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(54) **ROOFING BATTENS**

DACHLATTEN

VOLIGES DE TOITURES

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Description

This invention is concerned with improvements in or relating to roofing battens and their use in a novel method of tiling a roof.

Conventional roofing battens are generally provided by sawn strips of wood and are secured to the roof structure to enable a tiler to cover a roof with tiles. To this end the tiles may be secured by nails which are driven into the battens through apertures in the tiles and/or the tiles may be secured by clips of many diverse configurations which clips may be adapted to engage headlap and/or side-lock portions of the tiles.

In any event, the fixing of tiles to a roof is a time-consuming exercise and especially where nails and clips are utilised causing the tiler to carry about his person a pouch for the nails and clips and a belt for carrying the tools necessary for nailing, etc.

With non-conventional tiles, e.g. the plastics tiles of PCT W087/04479, it is proposed to use an extruded batten strip which is generally of "T" cross-section along its length and which strip is arranged to be accommodated in captive engagement by complementary "T" shaped channels extending widthwise across the underside of the tiles. In order to mount the tiles of PCT W087/04479 on a roof, each tile must be mounted onto a batten strip from one end and slid sideways along a roof into place. This is not a practical way in which to locate conventional tiles on a roof.

In a further engagement as disclosed in GB-A-2222620, the tiles are provided with lateral slots of thin section on an underside thereof for engaging in use a support flange of a batten strip, conventional tiles, e.g. concrete roof tiles are manufactured in the main by passing pallets seriatim through a tile moulding machine whereat tile mortar is formed on the pallets as a ribbon of mortar which is thereafter cut to form discrete tiles on each pallet. Such pallets form the underside of the tiles which preclude the manufacture of the non-conventional tiles GB-A-2222620 with the thin section lateral slots.

DE-C-1 509 135 discloses a roofing batten with integral tile fixing means which are not snap-fit and which require an adjacent tile to engage the side-lock portion of a tile.

US4955170 discloses the use of folded steel sheet batten elements which captively engage upper end portions of tiles mounted on a roof; however, such an arrangement does not cater for securing the sidelock portions of tiles located on a roof and thus, in inclement weather conditions, viz. high wind loads, the tiles may tip up about their upper ends and become dislodged from a roof.

The present invention seeks to overcome or at least mitigate the disadvantages of prior art tiling arrangements. Thus, the present invention provides a roofing batten comprising integral tile fixing means conveniently provided by a first snap-fit device for engagement, when in use, with a headlap portion of a roof tile, the tile fixing

means also comprising a second snap-fit device for engagement, when in use, with the side-lock portion of a roof tile.

Preferably the first snap-fit device comprises a hold-down clip overlying a recess formed in an upper surface, in use, of the batten, said recess being adapted to captively receive, in use, a ribbed portion formed on an underside of a headlap portion of a tile engaged thereby.

Conveniently the second snap-fit device comprises a hook element extending upwardly and rearwardly of the upper surface, in use, of the batten, said hook element being adapted, in use, to latch over a grooved side-lock portion of a roof tile engaged thereby.

Conveniently the batten is of wedge-shape cross-section, or substantially so, at right angles to the length thereof, the arrangement being such that, in use, the small end of the wedge shape is the upper end and faces towards the ridge of a roof on which it is used.

Preferably the batten of the last five preceding paragraphs is formed together with the tile fixing means as a unitary moulding of plastics material, preferably polyethylene.

The present invention also provides a roofing batten comprising tile fixing means provided by:

- a) retaining means for engagement, in use, with headlap portions of tiles in a first row of tiles on a roof to retain the headlap portions and thus said tiles against movement, and,
- b) hook means for engagement, in use with side-lock portions of a second row of tiles positioned on a roof with tail-lap portions thereof overlying said headlap portions of tiles in said first row of tiles.

Conveniently the present invention further provides a method of tiling a roof comprising the steps of:

- a) securing a plurality of roofing battens to a roof structure said battens comprising integral tile fixing means provided by:

- i) tile retaining means for engagement, in use, with headlap portions of associated tiles, and,
- ii) hooks for engagement, in use, one each with side-lock portions of associated tiles,

- b) successively positioning tiles of a first row of such tiles on the roof with the headlap portions of each tile being retained in snap-fit engagement with associated tile retaining means,

- c) successively positioning tiles of a second row of such tiles on the roof in overlapping relationship with the tiles of said first row with the headlap portions of each tile being retained in snap-fit engagement with associated tile retaining means and the side-lock portions of each tile being engaged by associated hooks, and,

- d) repeating step c) above until the tiling of the roof

is completed.

There now follows by way of example of the present invention a detailed description of a roofing batten and a method of tiling a roof using said batten, which description is to be read with reference to the accompanying drawings in which:

Figure 1 is an upper right-hand perspective view of part of a roofing batten; and,
Figure 2 is an underside perspective view of the interlocking end portions of two adjacent roofing battens.

Conventional tiling techniques have utilised wooden battens, to which tiles of concrete, clay or other materials have been fixed using nails or clips or a combination thereof. Such costly exercises are overcome by the present invention which provides a roofing batten 2 formed as a unitary moulding of plastics material, i.e. polyethylene, and comprising, integrally formed therewith, tile fixing means 4, see Figure 1.

The batten 2 is wedge-shaped in cross-section, see the left-hand of Figure 1 in order to achieve accurate tile fitment in use, the batten 2 comprising a rear wall 6 and a front wall 8 spanned by an upper wall 10, see Figure 1. Reinforcing ribs 12 are provided in the underside of the wall 10 between the walls 6 and 8; however, such ribs serve only the perfunctory task of strengthening the batten and may be of any arbitrary configuration.

The upper wall 10 is provided with a centrally disposed protuberance 14 extending therealong which is frustoconical in cross-section and together with the walls 6 and 8 defines rearward and forward channels 16 and 18 respectively the purpose of which will become clear hereinafter.

The protuberance 14 is provided with gapped portions 19 along its length, see Figure 1, also for a purpose to be made clear hereinafter.

The tile fixing means 4 comprises a first snap-fit device provided by latch elements 20 and 22 of inverted "L" shaped configuration at spaced-apart locations on the upper extremities of the wall 6, with a vertical arm 24 of the elements 20 and 22 extending upwardly of said wall and a horizontal arm 26 thereof extending to partially overlie the channel 16, see Figure 1.

The tile fixing means also comprises a second snap-fit device provided by a hook element 30 also provided on the upper extremities of the wall 6, see Figure 1.

It will be obvious that the battens 2 which are supplied in one metre lengths and are coupled together by the conventional coupling means indicated at 32 and 33 in Figure 2, provide support for series of first and second snap-fit devices by which tiles may be secured to a roof.

In a method of tiling a roof using the novel battens 2 of the present invention a roofer:

a) secures a plurality of battens 2 in parallel rows to a roof structure by driving nails, not shown, into the structure through apertures 34 provided along the length of said battens with lengthwise adjacent battens in one row being coupled together by the coupling means 32 and 33,

b) positions a first row of tiles overlying a first row of battens 2 on the roof with their respective interlocked side portions accommodated in associated gapped portions 19 of the protuberance 14 and with their headlap portions each being retained in snap-fit engagement under the horizontal arms 26 of the elements 20 and 22 of the battens 2, for this purpose the headlap portions of the tiles are of complementary shape to that of the recessed upper surfaces 10 of the battens.

c) positions a second row of tiles overlying a second row of battens 2 on the roof with their headlap portions each being retained in snap-fit engagement under the horizontal arms 26 of the elements 20 and 22 of the battens 2 and with the side-lock portions of each tile in snap-fit engagement with an associated hook element 30, and,

d) repeats step c) above until the tiling of the roof is completed.

It will be obvious from the foregoing that tiling a roof by the described method using the novel battens 2 of this invention provides a cost effective and most advantageous improvement on known methods of tiling. Application of the method does not detract from the security of tiles on a roof since each tile is engaged by fixing means at three points.

Claims

1. A roofing batten (2) comprising integral tile fixing means (4) provided by a first snap-fit device (20, 22) for engagement, when in use, with a headlap portion of a roof tile, characterised in that the tile fixing means also comprises a second snap-fit device (30) for engagement, when in use, with the side-lock portion of a roof tile.
2. A roofing batten according to Claim 1 wherein the first snap-fit device comprises a hold-down clip (20, 22) overlying a recess (16) formed in an upper surface, in use, of the batten, said recess being adapted to captively receive, in use, a ribbed portion formed on an underside of a headlap portion of a tile engaged thereby.
3. A roofing batten according to either one of Claims 1 and 2 wherein the second snap-fit device comprises a hook element (30) extending upwardly and rearwardly of the upper surface, in use, of the batten, said hook element being adapted, in use, to

latch over a grooved side-lock portion of a roof tile engaged thereby.

4. A roofing batten according to any one of Claims 1 to 3 wherein the batten (2) is of wedge-shape cross-section, or substantially so, at right angles to the length thereof, the arrangement being such that, in use, the small end (8) of the wedge shape is the upper end and faces towards the ridge of a roof on which it is used.

5. A roofing batten according to any one of Claims 1 to 4 formed together with the tile fixing means as a unitary moulding of plastics material.

6. A roofing batten according to Claim 5 wherein the plastics material is polyethylene.

7. A method of tiling a roof comprising the steps of:

a) securing a plurality of roofing battens (2) to a roof structure said battens comprising integral tile fixing means (4) provided by:

i) tile retaining means (20, 22) for engagement, in use, with headlap portions of associated tiles, and

ii) hooks for engagement (30), in use, one each with side-lock portions of associated tiles,

b) successively positioning tiles of a first row of such tiles on the roof with the headlap portions of each tile being retained in snap-fit engagement with associated tile retaining means (20, 22),

c) successively positioning tiles of a second row of such tiles on the roof in overlapping relationship with the tiles of said first row with the headlap portions of each tile being retained in snap-fit engagement with associated tile retaining means (20, 22) and the side-lock portions of each tile being engaged by associated hooks (30), and,

d) repeating step c) above until the tiling of the roof is completed.

Patentansprüche

1. Dachlatte (2), mit einem von einer ersten Schnappverbindungs-
vorrichtung (20, 22) bereitgestellten
angeformten Dachsteinbefestigungsmittel (4) zum
Eingriff - im Gebrauch - mit einem Kopfüberlap-
pungsteil eines Dachsteins, dadurch gekennzeich-
net, daß das Dachsteinbefestigungsmittel auch
eine zweite Schnappverbindungs-
vorrichtung (30) zum Eingriff - im Gebrauch - mit dem Seitenverrie-

gelungsteil eines Dachsteins umfaßt.

2. Dachlatte nach Anspruch 1, bei der die erste
Schnappverbindungs-
vorrichtung eine Niederhalte-
klammer (20, 22) umfaßt, die - im Gebrauch - über
einer in einer oberen Fläche der Latte ausgebilde-
ten Ausnehmung liegt, wobei die Ausnehmung so
ausgeführt ist, daß sie - im Gebrauch - einen an
einer Unterseite eines Kopfüberlappungsteils eines
Dachsteins ausgebildeten, davon in Eingriff genom-
menen gerippten Teil festhalten kann.

3. Dachlatte nach Anspruch 1 oder 2, bei der die
zweite Schnappverbindungs-
vorrichtung ein Haken-
element (30) umfaßt, das sich - im Gebrauch - nach
oben und rückwärtig der oberen Fläche der Latte
erstreckt, wobei das Hakenelement so ausgeführt
ist, daß es - im Gebrauch - über einen davon in Ein-
griff genommenen, genuteten Seitenverriegelungs-
teil eines Dachsteins greift.

4. Dachlatte nach einem der Ansprüche 1 bis 3, bei
der die Latte (2) einen keilförmigen oder im wesent-
lichen keilförmigen Querschnitt im rechten Winkel
zu ihrer Länge aufweist, wobei die Anordnung der-
art ist, daß das schmale Ende (8) der Keilform - im
Gebrauch - das obere Ende ist und zum First eines
Daches, auf dem sie verwendet wird, weist.

5. Dachlatte nach einem der Ansprüche 1 bis 4, die
zusammen mit dem Dachsteinbefestigungsmittel
als Formteileinheit aus Kunststoffmaterial gebildet
ist.

6. Dachlatte nach Anspruch 5, bei der es sich bei dem
Kunststoffmaterial um Polyethylen handelt.

7. Verfahren zum Decken eines Daches mit Dachstei-
nen, das die folgenden Schritte umfaßt:

a) Befestigen mehrerer Dachlatten (2) an einer
Dachkonstruktion, wobei die Latten ange-
formte Dachsteinbefestigungsmittel (4) umfas-
sen, die durch:

i) Dachsteinhaltemittel (20, 22) zum Ein-
griff - im Gebrauch - mit Kopfüberlap-
pungsteilen zugehöriger Dachsteine und

ii) Haken (30) zum Eingriff - im Gebrauch -
jeweils mit Seitenverriegelungsteilen
zugehöriger Dachsteine

bereitgestellt werden,

b) nacheinander Positionieren von Dachstei-
nen einer ersten Reihe derartiger Dachsteine
auf dem Dach, wobei die Kopfüberlappungs-
teile jedes Dachsteins in Schnappverbindungs-
eingriff mit zugehörigen Dachsteinhaltemitteln

(20, 22) gehalten werden,

c) nacheinander Positionieren von Dachsteinen einer zweiten Reihe derartiger Dachsteine auf dem Dach in überlappender Beziehung mit den Dachsteinen der ersten Reihe, wobei die Kopfüberlappungsteile jedes Dachsteines in Schnappverbindungseingriff mit zugehörigen Dachsteinhaltemitteln (20, 22) und die Seitenverriegelungsteile jedes Dachsteins von zugehörigen Haken (30) in Eingriff genommen werden, und

d) Wiederholen von Schritt c) oben, bis das Decken des Dachs mit Dachsteinen fertiggestellt ist.

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dications 1 à 4, formée conjointement avec le moyen de fixation de tuiles en tant que moulage unitaire en matériau en plastique.

6. Volige de toiture selon la revendication 5, dans laquelle le matériau en plastique est du polyéthylène.

7. Méthode de couverture d'un toit avec des tuiles comprenant les étapes consistant à :

a) fixer une pluralité de voliges de toiture (2) sur une structure de toit, lesdites voliges comprenant un moyen (4) intégré de fixation de tuiles constitué par :

i) des moyens (20, 22) de retenue de tuiles, destinés à engager, en fonctionnement, des portions de recouvrement de tuiles associées, et

ii) des crochets (30), destinés chacun à engager, en fonctionnement, une portion de verrouillage latéral des tuiles associées,

b) positionner successivement les tuiles d'une première rangée de ces tuiles sur le toit, les portions de recouvrement de chaque tuile étant retenues en engagement par encliquetage par les moyens (20, 22) de retenue de tuiles associés,

c) positionner successivement les tuiles d'une seconde rangée de ces tuiles sur le toit de manière à partiellement recouvrir les tuiles de ladite première rangée, les portions de recouvrement de chaque tuile étant retenues en engagement par encliquetage par des moyens (20, 22) de retenue des tuiles associés et les portions de verrouillage latéral de chaque tuile étant engagées par des crochets associés (30), et

d) répéter l'étape c) ci-dessus jusqu'à ce que la couverture du toit soit terminée.

Revendications

1. Volige de toiture (2) comprenant un moyen (4) intégré de fixation de tuiles, pourvue d'un premier dispositif à encliquetage (20, 22) destiné à engager, en fonctionnement, une portion de recouvrement d'une tuile de couverture, caractérisée en ce que le moyen de fixation de tuiles comprend également un second dispositif à encliquetage (30) destiné à engager, en fonctionnement, la portion de verrouillage latéral d'une tuile de couverture.

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2. Volige de toiture selon la revendication 1, dans laquelle le premier dispositif à encliquetage comprend une attache de fixation (20, 22) surplombant un retrait (16) formé dans une surface supérieure, en fonctionnement, de la volige, ledit retrait étant prévu pour recevoir prisonnière, en fonctionnement, une portion nervurée formée sur une sous-face d'une portion de recouvrement d'une tuile engagée par celui-ci.

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3. Volige de toiture selon l'une ou l'autre des revendications 1 et 2, dans laquelle le second dispositif à encliquetage comprend un élément de crochet (30) s'étendant vers le haut et vers l'arrière de la surface supérieure, en fonctionnement, de la volige, ledit élément de crochet étant prévu, en fonctionnement, pour accrocher par le dessus une portion de verrouillage latéral cannelée d'une tuile de couverture engagée par celui-ci.

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4. Volige de toiture selon l'une quelconque des revendications 1 à 3, dans laquelle la volige (2) a une section transversale biseautée, ou substantiellement biseautée, à angles droits par rapport à sa longueur, l'arrangement étant tel qu'en fonctionnement, la petite extrémité (8) du biseau soit l'extrémité supérieure et soit tournée vers le faîtage d'un toit sur lequel elle est utilisée.

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5. Volige de toiture selon l'une quelconque des reven-

FIG. 1.



