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(54) **Hip roof clips**

(57) A clip (10) is described for fastening of roof tiles (12), which are cut at an angle, to valley gutters or hip roofs, comprising a first U-shaped clamp part (14) for insertion onto the roof tile (12), wherein the first U-shaped clamp part (14) comprises an opening (18) in the bottom of the U-shape, and a second fastening part (16) designed with an elongated section (20) for fastening to

battens or hip boards. The second fastening part (16) is equipped with a head (22) at one end, with the head (22) being arranged to fit into the first U-shaped clamp part (14), while the elongated section (20) of the fastening part (16) is arranged to be led through the opening (18) in the first clamp part (14), wherein the roof tile (12) is clamped in the U-shaped clamp part (14) by the head (22).

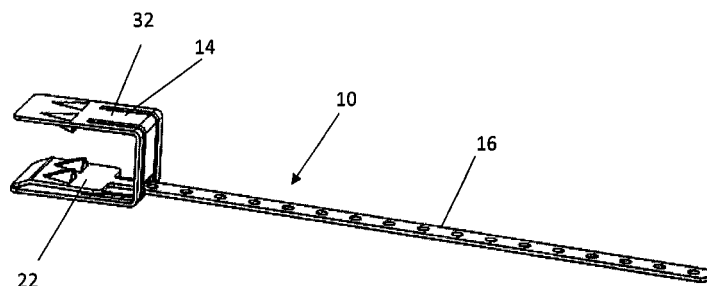


Fig. 3

## Description

**[0001]** The present invention relates to a clip for fastening of roof tiles, which are cut at an angle, to valley gutters or hip roofs, comprising a first U-shaped clamp part for insertion onto the roof tile, wherein the first U-shaped clamp part comprises an opening in the bottom of the U-shape, and a second fastening part designed with an elongated section for fastening to battens or hip boards

**[0002]** The present solution aims to solve the problem by fastening small bits of roof tiles cut at an angle.

**[0003]** Clips for fastening of roof tiles cut at an angle are known from, among others, FOS® (Fr. Ossenbergschule + Söhne GmbH + Co KG), for instance as disclosed in EP 1 462 585 B1. Reference is here made to a clip comprising a U-shaped part of spring steel which is inserted and clamped down onto the edge of the roof tile. Furthermore, the clip has a fastening part that can be folded outwards and which is screwed to a batten and/or a fastening wire that runs from the clip and which can be fastened round a batten, screw or nail, can be used.

**[0004]** The difference between the present invention and the clip produced by FOS® is that in the present invention the clip is locked by pulling the one part through the other. Therefore, there is no need to tap the clip onto the roof tile with a hammer or the like and thereby damage the roof tile. A better grip on the roof tile is obtained because the part of the roof tile where the teeth shall engage is not scratched. The present invention is more flexible with regard to different roof tile shapes and different batten heights. A more rigid connection is obtained than with fastening wire. Furthermore, a simpler laying of the roof tiles is obtained in that one can use screws or nails on the top of the batten and not down between the roof tiles.

**[0005]** EP 1 154 094 A1 discloses a retaining clip having a rigid U-shaped body with resilient sharp projections protruding out from the inner faces of two arms. The projections project inclined out from the arms with their tips facing the base of the u-shaped body. The projections on the arm which is to be mounted on the top side of the tile are lower than those on the other arm.

**[0006]** DE 19647528 C1 also discloses a retaining clip with a U-shaped body for fastening to the roof tile.

**[0007]** The present invention shall keep in place roof tiles that have been cut at an angle to obtain a better fit to either valley gutters or hip roofs. Such roof tiles are often too small to get sufficient positioning and fastening possibilities to a batten. Besides, bits of roof tiles that fall down can cause damage to people and other building parts (for example, gutters and eaves) and, in addition, they can "chatter" loudly in the wind. The present invention will provide a sturdy fastening at the same time as it can be adapted to the dimensions of the batten, shape of the roof tile, etc.

**[0008]** The locking function of the present invention is not known or obvious from the cited art.

**[0009]** The abovementioned objects are realised by a clip as described in the independent claim 1, in that the second fastening part is equipped with a head at one end, with the head being arranged to fit into the first U-shaped clamp part, while the elongated section of the fastening part is arranged to be led through the opening in the first clamp part, wherein the roof tile is being clamped in the U-shaped clamp part by the head.

**[0010]** Alternative embodiments are described in the dependent claims 2-7.

**[0011]** The head of the second fastening part can comprise an outer edge section arranged at an angle.

**[0012]** The U-shape of the first clamp part can comprise internal barbs, at least on the leg which is opposite to the head of the second fastening part when the parts are mounted together. The head of the second fastening part can also comprise barbs that are oriented towards the inside of the u-shape of the first clamp part when the parts are mounted together.

**[0013]** The second fastening part can further comprise a weakened neck section between the head and the elongated section. The elongated section of the second fastening part can also comprise a number of holes for fastening with the help of screws, nails, etc., to a batten or a hip board.

**[0014]** The first clamp part can comprise external reinforcement ribs.

**[0015]** The invention shall now be explained in more detail with the help of the enclosed figures, in which:

Figure 1 shows a first clamp part that is included in the clip according to the invention.

Figure 2 shows a second fastening part that is included in the clip according to the invention.

Figure 3 shows the two parts shown in the figures 1 and 2 mounted together.

Figures 4 to 6 show fastening of the clip, according to the invention, to a roof tile.

Figure 7 shows the clip, according to the invention, fastened to a roof tile and to a batten.

**[0016]** As the figures show, the present clip 10 comprises two parts: A u-shaped clamp part 14 and an elongated fastening part 16.

**[0017]** The U-shaped clamp part 14, as shown in figure 1, is equipped with teeth or barbs 30 for locking to a roof tile 12, at least internally on one of the legs 14a that is oriented towards the elongated part 16 when the parts are mounted together. The barbs 30 can simply be punched out or be manufactured in other known ways. Furthermore, the part 14 can be equipped with external reinforcement ribs 32, to reinforce the part or to provide a clamping force. An opening 18 is provided in the bottom of the U-shape of the part 14, for example, in the form of a slit or aperture. The clamp part 14 can be manufactured by a yielding material, such as spring steel.

**[0018]** The elongated fastening part 16, shown in figure 2, comprises an elongated section 20 that extends

towards a head 22 at the one end. A neck section 36 is preferably provided between the head 22 and the elongated section 20 so that a weakened area is created, which makes the bending of the fastening part 16 easier. Furthermore, the fastening part 16 is equipped with teeth or barbs 24 on the head 22 for locking to the roof tile 12. When the parts are mounted together the barbs 24 of the fastening part 16 are oriented towards the barbs 30 of the clamp part 14. The elongated section 20 of the fastening part 16 comprises a number of holes for fastening to battens or hip boards with nails or screws, and, in addition, the elongated section 20 can be bent around the battens or hip boards. An outer edge 28 set at an angle is provided in front of the head 22 of the fastening part 16. The purpose of the bent or angled edge 28 is to create a stronger force from the barbs against the roof tiles.

**[0019]** The U-formed clamp part 14 is so roomy that there is plenty of space for the roof tile, but even with the barbs 30 this alone does not provide a sufficient locking to the roof tile. Therefore, a clamping force must be provided against the roof tile. This is achieved by inserting the elongated section 20 of the fastening part 16 through the opening 18 at the bottom of the U-shaped clamp part 14, so that the head rests internally against one of the legs of the U-shape of the clamp part 14 and is being squeezed or clamped against the roof tiles 12.

**[0020]** Mounting of the clips 10 to the roof tile is shown in the figures 4 to 6. First, the roof tile 12 must be cut at an angle. During the mounting, the clip 10 shall be open, i.e. the flat head 22 of the fastening part 16 shall be out of the U-shaped part of the clamp part 14, as shown in figure 4. The U-part is led onto the roof tile 12 and then the head 22 is pulled into the U-part, as shown in figure 5, so that the clip 10 is locked to the roof tile 12. Thereafter, the roof tile is put in place and the elongated section 20 of the fastening part 16 can be bent around the batten and be nailed or be screwed down through the holes 26 of the section 20.

**[0021]** Figure 7 shows the clip 10 mounted to a batten 34 and a roof tile 12.

clamped in the U-shaped clamp part (14) by the head (22).

2. Clip according to claim 1, **characterised in that** the head (22) of the second fastening part (16) comprises an outer edge section (28) set at an angle.
3. Clip according to claim 1, **characterised in that** the U-shape of the first clamp part (14) comprises internal barbs (30), at least on one leg (14a) which is opposite to the head (22) of the second fastening part (16) when the parts (14, 16) are mounted together.
4. Clip according to claim 3, **characterised in that** the head (22) of the second fastening part (16) comprises barbs (24) oriented towards the inside of the U-shape of the first clamp part (14) when the parts (14, 16) are mounted together.
5. Clip according to claim 1, **characterised in that** the second fastening part (16) comprises a weakened neck section (36) between the head (22) and the elongated section (20).
6. Clip according to claim 1, **characterised in that** the elongated section (20) of the second fastening part (16) comprises a number of holes (26) for fastening with the help of screws, nails, etc., to a batten or hip board (34).
7. Clip according to claim 1, **characterised in that** the first clamp part (14) comprises external reinforcement ribs (32).

## Claims

1. Clip (10) for fastening of roof tiles (12), which are cut at an angle, to valley gutters or hip roofs, comprising a first U-shaped clamp part (14) for insertion onto the roof tile (12), wherein the first U-shaped clamp part (14) comprises an opening (18) in the bottom of the U-shape, and a second fastening part (16) designed with an elongated section (20) for fastening to battens or hip boards, **characterised in that** the second fastening part (16) is equipped with a head (22) at one end, with the head (22) being arranged to fit into the first U-shaped clamp part (14), while the elongated section (20) of the fastening part (16) is arranged to be led through the opening (18) in the first clamp part (14), wherein the roof tile (12) is

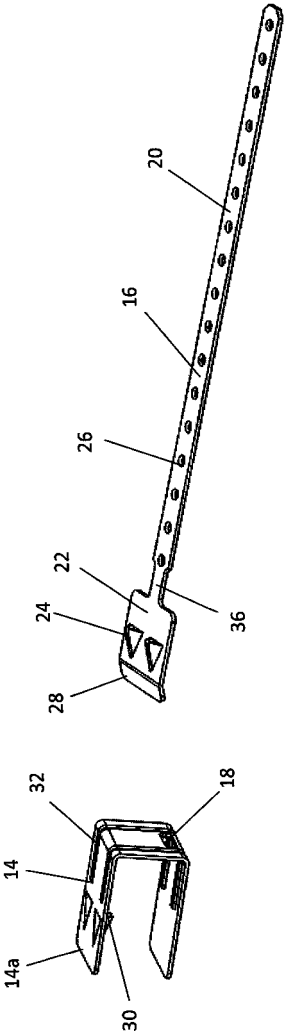


Fig. 2

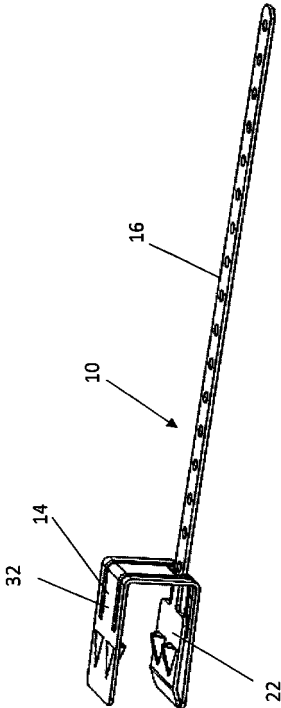
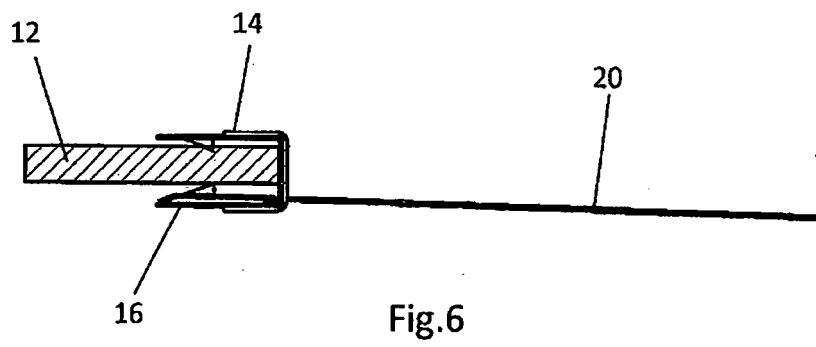
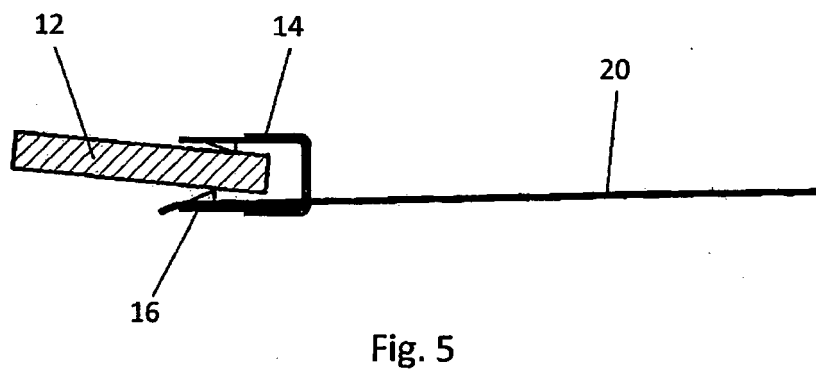
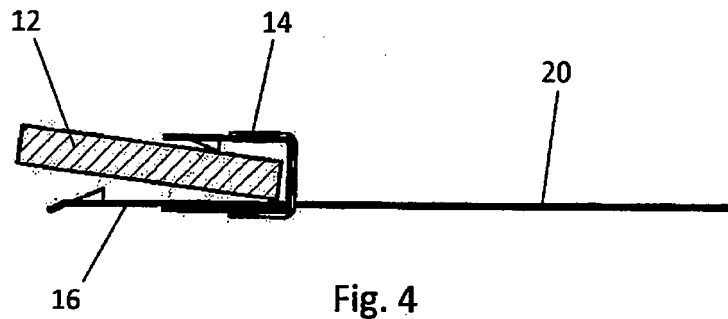


Fig. 3



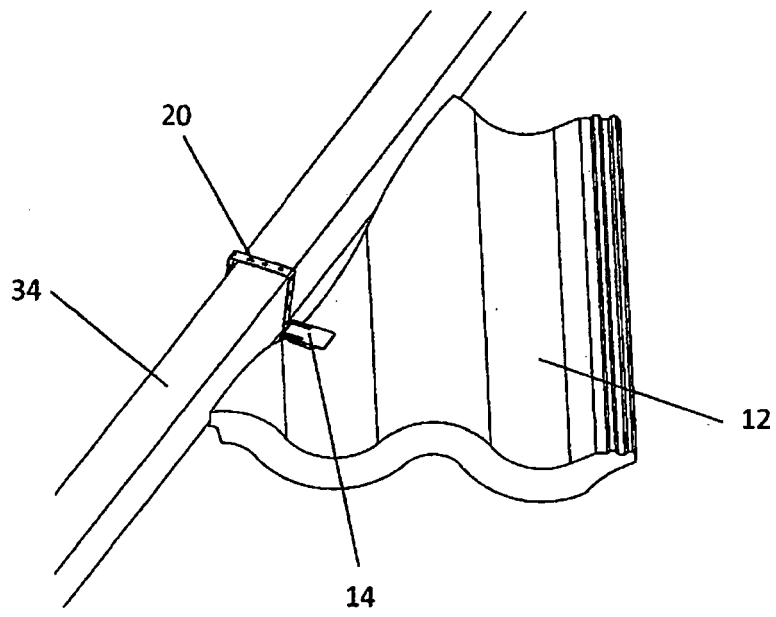


Fig. 7

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- EP 1462585 B1 [0003]
- EP 1154094 A1 [0005]
- DE 19647528 C1 [0006]