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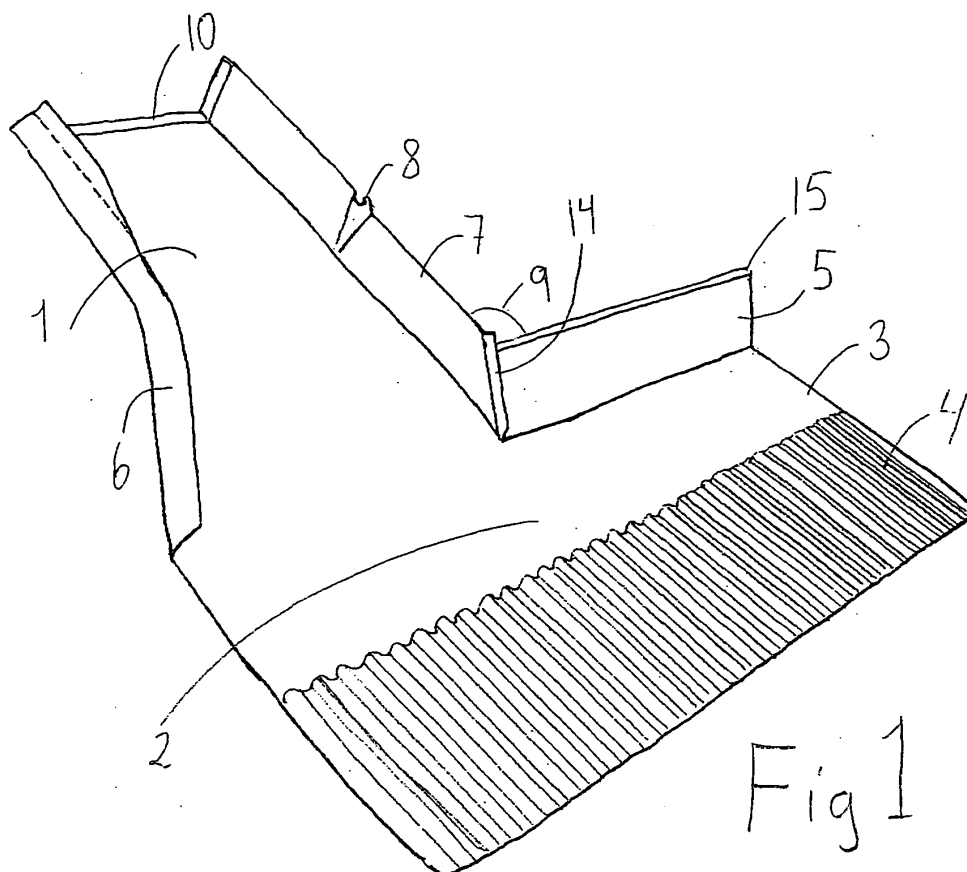
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(54) **Corner flashing**

(57) Corner flashing for covering corners of building elements that are led through a surface impacted by water, where the flashing or covering includes a water channel (1) and a front covering part (2) at an angle (9) thereto, and where the front covering part (2) includes

a deformable section (4). The corner flashing can be made of zinc, and a pleated part constitutes the deformable section (4). The corner flashing may be prefabricated and used for different roof slopes by bending the water channel (1) by an existing offset (8).



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Description

[0001] The present invention concerns a corner flashing for covering corners on building elements that are led through a surface impacted by water, as e.g. a chimney or attic on a roof.

[0002] For corner flashings, e.g. at attics or chimneys, it is common to use workable plates of lead. Use of this material is unfavourable due to environmental considerations, but experience in i.a. Denmark has shown that other materials and installation methods have not yet been convincing for corresponding use, and therefore are not used widely either. Since the use of lead for flashings becomes illegal in Denmark as from 1st January 2003, the lack of substitute materials is particularly problematical. The mounting of lead plates also require specially trained manpower for assembling the lead plates by soldering. This is a time-consuming process which is encumbered at low temperatures and by bad weather.

[0003] It is the purpose of the invention to indicate a flashing or covering for corners on roofs, e.g. chimneys or attics, substituting lead, so that it is without contamination of the surroundings, the flashing or covering being durable, simple and rapid in mounting, and which is relatively cheaper than present methods as the working time in connection with establishing a flashing is considerably reduced.

[0004] This purpose is achieved with a corner flashing for covering corners of building elements that are led through a surface impacted by water, where the flashing or covering includes a water channel and a front covering part at an angle thereto, and where the front covering part includes a deformable section.

[0005] The advantage of the flashing provided by the invention is i.a. that it may be prefabricated. Making the flashing thus becomes independent of weather and wind, and the prefabricated flashing may be examined for tightness before leaving the place of production. The flashing can be mounted at the site of application without using specially qualified manpower as it only has to be fastened to the corner on the building element. As opposed to that, existing lead flashings are to be soldered at the site of application, requiring specially trained manpower and possibly impeded by weather and wind.

[0006] The quality of the flashing in general and the soldered joints in particular is furthermore difficult to check at the existing lead flashings as they are individually made by individual craftsmen.

[0007] The water channel may be made with a fixed, limited length. After mounting the flashing, the water channel may be extended by mounting a loose water channel with a suitable length and with the same profile as the water channel of the flashing. The loose water channel is to be mounted with a certain overlap over the water channel of the flashing and is effected after the flashing has been mounted. The loose water channel is fastened with a suitable means. This may be e.g. sol-

dering, bonding, tubular riveting with a suitable, interposed joint filler, or with "hafter". The water impacted surface will often have a non-planar surface. This will e.g. be the case when the flashing is to be performed on a roof with tiles, concrete or asbestos cement. In order to minimise the risk that water is blown up under the flashing, the front piece comprises a deformable part. The deformable part may be deformed during mounting so that it nearly fits tightly to the non-planar roof covering.

[0008] It will also be simple to connect two flashings with a loose front piece. A building element may be covered with two corner flashings, after which a loose front piece, which can fill out the interspace between the flashings, can be fastened. A certain overlap should be provided for joint to be sufficiently tight. The fastening may e.g. be performed with soldering, bonding or tubular riveting with a suitable joint filler lying behind.

[0009] In a further embodiment of the invention, the deformable section of the front covering part includes a pleated surface. A pleated surface is easier to deform than a corresponding plane material, and the use of a pleated surface enables deforming the section for the roof covering manually or with light hand tools, as e.g. a hammer, so that it fits down in the bulging/wavy roof tiles or roof plates.

[0010] In a further embodiment of the invention, the front covering part includes a plane section. This will often be an interspace between the building element and the roof structure. Since the front covering part thus does not need to be adapted to the roof covering at this section, it is advantageous to let a part of the front covering part be plane, and thus avoid the costs of pleating the entire front covering part, as well as the front covering part thereby becomes more rigid.

[0011] In a further embodiment of the invention, the front covering part includes an upright part. The covered building element often has an approximately upright front face. This face will also be impacted by water. Therefore, it is advantageous to provide the front covering part with an upright part that may lead the water from the vertical front face of the building element and further down onto the front covering part. The upright part may be made as a real loose edge with a fold back for insertion into the building element, or maybe covered with a common loose edge after mounting.

[0012] In a further embodiment of the invention, the water channel includes at least one upright side, where at least one of the upright sides of the water channel includes an offset. The water channel can conduct larger amounts of water down to the front covering part when the water channel has upright sides. One upright side may possibly be fastened to the building element in order to collect water thereof. This side may be designed as a real loose edge with fold back for insertion in the building element, or for being covered with a common loose edge after mounting. The offset on at least one of the upright sides provides possibility of easily

adapting one and the same type of prefabricated flashing for different roof slopes. It has appeared that by using this embodiment of the invention, it is possible to readily adapt the same type of prefabricated flashing for roof slopes between 30 and 65 degrees by using manual power.

[0013] In a further embodiment of the invention, the water channel includes a fold back. A fold back of the water channel will minimise the risk of water being pressed in under the flashing in the interspace between the water channel and a retrofitted, loose water channel.

[0014] In a further embodiment of the invention, the angle between the water channel and the front covering part is largely a right angle. Many building elements have perpendicular corners, why it will be particularly suitable to make the flashing with a right-angled corner.

[0015] In a further embodiment of the invention, the flashing is made of zinc. Zinc is already used for flashings on water impacted surfaces, and experience shows that the material is weather-resistant. Besides, it has the advantage that it will mellow and appears very much like lead. Using zinc will therefore also be possible on constructions that for aesthetic reasons, e.g. due to listing, are to appear as flashings made of lead. Furthermore, by using zinc for covering zinc attics, a nicer total appearance is achieved.

[0016] Moreover, together with copper, zinc has the advantage that by annealing it attains stretching properties that enable the zinc or copper to be deformed and thereby shaped. In connection with this invention, the shaping or adaptation may occur by mounting the corner, e.g. around a chimney or an attic. The pleated part may be formed so that it fits to the shape of the roof material, e.g. waved tiles. Usual zinc, which is not annealed, will crack by this working, but due to the annealing the material will stretch and thereby not crack.

[0017] Zinc rolls are already commercially available, where part of the width is pleated, and which may easily be deformed manually. This type of zinc is marketed by Rheinzink.

[0018] The flashing may be made in one piece, or made by bending and soldering together pleated zinc flashing, e.g. of the Rheinzink type with a prefabricated water channel.

[0019] In addition to zinc, copper is a preferred material too. For attics covered with copper, it is not possible to use zinc, as the two materials are situated in the reactivity series so that the zinc-copper connection will cause galvanic corrosion and thereby destroy the zinc.

[0020] Correspondingly, aluminium may be used under proper consideration of the reactivity series.

[0021] The invention will be described in more detail in the following with reference to the drawing, where

Fig. 1 shows an embodiment of the invention in perspective view, and

Fig. 2 shows two specimens of an embodiment assembled with a front piece.

[0022] On Fig. 1 is shown an embodiment of the invention in perspective view. The water channel 1 of the flashing and a front covering part 2 are shown here at a mutual angle 9 which is largely a right angle. The water channel 1 includes two upright sides 6, 7. The purpose of the sides is to ensure that the water in the water channel 1 is guided upon the front covering part 2. One side 6 is here lower than the other side 7. This is due to required space for tiles overlapping the roof gutter so that only a few centimetres of the water channel remains visible. The other side 7 may be provided with a bend so that it can function as loose edge and be inserted in a groove in the covered building element. Alternatively, the other side 7 may be covered with a loose edge. The other side 7 is here provided with a bend 14 intended for enclosing the corner on the building element and to minimise water penetration. The water channel 1 is made with an increase in width against the front covering part 2. It is necessary to ensure sufficient run-off possibilities for the water if a possible deformation for the sake of the underlying roof covering causes an elevation of the front covering part centrally of the water channel. The water channel 1 is provided with a fold back 10 intended for preventing water from being pressed up between the water channel 1 and a retrofitted loose water channel.

[0023] The offset 8 is created for enabling adapting the same type of flashing to different roof slopes. Thus it has appeared to be quite unproblematic to use the same type of flashing for roof slopes between 30 and 65 degrees. Larger intervals may be attained by a greater offset.

[0024] In the shown example, the front covering part 2 consists of a plane section 3 and a deformable, pleated section 4. The deformable section 4 may be produced of the same material as the plane section. In that case, it is only the pleating that causes the deformable section 4 to be deformable. In order to divert water from the frontal plane surface of the building element, the front covering part is further provided with an upright part 5. This part may easily be bent in a suitable angle so that it fits in to the building element. The upright part may furthermore include a bend so that it can be used as loose edge. Alternatively, the upright part 5 is provided with a turn-in 15 and covered with a loose edge. The turn-in 15 minimises the risk of water being pressed in between a retrofitted loose edge and the upright part 5.

[0025] On the Figure, the angle 9 between the water channel 1 and the front covering part 2 is a right angle. A right-angled corner will fit a lot of building elements that are to be covered. The flashing may of course be made with angles adapted to the angles of corners of other building elements.

[0026] Fig. 2 shows how two mutually mirrored flashings may be used with a common front piece. After mounting the two coverings 11, 12, the front piece may 13 may mounted between the flashings 11, 12 with a certain overlap. The joints between the flashings 11, 12

and the front piece 13 may be done with soldering, bonding or with tubular rivets with a suitable joint filler lying behind.

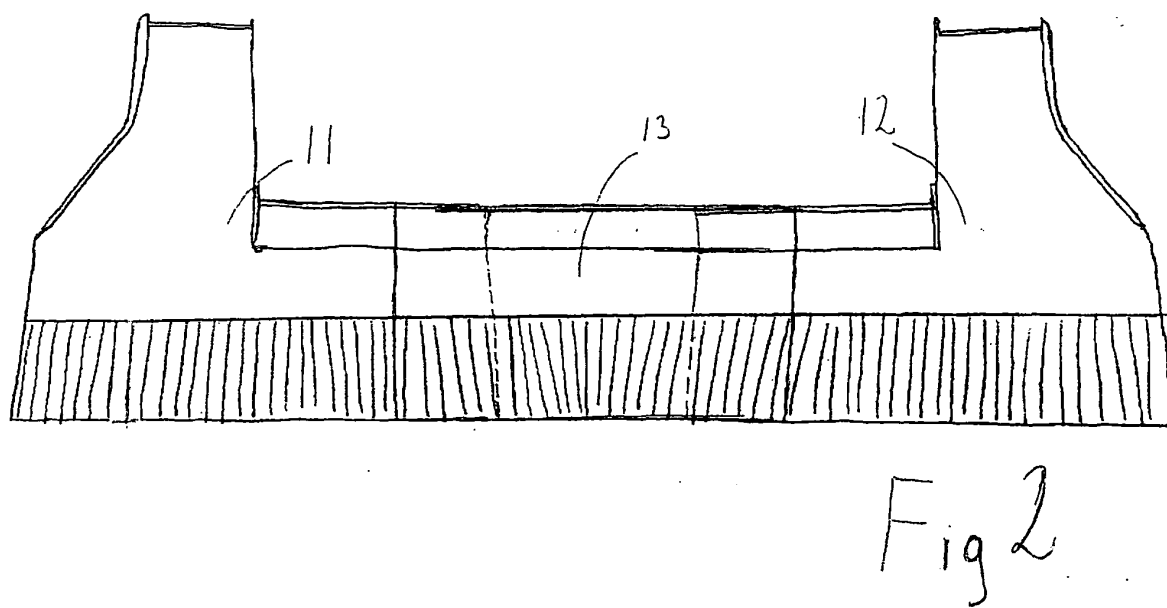
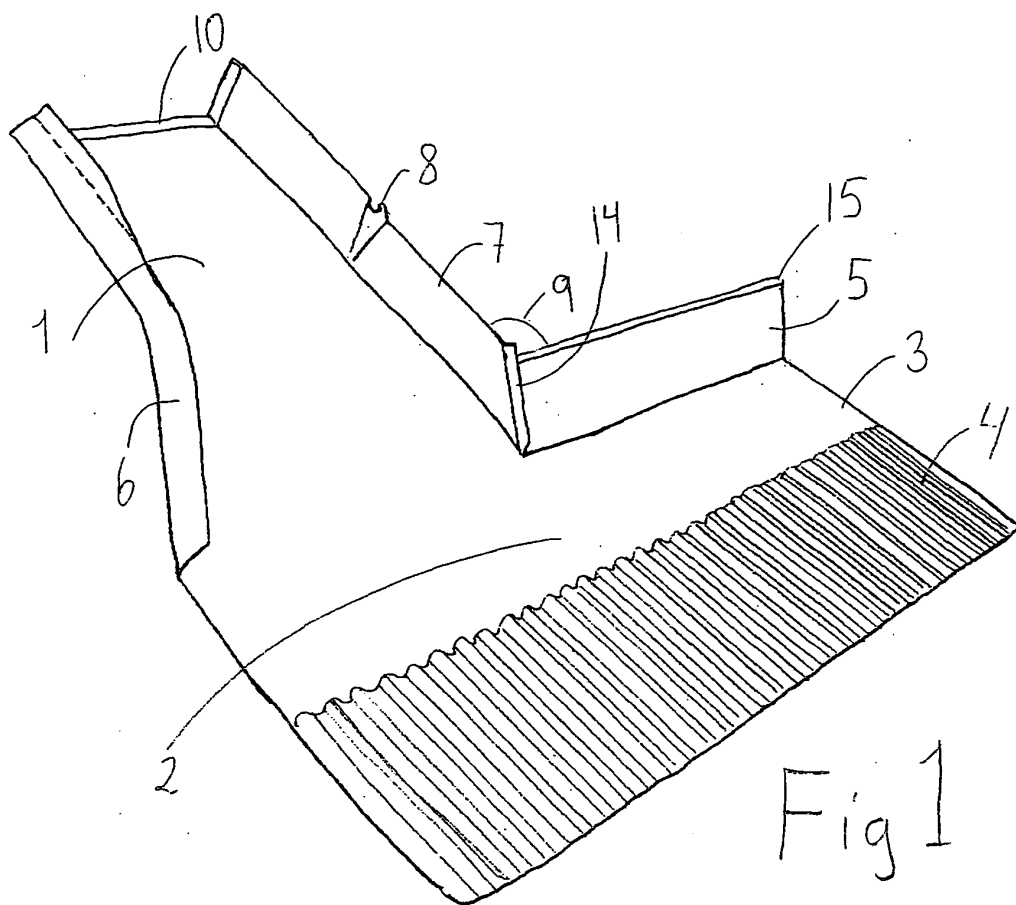
[0027] The same prefabricated flashing or covering may thus be used for covering building elements with very different widths. 5

Claims

- 10
1. Corner flashing for covering corners of building elements that are led through a surface impacted by water, where the flashing or covering includes a water channel (1) and a front covering part (2) at an angle (9) thereto, and where the front covering part (2) includes a deformable section (4). 15
2. Corner flashing according to claim 1, wherein the deformable section (4) of the front covering part (2) includes a pleated surface. 20
3. Corner flashing according to claim 1 or 2, where the front covering part (2) includes a plane section (3).
4. Corner flashing according to one or more of the claims 1 to 3, where the front covering part (2) includes an upright part (5). 25
5. Corner flashing according to one or more of claims 1 to 4, where the water channel (1) includes at least one upright side (6, 7), and where at least one of the upright sides of the water channel includes an offset (8). 30
6. Corner flashing according to one or more of claims 1 to 5, where the water channel (1) includes a fold back (10). 35
7. Corner flashing according to one or more of claims 1 to 6, where the angle (9) is largely a right angle. 40
8. Corner flashing according to one or more of claims 1 to 7, where the flashing is made of zinc.
9. Use of a corner flashing according to one or more of claims 1 to 8 for covering building elements in the group consisting of attics, chimneys and building elements that are led through a surface impacted by water. 45

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EUROPEAN SEARCH REPORT

Application Number
EP 03 02 7165

DOCUMENTS CONSIDERED TO BE RELEVANT			
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X	DE 93 06 064 U (DOMO, REISINGER & KOLLER PRODUKTIONS- UND VERTRIEBGESELLSCHAFT MBH) 22 July 1993 (1993-07-22) * figure 5 * ---	1-10	
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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Place of search	Date of completion of the search	Examiner	
THE HAGUE	4 March 2004	Demeester, J	
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 03 02 7165

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
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