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(54) Eave structure

(57) Eave structure of a building, such as a house, comprising a roof gutter (6) with a front wall (7), a bottom wall (8) and a rear wall (9), in which the eave comprises the lower ends of a number of rafters (3) extending form the outer wall (2) of the building, provided with a substantially vertical fascia extending along the eave, furthermore comprising a layer of roofing felt (28) which is supported on the rafters (3), in which between the rafters (3), near the fascia, and the layer of roofing felt (28) a supporting body (13) is placed, which extends in the longitudinal direction of the eave, and keeps the roofing felt layer (28) at a distance from the upper edge of the fascia, in which the supporting body (13) has a lower side (29) which is supported on the upper side (4) of the rafters (3) and has an upper side (31) extending from the upper side (4) of the rafters (3) to above the upper edge of the gutter (6) with a supporting surface for the layer of roofing felt (28), and has a front wall (33) which connects the upper side (31) and the lower side (29) to each other and is situated at a distance from the upper edge of the roof gutter (6) for defining a ventilation passage therewith.

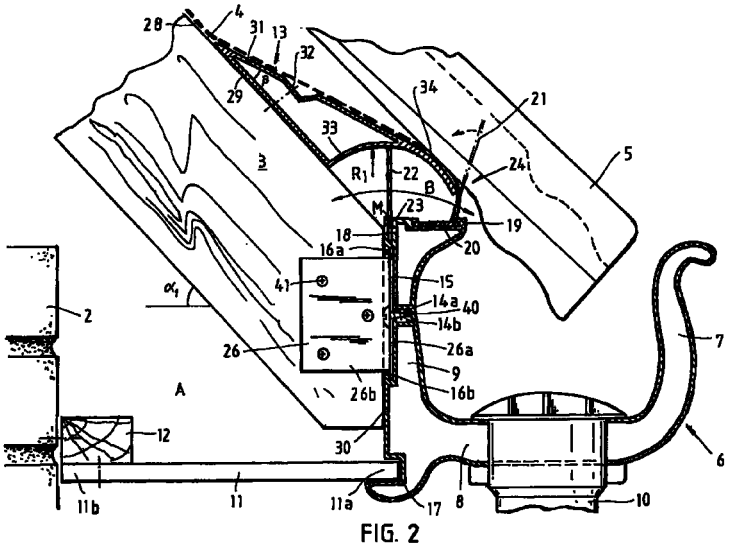

FIG. 2

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Description

[0001] The invention relates to an eave structure comprising a roof gutter with a front wall, a bottom wall and a rear wall, in which the eave comprises the lower ends of a number of rafters, on which a substantially vertical fascia extending along the eave has been arranged.

[0002] The rafters can project from the wall of the building concerned, the space which is formed by the projecting ends of the rafters is closed downwards by means of a lower closing called soffit(board). In all cases the space between the rafter ends is closed to the outside by means of a fascia. This fascia can be used as a fastening possibility for a roof gutter situated on the outside. In the case of a projecting eave the roof gutter can however also be situated within the fascia, the roof gutter then being manufactured in situ and the fascia forming the outer or front wall of the roof gutter.

[0003] From one aspect the invention provides an improved ventilation over the upper edge of the roof gutter, for the space between the rafters.

[0004] The eave structure then comprises a layer of roofing felt which is supported on the rafters. To ventilate said space it is known to mount a through-going ventilation profile on the fascia, which supports the edge area of the roofing felt, as well as the edge area of the lowest, flat tiles situated above it. The layer of roofing felt here is unsupported over a length and vulnerable there. This ventilation profile can be applied together with a separate bird screen in case of undulatory tiles, but then the roofing felt is pierced by the fastening nails for the bird screen.

[0005] It is furthermore known (Jumbovent) in eave structures with undulatory tiles to fit a combined bird screen/ventilation grid with connection fillet on the fascia, in which the connection fillet is supported by tilting fillets fastened to the upper side of the rafters. Because of the permanent presence of the bird screen this structure is unsuitable for use with flat tiles. The mounting is laborious and time-consuming because of the necessary tilting fillets. Furthermore the grid formed in and the integrally formed bird screen make the product unsuitable for simple and cheap manufacturing.

[0006] According to the invention this is improved because between the rafters, near the roof gutter, and the layer of roofing felt a supporting body is placed, which extends in the longitudinal direction of the eave, and keeps the roofing felt layer at a distance from the upper edge of the roof gutter, in which the supporting body has a lower side which is supported on the upper side of the rafters and has an upper side extending from the upper side of the rafters to above the upper edge of the gutter with a supporting surface for the layer of roofing felt, and has a front wall which connects the upper side and the lower side of the body and is situated at a distance from the upper edge of the roof gutter for defining a ventilation passage therewith.

[0007] The supporting body according to the invention as it were combines in one a tilting fillet and a roofing felt support. In this way the ventilation provisions can be kept simple, such as by leaving a passage free between the supporting body and the upper edge of the gutter. Moreover the supporting body provides a through going stable support for the roofing felt. Because the function of the walls of the supporting body is constant over the length the supporting body can be manufactured cheap and simple by means of extrusion.

[0008] It is noted that from the British patent application 2.131.845 an eave structure is known with a profile for "over fascia ventilation", which is placed on the fascia. On the outside of the profile a portion is attached which extends downwards and to the outside, which drains into the gutter. On the upper inner edge of the profile a separate plate is attached which extends obliquely to the inside and upwards and which forms a support for the roofing felt. This plate can be free from the upper side of the rafters.

[0009] Preferably the upper side and the lower side enclose an angle of 15 degrees at the most (being the gentlest roof slope allowable) - preferably a little less than 15 degrees - (in view of the slope of the roofing felt). Thus it is obtained that with only one embodiment of the supporting body a large range of roof slopes can be provided.

[0010] A further advantage is provided when the upper side of the supporting body protrudes in relation to the lower side to form an overhanging end portion. In this way the actual air passage over the roof gutter will be continuously variably adjusted at a change of the roof slope.

[0011] The variety of the application of the supporting body is further increased if the end portion of the upper side of the supporting body situated on the side of the roof gutter forms a curved supporting surface.

[0012] Preferably the front wall has a concave course, in order to further the flow of air over the upper edge of the roof gutter. If the front wall has a circular course, of which the centre is at least almost coinciding with the rear end of the upper edge of the roof gutter, then a same vertical distance in relation to the upper end of the rafter will be present at different roof slopes.

[0013] The supporting body further offers the advantage that it can simply function as lowest batten.

[0014] Preferably the supporting body is formed with a bird screen, in order to thus economize on the number of parts necessary for a complete eave structure. The place of the supporting body is used here for performing an extra function.

[0015] In an advantageous manner the bird screen is formed at the overhanging end portion, so that an obstacle for birds is provided which is situated to the outside as much as possible, which moreover is easy to mould.

[0016] Preferably the bird screen is integrally formed to the supporting body by means of a hinge area

integrally formed with it. In this way moments exerted on the grid-shaped part of the bird screen, for instance formed as a number of fingers, are not or hardly transferred to the supporting body. The deformation is concentrated in the hinge area and can be checked by suitable designing.

[0017] Advantageously the bird screen comprises a number of fingers protruding from the supporting body, which each reach into the hinge area, so that the fingers can individually be turned in the vertical plane, without affecting each other's position to an undesired degree.

[0018] It is possible here that the hinge area is made from elastomer and the rest of the supporting body, including the bird screen, of a relatively rigid synthetic. In this way lifting of a tile which rests on one of the fingers can be prevented. The fingers may extend virtually straight, but at various angles - in case of a curved tile-. The fingers preferably extend from the eave, so away from the house.

[0019] Preferably the supporting body, including the bird screen, is made by means of extrusion, in particular co-extrusion, in which the bird screen has afterwards been provided with fingers by means of cutting or punching and the like. In this way a versatile supporting body can be made rapidly, while the bird screen fingers can be sufficiently given each desired thickness, because the integrally formed hinge area provides the necessary compliance.

[0020] From a further aspect the invention provides a bird screen comprising a base strip and a number of fingers extending from the base strip, the fingers being connected to the base strip by means of a hinge area. Preferably the fingers reach into the hinge area. Advantageously the hinge area has a substantially higher elasticity than the fingers.

[0021] Preferably the fingers are connected to each other by means of a relatively elastic area.

[0022] Thus a bird screen is provided, in which during the design and the choice of material the flexibility of the fingers themselves does not have to be taken into account.

[0023] The bird screen can advantageously be made by means of co-extrusion, in which the base strip and a finger strip have been made of the same material -for instance material which can be nailed for securing the base strip by nailing- and in between the hinge forming material is situated. The fingers are obtained after extrusion by cutting in the finger strip.

[0024] From another aspect the patent provides an eave structure and a roof gutter therefor, which is simple and can be built easily.

[0025] For that purpose the invention provides an eave structure of the kind described in the preamble, in which the fascia is integral with the roof gutter and defines the rear wall thereof. When mounting the roof gutter a closing-off of the space between the rafters in outward direction is provided at once. In this way the work is made considerably easier and shorter. Moreover as a result of the unity of material of fascia and roof gutter the sight is improved.

[0026] Preferably the rear wall of the roof gutter is provided with means for fastening against the lower head ends of the rafters. In this way the gutter brackets can be left out and they do not have be taken into account in the area above the roof gutter and on the rafters when designing the structure.

[0027] Simple mounting of the roof gutter according to the invention is furthered if the rear wall of the roof gutter is provided with a recessed space, extending in longitudinal direction of the gutter, which space is open towards the roof and bounded by at least one confining edge, preferably two confining edges situated opposite one another and facing one another, in which space first fastening members have been accommodated, which form an integral part with second fastening members which have been fastened to the rafters. These fastening members can be slid in the rear wall of the roof gutter beforehand in order to be fastened on the rafters after that together with the gutter.

[0028] In case the first and second fastening members are perpendicular to one another and the second fastening member is situated in a vertical plane, mounting on the sides of the rafters can easily take place.

[0029] Advantageously, in case the eave structure is formed by the earlier mentioned overhanging eave, according to the invention, the rear wall of the roof gutter is furthermore provided with a receiving space for the soffit, which space opens towards the roof.

[0030] In this way further savings are made on the number of parts and the number of necessary mounting actions.

[0031] Further simplification can be obtained if the upper edge of the rear wall of the roof gutter is provided with a receiving space for accommodating the fastening foot of an insect screen.

[0032] The invention will be elucidated on the basis of an exemplary embodiment shown in the accompanying drawings in which:

Figure 1 is a perspective view on an eave structure according to the invention;

Figure 2 is a vertical cross section through the eave structure of figure 1; and

Figure 3 is a picture comparable to the one of figure 2, only with a smaller roof slope.

[0033] In figure 1 an exemplary embodiment of the eave structure according to the invention is shown in a schematical way. The eave structure 1 projecting from the wall 2 comprises the upper end of a wall 2, a gutter 6, lower ends of rafters 3, tiles 5 and a soffit 11 for a space A between the gutter 6 and wall 2 and between the rafters 3.

[0034] The gutter 6 substantially comprises a front

wall 7, a bottom wall 8 and a rear wall 9. Water which accumulates in the gutter is discharged via a connection 10 fitted in the bottom wall 8 to a rainwater discharge which is not further shown. As more clearly shown in the figures 2 and 3 the rear wall 9 of the roof gutter 6 is fastened on the head surfaces 30 of the lower ends of the rafters 3.

[0035] Finally it can be schematically seen in figure 1 that on the upper edges 4 of the rafters 3 a filling piece 13 has been placed, which amongst others offers support to the lowest row of tiles 5.

[0036] The roof gutter 6 shown in the figures 2 and 3 is formed by extrusion, for instance from PVC as also described in the Dutch patent application 92.02157 in the name of applicant. The front wall 7, bottom wall 8 and rear wall 9 will then be provided with stiffening partitions extending in longitudinal direction, which here however have been left out. Indeed shown are two through going longitudinal partitions 14a, 14b which define a fastening hole for a screw 40, which will yet be discussed below.

[0037] It can clearly be seen that the rear wall 9 at the bottom extends beyond the bottom wall 8. The rear wall 9 here extends over almost the entire height of the end of the eave structure. As a result the rear wall 9 closes off the space A between and below the rafters 3 in horizontal direction. A separate fascia therefore is not necessary.

[0038] The relative great height of the rear wall 9 of the roof gutter 6 makes it possible to have an extra function, and namely by means of integrally forming longitudinal groove 17, in which the front edge 11a of soffit 11 can be accommodated. The opposite edge 11b of this soffit 11 has been fastened to fillet 12, which itself has been fastened to the wall 2. In this way the space A has also been closed off in downward direction.

[0039] The rear wall 9 of the roof gutter 6 has been provided with yet another receiving space, and namely flat slot 15, which above and below has been bounded in rearward direction by confining lips 16a and 16b. The receiving space 15 is in this way suitable to offer close fitting accommodation to plate-shaped leg 26a of fastening angle piece 26. The fastening angle piece 26 further comprises a fastening plate 26b perpendicular to fastening plate 26a. During mounting the roof gutter 6 on the rafters 3 the angle pieces 26 are first slid in the receiving space 25 with their legs 26a until near the correct position in longitudinal direction. After that the roof gutter 6 is put against the rafters 3, and the angle pieces 26 are slid until the legs 26b abut the sides of the rafters 3. Then the fastening plates 26b are secured on the sides of the rafters 3 with the help of screws 41. The location of the fastening plate 26a on the rear wall 9 can be secured with the help of screw 40, of which the screw thread cuts in in the aforementioned longitudinal partitions 14a and 14b. The mounting can take place such that the rear wall of the gutter 9 abuts the head surface 30 of the rafters 3.

[0040] The upper edge of the rear wall 9 of the roof gutter 6 has been provided with a through going, slot-shaped receiving space 18, in which narrow foot 23 of an insect screen 22 with holes of 4 mm is fittingly accommodated.

[0041] The upper edge of the rear wall 9 is furthermore provided with a flat receiving space 19, which just like the receiving space 15 has been provided with two confining edges, to fittingly accommodate the fastening foot 20 of the bird screen 24. It can be seen that the free projecting, flexible lips 21 of the bird screen are bent or are straight up, depending on the location in longitudinal direction in relation to the undulatory tiles 5. The bird screen 24 has been left out in figure 1, in which the insect screen 22 can indeed be seen. The space 9 can be formed inclined to the outside for improved discharge to the outside of water fallen on the bird screen 20.

[0042] In the figures 2 and 3 it can be seen that on the upper surface of the rafters 3 a layer of roofing felt 28 is supported. Near the eave it has to be ensured that the roofing felt can discharge the water possibly running off it, to the roof gutter 6. Usually the roofing felt will then have to be guided a little upwards in relation to the upper edge 4 of the rafters 3. It is furthermore desired that the space A is ventilated. This can be obtained by providing holes in the soffit 11, which however for aesthetic reasons may not be desired.

[0043] With the supporting body 13 shown in the figures 2 and 3 a ventilation passage over the upper edge of the rear wall 9 of the roof gutter 6 is provided in a simple way. The supporting body 13 consists of an elongated extruded profile for instance PVC, which is substantially wedge-shaped and with a lower wall 29 abuts the upper edge 4 of the rafters 3 and has an upper wall 31 which is under an angle β of about 14.5° in relation to the lower wall 29 and is provided with a recess 32 for recessed accommodation of a fastening screw for fastening the supporting body 13 on the rafters 3. The roofing felt 28 is thus supported in a in longitudinal direction through going manner and smoothly merges from the upper edge 4 of the rafters 3 into a diverging course from that upper edge 4 to end at a distance above the upper edge of the rear wall 9 of the roof gutter 6. The upper edge 31 smoothly ends in a downwardly curved wall portion 34, which not only offers a supporting surface to the roofing felt 28 but also to the tile 5. The curved wall portion 34 also forms the continuation of the curved front wall 33, which forms the connection between the lower end of the lower wall 29 and the end portion 34. The front wall 33 and the wall portion 34 have the same circular curvature with radius R1. The supporting body 13 here is mounted such to the rafter 3 that the centre M of the radius R1 coincides with the insect screen.

[0044] It can be seen that the front wall 33 and the wall portion 34 form a smooth boundary for a channel or passage for the flow of air in the directions B between the open air and the space A. In that passage the insect

screen 22 can be placed, if desired, which will then reach to the curved wall portions.

[0045] The supporting body 13 is mounted such here that the wall portion 34 reaches up to near the bird screen 24.

[0046] The end portion 34 can also form a running-off surface for water running off over the roofing felt 28.

[0047] Because of the circular curve of the front wall 33 and the wall portion 34 the supporting body 13 can without further adaptations be applied with roof slopes of various sizes. Also the insect screen 22 does not need any adjustment here, such as a lowering. In figure 2 the roof slope $\alpha 1$ shown is about 45°. In figure 3 by way of example a roof slope $\alpha 2$ of 18° is shown. Apart form the somewhat altered shape of the lower end of the rafters 3 the same parts have been used as in the arrangement of figure 2. It can be seen that the supporting body 13, in particular its overhanging wall portion 34, still offers support to the roofing felt 28 and the tiles 5 and that running off of water has been guaranteed. Furthermore a flow passage B with sufficient cross section is still provided, in which passage also - if necessary - the insect screen 22 can be situated. The actual passage in figure 3 is larger than in figure 2, because the overhanging wall portion 34 in figure 3 reaches closer to the upper edge of the rear wall 9. This is in accordance with the standards, according to which the ventilation passage in a larger roof slope should be smaller than in a smaller roof slope. With the supporting body according to the invention the adjustment of the passage to the roof slope is realized by itself, without another supporting body being necessary.

[0048] It will be clear that the supporting body 13 can also be applied in those cases in which use is made of flat tiles 5 and a bird screen is superfluous. The tiles will then abut and close off the wall portion 34 of the supporting body 13.

[0049] In figure 4 the supporting body 113, which substantially corresponds to the supporting body 13, is arranged on the upper surface 104 of the rafters 103. The eave structure shown, further comprises a roof gutter 106 with front wall 107, bottom wall 108 and rear wall 109. A rainwater discharge 110 reaches down from the upper wall 108.

[0050] As can also been seen in figure 5, a slot 118 has been arranged at the upper edge of the rear wall 109, in which the base portion 123 of the insect screen 122 has been accommodated. The insect screen 122 reaches to the concave surface of the front wall 133 of the supporting body 113.

[0051] Contrary to the construction according to the figures 1-3 the upper edge of the rear wall 109 of the gutter 106 has not been provided here with an attachment possibility for a bird screen, but it is designed narrower -so that material is economized upon- and the bird screen is no longer partially situated in front of the insect screen 122, but it either forms the continuation or an integral part of the end portion 134.

[0052] The bird screen 124 is integrally formed to the end portion 134 and comprises a series of lips or fingers 121, which have been made of the same material as the supporting body 113 and is integrally formed with it by means of extrusion.

[0053] During extrusion a strip of another, more flexible kind of material has been co-extruded, which at the location of 160 forms a hinge between the end portion 134 and the lips 121. After extrusion, in which the lips are still formed as one continuing lip strip, the strip is cut in or punched from the outside until in the hinge area 160, so that the lips 121 which are then obtained can be turned and oriented to a large extent independent from each other. In this way tile 105 is less influenced by upward forces exerted by the otherwise curved lips of a bird screen.

[0054] The end portion 134 has an edge 134a which is somewhat curved downwards, in order to keep the root area for the lips 121 and the hinge area 160 at a distance form the tile.

[0055] As a result of the hinge connection of the lips fingers to the rest of the supporting body, the fingers will exert no or hardly any moments on the end portion which forms the base portion of the bird screen, so that this portion can always remain intact and undeformed. The deformation is as it were concentrated in the narrow hinge area 160.

[0056] As can be seen the lips 121 extend to the fore. This increases the ease with which the lowest row of tiles can be placed. As a result of the location parallel to the insect screen 122 their length can in comparison to the embodiment according to the figures 1-3 be kept limited, and with that the use of material.

[0057] The supporting body including the bird screen can be made of PVC, which can be relatively rigid. The co-extruded hinge area 160 can here be made of a softer material, such as soft PVC or TPE. The stiffness of the hinge area can be adjusted to the desires of the specific case.

[0058] In the figures 6A and 6B this idea has been brought about in a separate bird screen 224. This bird screen can be used in usual eave structure arrangements, in which a continuous relatively rigid strip 234 has been provided for being able to nail the bird screen 224 in an eave structure. The strip 234 is co-extruded with a lip strip 221 and a hinge area 260, which again is made of a more flexible material, such as a TPE. After extrusion the lip strip is cut in, as can clearly be seen until in the hinge area 260. Between the remaining fingers 221 there no longer is a bridge or connection of relatively rigid material. The position of the fingers is in this way controllable to a large extent. In a simple manner by means of suitable design of the hinge area the turnability of the fingers can be adjusted to desire. The base strip is not or hardly loaded by moments to be transferred to the fingers.

Claims

1. Eave structure of a building, such as a house, comprising a roof gutter with a front wall, a bottom wall and a rear wall, in which the eave comprises the lower ends of a number of rafters, provided with a substantially vertical fascia extending along the eave, furthermore comprising a layer of roofing felt which is supported on the rafters, in which between the rafters, near the fascia, and the layer of roofing felt a supporting body is placed, which extends in the longitudinal direction of the eave, and keeps the roofing felt layer at a distance from the upper edge of the fascia, in which the supporting body has a lower side which is supported on the upper side of the rafters and has an upper side extending from the upper side of the rafters to above the upper edge of the gutter with a supporting surface for the layer of roofing felt, and has a front wall which connects the upper side and the lower side to each other and is situated at a distance from the upper edge of the roof gutter for defining a ventilation passage therewith.

2. Eave structure according to claim 1, in which the upper side and the lower side enclose an angle of 15 degrees at the most, preferably a little less than 15 degrees.

3. Eave structure according to claim 1 or 2, in which the upper side of the supporting body forms an overhanging end portion in relation to the lower side.

4. Eave structure according to claim 1, 2 or 3, in which the end portion of the upper side of the supporting body situated on the side of the roof gutter forms a curved supporting surface.

5. Eave structure according to any one of the claims 1-4, in which the front wall has a concave course, preferably a circular course, the centre of which at least almost coinciding with the rear end of the upper edge of the roof gutter.

6. Eave structure according to any one of the claims 1-6, in which the supporting body functions as lowest batten.

7. Eave structure according to any one of the preceding claims, in which the supporting body is manufactured by means of extrusion, preferably PVC.

8. Eave structure according to any one of the preceding claims, in which the supporting body is shaped like a hollow profile.

9. Eave structure according to any one of the preceding claims, in which the supporting body is formed with a bird screen, preferably at the overhanging end portion, if such is present.

10. Eave structure according to claim 9, in which the bird screen is integrally formed to the supporting body by means of an integrally formed hinge area.

11. Eave structure according to claim 10, in which the bird screen comprises a number of fingers or lips extending from the supporting body -preferably in a direction away from the eave-, which each at an end extend into the hinge area or are connected to each other merely via the hinge area.

12. Eave structure according to claim 9, 10 or 11, in which the hinge area is manufactured from an elastomer and the rest of the supporting body, including the bird screen, of a relatively rigid synthetic.

13. Eave structure according to claim 12, in which the supporting body, including the bird screen, are made by means of extrusion, in particular co-extrusion, in which the bird screen has been afterwards provided with fingers or lips by means of punching and the like.

14. Eave structure according to any one of the preceding claims, in which the space between the rafters overhangs the outer wall of the building and is substantially closed off for vertical transport of air of the outside air and the space between the rafters.

15. Eave structure according to any one of the preceding claims, in which the fascia forms a unity with the roof gutter and defines its rear wall, in which preferably the rear wall of the roof gutter is provided with means for fastening to the lower head ends of the rafters, the rear wall of the roof gutter preferably being provided with a recessed space extending in longitudinal direction of the gutter, which space is open towards the roof and limited by at least a confining edge, preferably two confining edges facing each other, in which space first fastening members are accommodated, which are a unity with the second fastening members which are attached to the rafters, in which preferably the first and second fastening members are perpendicular to each other and the second fastening member is situated in a vertical plane, in which the first and/or second fastening member is preferably plate-shaped.

16. Eave structure according to claim 15, in which the eave projects from the wall and comprises a soffit and the rear wall of the roof gutter further being provided with receiving space for the soffit which opens towards the roof.

17. Eave structure according to any one of the preceding claims, in which the upper edge of the rear wall of the roof gutter is provided with a receiving space for receiving a fastening foot of an insect screen.

18. Supporting body for use in the eave structure according to any one of the preceding claims, having a lower side, an upper side and a front wall connecting these to each other, the front wall having a concave course, preferably circular.

19. Supporting body according to claim 18, in which the upper side of the supporting body forms an overhanging end portion in relation to the lower side.

20. Supporting body according to claim 19, in which the end portion of the upper side of the supporting body situated on the side of the roof gutter forms a curved supporting surface.

21. Supporting body according to claim 18, 19 or 20, in which the upper side and the lower side enclose an angle of 15 degrees at the most, preferably a little less than 15 degrees.

22. Supporting body according to any one of the claims 18-21, in which the supporting body is manufactured by means of extrusion, preferably from PVC, in which the supporting body is preferably formed like a hollow profile.

23. Bird screen comprising a base strip and a number of fingers extending from the base strip, in which the fingers are connected to the base strip by means of a hinge area.

24. Bird screen according to claim 23, in which the fingers extend into the hinge area.

25. Bird screen according to claim 24, in which the hinge area has a substantially higher elasticity than the fingers.

26. Bird screen according to claim 23, 24 or 25, in which the fingers are connected to each other by means of a relatively elastic area.

27. Bird screen comprising a base strip and a number of fingers extending from the base strip, in which the fingers are connected to each other by means of relatively deformable, preferably elastically deformable, integrally formed material.

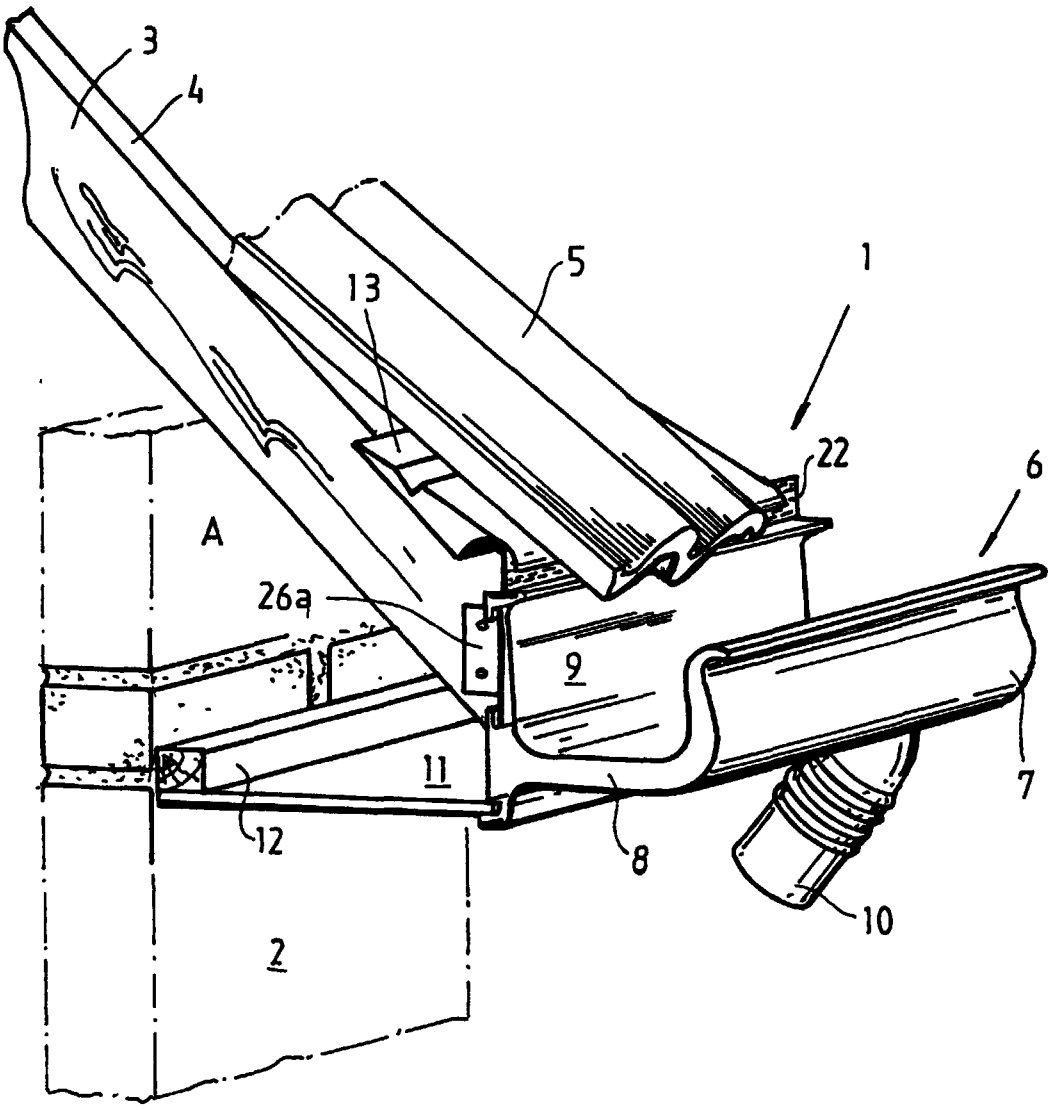

FIG. 1

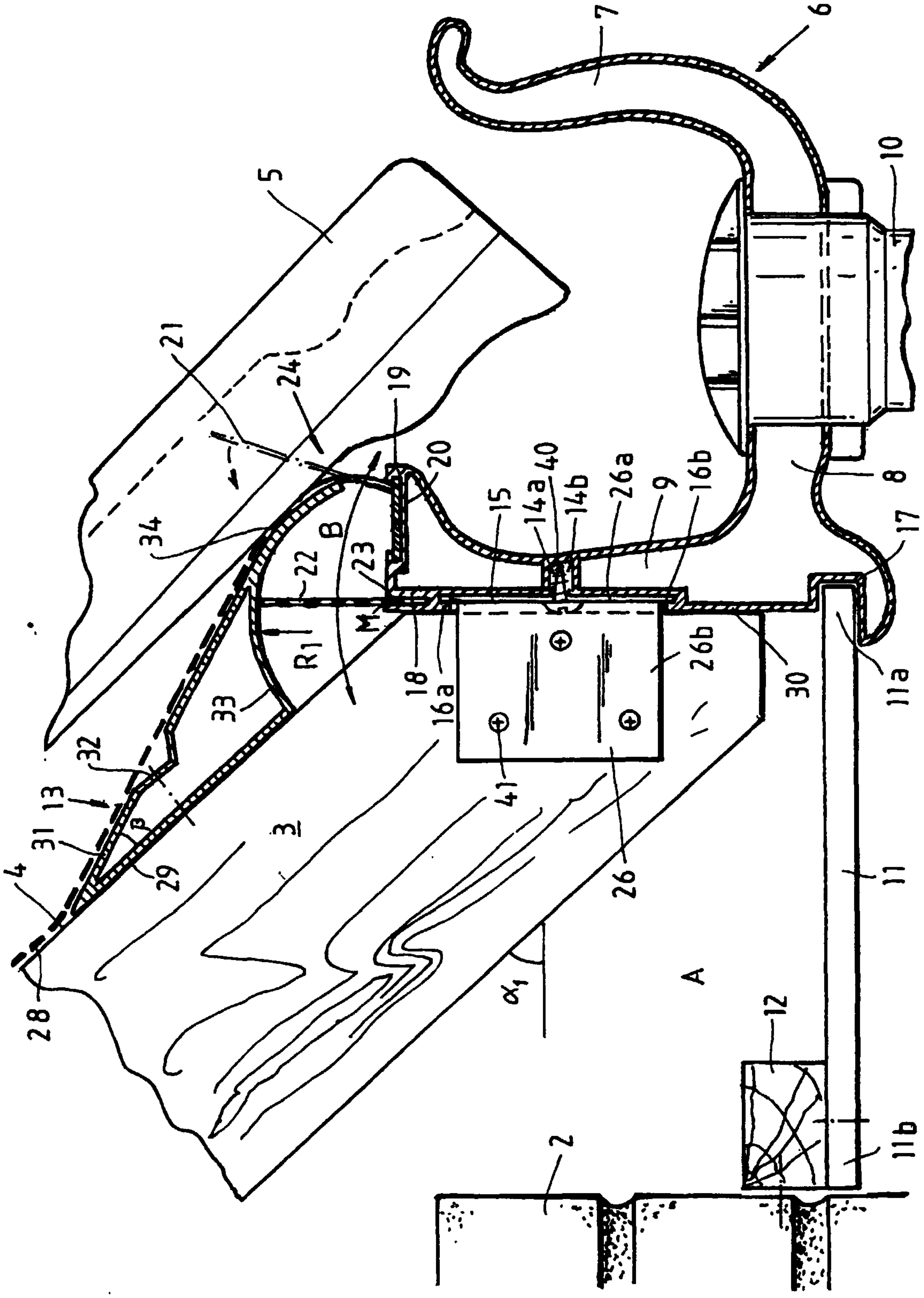

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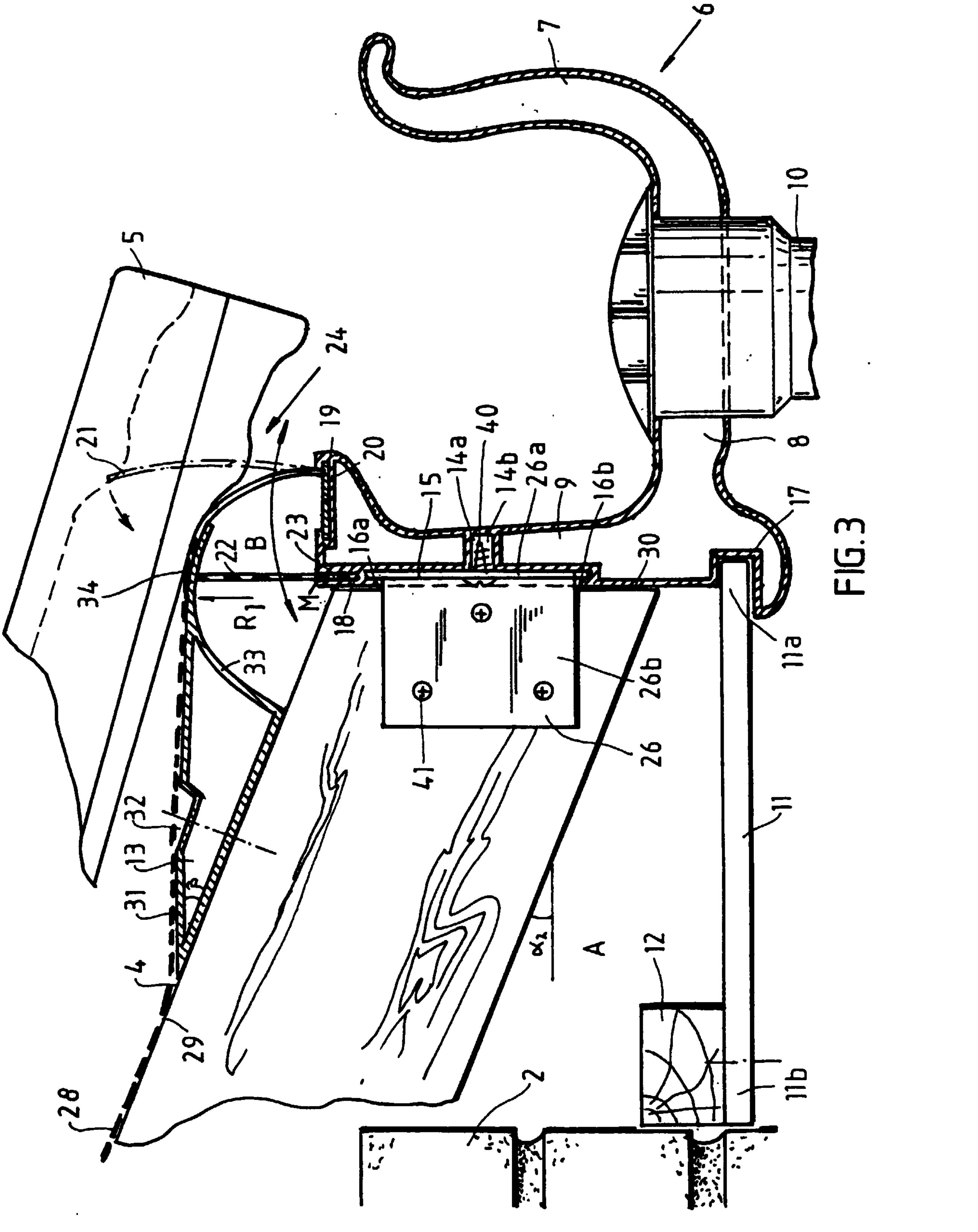
FIG. 2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A

FIG.3

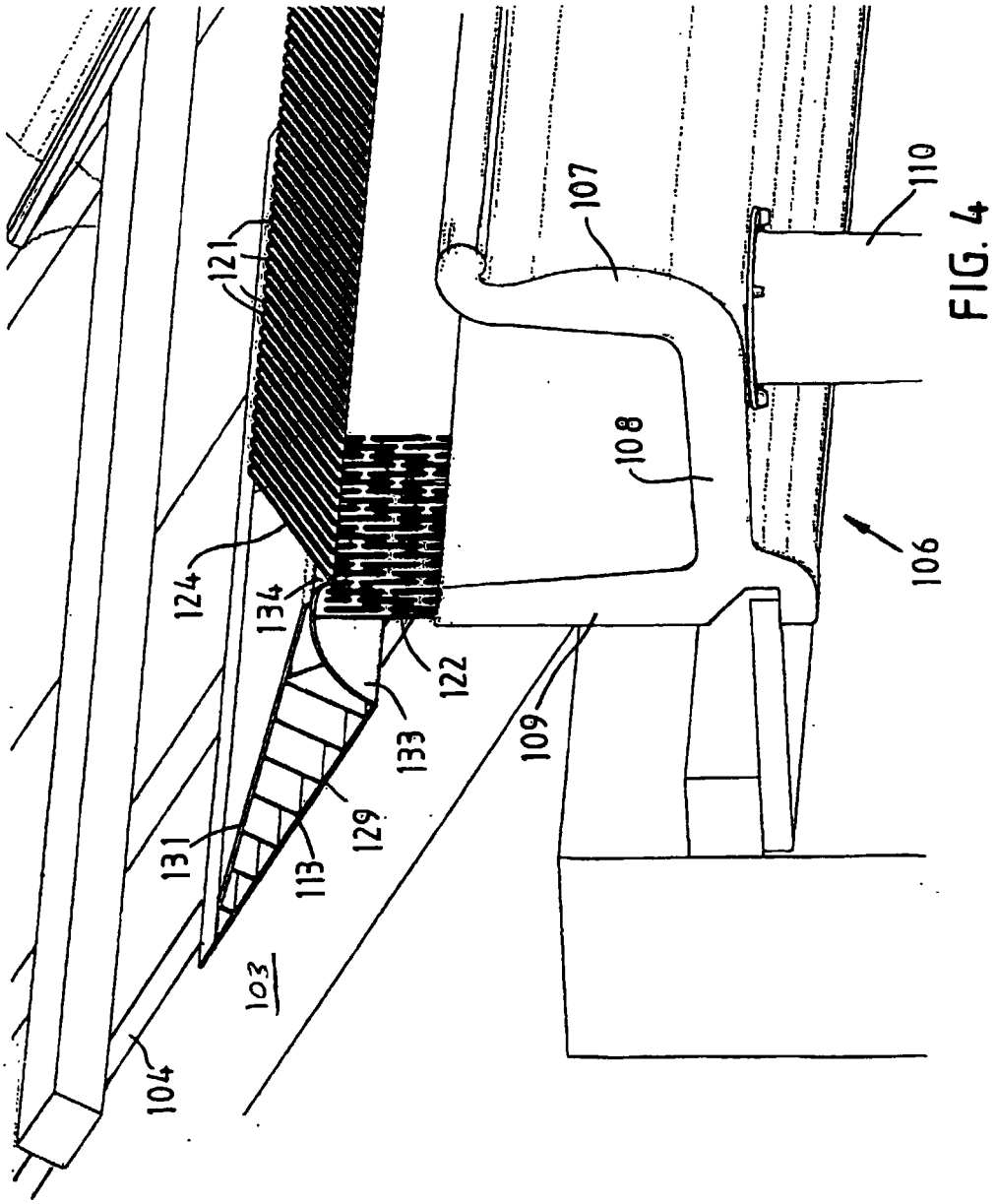

FIG. 4

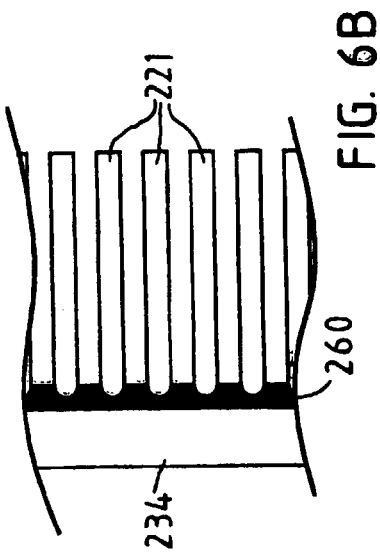

FIG. 6B

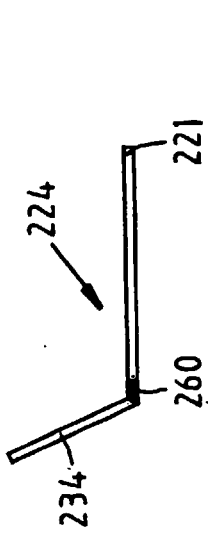

FIG. 6A

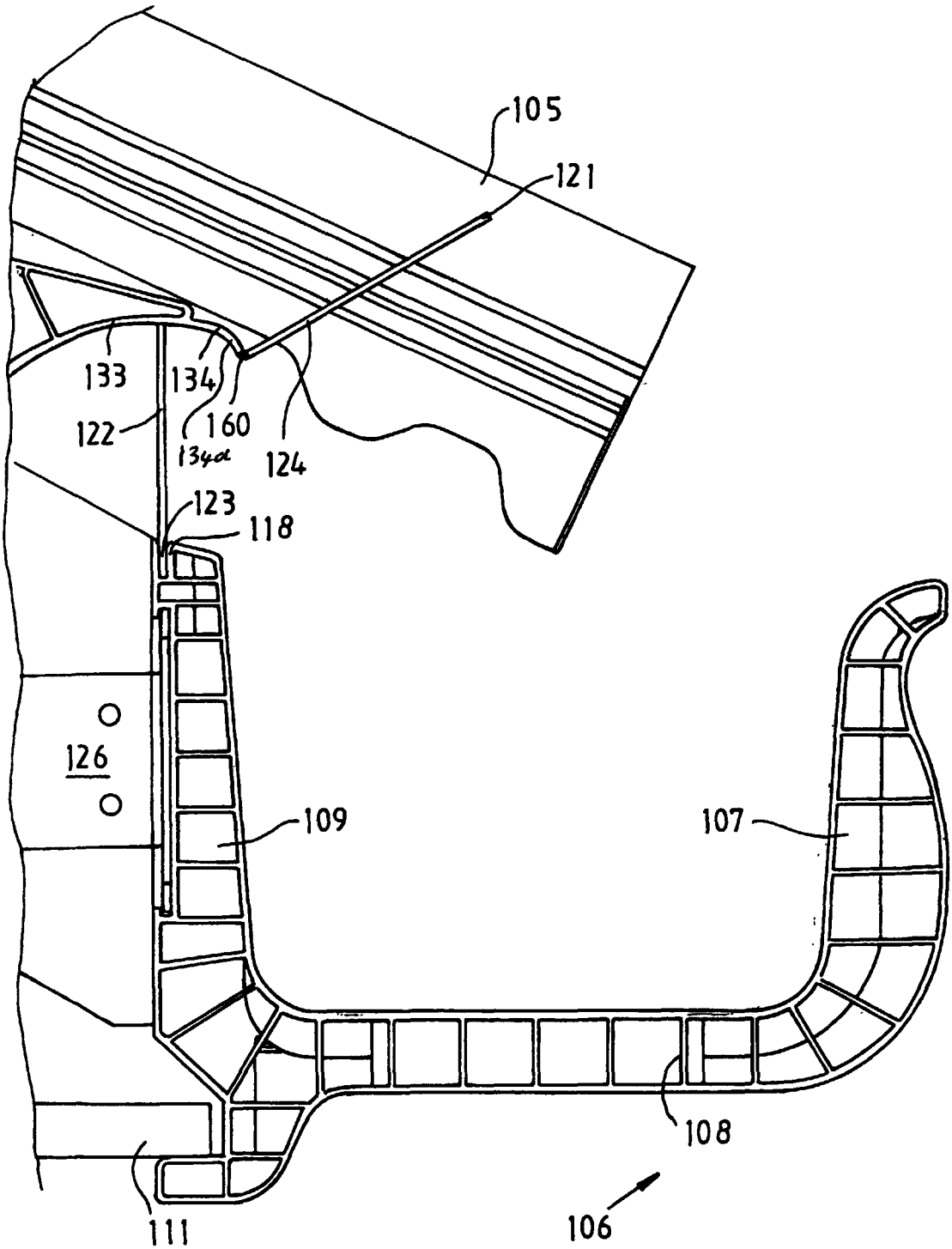

FIG. 5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 20 3810

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	GB 2 186 304 A (MARTIN DAVID FREDERICK;MOSS PAUL ANDREW) 12 August 1987 (1987-08-12) * page 1, line 20 - page 1, line 125 * * page 2, line 28 - page 2, line 34 * * figures 1,6,7 * ---	1,3-6,8, 9,18-20	E04D13/152 E04D13/064
Y	DE 35 00 579 A (GLIDEVALE BUILDING PROD) 10 October 1985 (1985-10-10) * page 14, paragraph 3 - page 15, paragraph 5 * * figures 7,8 * ---	1,3,6,8, 9,14, 18-20	
Y	US 5 832 677 A (KURTTILA JOHN O) 10 November 1998 (1998-11-10) * column 2, line 37 - column 2, line 50 * * figures 1-5 * ---	1,3-6,8, 9,14, 18-20	
A	GB 2 131 845 A (MARLEY ROOF TILE CO LTD THE) 27 June 1984 (1984-06-27) * page 2, line 12 - page 2, line 55 * * figures 1,2 * ---	1,4,5,9, 18	TECHNICAL FIELDS SEARCHED (Int.Cl.6) E04D
A	WO 94 18405 A (ROYAL BUILDING SYST CANADA ;ZEN VITTORIO DE (CA)) 18 August 1994 (1994-08-18) * page 5, line 20 - page 6, line 10 * * figures 4,5 * ---	7,8,13, 22	
A	EP 0 340 856 A (UBBINK NEDERLAND BV) 8 November 1989 (1989-11-08) * column 4, line 14 - column 4, line 43 * * column 4, line 57 - column 5, line 17 * * figures 1-4 * ---	1,9-11	
	-/--		

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
THE HAGUE	13 April 1999	HENDRICKX, X

CATEGORY OF CITED DOCUMENTS

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European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 20 3810

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 4 631 875 A (OLSON CARLTON D) 30 December 1986 (1986-12-30) * figures 1-8 *	15	
A	WO 95 30809 A (ZACCAGNI RICHARD J) 16 November 1995 (1995-11-16) * figures 1-8 *	16	
A	EP 0 180 245 A (FLECK OSKAR) 7 May 1986 (1986-05-07) * figure 3 *	17	
E	GB 2 325 476 A (UBBINK NEDERLAND BV) 25 November 1998 (1998-11-25) * the whole document *	1-22	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
THE HAGUE	13 April 1999	HENDRICKX, X

CATEGORY OF CITED DOCUMENTS

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European Patent Office

Application Number
EP 98 20 3810

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1 - 22

European Patent Office

LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 98 20 3810

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-22

   Eave structure of a building comprising a supporting body and supporting body for use in this eave structure

2. Claims: 13-27

   Bird screen comprising a base strip and a number of fingers

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 98 20 3810

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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13-04-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2186304 A	12-08-1987	NONE	
DE 3500579 A	10-10-1985	DE 3500484 A	25-07-1985
		GB 2152969 A,B	14-08-1985
		GB 2152549 A,B	07-08-1985
		US 4607566 A	26-08-1986
US 5832677 A	10-11-1998	NONE	
GB 2131845 A	27-06-1984	NONE	
WO 9418405 A	18-08-1994	CA 2089021 A	09-08-1994
		AU 5967994 A	29-08-1994
EP 0340856 A	08-11-1989	NONE	
US 4631875 A	30-12-1986	NONE	
WO 9530809 A	16-11-1995	US 5537785 A	23-07-1996
		AU 2426295 A	29-11-1995
		CA 2188556 A	16-11-1996
		US 5735084 A	07-04-1998
		US 5797220 A	25-08-1998
		ZA 9503608 A	03-01-1996
EP 0180245 A	07-05-1986	DE 3440061 A	07-05-1986
		DE 3509569 A	18-09-1986
		AT 43877 T	15-06-1989
		DE 3501773 A	24-07-1986
GB 2325476 A	25-11-1998	NL 1006036 C	16-11-1998

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