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(54) **Device for securing roof covering elements on a roof construction and method for mounting thereof**

Vorrichtung zur Befestigung eines Dacheindeckungselements auf einem Dachunterbau und Methode dafür

Dispositif de montage d'un élément de toiture sur une charpente de toit et méthode relative

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(56) References cited:  
**CH-A- 273 891**                      **FR-A- 1 553 603**  
**GB-A- 1 174 891**                      **GB-A- 1 514 723**  
**GB-A- 2 101 172**

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## Description

**[0001]** Roof tiles are increasingly being fixed to a roof construction by means of so-called tile hooks in order to prevent the possibility of the tiles being dislodged at strong wind force and causing injury to persons and damage.

**[0002]** The European patent specification EP-A-0 687 337 describes a tile hook, wherein two tiles are clamped onto each other between a hook-like bend and a shoulder. This known tile hook is needlessly complicated in construction and therefore costly.

**[0003]** Known from the British patent GB-A-2 101 172 is a tile hook of wire material which is provided on one side with a pin which engages in a tile batten and on the other side with a hook-shaped outer end which engages over an edge of a roof tile. The holding force exerted by this known tile hook, particularly on the underside of a tile batten, is found in practice to be inadequate.

**[0004]** The present invention has for its object to provide an improved tile hook which is comparatively simple to manufacture at low cost price and which has a sufficient holding force for the roof tiles, for instance more than 150 Newton and preferably more than 200 Newton.

**[0005]** The present invention provides a device for securing one or more roof covering elements on a roof construction as described in claim 1.

**[0006]** The backward pointing piercing part ensures that the tile hook hooks firmly into a tile batten.

**[0007]** The resilient piece is formed by a loop in the wire part forming the body of the device according to the present invention.

**[0008]** A bend is preferably situated in the wire part at some distance from the piercing part so as to prevent the possibility of the piercing part being pulled out of a tile batten in the case of load.

**[0009]** The present invention further provides a roof, in addition to a method for arranging a roof covering on a roof construction.

**[0010]** Further advantages, features and details of the present invention will be elucidated on the basis of the following description of a preferred embodiment thereof with reference to the annexed drawings, in which:

fig. 1 shows a view in perspective of a partly arranged roof which is arranged as according to the present invention;

fig. 2 is a partly broken-away view of detail II of fig. 1; and

fig. 3 shows a view in perspective of a preferred embodiment of a device according to the present invention.

**[0011]** Roof tiles 1 are laid in overlapping manner on a roof boarding 2 of which tile battens 3 form part. A tile hook 5 is arranged over an edge 4 of roof tile 1, for instance round every other roof tile (see also fig. 2 and 3).

**[0012]** Tile hook 5 is preferably manufactured from

wire material preferably of stainless steel (SS) and comprises at a distance from a first outer end 10 a perpendicular bend 11 through roughly 90° (fig. 2, 3), from which position the wire material extends to a second bend 12 of roughly 90°, wherein the distance of the part 13 between bends 11 and 12 roughly corresponds with the width W of the edge of a roof tile 1.

**[0013]** From bend 12 the wire material extends via a loop 14, which ensures an adequate spring action of tile hook 5, up to a bend 15 with an angle of about 135°, from which position a piece of wire material 16 extends to a piercing part 17 which extends at an acute angle of roughly 30-45° relative to part 16 and which is provided on the outer end with a sharp point which is obtained for instance by cutting the wire material. The end 10 of tile hook 5 is arranged manually over an edge of roof tile 1, whereafter the piece of wire material 16 is placed behind tile batten 3. Due to the spring action of tile hook 5 the sharp point of tile hook 5 is attached fixedly in tile batten 3, whereby tile hook 5 remains tightly fixed in tile batten 3 even under load. The spring action of tile hook 5 will moreover compensate possible differences in tile batten thickness.

**[0014]** The present invention is not limited to the above described preferred embodiment; the rights sought are defined by the following claims, within the scope of which many modifications can be envisaged.

## Claims

1. Device (5), manufactured from a single piece of steel in the form of wire, for securing one or more roof covering elements (1) on a roof construction (2), comprising:

- a hook-shaped part (13) for engaging on an edge of a roof covering element;
- a body part which connects onto the hook part and which is provided with a resilient piece formed by a loop in the body part,
- a fixing part contiguous to the body part extending substantially transversely from the body part and which is provided with a piercing part (17) for fixing in a component of the roof construction (2),

**characterized in that** said piercing part points backward at an acute angle of about 30-45° relative to said wire part (16) and is provided on the outer end with a sharp point, wherein the device has a sufficient holding force for roof tiles of more than 150 N.

2. Device as claimed in claim 1, wherein the hook part is formed by two bends (11, 12) in the steel.

3. Device as claimed in claim 1, 2, wherein the transition between the body part and the fixing part is formed

- by a bend (15).
4. Device as claimed in one or more of the claims 1-3, wherein the piercing part (17) is provided with a chamfered point.
  5. Roof comprising a roof covering (2), roof covering elements such as roof tiles (1), and one or more devices (5) as claimed in one or more of the claims 1-4.
  6. Method for arranging a roof covering on a roof construction (2), using a device according to any of claims 1-4, wherein a roof covering element (1) such as a roof tile is laid on a roof construction (2) and a preceding roof covering element (1), wherein the hook part (13) of the device is clamped over an edge (4) of the roof covering element (1) and the piercing part (17) is pulled into a wooden beam (3) of the roof construction.

4. Vorrichtung nach einem oder mehreren der Ansprüche 1 bis 3, wobei das Einstechteil (17) mit einer abgeschrägten Spitze versehen ist.
5. Dach mit einer Dachabdeckung (2), Dachabdeckelementen wie etwa Dachziegeln (1) und einer oder mehreren Vorrichtungen (5) nach einem oder mehreren der Ansprüche 1 bis 4.
6. Verfahren zum Anordnen einer Dachabdeckung auf einem Dachunterbau (2) unter Verwendung einer Vorrichtung gemäß einem der Ansprüche 1 bis 4, wobei ein Dachabdeckelement wie etwa ein Dachziegel auf einen Dachunterbau (2) und ein voriges Dachdeckelement (1) gelegt wird, wobei der Haken- teil (13) der Vorrichtung über eine Kante (4) des Dachdeckelements (1) geklemmt und das Einstechelement (17) in eine Holzlatte (3) des Dachunterbaus hineingezogen wird.

### Patentansprüche

1. Vorrichtung (5), hergestellt aus einem Stahlstück in Drahtform, zur Sicherung eines oder mehrerer Dachdeckelemente (1) auf einem Dachunterbau (2) mit:

- einem hakenförmigen Teil (13) zum Angreifen an einer Kante eines Dachdeckelements,
- einem Hauptteil, der mit dem Hakenteil verbunden und der mit einem federnden, durch eine Schleife im Hauptteil gebildeten Teil versehen ist,
- einem unmittelbar an dem Hauptteil anschließenden Befestigungsteil, das sich im wesentlichen quer zu dem Hauptteil erstreckt und das mit einem Einstechteil (17) zum Befestigen an einer Komponente des Dachunterbaus (2) versehen ist,

#### dadurch gekennzeichnet,

**dass** das Einstechteil (17) unter einem spitzen Winkel von ca. 30- 45° im Verhältnis zu dem Drahtteil (16) nach hinten zeigt und an einem Außenende mit einer scharfen Spitze versehen ist, wobei die Vorrichtung eine für Dachziegel ausreichende Haltekraft von mehr als 150 N hat.

2. Vorrichtung nach Anspruch 1, wobei der Hakenteil durch zwei Biegungen (11, 12) in dem Stahl gebildet wird.
3. Vorrichtung nach Anspruch 1 oder 2, wobei der Übergang zwischen dem Hauptteil und dem Befestigungsteil durch eine Biegung (15) gebildet wird.

### Revendications

1. Dispositif (5), fabriqué à partir d'un seul morceau d'acier se présentant sous la forme d'un fil, pour fixer un ou plusieurs éléments (1) de couverture de toit sur une charpente (2), comprenant :

- une partie en forme de crochet (13) destinée à être mise en prise sur un bord d'un élément de couverture de toit ;
- une partie de corps qui se raccorde sur la partie de crochet et qui est prévue avec une pièce élastique, formée par une boucle dans la partie de corps,
- une partie de fixation contiguë à la partie de corps, s'étendant de manière sensiblement transversale à partir de la partie de corps et qui est pourvue d'une partie de perçage (17) pour la fixation dans un composant de la charpente (2),

**caractérisé en ce que** ladite partie de perçage est orientée vers l'arrière selon un angle aigu d'environ 30 à 45° par rapport audit orifice de fil (16) et est pourvue sur l'extrémité externe d'une pointe saillante, dans lequel le dispositif a une force de maintien suffisante pour des tuiles de toit de plus de 150 N.

2. Dispositif selon la revendication 1, dans lequel la partie de crochet est formée par deux courbures (11, 12) dans l'acier.
3. Dispositif selon la revendication 1, 2, dans lequel la transition entre la partie de corps et la partie de fixation est formée par une courbure (15).

4. Dispositif selon un ou plusieurs des revendications 1 à 3, dans lequel la partie de perçage (17) est pourvue d'un point chanfreiné.
5. Toit comprenant une couverture de toit (2), des éléments de couverture de toit tels que des tuiles (1), et un ou plusieurs dispositifs (5) selon une ou plusieurs des revendications 1 à 4. 5
6. Procédé permettant d'agencer une couverture de toit sur une charpente (2), utilisant un dispositif selon l'une quelconque des revendications 1 à 4, dans lequel un élément de couverture de toit (1) tel qu'une tuile est posé sur une charpente (2) et un élément de couverture de toit (1) précédent, dans lequel la partie de crochet (13) du dispositif est bloquée sur un bord (4) de l'élément de couverture de toit (1) et la partie de perçage (17) pénètre dans une poutre en bois (3) de la charpente. 10 15 20

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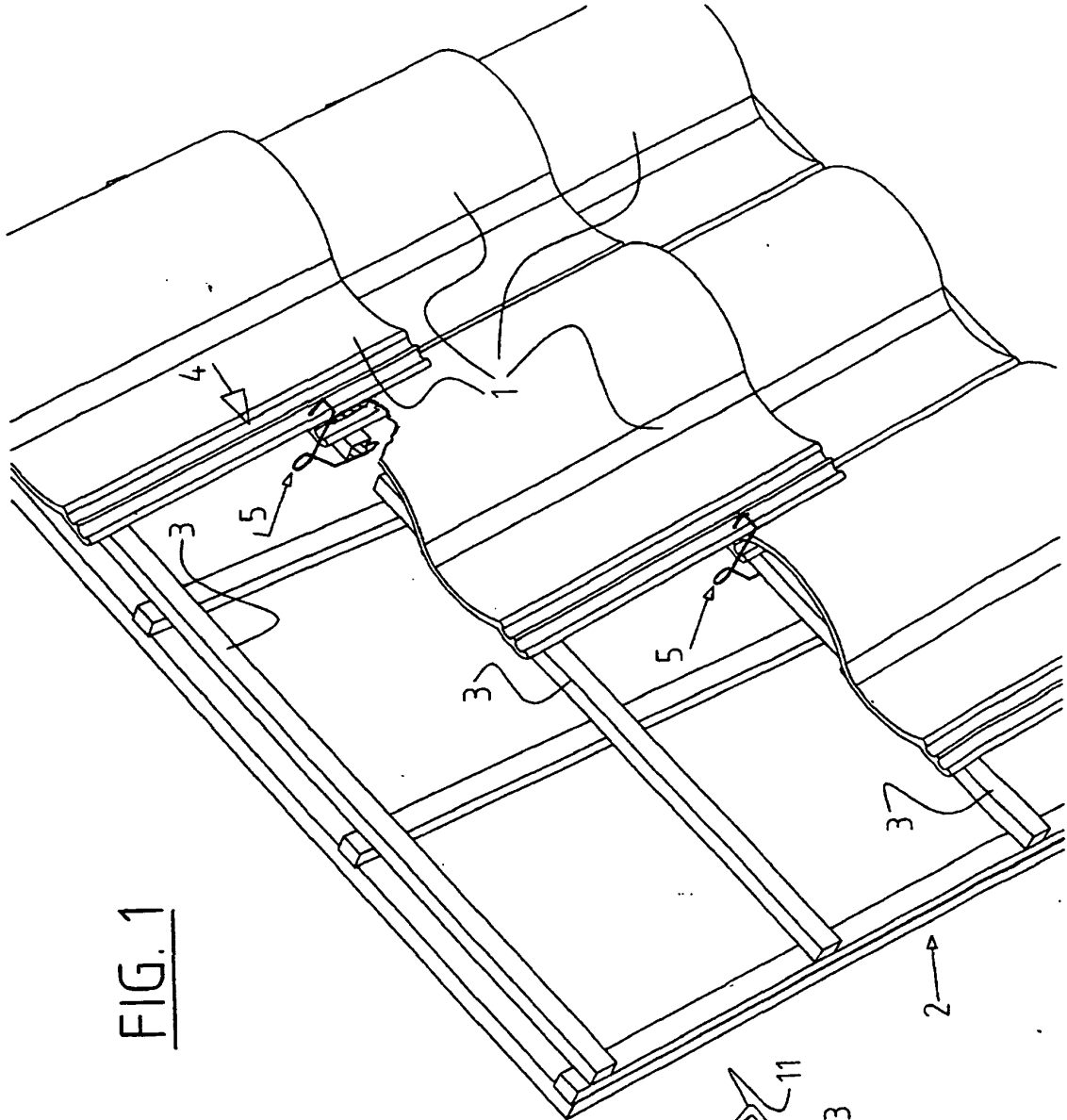
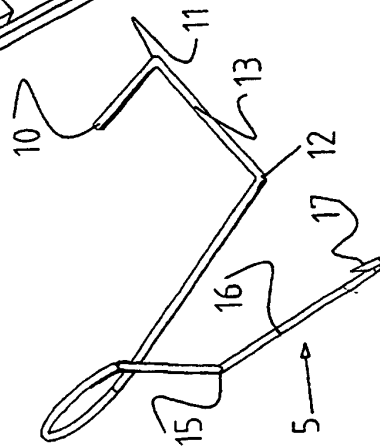


FIG. 3



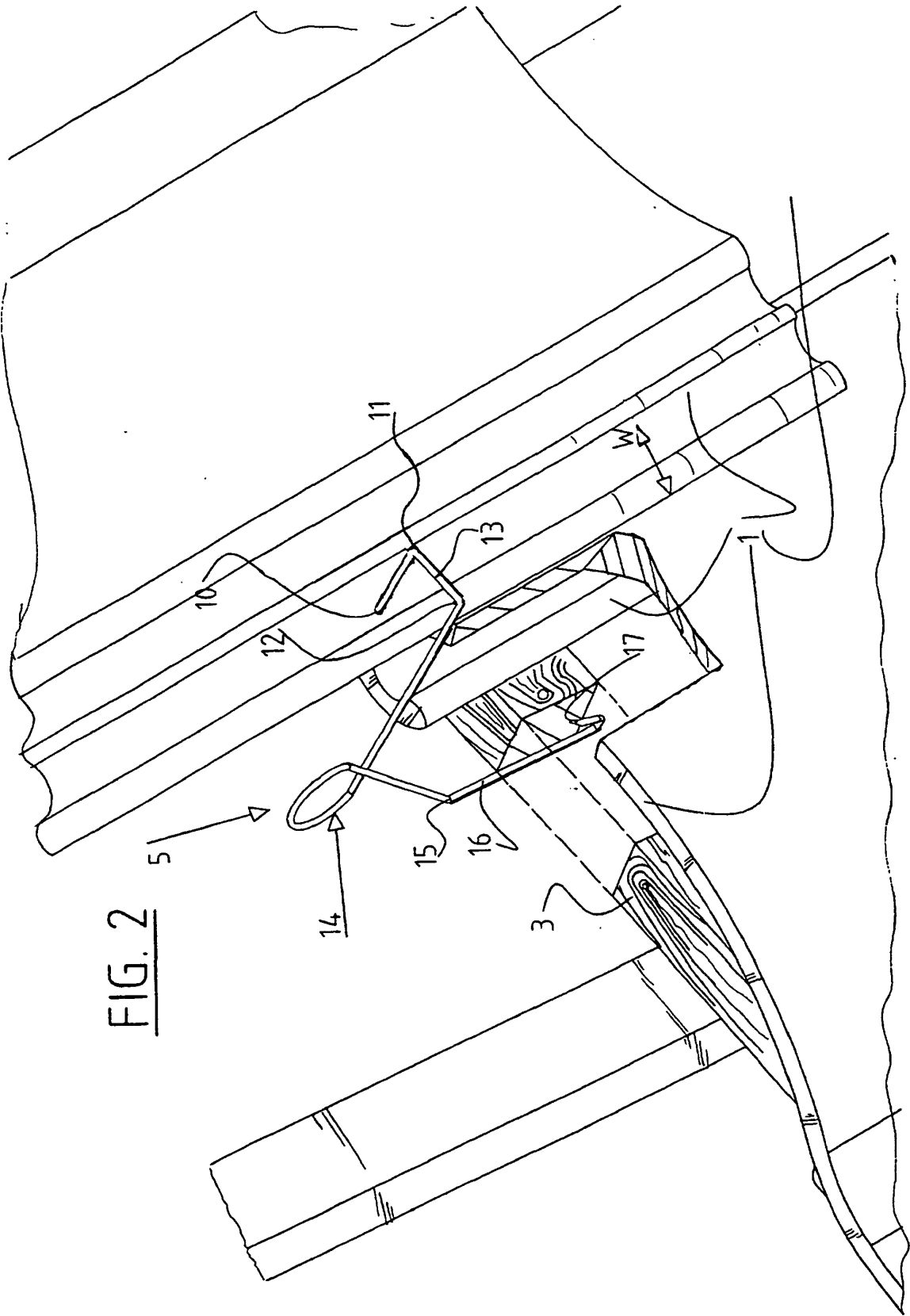


FIG. 2