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(54) **FIXATION STRIP TO BE ATTACHED TO THE ROOF SURFACE OF A FLAT ROOF**

(57) The invention relates to a fixation strip to be attached to the roof surface of a flat roof for fixing a piece of roof covering which is to be arranged on the roof surface and is provided with adhesive material on its underside, wherein the fixation strip comprises a carrier and an adhesive layer. The adhesive layer is interrupted by at least one path which extends in the longitudinal direction of the strip and on which the adhesive layer is absent.

The path without adhesive material makes it possible to use the path as a hinge, such as in situations where one adhesive layer which is separate from the substrate is connected to a piece of roof covering, so that said adhesive layer can rotate upwards with the piece of roof covering and the other adhesive layer is securely connected to the substrate. The absence of the adhesive layer also makes it possible to feed the fixation strip through a sewing machine in order to make a sewed seam, for example for attachment to an underlying layer.

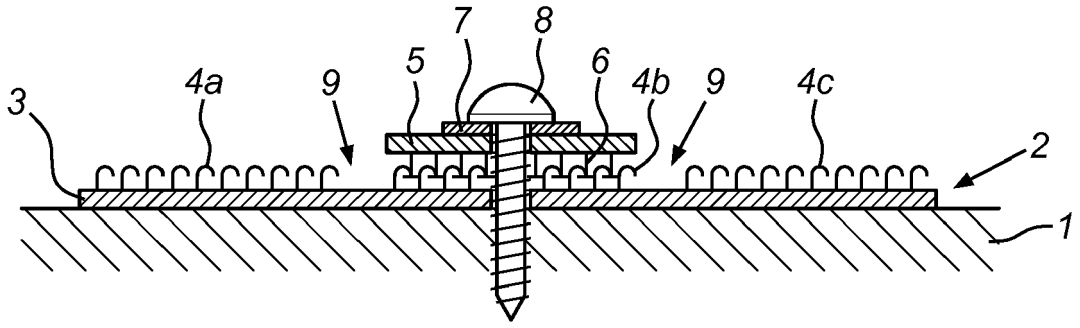

Fig. 1

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Description

[0001] The invention relates to a fixation strip to be attached to the roof surface of a flat roof according to Claim 1. The path without adhesive material makes it possible to use the path as a hinge, such as in situations where one adhesive layer which is separate from the substrate is connected to a piece of roof covering, so that said adhesive layer can rotate upwards with the piece of roof covering and the other adhesive layer is securely connected to the substrate. The absence of the adhesive layer also makes it possible to feed the fixation strip through a sewing machine in order to make a sewed seam, for example for attachment to an underlying layer. The invention also relates to Claims 9, 15 and 17.

[0002] Use is preferably made of adhesive material provided with hooks or mushroom hooks, which is also known as Velcro. In that case, the measure in Claim 2 is applied.

[0003] If only one single piece of roof covering has to be attached, a fixation strip according to Claim 3 suffices. If the measure according to Claim 4 is applied, the fixation strip is suitable for attaching two adjoining or overlapping pieces of roof covering, wherein the wide path is used for adhesion to the substrate. The latter is also possible using the fixation strip according to Claim 5, with adhesion to the substrate occurring on the central path.

[0004] It may be desirable to combine the fixation strip with an underlying layer. In that case, the measure according to Claim 7 is preferably applied. The absence of the adhesive layer then makes it possible to apply the measure according to Claim 8.

[0005] The measure from Claims 10 and 15 is preferred in order to improve the connection between the adhesive plates and the fixation strip.

[0006] The invention is explained below with reference to the attached drawings, in which:

Figure 1: shows a cross-sectional view of a fixation strip according to the invention;
Figure 2: shows a detail view of Figure 2: and
Figure 3: shows a view corresponding with Figure 1 during the loading of the roof material.

[0007] Figure 1 shows a cross section of a flat roof structure 1, to which a fixation strip 2 according to the invention is attached. The fixation strip 2 comprises a carrier 3 with a width of 16 cm on which three strips of adhesive layer 4a, 4b and 4c are formed. In this case, this is preferably adhesive material which is provided with hooks in order to engage with adhesive material which is provided with loops, and which is also known as Velcro. The loops form an integral part of the carrier since they are formed simultaneously with the carrier. The strips 4a, 4b and 4c are separated by paths 9 of the carrier 3 on which no adhesive layer 4 is present.

[0008] A plastic clamping plate 5 is arranged on the central strip 4b, the underside of which clamping plate 5 is provided with an adhesive layer 6 in the form of mushroom-shaped protrusions. These protrusions engage with the hooks of the strip 4b. The clamping plate is thus fixed to the fixation strip 2. This is illustrated in detail in Figure 2. It is possible to provide the clamping plate 5 with an adhesive layer in the form of loops or hooks, provided that this can engage with the adhesive layer 4b of the fixation strip 2.

[0009] Subsequently, a metal ring 7 is placed on the clamping plate 5 which prevents a screw 8 which is screwed into the roof structure 1 and extends through the ring 7, the clamping plate 5 and the fixation strip 2 from over-rotating. The fixation strip is thus securely attached to the roof structure, with it being noted that the attachment is only present in the central strip. As a result, the two lateral strips are separate from the roof surface, although they form a unit with the central strip.

[0010] Finally, two pieces of roof covering 10 are attached to the fixation strip 2, with an adhesive layer 11, preferably in the form of loops, being arranged on the underside of the pieces of roof covering 10. These adhesive layers 11 engage with the adhesive layers 4a and 4c, respectively, of the fixation strip 2, resulting in good fixation. As the fixation strip 2 is only connected to the roof structure 1 at the location of the screw 8 and the fixation strip 2 is flexible in each case at the location of the paths 9, the lateral parts of the fixation strip 2 may follow the deformation of the pieces of roof covering 10, so that the connection between the adhesive layers 4 and 11 is as far as possible subject to shear rather than to 'peeling'.

[0011] It will be clear that the fixation strips 2 according to the invention may also be used outside the edges of the pieces of roof covering 10.

[0012] The patent application further comprises the Figures a1-a3, b1-b3, c1-c3, which illustrate various embodiments in cross section.

[0013] Figure a1 shows an embodiment with three adhesive layers extending in the longitudinal direction of the strip which are separated by 'bare' paths of the carrier on which no adhesive layer is arranged. The strip may be easily folded on these paths.

[0014] Figure a2 shows a corresponding embodiment which is sewed onto a separating membrane on its paths between the adhesive layers. Sewing onto an adhesive layer is awkward because the hooks or loops of the adhesive layer interfere with the sewing process. This problem does not occur with the bare paths.

[0015] Figure a3 shows a similar embodiment in which a separating membrane is glued to the carrier as an alternative to sewing.

[0016] Figure b1 shows an embodiment with two adhesive layers which extend in the longitudinal direction of the strip and are separated by a wide 'bare' path of the carrier on which no adhesive layer is arranged. The strip may be easily folded on this path.

[0017] Figure b2 shows a corresponding embodiment which is sewed on a separating membrane on its path

between the adhesive layers. Sewing onto an adhesive layer is awkward since the hooks or loops of the adhesive layer interfere with the sewing process. This problem does not occur with the bare path. The use of the wide path provides more freedom for the location of the sewed seams.

[0018] Figure b3 shows a similar embodiment in which a separating membrane is glued onto the carrier, as an alternative to sewing.

[0019] Figure c1 shows an embodiment which corresponds to the embodiment illustrated in Figure b1, but in which the wide path is reinforced, for example by using reinforced fibres. In this case it is important that the narrow paths remain present on both sides of the wide, reinforced path in order to be able to make the folds.

[0020] Figure c2 shows the same embodiment as Figure c1, in which the separating membrane is sewed onto the carrier.

[0021] Figure c3 once again shows the same embodiment, in which the separating membrane is glued onto the carrier.

[0022] Figures o1-o13 show various embodiments of the clamping plate.

[0023] Figure o1 shows a steel, preferably galvanized clamping plate which is provided with a threaded hole, and on the underside of which a piece of adhesive material provided with loops is glued, which adhesive material engages with the adhesive material of the strips mentioned above.

[0024] The clamping plate shown in Figure o2 corresponds to the clamping plate shown in Figure o1, provided that the adhesive material is now formed by self-adhesive adhesive material. Irrespective of the way in which the clamping plate is attached, the adhesive material may be provided with loops, hooks or mushrooms hooks.

[0025] Figure o3 shows a plastic clamping plate which is provided with a threaded hole, and on the underside of which a piece of adhesive material is glued of a type which engages with the adhesive material of the strips mentioned above.

[0026] Figure o4 shows a plastic clamping plate according to Figure o3, on which the adhesive material of Figure o2 is integrally formed.

[0027] The embodiments above only have a single threaded hole; the clamping plate in Figure o5 has two threaded holes; in all other respects it corresponds to Figure o4. This preferably relates to an elongate clamping plate.

[0028] The embodiment of Figure o6 comprises three holes and otherwise corresponds to Figure o5.

[0029] Figure o7 shows an embodiment in the form of a plastic strip or profile, in which a large number of threaded holes are arranged, for example with a centre-to-centre distance of 5 cm. The adhesive material in the form of hooks is integrally formed on the strip.

[0030] Figure o8 shows an embodiment in the form of a steel strip or profile which is provided with separate adhesive material connected to the profile, for example, by means of gluing or a self-adhesive layer. The profile is provided with a large number of threaded holes, with a centre-to-centre distance of 2.5 cm or 5 cm.

[0031] The embodiment of Figure o9 corresponds to that of Figure o4, with an extra ring being used to prevent over-rotation of the screw.

[0032] The embodiment of Figure o10 corresponds to that of Figure o9, however with the ring being recessed.

[0033] The embodiment of Figure o11 corresponds to that of Figure o5, with rings being used to prevent over-rotation of the screw.

[0034] The embodiment of Figure o12 corresponds to that of Figure o11, with the rings being recessed.

[0035] The embodiment of Figure o13 corresponds to that of Figure o6, with rings being used to prevent over-rotation of the screw.

[0036] The foregoing is primarily based on adhesive material which is known under the brand name Velcro and which is provided with hooks which engage with adhesive material which is provided with loops. However, it is also possible for the material provided with loops to engage with other material provided with loops. Furthermore, use is increasingly being made of protrusions in the form of mushrooms. This material can engage with hooks, but also with loops. The invention must therefore be understood in the light of the alternatives explained above.

Claims

1. Fixation strip to be attached to the roof surface of a flat roof for fixing a piece of roof covering which is to be arranged on the roof surface and is provided with adhesive material on its underside, wherein the fixation strip comprises a carrier and an adhesive layer, **characterized in that** the adhesive layer is interrupted by at least one path which extends in the longitudinal direction of the strip and on which the adhesive layer is absent.

2. Fixation strip according to Claim 1, **characterized in that** the adhesive layer is formed by hooks, and **in that** the hooks are integrally formed on the carrier.

3. Fixation strip according to Claim 1 or 2, **characterized in that** the adhesive layer is interrupted by only one path on which the adhesive layer is absent.

4. Fixation strip according to Claim 3, **characterized in that** the path on which the adhesive layer is absent is approximately the same width as each of the remaining adhesive layers.

5. Fixation strip according to Claim 1 or 2, **characterized in that** the adhesive layer is interrupted by two paths on which the adhesive layer is absent, **in that** the three remaining adhesive layers are approxi-

mately the same width, and **in that** the width of the paths on which the adhesive layer is absent is considerably smaller than that of the remaining adhesive layers.

6. Fixation strip according to one of the preceding claims, **characterized in that** the fixation strip has a width of between 100 mm and 200 mm.

7. Fixation strip according to one of the preceding claims, **characterized in that** a bottom layer is arranged under the carrier.

8. Fixation strip according to Claim 7, **characterized in that** the bottom layer is connected to the carrier by means of a sewed connection, and **in that** the sewed connection extends over a path on which the adhesive layer is absent.

9. Combination of a fixation strip according to one of the preceding claims, **characterized by** a clamping plate to be arranged on the fixation strip, which clamping plate is connectable to the underlying roof structure of the flat roof by means of at least one screw extending through the clamping plate and through the fixation strip.

10. Combination according to Claim 9, **characterized in that** the underside of the clamping plate is provided with an adhesive layer which is configured to engage with an adhesive layer of the fixation strip.

11. Combination according to Claim 10, **characterized in that** the clamping plate is made of metal, and **in that** a piece of adhesive layer formed on a carrier is attached to the underside of the clamping plate.

12. Combination according to Claim 10, **characterized in that** the clamping plate is made of plastic, and **in that** the adhesive layer is integrally formed on the clamping plate.

13. Combination according to Claim 12, **characterized in that** the combination is provided with a metal ring through which the screw extends.

14. Combination according to Claim 11, **characterized in that** the clamping plate is elongate and has the form of a profile, and **in that** various openings are arranged in the profile, through which screws extend.

15. Combination according to one of Claims 9-14 arranged on a roof, **characterized in that** the fixation strip is placed on a roof surface with its adhesive layer facing upwards, **in that** at least one clamping plate is arranged on the fixation strip, and **in that** a number of screws are screwed into the roof structure through the at least one clamping plate and the fixation strip.

16. Combination according to one of Claims 10-14 arranged on a roof, **characterized in that** the fixation strip is placed on a roof surface with its adhesive layer facing upwards, **in that** at least one clamping plate is arranged on the fixation strip, **in that** a number of screws are screwed into the roof structure through the at least one clamping plate and the fixation strip, and **in that** the adhesive layer arranged on the underside of the clamping plate engages with the adhesive layer of the fixation strip.

17. Method for attaching a fixation strip to the roof surface of a flat roof, **characterized in that** the fixation strip is placed on a roof surface with its adhesive layer facing upwards, **in that** at least one clamping plate is arranged on the fixation strip, and **in that** a number of screws are screwed into the roof structure through the at least one clamping plate and the fixation strip.

18. Method according to Claim 17, **characterized in that** at least one piece of roof covering is fixed to the fixation strip.

19. Method according to Claim 18, **characterized in that** at least two pieces of roof covering are fixed to the fixation strip, with the dividing line extending substantially parallel to the longitudinal direction of the fixation strip.

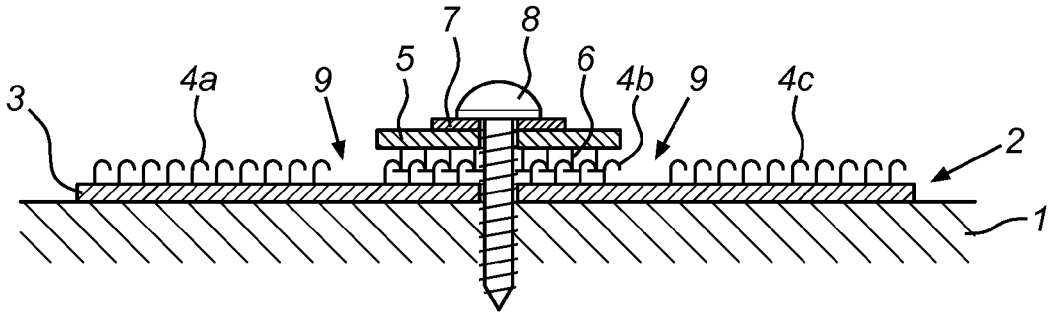


Fig. 1

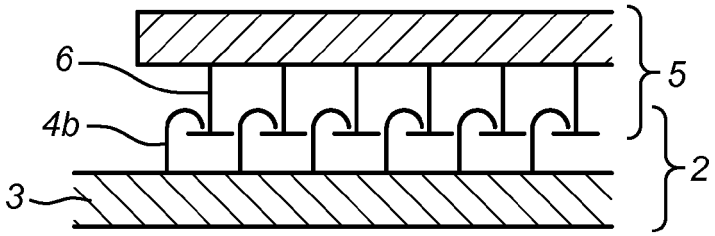


Fig. 2

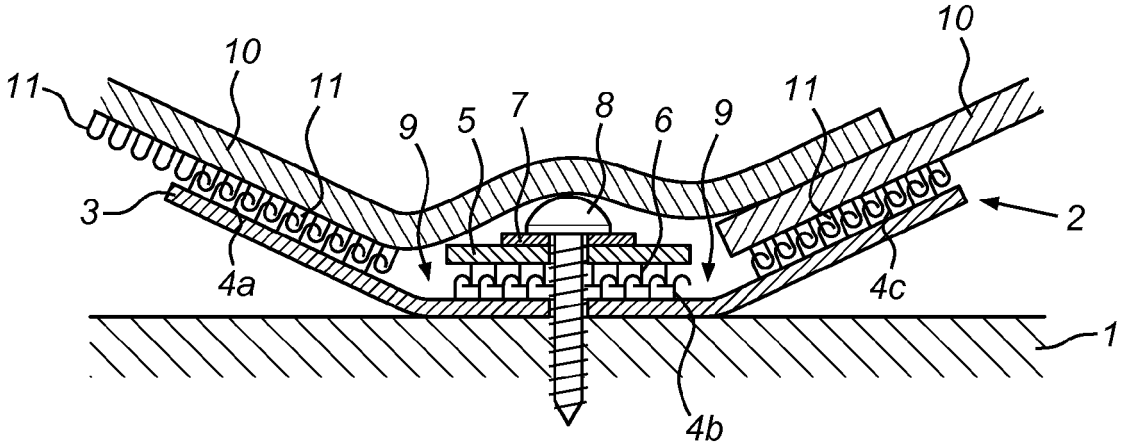
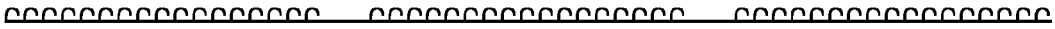
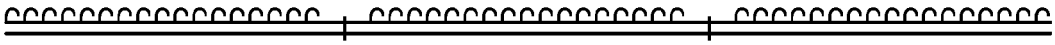


Fig. 3



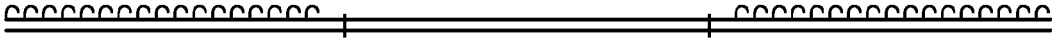
a1



a2

a3

b1



b2

b3

c1

c2

c3

o1

o2

o3

o4

o5

o6

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o10

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o12

o13

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EUROPEAN SEARCH REPORT

Application Number
EP 15 17 7321

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	7 December 2015	Bauer, Josef

CATEGORY OF CITED DOCUMENTS

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