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(54) FLASHING AND FLASHING ASSEMBLY METHOD

(57) The subject of the solution is a prefabricated flashing composed of top element 2, bottom element 1, two side elements 3, finishing elements 4 and the assembly pad composed of metal sheet 5 and apron 6, and a flashing assembly method around chimney 7, which enables sealing of the connection of chimney 7 with the roof structure, regardless of the type of the roofing and dimensions of the gap X between bottom wall 8 of the chimney and the closest edge of the roofing, in particular roofing tiles 10.

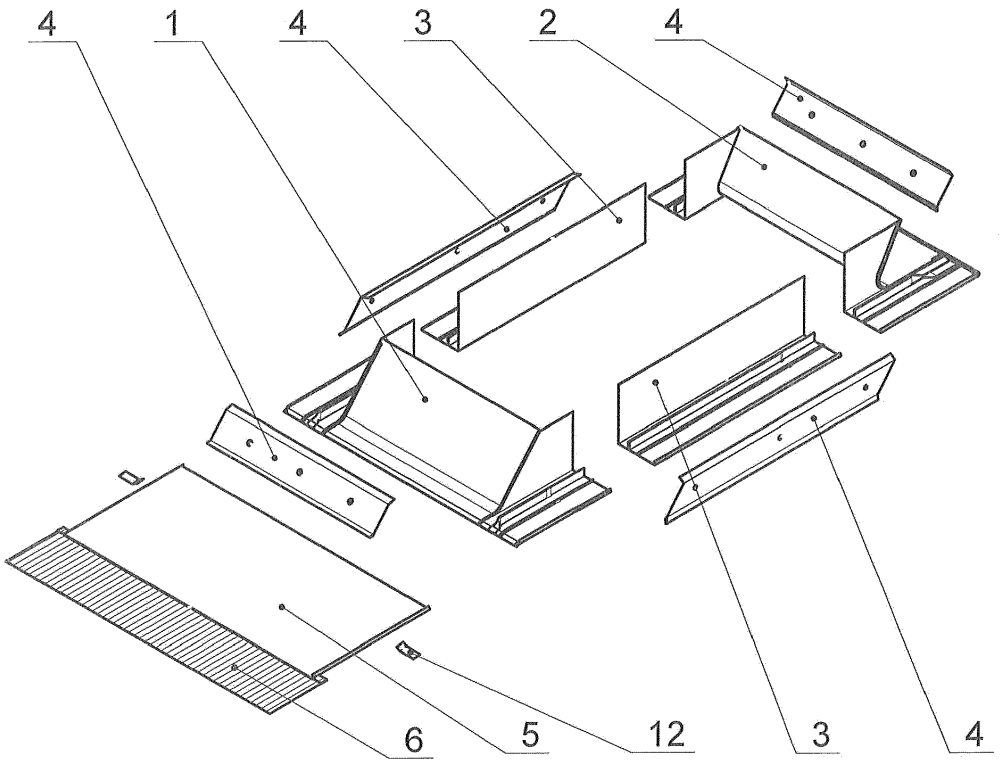

Fig. 1.

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Description

[0001] The subject of the solution is a prefabricated flashing and its assembly method, the said flashing featuring components which enable sealing of the connection of the chimney with the roof structure, regardless of the type of the roofing and dimensions of the gap between the bottom wall of the chimney and the closest edge of the roofing, in particular the roofing tiles.

[0002] From the solution according to application US4970837 A a flashing is known which features i.a. a flashing member with at least one metal element which is mounted in the plane of a sloping roof and features an upstand, protruding at a specific distance at an angle to the flashing member situated in the roof plane. The upstand surrounds the opening designed for the chimney and contacts with its side walls. The flashing features also a pipe-shaped cover mounted around the chimney and a pipe-shaped connecting element which is mounted between the cover and the upstand, whereas the bottom part of the connecting element contacts with at least a part of the upstand, and the bottom part of the cover contacts with a part of the connecting element.

[0003] A flashing from the solution according to US5381632 A is also known, executed as a flashing member of the chimney, with an L-shaped cross-section, with two perpendicular legs, getting in contact with each other along an intermediate line situated in the point of passage of the chimney through the roof structure. One leg of the flashing member is fastened to the roof, and the other is fastened to one of the walls of the chimney. Above the top edge, the flashing member features also an additional sealing element which contacts with one of the walls of the chimney and is fastened to it and to the leg of the flashing member.

[0004] From the solution according to application DE19734346 A a flashing of the chimney is also known along with a sealing system. The flashing according to this solution features a covering frame, fastened to the bottom wall, top wall and two side walls of the roof-penetrating structure, which has also a form-locking connection, at a specific angle to the roof, with the outer element of the flashing. This element forms a frame around the roof-penetrating structure and is fixed with its first leg to the sub-covering layer of the roof, and with its other leg it contacts with the side walls of the roof-penetrating structure.

[0005] The purpose of the solution is a universal flashing, ensuring a tight connection of the chimney with the roof structure. The chimney is a stable, fixed roof-penetrating structure, around which the roofing is placed, often in the form of roofing tiles. Due to the type and size of the roofing tile and type of the roof structure, the roofing tiles placed next to the walls of the chimney are placed at various distances from them, and the resulting gaps in this area need to be sealed. The proposed solution provides for sealing, in particular next to the bottom wall of the chimney, regardless of the size of the resulting gap.

[0006] The essence of the solution is a flashing mounted around the chimney, which is a fixed element of buildings, and having a top wall, a bottom wall and two side walls. The top wall forms a sharp angle with the roof surface, the bottom wall forms an obtuse angle with the roof surface, and the side walls are parallel to each other and perpendicular to the top and bottom wall. The chimney protrudes above the roof structure with the roofing, which is formed by roofing tiles. As a standard, gaps next to the side walls are sealed by proper cutting of the roofing tiles which overlap the flashing, while the gap next to the top wall is sealed by cutting of the roofing tile or sliding it under the row of the roofing tiles which is placed higher, and also forming a proper overlap with the flashing. The proposed solution enables universal sealing of the gap next to the bottom wall of the chimney, regardless of the distance of the last row of the roofing tiles from the bottom wall of the chimney without cutting the roofing tiles.

[0007] Flashing according to the solution is composed of a side element, a top element, bottom elements, finishing elements and an assembly pad. The top element and two side elements feature one leg which contacts with the respective chimney walls, and the other leg placed on the sub-covering layer of the roof.

[0008] The assembly pad is composed of a stiff metal sheet and an elastic apron which are permanently connected to each other in an overlapping manner. The metal sheet of the assembly pad is a flat element before assembly, and during assembly two parallel incisions are made in it at a distance corresponding with the width of the chimney, which make it possible to bend the middle part of the sheet so that it contacts with the bottom wall of the chimney forming a symmetrical, U-shaped cut-out. The depth of the incisions depends on the dimensions of the gap, i.e. the distance of the last row of the roofing tiles from the bottom wall of the chimney and should be selected in such a manner that the apron of the assembly pad adequately overlaps the roofing, and the overlapping connection of the metal sheet and the apron is placed close to the top edge of the roofing tiles on which the apron is placed.

[0009] The side segments of the assembly pad's metal sheet, in an assembled state are situated next to the side walls of the chimney in the plane of the battens and are fastened to them by fixing means in the form of flat segments of metal sheet.

[0010] The apron of the assembly pad in an assembled state, due to its elastic properties, tightly contacts with the roofing, to the underside of which it is bonded with butyl.

[0011] Next, the bottom flashing element is placed on the assembly pad, the said element forming the required tight overlap with it, and tightly contacts with the bottom wall of the chimney. Next, side and top flashing elements are mounted, forming an overlapping connection to each other, in the direction of the roof's slope. The legs of the top element, the bottom element and two side elements contact with the chimney walls and are pressed to them

with the finishing elements. The finishing elements are fastened to the walls of the chimney by fixing means, e. g. screws.

[0012] An advantage of this solution is that the bottom flashing element always contacts with the bottom wall of the chimney, while the assembly pad by means of the apron ensures tightness with the roofing - roofing tiles, regardless of the distance of the roofing from the bottom wall of the chimney. Tightness between the assembly pad and the bottom flashing element is obtained by an overlap between these elements.

[0013] The solution is presented as the following embodiment and illustrated with Figures:

- Fig. 1- expanded view of the flashing according to the solution.
- Fig. 2 - position of the assembly pad in an assembled state on the roof next to the chimney in case when the gap between the roofing tiles and the bottom wall of the chimney is small (from 6 to 15 [cm]), without the possibility of placing another row of roofing tiles.
- Fig. 3 - side view of the chimney with the assembly pad in an assembled state around the chimney in case when the gap between the roofing tiles and the bottom of the chimney is small (from 6 to 15 [cm]), without the possibility of placing another row of roofing tiles.
- Fig. 4 - view of the chimney with the assembled flashing according to the solution in case when the gap between the roofing tiles and the bottom wall of the chimney is small (from 6 to 15 [cm]), without the possibility of placing another row of roofing tiles
- Fig. 5 - side view of the chimney with the flashing according to the solution, in case when the gap between the roofing tiles and the bottom wall of the chimney is small (from 6 to 15 [cm]), without the possibility of placing another row of roofing tiles.
- Fig. 6 - position of the assembly pad in an assembled state on the roof next to the chimney in case when the gap between the roofing tiles and the bottom wall of the chimney is bigger (from 15 to 39 [cm]), but still too small to make it possible to place another row of roofing tiles.
- Fig. 7 - side view of the chimney with the flashing according to the solution, in case when the gap between the roofing tiles and the bottom wall of the chimney is bigger (from 15 to 39 [cm]), but still too small to make it possible to place another row of roofing tiles.

[0014] The flashing according to the solution is formed by: bottom element 1, top element 2, two side elements 3, finishing elements in the form of strips 4 made of profiled aluminium sheet, and an assembly pad made of stiff metal sheet 5 and apron 6. Metal sheet 5 is made of stiff aluminium sheet, in which before assembly of the pad around chimney 7 two parallel incisions are made, the length of which is selected in such a manner that its area without incisions covers the gap X between bottom wall 8 of chimney 7 and roofing tiles 10. The said gap X may have various dimensions, which is presented in Fig. 2 and Fig. 6. The size of the gap X is in the range 6 - 39 [cm]. During assembly of the pad around chimney 7, along the length of the said incisions, the middle part of stiff metal sheet 5 is bent so that it contacts with bottom wall 8 of chimney 7, and other side parts of metal sheet 5 are situated next to both side walls 9 of chimney 7 and are fastened to battens 13 of the roof by fixing means in the form of flat segments 12 of metal sheet. Apron 6 of the assembly pad is placed on roofing tiles 10 and is bonded to their underside with e.g. butyl. In an assembled state, the overlapping connection of metal sheet 5 and apron 6 is close to the top edge of roofing tiles 10 on which apron 6 of the assembly pad is placed. Upon mounting the assembly pad around chimney 7, the remaining components of the flashing are mounted: bottom element 1 - placed on metal sheet 5 of the assembly pad and fastened to its underside by means of the sealing compound, next side elements 3 connected with bottom element 1 in an overlapping manner in the direction of the roof's slope, and top element 2. The said elements are slid under the strips 4 and pressed to the chimney walls by means of the said strips 4. Next, strips 4 are fastened to the chimney by screws 11.

Claims

1. A flashing composed of a side element, a top element and bottom elements and finishing elements, forming in an assembled state a frame around the roof-penetrating structure, in particular of the chimneys, **characterised in that** it also features an assembly pad located under the bottom flashing element (1), being a connecting element between the chimney and the closest roofing layer, placed next to the chimney (7).

2. The flashing according to claim 1, **characterised in that** the assembly pad is composed of a stiff metal sheet (5) and an elastic apron (6) which are permanently connected to each other.

3. The flashing according to claim 2, **characterised in that** an overlapping connection of the metal sheet (5) and the apron (6) of the assembly pad in an assembled state on the roof is situated next to the edge of the roofing element, in particular of the roofing file (10).

4. The flashing according to claims 1, or 2, or 3, **characterised in that** the metal sheet (5) of the pad and the bottom flashing element (1), top flashing element (2), and side flashing elements (3) along with the finishing elements (4) are made of aluminium sheet.

5. The flashing according to claims 1, or 2, or 3, **characterised in that** the apron (6) of the pad, made of an aluminium-plastic composite or lead, in an assembled state on the roof is situated on the outer roofing surface to the underside of which it is fastened with butyl.

6. The flashing according to claims 1, or 2, or 3, or 4, **characterised in that** the metal sheet (5) of the assembly pad is flat and uniform, and in an assembled state features an U-shaped cut-out surrounding the bottom part of the chimney (7).

7. The flashing according to claim 6, **characterised in that** the middle part of the incision of metal sheet (5) of the pad, contacts with the bottom wall (8) of the chimney (7) and its side segments are situated on the roof plane next to the side walls (9) of the chimney (7).

8. The flashing according to claim 7, **characterised in that** the assembly pad is fastened to the battens (13) next to side walls (9) of the chimney by fixing means in the form of flat segments (12) of metal sheet.

9. The flashing according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, or 8, **characterised in that** the bottom flashing element (1) is fixed to the metal sheet (5) of the pad with a sealing compound.

10. A flashing assembly method, the flashing being composed of side elements, a top element and a bottom element, and finishing elements, forming in an assembled state a frame around a roof-penetrating structure, in particular a chimney, and an assembly pad made of a metal sheet (5) and an apron (6), **characterised in that** a cut-out corresponding with the width of the chimney (7) is made in stiff metal sheet (5) of the assembly pad, and the connection of the metal sheet (5) and the apron (6) is situated close to the edge of the last row of roofing tiles placed next to the bottom wall (8) of the chimney (7), and next to the side walls (9) of the chimney (7), the pad is fastened to the battens (13) by fixing means in the form of flat segments (12) of metal sheet, next on the assembly pad the bottom flashing element (1) is placed, slid along with the pad under the finishing strip (4), and pressed along with the pad to the bottom wall (8) of the chimney (7) by means of these finishing strips (4), which are then fastened to the walls of the chimney by fixing means, i.e. screws (11).

11. The flashing assembly method according to claim 9, **characterised in that** the bottom flashing element (1) is connected with the side flashing elements (3), which are next connected with the top flashing element (2) in an overlapping manner in the direction of the roof's slope.

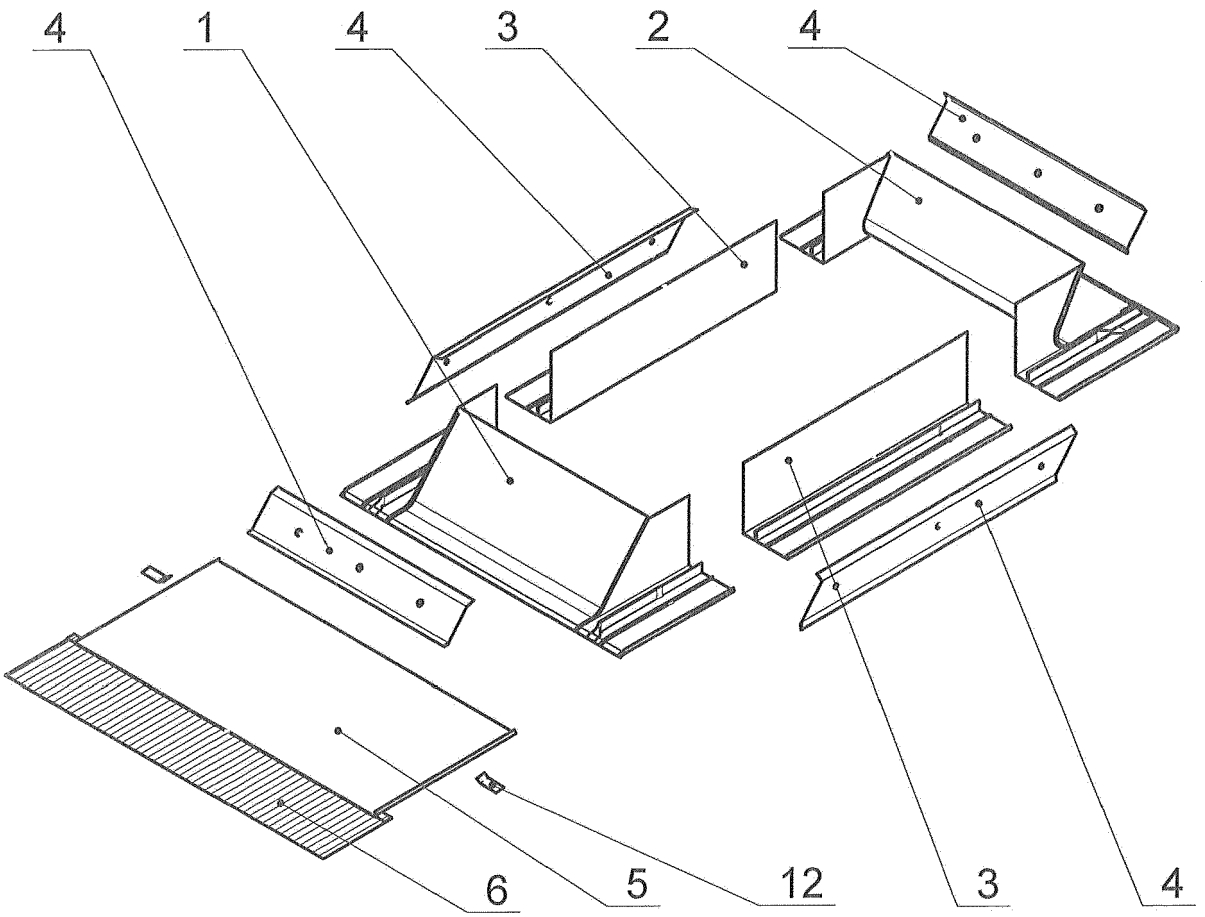

Fig. 1.

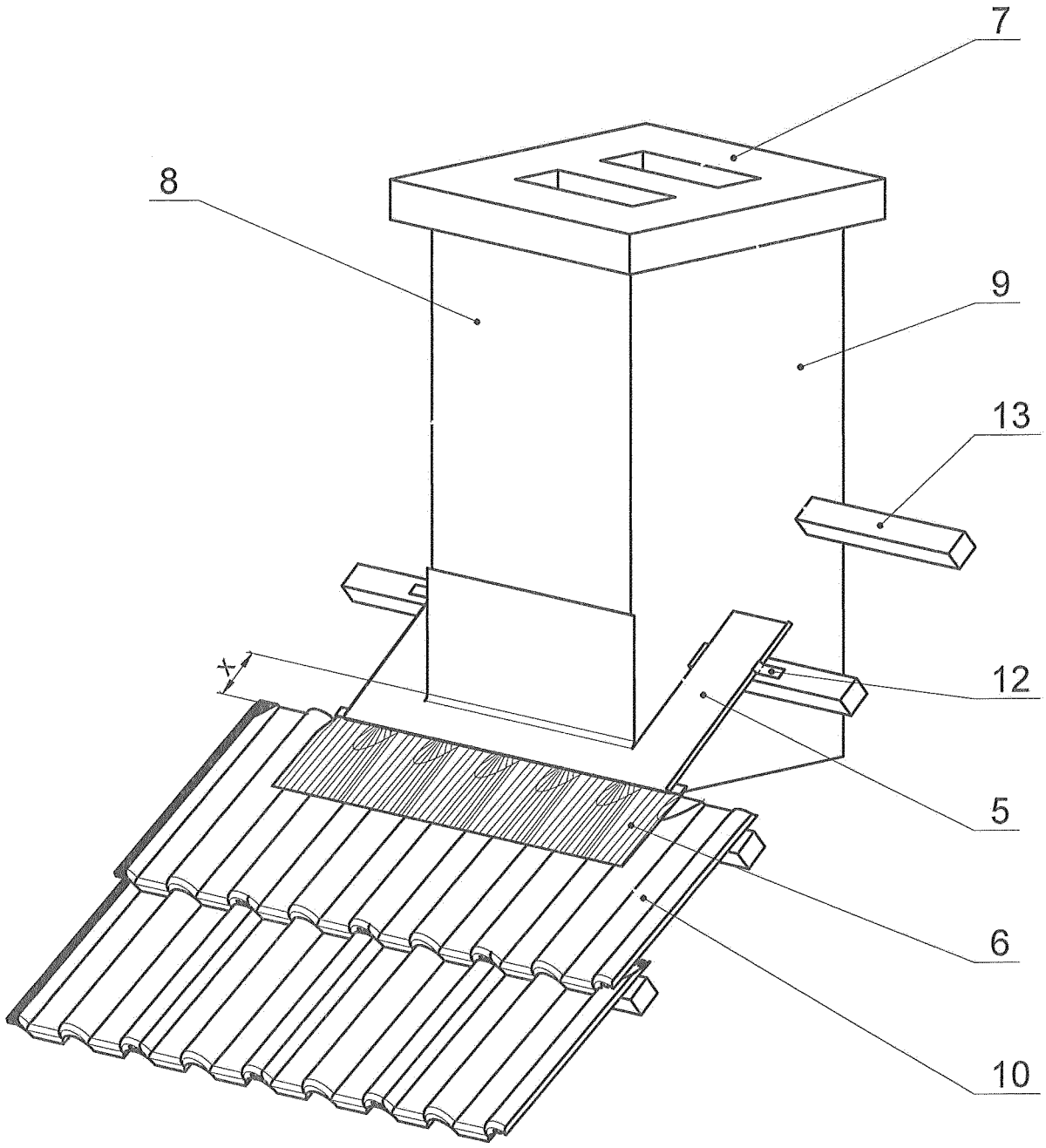

Fig. 2.

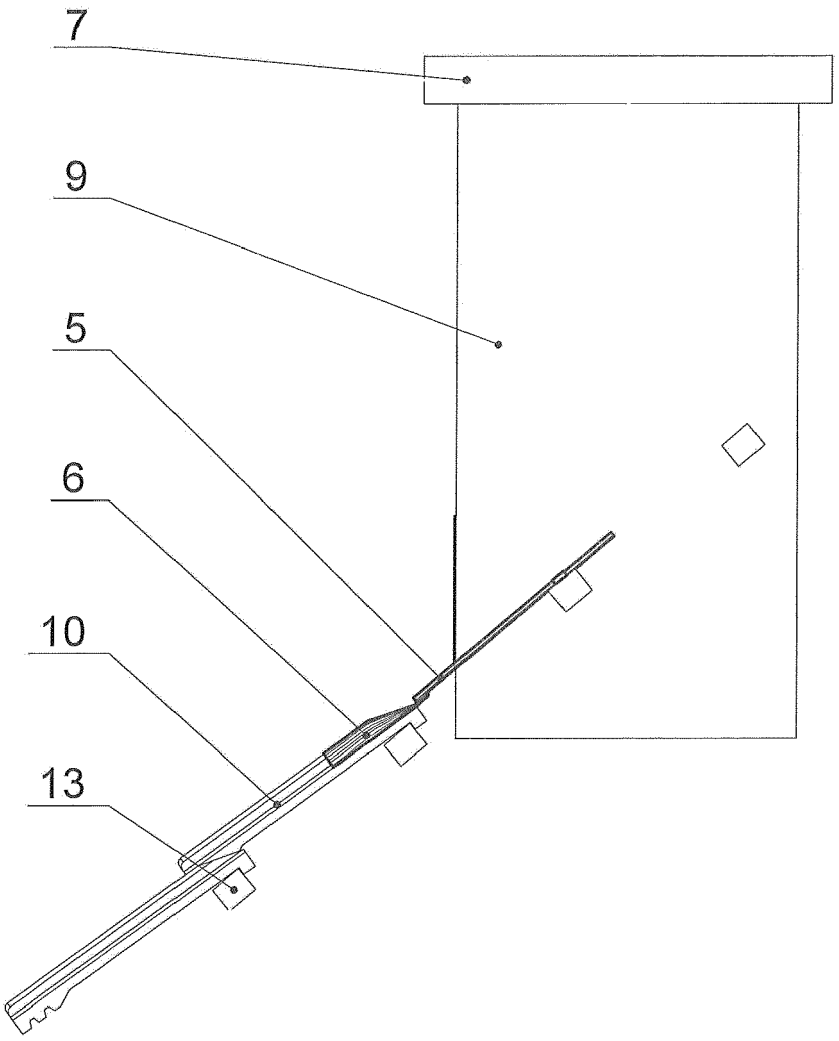

Fig. 3.

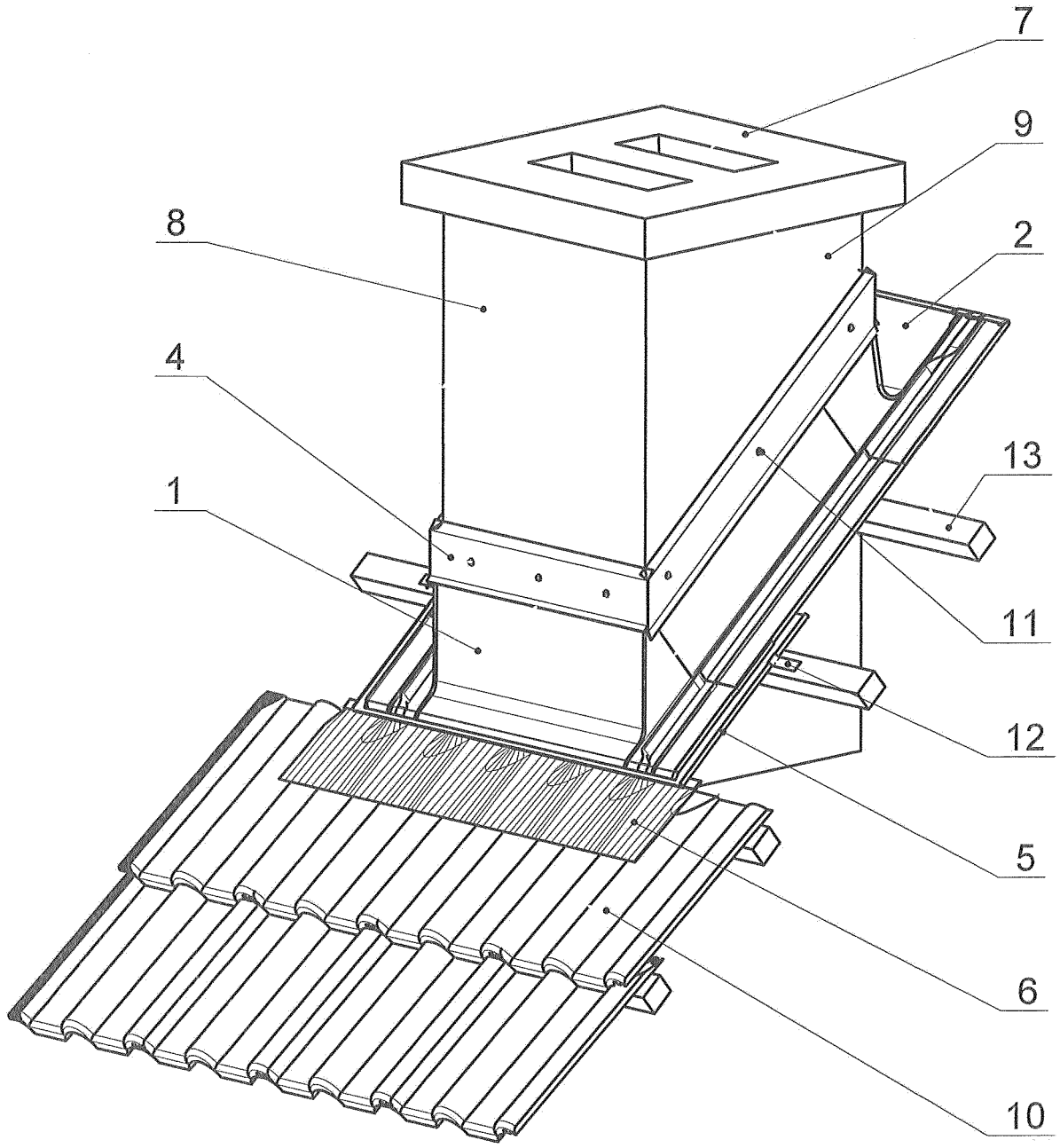

Fig. 4.

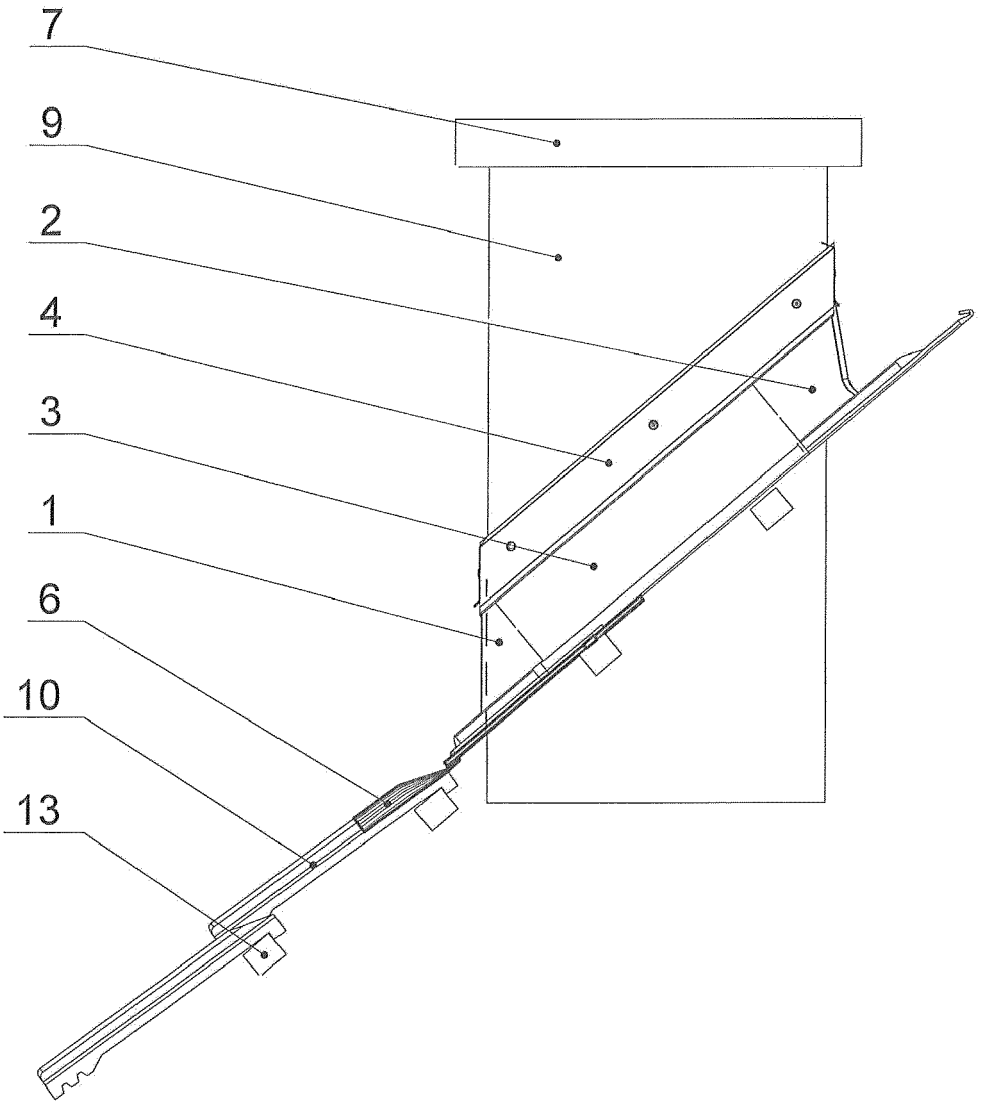

Fig. 5.

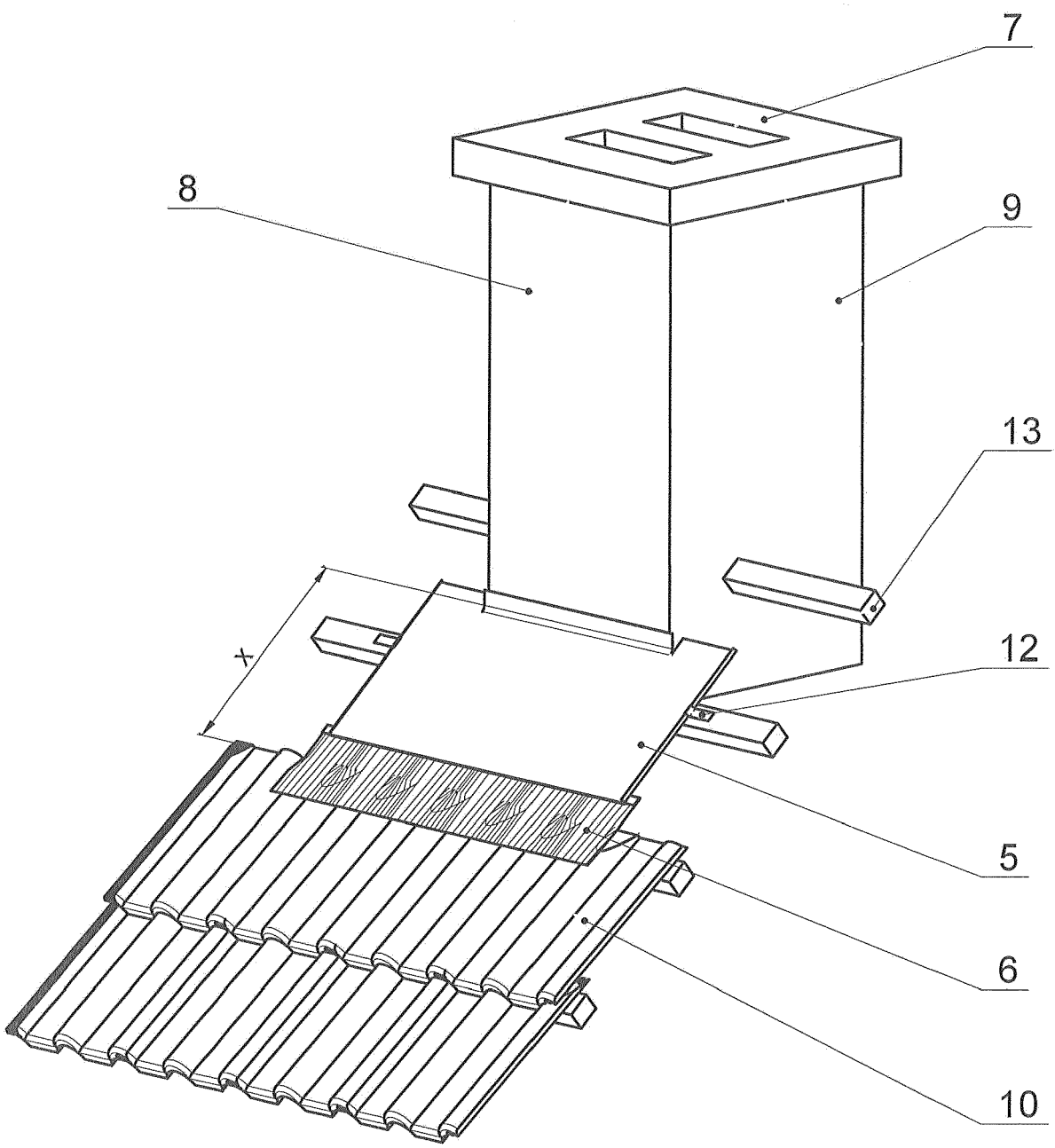

Fig. 6.

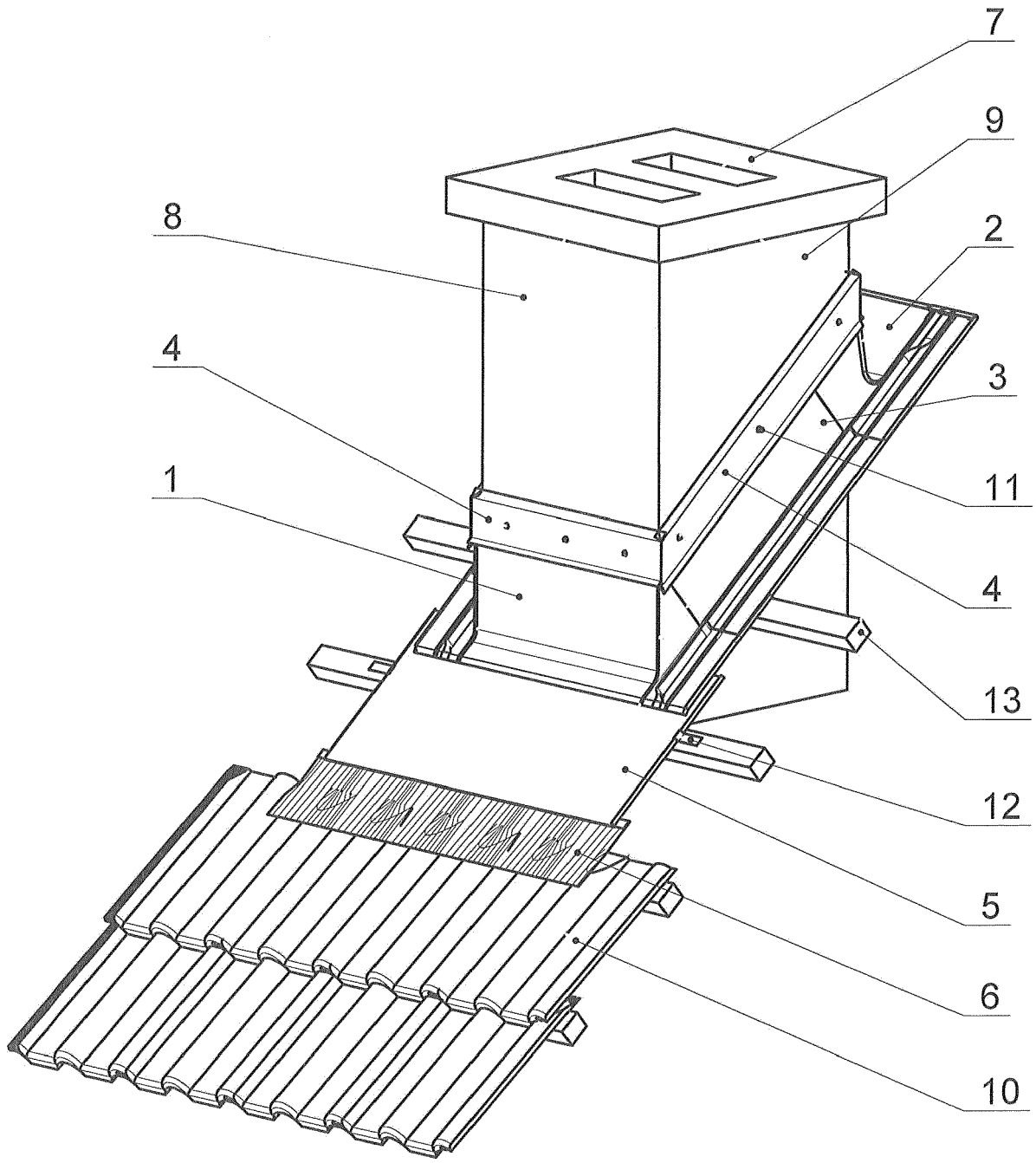

Fig. 7.

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EUROPEAN SEARCH REPORT

Application Number
EP 15 19 0097

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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	2 March 2016	Leroux, Corentine

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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