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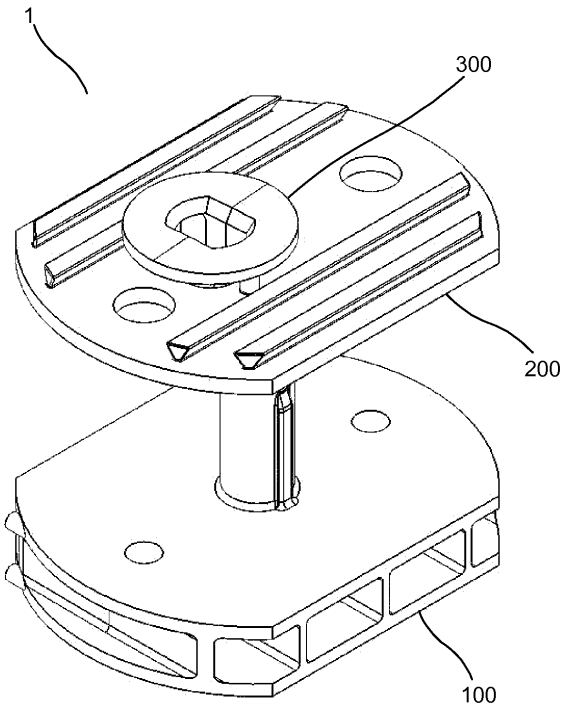
(54) Fastening device for a wall construction

(57) Fastening device (1) suitable for mounting a wall construction to a supporting surface (3) of a wall support (4), which wall construction comprises a first layer of insulation (6) and a second layer of plaster (7), said fastening device (1) comprising a first base part (100), arranged to be permanently fastened to the supporting surface (3) and in turn comprising an elongated part (130), arranged to extend out from the supporting surface (3) when the device (1) is fastened thereto and arranged to engage with a block of insulation by threading the block onto a free end of said elongated part (130) so that the elongated part (130) runs through and supports the block; and a second insulation retaining part (200), arranged to engage with the base part (100) and when in engagement therewith limit the movement, in a direction out from the supporting surface (3), of a block of insulation which is in engagement with the elongated part (130), so that such a block is retained on the elongated part (130).

The invention is characterised in that the first part (100) comprises a spacing means arranged, when the device (1) is fastened to the supporting surface (3) and when the first part (100) is in engagement with both a block of insulation and the second part (200), to limit the movement in a direction towards the supporting surface (3) of the block of insulation, so as to create an air gap (5) between the supporting surface (3) and the block of insulation.

Fig. 1



EP 2 251 499 A2

Description

[0001] The present invention relates to a fastening device for a wall construction mounted on a supporting surface of a wall support and comprising an insulation layer and a plaster layer. The invention furthermore relates to a wall construction comprising a plurality of such fastening devices.

[0002] Plaster is a commonly used wall covering which has been used for a long time throughout the world. Such a wall covering can be realized in a number of different ways. In some climatic zones, insulation is also needed. Therefore, plastered wall covering systems can be quite complex.

[0003] A traditional wall covering includes a mineral, high-build plaster on masonry. Such a construction gives a moistureproof, energy efficient, durable wall-covering associated with high comfort.

[0004] Lately, wall constructions using wooden or metal bolts have increasingly been covered by plaster. When combined with a layer of insulation directly on the underlying wall construction, on top of which the plaster is applied, a well insulated, compact, plastered wall construction is achieved. However, moisture entering the construction will often tend to be trapped in the closed construction and therefore potentially lead to damages due to damp and mildew in the underlying wall construction.

[0005] Wall constructions comprising air- or drainage gaps behind the insulation layer have been proposed to overcome these problems. In such systems, a wooden or metal framework is constructed, on the outside of which the insulating layer is arranged with the air- or drainage gap there between. Lastly, the plaster layer is arranged directly on the insulation. Such systems solve the problem with moisture, but typically include complex and expensive fitting systems requiring time consuming installation work and highly skilled, specialized installation personnel.

[0006] From the French national patent 2523620, a metal framework is known for installing an insulation layer on an existing wall construction, whereby an air gap is achieved.

[0007] A system for installing an insulation layer in combination with a masonry wall, with an air gap, is disclosed in US 3812635.

[0008] The Swedish patent 451478 discloses a fitting for mounting an insulation layer and a plaster net on an existing wall.

[0009] It is an object of the invention to provide an inexpensive fastening means for a wall covering which can be used to quickly mount a high-quality wall construction of the initially described kind, comprising an air gap, an insulation layer and a plaster layer, with a minimum of educational requirements on the part of the installer.

[0010] Thus, the invention relates to a fastening device suitable for mounting a wall construction to a supporting surface of a wall support, which wall construction comprises a first layer of insulation and a second layer of plaster, said fastening device comprising a first base part, arranged to be permanently fastened to the supporting surface and in turn comprising an elongated part, arranged to extend out from the supporting surface when the device is fastened thereto and arranged to engage with a block of insulation by threading the block onto a free end of said elongated part so that the elongated part runs through and supports the block; and a second insulation retaining part, arranged to engage with the base part and when in engagement therewith limit the movement, in a direction out from the supporting surface, of a block of insulation which is in engagement with the elongated part, so that such a block is retained on the elongated part.

[0011] The invention is characterised in that the first part comprises a spacing means arranged, when the device is fastened to the supporting surface and when the first part is in engagement with both a block of insulation and the second part, to limit the movement in a direction towards the supporting surface of the block of insulation, so as to create an air gap between the supporting surface and the block of insulation.

[0012] In the following, the invention will be described in detail, with reference to exemplifying embodiments of the invention and to the appended drawings, in which:

Figure 1 is a perspective view of a fastening means according to the invention as assembled;
Figure 2 is a section view of the fastening means of Figure 1 mounted in a wall construction according to the invention;
Figures 3-4 are different perspective views of a first base part of the fastening means of Figure 1;
Figure 5 is a section view of the first base part of Figures 3-4 taken through the through holes 102;
Figures 6-7 are different perspective views of a second insulation retaining part of the fastening means of Figure 1;
Figure 8 is a perspective view of a third locking part of the fastening means of Figure 1; and
Figure 9 is a side view of the locking part of Figure 8.

[0013] All figures share reference numerals for corresponding parts.

[0014] Figure 1 shows a fastening device 1 according to the invention, comprising a first base part 100, a second insulation retaining part 200 and a third locking part 300. The first part 100 is shown in greater detail in Figures 3-5; the second part 200 in Figures 6-7; and the third part 300 in figure 8-9.

[0015] In Figure 2, the fastening device 1 is arranged in its intended position in a wall construction, where it is used to mount the said wall construction to a supporting surface 3 of a wall support 4. The wall support 4 is preferably an existing exterior wall or an existing exterior wall support structure, for example in the form of a wooden or metal framework, a construction board or the like, in a building. It is noted that the wall may also be an interior

wall.

[0016] The wall construction to be mounted using the fastening device 1 comprises an insulation layer 6, preferably in the form of at least one block of mineral insulation, and a plaster layer 7. Between the surface 3 of the wall support 4 and the insulation layer 6, an air gap 5 is arranged, providing additional insulation and drainage of moisture from the wall construction. Preferably, a sealing tape or the like is arranged at the bottom end of the air gap, arranged to lead running water away from the underlying wall support 4.

[0017] The base part 100 is permanently fastened to the surface 3 of the supporting wall 4, using conventional fastening means suitable for the material of the supporting wall 4, such as a pair of wood, metal or concrete screws 2. The base part 100 comprises an elongated part 130 (see Figures 3-5), arranged so that it extends out from the surface 3 when the base part 100 is fastened to the wall 4. The elongated part 130 is preferably formed as an integral part of the base part 100. The insulation layer 6 of the wall construction is arranged on the elongated part 130 by it being threaded onto, along the longitudinal direction of the elongated part 130, and hence supported by the elongated part 130. It is preferred that the length of the elongated part 130 is chosen so that it runs all the way through the insulation 6 and projects out from the other side of the insulation 6 when the latter is completely threaded onto the elongated part 130.

[0018] Furthermore, the base part 100 comprises a spacing means arranged to limit the movement of the insulation 6, which is threaded onto the elongated part 130, in a direction towards the surface 3, so as to create the air gap 5 between the surface 3 and the insulation 6.

[0019] The insulation retaining part 200 is in turn arranged to engage with the base part 100, preferably with the elongated part 130 of the base part 100, and when in engagement therewith to limit the movement of the insulation 6 in the opposite direction, namely out from the surface 3 when the base part 100 is fastened thereto. Thereby, the spacing means and the insulation retaining part 200 in combination act to securely retain the insulation 6 in position at a certain distance from the underlying surface 3 when the base part is fastened thereto.

[0020] The plaster layer 7 is applied on top of the insulation layer 6, preferably supported by a conventional plaster net 8, which preferably is made from metal material such as galvanized steel.

[0021] By using such a fastening device, a high-quality, strong and moisture proof wall construction can rapidly be erected on an existing support even by an ordinarily skilled craftsman within the art of plaster wall-covering, having only a minimum of training in using the present fastening system and without using any special equipment.

[0022] As described in more detail below, the mounting of the wall construction simply involves the step of fastening the base part 100 to the wall 4 surface 3 using suitable fastening means 2, applying the insulation 6 by pushing it onto the elongated part 130 until the insulation abuts the spacing means of the base part 100, applying the insulation retaining part 200 and finally applying the plaster layer 7 on top of the insulation layer 6, possibly using a plaster net as described below. The spacing means guarantee a sufficient air-and drainage gap 5 between the surface 3 and the insulation 6, and the fastening device 1 can easily be designed with adequate resiliency and strength for a variety of practical wall covering applications, see below.

[0023] Since the spacing means are integrated into the base part 100, there is no need for a specific assembly step to provide the air gap 5 such as building a wooden framework construction or the like on the existing support 4.

[0024] According to a preferred embodiment best shown in Figures 3-5, the spacing means comprises two walls 110, 120, preferably arranged in parallel to each other and to the surface 3 when the base part 100 is fastened thereto. The distance between the two walls defines the air gap 5, and in case several fastening devices 1 according to the present invention are used in combination with each other, a uniform spacing between the walls 110, 120 across all fastening devices 1 aids in achieving a plane final plastered wall surface.

[0025] The walls 110, 120 are preferably separated by distance means, for example in the form of interior walls 101. It is preferable that both walls 110, 120 have a smallest diameter, in a direction perpendicular to the elongated part 130, which is at least 5 cm, in order to provide proper support against the surface 3 and the insulation 6. It is also preferred that the distance means are arranged to allow a free air passage through the air gap 5 between the walls 110, 120.

[0026] According to a preferred embodiment, at least one, preferably at least two, through holes 102 are arranged in the base part 100 for fastening it to the support 4 surface 3. The through holes 102 are arranged to run through the spacing means of the base part 100 so that a fastening means 2 can be inserted through each through hole 102 and fastened to the wall 4 without coming into contact with the air gap 5.

[0027] In one preferred embodiment, the through hole or holes 102 are in the form of cylindrical holes running, in a direction which is perpendicular to the support 4 surface 3 when the base part 100 is fastened thereto, from one wall 110 to the other 120 and comprising a respective open end 103 (see Figures 2 and 5), opening out through each respective wall 110, 120, so that the base part 100 can be fastened to the surface 3 by inserting the fastening means 2 into the through holes 102 from the top face of the second wall 120, running through both walls 110, 120 via the through hole 102 and down into the supporting wall 4 material without coming into contact with the air gap 5.

[0028] This way, the fastening means 2 will not come into contact with the potentially moist environment inside the air gap 5, and hence corrosion problems can be

avoided. It is also possible to dimension the thickness of the different layers of the wall construction so that the dewpoint falls within the air gap and hence never comes into contact with the head of the fastening means 2 tucked away in the insulation 6.

[0029] According to a preferred embodiment, the engagement between the elongated part 130 and the insulation retaining part 200 is pivotable, so that the insulation retaining part 200 can pivot about an axis which is parallel to the supporting surface 3 when the fastening device 1 is fastened thereto. Such pivotable engagement provides a flexible support junction for the heavy plaster layer 7, which junction is influenced not only by the weight of the plaster but also by wind forces etc. When an entire wall construction is erected using a plurality of fastening devices 1 (see below), the plaster surface will be roughly level despite this flexibility of the individual support junctions, since the insulation layer 6 will be held in position relative to the surface 3 by the plurality of base parts 100.

[0030] It is furthermore preferred that the said engagement between the elongated part 130 and the insulation retaining part 200 is pivotable about a horizontal axis, so that the plaster layer, if arranged with its centre of gravity outside of the centre of rotation of the pivotable engagement, can pivot slightly outwards-downwards due to its gravitational force during and after installation.

[0031] In order to keep the insulation retaining part 200 in position, it is preferred that a free end of the elongated part 130, arranged away from the spacing means of the base part 100, comprises a shoulder means in the form of an abutment surface 143 for limiting the movement of the engaging insulation retaining part 200 towards the surface 3 when the base part 100 is fastened thereto.

[0032] According to a preferred embodiment, the engagement between the elongated part 130 and the insulation retaining part 200 is realized by a mushroom-shaped head 140 at the free end of the elongated part 130 in combination with a corresponding keyhole-shaped through hole 210 in the insulation retaining part 200. These are arranged to interact with each other, so that the head 140 can be inserted through the hole 210 through a relatively wider part 211 of the hole 210 and then be slid along a relatively narrower part 212 of the hole 210 so that the walls 142 of the head 140 facing away from the free end can engage with the walls of the insulation retaining part 200 facing the opposite way, to thereby limit the movement of the insulation retaining part 200 along the elongated part 130 in a direction away from the surface 3 when the base part 100 is fastened thereto.

[0033] This way, the insulation retaining part 200 can easily be mounted on the elongated part 130 by simply threading the through hole 210 over the head 140 and sliding the insulation retaining part 200 into engagement position as described above. Preferably, the keyhole-shaped hole 210 is arranged with its relatively wider part 211 below its relatively narrower part 212 when finally assembled, so that the insulation retaining part 200 is slid into position by a downwards motion. Furthermore, it is preferred that the pivotable engagement is realized by a combination of, on the one hand, certain play between the insulation retaining part 200 and the walls 142 and shoulder means 143, respectively, and, on the other hand, a minimal play between straight side walls 141 of the mushroom-shaped head 140 and the narrower part 212 of the keyhole-shaped through hole 210, eliminating rotational movement of the insulation retaining part 200 about the longitudinal axis of the elongated part 130 when in engagement. According to a preferred embodiment, the fastening device 1 furthermore comprises the third locking part 300, which is arranged to be inserted into the relatively wider part 211 of the through hole 210 after the head 140 has already been inserted into and in engagement with the hole 210. When thus inserted into, and in proper engagement with, the through hole 210, the locking part 300 is arranged to limit the movement of the head 140 in a direction along the relatively narrower part 212 towards the relatively wider part 211 of the hole 210, and thereby to lock the insulation retaining part 200 in position in its engagement with the elongated part 130.

[0034] Such an arrangement will provide a secure yet easy to assemble fastening of the insulation retaining part 200 onto the base part 100. The locking part 300 can be designed for rapid, secure fastening without use of additional fastening means or special equipment.

[0035] A particularly simple, quickly mountable and fail-proof way of achieving this is providing the locking part 300 in a form as shown in Figures 8-9, comprising a snap lock means in the form of a pair of snap legs 310. The locking part 300 can be pressed through the relatively wide part 211, once the insulation retaining part 200 has been placed into position on the elongated part 130, until the snap legs 310 engage with the face of the insulation retaining part 200 facing the surface 3 when the fastening device 1 is fastened thereto.

[0036] It is furthermore preferred that each snap leg 310 comprises a slanted abutment surface 311 arranged to abut the corresponding abutment surface 143 of the elongated part 130 when the head 140 is in engagement with the hole 210 and when the locking part 300 is snapped into position as described above. The said abutment will then limit a translational and/or a pivotal motion of the insulation retaining part 200 in relation to the elongated part 130 in a plane, preferably the vertical plane, perpendicular to the surface 3 when the fastening device 1 is fastened thereto. This is most clearly seen in Figure 2, which figure also shows the preferred arrangement according to which the insulation retaining part 200, because of its pivotable engagement with the elongated part 130, is free to pivot slightly clockwise (the plaster layer 7 can pivot outwards-downwards as described above) but not, because of the said abutment with the abutment surface 143, counterclockwise from its original position.

[0037] It is preferred that the abutment surface 143 is in the form of a conical face. This will provide the above described abutment with the abutment means 311 of the

locking part 300, but it is also possible to choose dimensions of the insulation retaining part 200 so that a sufficient pivoting of the latter will result in a squeezing action between insides of the through hole 210 and the abutment surface 143, resulting in the insulation retaining part 200 being retained in position with a force which is stronger the more the latter pivots. This will increase the stability of the wall construction under, for example, heavy wind loads.

[0038] According to a preferred embodiment, a plaster net 8 is positioned on the insulation retaining part 200 before the locking part 300 is put into position on the insulation retaining part 200, by bringing the legs 310 of the locking part 300 through a mask of the net 8 and then into the hole 210. In this case, it is preferred that the locking part 300 further comprises a shoulder 320 with an abutment surface 322, arranged to hold the plaster net 8 in position by limiting its movement in a direction away from the insulation retaining part 200 once in engaging position.

[0039] It is preferred that the shoulder 320 is in the form of a plate with a central through hole 321. With such an arrangement it is possible, once the base part 100, the insulation retaining part 200, the plaster net 8 and the locking part 300 are put into position, to apply the plaster partly through the hole 321 of the locking part 300 into the space between the insulation retaining part 200 and the locking part 300. This makes it easier to obtain a complete filling of the plaster around the whole engagement between the insulation retaining part 200 and the locking part 300.

[0040] This way, the plaster net 8 is fastened to the retaining part 200 in a position outside of the second part 200 as seen from the supporting surface 3 when the device 1 is fastened to said surface 3. This will allow the plaster net 8 to be arranged in the centre of a later applied plaster layer, see below.

[0041] Moreover, it is preferred that the insulation retaining part 200 comprises first distance means 220, projecting out from its surface facing away from the supporting surface 3 when the base part 100 is fastened thereto and the insulation retaining part 200 is in proper engagement with the base part 100. The first distance means 220, which preferably is in the form of a plurality of elongated ribs in order to provide sufficient and level support, is arranged to support the plaster net 8 when held by the shoulder 320 of the locking part 300.

[0042] Additionally, the insulation retaining part 200 comprises second distance means 230, arranged to abut the abutment surface 322 of the shoulder 320, thus holding the locking part 300 in position in a direction perpendicular to the surface 3 when the fastening device 1 is properly assembled and fastened. The second distance means 230 are arranged to project further out from the surface of the insulation retaining part 200 than the first distance means 220, so as to give rise to a certain space between the first distance means 220 and the shoulder 320, in which space the plaster net 8 can be securely held. To this end, it is preferred that said certain distance is between 1 and 4 mm, in order to hold the plaster net 8 without considerable play.

[0043] It is preferred that at least the base part 100, preferably also the insulation retaining part 200 and the locking part 300, are manufactured from a plastic material. By a suitable choice of such plastic material, a fastening device 1 can be achieved with sufficient strength and resistance to moisture and ageing, as well as being a poor heat conductor and also providing sufficient resilience for the resulting wall construction to be able to absorb heavy wind loads etc. Examples of suitable materials include polyamide.

[0044] When erecting a wall construction according to the present invention, as a first step, a plurality of fastening means 1 of the above described type are fastened, using suitable fastening means 2, to the underlying wall 4 surface 3. The built-in spacing means guarantee an adequate air- and drainage gap 5 between the underlying wall 4 and the insulation layer 6, which in a second step is put into position by simply pushing blocks of insulation onto the fastening means 1, allowing the respective elongated part 130 of each fastening means 1 to be pushed through the insulation material until the insulation 6 abuts the spacing means of the base part 100.

[0045] In a third step, a respective insulation retaining means 200 is put into engaging position on the mushroom-shaped head of each respective elongated part 130, so as to completely secure the insulation 6 to the base part 100.

[0046] In a fourth step, a plaster net 8 is arranged on the entire outer surface of the insulation 6, after which the plaster net 8 and the insulation retaining means 200 are locked in position using a respective locking means 300 on each insulation retaining part 200.

[0047] Finally, in a fifth step, the plaster layer 7 is applied, in a manner which is conventional per se, to the whole surface covered by the plaster net.

[0048] The plaster layer is preferably applied in a thickness of between 10-25 mm, more preferably between 15-18 mm. It is preferred that the first distance means 220 has such a height so that the plaster net 8 will be retained in the centre of the plaster layer 7 when plaster is applied from the surface of the insulation layer 6 and outwards. Thus, it is preferred that the total height of second part 200 including the first distance means 220 is between 3-15 mm, more preferably between 4-10 mm.

[0049] It is realized that with a wall construction as described above, the plurality of fastener devices 1 support not only the insulation layer 6 itself, but also the plaster net 8 arranged on the insulation layer 6, which plaster net in turn, together with the insulation 6, supports the plaster layer 7.

[0050] Above, preferred embodiments have been described. However, it is apparent to the skilled person that many modification may be made to the described embodiments without departing from the basic idea of the invention.

[0051] For example, the insulation retaining part may be attached to the base part in another way than the one described above. Hence, it may be attached using a screw fastener instead of a keyhole mechanism, and/or it may be fastened to the distance means of the base part rather than to the elongated part.

[0052] The spacing means can be formed as a solid block of material instead of two parallel walls separated by distance walls, as long as the insulation layer can be held at a constant distance from the supporting wall layer by a plurality of fastening means.

[0053] As a further example among many possible, the locking part may be attached to the insulation retaining part by means of a press-action or a screw fastener means rather than a snap lock mechanism. As an alternative, the locking part may be omitted, the insulation retaining part being designed to be fastened to the base part in some other way.

[0054] Thus, the invention is not limited to the described embodiments, but may be varied within the scope of the enclosed claims.

Claims

1. Fastening device (1) suitable for mounting a wall construction to a supporting surface (3) of a wall support (4), which wall construction comprises a first layer of insulation (6) and a second layer of plaster (7), said fastening device (1) comprising:

a first base part (100), arranged to be permanently fastened to the supporting surface (3) and in turn comprising an elongated part (130), arranged to extend out from the supporting surface (3) when the device (1) is fastened thereto and arranged to engage with a block of insulation by threading the block onto a free end of said elongated part (130) so that the elongated part (130) runs through and supports the block; and
a second insulation retaining part (200), arranged to engage with the base part (100) and when in engagement therewith limit the movement, in a direction out from the supporting surface (3), of a block of insulation which is in engagement with the elongated part (130), so that such
a block is retained on the elongated part (130),

characterised in that the first part (100) comprises a spacing means arranged, when the device (1) is fastened to the supporting surface (3) and when the first part (100) is in engagement with both a block of insulation and the second part (200), to limit the movement in a direction towards the supporting surface (3) of the block of insulation, so as to create an air gap (5) between the supporting surface (3) and the block of insulation.

2. Fastening device (1) according to claim 1, **characterised in that** the fastening device (1) comprises a fastening means for fastening a plaster net (8) to the second part (200), which plaster net (8) is arranged to cover the insulation (6) on its side facing away from the supporting surface (3) when the device (1) is fastened to said surface (3).

3. Fastening device (1) according to claim 2, **characterised in that** the fastening means is arranged to fasten the plaster net in a position outside of the second part (200) as seen from the supporting surface (3) when the device (1) is fastened to said surface (3).

4. Fastening device (1) according to any one of the preceding claims, **characterised in that** the spacing means comprises two walls (110,120) separated by distance means (101) and defining the air gap (5) between them, and **in that** at least one through hole (102), suitable for receiving fastening means (2) for fastening the first part (100) to the supporting surface (3), is arranged in the form of a cylindrical hole running from one wall (110) to the other (120) and comprising a respective open end (103) opening through each respective wall (110,120), so that a fastening means (2), such as a screw, can be inserted into and arranged to run through both walls (110,120) via the through hole (102) without coming into contact with the air gap (5) between the walls (110,120).

5. Fastening device (1) according to any one of the preceding claims, **characterised in that** the engagement between the elongated part (130) and the second part (200) is pivotable, so that the second part (200) can pivot about an axis which is parallel to the supporting surface (3) when the device (1) is fastened to said surface (3).

6. Fastening device (1) according to any one of the preceding claims, **characterised in that** the free end of the elongated part (130) furthermore comprises a shoulder means (143) limiting the movement, in a direction towards the support surface (3) when the device (3) is fastened to the surface (3), of the second part (200) when the elongated part (130) and the second part (200) engage.

7. Fastening device (1) according to any one of the preceding claims, **characterised in that** the engagement between the elongated part (130) and the second part (200) is realized by a mushroom-shaped head (140) at the free end of the elongated part (130), arranged to engage with a corresponding keyhole-shaped through hole (210) in the second part (200), so that said free end can be inserted through said through hole (210) through a relatively wide part (211) of the through hole (210) and consequently be slid along a relatively narrow part (212) of the hole

(210) so that the walls of the mushroom-shaped head (140) facing towards the spacing means can engage with the walls of the second part (200) facing the opposite way, to limit the movement of the second part (200) along the elongated part (130) in a direction away from the supporting surface (3) when the first part (100) is fastened to the supporting surface (3).

8. Fastening device (1) according to claim 7, **characterised in that** a the fastening device (1) furthermore comprises a third locking part (300), arranged to be inserted into the relatively wide part (211) of the keyhole-shaped through hole (210) when said through hole (210) is in engagement with the mushroom-shaped head (140) and thereby to limit the movement of the mushroom-shaped head (140) in a direction along the relatively narrow part (212) towards the relatively wide part (211) of the keyhole-shaped through hole (210), in turn locking the second part (200) in its engagement with the free end of the elongated part (130).

9. Fastening device (1) according to claim 8, **characterised in that** the third part (300) comprises a snap lock means (310) arranged to lock the third part (300) in place, once pushed through the keyhole-shaped through hole (210), by engagement between the snap lock means (310) and the face of the second part (200) facing the support surface (3) when the device (1) is fastened to said surface (3).

10. Fastening device (1) according to claim 9, **characterised in that** the snap lock means (310) comprises an abutment means (311) arranged to abut a corresponding surface (143) of the elongated part (130) when the mushroom-shaped head (140) is in engagement with the keyhole-shaped through hole (210) and when the third part (300) is in engagement with the keyhole-shaped through hole (210) via the snap lock means (310), so as to limit a translational and/or pivotal motion of the second part (200) in relation to the elongated part (130) in a plane perpendicular to the supporting surface (3) when the device (1) is fastened to said surface (3).

11. Fastening device (1) according to any one of claims 8-10, **characterised in that** the third part (300) comprises a shoulder (320) arranged to limit the movement away from the second part (200) of a plaster net (8), through the masks of which the third part (300) is brought before it is inserted into the keyhole-shaped through hole (210) of the second part (200).

12. Fastening device (1) according to claim 11, **characterised in that** the shoulder (320) comprises a through hole (321), allowing, when the first (100), second (200) and third (300) parts are in mutual engagement, plaster to be applied through the through hole (321) into the space between the second (200) and third (300) parts arranged to retain the plaster net (8).

13. Fastening device (1) according to claim 11 or 12, **characterised in that** the second part (200) comprises a distance means (320) projecting out from a surface of the second part (200) facing away from the supporting surface (3) when the device (1) is fastened to the supporting surface (3) and when the second part (200) is in engagement with the first part (100), which distance means (320) is arranged to support the plaster net (8) when held by the shoulder (320) of the third part (300).

14. Fastening device (1) according to any one of the preceeding claims, **characterised in that** the first part (100) is manufactured from plastic material.

15. Wall covering, comprising an insulation layer (6) and a plaster layer (7) arranged on said insulation layer (6), **characterised in that** the insulation layer (6) is supported by a plurality of fastening devices (1) according to one or several of claims 1-14, which fastener devices (1) are fastened to a supporting surface (3) of a wall support (4) and furthermore are arranged to support the insulation layer (6) so that an air gap (5) is formed between the supporting surface (3) and the insulation layer (6), and **in that** the fastener devices (1) are arranged to support a plaster net (8) arranged on the insulation layer (6), which plaster net (8) in turn supports the plaster layer (7).

Fig. 1

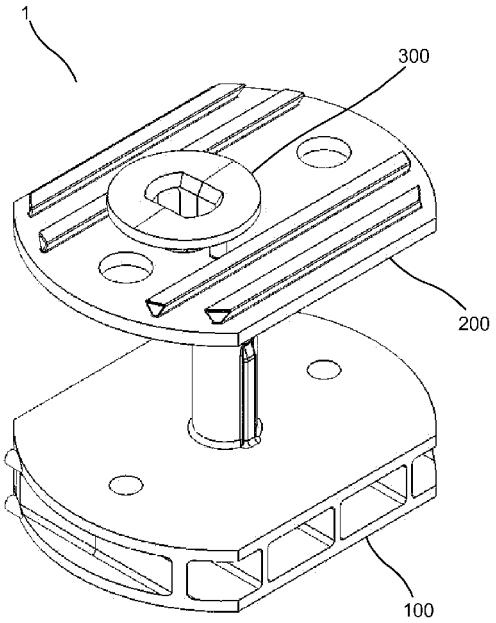
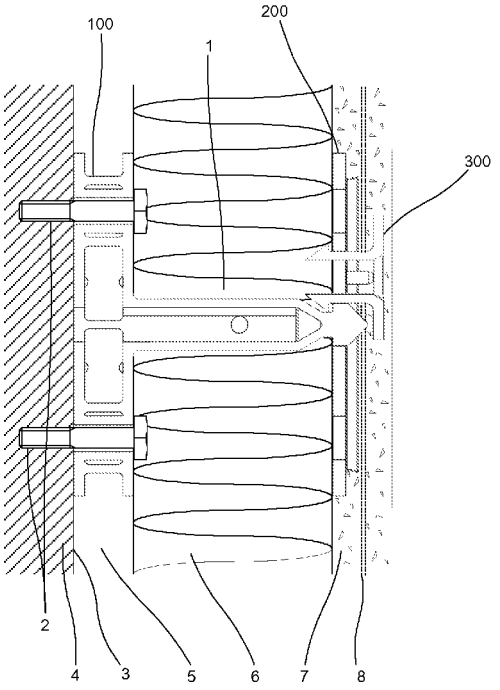


Fig. 2



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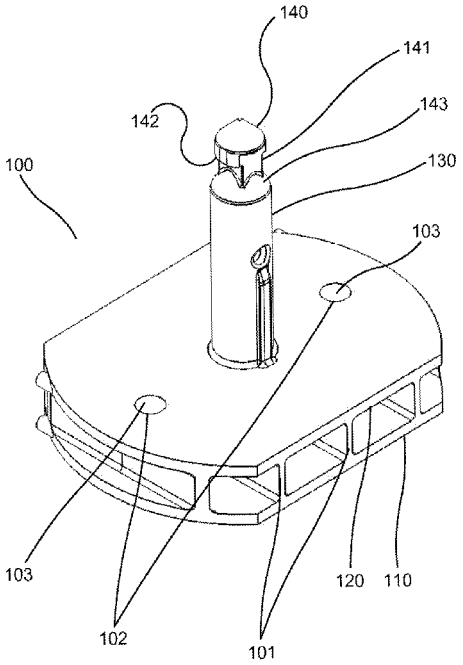
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Fig. 4

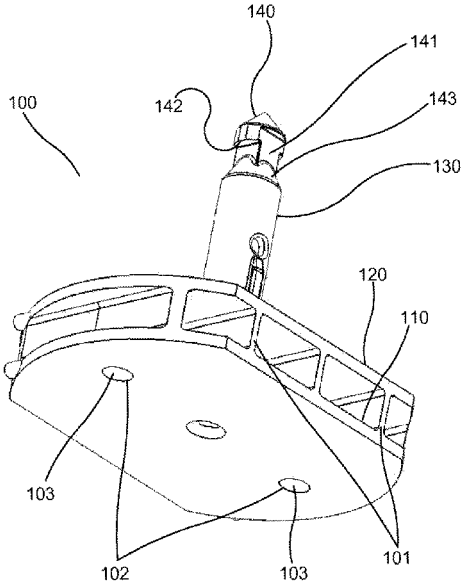
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Fig. 5

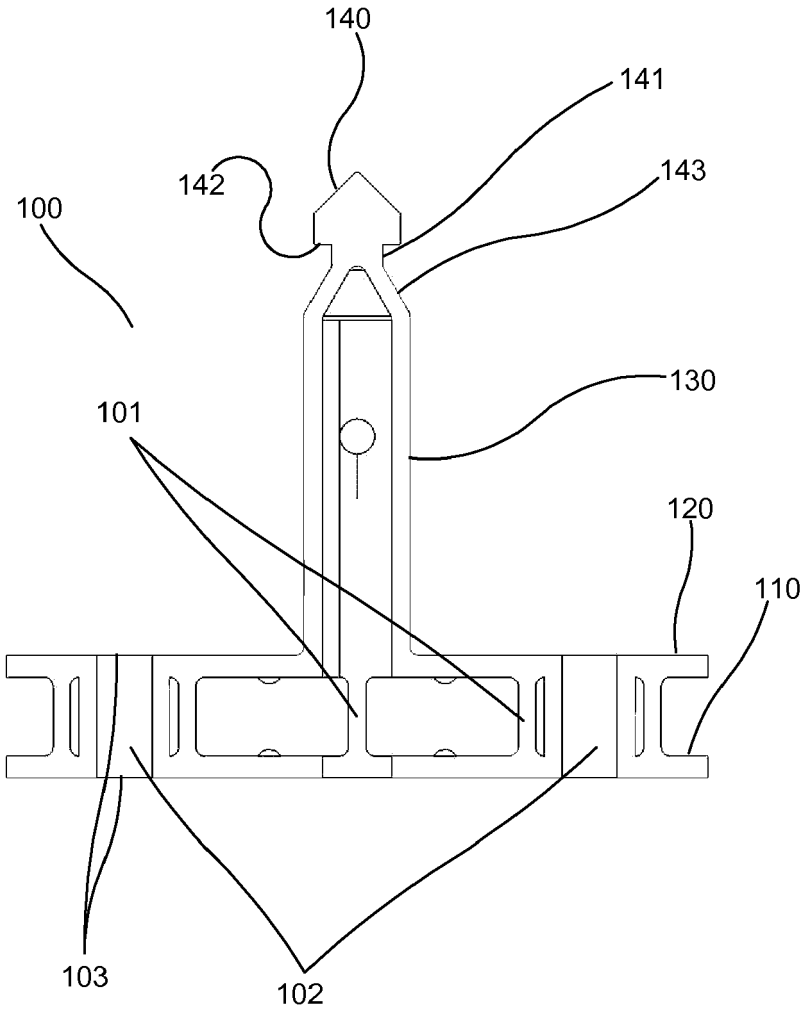


Fig. 6

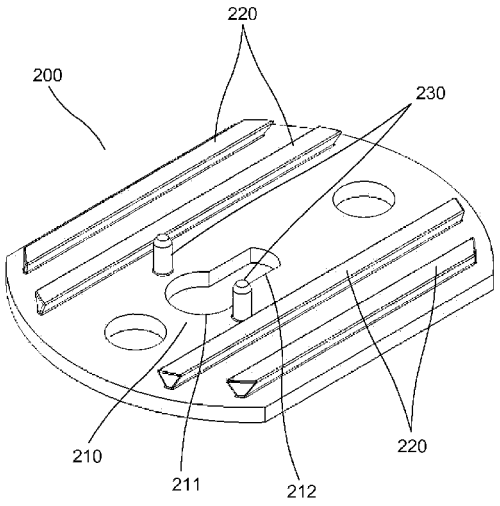


Fig. 7

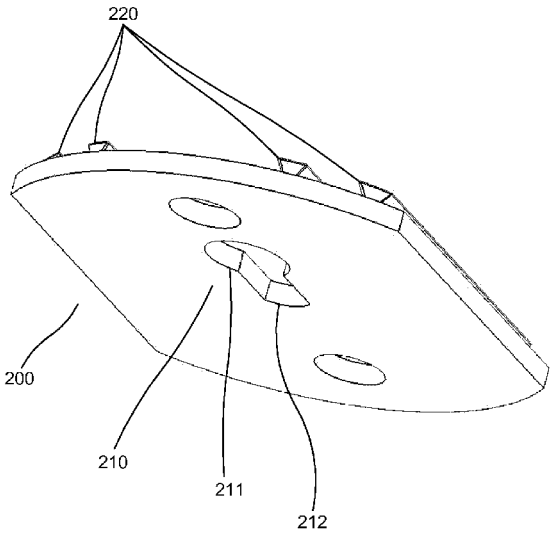


Fig. 8

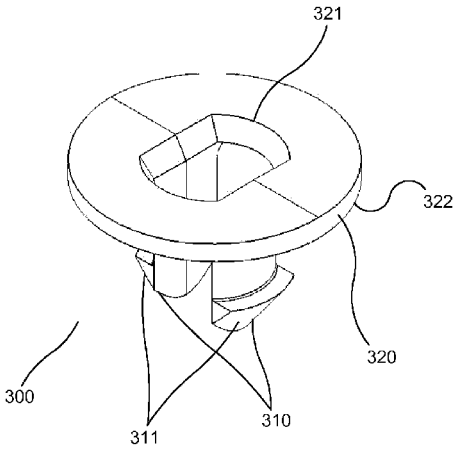
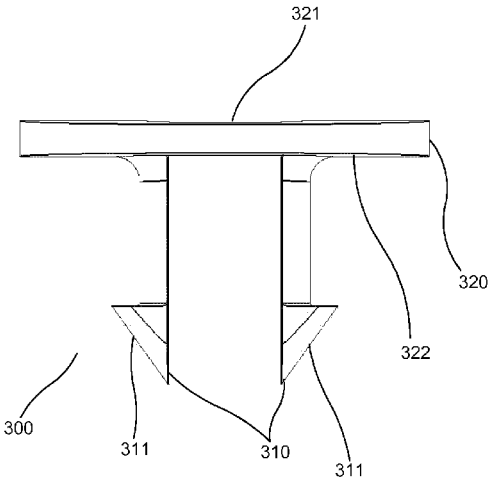


Fig. 9



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- FR 2523620 **[0006]**
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