United States Patent

Gobel

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[54] **FACING OF THE ROOF EDGES IN SAW-TOOTH ROOFS OR SIMILAR ROOFS**

[72] Inventor: **Klaus Gobel,** Zeughausstr. 41, Trier, Germany

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Related U.S. Application Data

[63] Continuation of Ser. No. 712,889, Feb. 26, 1968, abandoned.

[30] **Foreign Application Priority Data**

Feb. 27, 1967 Germany .....G 49414

[52] **U.S. Cl.** **52/18,** 52/72, 52/90, 52/94

[51] **Int. Cl.**.....**E04b 7/12,** E04b 7/02

[58] **Field of Search**.....52/200, 18, 72, 97, 94–96

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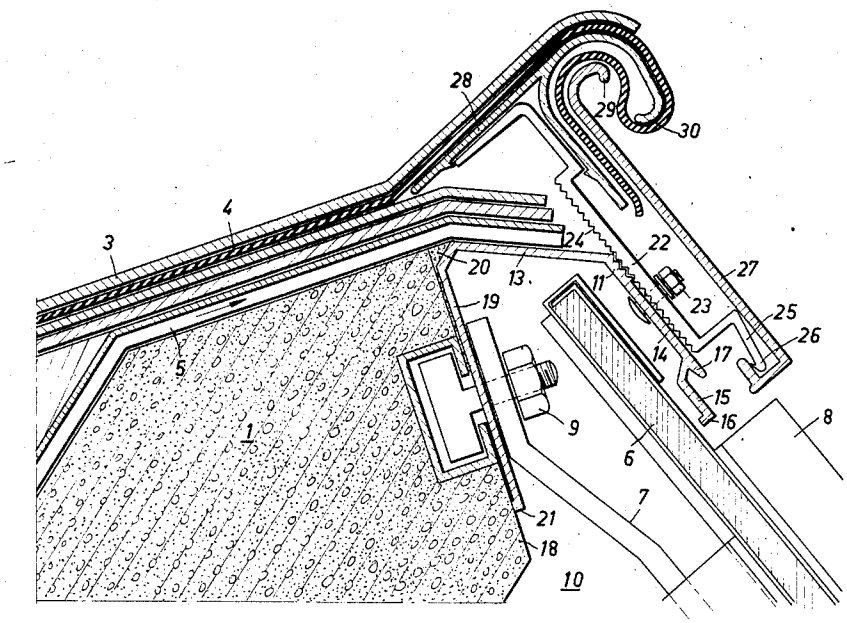
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Primary Examiner—Henry C. Sutherland
Assistant Examiner—James L. Ridgill, Jr.
Attorney—Robert W. Beach

[57] **ABSTRACT**

The invention serves to provide in a ridge roof, along the horizontal junctions between a sloping window and an adjoining roof structure, such as in a saw-tooth roof, facings which each comprise a vapor check profile strip arranged to permit escape of vapor pressures arising within sheathing overlying the adjacent roof structure and escape of condensation from the window without such condensation penetrating to the sheathing.

3 Claims, 10 Drawing Figures



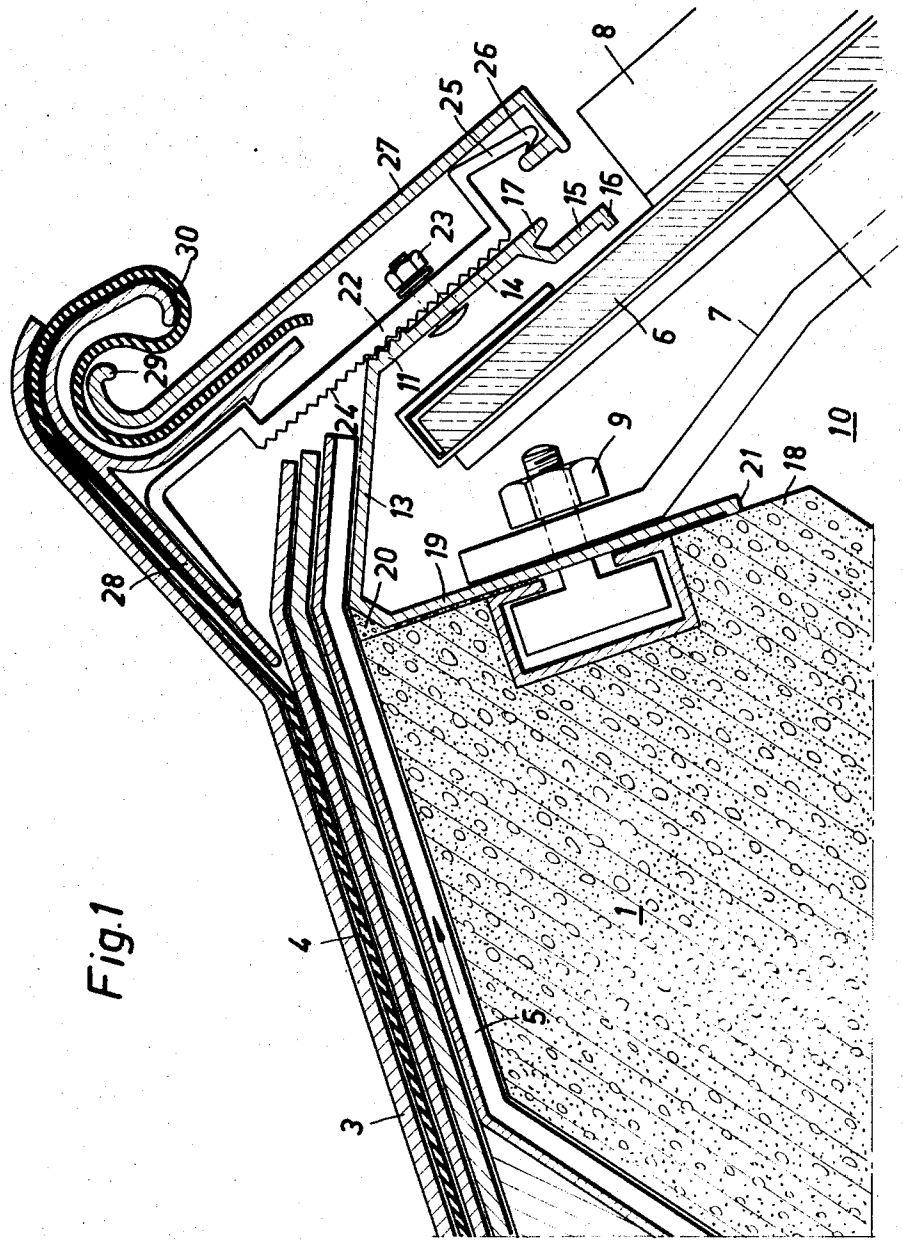


Fig.1

Inventor:
KLAUS GÖBEL

BY
Robert W. Beach
ATTORNEY

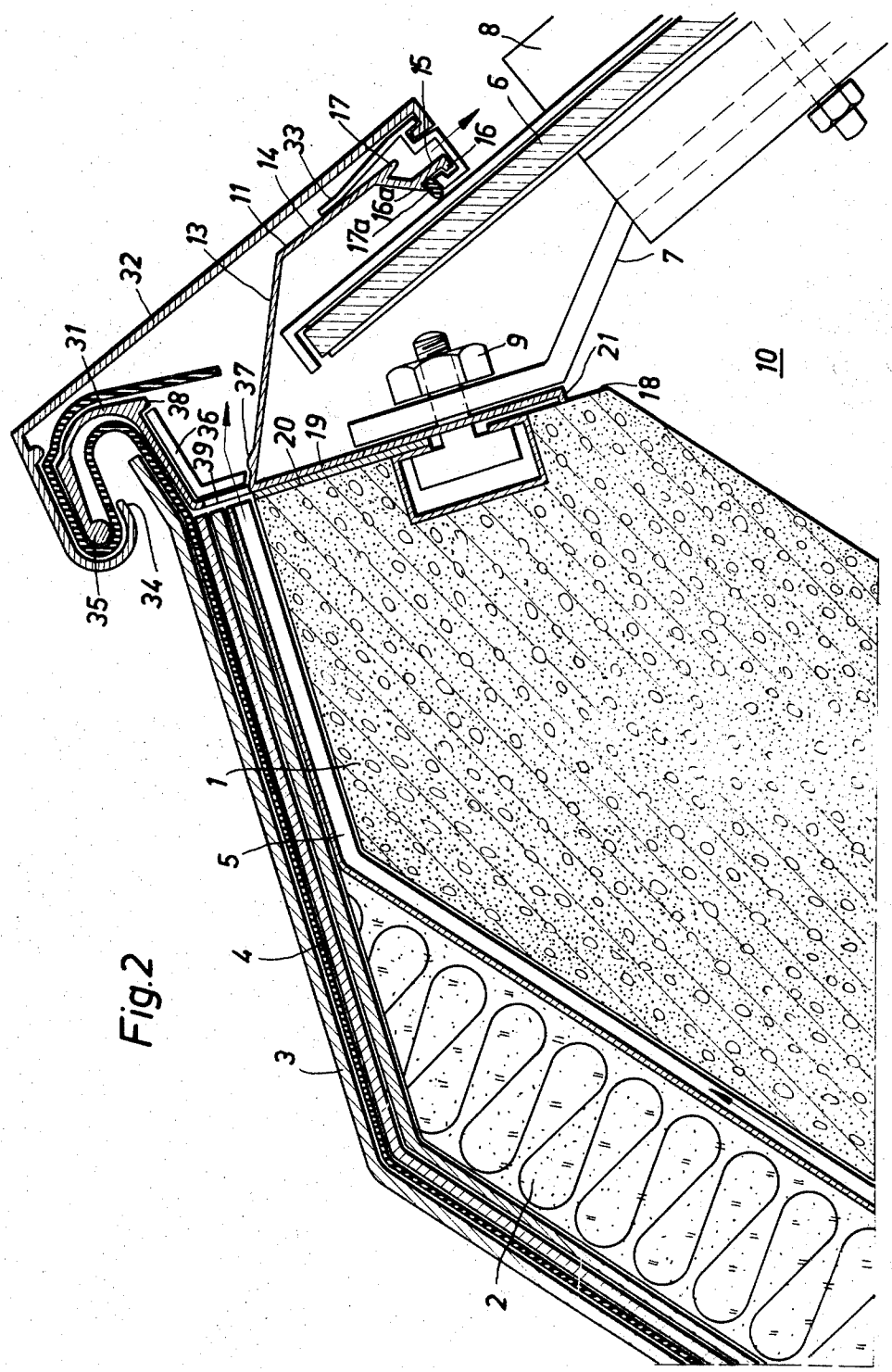


Fig.2

Inventor:
KLAUS GÖBEL

BY
Robert W. Beach
ATTORNEY

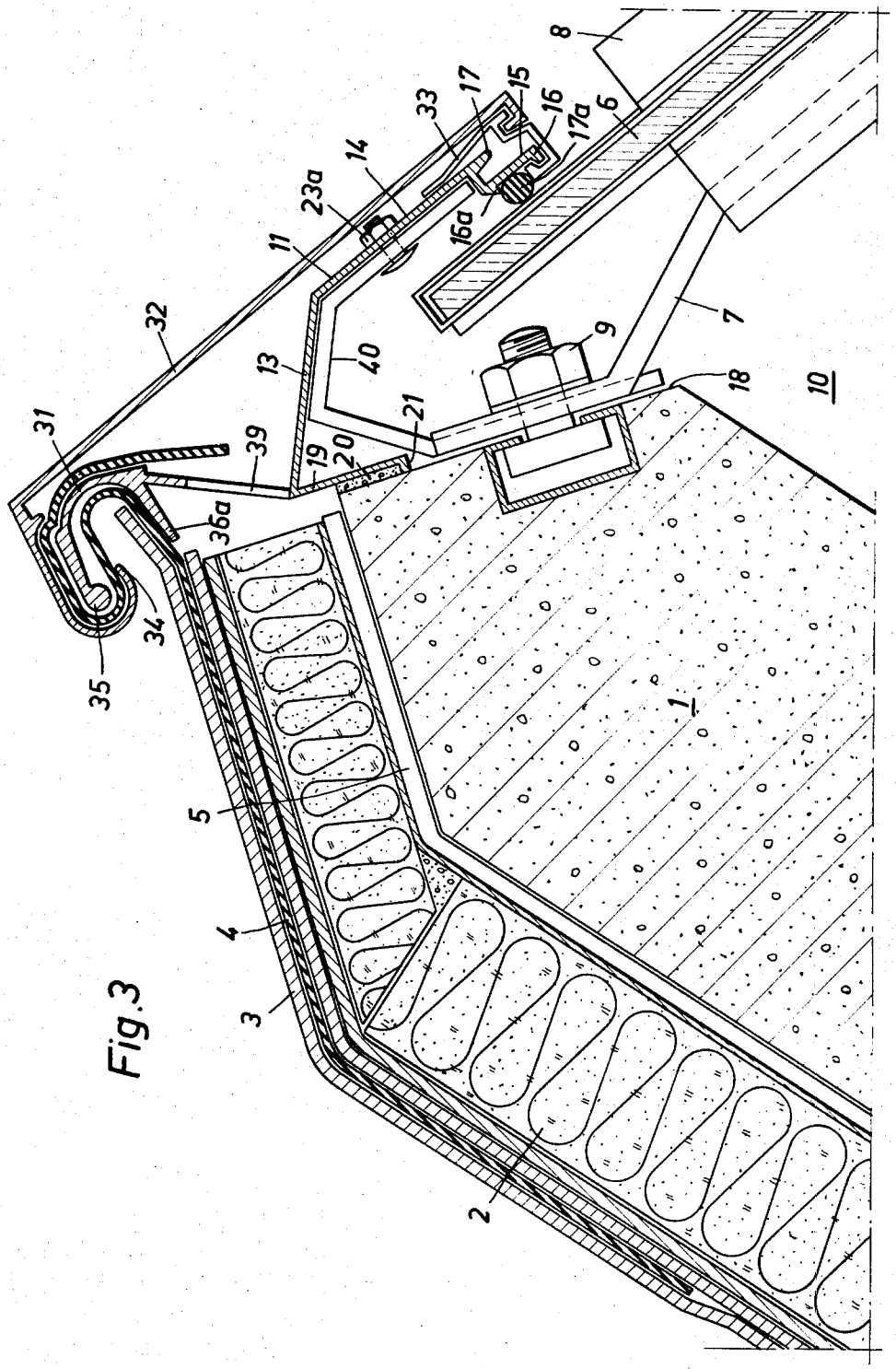


Fig.3

Inventor:
KLAUS GÖBEL

BY
Robert W. Beach
ATTORNEY

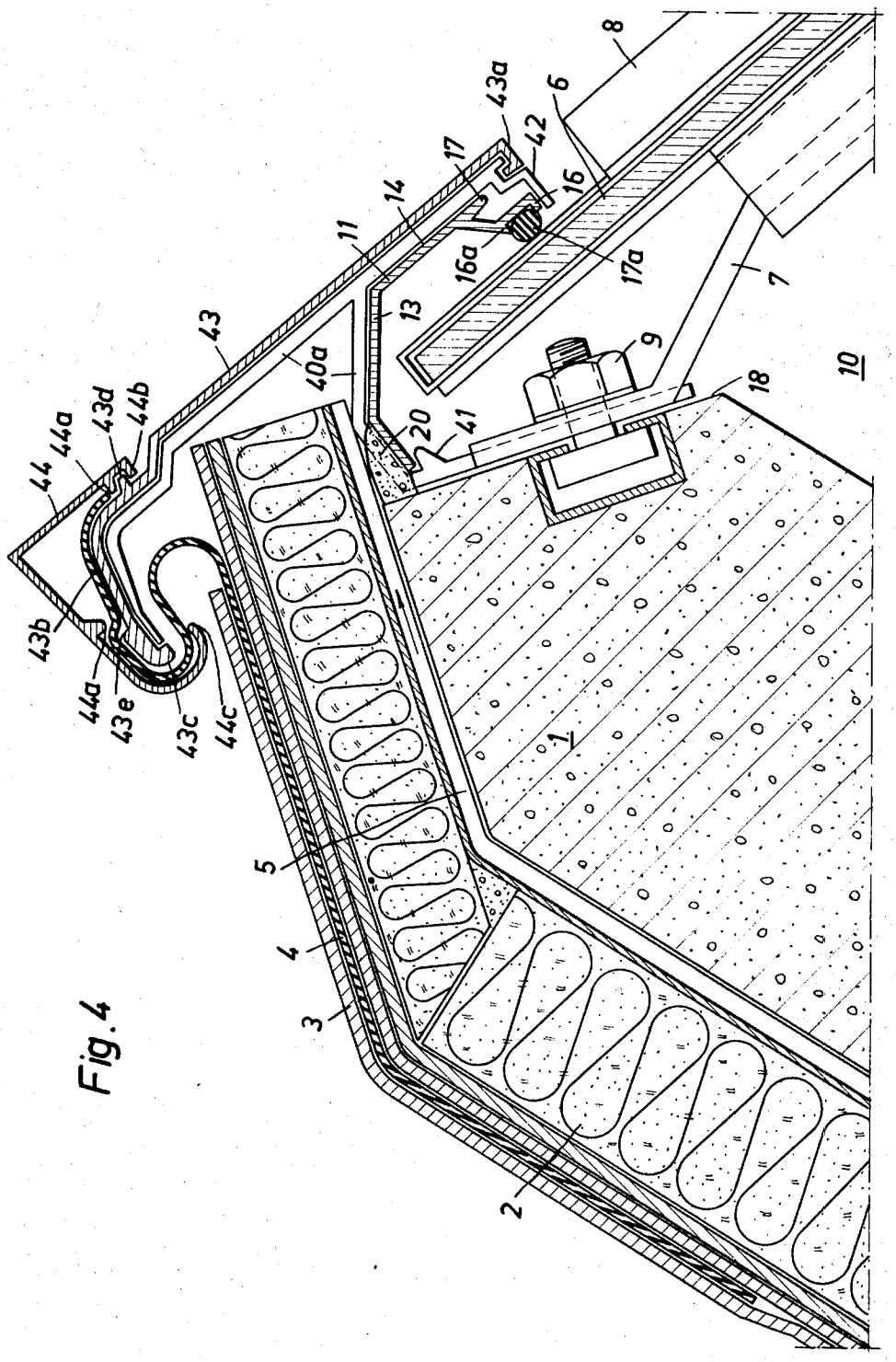


Fig. 4

Inventor:
KLAUS GÖBEL

BY
Robert W. Beach
ATTORNEY

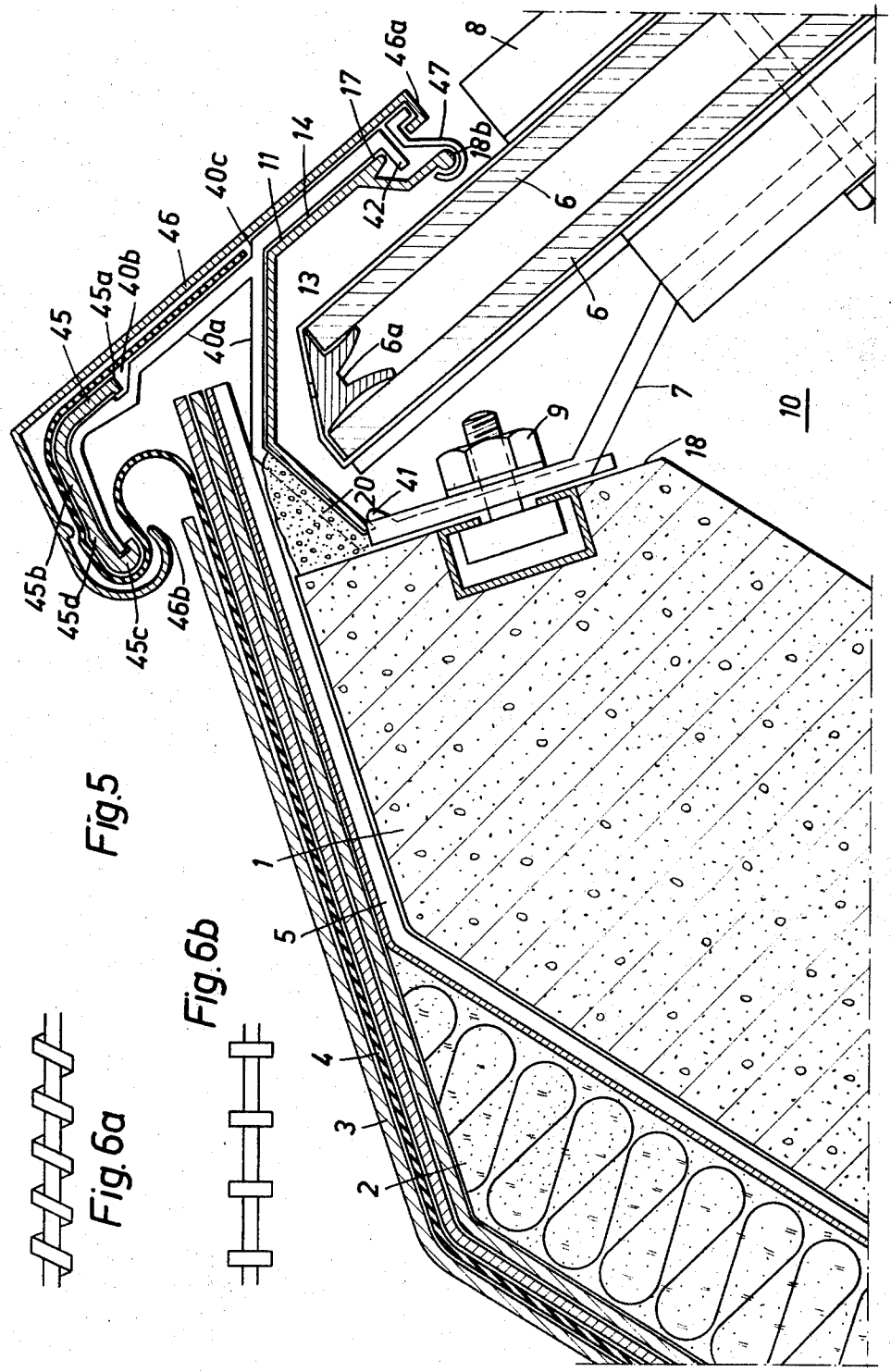


Fig.5

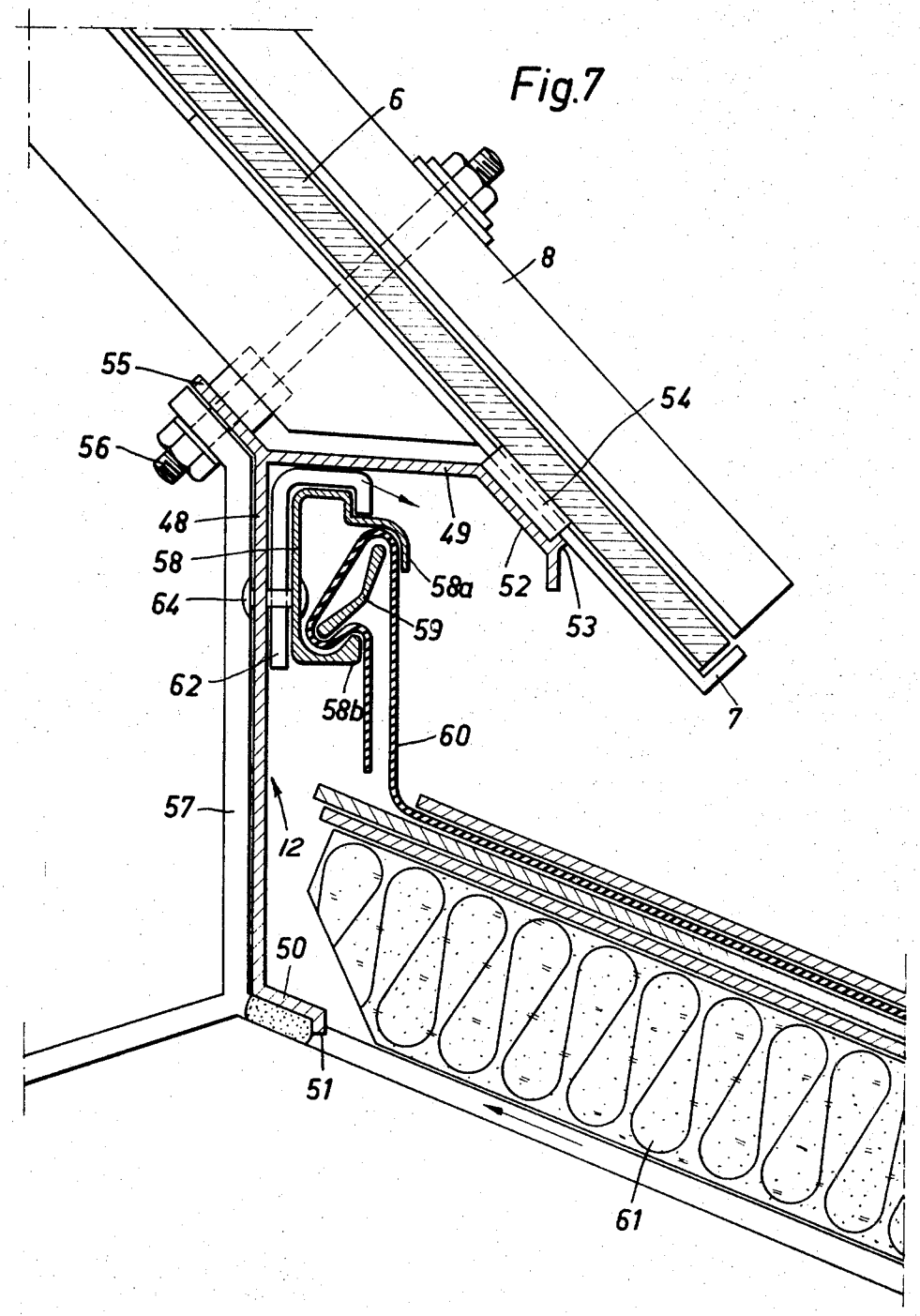
Fig.6b

Fig.6a

Inventor:
KLAUS GÖBEL

BY
Robert W. Beach
ATTORNEY

Fig.7



Inventor:
KLAUS GÖBEL
BY
Robert W. Beach
ATTORNEY

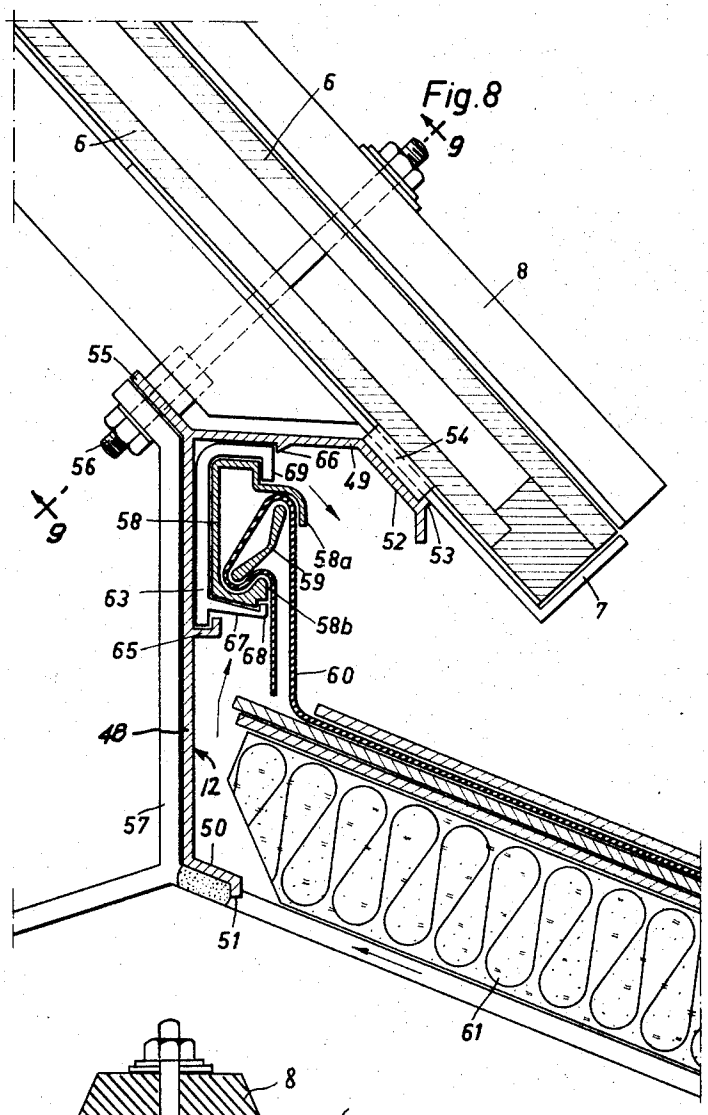


Fig.8

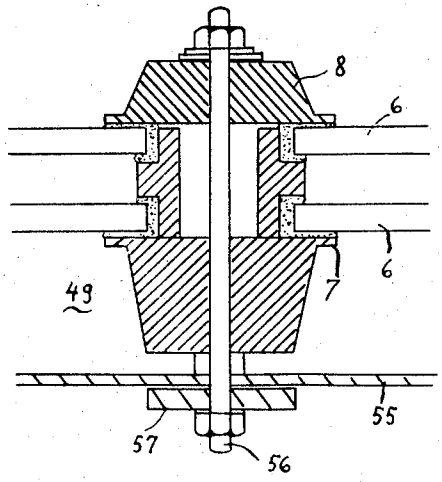


Fig.9

Inventor:
KLAUS GÖBEL
BY
Robert W. Beach
ATTORNEY

FACING OF THE ROOF EDGES IN SAW-TOOTH ROOFS OR SIMILAR ROOFS

This application is a streamlined continuation of application Ser. No. 712,889, filed Feb. 26, 1968, entitled Facing of the Roof Edges in Saw-Tooth Roofs or Similar Roofs, now abandoned.

This invention relates to the facing of the roof edges in sloping roofs, such as sections of saw-tooth roofs or similar ridge roofs, in which the roof structure is interrupted by a window.

Whereas in the case of normal flat roofs it is only necessary to provide for a good facing at the perimeter of the roof, so that firstly the roof sheathing is held securely and secondly moisture is prevented from penetrating under the roof sheathing, in the case of sloping roofs, such as sections of saw-tooth roofs, there are a substantial number of edges or joints which require a special facing, where a window and the roof structure are connected.

As is general in the case of roof structures, more especially in the case of flat roofs, and even in the case of saw-tooth roofs, a free space must be provided to enable any vapor pressure occurring between the solid roof structure and the roof sheathing to escape. On the other hand, however, the condensation forming on the inside of a window must be prevented from penetrating into this vapor pressure equalization space between the solid or concrete structure and the roof sheathing, since this would lead to a soaking of the insulating course or of the constructional members with disadvantageous consequences. At the same time provision must be made, at the upper window edge or edges for ventilation adapted to the temperature and atmospheric moisture of the interior of the roof structure so as to prevent the formation of condensation altogether. The ventilation of the interior must thereby be independent of the ventilation of the flat roof, so as to prevent the penetration of atmospheric moisture out of the vapor pressure equalization space into the interior of the roof and vice versa, as a result of temperature changes.

It is therefore an object of the invention to provide an arrangement incorporating a vapor barrier between the interior space which is bounded outwardly by the window and the vapor pressure equalization space between the solid or concrete roof structure and the roof sheathing.

To achieve this object, in accordance with the invention a vapor check strip is arranged so as to extend along the upper and lower edges of the window.

In the case of the upper vapor check profile strip, this preferably has a part which overlies the upper edge of the window and, standing at an angle thereto and extending parallel to the plane of the window, an overhang part, the lower end of which is stepped and has a clamping extension piece. Arranged at the knee between the part lying parallel to the window and its stepped end there is advantageously a rain backwash nose and a windbreak. Provided between window and the stepped end there is advantageously a distance-piece strip.

In the case of the lower vapor check profile strip, this preferably has a vertical leg, the lower end of which is angled outwardly and is provided with a sealing lip, and an outwardly inclined leg, the free end of which is angled downwardly. Disposed at the knee between the vertical and the inclined leg there is preferably a flange extending upwardly and parallel to the window, which flange together with the upper side of the inclined leg forms a condensation channel. Arranged on the angled end of the inclined leg there is advantageously an extension piece which holds a locator in the form of a corrugated or helical strip which locates the glass holder. Arranged in the corner formed between the vertical leg and the inclined leg there is conveniently a sealing profile serving to receive the roof sheathing or a connection strip thereof. Provided between the lower vapor check profile strip and the connection profile there are advantageously distance pieces, on which the connection profile is clamped, which distance pieces ensure equalization of the vapor pressure of the solid roof structure below the window.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a vertical cross section showing the upper joint between the solid roof structure and the window, in a ridge saw tooth roof section conforming to the present invention;

FIG. 2 is a view similar to FIG. 1, but showing a second embodiment;

FIG. 3 is a view similar to FIGS. 1 and 2 but showing a third embodiment;

FIG. 4 is a view similar to FIGS. 1 to 3, but showing a fourth embodiment;

FIG. 5 is a view similar to FIGS. 1 to 4, but showing a fifth embodiment involving double-glazing;

FIGS. 6*a* and 6*b* are fragmentary front elevations illustrating respectively a distance strip and a sealing strip as incorporated in the foregoing embodiments;

FIG. 7 is a vertical cross-section showing the lower connection between the window and the solid roof structure in a ridge saw-tooth roof section conforming to the invention; and

FIG. 8 is a view similar to FIG. 7 but showing another embodiment, and

FIG. 9 is a section taken on line 9—9 of FIG. 8.

The execution of glazed sloping roofs, such as saw-tooth roofs may be regarded as being comparable with normal flat roofs. Over the solid or concrete structure roof slab 1 there is overlaid an insulating course 2 and over that a multilayer roof including outer sheathing 3. Between the course 2 and the sheathing 3 is sandwiched a connection strip 4. Between concrete structure 1 and the insulating course 2 there is a vapor pressure equalization space 5.

The window disposed adjacent to the concrete structure at the ridge of the roof consists of one or more glass panes 6 which rest in a glass holder 7 and can be covered with a cover rail 8. The glass holder 7 is supported by means of a screw connection 9 embedded in the concrete structure 1.

In accordance with the invention, arranged between the interior 10 bounded outwardly by the window and the vapor pressure equalization space 5 at the upper and lower ends of the window there are respective vapor check profile strips 11 (FIGS. 1 to 5) and 12 (FIGS. 7 and 8).

The upper vapor check profile strip 11 shown in FIGS. 1 to 5 has a spacer strip part 13 overlying the upper edge of the window and, standing at an angle

thereto and extending parallel to the plane of the window, a flange or overhang part **14** projecting downward from the spacer strip, the lower edge of such flange having a step **15** offset inwardly toward the window which has a clamping extension piece **16**, serving to retain a holder **33** which in turn retains a sealing profile **32** (FIG. **2**). Arranged on the outside at the knee between the step **15** and the part of the overhang part **14** carrying such step there is a rain backwash nose **17**. Clamped as a wind brake between the window and the step **15** there can be a distance and sealing strip **17***a*, shown in FIG. **2**, which ensures ventilation and which may be of helical or gapped form as shown in FIGS. **6***a* and **6***b*. So as to prevent any shifting of the sealing strip **17***a* upwardly, a protrusion **16***a* may be provided on the vapor check profile above clamping extension piece **16** thereof, as shown in FIG. **2**.

In the embodiment of FIGS. **1** and **2**, a downwardly projecting flange **19** is provided on the vapor check profile strip **11** at an angle to the part **13**, this flange **19** running parallel to the lateral roof slab edge **18** and being securable by way of the screw connection **9** of the glass holder **7** to the structure **1**. A sealing mass **20** is interposed between the vapor check profile flange **19** and the slab edge **18**. At the free lower end of the flange **19** there is a nose **21** which prevents canting of the vapor check profile strip **11** and compensates for the thickness of the mass **20**.

In the embodiment of FIG. **1**, holders **22** are fastened on the overhang part **14** of the vapor check profile strip **11** by means of bolts **23**, whereby the holders **22** are elevationally adjustable in relation to the vapor check profile strip **11**. The confronting faces of the vapor check profile strip **11** and the holders **22** have toothings **24**, which prevent slipping down of the holders **22**.

A sealing profile consisting of two parts **27** and **28** is clampable on the holders **22**, which on their lower end **25** are angled and are each provided with a nose **26**. The two sealing profile parts **27,28** are designed in such a way that the S-shaped bent-over edge of the roof sheathing **3** or of the connection strip **4** is insertable between ends **29** and **30** thereof in such a way that the roof sheathing **3** or the connection strip **4** remains movable in two directions in relation to the sealing profile **27,28**.

The embodiment of FIG. **2** differs from that of FIG. **1** in the design of the sealing profile. In this instance the vapor check profile strip **11** is extended upwardly to form an extension **31** of the vapor check profile strip **11** designed as the lower part of the sealing profile itself. The complementary upper part **32** of the sealing profile is clampable onto a holder **33** and onto the lower part **31**, and in their turn the resultant ends **34** and **35** of the profile **31,32** receive the S-shaped bent edge of the roof sheathing or, as shown, of the connection strip **4** between them. In addition, a butt profile **36** can be provided, this being retained by protruberances **37** and **38** on the vapor check profile strip **11**. So as to permit vapor pressure equalization, the profile part **31** is provided with ventilation apertures **39**.

In the embodiments of FIGS. **3** to **5**, the vapor check profile strip **11** itself in not fastened directly to the roof structure **1**. On the contrary, in this instance holders **40** or **40***a* are provided, which are attachable by means of the screw connection **9** to face **18** of the structure **1**. Between the vapor check profile strip **11** and the structure **1** is a sealing strip or mass **20**.

In the embodiment of FIG. **3**, the vapor check profile strip **11**, which approximates to that shown in FIG. **2**, is superimposed onto the holders **40** and fastened by means of bolts **23***a*. The flange **19** can, then, be considerably shorter than in the FIG. **2** embodiment, as shown. The butt profile **36** of FIG. **2** is done away with, but an additional support flange **36***a* is provided.

In the embodiments of FIGS. **4** and **5**, the vapor check profile strip **11** is clampable to the undersides of two-armed holders **40***a*, namely between extension pieces **41** and angled ends **42** thereof, and a two-part sealing profile, which in the embodiment of FIG. **4** consists of profile parts **43** and **44** and in the embodiment of FIG. **5** consists of profile parts **45** and **46**, clamped on the upper sides of the holders **40***a*. In these cases also the parts of the sealing profile are designed in such a way that the S-shaped curved edge of the roof sheathing or of the connection strip **4** is accommodated therebetween; The sealing profile, which comprises lower profile part **43** or **45** and upper profile part **44** or **46** (and which may also be used as a sealing profile for a conventional flat roof) simultaneously serves as a butt joint.

In the embodiment of FIG. **4** the lower profile part **43** is drawn down and bent so as to be hook-shaped at its lower end **43***a*, so that it clamps into corresponding recesses of the angled ends **42** of the holders **40***a*. At the upper end, the profile part **43** recedes somewhat to provide a profile head **43***b* which is bent inwardly. A front nose **43***c* catches behind the upper end of the holder **40***a* and thus provides, together with the hook-shaped end **43***a*, a tight force fit. The sealing profile's upper part **44** is clampable on the profile head **43***b* in such a way that two spaced-apart clamping extension pieces **44***a* and **44***b* thereof embrace a clamping extension piece **43***d* of the sealing profile's lower part **43**. The roof sheathing **3** or connection strip **4** is taken as far as the upper clamping extension piece **44***a* and lies between downwardly and outwardly bent end **44***c* of the upper profile part **44** and outwardly rounded profile head nose **43** *c* of the lower profile part **43** as well as staggered locating protrusions **43***e* and **44***d* of the two profile parts.

Whereas in the embodiment of FIG. **4** the lower ends of the vapor check profile strip **11** and of the sealing profile part **43** clamp behind the corresponding extensions on the end **42** of the holder **40***a*, in the embodiment of FIG. **5** a further or supplementary holder **47** is provided, which is inserted adjacent the holder **40***a* beneath the latter. In this embodiment the rain backwash nose **17** also serves as a clamping extension piece, and the edge of the vapor check profile strip **11** is rounded off as a bead **16***b*.

In the embodiment of FIG. **5** the lower profile part **45** is short in design and at its end **45***a* is also bent over so as to be hook-shaped, so that this end **45***a* engages into a corresponding recess **40***b* of the holder **40***a*. The profile head **45***b* approximates to the profile head of FIG. **4** and has an outwardly rounded nose **45***c* formed with a locating protrusion **45***d*. Upper sealing profile part **46** extends a long way down over the window **6** and is bent so as to be hook-shaped at its lower end **46***a*. This lower end **46***a* is clamped onto the holder **47**,

whereas upper downwardly and outwardly bent end **46***b* overlaps and engages over the profile head **45***b*. The roof sheathing **3** or connection strip **4** extends down as far as junction **40***c* of the two arms of the holder **40***a*.

In this embodiment, a double-glazing is provided, and a spacer **6***a*, advantageously having a ventilation aperture therethrough, is seated between the glass panes **6**.

A form of lower vapor check profile strip **12** as provided along the lower junction between the glazing and the adjacent solid roof structure is shown in FIGS. **7** and **8** and comprises a vertical leg **48** as well as an outwardly projecting leg **49**. The lower end **50** of the vertical leg **48** is angled outwardly and provided with a sealing lip **51**. Free end **52** of the inclined leg **49** is angled downwardly. This angled end **52** is formed with an extension piece **53** which holds a locator **54** formed as a corrugated strip and locates the glass holder **7**.

Situated at the junction between the vertical leg **48** and the inclined leg **49** is a flange **55** extending upwardly and substantially parallel to the window **6**. This flange **55** is connected by a bolt **56** to a holder **57** which also supports the glass holder **7**. The upper surface of the projecting leg **49** and the flange **55** form a condensation channel which serves to drain off outwardly any condensation which may form on the inside of the window, without this being able to get into the roofing.

A connection profile **58** is located in the corner formed between the vertical leg **48** and the inclined leg **49**, the connection profile **58** serving to receive the roof sheathing or a connection strip **60** of the adjacent solid roof structure **61**. A wedging strip **59** serves to ensure that the connection strip **60** is retained in the profile **58**.

Provided between the lower vapor check profile strip **12** and the connection profile **58** are distance pieces **62** (FIG. **7**) or **63** (FIG. **8**) In the embodiment of FIG. **7** the distance pieces **62** are held by means of rivets **64**, which also retain the connection profile **58**; opposite edges of the distance pieces **63** of FIG. **8** are engageable behind corresponding protrusions **65** and **66** of the vapor check profile strip **12**. The distance pieces **63** are formed, at the bottom, with an arm **67** having a lip **68**, so that the connection profile **58** is locatable lodged between this lip and the upper angled end **69** of the distance piece **63**.

The connection profile, which can also be employed in conventional roof to wall connections, is designed in such a way that the roof sheathing or the connection strip **60** extends upwards under downwardly bent upper part **58***a* of the connection profile **58**, and then extends downwards around the wedging strip **59**, then over a lip **58***b* along the bottom edge of the profile **58** after which it emerges from the connection profile **58**. The wedging strip **59**, which holds the roof edge or the connection strip **60**, is retained between the upper part **58***a* and the lower lip **58***b* of the profile **58**.

The facing of the invention ensures that vapor pressures arising in the roof above the window and underneath the window can equalize, without moisture getting into the interior of the building conversely out from the interior into the vapor pressure equalization space. Furthermore it ensures that any condensation which may form drains off in such a way that it cannot penetrate into the roof structure.

I claim:

1. A ridge roof slope window installation comprising flexible sheet roofing material, a sloping window, and facings along the upper and lower edges of said window, respectively, said upper facing including a strip portion forming with the roof structure a downwardly opening channel receiving therein the upper edge of said window and having an outer flange projecting downward outwardly of said window into overlapping relationship with the upper portion of the outer face of said window, and said upper facing further including above said downwardly opening channel a pair of free edge strip portions projecting oppositely to each other and spaced apart in overlapping relationship and receiving therebetween a reversely-bent edge portion of said flexible sheet roofing material folded about said free edge strip portions.

2. A ridge roof slope window installation as claimed in claim **1**, the lower facing including a lower strip portion having spacer means engaginghe inner side of the window for spacing it outward from the roof structure and roofing attaching means carried by said lower strip portion inwardly of the lower portion of the window attaching a portion of the flexible sheet roofing material of the roof below the window extending upward above and inwardly of the lower edge of the window.

3. A ridge roof slope window installation comprising roofing material, a sloping window, and facings along the upper and lower edges of said window, respectively, said upper facing including a strip portion forming with the roof structure a downwardly opening channel receiving therein the upper edge of said window and having an outer flange projecting downward outwardly of said window into overlapping relationship with the upper portion of the outer face of said window, and said upper facing further including roofing attaching means positioning said roofing attached thereto in spaced relationship to said downwardly projecting outer flange for providing a ventillating passage between said roofing attaching means and said downwardly projecting outer flange.

* * * * *