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(54) **AUXILIARY DEVICE FOR PLACING ELEMENTS IN THE FORM OF A PLATE**

(57) Auxiliary device for placing elements in the form of a plate which comprises a support element (1) which in turn comprises a substantially flat base (1.1) and a grip rod (1.2) extended from said base (1.1) perpendicularly thereto, where the base (1.1) is adapted to support at least two adjacent elements in the form of a plate (2) from opposed larger faces (1.21) of said grip rod (1.2); and a pressing element (3) adapted to be coupled to the grip rod (1.2) and to fasten the elements in the form of a plate (2) between the support element (1) and said pressing element (3), to achieve coplanarity between said elements in the form of a plate (2), and wherein smaller lateral faces (1.22) of the grip rod (1.2) comprise two rows of external nut threads (1.221) which result in segments of a nut thread developed helically about an axis of rotation (R) perpendicular to the base (1.1).

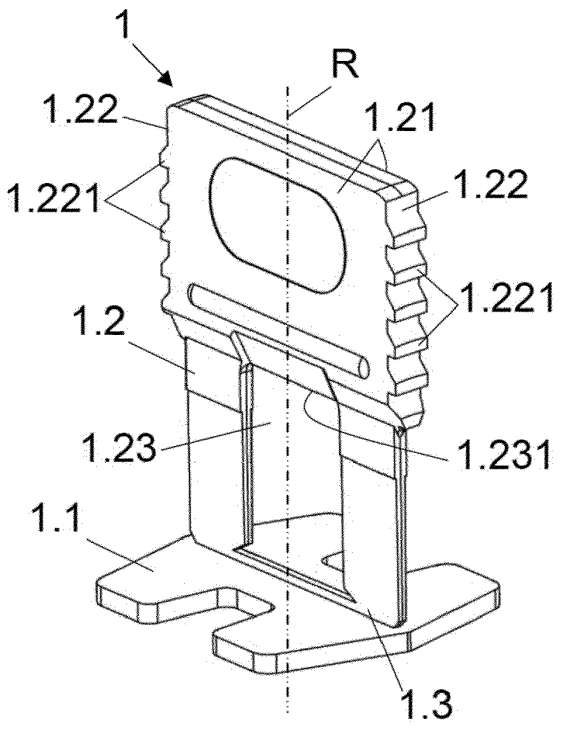

Fig.1

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Description

Technical Field of the invention

[0001] This invention refers to an auxiliary device for the level placement of elements in the form of a plate, such as floor tiles, slabs, ceramic tiles, etc., of those used to coat floors and/or walls.

[0002] That is, it is related to the devices used to separate the floor tiles, slabs, ceramic tiles, or similar elements in a uniform manner and to level their edges during the laying of the coating of the floor or wall.

Background of the invention

[0003] Various auxiliary device solutions are known for the placing and levelling of elements in the form of a plate, such as floor tiles, slabs, ceramic tiles, etc., on floors or walls. These devices generally known comprise a support or separating element and a pressing or adjusting element. The support element has a base and a column or grip rod which is arranged perpendicular to the base.

[0004] While in use, during the laying of the floor or wall, the base is placed on the adhesive mixture, and on said base are placed the edges corresponding to two or more elements in the form of a plate, which shall be arranged adjacent. The edges are flush with the larger faces of the grip rod, said elements in the form of a plate remaining separated at a certain distance, corresponding to the joint between said elements.

[0005] For its part, more than one pressing element design is known. For example, in the document AU2016100036, published on 11 February 2016, a pressing element is shown that has the form of a wedge, which is made to slide over the elements in the form of a plate through a longitudinal opening that traverses the grip rod of the support element, until the upper surface of said wedge makes contact with the grip rod and a pushing of the pressing element occurs in a direction perpendicular to the plane of placement of said elements in the form of a plate against the latter, which are fastened between the support element and the pressing element, finally achieving coplanarity or levelling between said elements in the form of a plate.

[0006] Once the adhesive mixture has dried, both the wedge and the grip rod are extracted. The extraction of the grip rod occurs through the breakage of a weakened portion of the support element arranged between its grip rod and its base, the latter being trapped between the floor or wall and the element in the form of a plate that coats it.

[0007] Other known levelling devices show a pressing element that has the form of a screw or threaded ring, which couples to the exterior of the end of the grip rod which is opposite the base of the support element. For example, the devices shown in the document ES 2514886 and ES 2552318, published on 24 October 2012 and 30 September 2015 respectively.

[0008] In both known devices that use the pressing element in the form of a threaded ring, the latter is threaded into the grip rod until it contacts the elements in the form of a plate to be levelled, producing a push of the pressing element in a direction perpendicular to the plane of placement of said elements in the form of a plate, against the latter, likewise achieving coplanarity between said elements in the form of a plate.

[0009] In these known devices, the coupling of the threaded ring to the grip rod is done by means of two coupling projects that protrude at each side of said grip rod, which slide between two helicoidal ramps that protrude into the interior of the threaded ring. Which seems to cause impressions and require additional efforts when the threaded ring is being coupled to the grip rod, producing involuntary and undesired shifting of the elements in the form of a plate that result finally in unevenness between said elements. For this reason, it is necessary to design an auxiliary device that, simply and economically, makes it possible to overcome the above-mentioned drawbacks.

Description of the invention

[0010] This invention is established and characterised in the independent claims, while the dependent ones describe other characteristics thereof. The object of the invention is an auxiliary device for the placement of elements in the form of a plate. The technical problem to be solved is how to facilitate the coupling of the pressure element to the support element, such that the involuntary and undesired shifting of the elements in the form of a plate to be levelled is prevented.

[0011] In view of what was set out hereinabove, this invention refers to an auxiliary device for the placement of elements in the form of a plate, for example, floor tiles, slabs, ceramic tiles, etc., of those used to coat floors and/or walls.

[0012] The device comprises a support element and a pressing element. For its part, the support element comprises a substantially flat base, and a grip rod extended from said base perpendicularly thereto. The base is adapted to support at least two adjacent elements in the form of a plate from opposed larger faces of said grip rod. About the pressing element, it is adapted to be coupled to the grip rod, and to fasten the elements in the form of a plate between the support element and said pressing element, to achieve coplanarity between said elements in the form of a plate. Where smaller lateral faces of the grip rod comprise two rows of external nut threads which result in segments or lengths of a nut thread developed helically about an axis of rotation perpendicular to the base.

[0013] In this way, the coupling is facilitated of a pressing element in the form of a threaded ring, which comprises an interior nut of the same passage of the thread of the external nut threads of the grip rod, to the latter, preventing imprecisions and without requiring great ef-

forts when carrying out the coupling of said threaded ring to the grip rod, which could cause involuntary and undesired shifting of the elements in the form of a plate that entail an inappropriate placement thereof.

[0014] Likewise, it is an advantage that, alternatively, at the discretion of the user, the device may also be used with a pressing element in the form of a wedge, rather than with the threaded ring. For that purpose, the grip rod may be provided with a longitudinal opening that traverses its larger faces, where said longitudinal opening is adapted to receive the pressing element in the form of a wedge inserted parallel to the base of the support element.

Brief description of the figures

[0015] This descriptive report is complemented with a set of figures, illustrative of the preferred example, and which never limit the invention.

Figure 1 represents a perspective view of the support element of the auxiliary device for the placement of elements in the form of a plate.

Figure 2 represents a perspective view of the auxiliary device with the support element of figure 1 and a first embodiment of the pressing element, applied to two elements in the form of a plate to be placed at the same level.

Figure 3 represents a cutaway front view of the auxiliary device of figure 2.

Figure 4 represents a schematic cutaway view of the auxiliary device with the support element in figure 1 and a second embodiment of the pressing element, applied to two elements in the form of a plate to be placed on the same level.

Detailed description of the invention

[0016] This invention is an auxiliary device for the placement of elements in the form of a plate, such as floor tiles, slabs, ceramic tiles, etc., which are useful, for example, in the laying of the coating of floors and/or walls. As shown in the figures, the auxiliary device comprises a support element (1) and an element (3).

[0017] As figure 1 shows, the support element (1) comprises in turn a substantially flat base (1.1) and a grip rod (1.2), the latter extended from said base (1.1) perpendicularly thereto.

[0018] As shown in figures 2, 3 and 4, the base (1.1) is adapted to support at least two adjacent elements in the form of a plate (2) from opposed larger faces (1.21) of said grip rod (1.2). In other words, the base (1.1) of the support element (1) is placed on the layer of adhesive mixture (4) applied to the wall or floor (5) to be coated with elements in the form of a plate (2). On the base (1.1) are placed the edges corresponding to two or more elements in the form of a plate (2) that are to be arranged adjacent or contiguous. Said edges are arranged flush with the larger faces (1.21) of the grip rod (1.2), said elements in the form of a plate (2) remaining separated at a certain distance (the separation between the opposed larger faces (1.21) of the grip rod (1.2), corresponding to the joint between said elements (2).

[0019] Moreover, as shown in figure 1, smaller lateral faces (1.22) of the grip rod (1.2) comprise two rows of external nut threads (1.221) which result in segments or lengths of a nut thread developed helically about an axis of rotation (R) perpendicular to the base (1.1).

[0020] Preferably, the grip rod (1.2) has the form of a rectangular bar. However, it could have the form of a crosspiece (not seen in the figures), for example, which may be used in the formation of a joint among four elements in the form of plates (2) arranged contiguous to each other.

[0021] Likewise, it is preferred that the grip rod (1.2) is connected with the base (1.1) by means of a weakened portion (1.3), which is adapted to be broken when an attempt is made to pull the grip rod (1.2) and the base (1.1) offers resistance.

[0022] For its part, the pressing element (3) is adapted to be coupled to the grip rod (1.2) and to fasten the elements in the form of a plate (2) between the support element (1) and said pressing element (3), thus to achieve coplanarity between said elements in the form of a plate (2), that is, that said elements (2) end up arranged on the same plane.

[0023] As shown in figures 2 and 3, it is preferred that the pressing element (3) has the form of a threaded ring (3.1), which comprises an internal nut (3.11) adapted to screw tightly into the rows of external nut thread (1.221) of the grip rod (1.2).

[0024] Thus, with the easy and simple screwing of the ring (3.1) into the grip rod (1.2) a point is reached at which the anterior edge of the screwed thread (3.1) makes contact with the elements in the form of a plate (2) to be levelled, which are supported by the base (1.1). Where, continuing the advance in the threading, said ring (3.1) develops such pushing force against the elements in the form of a plate (2) that it causes the coplanarity between said elements in the form of a plate (2), without moving them or dislocating them.

[0025] On the other hand, it is preferred that the support element (1) of figure 1 is also suitable to be used with a pressing element (3) in the form of a wedge (3.2). As seen in figure 4. This is an alternative embodiment to that in figures 2 and 3 which, with the auxiliary device of this invention, is possible at the discretion of the user.

[0026] To use it, as shown in figure 1, it is preferred that the grip rod (1.2) comprise a longitudinal opening (1.23) that traverses its larger faces (1.21), where the longitudinal opening (1.23) is adapted to receive the wedge (3.2) inserted parallel to the base (1.1). See figure 4.

[0027] Preferably, the longitudinal opening (1.23) is rectangular, and its dimensions correspond to a maximum rectangular cross-section of the wedge (3.2), and

an upper surface (3.21) of the wedge (3.2) comprises a plurality of parallel coupling grooves (3.211), adapted to be set on an upper edge (1.231) of the longitudinal opening (1.23) shaped in the form of a "V".

[0028] Thus, once the edges of the elements have been arranged in the form of a plate (2) on the base (1.1), the wedge (3.2) is made to slide over said elements in the form of a plate (2), through the longitudinal opening (1.23), until the upper surface (3.21) of said wedge (3.2) makes contact with the grip rod (1.2), where, if the wedge (3.2) continues advancing through the longitudinal opening (1.23), such pushing force is developed against the elements in the form of a plate (2) that it causes the coplanarity between said elements (2).

[0029] The setting of the upper edge (1.231) of the longitudinal opening (1.23) into one of the coupling grooves (3.211) of the upper surface (3.21) of the wedge (3.2), makes it possible to maintain the position said wedge (3.2) has reached in the longitudinal opening (1.23), which has caused the coplanarity between the elements in the form of a plate (2).

[0030] In both embodiments, with a view to achieving the elimination or removal of the auxiliary device once the complete fixing has occurred of the elements in the form of a plate (2) to the floor or wall (5), the corresponding pressing element (3) is decoupled from the support element (1), and then, the grip rod is pulled (1.2) to promote its breakage due to its weakened portion (1.3), the base (1.1) ending up under the elements in the form of a plate (2), and the joint between said elements (2) shaped.

Claims

1. Auxiliary device for placing elements in the form of a plate which comprises:

> a support element (1) which in turn comprises a substantially flat base (1.1) and a grip rod (1.2) extended from said base (1.1) perpendicularly thereto, where the base (1.1) is adapted to support at least two adjacent elements in the form of a plate (2) from opposed larger faces (1.21) of said grip rod (1.2),
> a pressing element (3) adapted to be coupled to the grip rod (1.2) and to fasten the elements in the form of a plate (2) between the support element (1) and said pressing element (3), to achieve coplanarity between said elements in the form of a plate (2),
>
> **characterised by** smaller lateral faces (1.22) of the grip rod (1.2) comprise two rows of external nut threads (1.221) which result in segments of a nut thread developed helically about an axis of rotation (R) perpendicular to the base (1.1).

2. Device according to claim 1, in which the pressing element (3) has the form of a threaded ring (3.1).

3. Device according to claim 2, in which the threaded ring (3.1) comprises an internal nut (3.11) adapted to screw tightly into the rows of external nut thread (1.221) of the grip rod (1.2).

4. Device according to claim 1, in which the pressing element (3) has the form of a wedge (3.2).

5. Device according to claim 4, in which the grip rod (1.2) comprises a larger opening (1.23) that traverses its larger faces (1.21), the longitudinal opening (1.23) is adapted to receive the wedge (3.2) inserted parallel to the base (1.1).

6. Device according to claim 5, in which the longitudinal opening (1.23) is rectangular, and its dimensions correspond to a maximum rectangular cross-section of the wedge (3.2).

7. Device according to claim 5, in which an upper surface (3.21) of the wedge (3.2) comprises a plurality of parallel coupling grooves (3.211) adapted to be set into an upper surface (1.231) of the longitudinal opening (1.23) shaped in the form of a "V".

8. Device according to claim 1, in which the grip rod (1.2) is connected with the base (1.1) by means of a weakened portion (1.3), adapted to be broken when an attempt is made to pull the grip rod (1.2) and the base (1.1) offers resistance.

9. Device according to claim 1, in which the grip rod (1.2) has the form of a rectangular bar.

10. Device according to claim 1, in which the grip rod (1.2) has the form of a crosspiece.

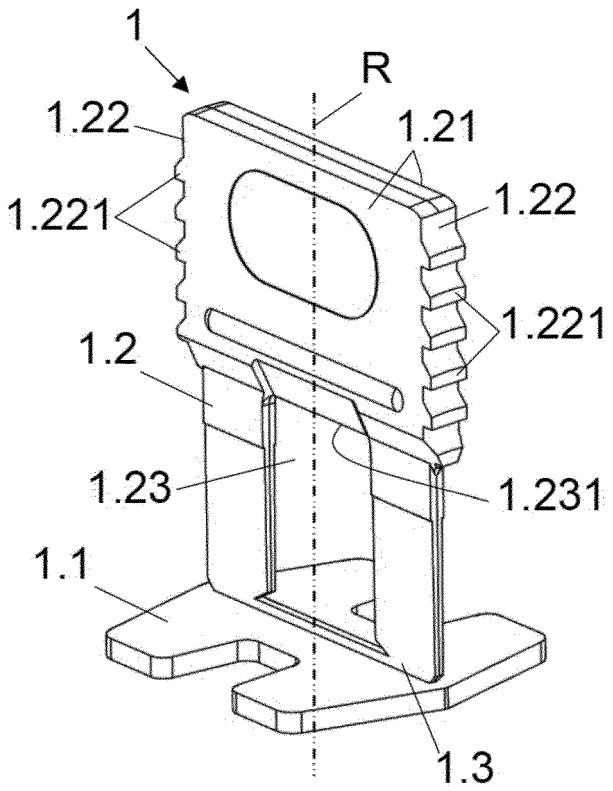

Fig.1

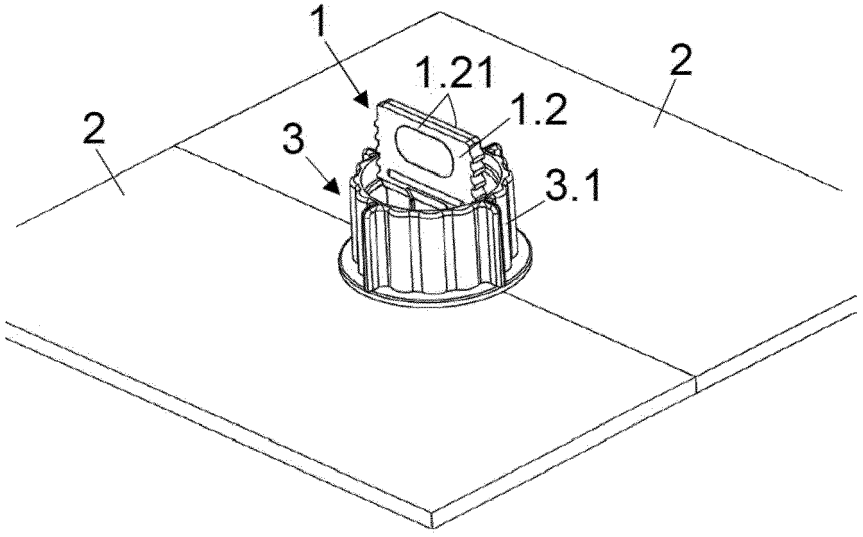

Fig.2

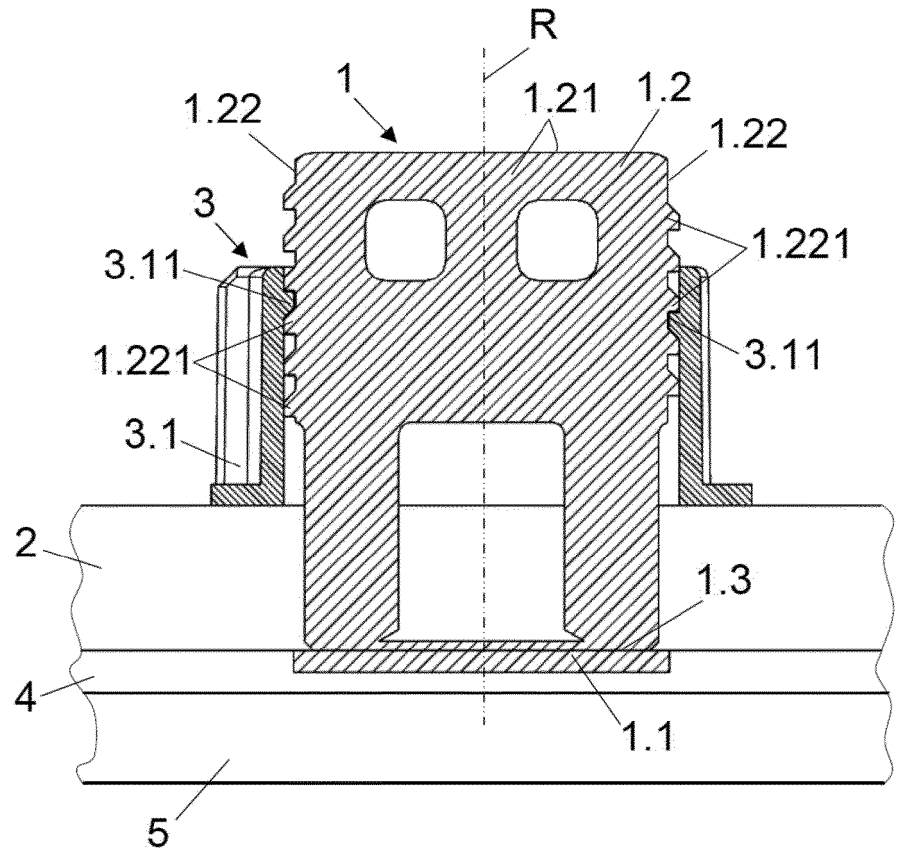
R
1
1.22
1.21
1.2
1.22
3
1.221
3.11
1.221
3.11
3.1
2
1.3
4
1.1
5

Fig.3

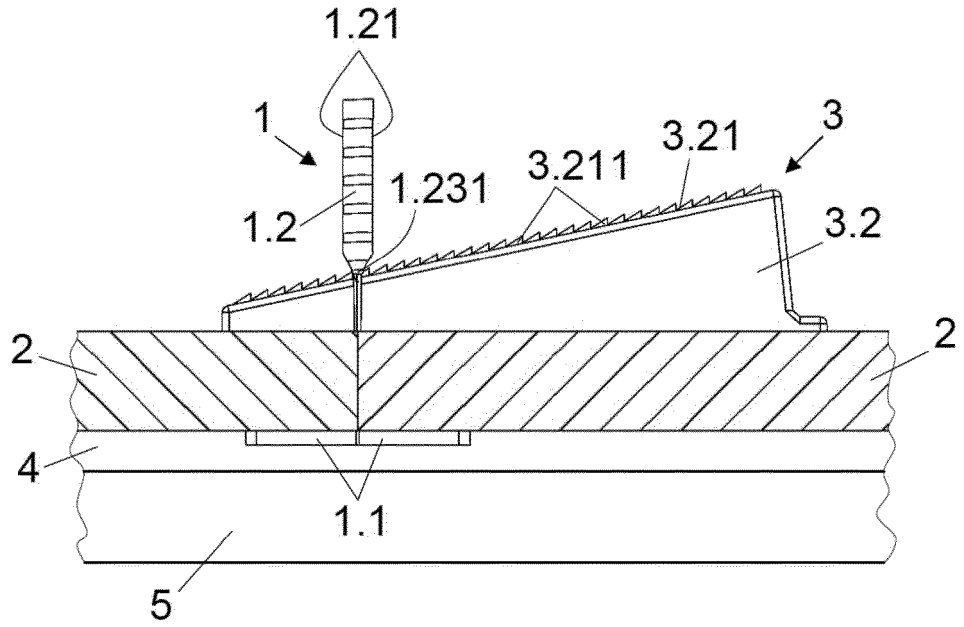
1.21
1
3.21
3
3.211
1.231
1.2
3.2
2
2
4
1.1
5

Fig.4

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EUROPEAN SEARCH REPORT

Application Number
EP 18 38 2732

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 9 322 186 B1 (CHANG JASON [TW] ET AL) 26 April 2016 (2016-04-26) * figures 2,4 * * column 2, line 48 - column 3, line 1 * * column 3, line 32 - line 39 * * column 3, line 58 - line 62 * -----	1-3,8,9 4-7,10	INV. E04F21/00 E04F21/18 E04F15/02
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Y	US 8 635 815 B2 (PROGRESS PROFILES SPA [IT]) 28 January 2014 (2014-01-28) * figures 1-2,7 * * column 3, line 25 - line 27 * -----	10	

TECHNICAL FIELDS SEARCHED (IPC)
E04F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	5 March 2019	Estorgues, Marlène

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

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05-03-2019

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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- ES 2514886 **[0007]**
- ES 2552318 **[0007]**