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(54) Title: DEVICE FOR FIXING FLAT TILES AND BENT TILES TO A ROOF

(57) Abstract: A device for fixing roof tiles, in particular, bent tiles (61) and flat roof tiles (61), for connecting them to each other and/of to the surface of a roof (30), comprising an interposition hook (1) with a bent end (3), whereby in use said bent end (3) of the hook engages with an edge of said roof tiles, said hook comprising at least two adjacent stiff wire portions (8 and 9) united by at least a connecting portion (10), said wire portions having two free ends (4 and 5) opposite to said connecting portion (10) and said bent end (3) being defined by said two bent ends (8 and 9). The flat roof tiles (62) and the bent tiles (61) can be fastened through a plurality of hooks (1) arranged between bent tiles following (61), distanced by hooks (1) comprising a tie-member (20). A head hook element (40) is provided adapted to stop terminal flat tiles of (61' and 62'). In case of a roof (30) having a high slope, at least one hook (1') and a tie-member (20') are provided adapted to stop corresponding flat roof tiles (62).



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TITLE

DEVICE for fixing FLAT TILES and bent tiles To a roof

Field of the invention

The present invention relates to the building industry,
5 and, in particular, it relates to a fastening element used
for fastening to a roof the roof tiles used for coating it.

The present invention relates, furthermore, to
improvements for fixing rows of bent tiles or flat roof
tiles to a roof pitch as well as for fixing ridge tiles to a
10 roof ridge.

Description of the technical problem

Among common roof coating systems by roof tiles exist
bent tiles are known, arranged along the slope of a roof
creating parallel rows, and flat tiles, arranged on a roof
15 according to rows under the bent tiles. The bent tiles are
used to cover the gaps between two rows of adjacent flat
tiles, to water to filter.

It is possible to cover roof only with bent tiles,
arranged according to rows with alternate concavity towards
20 the above and towards below.

A prior art system for fastening flat tiles and bent
tiles to a roof consists of a cement, for example mortar,
arranged between the tiles and the roof, but this system has
the drawback of making the roof heavy and blocking passage
25 of air therebetween. Furthermore, this system has the
drawback that the roof tiles, by exposure to the weather and
temperature change, tend to detach from the roof and are
displaceable in case of wind or snow. A serious consequence
to this, in addition to aesthetic defects, is the danger of
30 fall of the roof tiles, with risk of injury to people and
other serious damages.

Another prior art technique for fastening flat tiles to
a roof consists of making at least one through hole on the

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roof tiles for fixing to the roof, for example by nails or screws. This system has the drawback that the holes weaken the tiles and cause breaks and, furthermore, like in the technique described above, for changing a single roof tile, it is necessary to remove all the tiles of a wide zone starting from the above, since for removing a roof tile it is necessary also to remove the adjacent tile that overlaps it.

Other systems are known for fastening bent tiles to each other for coating a roof, as well as systems for fastening the bent tiles near the roof gutter. Such systems are described in the IT1314712 and IT1333167, in the name of the same applicant.

In particular, the hooks described in IT1314712 hold two bent tiles in turn or the bent tiles near the roof gutter, whereas the stop or head elements described in IT1333167, hold flat roof tiles and bent tiles near the roof gutter, allowing at the same time enough aeration.

Finally, in IT1333167, hooks are described for fastening the head elements or the bent tile holders to the roof.

The union of bent tiles or flat tiles by hooks tends to make integral to each other the elements of a row of roof tiles. A first problem is to avoid that the whole row of flat tiles can shift towards below of that the row is bound all by the head element at the roof gutter. Another problem is the need of fastening the row of tiles in more points to the roof, since the hooks arranged between a two bent tiles blocks longitudinally such bent tiles to each other but not to the roof. In fact, the problem is felt of a side movement of a row of bent tiles, for example owing to the action of strong wind, which could dismantle the roof with subsequent risk of fall of flat tiles and the need of maintenance work. A safer installation would require that several hooks are also fixed to the roof.

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Another problem of the known systems is that, using a hook rigidly integral to a fastening element, would be a too rigid connection with respect to the other bent tiles, which can be different from one another, especially in case of partial replacement of the flat tiles or in case of renovation of old roofs covered by hand made tiles.

Summary of the invention

Therefore, it is a feature of the present invention to provide a device for fixing roof tiles to a roof capable of fastening the roof tiles to each other and/or to the roof in a safe way, avoiding the risk of disengagement and accidental disassembly of the flat tiles owing to bad weather, such as wind and snow.

Another feature of the invention is to provide a device for fastening/removing also single roof tiles through an easy manual movement by lifting only two roof tiles, allowing the change to be quick, easy and cheap.

A further feature of the present invention is to provide an interposition hook that is orientable with respect to the roof, thus being compliant to the shape of two irregularly conformed roof tiles.

Another feature of the invention is to provide a hook for roof tiles that can be easily made and mounted, thus resulting very inexpensive and cheap to install.

It is still a feature of the invention to provide a head hook element that is orientable and adapted to fasten a first bent tile or flat tile of a row of roof tiles near a roof gutter.

Another feature of the invention is to provide a roof tile fixing device that work also as snow holder.

These and other objects are achieved by a device for fixing roof tiles, in particular bent tiles and flat tiles, for fixing the tiles to each other and/or to the surface of a roof, comprising a hook with a bent end, whereby in use

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said bent end engages with an edge of said roof tiles, said hook being characterised in that it comprises at least two adjacent stiff wire portions united by a connecting portion, said wire portions having two respective free ends opposite
5 to said connecting portion and said bent end being defined by said two free bent edges.

Advantageously, said hook has two bent edges at opposite sides, of which one consisting of said two ends and one comprising said connecting portion, whereby in use a lower
10 hook bent edge engages with the lower edge of a upper roof tile, and a upper hook bent edge engages with the upper edge of a lower roof tile.

In a possible exemplary embodiment, said free ends are united to each other by a closure portion.

15 In particular, said closure portion connects the two free ends by means of respective spacing portions, whereby said closure portion is protrudes from a bent tile and may have the function of snow holder. Said closure portion can also be obtained folding said end up to arrange them aligned
20 and adjacent to each other, arranging above them a tubular connecting portion.

In particular, said stiff wire has a cross section selected from the group comprised of:

- circular;
- 25 - rectangular;
- polygonal;
- composite figure;
- flattened cross section.

In the latter case, in case of flattened cross section, the hook can be obtained starting from a sheet with a
30 longitudinal groove and have at least one bent end to form the free bent ends.

In a preferred exemplary embodiment, said hook is obtained with a single folded stiff wire.

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In particular, said adjacent portions can be substantially opened wide starting from a parallel configuration, supporting a bent tile for a desired width.

Advantageously, said connecting portion is pivotally
5 connected to means for engaging to the roof.

In particular, said means for engaging to the roof comprises at least one element selected from the group comprised of:

- a tie-member having a first end pivotally connected to
10 said connecting portion and a second end that can be fixed to the roof;
- a shaped and/or folded lamina having a first portion adapted to pivotally engage with said connecting portion and at least one second portion adapted to be connected
15 to the roof.

This way the hook can rotate with respect to the tie-member or to the lamina connected to the roof, being adaptable to the position and to the shape of the flat tiles or the bent tiles, since they can be irregularly shaped
20 owing to the production process thereof.

In an alternative exemplary embodiment, said engagement means comprises a substantially L-shaped laminar element having a first edge adapted to be connected to the roof and a second protruding end and have at least one opening
25 adapted to engage with said connecting portion of said hook.

Advantageously, in use, in a row of roof tiles on a roof, a hook comprising a respective engagement means is alternated with hooks without engagement means.

In particular, said connecting portion is operatively
30 perpendicular to each row of roof tiles coating the roof. This way, said hook is rotatable in a plane perpendicular to the surface of the roof.

In a particular exemplary embodiment, said tie-member is connected to the roof in at least one point, said tie-member

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supporting said at least one hook, which is pivotally connected to said tie-member at said connecting portion.

In particular, said tie-member is obtained with a laminar element.

5 In particular, said hook is adapted also to keep a first roof tile of a row near a roof gutter, said hook having longer extension and forming a head hook element, said head hook element being operatively arranged below at least one roof tile, said bent end of said hook being arranged in
10 order to engage the lower edge of said at least one roof tile.

In a preferred exemplary embodiment, said head hook element comprises at least one angled portion between said hook ends, in particular, near said lower end.

15 Advantageously, said head hook element comprises means for fixing to the roof, adapted to prevent said hook from raising and laterally shifting when it is mounted, said means for fixing being arranged at a fixing portion, preferably near said lower end.

20 In particular, said means for fixing are either fixed or removable and are selected from the group comprised of:

- at least one plate associated with at least one nail or a screw;
- a couple of opposite wings;
- 25 - at least one nail, screw, locking dog.

In addition, said hook is also adapted to be used for fastening any flat tile, ridge tile, bent tile directly to the roof, arranging one of said ends on a table or other structural element of the roof.

30 Advantageously, said head hook element comprises a barrier having a substantially plane portion, which coats the transversal section of a roof tile, said barrier having at least one aeration opening between tile and roof and for drainage of water, said barrier being adapted to be stopped

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by said bent end of said hook covering the space present between said tile and the roof for blocking the inlet of animals.

5 In particular, said barrier has a substantially semicircular shape and comprises a extension portion next to said semicircular portion, said extension portion being adapted to be folded or cut in order to adapt the size of said barrier to the height of said space.

10 In particular, said barrier comprises at least one portion embracing said bent end of said hook, in particular, to said free ends. For example said barrier can comprise two ear-like portions having a hole adapted to engage with a corresponding free end of said hook.

15 In particular, said barrier is obtained with an element selected from the group comprised of:

- a stiff net portion, preferably of metal, cut into a shape alike said plane shape;
- a sheet portion cut according to said plane shape, having at least one opening;
- 20 - a combination of said sheet portion cut and said net portion.

Brief description of the drawings.

25 The invention will be made clearer with the following description of some exemplary embodiments, exemplifying but not limitative, with reference to the attached drawings wherein:

- Figure 1 shows an example of interposition hook, according to the invention, without engagement means for fixing to the roof;
- 30 - Figure 1A shows another example of interposition hook, according to the invention, comprising a wire having flat cross section obtained starting from a sheet portion;
- Figure 2 shows a possible application of a hook

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according to the invention with an element of connection to the roof;

- 5 - Figure 3 shows the possibility of moving a hook according to the invention engaged to a roof by a pulling element;
- Figure 4 shows an example of a hook according to the invention used for keeping the first tile near the roof gutter;
- 10 - Figures 5, 6, 7 show some examples of hook adapted to be used as head hook element at the roof gutter;
- Figures 8, 9 and 10 show respectively three examples of means for fixing a head hook element to the roof;
- Figure 11 shows the outer shape of a roof comprising flat tiles and bent tiles fastened with interposition
15 hooks and a head hook element according to the invention;
- Figure 12 shows a cross sectional view of a roof covered by flat tiles fastened through a plurality of hooks according to the invention arranged between the
20 bent tiles, of which one comprises a tie-member, a head hook element;
- Figure 13 shows the application of a plurality of hooks applied for stopping flat tiles;
- Figure 14 shows a cross sectional view of a roof having
25 a high slope covered by flat tiles fastened through a plurality of hooks arranged between bent tiles of which one having a tie-member, a head hook element and a hook with tie-member adapted to stop a flat tile;
- Figures 15 and 16 show two successive steps of the
30 arrangement of flat roof tiles and bent tiles on a roof in order to be fixed by a head hook element;
- Figures 17, 18 and 19 show some possible exemplary embodiments of barrier element according to the invention;

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- Figure 20 shows a possibility of folding such a barrier for being adapted to the distance between tile and roof;
- Figure 21 shows such a barrier mounted at the folded end of the head hook element fastened by the free hook ends same;
- Figure 22 shows such a barrier applied to a roof portion;
- Figure 23 shows a different example of interposition hook, according to the invention, having a bent end consisting of elongated portions conformed in order to close creating a closure portion;
- Figure 24 shows a further example of interposition hook, where the above described bent end protrudes laterally at opposite sides;
- Figures 25 and 26 show the application of a closure member on said closure portion;
- Figure 27 shows a cross sectional view of a roof portion with flat tiles and bent tiles, wherein some rows of interconnection elements comprise a bent end creating a snow holding barrier;
- in figure 28 a perspective view is shown of such a roof portion to which two rows of interconnection elements are applied having a bent protruding end.

Description of preferred exemplary embodiments.

In the following description an example will be illustrated of a fastening device, according to the invention, for roof tiles, in particular, bent tiles and flat tiles, fixed to the surface of a roof. This device comprises a hook 1 shown in figure 1, obtained with a folded stiff wire to form at least two adjacent portions 8 and 9, substantially S-shaped, i.e. with two ends 2 and 3 bent at opposite sides, wherein such portions 8 and 9 are united to each other by a connecting portion 10 arranged

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for example at a free end of the hook. In the example of figure 1, such adjacent S-shaped portions are opened wide and connecting portion 10 is at the upper end 2. The upper end 2 comprises folded portions 6 and 7, whereas the lower end 3 comprises folded portions end 4 and 5. Obviously, hook 1 can be used as simple interposition hook between two roof tiles adjacent along a row, constraining to each other only two consecutive roof tiles, or can be also constrained to the roof by a tie-member as shown hereinafter.

An alternative exemplary embodiment of interposition hook 1 is described in figure 1A, where the hook has been obtained starting from a sheet portion that has been cut as a longitudinal portion forming two adjacent portions 8 and 9 having an end 3 having free folded ends 4 and 5 and a connecting folded opposite portion 10 at end 2.

In figure 2 the hook of figure 1 is shown connected to a roof, visible only in part, by a folded connection plate 23 having a first portion adapted to pivotally engage with connecting portion 10 and a second portion adapted to be connected to the roof.

Figures 3 and 4 show a hook 1, as already described above, connected to roof 30 by a tie-member 20 having a first end 21 pivotally connected to connecting portion 10 of hook 1 and a second end 31 that can be fixed to roof 30, for example by means of screws. Hook 1, being pivotally connected to tie-member 20, adapts automatically to the angular position that it must operatively reach for keeping the roof tiles on the roof, since the roof tiles are irregular and would otherwise further adjustment. Furthermore, tie-member 20, being flexible, allows an automatic matching of the operative position of hook 1. This tie-member can be obtained with a sheet like portion and may have more fastening points

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to the roof, for example holes, distributed on the length of the pulling element, adapted to allow fixing the tie-member to the roof in a point chosen according to the length of the tie-member. In figure 3 hook 1 is depicted in three different possible angular positions, in particular with a dotted line the positions 1a and 1b are shown. As shown hereinafter in figure 12, a hook 1 with tie-member 20 can be used every several bent tiles 61 or flat roof tiles 62 along a row of roof tiles arranged on the roof, the roof tiles set between two next pulling elements being constrained to each other with free interposition hooks 1. This way each tie-member must bear the weight of only roof tiles set between two consecutive pulling elements.

Figures 5, 6 and 7 show respectively three alternative exemplary embodiments of a hook according to the invention that can be used as head hook element adapted to stop a first roof tile, of a row of roof tiles, at the roof gutter. In such examples a hook 40, operatively arranged between roof and roof tiles, has an extension longer than the hooks 1 already described in the previous figures, besides having the folded portions 4 and 5 (figure 5 and 6) of larger width with respect to the hook 1. This longer extension is adapted to allow the head hook element to embrace at the same time two adjacent flat roof tiles and a bent tile arranged above the flat roof tiles at their line of separation, the portions 4 and 5 stopping each a flat tile and engaging the bent tile with a snap engagement, as shown in a detailed way in figures 15 and 16. This hook 40 has a lower end 3 conformed as in the cases already described and an upper end 2 adapted to be engaged with the roof by connection means selected from the group comprised of: a fastening plate 23 shown in figures 9 and 10 or a plate 24 folded as an L having a

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portion adapted to be connected to the roof and a portion having at least one hole adapted to engage with head hook element 40 in the upper end, as shown in figure 8. Alternatively, the upper portion 2 can be hooked to a protrusion integral to the roof, for example a float stick or a rod substantially horizontal connected to the roof, not shown in figure but commonly use when assembling a roof, or a substantially horizontal structural element. In a preferred exemplary embodiment shown in figures 6 and 7, the head hook element 41 has at least one angled portion 43 and 44 between said ends lower 3 and said upper end 45, in particular, near said lower end 3, said angled portion 43 and 44 are adapted to stop the lower edge of two adjacent plane tiles, said lower end 3 engaging a bent tile operatively arranged above said adjacent plane tiles at the separation between said plane tiles.

Figures 8, 9 and 10 show a head hook element 40 connected to the roof through fixing means adapted to prevent hook 41 from lifting or laterally shifting. In particular, in figures 8 and 9 separate plates 50 and 51 are used, whereas in figure 10 a single plate 52 is used. The means for blocking the motion of a portion of the hook, leaving free the lower end 3, consist of folded deformable portions 4 and 5, engaging the roof tiles arranged above the hook. In figures from 5 to 10, the folded ends 4 and 5 are designed having different size, as an example but not limitative, only for showing that they can be made in different forms according to the size of the roof tiles fastened to the roof.

Figure 11 shows a view of a completed roof portion covered with a succession of rows of flat roof tiles alternate to rows of bent tiles, where the flat tiles and the bent tiles are fastened with interposition hooks 1

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and head hook elements 40.

Figure 12 shows a cross sectional view of a roof 30 covered by flat roof tiles 62 and bent tiles 61 fastened to each other by means of hooks 1 arranged between
5 consecutive roof tiles. In particular, one of such hooks 1 comprises a tie-member 20 having an end 31 connected to the roof for example by screws. Such a hook 1 equipped with tie-member 20 supports only the load of a row portion of roof tiles set between two following hooks equipped
10 with tie-member along the row same. In the figure also a head hook element 40 is present adapted to stop at the same time two first flat roof tiles 62' and a first bent tile 61' arranged near the roof gutter.

Similarly, figure 13 shows the application of a
15 plurality of hooks 1 arranged in turn between flat roof tiles 62, wherein some of such hooks 1 are pivotally connected to a tie-member 20 stretched along the roof 30 and connected in a plurality of points.

Figure 14 shows a cross sectional view of a roof
20 having a high slope covered by flat roof tiles 62 and bent tiles 61 fastened through a plurality of hooks 1 arranged between next bent tiles 61, of which one hook 1 comprises a tie-member 20, a head hook element 40 and a hook 1' with tie-member 20' adapted to stop a flat tile 62. This way,
25 using a plurality of hooks 1 with tie-member applied to bent tiles 61 and flat roof tiles 62, in addition to head hook elements 40, it is possible to fix safely roof tiles to a roof having very high slope.

Figures 15 and 16 show two successive steps of the
30 arrangement of flat roof tiles 62 and 62' and bent tiles 61' on a roof in order to be fixed by a head hook element 40. As shown in figure 15, after fixing the head hook element to the roof near the roof gutter, two adjacent flat roof tiles 62' are arranged on this hook so that the

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lower end 63 of such flat tiles is stopped owing to the abutment on the folded portions 4 and 5 of lower end 3 of head hook element 40. In figure 16 a first bent tile 61' is shown, whose length has been shortened, so that the lower edge 64 of two next flat roof tiles 62 abuts on the edge 70 of shortened bent tile 61', such flat tiles 62 overlapping partially on the first flat tiles 62'. Then of arranges a second not shortened bent tile, not visible in the figure, so that it overlaps partially bent tile 61'. Preferably between first bent tile 61' of the row of bent tiles and the next bent tiles a hook is interposed obtained according to the invention. The complete covering of the roof is obtained arranging horizontal rows of flat tiles and bent tiles in turn.

Figures from 17 to 22 show some exemplary embodiments and the application to a roof, of a barrier 70 adapted to block the space present between flat tiles and roof for avoiding the entrance of birds or other animals in this space, allowing at the same time a correct circulation of the air, necessary for preserving the roof and its covering in optimal conditions. This barrier 70 has a composite shape formed by a substantially semicircular portion 70a and a extension portion 70b for example having rectangular shape that are subject to folding or cutting at a length to fit the barrier to the distance between tile and roof.

As shown in figure 20, portion 70B can be folded or cut for the whole or partially according to the necessary height.

Barrier 70 can be obtained as a stiff net portion, for example of metal, as shown in figure 19, or obtained with a metal sheet as described in figures 17 and 18, wherein elongated apertures 74 or holes 73 are provided to allow the aeration under the flat tiles and the drainage

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of water. In particular, elements of engagement can be present at the free hook ends, such as ear-like portions 71 and 72 of figure 17. Such ear-like portions 71 and 72 can comprise through holes 75 that can be crossed by the bent end of the head hook element 40. In particular, ear-like portions 71 and 72 longer than that depicted in the figure it is possible to obtain a plurality of holes, not shown in the figure, distanced radially, allowing to use a same shape of barrier for flat tiles or bent tiles of different sizes, using in turn different holes according to the shape of the flat tiles and thus obtaining a universal barrier. After assembling, the exceeding portion of the ear-like portions can be removed or folded.

Furthermore, slots can be provided, not shown in the figure, along the lower edge of barrier 70, adapted to assist the fixed joints between barrier 70 and hook 40.

In figure 21 such a barrier 70 is mounted at the end of hook 40, before arranging the flat tiles on the roof since the hook must remain operatively below the flat tiles same. The barrier is stopped by the folded portions 4 and 5 of hook 40.

Finally, figure 22 shows such a barrier 70 arranged according to a finite portion of roof tiles, wherein this barrier 70 blocks the space located underneath a head bent tile 61'.

In figure 23 a further exemplary embodiment is shown of an interposition hook 1, where the lower end 3, besides having the end 4 and 5 of previous figures, comprises two folded portions 11, 13, 15 and 12, 14, 16, adapted to close onto each other creating a closure portion 17 and in order not to protrude laterally from hook 1.

Similarly, figure 24 shows an exemplary embodiment where portions 13, 15 and 14, 16 protrude laterally at opposite sides with respect to hook 1.

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Figures 25 and 26 show an application of a closure member 18 on said closure portion 17, shown in figures 25 and 26, for connecting to each other the portions 15 and 16.

5 The hooks of figures from 23 to 26 may have the advantageous additional function of snow holder. In fact portion 17, protruding from the outer face of the bent tile or the roof tile in general, is located to block operatively snow 19 accumulated on flat tiles 61 and 62,
10 as shown in figure 27. Furthermore, by arranging a transversal row of hooks with snow holder 17, as shown in figure 28, a transversal barrier is obtained of protruding portions 17, arranged perpendicularly to the slope of the roof preventing the layer of snow 19 accumulated on the
15 roof from sliding. Obviously, a protruding portion 17 can be obtained also on the head hook elements.

 The foregoing description of a specific embodiment will so fully reveal the invention according to the conceptual point of view, so that others, by applying
20 current knowledge, will be able to modify and/or adapt for various applications such an embodiment without further research and without parting from the invention, and it is therefore to be understood that such adaptations and modifications will have to be considered as equivalent to
25 the specific embodiment. The means and the materials to realise the different functions described herein could have a different nature without, for this reason, departing from the field of the invention. It is to be understood that the phraseology or terminology employed
30 herein is for the purpose of description and not of limitation.

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CLAIMS

1. A device for fixing roof tiles, in particular, bent tiles and flat tiles, for fixing the tiles to each other and/or to the surface of a roof, comprising a hook with a bent end, whereby in use said bent end engages with an edge of said roof tiles, said hook being characterised in that it comprises at least two adjacent stiff wire portions united by a connecting portion, said wire portions having two respective free ends opposite to said connecting portion and said bent end being defined by said two free bent edges.
2. A device for fixing roof tiles, according to claim 1, wherein said hook has two bent edges at opposite sides, of which one consisting of said two ends and one comprising said connecting portion, whereby in use a lower hook bent edge engages with the lower edge of a upper roof tile, and a upper hook bent edge engages with the upper edge of a lower roof tile.
3. A device for fixing roof tiles, according to claim 1, wherein said free ends are united to each other by a closure portion; in particular, said closure portion connects the two free ends by means of respective spacing portions, whereby said closure portion protrudes from a bent tile and may have the function of snow holder.
4. A device for fixing roof tiles, according to claim 1, wherein said stiff wire has a cross section selected from the group comprised of:
 - circular;
 - rectangular;
 - polygonal;
 - composite figure;
 - flattened cross section.
5. A device for fixing roof tiles, according to claim 1,

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wherein said connecting portion is pivotally connected to means for engaging to the roof, comprising at least one element selected from the group comprised of:

- 5 - a tie-member having a first end pivotally connected to said connecting portion and a second end that can be fixed to the roof;
- a shaped and/or folded lamina having a first portion adapted to pivotally engage with said connecting portion and at least one second portion adapted to
10 be connected to the roof.

6. A device for fixing roof tiles, according to claim 1, wherein said hook has shape adapted to keep the first roof tile of a row of roof tiles near the roof gutter, said hook having a longer extension and forming a head
15 hook element, said head hook element being operatively arranged below at least one head roof tile, said bent end of said hook being arranged in order to engage the lower edge of said at least one roof tile.

7. A device for fixing roof tiles, according to claim 13,
20 wherein said head hook element comprises means for fixing to the roof, adapted to prevent said hook from raising and laterally shifting when it is mounted, said means being arranged at a fixing portion, preferably near said lower end, in particular, said means for
25 fixing are either fixed or removable and are selected from the group comprised of:

- at least one plate associated with at least one nail or a screw;
- a couple of opposite wings;
- 30 - at least one nail, screw, locking dog.

8. A device for fixing roof tiles, according to claim 6, wherein said head hook element comprises a barrier having a substantially plane portion, which coats the transversal section of a roof tile, said barrier having

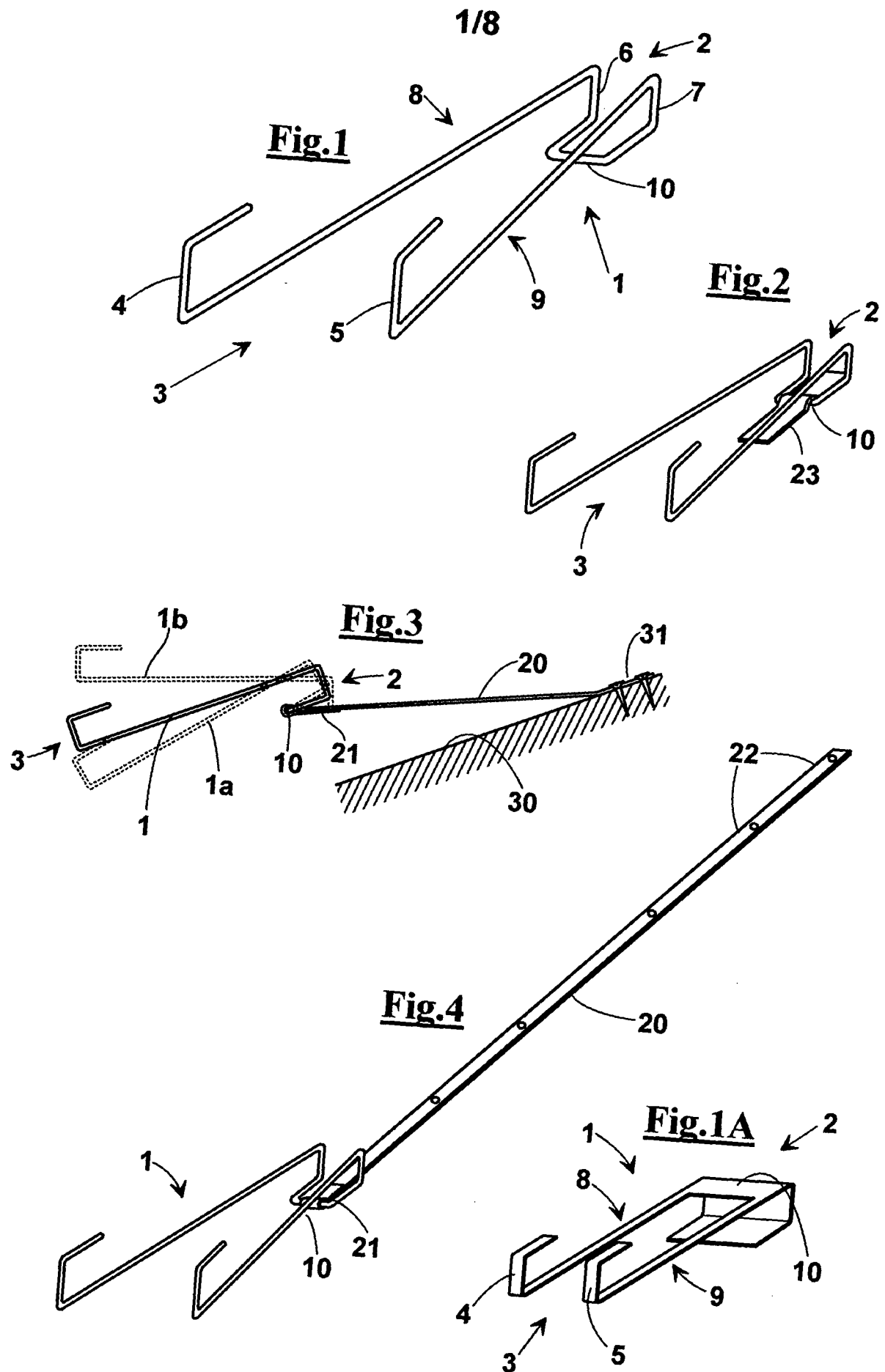
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at least one aeration opening between tile and roof and for drainage of water, said barrier being adapted to be stopped from said bent end of said hook covering the space present between said tile and the roof for preventing from the inlet of animals, wherein said barrier is obtained with an element selected from the group comprised of:

- a stiff net portion, preferably of metal, cut according to said plane shape;
- a sheet portion cut according to said plane shape, having at least one opening;
- a combination of said sheet portion cut and said net portion.

9. A device for fixing roof tiles, according to claim 8, wherein said barrier has a substantially semicircular shape and comprises an extension portion next to said semicircular portion, said extension portion being adapted to be folded or cut in order to match the size of said barrier at said space.

10. A device for fixing roof tiles, according to claim 8, wherein said barrier comprises at least one portion embracing said bent end of said hook, in particular, at said free ends.



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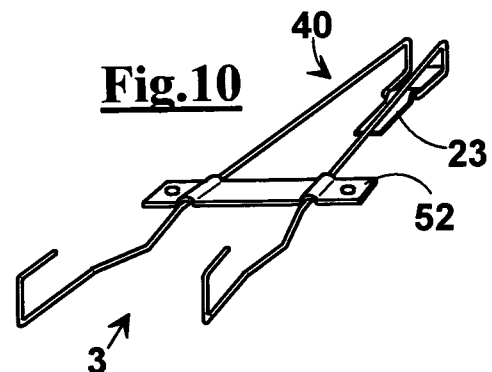
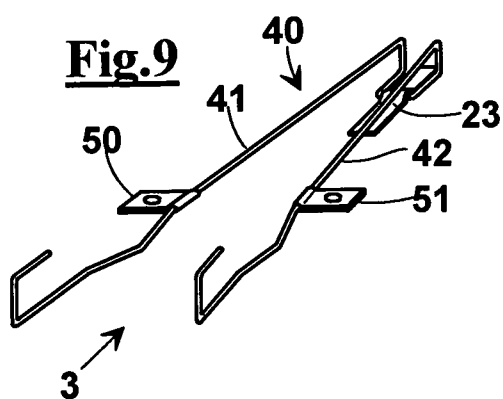
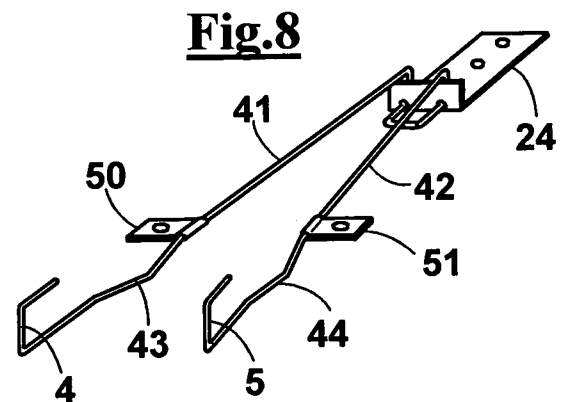
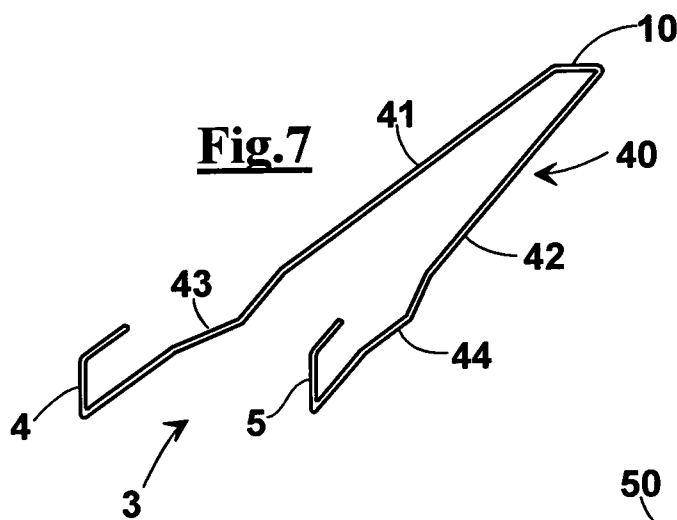
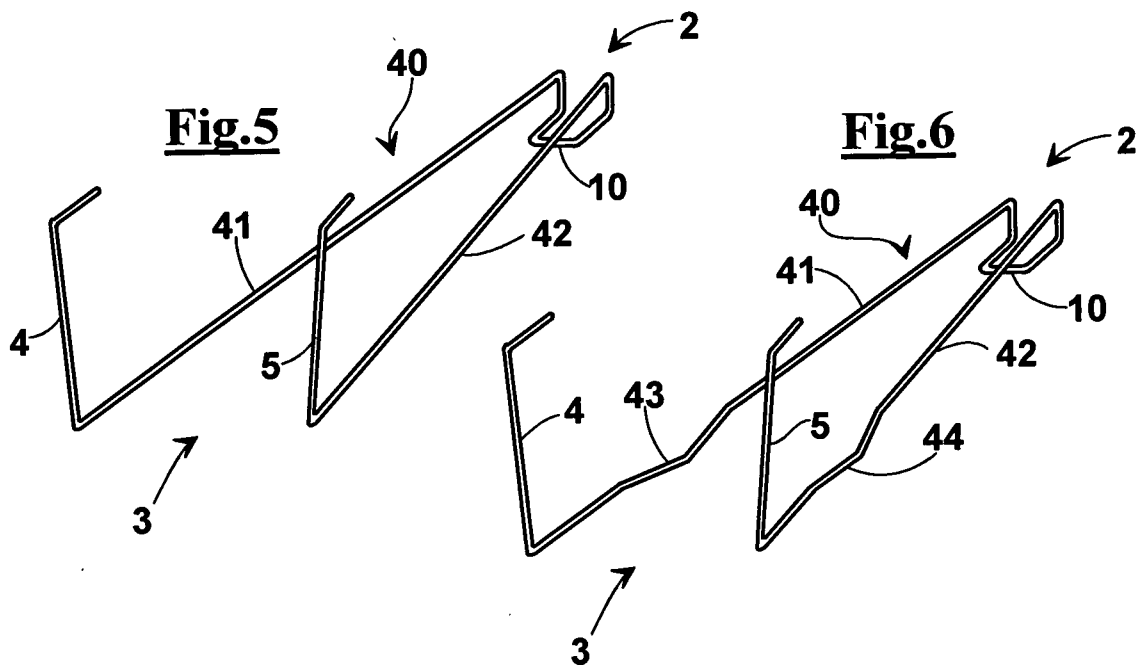


Fig.11

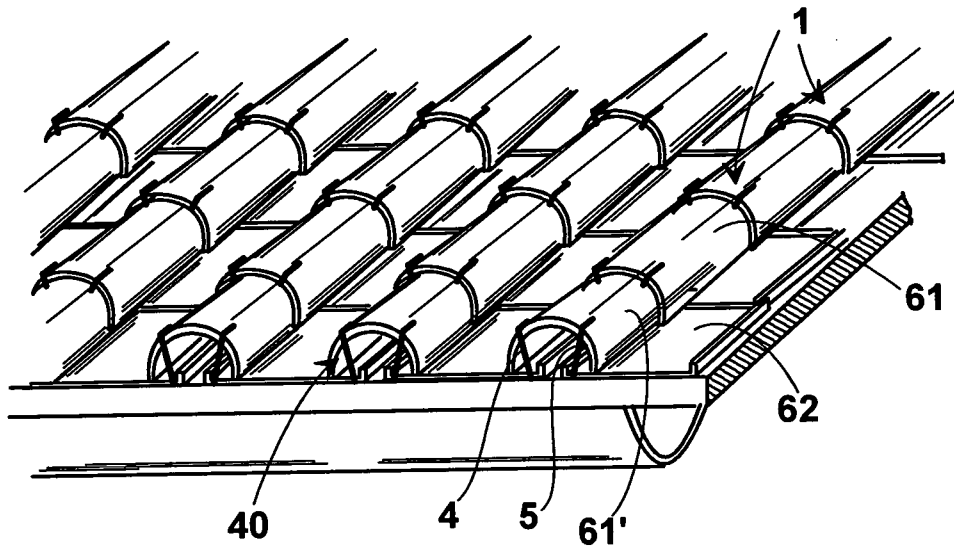


Fig.12

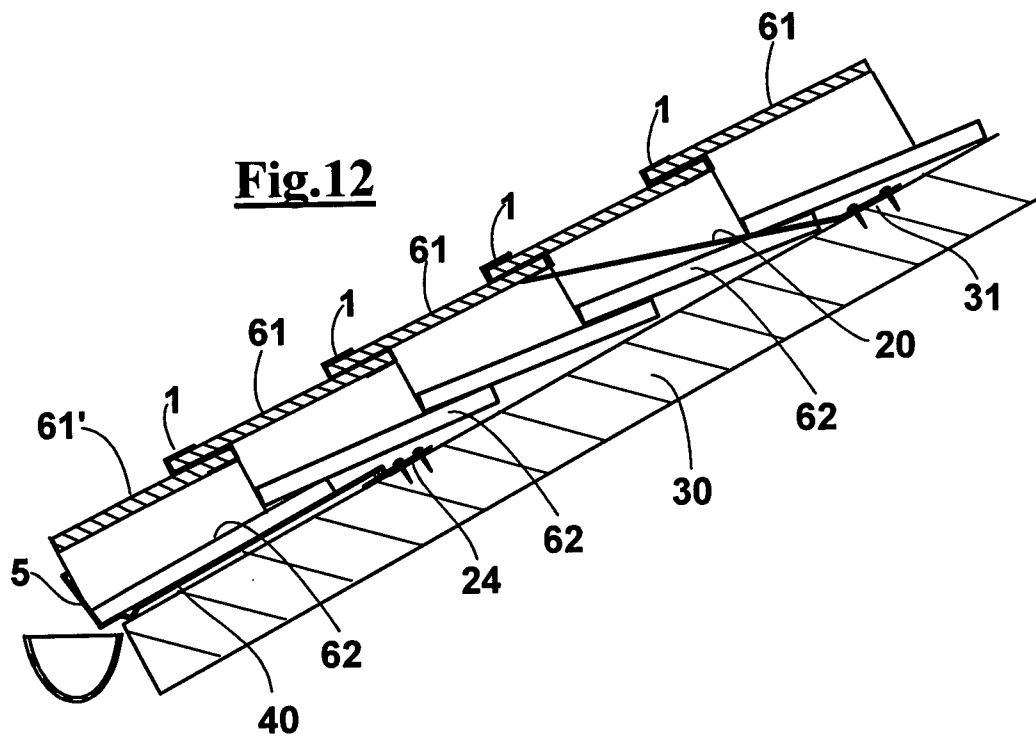


Fig.13

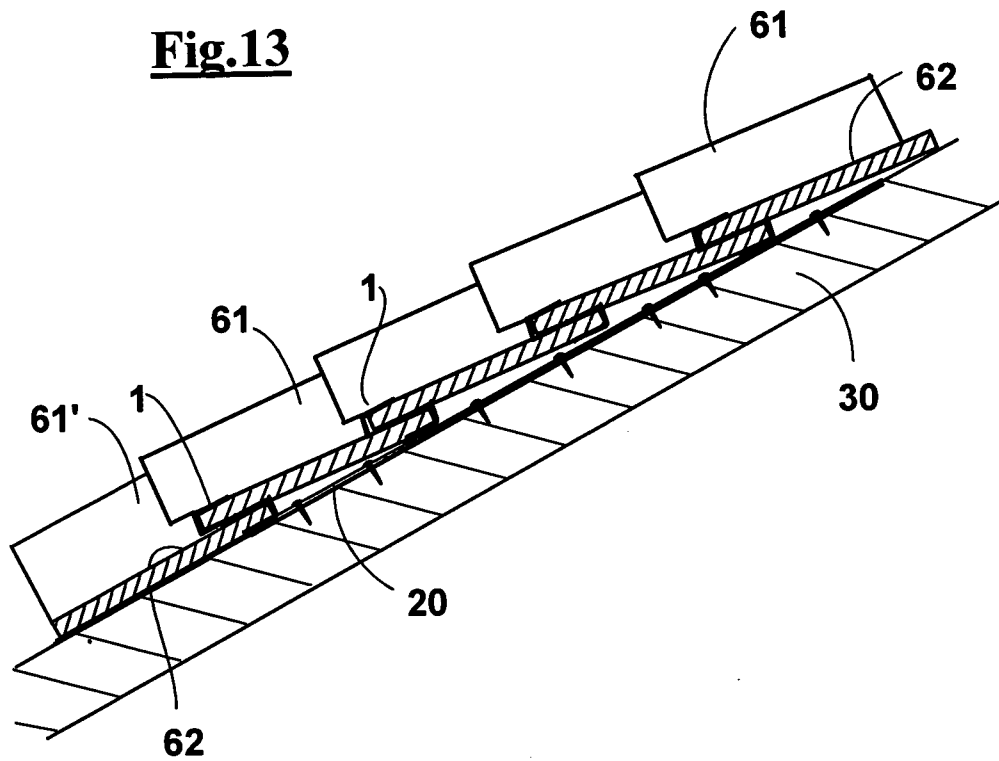


Fig.14

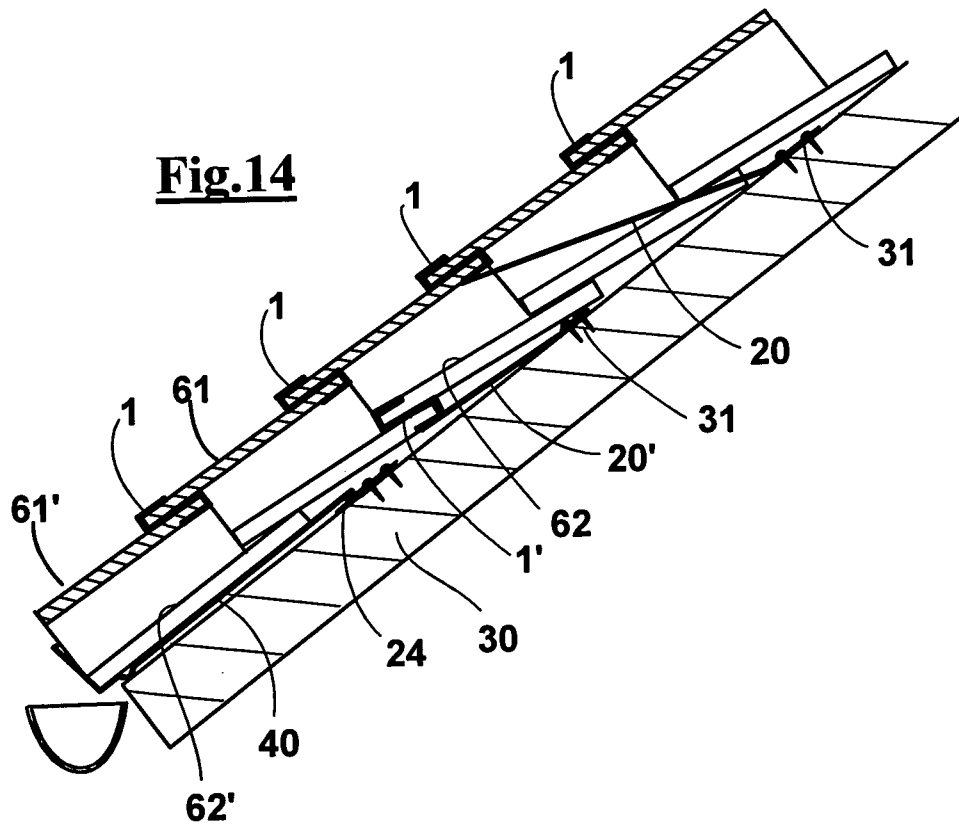


Fig.15

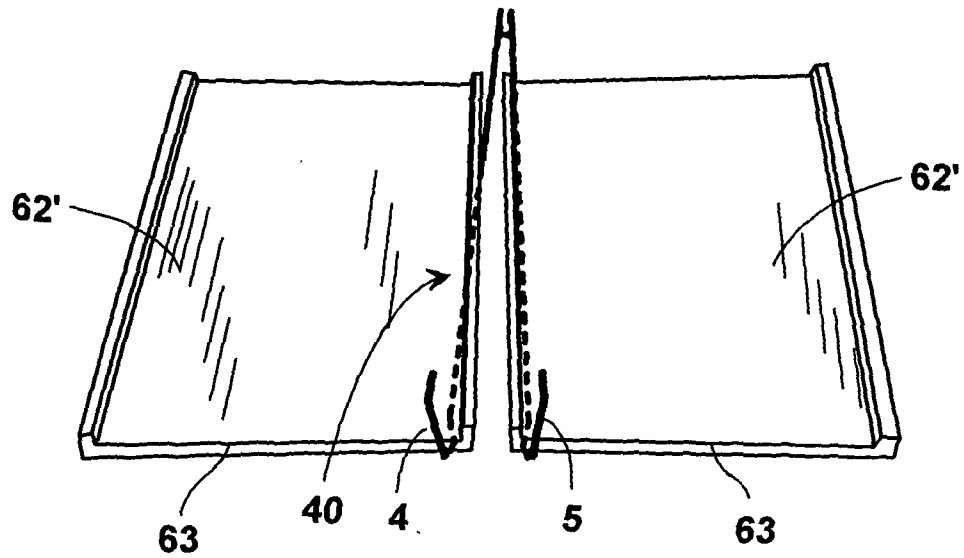
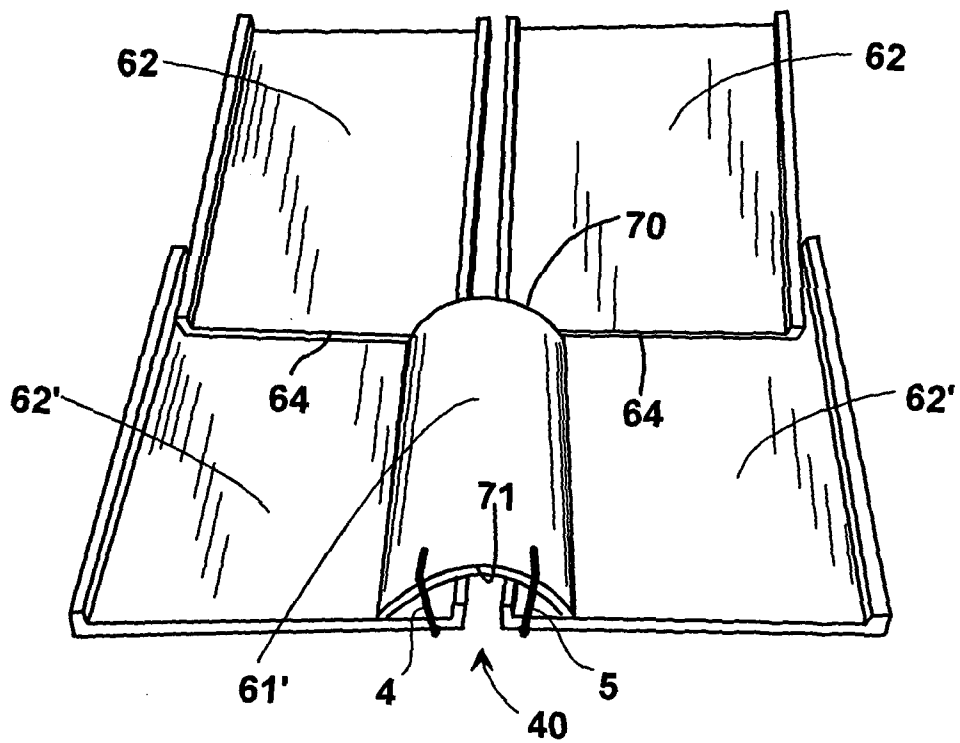


Fig.16



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Fig.17

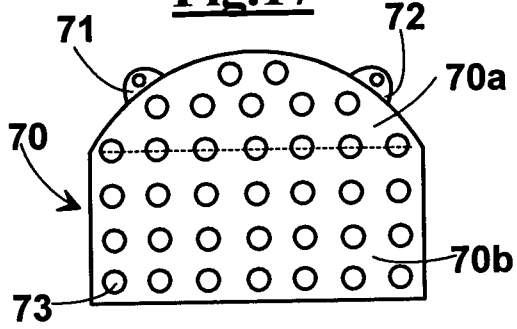


Fig.18

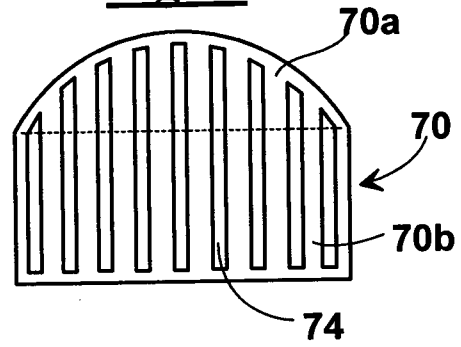


Fig.19

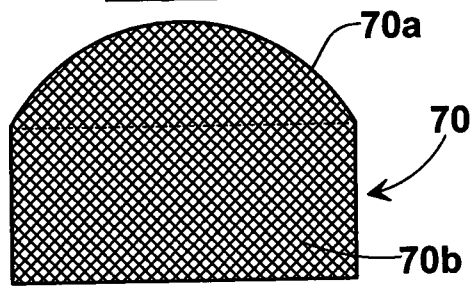


Fig.20

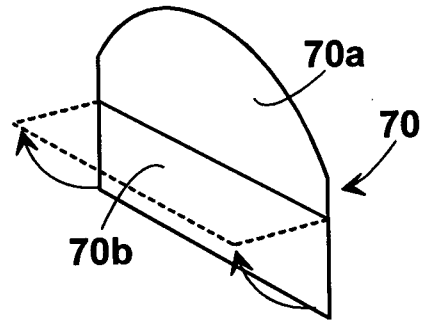


Fig.21

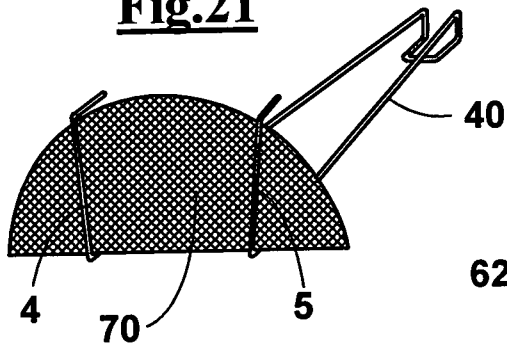
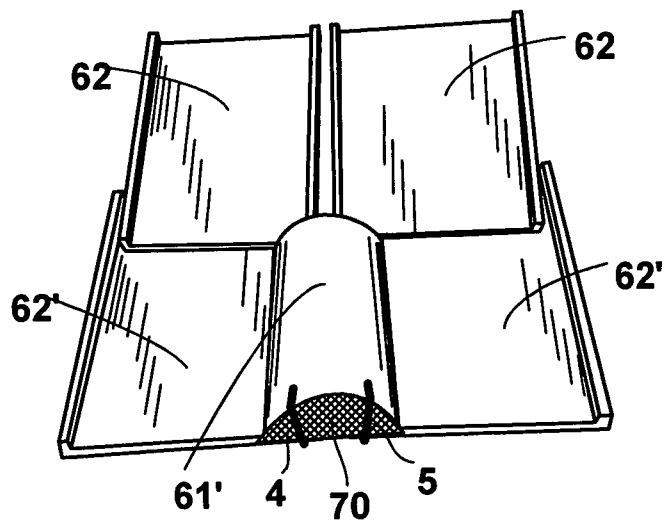


Fig.22



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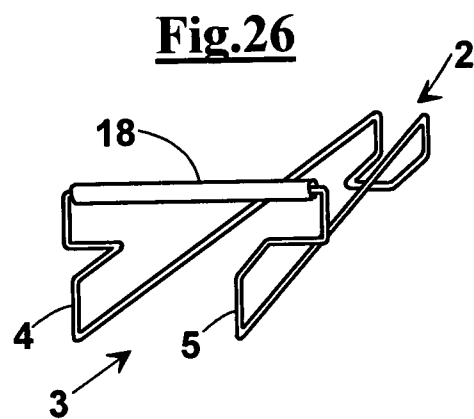
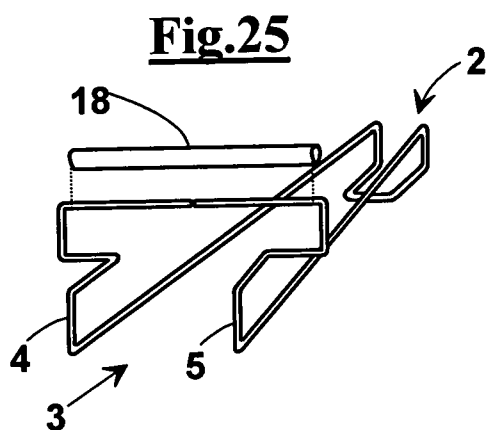
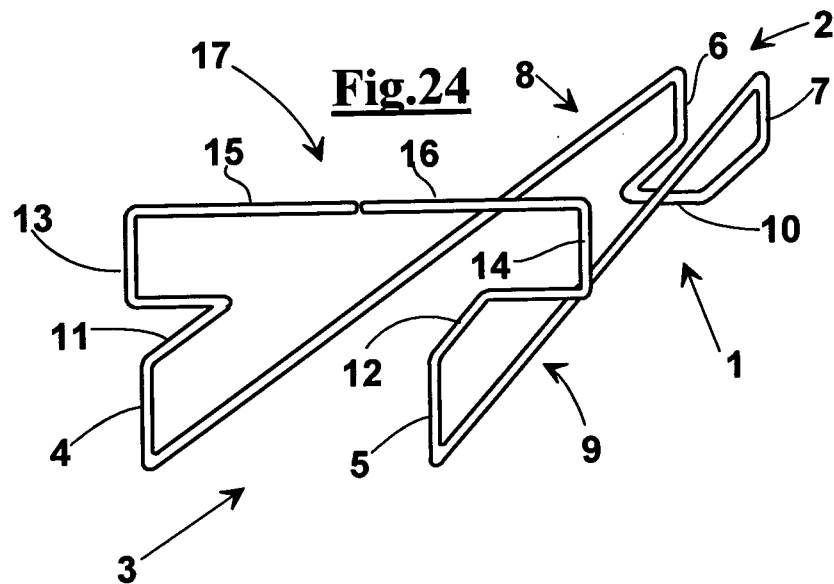
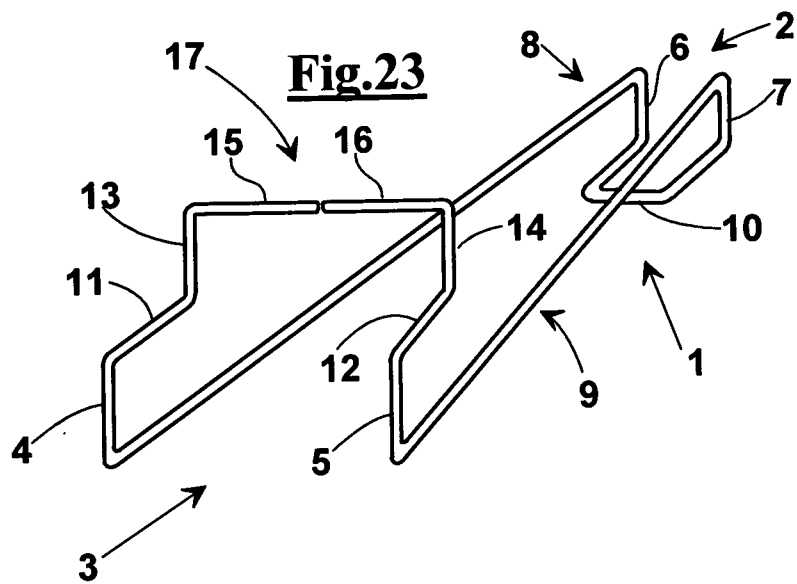


Fig.27

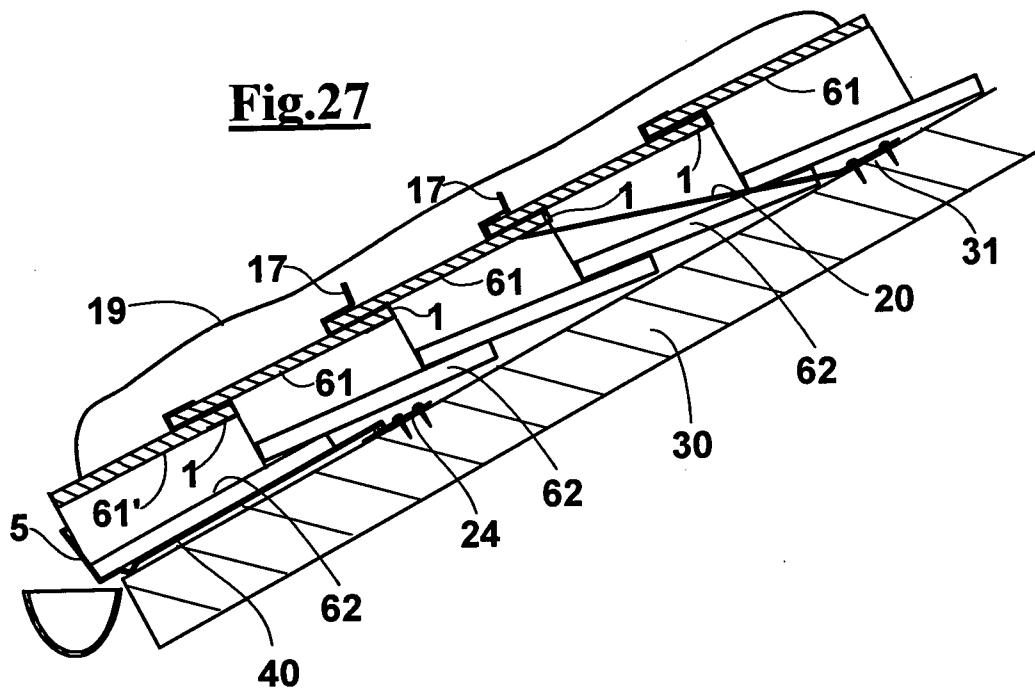


Fig.28

