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(54) **Eave ventilation device**

Lüftungsvorrichtung für Dachtraufe

Dispositif de ventilation de rive de toit

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(56) References cited:
EP-A- 0 203 670
EP-A- 0 340 856
EP-A- 0 952 274
WO-A-97/34062
FR-A- 2 539 787

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Description

[0001] The invention relates to an eave ventilation device for attachment to the eave, particularly to the upper side of a fascia.

[0002] Such devices are used for (rain)watertight finishing the eave area (cf. EP-A-0 952 274). For use in building a first requirement is compliance with the legal standards and decisions. Additionally one should be able to securely and accurately place such a device, even less experienced builders, and possibly D.I.Y. enthusiasts should also be able to do so. Such a device has to regulate the ventilation and air circulation of the eave portion and has to ensure connection of roof foil to the eave.

[0003] The invention provides a device that meets these demands as much as possible. To that end the invention provides an eave ventilation device according to claim 1.

[0004] Because of these measures a device is obtained that is easy and securely to place and that makes it possible to comply with the legal standards and decisions. The device protects the eave well from (rain) water that either leaks through between the roof tiles, or blows up under the tiles. Additionally tilted placement of the bottom row of roof tiles is prevented because of the double function of the ventilating duct forming means. As a result of the choice of the location of said ventilating duct forming means a secure, oriented and stable (at nearly maximum distance from the upper end of the roof tile) support of the bottom row of roof tiles is namely formed without a separate tilting fillet or something like that being necessary. The water discharging strip can be directly applied onto the boarding and fixed to a fascia. The vapour stopping foil that is usually arranged directly on the outside of the boarding runs straight smoothly and continuously through on the water discharging strip up to the ventilating duct forming means.

[0005] A secure placement is furthermore possible, also by less experienced people, and the risk of damage is reduced because the device is formed as one unity. Additionally storage, transport, handling and logistics are easier because one type of device will suffice for all functions.

[0006] The device can be used particularly for buildings such as not-cold attics, that means attics that are (going to be) part of the living/working area. This particularly regards roof structures provided with roof tiles. Such a roof structure is provided with rafters having a fascia at the ends. At the fascia clamps may be arranged for retaining a roof gutter.

[0007] For forming solid supporting means for the roof tiles and to be less prone to damage, also when arranging the device, the ventilating duct forming means comprise spaced apart raised cross walls on the strip and one or more upper walls at the said walls substantially parallel to the strip. As a result an open box structure is realised having two sides that may or may not be entirely open. The upper wall here forms a support surface for the bottom row of roof tiles and replaces the bottom batten. Perpendicular to the strip and parallel to the fascia a grid may be formed to prevent vermin or insects from reaching the roof boarding through the ventilating ducts.

[0008] In a further embodiment the ventilating duct forming means are upwardly bounded by one or more upper walls.

[0009] In another further development the ventilating duct forming means are situated adjacent to the upper walls, so that the ventilating ducts are upwardly open.

[0010] In order to fill up possible intermediate space between the supporting means and the lower side of the roof tiles, particularly in case of roof tiles that are not level, the upper side of the ventilating duct forming means is provided with integrally formed flexible fingers extending from the upper side of the strip, and eaves board, for ensuring connection against the lower side of the roof tiles that are not level. As a result for instance birds cannot get between the roof tiles and the roof boarding in that way.

[0011] For making a good connection to for instance a roof gutter possible, or preventing precipitation from running down the fascia, it is preferred to widen the strip over almost the entire length with a drop apron integrally formed thereto, hanging over the fascia. Preferably the drop apron is a curved section retaining its shape that is integrally formed with the water discharging strip. As a result a multi functional device can be accurately, quickly and easily placed, and a good connection of the device to a possible roof gutter can be formed. In order to prevent deformation the drop apron preferably is provided with reinforcement means, preferably reinforcement ribs at the lower side facing the fascia. In order to additionally facilitate placement of the device, the drop apron, at the lower side facing the fascia, is provided with integrally formed vertical abutment surfaces for abutting the side of the fascia. Preferably the reinforcement ribs also form vertical abutment surfaces. As a result the reinforcement ribs get a double function and a simple construction is realised. The vertical abutment surfaces may also be formed because from the edge of the fascia the drop apron (in mounted situation of the device) comprises vertical portions that abut the fascia.

[0012] The water discharging strip preferably is provided with hinge means (preferably directly) along the ventilating duct forming means. As a result the device with the water discharge strip can always be arranged flat and abutting onto a roof of any inclination.

[0013] The hinge means, that have been formed by a weakening, preferably are arranged in combination with the aforementioned flexible fingers and possible drop apron. In that case it is preferred that the fingers originate from the side of the ventilation means that are situated near the water discharging strip. Because of the fingers, and to a lesser extent the drop apron, the device could be difficult to stack. However when according to the invention the strip can be folded along the fingers a configuration is realised that is rather flat, and as a result

easy to store. Additionally the device can be stacked well as a result.

[0014] The device according to the invention preferably is formed by injection moulding of poly olefin synthetic materials such as polyethene, or, which is preferable, polypropene. Polyester can also be used. The device may also be formed by extrusion of for instance PVC.

[0015] Some embodiments of the invention have been shown in the figures, as an elucidation thereof, in which:

Figure 1 shows a cross-section of an embodiment of the eave ventilation device according to the invention,

Figure 2 shows a view in perspective of the embodiment of figure 1,

Figure 3 shows a cross-section of an alternative embodiment of the eave ventilation device according to the invention,

Figure 4 shows a view in perspective of the embodiment of figure 3.

[0016] The eave ventilation device 1 according to the invention, is shown in cross-section, arranged on a tile roof. The eave ventilation device 1 can also be used very well on a slate-covered roof. Such a roof with roof tiles 6 is built up from rafters 14 having a fascia 2 at the crosscut side of the rafters 14. On the rafters 14 a roof boarding 4 has been arranged. The eave ventilation device 1 is arranged to the upper side of the fascia 2, that may form the boundary (fascia) of a roof verge. The water discharging strip 3 of the eave ventilation device 1 is here arranged on the roof boarding and its lower plane 30 lies flat on the upper side of the fascia 2. The eave ventilation device 1 is here fixed by means of attachment means 16 on the upper side of the fascia 2 as can be seen in the figure. The attachment means 16 may consist of a hole having a reinforcement around it so that as a result the device can be secured with nails without the device around it getting damaged.

[0017] In the embodiment shown the ventilating duct forming means 5 are formed by cross walls or partitions 7 that extend perpendicularly upward from the water discharging strip 3 above the fascia 2, in which at the upper side of the partitions 7 a continuous upper wall 8 is provided parallel to the upper side of the fascia 2. The upper ends of the roof tiles 16a hook behind batten 17. The lower ends of the bottom row of roof tiles 6a support on the upper wall 8 of the ventilating duct forming means 5, as a result of which a tilted position of said roof tiles is prevented. The ventilating duct forming means 5 are therefore situated just above the fascia 2, and near the end of the bottom row of roof tiles 6a.

[0018] On the outside of the roof boarding 4 a foil has been arranged, which runs smoothly and almost straight over the water discharging strip 3 up to the ventilating duct forming means 5. The ventilating duct forming means 5 ensure that underneath the roof tiles 6, 6a ventilation air can be carried through and over the roof boarding 4 so that no accumulation of moisture can arise here. According to for instance English building regulations a ventilation slit of at least 25 mm continuously is mandatory. Per running meter a ventilation surface of 250 mm^2 is created as a result.

[0019] On the upper side of the ventilating duct forming means 5, that means at the upper wall 8, an eaves board 9 has been arranged consisting of flexible fingers. Said eaves board closes off the remaining space between the lower side of the roof tiles (having an undulating lower side or one that is not level) and the roof boarding from birds and the like. In the figure the fingers are bent backward. However it is also possible to bend the fingers forward. Furthermore the ventilating means may be provided in an as it were inverted manner, in which case the upper wall 8' and the fingers 9' are situated at the roof side instead of at the gutter side. The upper wall 8' then preferably extends up to a vertical plane through the lower end of the inclined portion of the strip 3 (see dotted lines in figure 2).

[0020] At the front side over the entire length, the water discharging strip 3 merges into a drop apron 10. In the figure the drop apron 10 is formed by a curved section retaining its shape which at the lower side, that means the side facing the fascia, is provided with reinforcement ribs 11 that also ensure a placement plane and an abutment plane as well against the vertical outer plane of the fascia 2 and as a result give strength and support to the drop apron 10. The drop apron 10 may debouch in a roof drain gutter 13, as can be seen in the figure. Said roof drain 13 can be attached to the fascia by means of for instance attachment brackets 18. In the figure it can clearly be seen that the various parts of the eave ventilation device 1 are formed as one unity from preferably a synthetic material preferably by means of injection moulding.

[0021] In figure 1 at the location of the transition of the hinge portion of the strip 3 to its horizontal part, directly adjacent to the ventilating ducts, hinge means 12 are indicated. Said hinge means 12 are realised here by arranging a weakening over the entire length at the lower side. As can be seen the water discharging strip 3 as a result connects perfectly to the roof boarding 4.

[0022] Figure 2 show a view in perspective of the embodiment of the eave ventilation device 1 according to figure 1. For reasons of clarity the roof tiles and the rafters and roof boarding as well have been left out: only the eave ventilation device 1 and a part of the fascia 2 has been shown. It can clearly be seen here that the ventilating duct forming means 5 in this embodiment are formed by partitions 7, at least almost perpendicular to the water discharging strip 3 and almost perpendicular to the upper side above the fascia 2. The upper wall 8 has been integrally formed on said partitions 7, the eaves board 9 being situated at the upper side.

[0023] Figure 3 shows a cross-section of an alternative

embodiment of the eave ventilation device 1 according to the invention. Instead of the ribs 11 parts of the drop apron 10 are staggered in height with respect to each other in order for amongst others forming abutment planes 19. Furthermore there no longer is a continuous upper wall, but a series of wall members 20, which to the side merge into inclined cross walls 22. The inclined walls 22 and the inclined walls 23, 24, 25 improve the air flow (spoiler) and make it possible to nest the device 1 when stacking. This is improved because the hinge 12 is situated below the roof end of the upper wall 20, so that the inclined portion of the strip 3 can be folded up against the fingers 9. Between the parts 20 that stagger in height or the part that extend above the parts attached to the fascia, ventilating ducts have been formed. In them grids 21 are situated -in this case insect grids-. The bottom row of roof tiles 6a substantially rests on the elevated parts 20. The insect grids may be left out.

[0024] In the embodiment it can be seen that parts 19 of the drop apron 10 immediately after the fascia 2 run almost straight down along the fascia 2 to give support to the drop apron 10 against the fascia 2, instead of or possibly adjacent to ribs 11 of the embodiment according to figure 1. Because of the formation of staggered parts, parts of the eave ventilation device can be nested and stacked.

[0025] In figure 4 a view in perspective of the eave ventilation device 1 of figure 3 can be seen, also without roof tiles and roof structure.

[0026] Aspects of both embodiments shown can be combined if so desired.

Claims

1. Eave ventilation device (1) for attachment to the upper side of a fascia (2) of the eave, comprising a water discharging strip (3) to be put on the roof boarding (4) and on the upper side of the fascia, attachment means (16) for attaching the device to the fascia, and ventilating duct forming means (5) integrally formed with the strip (3) which means are entirely situated at the upper side of the water discharging strip facing away from the roof boarding, which ventilating duct forming means (5) also form supporting means for the roof tiles (6a) at the level of the fascia.

2. Eave ventilation device according to claim 1, in which the ventilating duct forming means (5) comprise spaced apart raised cross walls on the strip and one or more upper walls at the raised partitions and substantially parallel to the strip.

3. Eave ventilation device according to one or more of the preceding claims, in which the upper side of the ventilating duct forming means is provided with integrally formed flexible fingers (9) extending from the upper side of the strip, for ensuring connection against the lower side of the roof tiles (6a) that are not level.

4. Eave ventilation device according to one or more of the preceding claims, in which the strip is widened over almost the entire length with a drop apron (10) integrally formed thereto, hanging over the fascia, and in particular debouching in a roof drain gutter (12) attached to the fascia.

5. Eave ventilation device according to claim 4, in which the drop apron (10) is a curved section retaining its shape that is integrally formed with the water discharging strip.

6. Eave ventilation device according to claim 4 or 5, in which the drop apron (10) is provided with reinforcement means, preferably reinforcement ribs at the lower side facing the fascia.

7. Eave ventilation device according to claim 4-6, in which at the lower side facing the verge of the eave, in particular the fascia, the drop apron (10) is provided with integrally formed vertical abutment surfaces (11, 19) for abutting the side of the fascia.

8. Eave ventilation device according to claim 7, in which the reinforcement ribs also form vertical abutment surfaces.

9. Eave ventilation device according to claim 4-8, in which from the edge of the eave the drop apron (10), in mounted situation of the device, comprises vertical portions (11, 19) that abut the vertical portion of the fascia.

10. Eave ventilation device according to one or more of the preceding claims, in which the water discharging strip (3) is provided with hinge means (12) along the ventilating duct forming means.

11. Eave ventilation device according one or more of the preceding claims, in which fingers (9) originate from the side of the ventilation means that is situated near the water discharging strip.

12. Eave ventilation device according to claim 10 or 11, in which the hinge means (12) are formed by a weakening.

13. Eave ventilation device according to one or more of the preceding claims, in which the ventilating duct forming means comprise a grid on the strip.

14. Eave ventilation device according to claim 2, in which the ventilating duct forming means are upwardly bounded by one or more upper walls.

15. Eave ventilation device according to claim 2, in which the ventilating duct forming means are situated adjacent to the upper walls.

Patentansprüche

1. Lüftungsvorrichtung für Dachtraufe (1) zur Befestigung an der Oberseite einer Bohle (2) der Traufe, umfassend einen wasserabführenden Streifen (3) zur Auflagerung auf der Dachschalung (4) und auf der Oberseite der Bohle, Befestigungsmittel (16) zur Befestigung der Vorrichtung auf der Bohle, und integral mit dem Streifen (3) gebildete lüftungskanalbildende Mittel (5), welche Mittel ganz an der von der Dachschalung abgekehrten Oberseite des wasserabführenden Streifens gelegen sind, welche lüftungskanalbildende Mittel (5) zugleich Unterstützungsmittel für die Dachpfannen (6a) auf der Höhe der Bohle bilden.

2. Lüftungsvorrichtung für Dachtraufe nach Anspruch 1, wobei die lüftungskanalbildende Mittel (5) auf Abstand voneinander angeordnete aufstehende Querwände auf dem Streifen und eine oder mehrere Oberwände an den aufstehenden Trennwänden und hauptsächlich parallel zum Streifen umfassen.

3. Lüftungsvorrichtung für Dachtraufe nach einem oder mehreren der vorhergehenden Ansprüche, wobei die Oberseite der lüftungskanalbildenden Mittel mit sich von der Oberseite des Streifens erstreckenden, integral gebildeten flexibelen Fingern (9) versehen ist, zum Sichern der Verbindung gegen die Unterseite der nicht-flachen Dachpfannen (6a).

4. Lüftungsvorrichtung für Dachtraufe nach einem oder mehreren der vorhergehenden Ansprüche, wobei der Streifen über fast die ganze Länge mit einer damit integral gebildeten, über die Bohle hängenden, und insbesondere in eine an der Bohle befestigte Dachablaufrinne (12) mündenden, Tropfkante (10) erweitert ist.

5. Lüftungsvorrichtung für Dachtraufe nach Anspruch 4, wobei die Tropfkante (10) ein gebogenes, formfestes, mit dem wasserabführenden Streifen integral gebildetes, Profil ist.

6. Lüftungsvorrichtung für Dachtraufe nach Anspruch 4 oder 5, wobei die Tropfkante (10) mit Verstärkungsmitteln versehen ist, vorzugsweise Verstärkungsrippen an der der Bohle zugekehrten Unterseite.

7. Lüftungsvorrichtung für Dachtraufe nach Anspruch 4-6, wobei die Tropfkante (10) an der dem Ortgang der Traufe, insbesondere der Bohle, zugekehrten Unterseite mit integral gebildeten vertikalen Stoßflächen (11,19) versehen ist, um an die Seitenkante der Bohle zu stoßen.

8. Lüftungsvorrichtung für Dachtraufe nach Anspruch 7, wobei die Verstärkungsrippen zugleich vertikale Stoßflächen bilden.

9. Lüftungsvorrichtung für Dachtraufe nach Anspruch 4-8, wobei die Tropfkante (10), in montiertem Zustand der Vorrichtung, ab dem Rand der Traufe vertikale Abschnitte (11, 19) umfaßt, die an den vertikalen Abschnitt der Traufe stoßen.

10. Lüftungsvorrichtung für Dachtraufe nach einem oder mehreren der vorhergehenden Ansprüche, wobei der wasserabführende Streifen (3) entlang den lüftungskanalbildenden Mitteln mit Gelenkmitteln (12) versehen ist.

11. Lüftungsvorrichtung für Dachtraufe nach einem oder mehreren der vorhergehenden Ansprüche, wobei die Finger (9) ihren Urspruch in der Seite der Lüftungsmittel nahe dem wasserabführenden Streifen haben.

12. Lüftungsvorrichtung für Dachtraufe nach Anspruch 10 oder 11, wobei die Gelenkmittel (12) durch eine Schwächung gebildet werden.

13. Lüftungsvorrichtung für Dachtraufe nach einem oder mehreren der vorhergehenden Ansprüche, wobei die lüftungskanalbildenden Mittel ein Gitter auf dem Streifen umfassen.

14. Lüftungsvorrichtung für Dachtraufe nach Anspruch 2, wobei die lüftungskanalbildenden Mittel durch eine oder mehrere Oberwände nach oben begrenzt sind.

15. Lüftungsvorrichtung für Dachtraufe nach Anspruch 2, wobei die lüftungskanalbildenden Mittel neben den Oberwänden gelegen sind.

Revendications

1. Dispositif de ventilation d'avant-toit (1) pour l'attache au côté supérieur d'une bordure (2) d'un avant-toit, comprenant une bande de décharge d'eau (3) à poser sur la sous-toiture (4) et sur le côté supérieur de la bordure, des moyens d'attache (16) pour attacher le dispositif à la bordure, et des moyens de formation de conduit de ventilation (5) solidairement formés avec la bande (3), lesquels moyens sont entièrement situés au niveau du côté supérieur de la bande de décharge d'eau opposé de la sous-toiture, lesquels moyens de formation de conduit de ventilation (5)

formant également des moyens de support pour les tuiles (6a) au niveau de la bordure.

2. Dispositif de ventilation d'avant-toit selon la revendication 1, dans lequel les moyens de formation de conduit de ventilation (5) comprennent des murs transversales levés et espacés sur la bande et une ou plusieurs parois supé-rieures au niveau des cloisons levées et sensi-blement parallèles à la bande.

3. Dispositif de ventilation d'avant-toit selon une ou plusieurs des revendications précédentes, dans lequel le côté supérieur des moyens de formation de conduit de ventilation est pourvu de doigts flexibles solidairement formés (9) s'étendant à partir du côté supérieur de la bande, pour assurer le raccordement contre le côté inférieur des tuiles (6a) qui ne sont pas à niveau.

4. Dispositif de ventilation d'avant-toit selon une ou plusieurs des revendications précédentes, dans lequel la bande est élargie sur pratiquement la totalité de la longueur avec une allège de ressaut vertical (10) solidairement formée avec elle, s'accrochant sur la bordure, et débouchant en particulier dans une gouttière d'évacuation de toit (12) attachée à la bordure.

5. Dispositif de ventilation d'avant-toit selon la revendication 4, dans lequel l'allège de ressaut vertical (10) est une profile courbée conservant sa forme qui est solidairement formée avec la bande de décharge d'eau.

6. Dispositif de ventilation d'avant-toit selon la revendication 4 ou 5, dans lequel l'allège de ressaut vertical (10) est pourvue de moyens de renforcement, de préférence des nervures de renforcement au niveau du côté inférieur faisant face à la bordure.

7. Dispositif de ventilation d'avant-toit selon les revendications 4 à 6, dans lequel au niveau du côté inférieur faisant face à la saillie d'avant-toit, en particulier la bordure, l'allège de ressaut vertical (10) est pourvue de surfaces verticales de butée formées solidairement (11, 19) pour venir en butée contre le côté de la bordure.

8. Dispositif de ventilation d'avant-toit selon la revendication 7, dans lequel les nervures de renforcement forment également des surfaces de butée verticales.

9. Dispositif de ventilation d'avant-toit selon les revendications 4 à 8, dans lequel à partir du bord de l'avant-toit, l'allège de ressaut vertical (10), en situation de montage du dispositif, comprend des parties verticales (11, 19) qui viennent en butée contre la partie verticale de la bordure.

10. Dispositif de ventilation d'avant-toit selon l'une ou plusieurs des revendications précédentes, dans lequel la bande de décharge d'eau (3) est pourvue de moyens de charnière (12) le long des moyens de formation de conduit de ventilation.

11. Dispositif de ventilation d'avant-toit selon une ou plusieurs des revendications précédentes, dans lequel des doigts (9) prennent naissance à partir du côté des moyens de ventilation qui est situé près de la bande de décharge d'eau.

12. Dispositif de ventilation d'avant-toit selon la revendication 10 ou 11, dans lequel les moyens de charnière (12) sont formés par un affaiblissement.

13. Dispositif de ventilation d'avant-toit selon une ou plusieurs des revendications précédentes, dans lequel les moyens de formation de conduit de ventilation comprennent une grille sur la bande.

14. Dispositif de ventilation d'avant-toit selon la revendication 2, dans lequel les moyens de formation de conduit de ventilation sont délimités vers le haut par une ou plusieurs parois supérieures.

15. Dispositif de ventilation d'avant-toit selon la revendication 2, dans lequel les moyen de formation de conduit de ventilation sont situés de manière adjacente aux parois supérieures.

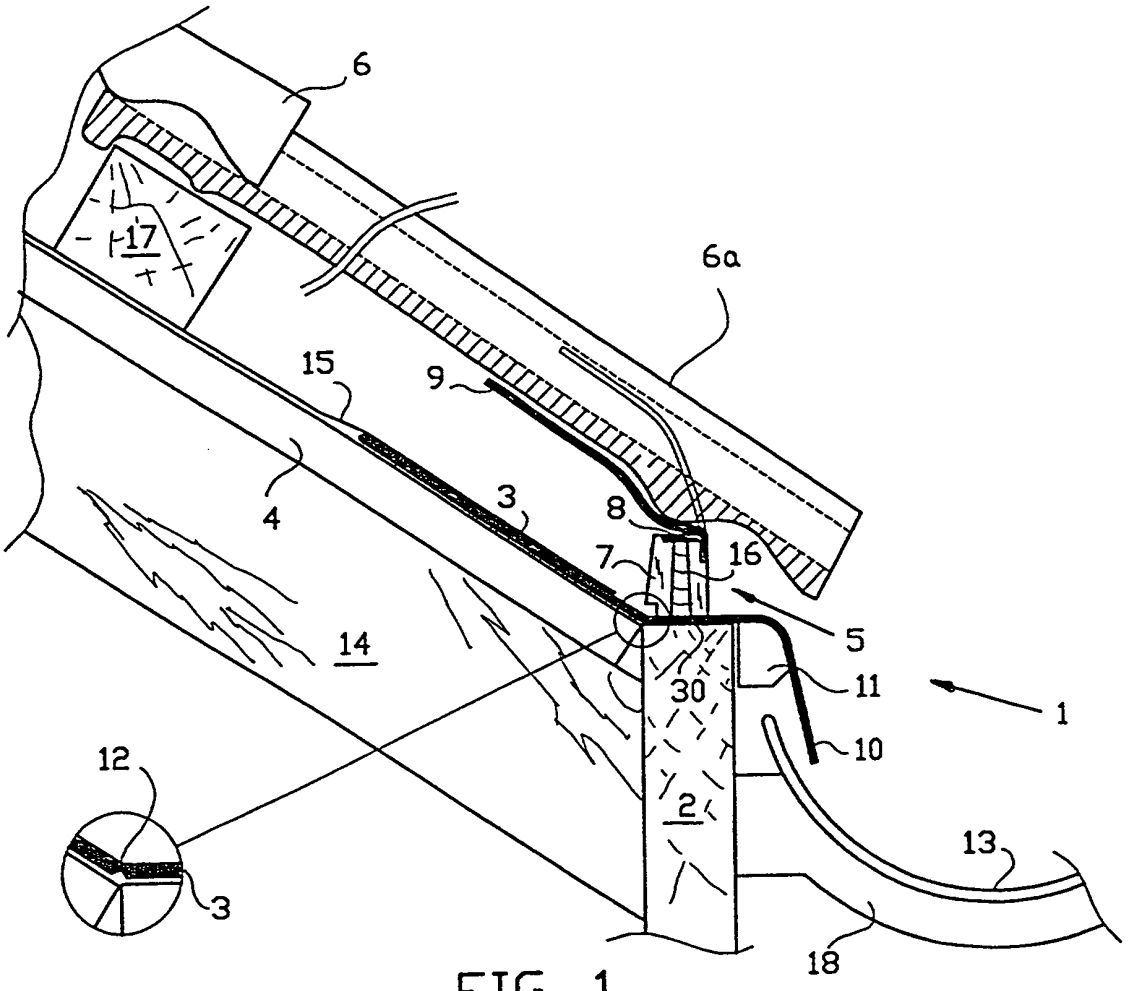

FIG. 1

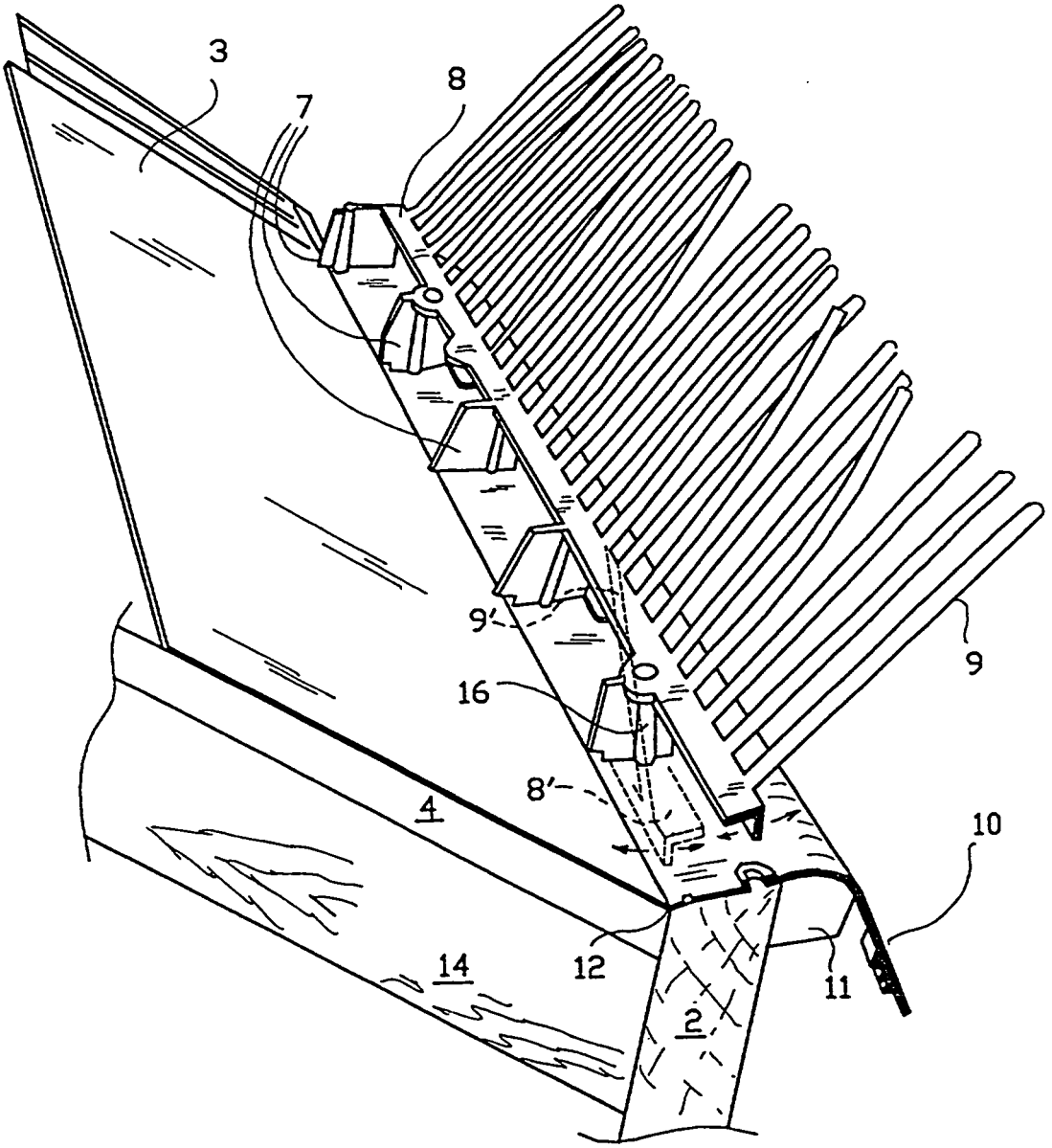

FIG. 2

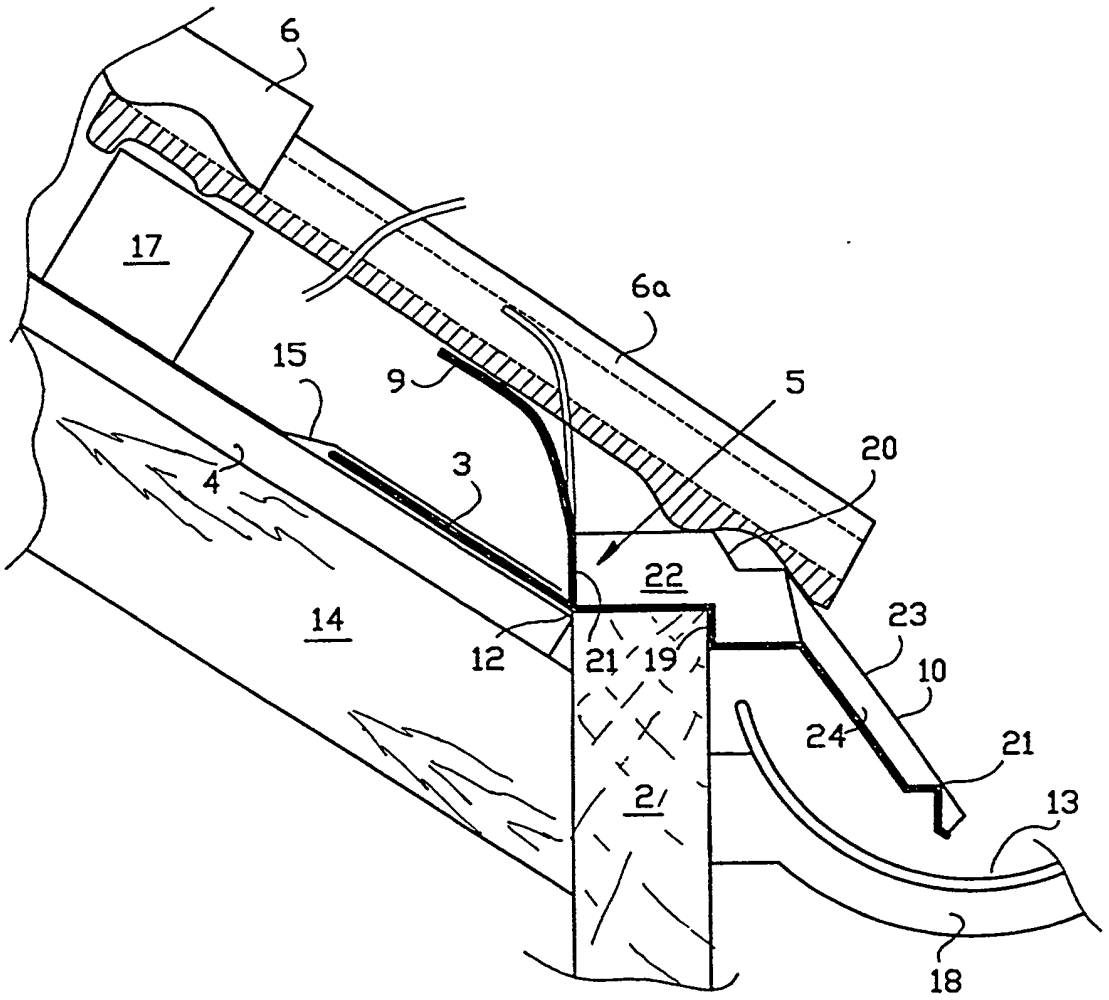

FIG. 3

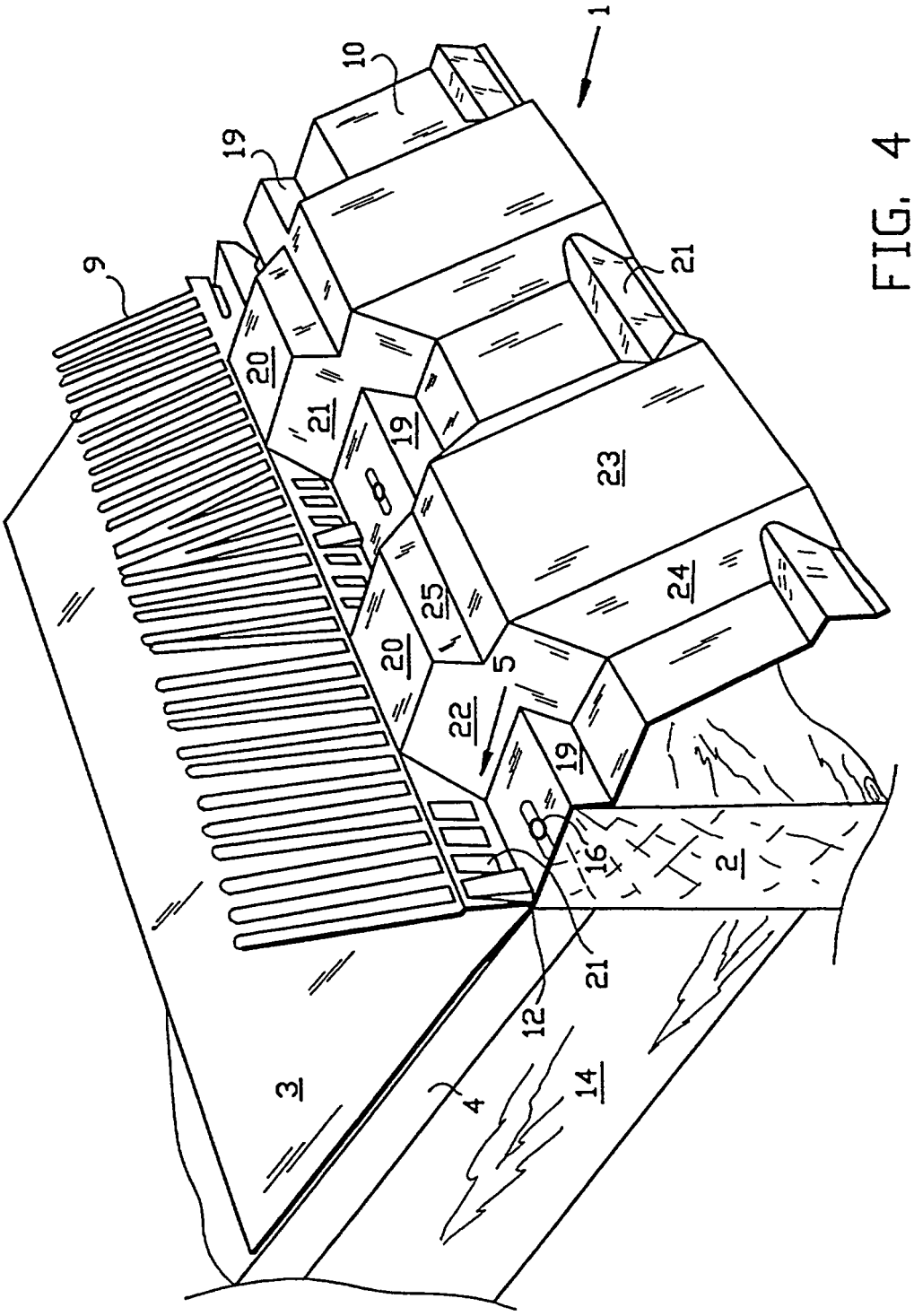

FIG. 4