

(19)



(11)

EP 3 296 482 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
20.03.2019 Bulletin 2019/12

(51) Int Cl.:
E04B 2/96 (2006.01)

(21) Application number: **17190772.8**

(22) Date of filing: **13.09.2017**

(54) **BURGLARY PREVENTING FASTENING FOR A FACADE COVER ELEMENT**

EINBRUCHHEMMENDER ANSCHLUSS FÜR GEBÄUDEVERKLEIDUNG

CONNEXION DE TYPE ANTI-CAMBRIOLAGE POUR REVÊTEMENT DE BÂTIMENT

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **14.09.2016 NL 2017459**

(43) Date of publication of application:
21.03.2018 Bulletin 2018/12

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(56) References cited:
EP-A1- 2 450 519 DE-U1- 29 724 117

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Description

[0001] The present invention relates to an attachment assembly according to the preamble of claim 1.

EP 0722022 shows an outside wall cladding element which is clamped by a clamping strip and a support profile. In this case, the support profile, on the side positioned against the outside wall cladding element, has a slot which extends in the longitudinal direction. A slot-shaped opening is created by forming said slot. The width and the diameter of this slot-shaped opening is approximately of the same size as the shank of the screw which clamps the clamping strip and the support profile together. Here, the shank of the screw is self-tapping. A profile is placed over the head of the screw, so that the screw head cannot readily be engaged after the outside wall cladding elements have been fitted.

A drawback of this attachment assembly is that it can be forced open relatively simply. Burglars may, for example, drill out the screw or they may remove the profile placed over the screw head using a grinding machine, after which the screw can be unscrewed.

[0002] An attachment assembly for an outside wall cladding element according to the preamble of claim 1 is known from EP 2450519 A1.

It is an object of the invention to make such an attachment assembly for outside wall cladding elements more burglar-proof.

Therefore, an attachment assembly according to claim 1 is provided.

The function of the retaining pin is to keep the clamping strip and the support profile (and thus the outside wall cladding elements) together, even after the screw has been removed.

The retaining pin is secured from the inside. As a result of this additional retaining pin, the attachment assembly remains intact, even after the screw has been removed. As the retaining pin cannot be released from the outside, this provides an improved security against burglary.

A fitted bolt may for example be used as a securing pin. The anti-burglary head of the burglar-proof retaining pin is embodied in such a way that it cannot be destroyed or engaged by means of a tool, such as a screw driver, a socket spanner, an electric drill, a grinder and/or a metal saw. This may be achieved, for example, by manufacturing the head from a hardened material, by inserting a hardened insert into the head, by making the head round, by providing a steel ball in the head of the retaining pin and/or by making the head solid.

[0003] In a possible embodiment, the support profile is substantially rectangular and comprises a support side facing the outside wall cladding element. This support side comprises a slot which extends in the longitudinal direction thereof, in such a way that a slot-shaped opening is formed in the support side. This slot has a bottom, so that the support profile has a closed cross section. It may be possible for the support profile to be formed as a single part, but it is also possible that various profiles

are welded together in order to achieve the desired shape of the support profile.

[0004] One possible shape of this support side, viewed in a cross section, is a shape which could be described as being omega-shaped. However, other shapes, such as a more rectangular shape of the slot, are also possible. The bottom of the slot is preferably substantially straight, but a more curved or bent design of the slot is also possible.

[0005] According to a preferred embodiment, the transverse bore in the retaining pin is positioned in such a way that the securing pin touches the bottom of the slot in the support profile on an inner side facing away from the cladding panel. In this way, the retaining pin is fixed at three places, namely at the two openings in the side of the support profile and against the bottom of the slot. This provides a more secure attachment compared to a connection in which the retaining pin is only secured on the two sides of the support profile.

[0006] The securing pin may be connected to the sides of the support profile in multiple ways. The securing pin may be fastened to the lateral sides of the support profile by means of a welded joint, after the securing pin has been inserted into the retaining pin through the transverse bore. Alternatively, the securing pin may be provided with a threaded shank, in which case the securing pin can be secured with respect to the sides of the support profile by means of a nut. An advantage of this second option is that the attachment assembly can then be released more readily. It should be noted that the retaining pin can in any case only be removed from the inside of the connection, so the difference with regard to the anti-burglary effect between the two above-described solutions is small.

[0007] In a further embodiment, the retaining pin is integrally connected to the clamping strip. This integral connection may be effected by forming the two components as a single part, but also, for example, by welding the two components to one another. By integrally connecting the retaining pin and the clamping strip, attaching the outside wall cladding element to the outside wall is made simpler.

[0008] As has been described in the above, the outer part of the retaining pin is embodied in such a way that it is not possible to engage it or to work it. The retaining pin can thus not be fastened or removed from the outside of the attachment assembly. To this end, various embodiments of the retaining pin are conceivable. The embodiments described below may also be combined with each other.

[0009] Thus, it is for example possible to make the outer part of the retaining pin burglar-proof by making it round in cross section, without the outer part having an indentation. In this embodiment, the outer part is thus solid, so that it cannot be engaged by means of a tool, such as a screw driver or socket spanner.

[0010] In a further embodiment, the outer part of the retaining pin is also round in cross section and solid, and

in addition made of a hardened material: a material which is harder than the remainder of the retaining pin. The effect of this hardened material is that the retaining pin can then not be destroyed by tools, such as an electric drill, a grinder or a metal saw.

[0011] In a more specific embodiment, the outer part of the retaining pin has at least one bore in its longitudinal direction. In this bore, an insert of a material which is harder than the material of the retaining pin is provided. This hardened insert is fixed in the bore, for example by welding. When the retaining pin has both a round shape and a hardened insert, it is very difficult to remove.

[0012] In a further embodiment, on the outer side of the attachment assembly, an elongate U-shaped profile is fitted. This profile is thus situated over the head of the at least one screw and the outer part of the at least one retaining pin. The U-shaped profile ensures that it is not directly visible from the outside at which location or locations an outside wall cladding element is clamped between the clamping strip and the support profile. This improves the burglar-proof effect of the attachment. Preferably, the U-shaped profile is welded to the clamping strip. However, other ways of attaching are also conceivable, for example adhesive bonding or attachment to the outside wall cladding elements instead of the clamping strip. Preferably, the U-shaped profile is fitted along the entire edge of the outside wall cladding panel.

[0013] In a further embodiment, a strip made of a material that is harder than the material of the clamping strip is fitted on the outer side of this clamping strip. This strip of hardened material is arranged between the clamping strip and the head of the screw and around the outer part of the retaining pin. This strip of hardened material renders drilling out and destroying the attachment assembly in other ways more difficult and thus increases the burglar-proof effect.

[0014] In a further embodiment, a hollow space is formed between the edge of the outside wall cladding element, the clamping strip and the support profile, wherein a filler block, preferably made of plastic, is arranged in the hollow space. The aim of the filler block is to prevent the clamping strip from being bent sideways. The filler block thus partly ensures that the outside wall cladding element cannot be removed via the clamping strip.

[0015] In a preferred embodiment, the filler block comprises openings for inserting the at least one screw and the at least one retaining pin.

[0016] In a further embodiment, a steel ball is provided in the head of the screw, after fitting. This steel sphere makes it impossible to unscrew the screw once it has been fitted.

[0017] In a further embodiment of the attachment assembly according to the invention, a glazing rubber is arranged between the clamping strip and the outside wall cladding element and/or a glazing rubber is arranged between the support profile and the outside wall cladding element. This glazing rubber inter alia provides an im-

proved seal against moisture.

[0018] A method for installing an outside wall cladding element to an outside wall with a burglar-proof attachment assembly, which attachment assembly comprises at least one screw, at least one retaining pin, a support profile, a clamping strip and a securing pin, is described below. The method comprises at least the following steps:

- 10 - providing a support profile,
- providing a burglar-proof retaining pin which has an outer part with an anti-burglary head, so that the outer part cannot be used for removing or fastening the retaining pin, and wherein the retaining pin has a more inwardly situated part which can be secured with respect to the support profile,
- 15 - providing a passage for the at least one retaining pin in a support side of the support profile,
- arranging the support profile, preferably arranging several support profiles, in both the horizontal and vertical direction,
- 20 - providing and arranging a panel support in the longitudinal direction of a horizontally arranged support profile,
- 25 - providing and arranging an outside wall cladding element in such a way that an inner side of an edge region of the outside wall cladding element lies against the support profile,
- providing and arranging a clamping strip to the outer side of the edge region of the outside wall cladding element,
- 30 - fastening the at least one screw from the outer side of the clamping strip, so that the outside wall cladding element is clamped between the clamping strip and the support profile,
- 35 - finishing the screw in such a way that it cannot be engaged or be destroyed by a tool after it has been attached,
- securing the retaining pin on the inner side of the attachment assembly by providing and arranging a securing pin through a transverse bore in the retaining pin.
- 40

[0019] Optionally, one or more of the following installation steps may be carried out before, during or after the burglar-proof attachment assembly has been installed:

- integrally securing the retaining pin to the clamping strip,
- 50 - providing and arranging a glazing rubber in the support profile side facing the outside wall cladding element
- providing and arranging a glazing rubber in the clamping strip side facing the outside wall cladding element,
- 55 - providing and arranging a strip made of a material that is harder than the material of the clamping strip on the outer side of this clamping strip,

- providing and arranging a U-shaped profile to the outer side of the clamping strip, over the outer part of the at least one retaining pin,
- providing and arranging a filler block in the hollow space between the outside wall cladding element, the support profile and the clamping strip,
- providing at least one passage in the support side of the support profile, in order to enable the at least one screw to engage therein,
- arranging a burglar-proof steel ball in a head of the screw.

[0020] The present invention will be explained in more detail below by means of a few embodiments and with reference to the drawings, in which:

Fig. 1 shows a cross section of the attachment assembly according to the invention at the location of a screw,

Fig. 2 shows a cross section of the attachment assembly from Fig. 1 at the location of a retaining pin,

Fig. 3 shows a cross section of the attachment assembly from Fig. 1 at the location of a panel support,

Fig. 4a shows a cross section of the retaining pin from Fig. 2,

Fig. 4b shows a top view of the retaining pin from Fig. 2,

Fig. 5a shows a top view of a filler block of the attachment assembly from Fig. 2, and

Fig. 5b shows a cross section of the filler block from Fig. 5a.

[0021] Figs. 1 and 2 together show an attachment assembly, here an attachment 1 of an outside wall cladding element 2 to an outside wall. This attachment comprises at least one screw, here a fastening pin 4 and at least one retaining pin 8. Fig. 1 shows a cross section of the attachment at the location of the fastening pin 4. Fig. 2 shows a cross section of the attachment at the location of the retaining pin 8.

[0022] Fig. 1 shows a cross section of an embodiment of an attachment for an outside wall cladding element 2. An edge region of the outside wall cladding element 2 is clamped between a support profile 3 and a clamping strip 7. The support profile 3 and the clamping strip 7 are connected by a fastening pin 4. In the embodiment of Fig. 1, the fastening pin 4 is a screw having a screw head 5 and a threaded shank 6. The screw head 5 is arranged on the outer side of the clamping strip 7 and the shank 6 of the screw grips into a passage 38 in the support profile 3. During placement, the screw is tightened from the outside, so that the outside wall cladding element 2 is clamped between the support profile 3 and the clamping strip 7.

[0023] Fig. 1 shows a U-shaped profile 15 that is fitted over the head 5 of the screw 4. The screw head 5 is thus covered by the U-shaped profile 15. In the example in Fig. 1, the U-shaped profile 15 is welded to the clamping

strip 7. This is not necessary. An alternative would be, for example, to adhesively bond the U-shaped profile 15 to the clamping strip 7.

In an alternative embodiment, the U-shaped profile 15 has been drilled through at the location of the screw head 5. In order to make the attachment more burglar-proof, more specifically to cover the screw head 5, it is for example possible to arrange a steel ball in the screw head 5 after it has been fastened. In this way, an easy removal of the screw 4 is prevented.

[0024] A further alternative (not shown) to render the attachment burglar-proof, more specifically to cover the screw head 5, is to slide a strip into the U-shaped profile 15 after the attachment for the outside wall cladding elements has been installed. This strip is then arranged near the outer side of the U-shaped profile 15 and thus covers the screw head 5, as a result of which the screw head 5 can no longer be removed.

[0025] In order to arrange the clamping strip 7, the U-shaped profile 15 may be connected to this clamping strip 7, for example by welding or adhesively bonding the U-shaped profile 15 to the clamping strip 7. However, it is also possible to arranged the U-shaped profile 15 in one of the last installation steps, after the at least one fastening pin 4 has been attached.

[0026] In a possible embodiment (not shown), a steel ball is fitted in the head 5 of the fastening pin 4, after installation. This steel ball prevents the fastening pin from being easily loosened from the outside.

[0027] Fig. 2 shows a cross section of the attachment at the location of a possible embodiment of the burglar-proof retaining pin 8. The outer part 8a of this retaining pin 8 is produced in such a way that it cannot be engaged or destroyed. More specifically, it is not possible to untighten the retaining pin 8 from outside by means of a tool, for example a socket spanner or screw driver. Neither is it possible to destroy the retaining pin 8 from the outside by means of a tool, for example a grinder, electric drill or metal saw.

[0028] Several embodiments of the retaining pin 8 are conceivable, with the outer part 8a of the retaining pin 8 being burglar-proof in all cases. Some options are described below. It is also possible to combine various options with each other.

[0029] One exemplary possibility is to make the outer part 8a round and completely solid in cross section. By making the outer part 8a round in cross section, the retaining pin 8 cannot be engaged by means of tools, such as for example a socket spanner. By making the outer part 8a completely solid in cross section, the retaining pin 8 cannot be engaged by means of tools, such as for example a screw driver.

Another possibility to make the outer part 8a of the retaining pin 8 burglar-proof is to make this outer part 8a from a hardened, burglar-proof material. By making the outer part 8a from a hardened material, the retaining pin 8 cannot be destroyed by tools such as for example a grinder, an electric drill or a metal saw. Preferably, the

outer part 8a of the retaining pin 8 is further round and solid in cross section.

[0030] In a further embodiment, the outer part 8a of the retaining pin 8 comprises at least one bore in its longitudinal direction. This specific embodiment of the retaining pin is illustrated in Figs. 4a and 4b. In this case, Fig. 4a shows a cross section of the retaining pin 8 in a longitudinal direction; Fig. 4b shows a top view of the retaining pin 8. In this bore, an insert 14 made of a material harder than the material used for the retaining pin 8 is arranged. The insert 14 is fixed in this bore. By fixing a hardened insert 14 in the outer part 8a of the retaining pin 8, it is not possible to destroy the retaining pin 8, for example by a tool such as a grinder, an electric drill or a metal saw. If, in addition, the retaining pin 8 is made round and solid in cross section, it also cannot be engaged by a universal spanner or a screw driver.

[0031] In Figs. 1-3, the support profile 3 has a specific shape which is explained in more detail below. This is one of the possible shapes the support profile 3 can have; it is not necessary for the support profile 3 to have this specific design. The support profile 3 in the illustrated figures has a substantially rectangular cross-sectional shape, with a support side 34 facing the outside wall cladding element 2, an outside wall side 31 situated opposite thereto and two lateral sides 32, 33. The support side 34 of the support profile 3 comprises a slot 35 which extends inwardly in the longitudinal direction. This slot 35 forms an opening 37 in the support side 34. The slot 35 has a bottom 36, as a result of which the support profile 3 has a closed contour in cross section. In the illustrated Figs. 1-3, the support profile 3 is made in one piece, but this is not necessary. The support profile 3 may also be produced by assembling different profiles to each other. The support profile 3 comprises a passage 39 in the support side 34, at the location of the slot 35. This passage 39 allows the retaining pin 8 to pass through.

[0032] In the embodiment of the support profile 3 which is illustrated in Figs. 1-3, the slot 35 is formed in such a way that the support side 34 of the support profile 3 is omega-shaped in cross section. However, alternative shapes for the slot 35 are also conceivable, such as for example a more square cross-sectional shape or a more round cross-sectional shape. In the embodiment illustrated in Figs. 1-3, the bottom 36 of the slot 35 is substantially flat. However, it is also possible for this bottom 36 to have a round shape or, on the contrary, a convex shape.

[0033] It is also possible that the slot 35 is entirely absent and that the support side 34 of the support profile 3 is substantially straight. The support profile 3 will then preferably have a substantially rectangular cross section.

[0034] In the embodiment of Fig. 2, the retaining pin 8 comprises a transverse bore 10. Lateral sides 32, 33 of the support profile 3 each comprise an opening 32a, 33a. A securing pin 12 extends through both lateral sides 32a, 33a and through the transverse bore 10 in the retaining pin 8. Thus, the retaining pin 8 is secured against the lateral side 32, 33 with respect to the support profile 3.

In the embodiment of Fig. 2, the transverse bore 10 is arranged in such a way that the securing pin 12 touches the bottom 36 of the slot 35 on an inner side facing away from the cladding element. In this way, the securing pin 12 is supported at three places, namely at both lateral sides 32, 33 and against the bottom 36 of the slot 35. Such a way of arranging the securing pin 12 is preferred over an arrangement wherein the securing pin 12 is only fixed against the lateral sides 32, 33. Fixing at three places results in a lower tolerance and more strength than fixing in two locations. However, a connection in which the securing pin 12 is only fixed against the lateral sides 32, 33 is also possible and also results in an improved burglar-proof effect with respect to the known prior-art attachments.

[0035] In the embodiment of Fig. 2, an attachment is shown in which the securing pin 12 is a fitted bolt. This fitted bolt has a head 12a and a threaded shank 12b. The fitted bolt is fixed with respect to the support profile 3 with a nut 13. The fitted bolt fits accurately in the openings 32a, 33a and the transverse bore 10. The use of a fitted bolt results in little tolerance and a strong connection. However, it is not necessary that the securing pin 12 is a fitted bolt and other solutions are also conceivable. It is also not necessary that the securing pin 12 is secured with a nut 13. It is also possible, for example, to weld the securing pin 12 to the lateral sides 32, 33.

[0036] In the embodiment shown in Fig. 2, a U-shaped profile 15 can inter alia also be seen. This profile is fitted over the outer part 8a of the retaining pin 8. The U-shaped profile 15 may also be omitted in some embodiments.

[0037] The embodiment shown in Fig. 2 furthermore shows a hardened strip 16. The material of this strip 16 is harder than the material which is used for the clamping strip 7. This hardened strip 16 is fitted on the outer side of the clamping strip 7, but under the side of the head 5 of the fastening pin 4 facing the clamping strip 7 and around the outer part 8a of the retaining pin 8. Holes have been drilled in the strip 16 at the locations where the shank 6 of the fastening pin 4 and the retaining pin 8 extend through it. Embodiments are also conceivable in which the hardened strip 16 is absent.

[0038] The embodiment of Fig. 2 furthermore shows two glazing rubbers 20, 21. These glazing rubbers 20, 21 are fitted between the clamping strip 7 and the outside wall cladding element 2 and between the support profile 3 and the outside wall cladding element 2, respectively. These glazing rubbers 20, 21 have several functions. The glazing rubbers 20, 21 ensure, inter alia, that vibrations between the outside wall cladding element 2 and the clamping strip 7 and the support profile 3, respectively, during wind and/or gusts are absorbed. The glazing rubbers 20, 21 also provide an improved sealing against moisture to the attachment. Furthermore, the glazing rubbers 20, 21 provide a certain tolerance when small manufacturing errors occur during the production of one of the other components which are used in the attachment. However, other ways of fulfilling these functions are also

conceivable; the glazing rubbers 20, 21 are not the only solution.

[0039] Also visible in Fig. 2 is a filler block 17. Fig. 1 shows a hollow space 18 between the edge of the outside wall cladding element 2, the clamping strip 7 and the support profile 3. In Fig. 2, this hollow space 18 is partly filled with a filler block 17. This filler block 17 is preferably made of plastic. The filler block 17 partly ensures that the outside wall cladding element 2 cannot be removed via the clamping strip 7.

[0040] In a preferred embodiment, the clamping strip 7 and the retaining pin 8 are integrally connected to each other, for example by welding the retaining pin 8 to the clamping strip 7. Methods other than welding, such as adhesive bonding, are also conceivable to connect the clamping strip 7 and the retaining pin 8 to each other.

[0041] Figs. 5a and 5b show a top view and cross section, respectively, of the filler block 17 which may be arranged in the hollow space 18 between the outside wall cladding element 2, the clamping strip 7 and the support profile 3. This filler block 17 is preferably made of plastic, but may also be made from other materials.

[0042] In the illustrated embodiment, the filler block 17 has openings 19 to enable the at least one fastening pin 4 and the at least one retaining pin 8 to pass through it.

[0043] By means of Figs. 1, 2 and 3, the below describes how an attachment according to the present invention may be fitted. It is not necessary that the various steps are carried out in this order. It is possible to reverse the order of some steps compared to the order described below. However, it is possible that additional steps are carried out. A number of the steps described below are optional. If a step described below is optional, this will be mentioned.

[0044] First, there are a number of preparatory steps. These preparatory steps may be carried out at the location of installation, but may also be carried out during or after the production of the various components to be used.

[0045] A first preparatory step is providing a support profile 3.

[0046] A further preparatory step is providing a burglar-proof retaining pin 8 which has an outer part 8a which is configured in such a way that it cannot be destroyed or engaged by a tool, so that the outer part 8a cannot be used to remove or fasten the retaining pin 8, and wherein the retaining pin 8 has a more inwardly situated part 8b which can be secured with respect to the support profile 3.

[0047] A further, optional, preparatory step is the integral attachment of the retaining pin 8 to the clamping strip 7.

[0048] A further, optional, preparatory step is providing and arranging a strip 16, made of a material that is harder than the material of the clamping strip 7, to the outer side of this clamping strip 7. If this step is carried out as a preparatory step, holes have to be provided in this strip 16 and the clamping strip 7, so that the at least one fastening pin 4 can be fitted during installation.

[0049] A further, optional, preparatory step is providing and fitting a U-shaped profile 15 to the outer side of the clamping strip 7. If the clamping strip 7 and the at least one retaining pin 8 have been integrally connected in a previous step, this U-shaped profile 15 will be fitted over the outer part 8a of the at least one retaining pin 8. If this step is being carried out as a preparatory step, holes have to be provided in this strip 16 and the clamping strip 7, so that the at least one fastening pin 4 can be fitted during installation.

[0050] A further, optional, preparatory step is providing at least one passage in the support side 34 of the support profile 3, so that the at least one fastening pin 4 can grip into it.

[0051] A further, optional, preparatory step is providing a passage for the at least one retaining pin 8 in the support side 34 of the support profile 3.

[0052] After the description of various possible preparatory steps, below follows a description of the various installation steps involved in installing a attachment according to the present invention. Some of the following steps are optional, when indicated.

[0053] In order to fix the outside wall cladding element 2 to the outside wall, a support profile 3 is arranged as a first step. At least one of the edges of this support profile 3 will come to lie against the inner side of the outside wall cladding element 2. Preferably, however, several support profiles 3 are fitted: both horizontally and vertically oriented. The support profile 3 may have various shapes, as has already been specified above while describing the figures. Preferably, the support profile 3 has passages 38, 39 which have been provided beforehand for the at least one fastening pin 4 and the at least one retaining pin 8. However, this is not necessary; the passages 38, 39 may also be provided in a further step. It is also possible, for example, that the passage 38 for the fastening pin 4 has not yet been provided, but that the passage 39 for the retaining pin 8 has, or vice versa. It is also possible for the fastening pin 4 to have self-tapping screw thread.

[0054] A following, optional, step is to provide a glazing rubber 21 and to clamp it in the opening 37 of the support profile 3.

[0055] Subsequently, a panel support 22 is provided and arranged in the longitudinal direction of the horizontally fitted support profile 3. The function of the panel support 22 is to partly bear the weight of the outside wall cladding element 2.

[0056] A subsequent step is to provide and fit the outside wall cladding element 2. The outside wall cladding element 2 now rests on the panel support 22 and lies against the support side 34 of the support profile 3 with the edge of its inwardly arranged side.

[0057] A subsequent step is to provide a clamping strip 7.

[0058] An optional step is to provide the glazing rubber 20 now and clamp it onto the inner side of the clamping strip 7.

[0059] Then, the clamping strip 7 is fitted against the

at least one edge of the outside wall cladding element 2. Preferably, the retaining pin 8 is welded to this clamping strip 7, but it is also possible that these two elements are connected in a different way, for example with adhesive bonding. Optionally, it is conceivable that the clamping strip 7 and the retaining pin 8 are not connected, but this is not preferred.

[0060] Simultaneously with the clamping strip 7, the filling block 17 may be provided and arranged in a hollow space 18 between the outer wall cladding element 2, the support profile 3 and the clamping strip 7.

[0061] Preferably, the hardened strip 16 and the U-shaped profile 15 have already been integrated with the clamping strip 7 before fitting. However, the hardened strip 16 and the U-shaped profile 15 may also be fitted later. If the U-shaped profile 15 is connected to the clamping strip 7 before fitting, at least one passage with a minimum diameter equal to the diameter of the at least one screw head 5 has to be provided in the U-shaped profile 15.

[0062] In a following step, the fastening pin 4 is fitted from the outside. The side of the head 5 of the fastening pin 4 facing the shank 6 then lies against the clamping strip 7 or against the hardened strip 16. The shank 6 of the screw 4 grips into the support profile 3. By tightening the screw 4, the outside wall cladding element 2 is securely clamped between the clamping strip 7 and the support profile 3.

[0063] In a following step, the fastening pin 4 may be worked, so that it can no longer be engaged or destroyed after it has been secured. There are several conceivable options to achieve this aim. If the U-shaped profile 15 is provided with at least one passage for the screw head 5, then this screw head 5 is visible from outside. The screw head 5 may then be worked, for example by arranging a steel ball therein to render it more difficult to engage the screw head 5. Another possibility is to only fit the U-shaped profile 15 after the fastening pin 4 has been fastened, so that this U-shaped profile hides the location of the fastening pin 4. It is also possible to combine the above two possibilities or to work the fastening pin 4 in any other way, for example fitting a strip to the inside of the U-shaped profile 15, which strip is arranged over the screw head 5.

[0064] In a following step, the retaining pin 8 is secured on the inside of the attachment with respect to the support profile 3 by fitting a securing pin 12 through a transverse bore 10 in the retaining pin 8.

Claims

1. Attachment assembly (1) for attaching an outside wall cladding element (2) to an outside wall, wherein the attachment assembly comprises at least one screw (4) with a screw head (5) and a threaded shank (6), at least one burglar-proof retaining pin (8), a support profile (3) and a clamping strip (7), wherein the

inner side of at least one of the edges of the outside wall cladding element (2) can be placed against the support profile (3), and wherein the clamping strip (7) can be placed on the outer side thereof, wherein the screw (4), in use, engages with the clamping strip (7) and the support profile (3) to clamp the outside wall cladding element (2) between the clamping strip (7) and the support profile (3), wherein the screw head (5), in use, is screwed against the clamping strip (7) from the outer side, in such a way that the shank (6) grips into the support profile (3), wherein the burglar-proof retaining pin (8) keeps the clamping strip (7), the outside wall cladding element (2) and the support profile (3) together, wherein the retaining pin (8) has an outer part (8a) which is situated on the outer side of the clamping strip (7) and has an anti-burglary head, so that the outer part (8a) is unusable for removing and/or fixing the retaining pin (8) from the outer side, wherein the retaining pin (8) has a more inwardly situated part (8b) which is secured with respect to the support profile (3), and wherein the retaining pin (8) has a transverse bore (10) in the more inwardly situated part (8b), **characterized in that** the support profile (3) comprises two lateral sides (32, 33), each of these lateral sides (32, 33) containing an opening (32a, 33a), and **in that** the attachment assembly furthermore comprises a securing pin (12) which extends through the openings (32a, 33a) in the lateral sides (32, 33) of the support profile (3) and through the transverse bore (10) in the retaining pin (8), in order to thus secure the retaining pin (8) with respect to the lateral sides (32, 33) of the support profile (3).

2. Attachment assembly according to claim 1, wherein the support profile (3) is substantially rectangular and comprises a support side (34) facing the outside wall cladding element (2), wherein said support side (34) comprises a slot (35) extending in the longitudinal direction thereof, in such a way that a slot-shaped opening (37) is formed in the support side (34), and wherein the slot (35) has a bottom (36).

3. Attachment assembly according to claim 2, wherein the transverse bore (10) in the retaining pin (8) is positioned in such a way that the securing pin (12) touches the bottom (36) of the slot (35) in the support profile (3) on an inner side facing away from the cladding panel.

4. Attachment assembly according to any of the preceding claims, wherein the securing pin (12) comprises a head (12a) and a threaded shank (12b), wherein the securing pin (12) is secured with respect to one of the lateral sides (32, 33) of the support profile (3) with a nut (13).

5. Attachment assembly according to any of the pre-

ceding claims, wherein the securing pin (12) is a fitted bolt.

6. Attachment assembly according to any of the preceding claims, wherein the retaining pin (8) is integrally connected to the clamping strip (7). 5
7. Attachment assembly according to any of the preceding claims, wherein the outer part (8a) of the retaining pin (8) is made burglar-proof by making it round and completely solid in cross section, so that it is not engageable by means of a tool, such as for example a screw driver or socket spanner. 10
8. Attachment assembly according to any of the preceding claims, wherein the outer part (8a) of the retaining pin (8) is made of a hardened, burglar-proof material, so that it is undestroyable. 15
9. Attachment assembly according to any of the preceding claims, wherein the outer part (8a) of the retaining pin (8) has at least one bore in its longitudinal direction, in which an insert (14) of material that is harder than the material of the retaining pin (8) is inserted and fixed. 20
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10. Attachment assembly according to any of the preceding claims, wherein, on the outer side of the attachment assembly (1), an elongate U-shaped profile (15) is arranged over the head of the at least one screw (4) and the outer part of the at least one retaining pin (8). 30
11. Attachment assembly according to any of the preceding claims, wherein a strip (16) of a material that is harder than the material of the clamping strip (7) is arranged on the outer side of said clamping strip (7), between the clamping strip (7) and the head of the screw (4) and around the outer part (8a) of the retaining pin (8). 35
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12. Attachment assembly according to any of the preceding claims, wherein a steel ball is arranged in the head (5) of the screw (4), after fitting. 45
13. Method for installing an outside wall cladding element (2) on an outside wall with a burglar-proof attachment assembly (1) according to any of the preceding claims, which attachment assembly comprises at least one screw (4), at least one retaining pin (8), a support profile (3), a clamping strip (7) and a securing pin (12), wherein the method comprises at least the following steps: 50
 - providing a support profile (3), 55
 - providing a burglar-proof retaining pin (8) which has an outer part (8a) with an anti-burglary head, so that the outer part (8a) cannot be used for

removing and/or fastening the retaining pin (8), and wherein the retaining pin (8) has a more inwardly situated part (8b) which can be secured with respect to the support profile (3),

- providing a passage for the at least one retaining pin (8) in a support side (34) of the support profile (3),
- arranging the support profile (3), preferably arranging several support profiles (3), in both the horizontal and vertical direction,
- providing and arranging a panel support (22) in the longitudinal direction of a horizontally arranged support profile (3),
- providing and arranging an outside wall cladding element (2) in such a way that an inner side of an edge region of the outside wall cladding element (2) lies against the support profile (3),
- providing and arranging a clamping strip (7) to the outer side of the edge region of the outside wall cladding element (2),
- attaching the at least one screw (4) from the outer side of the clamping strip (7), so that the outside wall cladding element (2) is clamped between the clamping strip (7) and the support profile (3),
- finishing the screw (4) in such a way that it cannot be engaged or be destroyed by a tool after it has been attached,

securing the retaining pin (8) on the inner side of the attachment assembly by providing and arranging a securing pin (12) through a transverse bore (10) in the retaining pin (8).

Patentansprüche

1. Befestigungsanordnung (1) zur Befestigung eines Außenwandverkleidungselements (2) an einer Außenwand, wobei die Befestigungsanordnung mindestens eine Schraube (4) mit einem Schraubenkopf (5) und einem Gewindenschaft (6), mindestens einen einbruchssicheren Haltestift (8), ein Trägerprofil (3) und eine Klemmleiste (7) aufweist, wobei die Innenseite mindestens einer der Kanten des Außenwandverkleidungselements (2) gegen das Trägerprofil (3) anlegbar ist, und wobei die Klemmleiste (7) auf deren Außenseite anlegbar ist, wobei die Schraube (4) im Gebrauch in die Klemmleiste (7) eingreift und das Trägerprofil (3) das Außenwandverkleidungselement (2) zwischen der Klemmleiste (7) und dem Trägerprofil (3) klemmt, wobei der Schraubenkopf (5) im Gebrauch von der Außenseite so gegen die Klemmleiste (7) geschraubt ist, dass der Schaft (6) in das Trägerprofil (3) greift, wobei der einbruchssichere Haltestift (8) die Klemmleiste (7), das Außenwandverkleidungselement (2) und das Trägerprofil (3) zusammenhält, wobei der Haltestift (8) ei-

- nen Außenteil (8a) aufweist, der auf der Außenseite der Klemmleiste (7) angeordnet ist und einen einbruchhemmenden Kopf aufweist, so dass der Außenteil (8a) zum Entfernen und/oder Fixieren des Haltestiftes (8) von der Außenseite unbrauchbar ist, wobei der Haltestift (8) einen weiter innen liegenden Teil (8b) aufweist, der in Bezug auf das Trägerprofil (3) gesichert ist, und wobei der Haltestift (8) eine Querbohrung (10) in dem weiter innen liegenden Teil (8b) aufweist,
- dadurch gekennzeichnet, dass** das Trägerprofil (3) zwei laterale Seiten (32, 33) umfasst, wobei jede dieser lateralen Seiten (32, 33) eine Öffnung (32a, 33a) enthält, und dass die Befestigungsanordnung ferner einen Sicherungsstift (12) umfasst, der sich durch die Öffnungen (32a, 33a) in den lateralen Seiten (32, 33) des Trägerprofils (3) und durch die Querbohrung (10) im Haltestift (8) erstreckt, um so den Haltestift (8) in Bezug auf die lateralen Seiten (32, 33) des Trägerprofils (3) zu sichern.
2. Befestigungsanordnung nach Anspruch 1, wobei das Trägerprofil (3) im Wesentlichen rechteckig ist und eine dem Außenwandverkleidungselement (2) zugewandte Stützseite (34) umfasst, wobei diese Stützseite (34) einen Schlitz (35) umfasst, der sich in ihrer Längsrichtung erstreckt, so dass eine schlitzförmige Öffnung (37) in der Stützseite (34) ausgebildet ist, und wobei der Schlitz (35) einen Boden (36) aufweist.
 3. Befestigungsanordnung nach Anspruch 2, wobei die Querbohrung (10) in dem Haltestift (8) so positioniert ist, dass der Sicherungsstift (12) den Boden (36) des Schlitzes (35) im Trägerprofil (3) auf einer von der Verkleidungsplatte abgewandten Innenseite berührt.
 4. Befestigungsanordnung nach einem der vorstehenden Ansprüche, wobei der Sicherungsstift (12) einen Kopf (12a) und einen Gewindenschaft (12b) umfasst, wobei der Sicherungsstift (12) in Bezug auf eine der lateralen Seiten (32, 33) des Trägerprofils (3) mit einer Mutter (13) gesichert ist.
 5. Befestigungsanordnung nach einem der vorstehenden Ansprüche, wobei der Sicherungsstift (12) ein Passbolzen ist.
 6. Befestigungsanordnung nach einem der vorstehenden Ansprüche, wobei der Haltestift (8) integral mit der Klemmleiste (7) verbunden ist.
 7. Befestigungsanordnung nach einem der vorstehenden Ansprüche, wobei der Außenteil (8a) des Haltestiftes (8) einbruchhemmend gemacht ist, indem er rund und im Querschnitt vollständig fest ist, so dass er nicht mit einem Werkzeug, wie beispielsweise einem Schraubendreher oder einer Steckschlüsselspinne, in Eingriff bringbar ist.
 8. Befestigungsanordnung nach einem der vorstehenden Ansprüche, wobei der Außenteil (8a) des Haltestiftes (8) aus einem gehärteten, einbruchhemmenden Material besteht, so dass er unzerstörbar ist.
 9. Befestigungsanordnung nach einem der vorstehenden Ansprüche, wobei der Außenteil (8a) des Haltestiftes (8) mindestens eine Bohrung in seiner Längsrichtung aufweist, in die ein Einsatz (14) aus einem Material eingesetzt und befestigt ist, das härter ist als das Material des Haltestiftes (8).
 10. Befestigungsanordnung nach einem der vorhergehenden Ansprüche, wobei auf der Außenseite der Befestigungsanordnung (1) ein längliches U-förmiges Profil (15) über dem Kopf der mindestens einen Schraube (4) und dem äußeren Teil des mindestens einen Haltestiftes (8) angeordnet ist.
 11. Befestigungsanordnung nach einem der vorstehenden Ansprüche, wobei ein Streifen (16) aus einem Material, das härter ist als das Material der Klemmleiste (7), auf der Außenseite der Klemmleiste (7), zwischen der Klemmleiste (7) und dem Kopf der Schraube (4) und um den Außenteil (8a) des Haltestiftes (8) angeordnet ist.
 12. Befestigungsanordnung nach einem der vorstehenden Ansprüche, wobei eine Stahlkugel im Kopf (5) der Schraube (4) nachträglich angeordnet ist.
 13. Verfahren zur Montage eines Außenwandverkleidungselements (2) an einer Außenwand mit einer einbruchhemmenden Befestigungsanordnung nach einem der vorstehenden Ansprüche, wobei die Befestigungsanordnung mindestens eine Schraube (4), mindestens einen Haltestift (8), ein Trägerprofil (3), eine Klemmleiste (7) und einen Sicherungsstift (12) umfasst, wobei das Verfahren mindestens die folgenden Schritte aufweist:
 - Bereitstellen eines Trägerprofils (3),
 - Bereitstellen eines einbruchssicheren Haltestiftes (8), der einen Außenteil (8a) mit einem einbruchhemmenden Kopf aufweist, so dass der Außenteil (8a) nicht zum Entfernen und/oder Befestigen des Haltestiftes (8) verwendet werden kann, und wobei der Haltestift (8) einen weiter innen liegenden Teil (8b) aufweist, der in Bezug auf das Trägerprofil (3) gesichert werden kann,
 - Bereitstellen eines Durchgangs für den mindestens einen Haltestift (8) in einer Stützseite (34) des Trägerprofils (3),

Anordnen des Trägerprofils (3), vorzugsweise Anordnen mehrerer Trägerprofile (3), sowohl in horizontaler als auch in vertikaler Richtung, Bereitstellen und Anordnen eines Plattenträgers (22) in Längsrichtung eines horizontal angeordneten Trägerprofils (3),

5 Bereitstellen und Anordnen eines Außenwandverkleidungselements (2) derart, dass eine Innenseite eines Randbereichs des Außenwandverkleidungselements (2) an dem Trägerprofil (3) anliegt, Bereitstellen und Anordnen einer Klemmleiste (7) an der Außenseite des Randbereichs des Außenwandverkleidungselements (2),

10 Befestigen der mindestens einen Schraube (4) von der Außenseite der Klemmleiste (7), so dass das Außenwandverkleidungselement (2) zwischen der Klemmleiste (7) und dem Trägerprofil (3) eingespannt ist, Fertigstellen der Schraube (4) so, dass sie nach der Befestigung nicht von einem Werkzeug eingekuppelt oder zerstört werden kann,

15 Sichern des Haltestiftes (8) auf der Innenseite der Befestigungsanordnung durch Bereitstellen und Anordnen eines Sicherungsstiftes (12) durch eine Querbohrung (10) im Haltestift (8).

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Revendications

1. Ensemble (1) de fixation pour fixer un élément de revêtement (2) de paroi extérieure a une paroi extérieure, dans lequel cet ensemble de fixation comprend au moins une vis (4) avec une tête de vis (5) et une tige filetée (6), au moins une goupille de retenue (8) anti-effraction, un profilé de support (3) et une bande de serrage (7), dans lequel la face interne d'au moins l'un des bords de l'élément de revêtement (2) de paroi extérieure peut être placée contre le profilé de support (3), et dans lequel la bande de serrage (7) peut être placée sur son côté extérieur, dans lequel la vis (4), en cours d'utilisation, s'engage dans la bande de serrage (7) et le profilé de support (3), pour serrer l'élément de revêtement (2) de paroi extérieure entre la bande de serrage (7) et le profilé de support (3), dans lequel la tête de vis (5) est, en cours d'utilisation, vissée contre la bande de serrage (7) à partir côté extérieur, de telle sorte que la tige (6) s'engage dans le profilé de support (3), dans lequel la goupille de retenue anti-effraction (8) maintient ensemble la bande de serrage (7), l'élément de revêtement (2) de paroi extérieur et le profilé de support (3), dans lequel la goupille de retenue (8) a une partie extérieure (8a) qui est située du côté extérieur de la bande de serrage (7) et a une tête anti-effraction, de sorte que la partie extérieure (8a) est inutilisable pour retirer et/ou fixer la goupille de retenue (8) à partir du côté extérieur, dans lequel la goupille
- de retenue (8) a une partie (8b) située plus à l'intérieur et fixée de manière sécurisée par rapport au profilé de support (3), et dans lequel la goupille de retenue (8) présente un alésage transversal (10) dans la partie (8b) située plus à l'intérieur, **caractérisé ce que** le profilé de support (3) comprend deux côtés latéraux (32, 33), chacun de ces côtés latéraux (32, 33) contenant une ouverture (32a, 33a), et **en ce que** l'ensemble de fixation comprend en outre une goupille de verrouillage (12) qui traverse les ouvertures (32a, 33a) dans les côtés latéraux (32, 33) du profilé de support (3) et l'alésage transversal (10) dans la goupille de retenue (8), afin de fixer ainsi de manière sécurisée la goupille de retenue (8) par rapport aux côtés latéraux (32, 33) du profilé de support (3).
2. Ensemble de fixation selon la revendication 1, dans lequel le profilé de support (3) est sensiblement rectangulaire et comprend un côté de support (34) faisant face à l'élément de revêtement (2) de paroi extérieure, dans lequel ledit côté de support (34) comprend une fente (35) s'étendant dans sa direction longitudinale, de manière à ce qu'une ouverture en forme de fente (37) est formée dans le côté de support (34), et dans lequel la fente (35) a un fond (36).
3. Ensemble de fixation selon la revendication 2, dans lequel l'alésage transversal (10) dans la goupille de retenue (8) est positionné de telle sorte que la goupille de verrouillage (12) touche le fond (36) de la fente (35) dans le profilé de support (3) sur un côté intérieur opposé au panneau de revêtement.
4. Ensemble de fixation selon l'une quelconque des revendications précédentes, dans lequel la goupille de verrouillage (12) comprend une tête (12a) et une tige filetée (12b), dans lequel la goupille de verrouillage (12) est fixée de manière sécurisée par rapport à l'un des côtés latéraux (32, 33) du profilé de support (3) avec un écrou (13).
5. Ensemble de fixation selon l'une quelconque des revendications précédentes, dans lequel la goupille de verrouillage (12) est un boulon ajusté.
6. Ensemble de fixation selon l'une quelconque des revendications précédentes, dans lequel la goupille de retenue (8) est connectée de manière intégrée à la bande de serrage (7).
7. Ensemble de fixation selon l'une quelconque des revendications précédentes, dans lequel la partie extérieure (8a) de la goupille de retenue (8) est rendue anti-effraction en la rendant ronde et de section complètement pleine en coupe transversale, de sorte qu'elle ne puisse pas être engagée au moyen d'un outil, tel que par exemple un tournevis ou une clé à

douille.

8. Ensemble de fixation selon l'une quelconque des revendications précédentes, dans lequel la partie extérieure (8a) de la goupille de retenue (8) est constituée d'un matériau durci, anti-effraction, de sorte qu'elle est indestructible. 5
9. Ensemble de fixation selon l'une quelconque des revendications précédentes, dans lequel la partie extérieure (8a) de la goupille de retenue (8) présente au moins un alésage dans sa direction longitudinale, dans lequel un insert (14) en matériau plus dur que le matériau de la goupille de retenue (8) est inséré et fixé. 10 15
10. Ensemble de fixation selon l'une quelconque des revendications précédentes, dans lequel, sur le côté extérieur de l'ensemble de fixation (1), un profilé (15) allongé en forme de U est disposé sur la tête de la au moins une vis (4) et du côté extérieur de la au moins une goupille de retenue (8). 20
11. Ensemble de fixation selon l'une quelconque des revendications précédentes, dans lequel une bande (16) d'un matériau plus dur que le matériau de la bande de serrage (7) est disposée sur le côté extérieur de ladite bande de serrage (7), entre la bande de serrage (7) et la tête de la vis (4) et autour de la partie extérieure (8a) de la goupille de retenue (8). 25 30
12. Ensemble de fixation selon l'une quelconque des revendications précédentes, dans lequel une bille d'acier est disposée dans la tête (5) de la vis (4), après montage. 35
13. Procédé d'installation d'un élément de revêtement (2) de paroi extérieure sur une paroi extérieure avec un ensemble de fixation anti-effraction (1) selon l'une quelconque des revendications précédentes, lequel ensemble de fixation comprenant au moins une vis (4), au moins une goupille de retenue (8), un profilé de support (3), une bande de serrage (7) et une goupille de verrouillage (12), le procédé comprenant au moins les étapes suivantes: 40 45
 - fourniture d'un profilé de support (3),
 - fourniture d'une goupille de retenue (8) anti-effraction qui une partie extérieure (8a) avec une tête anti-effraction, de sorte que la partie extérieure (8a) ne puisse pas être utilisée pour retirer et/ou fixer la goupille de retenue (8), et dans lequel la goupille de retenue (8) a une partie (8b) qui est située plus à l'intérieur qui peut être fixée de manière sécurisée par rapport au profilé de support (3), 50
 - fournir un passage pour la au moins une goupille de retenue (8) dans un côté de support (34) 55

du profilé de support (3),

- disposer le profilé de support (3), disposer de préférence plusieurs profilés de support (3) dans les deux directions horizontale et verticale,
- fournir et disposer un support de panneau (22) dans la direction longitudinale d'un profilé de support (3) disposé horizontalement,
- fournir et disposer un élément de revêtement (2) de paroi externe de telle sorte qu'un côté intérieur d'une région de bord de l'élément de revêtement (2) de paroi extérieure repose contre le profilé de support (3),
- fournir et disposer une bande de serrage (7) sur le côté extérieur de la région de bord de l'élément de revêtement (2) de paroi extérieur,
- fixer la au moins une vis (4) à partir du côté extérieur de la bande de serrage (7), de sorte que l'élément de revêtement (2) de paroi extérieure est serré entre la bande de serrage (7) et le profilé de support (3),
- finir la vis (4) de telle sorte qu'elle ne peut pas être engagée ou détruite par un outil après qu'elle a été fixée,
- fixer de manière sécurisée la goupille de retenue (8) du côté intérieur de l'ensemble de fixation en fournissant et en faisant passer une goupille de verrouillage (12) à travers un trou transversal (10) dans la goupille de retenue (8).

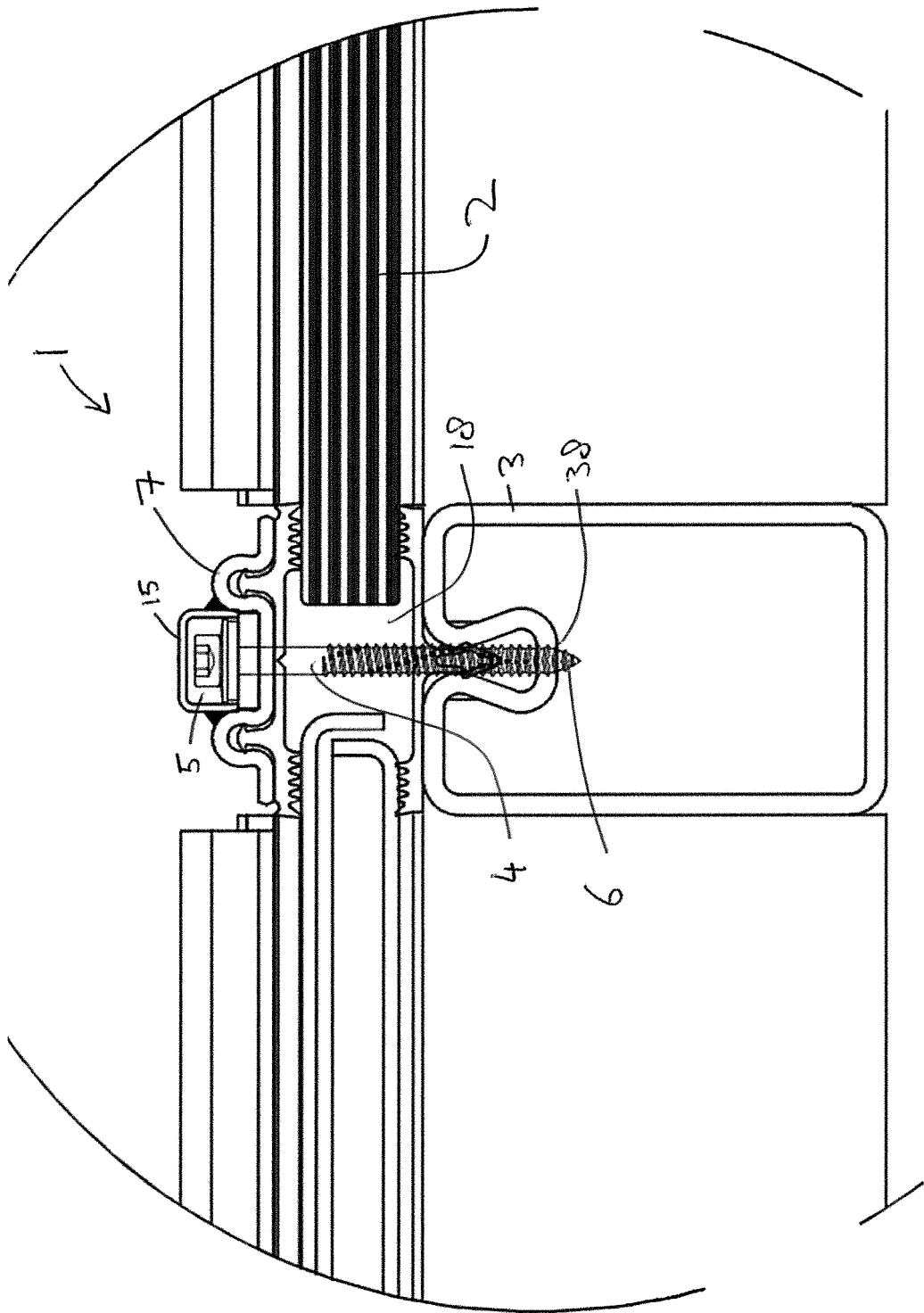


Fig. 1

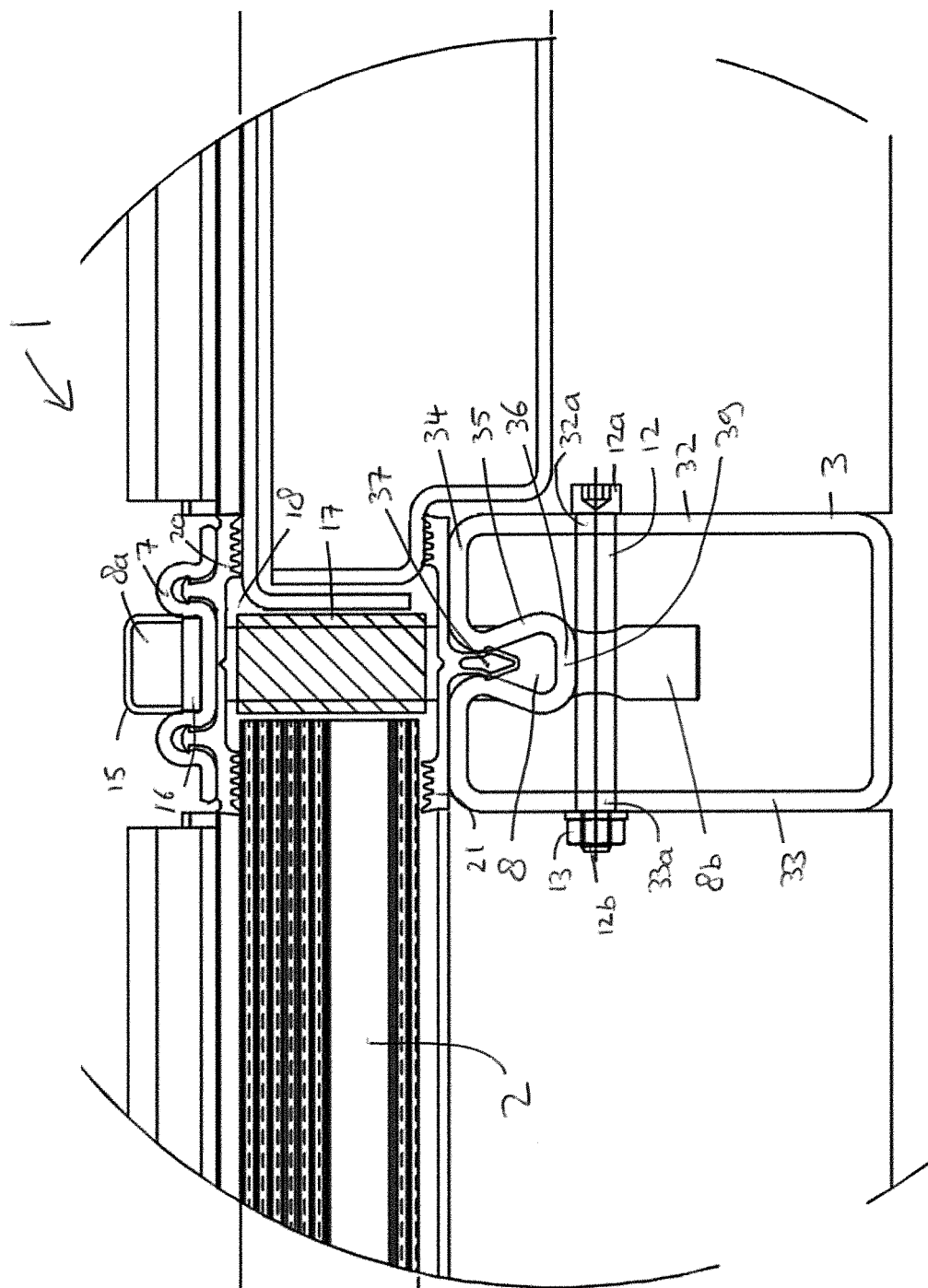


Fig. 2

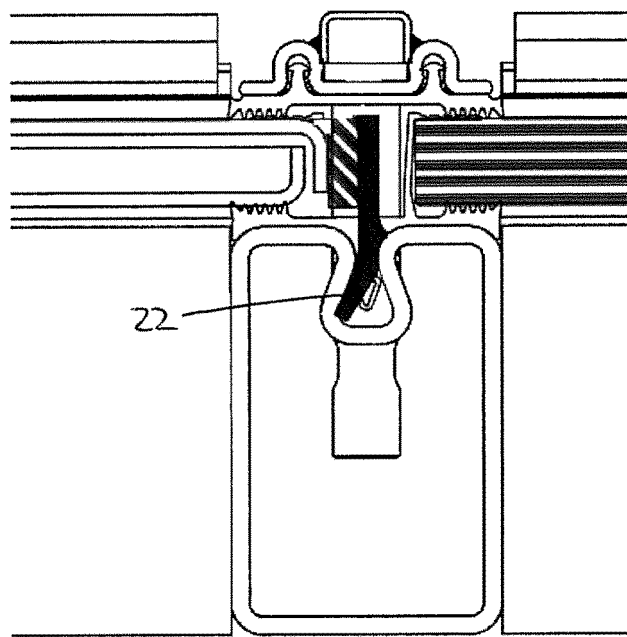


Fig. 3

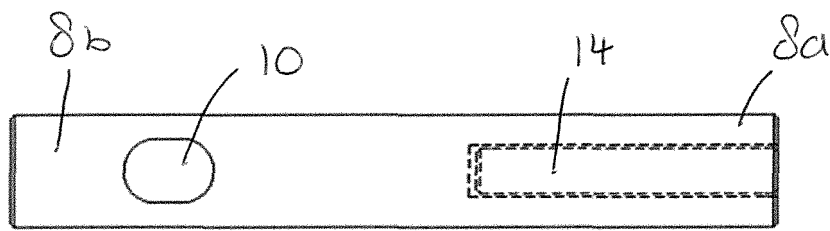


Fig. 4a

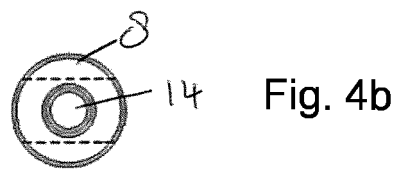


Fig. 4b

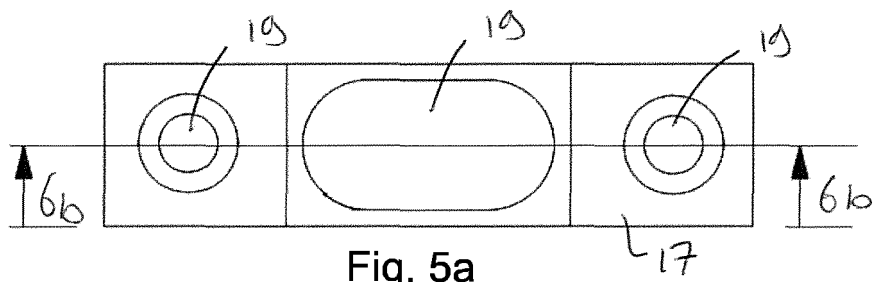


Fig. 5a

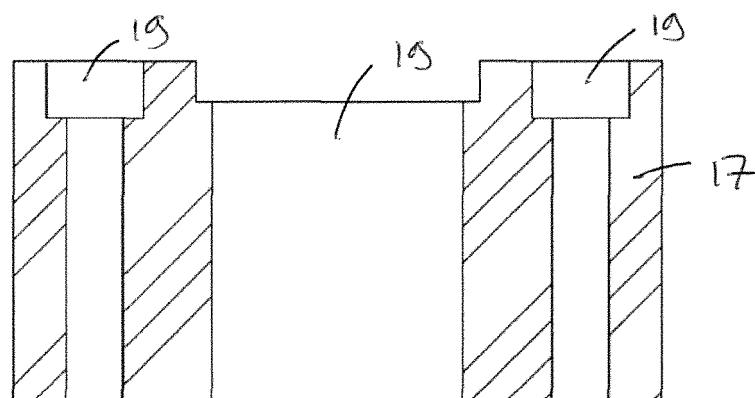


Fig. 5b

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 0722022 A [0001]
- EP 2450519 A1 [0002]