



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
24.02.2016 Bulletin 2016/08

(51) Int Cl.:
E04D 5/14 (2006.01)

(21) Application number: **15181591.7**

(22) Date of filing: **19.08.2015**

(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
Designated Extension States:
BA ME
Designated Validation States:
MA

(71) Applicant: **L.B. Benedict Holding B.V.**
3223 EZ Hellevoetsluis (NL)

(72) Inventor: **BENEDICT, Leonard Bert**
3223 EZ Hellevoetsluis (NL)

(74) Representative: **Patentwerk B.V.**
P.O. Box 1514
5200 BN 's-Hertogenbosch (NL)

(30) Priority: **20.08.2014 NL 2013344**

(54) **FIXING STRIP, TO BE FASTENED ON A FLAT ROOF, FOR THE FIXING OF ROOF COVERING**

(57) The invention relates to a fixing strip, to be fastened on the roof surface of a flat roof, for fixing a piece of roof covering which is to be applied to the roof surface and which is provided on its bottom side with adhesive material, wherein the fixing strip comprises a substrate and an adhesive layer, characterized in that the fixing

strip is provided with a number of clamping plates, which are fitted at equal distances apart and which, by means of at least one screw extending through the clamping plate and through the fixing strip, are each connectable to the underlying roof structure of the flat roof.

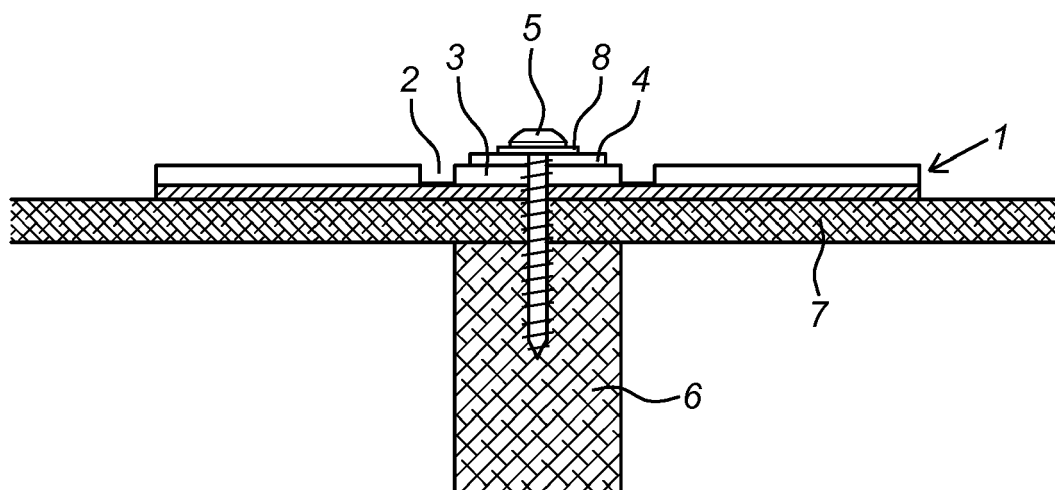


Fig. 2

Description

[0001] The invention relates to a fixing strip according to Claim 1. The fixing strip can comply with all the measures which are described in Dutch patent application 2013204.

[0002] When applying such a fixing strip to a roof, a clamping plate must be fitted at each position where, by means of a screw, the fixing strip must be connected to the underlying roof structure. This requires labour and fitting and measuring. In many cases, underlying structural parts of a roof are regular, so that the screws must be placed at a regular distance apart. These screws can then respectively be screwed into the structural parts. The invention makes use of this regularity by virtue of the measure according to Claim 1. In the Netherlands, the pitch measurement is generally 25 cm, which provides, moreover, an adequate fixing for the fixing strip. Preferably, the distance between the holes of the clamping plates is hence equal to 25 cm. Other measurements, such as, for example, 23 cm, 28 cm or 30 cm, are not precluded, however, since the choice of the measurement is dependent on that pitch measurement which is customary in a local district for beams or other structural parts of a roof in which the screws find sufficient purchase.

[0003] Other attractive embodiments emerge from the sub-claims.

[0004] In many cases, the strips of roof covering are fitted parallel to the fixing strips, wherein the adhesive pieces of the strips of roof covering act on the adhesive strips of the fixing strips. Each fixing strip is in this case acted on by the adhesive strips of two mutually connecting strips of roof covering. It is not ruled out, however, that the strips of roof covering extend transversely to the fixing strips. The width of the pieces of adhesive material, both on the fixing strips and on the strips of roof covering, must be sufficient to provide adequate fixing even in situations of this type where the surface of the adhesive strips is not fully utilized.

[0005] In the accompanying drawings:

- Figure 1: shows a schematic perspective view of a combination according to the invention;
- Figure 2: shows a cross-sectional view of the combination represented in Figure 1;
- Figure 3: shows a cross-sectional view of a clamping plate according to the invention;
- Figure 4: shows a cross-sectional view of a combination with a piece of roof covering; and
- Figure 5: shows a diagram for illustrating the transverse positioning of the pieces of roof covering.

[0006] Figure 1 shows a fixing strip 1, which is made of adhesive material and which is provided with two grooves 2, in which the adhesive material is absent. Otherwise, it is likewise possible for the adhesive material

to be bonded on a strip or band, for example by gluing or stitching. On the thus remaining centre strip 3, clamping plates 4 are fitted with a mutual spacing of 25 cm. These clamping plates 4 are in fact provided on their bottom side with adhesive material. The thus formed fixing strip can be easily rolled up and, at the workplace, be unrolled and positioned with the clamping plates in the correct position.

[0007] The cross section of Figure 2 shows how the fixing strip is connected by means of a screw 5 to the underlying structure 6 of the roof 7, wherein a metal ring 8 is used when the clamping plate is made of plastic.

[0008] The clamping plate 3 is represented in greater detail in Figure 3, from which it can be seen how the metal ring is provided with a collar or protuberance for the clamping of the ring to the clamping plate. This prevents the rings from having to be placed at the workplace. Other ways of bonding, such as clamping in another way or gluing, are not precluded.

[0009] The cross section of Figure 4, which shows the thickness and height of the components in magnified form, reveals how in normal use, in which the strips of roof covering 9 extend parallel to the fixing strips, the strips of roof covering are bonded to the fixing strips. The strips of roof covering are provided on their bottom side with adhesive strips 10, which act on the adhesive strips 3a of the fixing strips. Furthermore, it is clear that the strips of roof covering are placed in overlapping arrangement in order to obtain a watertight roof.

[0010] Figure 5 shows the transverse placement of the strips of roof covering with respect to the fixing strips. The pieces of adhesive material of both sorts of strips are represented hatched in opposite direction. From this drawing it is evident that bonding only takes place at places where the adhesive strips overlap each other, that is to say on those parts of the drawing which are shown in chequered representation. When it is desired to place the strips in this way, the width of the adhesive strips should be chosen such that the bonding is sufficiently strong in the given situation.

[0011] In the above, wherever reference has been made to adhesive strips, by which is understood Velcro tape, inclusive of material provided with tiny loops, mushrooms or hooks, the strips of adhesive material which are to be placed one upon the other have no bonding to one another.

Claims

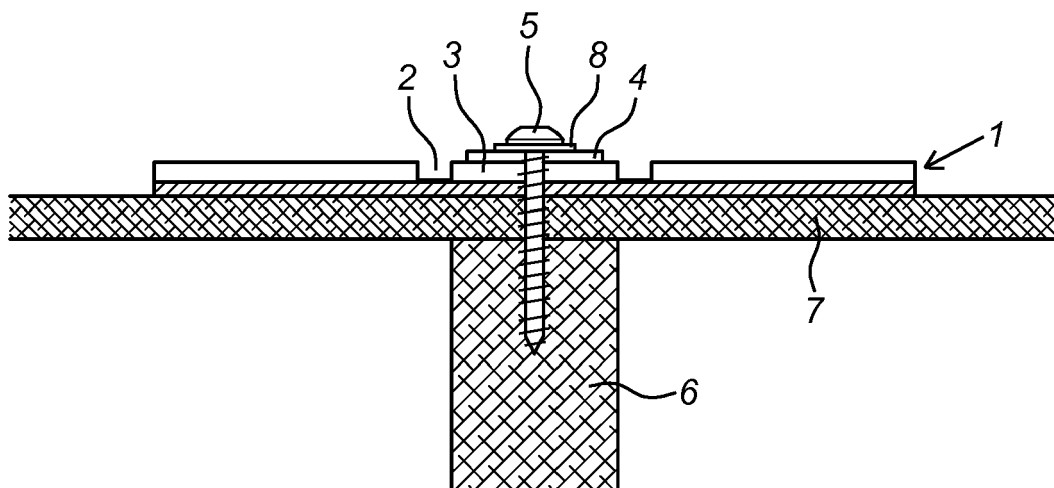
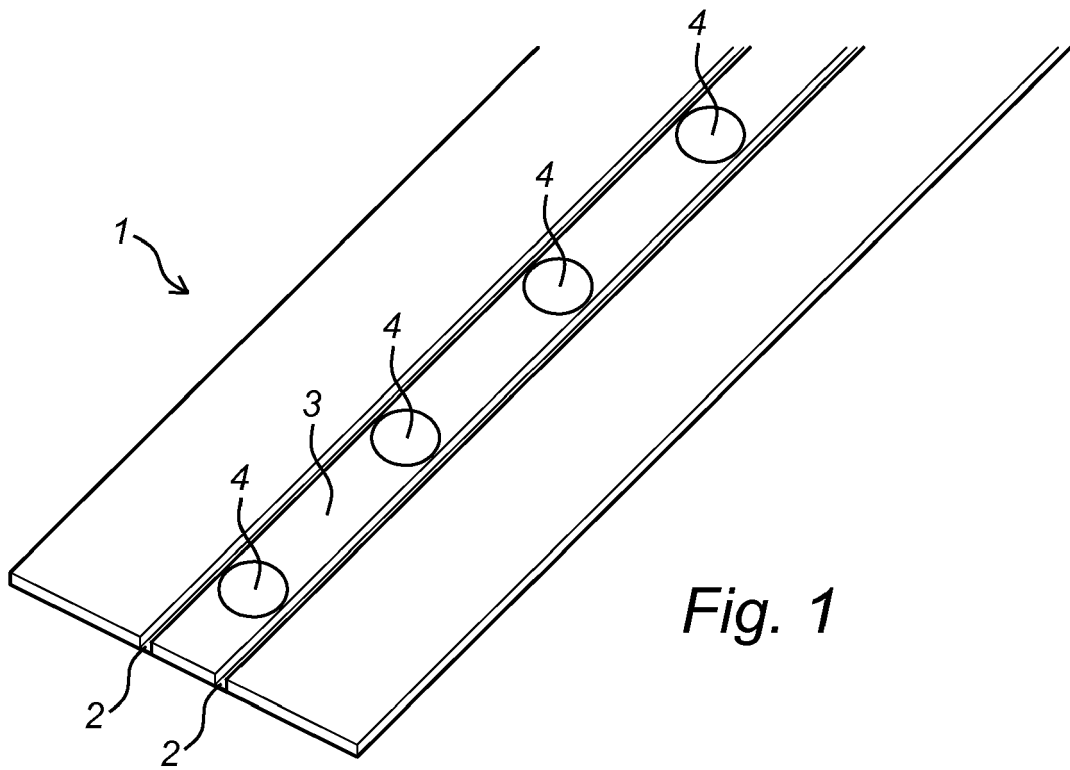
1. Fixing strip, to be fastened on the roof surface of a flat roof, for fixing a piece of roof covering which is to be applied to the roof surface and which is provided on its bottom side with adhesive material, wherein the fixing strip comprises a substrate and an adhesive layer, **characterized in that** the fixing strip is provided with a number of clamping plates, which are fitted at equal distances apart and which, by

means of at least one screw extending through the clamping plate and through the fixing strip, are each connectable to the underlying roof structure of the flat roof.

2. Combination according to Claim 1, **characterized in that** the adhesive layer is formed by hooks, and **in that** the hooks are formed onto the substrate. 5
3. Combination according to Claim 1 of 2, **characterized in that** the clamping plate is provided on its bottom side with an adhesive layer which is designed to act on an adhesive layer of the fixing strip. 10
4. Combination according to Claim 3, **characterized in that** the clamping plates are made of metal, and **in that** to the bottom side of each of the clamping plates is fastened a piece of adhesive layer formed on a substrate. 15
5. Combination according to Claim 3, **characterized in that** the clamping plates are made of plastic, and **in that** the adhesive layer is formed onto each of the clamping plates. 20
6. Combination according to Claim 5, **characterized in that** the clamping plates are provided with a metal ring through which the screw extends. 25
7. Combination according to Claim 6, **characterized in that** the metal ring is bonded to the particular clamping plate. 30
8. Combination according to Claim 7, **characterized in that** the metal ring is provided with a collar extending around its opening, which collar extends into the opening of the clamping plate and with which collar the ring is clamped to the clamping plate. 35
9. Combination according to one of the preceding claims, **characterized in that** the fixing strip is rolled up. 40
10. Strip of roof covering to be applied to a combination according to one of the preceding claims, which is provided on its bottom side with two pieces of adhesive material extending in the longitudinal direction of the strip, which adhesive material is designed to act on the adhesive material applied to the fixing strip. 45
11. Strip of roof covering according to Claim 10, **characterized in that** the pieces of adhesive material extend along the longitudinal edges of the strip of roof covering. 50
12. Strip of roof covering according to Claim 10, **characterized in that** one piece of adhesive material ex-

tends along a longitudinal edge of the strip of roof covering, and **in that** the other strip of adhesive material extends at a short distance from the other longitudinal edge of the strip of roof covering.

13. Strip of roof covering according to Claim 10, 11 or 12, **characterized in that** the spaces between the pieces of adhesive material on the bottom side are filled.
14. Strip of roof covering according to Claim 10, 11, 12 of 13, **characterized in that** the width of the pieces of adhesive material is chosen to form a sufficiently strong bond when the strip of roof covering extends transversely to the longitudinal direction of the fixing strip.



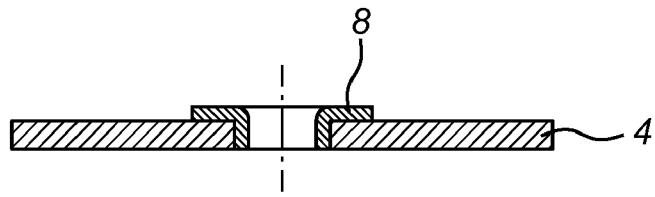


Fig. 3

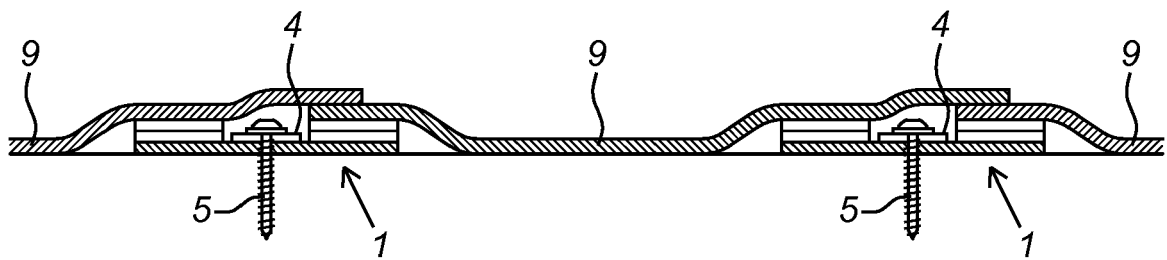


Fig. 4

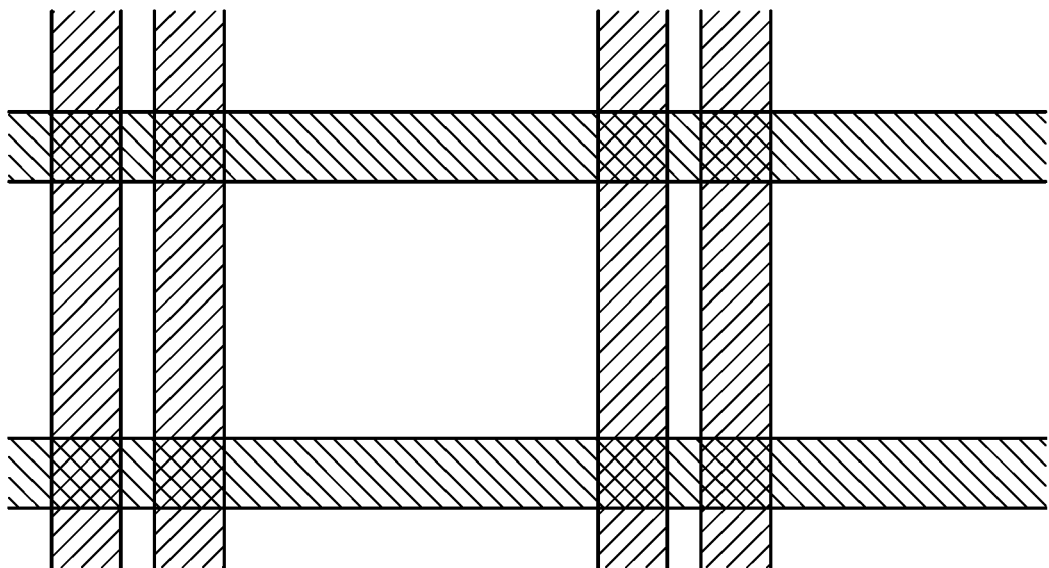


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 15 18 1591

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 41 00 902 A1 (HUELS TROISDORF [DE]) 29 August 1991 (1991-08-29)	10,14	INV. E04D5/14
Y	* column 1, paragraph 1 *	1,2,4-9	
A	* "Beispiel 1"; column 3 *	3	
	* figure 1 *		
Y	----- US 5 800 891 A (WASITIS WILLIAM A [US]) 1 September 1998 (1998-09-01) * figure 1 *	1,2	
Y	----- US 5 168 684 A (BRUHM RONALD [CA]) 8 December 1992 (1992-12-08) * figures 1,2 *	1,2,4-9	
A	* column 1, line 67 - column 3, line 2 *	3	
	* claim 1 *		
X	----- WO 98/36139 A1 (MINNESOTA MINING & MFG [US]; GRAHAM JOSEPH [US]; KENNEDY KEITH [US]; M) 20 August 1998 (1998-08-20) * figures 4,7 *	10-14	TECHNICAL FIELDS SEARCHED (IPC)
A	----- WO 2004/099527 A1 (GRP REFURBISHMENT SYSTEMS LTD [GB]; LAMBORN JOHN GARFIELD [GB]) 18 November 2004 (2004-11-18) * figure 2 *	6-8	E04D

The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 5 January 2016	Examiner Tran, Kim Lien
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 15 18 1591

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

05-01-2016

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 4100902 A1	29-08-1991	NONE	
US 5800891 A	01-09-1998	CA 2227723 A1 US 5800891 A	23-07-1998 01-09-1998
US 5168684 A	08-12-1992	NONE	
WO 9836139 A1	20-08-1998	AU 6279898 A CA 2283857 A1 EP 1009893 A1 WO 9836139 A1	08-09-1998 20-08-1998 21-06-2000 20-08-1998
WO 2004099527 A1	18-11-2004	AT 365842 T DE 602004007258 T2 EP 1620612 A1 WO 2004099527 A1	15-07-2007 06-03-2008 01-02-2006 18-11-2004

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- NL 2013204 [0001]