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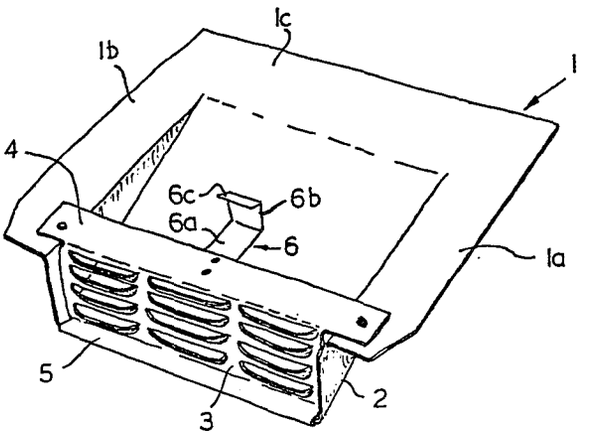
(54) Improved roof ventilation tile and method of ventilating a roof space.

(57) A roof ventilation tile clipped into place over a hole made through the tiling of a roof. Perimeter regions (1a, 1b, 1c) of a base plate (1) underlie tiles which surround the hole and the strut 4 rests on tiles adjacent to the hole. Distal end portions (6b, 6c) of a spring steel clip (6) enter the hole and locate behind and below a roof batten defining the lower edge of the hole.



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Improved roof ventilation tile and method of ventilating a roof space

This invention relates to a roof ventilation tile which can be mounted in a tiled roof in place of one or more tiles (or part tiles) to improve the ventilation of the roof space. The invention also relates to an improved method of achieving such ventilation. The invention has particular application to fibre-cement roofs and particular value for ventilating regions of the roof space adjacent to the apex of the roof.

It is known to fabricate a special "tile" for a roof which can be used at intervals over the array of tiles laid down during a roofing operation (or used as a replacement for selected tiles removed from an existing roof) and which provides air inlets for ventilation purposes. Some prior art roof ventilation tiles have been secured in place in precisely the same way as the tiles they replace and it has thus been proposed to provide the upper edge of the tile with a downwardly depending lip and to provide one side edge with an overlying lip and the opposite side edge with an underlying lip. An alternative range of prior art roof ventilation tiles has comprised an air inlet cowl extending upwardly from a substantially flat plate of piercable material, the flat plate being nailed in place with adjacent tiles at the upper end and on two sides overlying the plate.

The present invention relates to an improved roof ventilation tile and to an improved method of ventilating a roof space which uses a simpler method for securing the roof ventilation tile in place.

According to one aspect of the invention, a roof ventilation tile comprising a base plate, a cowl extending upwardly from the base plate to define an air vent and fixing means for securing the ventilation tile in place with the cowl over an air opening in a roof is character-

ised in that the fixing means comprises a resilient clip below the cowl with at least one part which in the normal position of the clip extends downwardly below the base plate but which can be flexed upwardly into the air vent to facilitate fixing of the ventilation tile in place on a roof.

Preferably the base plate is of generally rectangular shape in plan and may be fabricated from metallic sheet (e.g. an aluminium alloy sheet) or plastics material. When used with flat tiles, the base plate is desirably planar.

The cowl can be integrally formed from the base plate by a stamping or moulding operation and desirably the inlet to the air vent is of generally rectangular shape. A grille can (and normally would) be provided over the air inlet of the cowl to reduce the risk of rain or snow being driven into the roof space and such a grille can incorporate or augment an insect screen.

The resilient clip can be a length of spring steel strip bent into an "L" shape and mounted under the cowl with one arm of the "L" generally in the plane of the base plate and the other arm of the "L" extending downwardly away from the cowl. The clearance in the air vent above the clip provided by the cowl should be sufficient to permit the clip to be lifted above the plane of the base plate during a fixing operation. The clip is desirably designed to lie partly behind a horizontally extending roof timber when the ventilation tile is in position on the roof and thereby prevent the ventilation tile slipping down the roof.

According to a further aspect of the invention, a method of ventilating a tiled roof space which comprises removing at least a part of one existing tile of the

roof and a part of at least one tile underlying said one existing tile, forming an opening into the roof space below said removed tile parts, slipping a roof ventilation tile, having an air vent defined by a cowl at least partly surrounded by a base plate, over the opening so that the cowl overlies the opening and the base plate underlies adjacent tiles and fixing the ventilation tile in place, is characterised in that the ventilation tile is fixed in place by means of a resilient clip projecting downwardly below the base plate and passing through the said opening to engage a component of the roof.

One embodiment of roof ventilation tile in accordance with the invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of the ventilation tile seen from the front,

Figure 2 is an underside perspective view of the tile of Figure 1,

Figure 3 is a side sectional view of the tile of Figures 1 and 2 with the resilient fixing clip shown in its normal position and, in dashed lines, in its raised position employed during fixing, and

Figures 4, 5 and 6 show the method of securing the tile in place on an existing roof to ventilate the roof space.

The ventilation tile shown in the drawings comprises a base plate 1 of generally rectangular shape with an upstanding wedge shaped cowl 2 which leaves flat perimeter regions 1a, 1b and 1c along the two side edges and the upper edge of the base plate. The cowl 2 defines an

air vent, the opening of which is partially obturated by a grille 3.

The grille 3 is integrally formed with a strut 4 extending between and secured to the regions 1a and 1b and also with a lip 5 which sandwiches the upper front edge of the cowl 2.

An "L"-shaped spring clip 6 is secured to the strut 4 centrally thereof and has one limb 6a disposed generally in the plane of the perimeter regions 1a and 1b, its other limb 6b being disposed substantially normal thereto. The distal end of the limb 6b can be bent forwardly as shown at 6c.

To fit the ventilation tile in place, the lower half of one existing roof tile is removed and the two underlying roof tiles (A and B) are cut away to leave a triangular opening 7 in the roof tiles and expose the felt lining 8 of the roof as shown in Figure 4. The felt lining 8 of the roof is next cut with an inverted "T" cut and the triangular flaps 9 of the lining 8 so formed are taped back as shown in Figure 5 to provide an air opening 7a. This opens the roof space to ventilation and exposes the upper edge of a transverse batten (shown dotted at 10) of the roof structure to which the adjacent roof tiles have been secured.

The ventilation tile is now slipped upwardly into the space left by the removal of the half roof tile (see Figure 6), the perimeter regions 1a and 1b underlying the adjacent roof tiles C and D and the perimeter region 1c underlying the upper half of the initially cut roof tile. During this operation the spring clip 6 is urged upwardly into the cowl 2 (e.g. using the blade of a bricklayer's trowel) as shown in dashed lines in Figure 3, so that the distal edge of the clip 6 is in the plane

of the perimeter regions 1a and 1b. When the clip 6 overlies the opening 7, the clip 6 can be released to spring down naturally into the opening 7. The ventilation tile can now be moved down the roof slightly to cause the limb 6b of the clip 6 to bear against the upper edge of the batten 10 exposed by the opening 7 (also as shown in Figure 3). If the portion 6c is provided, this moves below the batten to improve the security of fixing.

With a rectangular air opening as shown in the drawings, the volume of air flow per unit time into the roof space can be three times that of prior art ventilation tiles which employed an arcuate cowl.

The reference to "roof tiles" in this specification should be taken to include slates or other roof materials with which the ventilation tile could be used.

Although the embodiment described shows the perimeter regions 1a, 1b and 1c of the base plate as lying in one plane (a design suitable for use with flat fibre-cement slates) the invention also relates to a ventilation tile in which the perimeter regions are profiled. Such a modified design permits the ventilation tile to be used as a replacement for part of a profiled tile in ventilating a roof constructed of such profiled tiles.

CLAIMS

1. A roof ventilation tile comprising a base plate (1), a cowl (2) extending upwardly from the base plate (1) to define an air vent and fixing means for securing the ventilation tile in place with the cowl over an air opening (7a) in a roof characterised in that the fixing means comprises a resilient clip (6) below the cowl (2) with at least one part (6b, 6c) which in the normal position of the clip (6) extends downwardly below the base plate (1) but which can be flexed upwardly into the air vent to facilitate fixing of the ventilation tile in place on a roof.

2. A roof ventilation tile as claimed in claim 1, characterised in that the base plate (1) is of substantially rectangular shape in plan and the inlet to the cowl (2) is also substantially rectangular.

3. A roof ventilation tile as claimed in claim 1 or claim 2, characterised in that the base plate (1) is fabricated from metallic sheet, the cowl (2) being integrally formed from the base plate (1) by a stamping operation.

4. A roof ventilation tile as claimed in any preceding claim, characterised in that the inlet to the cowl (2) comprises a grille (3) which is secured (at 5) to the cowl (2) and to opposite perimeter regions (1a, 1b) of the base plate (1), a part of the grille (3) thereby forming an extension of the base plate (1) under the cowl (2).

5. A roof ventilation tile as claimed in any preceding claim, characterised in that the resilient clip (6) is a length of a spring strip bent into an "L"-shape, one arm (6b) of the "L" extending, in the normal position of the clip (6), downwardly below the plane of perimeter regions (1a, 1b, 1c) of the base plate (1).

6. A roof ventilation tile as claimed in claim 5, characterised in that a portion (6c) at the distal end of said one arm (6b) is bent forwardly of the rest of said one arm.

7. A roof ventilation tile as claimed in any preceding claim, characterised in that an insect screen is provided in the air vent.

8. A method of ventilating a tiled roof space which comprises removing at least a part of one existing tile of the roof and a part of at least one tile (A, B) underlying said one existing tile, forming an opening (7a) into the roof space below said removed tile parts, slipping a roof ventilation tile, having an air vent defined by a cowl (2) at least partly surrounded by a base plate (1), over the opening (7a) so that the cowl (2) overlies the opening (7a) and the base plate (1) underlies adjacent tiles (E, F) and fixing the ventilation tile in place, characterised in that the ventilation tile is fixed in place by means of a resilient clip (6) projecting downwardly below the base plate (1) and passing through the said opening (7a) to engage a component (10) of the roof.

9. A method as claimed in claim 8, characterised in that the clip (6) is urged up towards the cowl (2) by a member acting on it from below when the roof ventilation tile is slipped into place, the member being withdrawn in the direction opposite to the direction of slipping the ventilation tile into place, to allow the clip to engage behind a transverse batten (10) of the roof.

10. A method as claimed in claim 8 or claim 9, characterised in that the clip (6) includes a distal end portion (6c) which locates below the said component (10) of the roof.

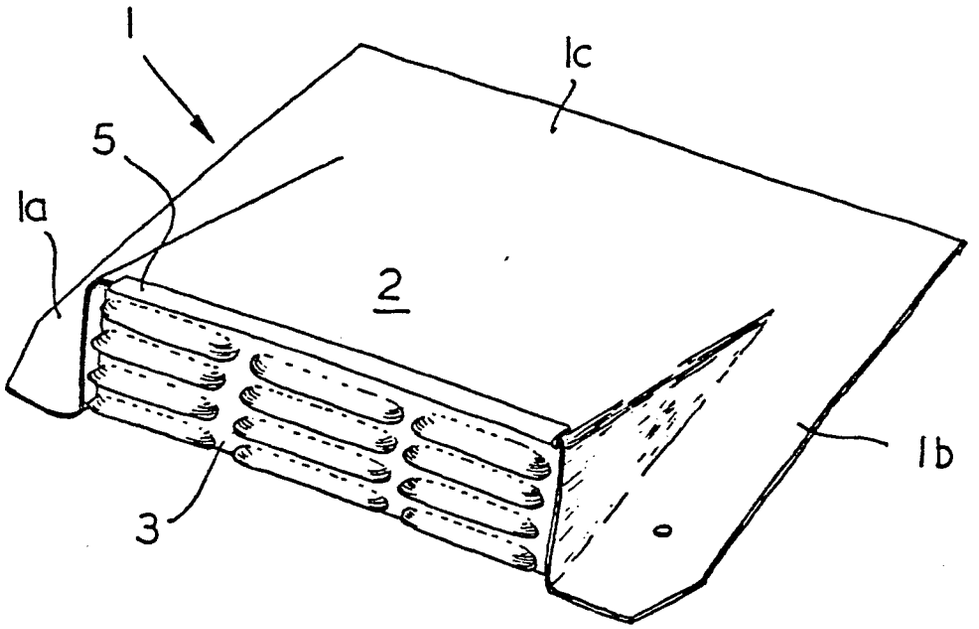

FIG. 1

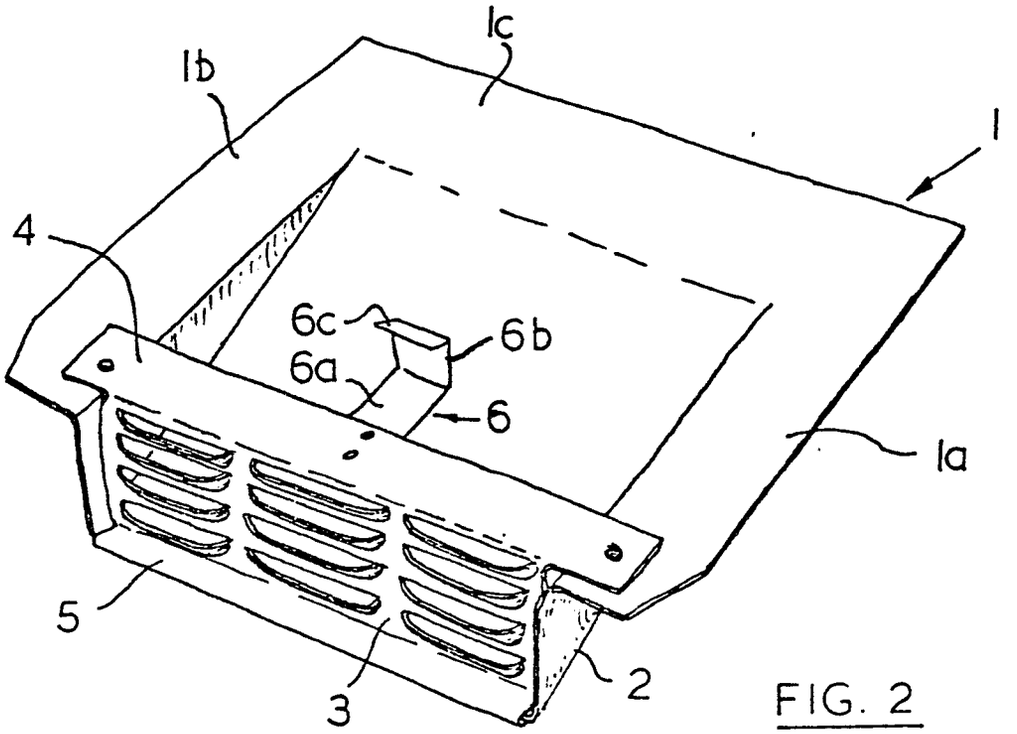

FIG. 2

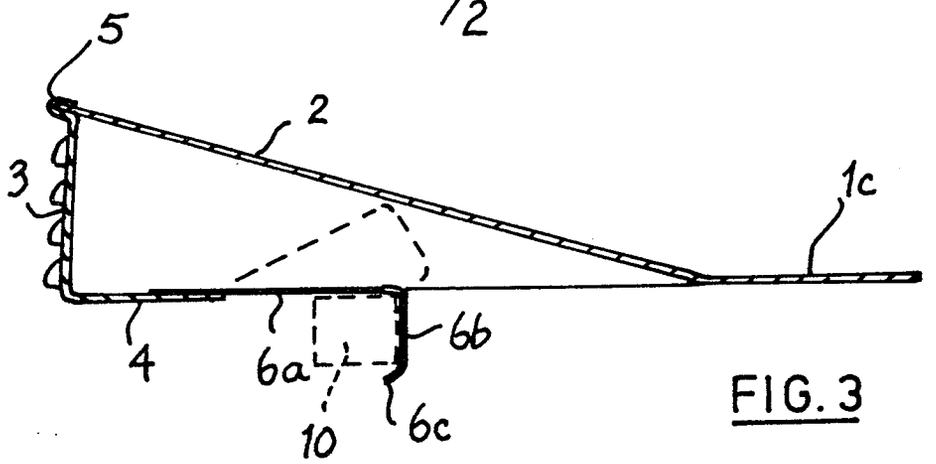

FIG.3

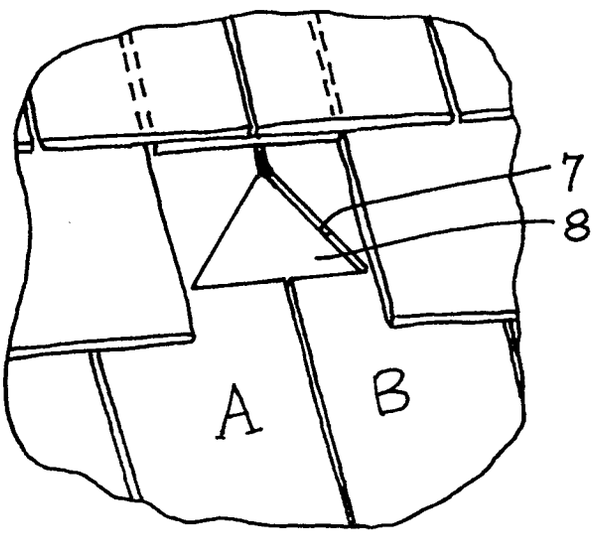

FIG.4

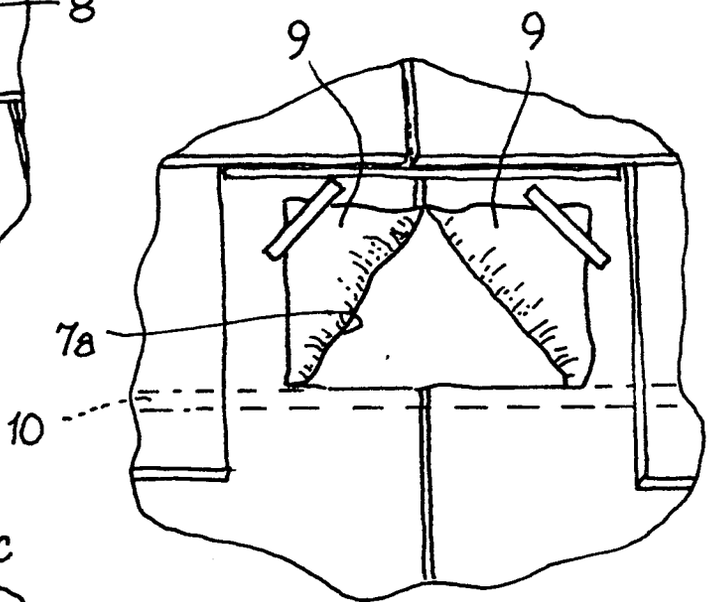

FIG.5

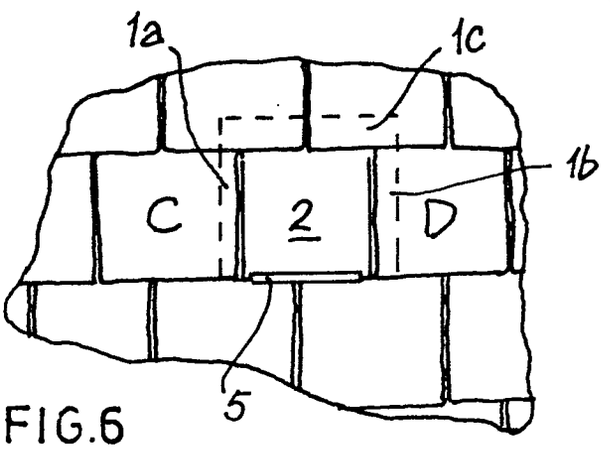

FIG.6