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(54) **SEALING FLASHING**

(57) The subject of the invention is the sealing flashing which aims to seal penetrating constructions on the roof, such as roof windows, chimneys, etc. It includes additional sealing element 7 in the form of steel sheet fragment, resembling the roof covering surface on which it is mounted on place of slits 9 and the method for its assembling on the roof with large metal sheet or 'Sandwich' type roof coverings 1.

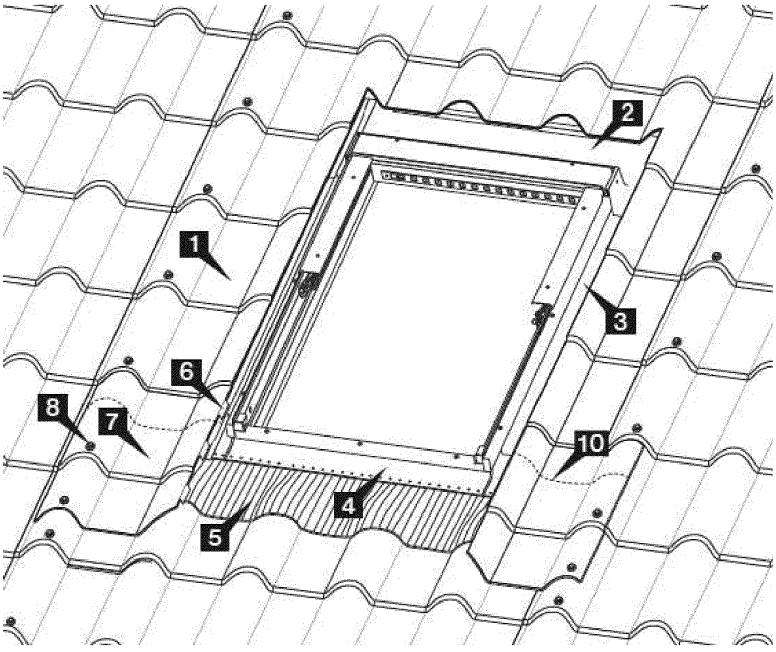

Fig. 2

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Description

[0001] The subject of the invention is sealing flashing, which aim is to seal penetrating constructions on the roof, such as roof windows, chimneys, etc. and method for the flashing assembling on the roof with large metal sheet or 'Sandwich' roof coverings, where said flashing comprises additional sealing element

[0002] It is known thanks to the description of Polish patent application P.392795 which describe sealing flashing, aiming at sealing roof covering with penetrating constructions. Its shape is adjusted to penetrating construction. It consists of elements that are made of flat, thin, and partly elastic-deformable material and have geometric-like edges on the surface of their joining together. These edges overlap during assembling. The flashing is characterised in that the elements are connected with click connections which make use of natural elasticity of the material, which the flashing is made of. These click connections are achieved thanks to the seat formed in the lower element and the bulge formed in the upper element.

[0003] Furthermore, it is known thanks to the German description DE2554341, solution for sealing the connection of elements which go through theroof with its outdoor surface by means of elements made of thin-sided, stiff and deformable material. This solution only protects against typical precipitation. It does not provide any tightness and thermal insulation on the layer under the roofing. What is more it is time consuming while assembling.

[0004] On the other hand, the description of Polish patent application P.394891 says about the sealing flashing which consists of lower element, side elements and upper element, said flashing is functionally divided into overlapping and covering parts which are assembled in an overlapping way towards each other and towards the elements of roofing. The flashing comprise partly-tilted elements of the upper elements, which are able to deviate angularly in an axis parallel to the longitudinal edges of the upper element and basically perpendicular to the direction of the roof pitch. Each partly-tilted element is inseparably connected with the middle element of the upper element through the canal which drains water.

[0005] The aim of the invention is to provide tightness for connection of penetrating constructions on the roof with large metal sheet roof covering or 'Sandwich' type roof covering.

[0006] The essence of invention is that the flashing, assembled around the penetrating construction on the roof, is equipped with additional sealing element which is fixed on the surface where, the flashing goes on the roof covering. This element is in the form of metal sheet fragment and it resembles the surface of roof covering, on which it is supposed to be mounted. Beneficial additional sealing element contains catches made of small metal sheet fragments. Mounting and sealing of additional element takes place through the use of sealant and screws.

[0007] The way of assembling the flashing, which seals the place where it goes on the roof covering around the penetrating structure, is that additional sealing element of flashing is covered inside with the sealant layer of proper adhesion, for example; plastic mass, elastomer, glue or adhesive tape and later pressed against leaky places, where the apron of the lower element of flashing goes on the roof covering. On the other hand catches, in the form of small metal sheet fragments, are bend on the edge of the roof covering around roof window frame.

[0008] Additional sealing element is mounted with the use of fastening materials, i.e. screws. In case, when additional sealing element is a fragment taken from large 'Sandwich' type covering, prior to the application of the sealant layer on its lower surface, this surface shall be cleaned of thermal layer and later pressed against the roof surface.

[0009] The solution will be discussed on the basis of roof window sealing flashing, nevertheless, it may be used in any constructions penetrating the roof. Roof window comprises frame, made of four arms, and a window sash, which is hang in the frame with the use of hinge system. In order to provide tightness for connection of window and roof construction with large metal sheet or 'Sandwich' type covering, a special sealing flashing is needed.

[0010] The flashing, according to this solution, comprises upper, lower and two side elements, as well as additional fragment of a cutting from insulating steel sheet which is called additional sealing element. Upper and lower, as well as, two side elements of the flashing contain basically two arms, which are perpendicular to one another over a cross-section. The first arm of the flashing, perpendicular to the roof surface, is adjacent to the side frame arm, whereas the second one, is on the surface under the roof covering, i.e. on the external surface of battens or rafters. In case of 'Sandwich' type covering, the second arm of the flashing is on the thermal layer surface of covering. Lower element of the flashing is made of stiff part, as well as, elastic apron, which can be adjusted to the roof covering surface, on which it is going to be assembled. Elastic apron is an extension of the second arm of stiff part, which is parallel to the covering surface. First arm of stiff part, being perpendicular to the roof, is clamped to the external surface of the frame lower arm. Fragment of a steel sheet cutting is an additional sealing element of the flashing, which seals the place, where the flashing goes on the roof covering. Additional sealing element resembles the covering surface, on which it is supposed to be mounted and is cut from steel sheet fragment which was cut for hole in the roof for the window; or was cut from another steel sheet fragment.

[0011] With respect to the comfort and aesthetics of flashing assembly, the dimensions of additional sealing elements are enough for covering the place, where the flashing goes on the roof covering.

[0012] The way of assembling the flashing, which is

going to be mounted around the construction penetrating the roof, takes place, when the hole in the roof is made. Its dimensions are slightly larger than those of the roof window frame, maintaining a so-called assembly clearance. Afterwards, the upper element of the flashing, the frame and the window sash are mounted in this hole. After mineral wool insulation and the use of vapour-open membrane around the window, assembling of other elements of the sealing flashing is commenced: two side elements and the lower one. The flashing elements are mounted in an overlapping way, one above another, creating frame around the window frame. Upper, side and lower flashing elements are inserted under the large roof covering. In case of 'Sandwich' type covering, the thermal layer is needed to be removed first, in order to make it possible to assemble these elements under covering. Prior to the assembly of the flashing lower element, a slit needs to be done in roof covering, which will make it possible to put out a elastic apron of the flashing onto the outer covering surface. The slits are made on both sides of the apron, however, they are not longer than the width of apron. The width is defined as smaller dimension of the elastic apron which is adjacent to the external surface of the roof covering. Stiff arms of flashing elements, perpendicular to the roof surface, are adjacent to the outer surface of side arms of the window frame. Furthermore, they are mounted by means of fastening screws to said side frame arms. Afterwards, the additional element is mounted. Additional sealing elements, being made of steel sheets fragments, are covered inside with the sealant layer and they are pressed against the leaky places, on both sides of apron, where the apron of the lower flashing element goes on the roof covering. Additional sealing element is mounted with the use of fastening means, especially screws. Providing tightness and proper mounting of additional sealing element is also based on catches, in the form of small metal sheet fragments, being an extension of additional sealing element which are bend on the edge of the roof covering around roof window frame.

[0013] The subject of an invention is presented in the examples on the illustration, on which the fig.1 shows roof window frame mounted on the roof with the flashing, prior to assembling additional sealing element, whereas the fig.2 shows roof window frame mounted on the roof with the flashing, after assembling additional sealing element.

Example I

[0014] In case of large roof covering, the hole for penetrating constructions (e.g. a window, a chimney or others) is made. The example will be discussed with respect to the roof window. In case of 'Sandwich' type covering, after making a hole for window frame and for roof window sash, the thermal layer of roof covering 1 is partly removed to such extend that inserting elements of the sealing flashing is possible in the following sequence: the upper one 2, side ones 3 and the lower one 4. Roof window frame is mounted after assembling the upper element 2 of the flashing. The flashing elements are mounted also on the outer surface of side arms roof window frame by means of fastening means in the form of screws. The lower element 4 of the flashing comprises the apron 5, adjacent to the roof covering surface, which goes from the layer under the roof covering through the slits 9, in the place where the flashing goes on the covering 1. The leak is created in the above mentioned place, which is protected by the use of additional sealing element 7, which was taken from the previously cut-out fragment of the roof covering 1 and in case of 'Sandwich' type covering, from which the thermal layer was removed manually e.g. with the use of spatula,. Additional sealing element 7 comprises catches 6, made of small metal sheets fragments, which are an extension of additional sealing element 7. Additional sealing element 7 is mounted onto the roof covering 1 with the use of screws 8 and it is sealed with the use of sealant 10 in the form of plastic mass, elastomer glue or adhesive tape. An additional steel sheet sealing element 7 may also be taken from another steel sheet fragment which resembles the roof covering in the place where the leak was created.

Example II

[0015] The example concerns assembling the flashing with additional sealing element 7 according to the Example I. However, additional sealing elemnt 7, is mounted onto the roof covering 1 without catches 6 but by means of screws 8 and it is sealed with the use of the sealant 10 in the form of plastic mass, elastomer, glue or adhesive tape.

[0016] The solution enables the displacement (e.g. as a result of thermal elongation) of the flashing with additional sealing element with respect to the roof covering, without the loss of tightness in the place, where the flashing goes on the roof covering, according to the solution.

Claims

1. The sealing flashing which is mounted around the penetrating constructions on the roof especially, around the roof window, which comprises window frame and window sash, when the flashing comprises upper, lower and side elements, which are mounted in an overlapping way, one above another, creating the frame around the window frame and the flashing elements, with their one arm perpendicular to the roof surface, which are adjacent to the external side surface of the window frame, whereas with their second arm, favourably perpendicular to the first arm, which are on the surface under the roof covering, on the external surface of battens or rafters or on the surface of the thermal layer, **characterised in that** it comprises an additional sealing element

(7), which is a steel sheet fragment with the surface resembling the roof covering surface (1), on which it is mounted, on the place of the roof covering slits (9) and the passage of the lower flashing element (4).

2. The sealing flashing, according to claim 1, **characterised in that** additional sealing element (7) is taken from the fragment of steel sheet, cut-out from the roof covering (1) when making the hole for the roof window frame.

3. The sealing flashing, according to claim 1, is **characterised in that** additional sealing element (7) is taken from any steel sheet fragment.

4. The sealing flashing, according to claims 1 or 2 or 3, **characterised in that** the roof covering (1) is of large metal sheet.

5. The sealing flashing, according to claims 1 or 2 or 3, **characterised in that** the roof covering (1) is a 'Sandwich' type covering.

6. The sealing flashing according to claim 1 or 2 or 3 or 4 or 5 **characterised in that** additional sealing element (7) comprises catches (6) which enable its being assembled on the roof covering (1).

7. Method of assembling the sealing flashing around the penetrating construction on the roof e.g. around the roof window, chimney and others where the flashing comprises upper, lower and two side elements, as well as an additional sealing element which are mounted in an overlapping way, one above another, creating the frame around the window frame; and the flashing elements, with their one arm perpendicular to the roof surface, are adjacent to the external side surface of the window frame whereas with their second arm, perpendicular to the first arm, are on the surface under the roof covering, i.e. on the external surface of battens or rafters or on the surface of the thermal layer, **characterised in that** after making a hole in the roof for the roof window frame and after cutting the roof covering (1), which enables putting out the apron (5) of the lower element (4) of the flashing and mounting it on the roof covering (1), the upper element (2) of the flashing is assembled, preceding mounting the roof window frame, two side elements (3) and the lower element (4); in the place where the slit (9) of covering is made and where the flashing goes onto this covering, an additional sealing element (7) is mounted, which resembles the surface of roof covering (1) in this place.

8. Method of assembling the sealing flashing, according to claim 4 or 7, **characterised in that** additional sealing elements (7) are covered inside with the sealant layer (10) and they are pressed against the covering surface (1) in the place of slits (9), afterwards, fastening screws (8) are used and/or catches (6) in the form of small metal sheet fragments which bend on the edge of roof covering, around the roof window window frame.

9. Method of assembling the sealing flashing, according to claim 5 or 7 is **characterised in that** additional sealing elements (7) which resemble the surface of the covering (1), are cleaned of the thermal layer; and afterwards, the sealant layer is put on the clean surface and these elements are pressed against the roof covering (1) in the place of slits (9), and/or catches (6) in the form of small metal sheet fragments which bend on the edge of the roof covering, around the roof window casing.

10. Method of assembling the sealing flashing, according to claims 7 or, 8 or 9, is **characterised in that** plastic mass, elastomer, glue or adhesive tape are the sealants (10).

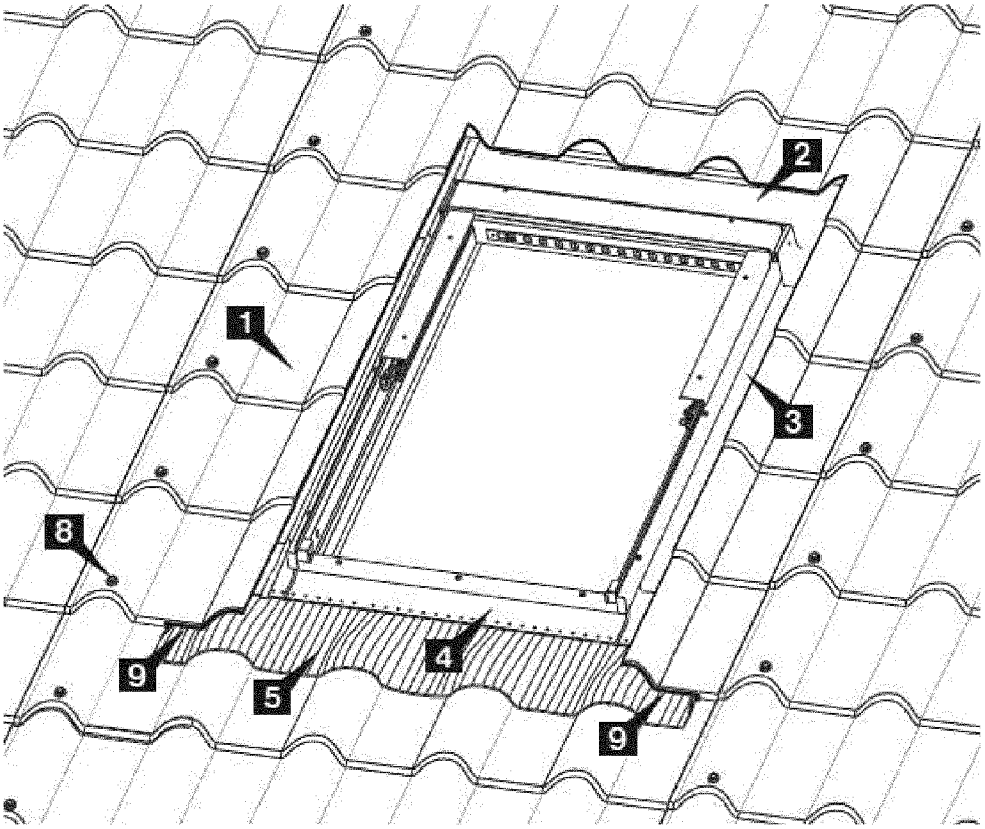

Fig. 1

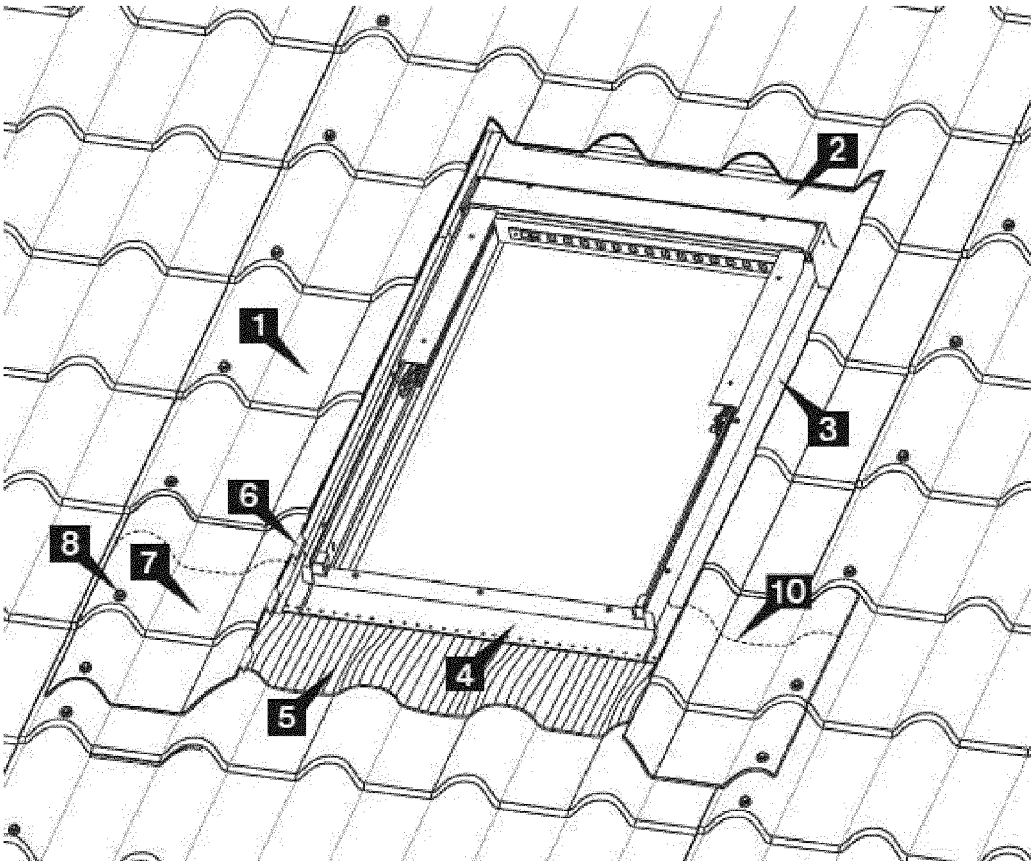

Fig. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 15 16 0219

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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	21 August 2015	Leroux, Corentine

CATEGORY OF CITED DOCUMENTS

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- DE 2554341 **[0003]**
- PL P394891 **[0004]**