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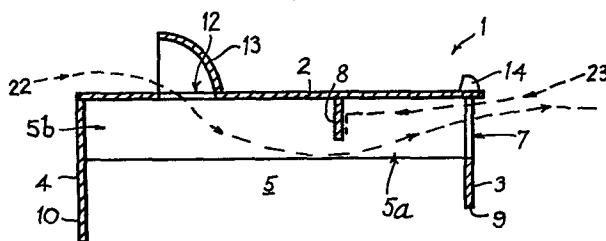
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Roof space ventilation.

A tiling member (1) used in the ventilation of a pitched roof space at high level is adapted to rest on, and extend transversely of, the upper surface of at least one roofing tile and has an upper wall portion (2) for supporting at least a portion of a longitudinal side edge of a ridge tile, an elongate ventilation area comprising a plurality of ventilation apertures (7), extending transversely of the roofing tile when the tiling member (1) is rested thereon, a baffle (8) depending from the upper wall portion (2) behind the ventilation apertures (7) and a ventilation opening (12) behind the baffle (8). When a plurality of such tiling members (1) are incorporated into a tiled pitched-roof structure with the longitudinal edges of the ridge tiles supported on the upper wall portions (2), a flow of air passes from the roof space through the ventilation openings (12) into the tiling members (1) around the baffles (8) and out through the ventilation apertures (7).



ROOF SPACE VENTILATION

1 This invention relates to the ventilation of
pitched roof spaces and more particularly to high-
level roof ventilation.

Roof ventilation is essential in pitched roof
5 spaces in order to control condensation which, if
permitted to occur, can result in mould growth, rot
and distortion of roof timbers, metal corrosion,
ceiling damage and reduced thermal insulation. In
principal, the most effective way of ventilating a
10 pitched roof space is known as eaves to ridge ventila-
tion which involves a flow of air into the roof
space from the low level of the eaves to the high
level of the ridge. The object of eaves to ridge
ventilation is to achieve adequate ventilation
15 whatever the wind direction, convectional ventilation
in windless conditions, satisfactory mixing of
air throughout the roof space and uniform outflow
of air from the roof space.

It is an object of the present invention to
20 provide an improved system for high-level pitched
roof space ventilation.

From one aspect, the present invention consists
in a tiling member for use in the ventilation of a
pitched roof space at high level, said member being
25 adapted to rest on and extend transversely of the
upper surface of a roofing tile, and having
an upper portion for supporting at least a portion
of a longitudinal side edge of a ridge tile, an
elongate ventilation area comprising a plurality of
30 ventilation apertures extending transversely of

1 the roofing tile when the tiling member is rested
thereon, a baffle depending from the upper portion
behind the ventilation apertures and a ventilation
opening behind the baffle, whereby, when the tiling
5 member forms part of a tiled pitched roof structure,
a flow of air from a ^{roof} space can pass into the tiling
member through the ventilation opening, around the
baffle and out through the ventilation apertures.

By means of the invention, a substantially
10 continuous area of ventilation along the length of
a roof ridge is achieved, ensuring sufficient
volume of air flow through and out of the roof space
whatever the wind direction and in windless cond-
itions, the apertures of the elongate ventilation
15 area can be made of such a size as to prevent the
entry of large insects into the roof space yet
ensure adequate air flow and the baffle reduces any
wind pressure. The tiling member constructed
according to the present invention can be made in
20 one-piece e.g. a one-piece plastics moulding, and is
simple to fit in that it can accommodate variations
in the laying of the tiles.

In order to provide ventilation apertures
of the requisite size to prevent the entry of large
25 insects into the roof space, the ventilation area
preferably has the configuration of a grille, with
the apertures being elongate in form and extending
transversely of the direction of the grille.

In a preferred embodiment, the ventilation
30 area forms part of a front wall portion which depends

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1 from a front region of the upper portion and is spaced
from the baffle, the front portion having a lower
edge which has the general shape of the nib of the
particular roofing tile with which the tiling member
5 is to be used in the case of contoured roofing tiles
or is flat or straight in the case of plain tiles. By
making the tiling member with a front wall portion of
such shape, there is no difficulty in fitting them to
a roof where the tilers have not kept the fixing of
10 each line of tiles the same.

Advantageously, there is a rear wall portion
depending from the upper portion behind the baffle
and preferably extending downwardly for a greater
distance than the front wall portion so as to engage
15 against the top edge of a roofing tile of the upper-
most tile course to hold the tiling member thereon.
If desired the rear wall portion could be extended
still further to permit the tiling member to be nailed
to the top tiling batten through the further exten-
20 sion to prevent it being blown inwards by strong
winds and/or stop a flow of air into the tiling
member from between the roof felt and roofing tiles.
Conveniently, the lower edge of the rear wall portion
has a shape which is generally the same as the
25 lower edge of the front wall portion.

Thus, the upper, front and rear wall portions
define an open-bottomed chamber in the tiling member
whose open-bottom is closed by the upper surface
of a roofing tile when the tiling member is positioned

1 thereon. The chamber is divided into front and rear
portions by the baffle which extends downwardly for
a lesser distance than the front portion to permit
a flow of air around the baffle and out of the vent-
5 ilation apertures.

In order to provide for the option of having a
secondary water check in the form of a water proof
membrane passed over the ridge batten and onto the
upper wall portion, where the longitudinal ridge of
10 a ridge tile would rest on the ~~membrane~~, the ventilation
opening opens into the chamber rear portion from
the upper portion and has a hood or cowl to prevent
the membrane closing the ventilation opening.
Alternatively, the ventilation opening could be in the
15 rear wall portion behind the baffle.

Additionally or instead of the further
extension of the rear wall portion, the upper
portion may have a plurality of spaced apart stops
or projections extending along its front edge
20 to guard against the possibility of the tiling
member being blown inwards by strong winds.

Preferably, the tiling member has support
elements extending transversely thereof and in the
direction of a roofing tile when laid thereon
25 and which engage with, and
further support, the tiling member on the upper
surface of a roofing tile and _____

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1 ensure that the tiling members adequately support
the ridge tiles, particularly in the case of
contoured roofing tiles having shallow pans and with
plain tiles.

5 In the case of contoured roofing tiles of the
bold roll type which have deep pans, the apertured
ventilation area preferably lies substantially in
the pan when the tiling member is laid thereon
but, in the case of shallow panned contoured roofing
10 tiles and plain roofing tiles the ventilation area
preferably lies above the pan and the top surface
of the roofing tile.

From another aspect the present invention
consists in a pitched roof structure comprising a
15 plurality of roofing tiles laid in courses on
roof battens, and a plurality of any of the tiling
members as defined hereinabove resting on roofing
tiles of the or each uppermost course with the
apertured ventilation area facing outwards.

20 In dual pitch and mono-pitch roof
structures, the roof structure includes a plurality
of ridge tiles arranged in end to end relationship
along the roof ridge with the longitudinal side
edges of the ridge tiles resting on the upper
25 portions of the tiling members on opposite sides
of the roof apex with dual pitch roofs, and
with mono-pitch roofs the ridge tiles are half-
ridge tiles and one of their longitudinal side
edges rests on the upper portions of the tiling
30 members.

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1 In the case of roof structures terminating
at an abutment wall, ridge tiles are not used and
the tiling members will be at the top of the roof
and can easily be held in position by a clip and/or
5 flashing and/or by nailing the further extension
of the rear wall portion, if provided.

 In order that the invention may be more readily
understood, some embodiments thereof will now be
described, by way of example, with reference to the
10 accompanying drawings, in which:-

 Figure 1 is a front elevation of one embodiment
of tiling member constructed in accordance with the
invention,

 Figures 2 and 3 are a cross-section and a plan
15 view respectively of the tiling member of Figure 1,

 Figure 4 is a perspective view of a part of a
tiled roof structure showing the tiling members of the
embodiment of Figures 1 to 3 in position.

 Figure 5 is a cross-section through the ridge
20 of the tiled roof of Fig. 4.

 Figure 6 is a front elevation of another
embodiment,

 Figures 7 and 8 are a cross-section and a
plan view respectively of Figure 6,

25 Figures 9 and 10 are cross-sections of
modifications of the embodiments of 1 and 6
respectively.

 In the drawings, the same reference characters
are used to designate the same or similar parts.

30 Referring to Figs. 1 to 3 of the drawings, a
tiling member which is generally indicated at 1
may be made of any suitable material such as plastics,
metal or a cementitious material but is preferably

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1 a one-piece plastics moulding, conveniently of poly-
ethylene or polyvinyl chloride, and comprises an upper
wall portion 2 forming a platform. Depending generally
perpendicularly from the platform 2 are parallelly extend-
5 ing front and rear wall portions 3 and 4 which, with
the platform define an open-bottomed chamber 5. The
front portion is formed with an elongate apertured
ventilation area 6 which can extend up to the entire
length of the front wall portion 3 and comprising a
10 plurality of vertically arranged transversely extending
ventilation apertures 7 to form a ventilation grill. In
order to reduce the pressure of air flow due to wind
into the tiling member 1 and thus into the roof space,
and also to guard against the entry of wind driven
15 water into the roof space, the chamber 5 is divided
into front and rear portions 5a and 5b respectively by
a baffle 8 depending from the platform 2 and extending
parallel to the wall portions 3 and 4 behind the aper-
tured ventilation area 6.

20 This embodiment is for use with contoured
roofing tiles of double channelled configuration with
shallow pans. The bottom edge 9 of the front wall
portion 3 is contoured to match generally the shape
of the tile nib (not shown) to that the tiling member
25 can fit loosely into the tile pan areas and thus
accommodate variations in the laying of the roofing
tiles. The bottom edge of the rear wall portion
4 is also contoured to be of similar shape and
projects downwardly for a greater distance than
30 the front wall portion 3 to provide a holding portion

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1 10 which engages with the upper edge of the roofing
tile when laid thereon and prevents the tiling
member from slipping down the roof. The front and
rear wall portions 3 and 4 are joined by transversely
5 extending support members in the form of strips 11
having straight bottom edges which engage with the top
surface of the contoured roofing tile to ensure that
the tiling member takes the weight of the ridge tiles.
Alternatively, the transversely extending support
10 members could be in the form of rows of projections
or pegs. The support members 11 are of particular
importance with plan or flat tiles for preventing
collapse of the tiling member.

Air from the roof space flows into the tiling
15 member 1 through an elongate entry opening 12, in
and extending lengthwise of, the platform 2 and opens
into the rear portion 5b of the chamber 5. The
opening 12 is provided with a cowl or hood 13 for a
purpose to be described. A row of ridge tile stops
20 14 constituted by projections or pegs project
upwardly from the platform 2 along its front edge for
guarding against the possibility of the tiling member
being blown inwards for a sufficient distance to
prevent it being weatherproof.

25 Referring now to Figs. 4 and 5, the ridge
portion of a tiled dual pitch roof structure comprises
spaced apart pairs of wooden rafters 15 to which
are secured roof battens 16 with roofing felt
16a laid therebetween. Figures 4 and 5 show the
30 upper courses of concrete roof tiles 17 laid on the
battens 16 with the nibs at their upper edges fitted
over the battens. At the apex of the rafters 15 are

1 secured, at spaced apart intervals, supporting
brackets such as 18 for a ridge batten 19 to which
the ridge tiles such as 20 are nailed by nails (not
shown). The opposed ends of the ridge tiles 20 may
5 be joined by concrete, or, preferably, (not shown)
opposed ends of the ridge tiles are secured together
by fixing or jointing members such as are described in
the specification of our co-pending British Patent App-
plication No. 8414440 to form a "dry" ridge system. The
10 roofing tiles 17 are of double-channelled configuration
with shallow pans and interlock along their side
edges. As will be more readily apparent from Figure
5, the tiling members 1 are laid in position on the
upper surfaces of the upper portions of the roofing
15 tiles 17, one for each roofing tile, with the
contoured lower edges of the front portions 3
engaging with the pan and top surfaces of the
roofing tiles with their holding portions 10 engaging
with the upper edges of the top courses of the roofing
20 tiles to hold the tiling members in position. The
ridge tiles 20 are then laid over the ridge so that
their longitudinal side edges engage with the plat-
form portions 2 of the tiling members 1 on opposite
sides respectively of the ridge between the hoods 13
25 and the ridge tile stops 14. As will be apparent
from Figure 4, the support members 11 rest on the
flat top surface of the roofing tiles 17. As the
ridge tiles are laid in position, the fixing members
can be fitted onto the adjacent ridge tile ends
30 and the ridge tiles 20 are nailed onto the ridge

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1 batten 19.

Referring to Figures 2, 4 and 5, the tiling members 1 provide for high-level ventilation of the roof space 21 such that there is a flow of air as indicated by the dashed line 22 in the direction of the indicated arrows out through the gaps between apex of the rafters 15 and upper edges of the roofing tiles 17, through the entry openings 12 of the chamber 5 around the baffle 8 and out through the apertured ventilation area 6. The wind pressure on the right hand side of the tiled structure as illustrated in Figure 5 will produce a low pressure area on the left hand side of the roof which induces a flow of air out through the tiling members 1 on the left hand side of the roof structure as indicated by the dashed line 22.

Wind tests have been carried out by the Applicants with simulated wind speeds of up to 60 mph (96.54 kmh) and it has been found that when air flows through the ventilation apertures 7 in the direction indicated by the arrowed dashed line 23 (see Fig. 2), the baffle 8 acts to reduce the pressure due to wind in the rear chamber portion 5b as evidenced by pressure readings taken therein. Moreover, when water was entrained in the air flow in such tests, the baffle 8 prevented the entry of such wind driven water, not only into the chamber portion 5b but also into the roof space 21.

The hood 13 serves to prevent closing of the opening 12 in the event of using a secondary water

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1 check, as indicated by the dashed lines 23a in
Figure 5. This water check 23a consists of a water-
proof membrane and passes over the ridge batten 19
and underneath the longitudinal side edges of the
5 ridge tiles 20 where they rest between the tile stops
14 and the hood 13. The hood 13 also serves to
deflect the air flow from the roof space into the
tiling member. By providing the entry opening
12 in the platform 2 the effect of the baffle 8 is
10 enhanced.

It is a simple matter to adapt the embodiment of
Figs. 1 to 3 for use with flat or plain roofing tiles by
making the bottom edge of the front wall portion 3
of the tiling member 1 straight as indicated by the
15 chain lines 24 (Fig. 1) instead of contoured. In such
a case the bottom edge of the rear wall portion is
also conveniently made straight as indicated by
the chain lines 25 in Fig. 1.

The embodiment of Figs. 6 to 8 differs from
20 that of Figs. 1 to 3 in that the tiling member 1a
is specially adapted for a deep pan bold roll
contoured roofing tile and has front and rear wall
portions 3 and 4 of greater depth (compare Figs. 2
and 7) to accommodate the deeper pan with the
25 apertured ventilation area 6 being disposed in the
pan between the roofing tile rolls when positioned
thereon, whereas in Figs. 1 to 3 the ventilation
area 6 is disposed above the pans and top surface
of the roofing tiles as will be apparent from Fig.
30 4. The requisite volume of air flow from the roof

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1 space is provided by increasing the length of ventil-
ation apertures 7. Other differences are that
two support members 11 only are provided which rest
against the tile pan and which are cut away as
5 indicated at 11a to provide a facility for accomm-
odating a transverse raised barrier on the upper end
portion of a roofing tile. The support members 11 in
this embodiment could, however, be dispensed with.

In the modifications of Figures 9 and 10, a
10 substantial part of the upper wall portion 2a is of
arcuate, outwardly curved, configuration as viewed in
cross-section and extends upwardly and rearwardly at
an angle of greater than 90° from the front wall
portion 3 (unlike the upper wall portion 2 which is
15 at an angle of about 90° to the front wall portion
3) and stops short of the rear wall portion 4 so
that the ventilation opening is defined between the
rear edge of the upper wall portion 2a and front edge
of the remaining flat portion 2b of the upper wall
20 portion which extends at an angle of about 90° to
the rear wall portion 4. Alternatively, the upper
portion 2a is flat. Such modifications are part-
icularly suitable for tapered ridge tiles. By modifying
the tiling members 1 and 1a in this way the upper
25 wall portion 2a also serves the function of the cowl
or hood 13. Preferably, as shown, an additional
baffle 8a depends from the upper wall portion 2a for
facilitating the flow of air into the tiling member
and for preventing blow through from the exterior.

30 Referring again to Figure 5, tiling members

1 constructed in accordance with the invention also
provide for a flow of ventilating air from between
the roofing felt 16a and the roofing tiles 17 and
into the tiling members 1, (1a) as shown in arrowed
5 dashed lines 30. If desired the rear wall portion may
be extended still further so that its bottom edge eng-
ages with the roofing felt 16a to stop this flow of air.
The further extension of the rear wall portion also
or instead permits nailing of the tiling member to
10 the top tiling batten 16.

In other embodiments which are not illustrated,
the tiling members such as previously described
instead of being in one piece may be made in two or
more elongate elements which are positioned in correct
15 relationship to one another in situ on the roof or are
fitted together either in situ or before laying
e.g. by means of interengaging members such as proj-
ections and apertures or recesses, to form the complete
tiling member. In such embodiments, the elongate
20 elements may extend over one or preferably several
roofing tiles, and be as long, for example, as 3
metres. In one form of tiling member made of three
such elements, these elements could comprise the
upper portion, the rear wall portion and the front wall
25 portion. In such embodiments the elongate apertured
ventilation area could be continuous.

It should be understood that the term tiling
member is used herein in a generic sense to cover a
ventilation member which can be used with all types
30 of pitched roof coverings which need not necessarily

1 be ridge and roofing tiles. For example, the ridge
covering could be say a plastics elongate ridge covering
extending over several normal tile widths and the
roof covering instead of being of roofing tiles could
5 be of shingles, slates or of panels e.g. of a suitable
metal such as aluminium which may be coated, or of
asbestos, and which may be flat, corrugated, or contoured
to give an appearance of contoured roofing tiles.
Such panels may be 3 x 6 metres, for example. Thus,
10 "ridge tiles" and "roofing tiles" are used herein in a
generic sense to cover all kinds of ridge and roof
coverings used for pitched roofs.

Although particular embodiments have been
described, it should be appreciated that various
15 modifications may be made without departing from
the scope of the invention. For example, the
elongate ventilation apertured area can extend for
any suitable distance up to the full width of a
roofing tile. Instead of the vertically arranged
20 apertures 7, the ventilation apertures may be in the
form of elongated narrow slots or slits arranged
one above the other and extending lengthwise of the
ventilation area 6.

Particularly in the case of flat or plain roofing
25 tiles, the tiling members may extend over at least
two roofing tile widths.

CLAIMS

- 1 1. A tiling or ventilation member for use in the vent-
ilation of a pitched roof space at high level, said
tiling member being adapted to rest on and extend
transversely of the upper surface of a roof covering,
5 and being characterized by having an upper portion (2)
for supporting at least a portion of a longitudinal
side edge of a ridge covering (20), an elongate ventila-
tion area (6) comprising a plurality of ventilation
apertures (7) extending transversely of the roof cover-
10 ing when the tiling member (1 or 1a) is rested
thereon, a baffle (8) depending from the upper
portion (2) behind the ventilation apertures (7)
and a ventilation opening (12) behind the baffle (8),
whereby, when the tiling member (1) forms part of a
15 pitched-roof structure, a flow of air from a roof
space (21) can pass into the tiling member (1 or 1a)
through the ventilation opening (12), around the
baffle (8) and out through the ventilation apertures
(7).
- 20 2. A tiling member as claimed in claim 1, character-
ized in that the ventilation area has the configuration
of a grille (6) with the apertures (7) being elongate
in form and extending transversely of the direction
of the grille.
- 25 3. A tiling member as claimed in claim 1 or 2, char-
acterized in that the ventilation area (6) forms
part of a front wall portion (3) which depends from
a front region of the upper portion (2) and is
spaced from the baffle (8), the front wall portion
30 (3) having a lower edge (9) which has the general shape

- 1 of the nib of a contoured roofing tile with which
the tiling member (1 or 1a) is to be used or the
lower edge (24) of the tiling member is flat or
straight for use with flat or plain tiles.
- 5 4. A tiling member as claimed in any one of claims
1 to 3, characterized by a rear wall portion (4)
depending from the upper portion behind the baffle
(8).
5. A tiling member as claimed in claim 4 as
10 appendant to claim 3, characterized in that the rear
wall portion (4) extends downwardly for a greater
distance than the front wall portion so as to be
engagable against the top edge of a roofing tile
(17) of the uppermost tile course to hold the tiling
15 member (1 or 1a) thereon.
6. A tiling member as claimed in claim 5, char-
acterized in that the rear wall portion (4) is
extended still further to permit the tiling
member to be nailed to the top tiling batten through
20 the further extension and/or to enable a flow
of air into the tiling member (1) from between
roofing felt (16a) and the roofing tiles (17) to
be stopped.
7. A tiling member as claimed in any one of
25 claims 4 to 6, as appendant to claim 3, character-
ized in that the lower edge of the rear wall
portion (4) has a shape which is generally the same
as the lower edge (9) of the front wall portion (3).
8. A tiling member as claimed in any one of claims
30 4 to 7 as appendant to claim 3, characterized in

- 1 that the upper, front and rear wall portions define
an open-bottomed chamber (5) in the tiling member
(1 or 1a) whose open-bottom is closed by the upper
surface of a roofing tile (17) when the tiling member
5 (1 or 1a) is positioned thereon with the chamber (5)
being divided into front and rear portions (5a and
5b) by the baffle (8).
9. A tiling member as claimed in claim 8, character-
ized in that the baffle (8) extends downwardly for a
10 lesser distance than the front wall portion (3)
to permit a flow of air around the baffle (8) and
out of the ventilation apertures (7).
10. A tiling member as claimed in claim 8 or 9,
characterized in that the ventilation opening (12)
15 is in the rear wall portion (4) behind the baffle
(8).
11. A tiling member as claimed in claim 8 or 9,
characterized in that the ventilation opening (12)
opens into the chamber rear portion (5b) from the
20 upper wall portion.
12. A tiling member as claimed in claim 11, char-
acterized in that the ventilation opening is
provided with a hood or cowl (13).
13. A tiling member as claimed in any one of claims
25 1 to 12, characterized in that the upper wall portion
(2) is disposed at an angle of about 90° with
respect to the front wall portion (3).
14. A tiling member as claimed in any one of claims
1 to 12, characterized _____

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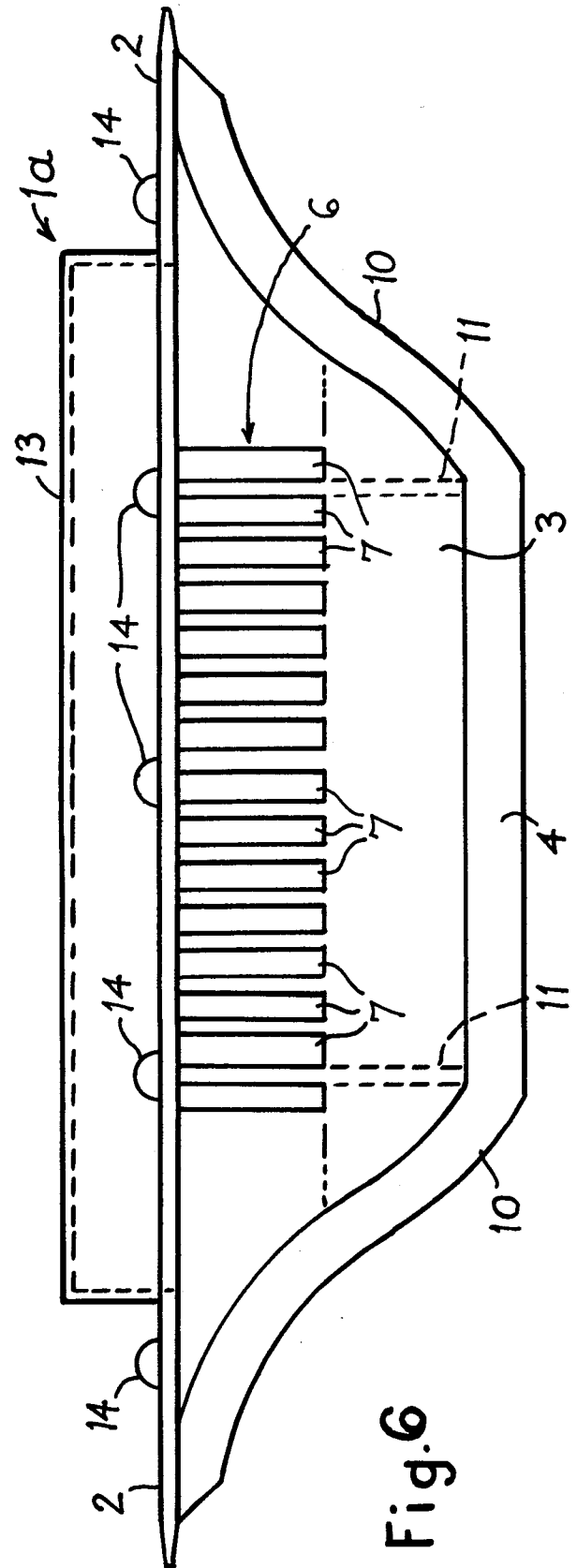
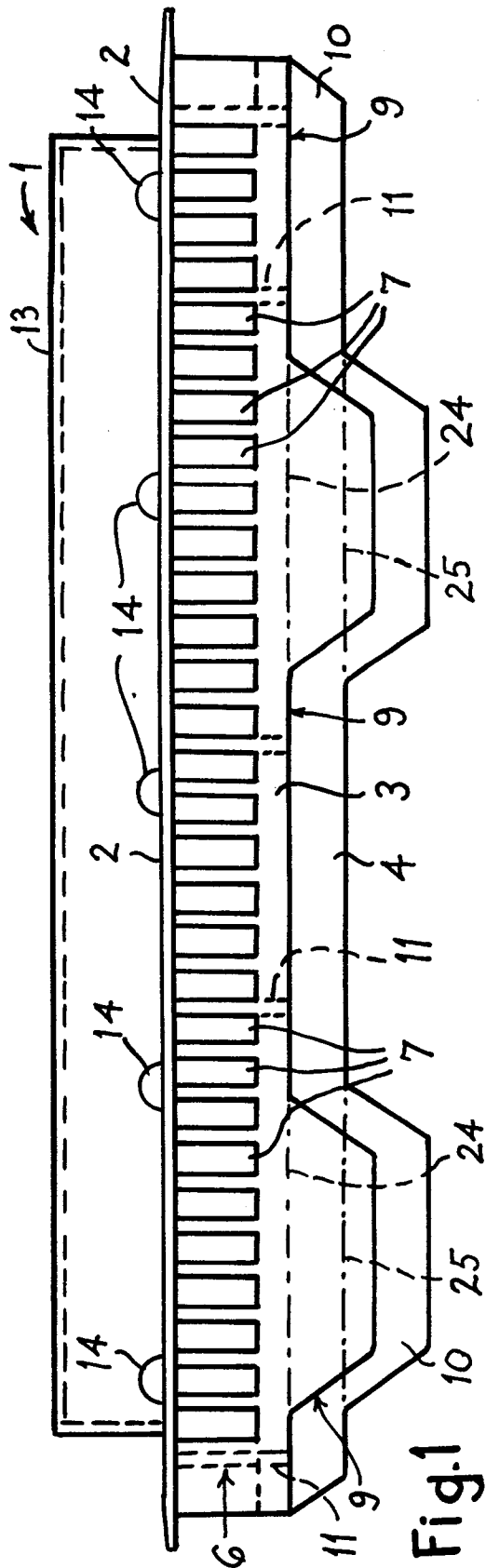
- 1 in that a substantial part of the upper wall portion
(2) is inclined at an angle of more than 90°
to the front wall portion (3) and extends upwardly
and rearwardly from the front wall portion (3)
5 towards the rear wall portion (4).
15. A tiling member as claimed in claim 14, characterized in that a substantial part of the upper wall portion (2a) is of outwardly curved form.
16. A tiling member as claimed in claim 14 or 15,
10 characterized by an additional baffle (8a) depending from the upper wall portion (2a) behind the baffle (8).
17. A tiling member as claimed in any one of claims 1 to 16, characterized in that the upper wall portion
15 (2) has a plurality of spaced apart stops or projections (14) extending along its front edge to guard against the possibility of the tiling member (1 or 1a) being blown inwards by strong winds.
18. A tiling member as claimed in any one of claims
20 1 to 16, characterized by support elements (11) extending transversely thereof and in the direction of a roofing tile (17) when laid thereon and which engage with, and further support, the tiling member (1 or 1a) on the upper surface of the roofing tile (17).
- 25 19. A tiling member as claimed in any one of claims 1 to 18, and made of at least two elongate elements which can be positioned or fitted together and which preferably extend over several tile widths.
20. A pitched roof structure comprising a plurality
30 of roofing tiles laid in courses on roof battens, and characterized in that a plurality of tiling members (1 or 1a) as claimed in any one of claims 1 to 19, rest on the roofing tiles (17) of the or each uppermost course with the apertured ventilation

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1 areas (6) facing outwards.

21. A pitched roof structure as claimed in claim
20 characterized in that roofing tiles (17) have
relatively deep pans and the apertures ventilation
5 area (6) of each tiling member (1a) lies substant-
ially in the respective pan.

22. A pitched roof structure as claimed in claim
20, characterized in that the roofing tiles (17)
have relatively shallow pans or are plain or flat
10 tiles and the ventilation areas (6) of the tiling
members (1) lie above the pans and the top
surfaces of the roofing tiles (17).



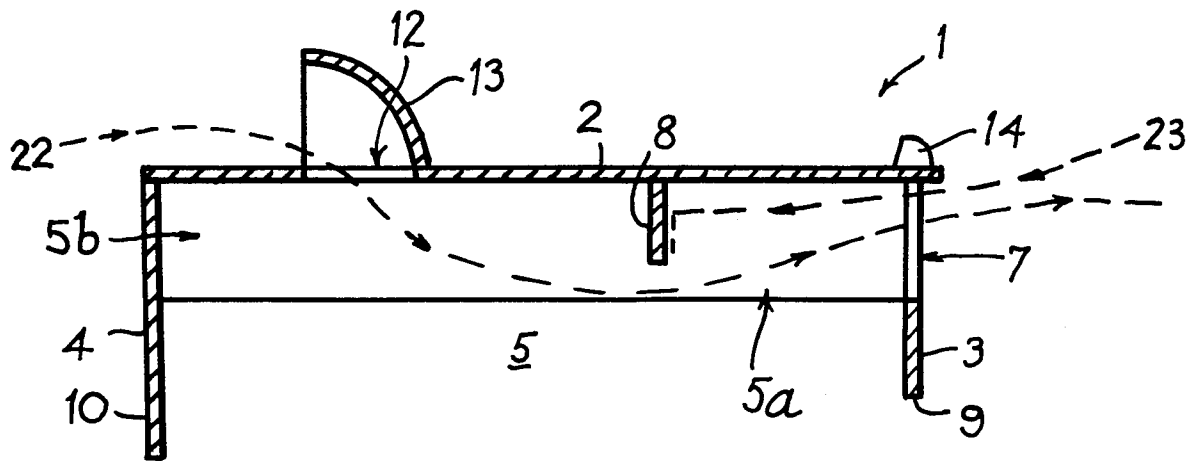


Fig. 2

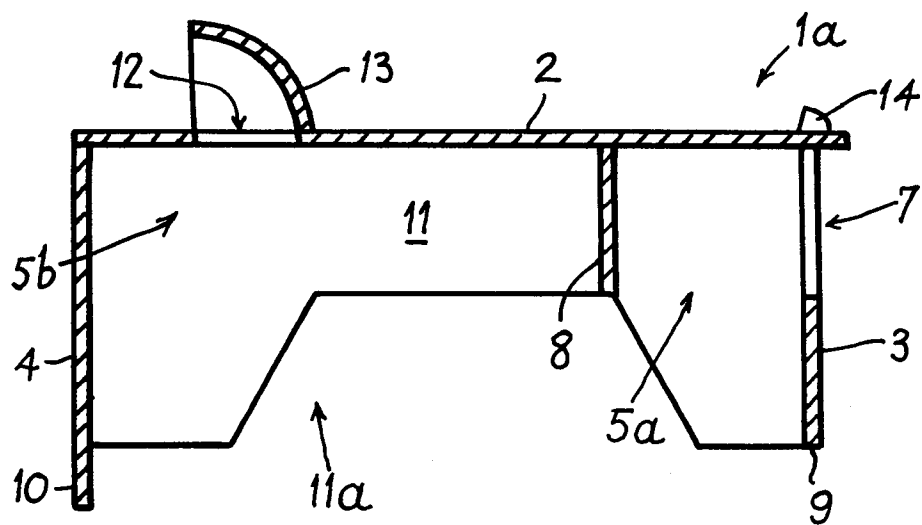
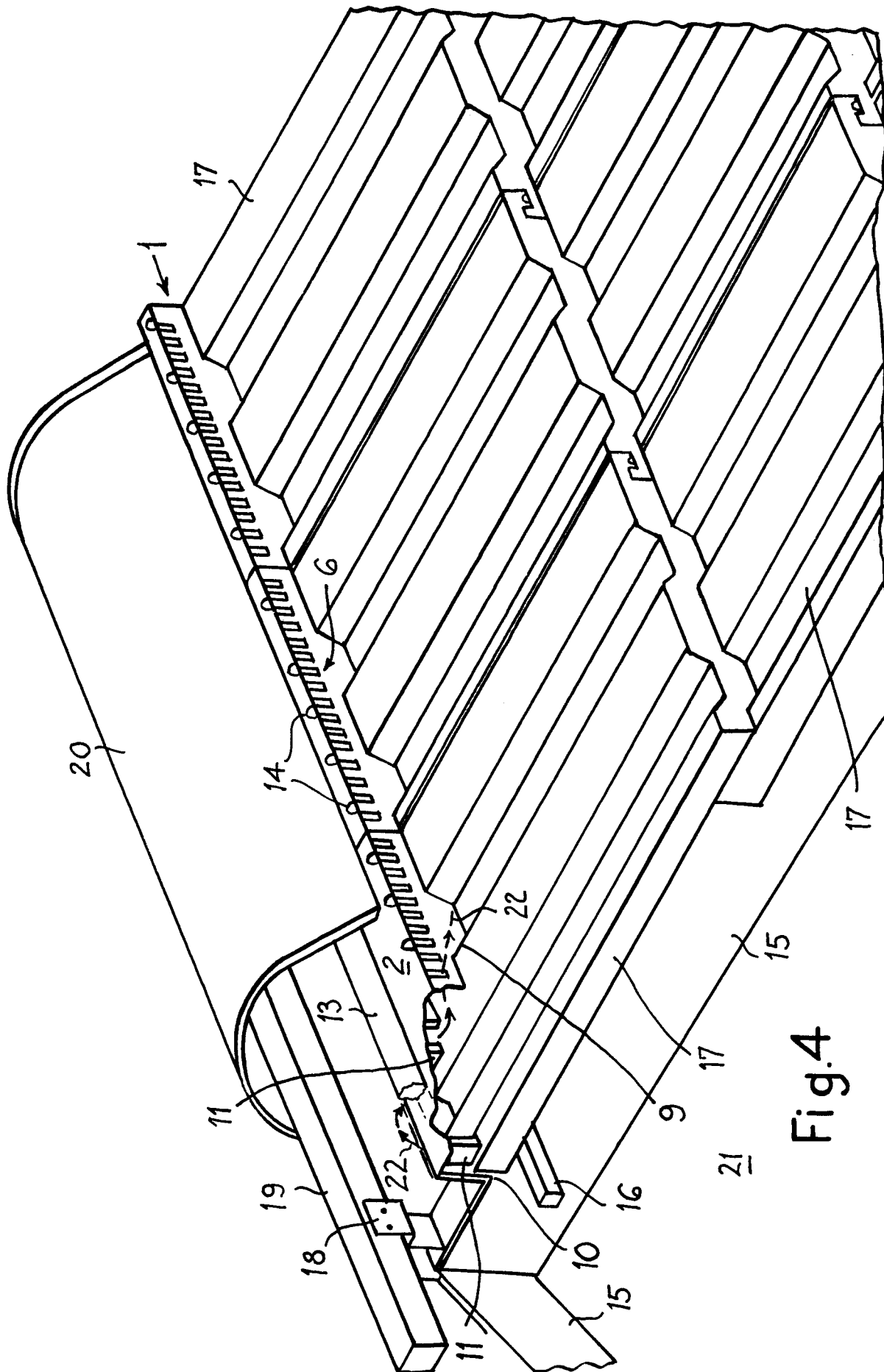


Fig. 7



Fig. 3



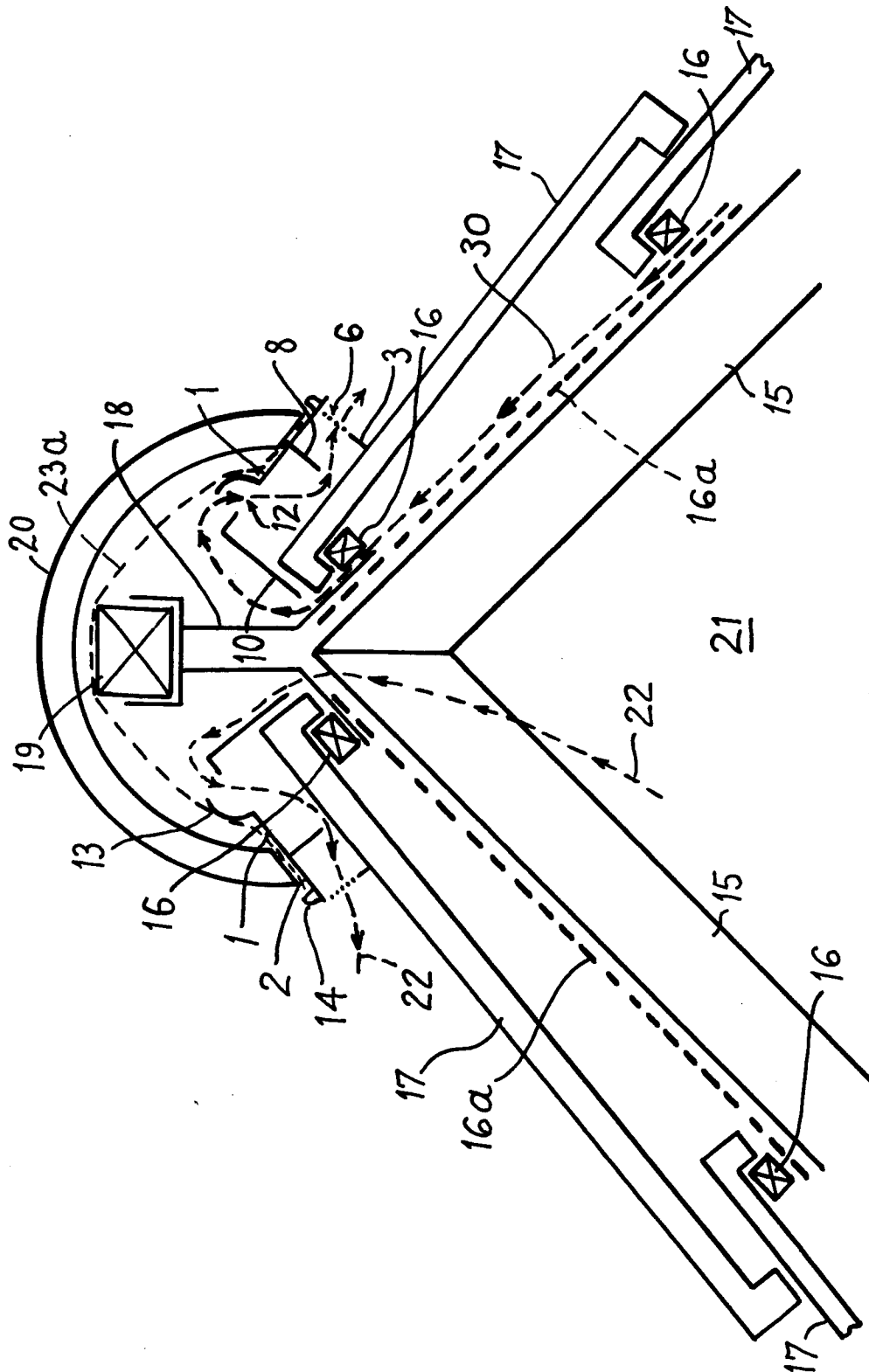


Fig. 5

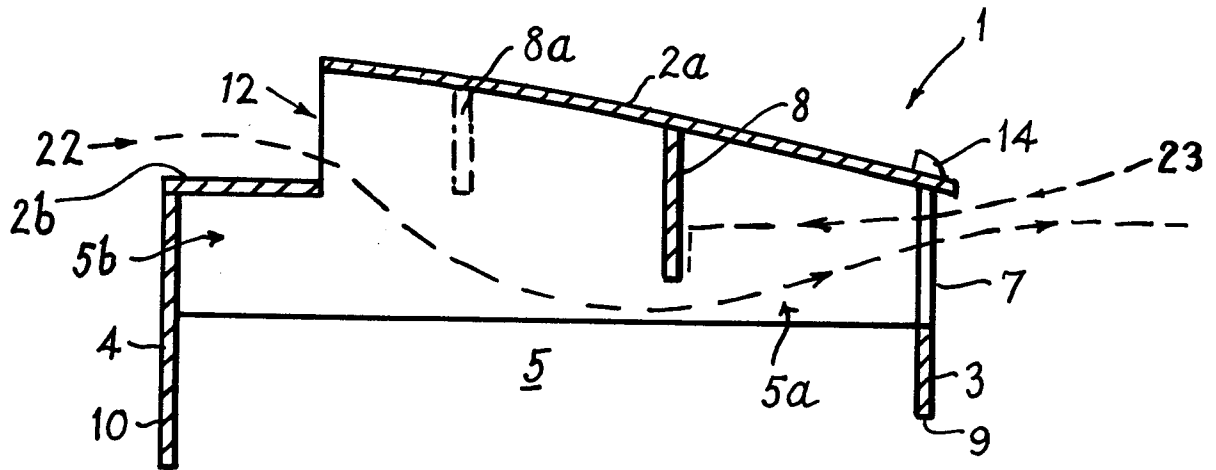


Fig. 9

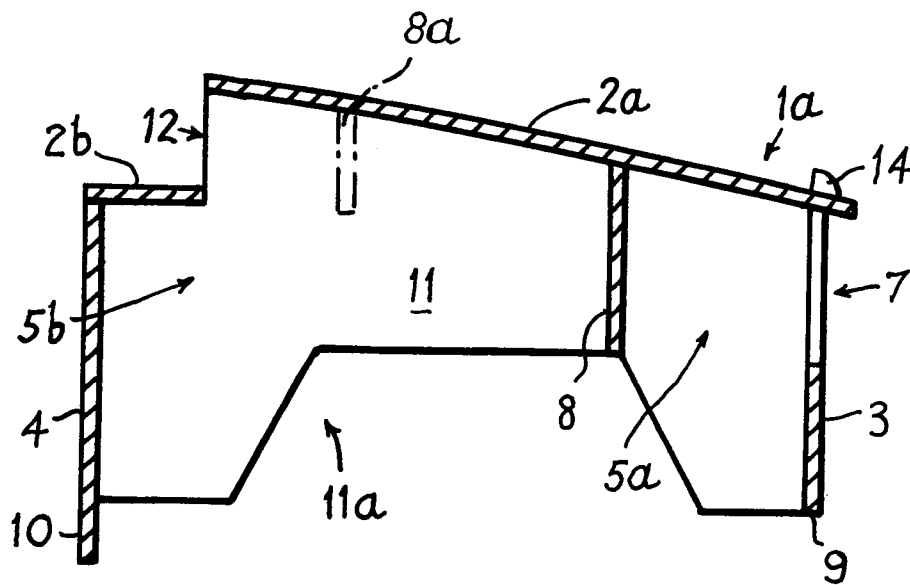


Fig. 10