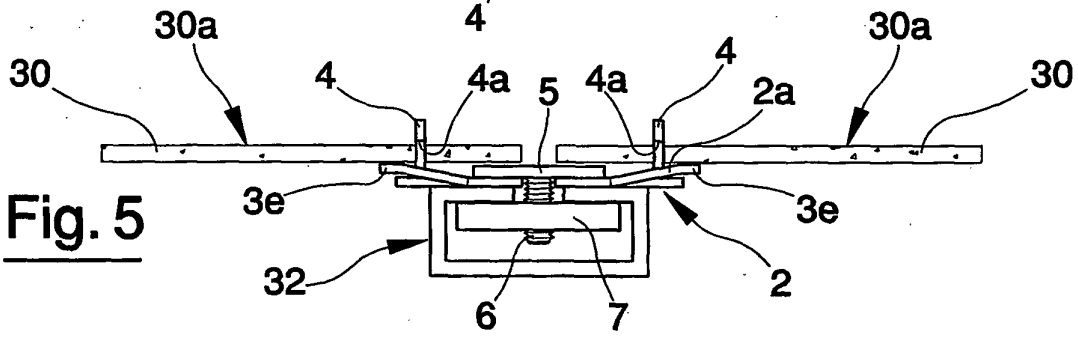


Fig. 6

Fig. 7

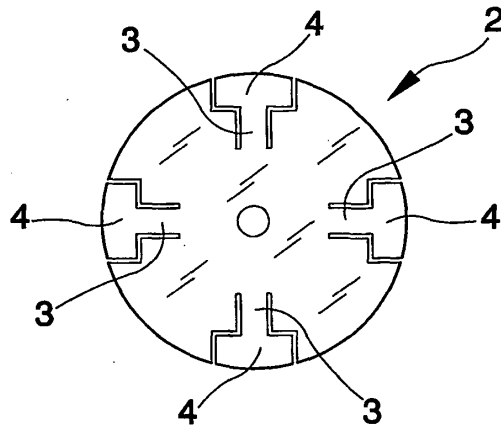


Fig. 8

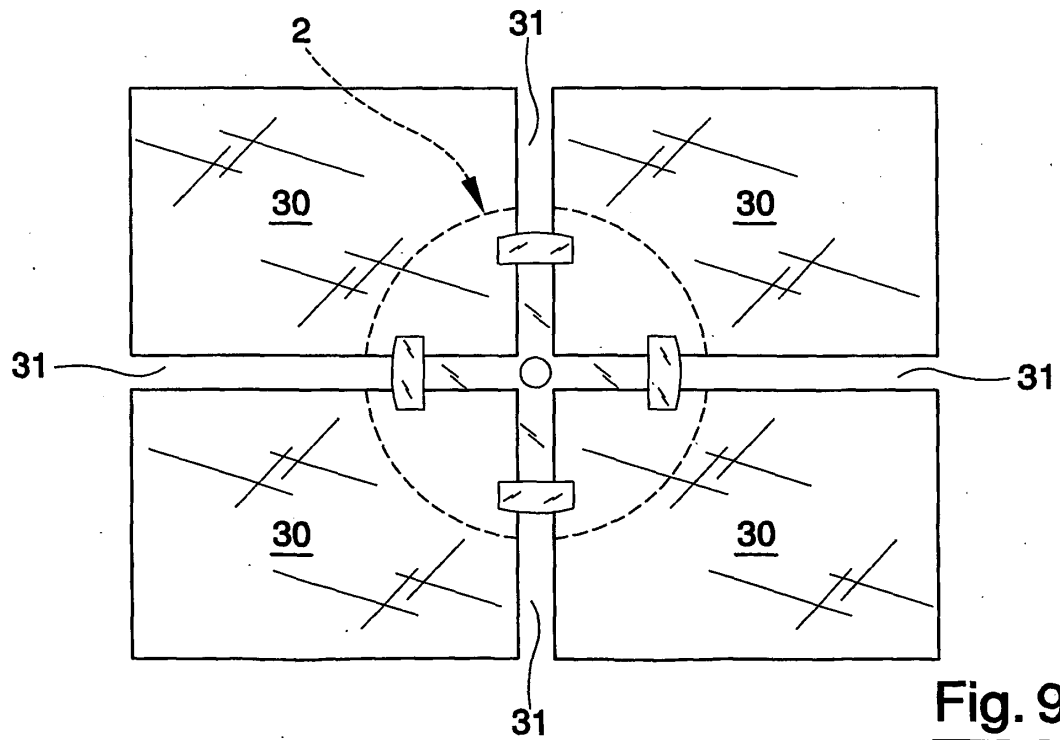
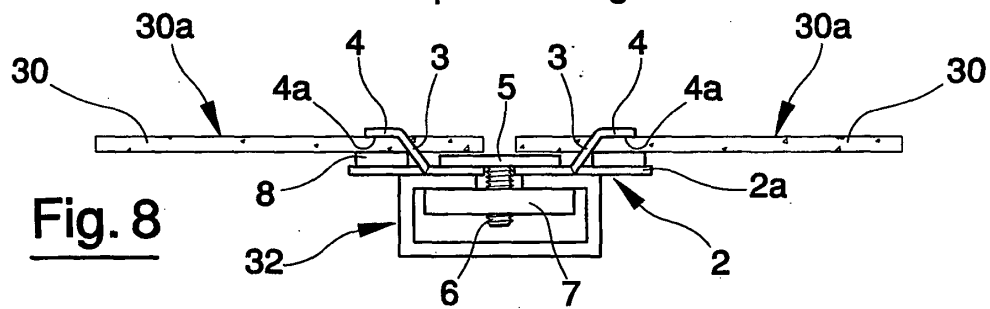


Fig. 9

REFERENCES CITED IN THE DESCRIPTION

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