



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
21.03.2012 Bulletin 2012/12

(51) Int Cl.:
E06B 1/70 (2006.01)

(21) Application number: **11181334.1**

(22) Date of filing: **15.09.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
 Designated Extension States:
BA ME

(71) Applicant: **Isostone B.V.**
5482 ZA Schijndel (NL)

(72) Inventor: **Smits, Henricus Johannes Antonius**
5482 ZA Schijndel (NL)

(74) Representative: **Raukema, Age**
Nederlandsch Octrooibureau
J.W. Frisolaan 13
2517 JS The Hague (NL)

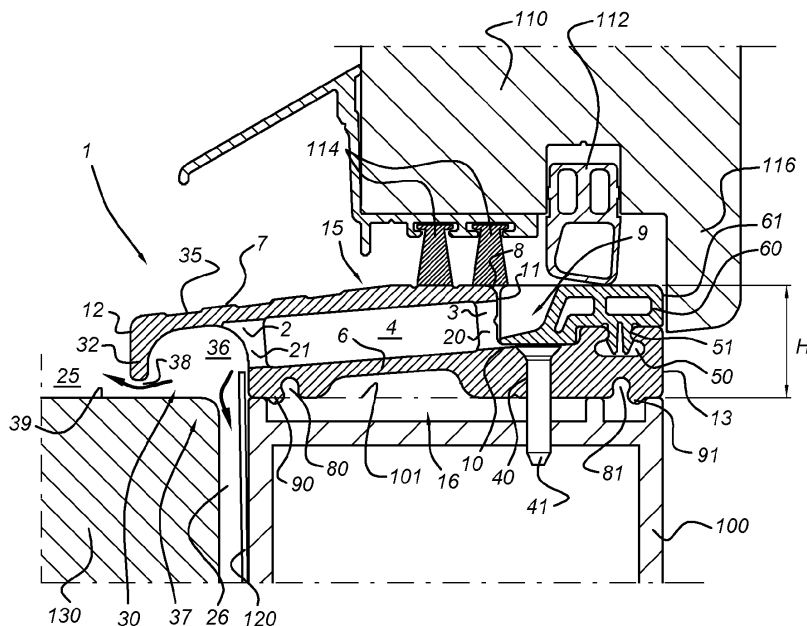
(30) Priority: **16.09.2010 NL 2005360**

(54) **Sill with a drain**

(57) The present invention relates to a sill, such as for an outside door or an outside window. The sill (1) has a drainage duct (4) with a front longitudinal wall (2), a rear longitudinal wall (3), an upper wall (5) and a lower wall (6), as well as a collection channel (9) which, on a side (11) of the rear longitudinal wall (3) which faces away from the drainage duct (4), extends parallel to the drainage duct (4) and is delimited by the rear longitudinal wall (3) and by a bottom channel wall (10). At least one re-

spective passage opening (20, 21) is provided in each of the front and rear longitudinal walls (3, 5), as a result of which the collection channel (9) is in liquid communication, via the drainage duct (4), with a drainage zone (25, 26, 36) situated outside the drainage duct (4). The invention furthermore relates to an assembly of such a sill and a stop element (60) and to a further assembly of a structural element (100), a pivotable or displaceable passage element (110) and such an assembly.

Fig 7



Description

[0001] The invention relates to a sill, such as, for example, for an outside door or an outside window, provided with a drain.

[0002] NL 2002323 shows a sill provided with a drainage duct having an inlet passage situated in the upper surface of the duct.

[0003] A problem which may occur with known sills is that the height of known sills requires additional structural measures, such as, for example, lowering the floor on which the sill is fitted in order to comply with various regulations. Thus, for example, it is a requirement of the Buildings Decree that the sill should protrude a maximum of 20 mm above street level. In order to meet this requirement using a known sill with a height greater than 20 mm, it may therefore be necessary to partly recess the sill into the floor, and to lower a part of the floor for this purpose, for example. Although this may be provided for straight-away in the construction of new buildings, the exact dimensions of the sill to be used will, however, have to be taken into account at an early stage. However, in case of renovation, some structural alterations will have to be carried out in order to lower the section of the wall. It is therefore desirable to provide a sill having a lower height than the known sills.

[0004] Another problem which may present itself with known sills is that they are secured from the floor side. Once the sill has been placed and secured, the securing means can no longer be reached from the outside. When a known sill has to be removed, for example when it has to be replaced, this can only be done after the necessary demolition work has been carried out. It may therefore also be desirable to make it possible to secure the sill in a simple manner which, for example, still allows the simple removal of the sill.

[0005] Furthermore, known sills may develop a problem with regard to drainage of such sills. NL 1027966, for example, shows a sill in which the water is drained off via a drainage duct along the sloping upper side of the sill. When the sloping part is the walking surface of a door sill, this may result, for example, in the walking surface becoming slippery. It may therefore also be desirable to provide a sill in which drainage along the upper side of the sill is reduced. It may also be visually undesirable for the drain to be visible, for example because this may lead to visible drainage marks. It may therefore also be desirable to provide a sill with an improved appearance.

[0006] It is therefore an object of the invention to provide a sill which fulfils one or more of the abovementioned wishes.

[0007] To this end, the invention provides a sill provided with a drainage duct with a front longitudinal wall, a rear longitudinal wall, an upper wall and a lower wall, as well as a collection channel which, on a side of the rear longitudinal wall which faces away from the drainage duct, extends parallel to the drainage duct and is delimit-

ited by the rear longitudinal wall and by a bottom channel wall, wherein at least one respective passage opening is provided in each of the front and rear longitudinal walls of the drainage duct, as a result of which the collection channel is in liquid communication, via the drainage duct, with a drainage zone situated outside the drainage duct.

[0008] In use, it is therefore possible to collect water from outside in the collection channel, from where the water is discharged to the drainage duct and from there to the drainage zone situated outside the drainage duct. The drainage zone is, for example, the environment outside the wall in which the sill is situated. With the sill according to the invention, the collection channel is situated next to the drainage duct. As a result thereof, it is possible to obtain a sill having a relatively low height, for example compared to the sill known from NL 2002323, in which the inlet passage mentioned therein is situated on top of the drainage duct. In particular, it is possible to obtain a sill which has a total height of less than 20 mm, so that the sill can be used both in new houses and houses which are being renovated without requiring significant structural measures.

[0009] In an embodiment, the bottom channel wall and the bottom wall are substantially in line with one another, thus making it possible to minimize the height of the sill.

[0010] In an embodiment, the bottom channel wall is provided with a fastening element which is situated at a distance from the side of the rear longitudinal wall which faces away from the drainage duct, and which fastening element serves for fastening a stop element, preferably made of resilient material. The sill can thus be provided with a stop element, which, for example, adjoins the closed door or window during use and thus provides a seal against water and/or draught. In addition, the stop element may define a boundary of the collection channel.

[0011] In an embodiment, the fastening element comprises a T-shaped recess for accommodating a complementary engagement means of the stop element. Thus, no additional measures have to be taken in order to fit the stop element. Furthermore, the T-shaped recess can be used to mount a fitting without having to screw or drill holes in the sill in order to be able to mount the fitting.

[0012] In an embodiment, the T-shaped recess extends parallel to the drainage duct and thus forms a receiving groove. This further simplifies the fastening of a stop element or a fitting. The receiving groove is, for example, shaped so as to conform to the Euronut standard for fittings.

[0013] In an embodiment, the collection channel is furthermore delimited by an elevation situated at a distance from the rear longitudinal wall. The outwardly facing side of the collection channel is then delimited by the rear longitudinal wall of the drainage duct and delimited on the inwardly facing side by the elevation. This may contribute to preventing the ingress of water from the collection channel.

[0014] In an embodiment, the sill, on the side of the bottom wall, is provided with a support part for resting on

a securing surface, wherein the upper wall extends beyond the front longitudinal wall up to a front covering wall which extends from the upper wall in the direction of the securing surface. The front covering wall thus ensures that the front longitudinal wall is at least partially visually screened off, as a result of which the passage apertures in the front longitudinal wall can be hidden from view. In use, it is thus possible for an opening to form between the lower side of the front covering wall and the securing surface, as a result of which the water can be carried away further, away from the drainage duct.

[0015] In a further embodiment, the drainage zone comprises a discharge space which is situated between the upper wall, the front covering wall and the front longitudinal wall. In use, the passage opening from which the drainage duct thus drains off to the discharge space and from there to the environment. Preferably, the discharge space is largely hidden from view by the front covering wall.

[0016] In an embodiment, the upper wall comprises a sloping part which slopes down to the front longitudinal wall. Water which lands on the upper side of the upper wall from above can thus be drained off via the upper wall. In addition, water which builds up between the outside and the inside can be collected in the collection channel via the upper side of the upper wall, via the at least partly sloping part.

[0017] In an embodiment, the upper wall comprises a horizontal part which, during use, lies substantially flat. By fitting a sealing strip or sealing brush on the lower side of the door or the window, it is thus possible to obtain an additional seal between the sealing strip or sealing brush and the horizontal part, as a result of which the ingress of water from outside is prevented. In addition, the dimensions of the horizontal part may be adapted to the thickness of the wall.

[0018] In an embodiment, a screw passage is provided in the bottom channel wall of the collection channel which extends through the bottom channel wall. The screw passage makes it possible to attach the sill to the floor to which it is being fitted, for example by means of screws, from the collection channel. If the sill has to be removed, for example if it is to be replaced, the sill can then be detached again by unscrewing the screws via the collection channel. This makes it possible to achieve removal without having to cause any structural damage. Moreover, the screws can then be invisible from outside during normal use, with the door or window closed.

[0019] In an embodiment, the sill is furthermore provided with screw openings at the head ends of the sill. The screw openings may extend in the longitudinal direction of the sill. The screw openings make it possible to screw additional parts onto the head ends of the sill.

[0020] In an embodiment, the sill is formed integrally. As a result thereof, a strong sill is obtained. The sill is, for example, made by injection-moulding, pultrusion or extrusion.

[0021] In an embodiment, the sill is made of a metal,

such as aluminium or an aluminium alloy, or a plastic, such as a glass-fibre reinforced plastic. Such materials can be readily processed to form a sill, for example by metal extrusion of, for example, an aluminium alloy, or pultrusion of a glass-fibre reinforced plastic. It is also relatively easily possible to drill holes into such materials, for example, in order to produce the passage apertures in the sill. Such materials can be readily sawn, usually even with a hand saw, and it is relatively easy to screw screws into them. The sill may, for example, be produced by means of metal extrusion of an element of a certain length, which is sawn to the required length for the respective door or window opening during fitting.

[0022] The invention furthermore provides an assembly of a sill according to the invention and a stop element. The stop element may, in particular, be configured in order to adjoin, during use, the closed door or window, thus forming a seal against water and/or draught and preventing both from entering the building.

[0023] In an embodiment, the stop element is provided with a complementary engagement means. The engagement means in the receiving groove and the complementary engagement means of the stop element thus establish the connection, such as a snap-fit connection or a clamping connection. Preferably, this connection makes it possible to remove the stop element from the sill again, so that the stop element can, for example, be replaced or can, for example, be removed temporarily during dismantling of the sill.

[0024] In particular, the stop element may be configured in order to adjoin, in use, the closed door or window, thus forming a seal against water and/or draught and preventing both from entering the building.

[0025] In an embodiment, the stop element forms a further boundary of the collection channel, thus making it possible to prevent water from the collection channel from reaching the interior.

[0026] In an embodiment, the stop element is adapted to cover the screw passage during use. This makes it possible to prevent the ingress of water into the building, for example into the floor, via the screw passage. When the assembly is connected to a floor of a building by means of screws which have been fitted into the screw passage via the collection channel, the screws are, in addition, not in contact with any water which may be present in the collection channel.

[0027] In an embodiment, the stop element is made substantially from a rubber material, preferably from an EPDM material. This results in a strong, yet slightly elastic stop element, thus producing a good seal.

[0028] The invention furthermore provides a further assembly of a structural element, such as a floor or a wall, provided with a pivotable or displaceable passage element, such as a door or a window, as well as an assembly which is provided on the structural element according to the invention of a sill and a stop element. The assembly of sill and stop element can thus provide a good seal for the passage element as well as good drainage, with no

water entering or moving past the structural element.

[0029] In an embodiment, the sill, with the passage element closed, extends under the passage element, the lower side of the passage element being provided with a first sealing strip which, with the passage element closed, forms a seal with the stop element of the assembly. This contributes further to preventing the ingress of water and/or dirt.

[0030] In an embodiment, the lower side of the passage element is furthermore provided with a second sealing strip or sealing brush which, with the passage element closed, forms a seal with the upper wall. Thus, an alternative or additional seal is obtained by means of the second sealing strip or sealing brush, which prevents the ingress of water from outside even better.

[0031] A further embodiment provides a further assembly according to the invention, in which: the sill, with the passage element closed, extends under the passage element, and the passage element is provided on the inside with a lip which, with the passage element closed, forms a seal with the longitudinal side of the stop element of the assembly facing the lip. In this way, a further alternative or additional seal is obtained for the interacting stop element and lip, thus preventing the ingress of water from the outside.

[0032] In an embodiment, in which the assembly comprises a sill which is provided with a support part on the side of the bottom wall for resting on a securing surface, with the upper wall extending beyond the front longitudinal wall up to a front covering wall which extends from the upper wall in the direction of the securing surface, the upper wall extends outside the structural element and the front covering wall is at a distance from the structural element. The water can thus drain away, out of the collection channel, via the drainage duct and the discharge space to somewhere outside the structural element, such as to the environment.

[0033] In a further embodiment, the further assembly also comprises a waterproof film/foil which extends at least along a part of the outer side of the structural element beyond the securing surface. In this way, the ingress of water into the structural element, for example the floor or the wall, from outside can be prevented. In particular, the waterproof film/foil may be configured in order to, in cooperation with the drainage means, drain off any water which is present in the discharge space, away from the structural element.

[0034] It should be understood that wherever the terms "above", "under", "inside" and "outside" are used in this document, these refer to the orientation during use, that is to say the orientation which the sill has when it is fitted in the building.

[0035] Below, some embodiments according to the invention will be explained by way of example with reference to a number of figures, in which:

Figs. 1 - 6 diagrammatically show cross sections of a sill according to various embodiments;

Fig. 7 shows a detailed cross section of a sill according to an embodiment;

Fig. 8 shows a perspective view of the sill from Fig. 7;

Fig. 9 shows a diagrammatic top view of the sill from Fig. 7;

Fig. 10 shows a cross section of a sill according to an alternative embodiment.

[0036] Fig. 1 diagrammatically shows a cross section of a sill according to an embodiment. The sill in Fig. 1 is denoted overall by reference numeral 1. The sill 1 has a drainage duct 4 with a front longitudinal wall 2, a rear longitudinal wall 3, an upper wall 5 and a lower wall 6. In the illustrated example, the upper wall 5 and the bottom wall 6 are horizontal walls 8 which are flat during use. The front longitudinal wall 2 faces outwards during use. The rear longitudinal wall 3 faces inwards during use. A collection channel 9 is situated parallel to the drainage duct 4 and extends parallel to the drainage duct 4. The collection channel 9 is delimited by the rear longitudinal wall 3, by a bottom channel wall 10 and by an elevation 65 which is situated at a distance from the rear longitudinal wall 11. The rear longitudinal wall 3 contains passage apertures 20 between the collection channel 9 and the drainage duct 4 in order to establish liquid communication from the collection channel 9 to the interior of the drainage duct 4. These passage apertures 20 can also be referred to by the term inlet apertures 20. The front longitudinal wall 2 contains passage apertures 21 in order to establish liquid communication from the interior of the drainage duct to a drainage zone 25. These passage apertures 21 can also be referred to by the term outlet apertures 21. In the illustrated embodiment, the drainage zone 25 is formed by the surroundings of the sill 1, for example the outside space on the outer side of a wall, or the outer side of another structural element in which or on which the sill may be fitted during use, such as, for example, a floor in the case of a sill for a door. In other embodiments, the drainage zone 25 may however comprise further passage apertures and/or further spaces between the drainage duct 4 and the outside space.

[0037] Fig. 2 diagrammatically shows a cross section of a sill according to another embodiment. The sill illustrated in Fig. 2 differs from the sill illustrated in Fig. 1 in that the sill does not comprise an elevation 65 which is situated at a distance from the rear longitudinal wall 11. Instead thereof, the illustrated sill 1 comprises a fastening element 50 which is situated at a distance from the rear longitudinal wall 11 and serves to attach a stop element 60 to the sill 1. Thus, in the assembly formed by the sill 1 and the stop element 60, the collection channel 9 is delimited by the rear longitudinal wall 3, by the bottom channel wall 10 and by the side of the stop element 60 which faces the collection channel 9.

[0038] Fig. 3 diagrammatically shows a cross section of a sill according to yet another embodiment. The sill illustrated in Fig. 3 differs from the sill illustrated in Fig. 1 in that the interior of the drainage duct 4 slopes from

the inlet apertures 20 to the outlet apertures 21, which may improve drainage. In addition, the upper wall 5 of the drainage duct 3 is a sloping wall 7 which slopes in the direction of the front longitudinal wall 2.

[0039] Fig. 4 diagrammatically shows a cross section of a sill according to yet another embodiment. The sill illustrated in Fig. 4 is a further embodiment of the sill shown in Fig. 2, in which the fastening element 50 situated at a distance from the rear longitudinal wall 11 is formed by a T-shaped recess 50 which extends in the bottom channel wall 10 and thus forms a receiving groove 50. In the receiving groove 50, for example a stop element 60 provided with a complementary engagement means 61, such as, for example, a spreader, may be fixed, in which case the receiving groove 50 accommodates the complementary engagement means 61.

[0040] Fig. 5 diagrammatically shows a cross section of a sill according to yet another embodiment. The sill illustrated in Fig. 5 differs from the sill shown in Fig. 4 in that the receiving groove 50 is provided in an elevation 65 which is situated at a distance from the rear longitudinal wall 11.

[0041] Fig. 6 diagrammatically shows a cross section of a sill according to yet another embodiment. The sill illustrated in Fig. 6 differs from the sill illustrated in Fig. 5 in that the sill, on the side of the bottom wall 6, is provided with a support part 90 for resting on a securing surface 101. In addition, the upper wall 5 extends beyond the front longitudinal wall 2 up to a front covering wall 32. The front covering wall 32 extends from the upper wall 5 in the direction of the securing surface 101. In this case, a space 38 is left between the bottom end of the front covering wall 32 and the securing surface 101. This space 38 may serve as a drainage opening 38 for draining water away from the sill 1. In this case, the front longitudinal wall 2 and the passage apertures 21 provided therein are largely hidden from view.

[0042] Fig. 7 shows a detailed cross section of a sill according to an embodiment. The sill in Fig. 7 is denoted overall by reference numeral 1. The sill 1 is shown in an assembly with a stop element 60 clamped inside it. In this example, the stop element 60 is a rubber part 60, made from EPDM material. The assembly is fitted to a floor 100. Fig. 7 also shows a passage element 110 in the form of a door 110. The door 110 illustrated in Fig. 7 is an inward opening door provided with a lip 116. Fig. 8 shows a perspective view of the assembly of the sill 1 with stop element 60 from Fig. 7.

[0043] The sill 1 has a first sill longitudinal side 12 which faces outwards and an opposite second sill longitudinal side 13 which faces inwards. The sill 1 furthermore has a sill upper side 15 and a sill lower side 16. The sill 1 has a collection channel 9 which extends parallel to a drainage duct 4 in a way similar to that shown in Fig. 6. The drainage duct 4 has a front longitudinal wall 2, a rear longitudinal wall 3, an upper wall 5 and a lower wall 6. In the illustrated example, the upper wall 5 and the bottom wall 6 are walls 8 sloping to the outside. During use, the

front longitudinal wall 2 faces outwards. During use, the rear longitudinal wall 3 faces inwards. On the sill upper side 15, the upper wall 5 has a sloping part 7 and a horizontal part 8. The sloping part 7 runs downwards from the horizontal part 8 to the first sill longitudinal side 12. As a result thereof, water which falls on the sloping part 7 from above can be drained off directly to the front. The collection channel 9 is delimited by a bottom channel wall 10 and an upright side 11 facing the first sill longitudinal side 12. The upright side 11 extends upwards from the bottom channel wall 10 towards the horizontal part 8. The upright side 11 is formed by that side of the rear longitudinal wall 3 of the drainage duct 4 facing the collection channel 9. During use, the bottom channel wall 10 is thus situated lower than the horizontal part 8. The collection channel 9 is situated next to the drainage duct 4, between the drainage duct 8 and the second sill longitudinal side 13. When water builds up from outside, for example as a result of the wind, along the sloping part 7 in the direction of the second sill longitudinal side 13, this water is thus taken to the collection channel 9 via the horizontal part 8, and from there to the drainage zone 25 via, inter alia, the drainage duct 4.

[0044] The drainage duct 4 is provided between the sill upper side 15 and the sill lower side 16 of the sill 1. In the illustrated example, the drainage duct 4 is situated partly under the sloping part 7 and partly under the horizontal part 8. The drainage duct 4 is positioned slightly obliquely, with its lowest edge directed to the outside.

[0045] Inlet apertures 20 form a liquid communication between the collection channel 9 and the drainage duct 4. The inlet apertures 20 are adapted for the supply of water to be collected from the collection channel 9 to the interior of the drainage duct 4. The inlet apertures 20 are made in the form of bore holes between the collection channel 9 and the drainage duct 4, but can, in alternative embodiments, be produced in an alternative manner, for example by milling slot-shaped elongate apertures through the rear longitudinal wall 3 of the drainage duct 4. The inlet apertures 20 may be substantially round, oval or elongate. The inlet apertures 20 can also be referred to as passage apertures between collection channel 9 and drainage duct 4.

[0046] The collection channel 9 and the drainage duct 4 are situated next to one another, thus producing a relatively low sill 1. In the figure, the height of the sill is denoted by H. The height of the illustrated sill is 20 mm, and thus conforms directly to the Buildings Decree.

[0047] Outlet apertures 21 form a liquid communication between the drainage duct 4 and a discharge space 36 which is situated on the lower side of a profile extension 30. The outlet apertures 21 are made in the form of bore holes from the discharge space 36 to the drainage duct 4, but may, like the inlet apertures 20, be produced in an alternative manner in alternative embodiments. The outlet apertures 21 can also be referred to as passage apertures from the drainage duct 4.

[0048] The profile extension 30 has an upper wall 35

which extends in line with at least partly sloping part 7. The upper wall 35 of the profile extension is thus formed by the fact that the upper wall 5 of the duct extends beyond the front longitudinal wall 2. The front longitudinal wall 2 is situated substantially at the location of the outward facing side face of the floor 100. The profile extension 30 thus extends beyond the wall 100. From the discharge space 36, a drainage means 37 drains off any water present in the discharge space 36 to the drainage zone 25, 26 outside the sill. In the illustrated example, the drainage zone is formed by a first drainage zone 25 at street level of a pavement 130 and a second drainage zone 26 between the pavement 130 and the wall. Drainage can thus take place in a substantially horizontal direction to the first drainage zone, and in a substantially vertical direction to the second drainage zone. The discharge space 36 and the drainage means are situated outside the floor 110. In the illustrated example, the drainage means 37 has a drain opening 38 which is formed by an empty space 38 between the first sill longitudinal side 12 and a reference surface 39. The reference surface 39 corresponds to a securing surface 101 on which the sill 1 rests via a support part 90. In the illustrated example, the support part 90 is formed by two longitudinal ribs 90, 91 on the sill lower side 16 of the sill 1. The securing surface 101 substantially corresponds to the upper side of the part of the floor 100 under the sill 1.

[0049] Fig. 7 also shows a waterproof film/foil 120. The waterproof film/foil 120 is placed against the outer side of the floor 100 from outside and extends under the outlet apertures 21 in the outward facing side of the second longitudinal wall 2 in the discharge space 36.

[0050] The sill 1 has a receiving groove 50 with engagement means 51, in this example formed by the T-shape of the receiving groove 50. A stop element 60 is provided with a complementary engagement means 61, shown here in the form of a spreader. The stop element 60 is click-fitted in the engagement means 51 by means of the complementary engagement means 61. The stop element 60 forms a boundary of the collection channel 9 in the direction of the second sill longitudinal side 13. Fig. 8 also shows two further stop members 62 which are click-fitted in the engagement means 51 near the head ends of the sill 1, where they delimit the collection channel 9 of the in the longitudinal direction of the sill 1. This prevents water from the collection channel 9 from being able to penetrate to the inside (the side of the second sill longitudinal side 13) or go beyond the head ends of the sill 1.

[0051] The sill 1 is fixed in the floor 110 using screws 41 going through, at least a part of, a plurality of screw passages 40 in the bottom channel wall 10 of the collection channel 9. The stop element 60 covers the screws 41 and thus prevents water from the collection channel 9 coming into contact with the screws 41. The stop element 60 also covers the passages/bore holes 40 and thus prevents water from flowing as far as the floor and penetrating the floor via the passages/bore holes 40.

[0052] The sill 1 is also provided with screw openings 80, 81 at the head ends of the sill 1. The screw openings make it possible to screw further parts against the head ends of the sill 1 from the side, before the sill is placed on the floor.

[0053] Above the floor 100, there is a passage element, in this example, a door 110. In the illustrated example, the door 110 has a first sealing strip 112 which forms a seal with the stop element 60 when the door 110 is closed in order to prevent the ingress of water from outside beyond the first sealing strip 112.

[0054] The illustrated door 110 furthermore has a sealing brush 114. In another embodiment, this sealing brush 114 is replaced by a second sealing strip. In the illustrated example, the sealing brush 114 forms a seal with the high part 8 of the sill 1 in order to prevent dirt from entering and, although possibly not sealing hermetically, also water. In an alternative embodiment, the sealing brush 114 forms a seal with the at least partly sloping part 7 of the sill.

[0055] The illustrated door 110 is provided with a lip 116. When the door 110 is closed, the lip is in contact with the inward facing longitudinal side 61 of the stop element 60, thus forming a third seal.

[0056] The first sealing strip 112, the sealing brush 114 or second sealing strip 114, and the cooperating lip 116 and stop element 60 thus provide a very efficient seal and effective prevention against the ingress of water. They can also contribute to a good acoustic insulation.

[0057] The illustrated door 110 therefore has a triple seal: the first sealing strip 112, the sealing brush 114 or second sealing strip 114, and the cooperating lip 116 and stop element 60. However, the sill 1 according to the invention can also be used with a door having one or two of said seals or not having any of these seals. Although the overall sealing effect may be less than optimal, the sill can still provide a good degree of drainage and form a reasonably good prevention against the ingress of water.

[0058] Fig. 10 shows a cross section of a sill according to an alternative embodiment.

[0059] The sill in Fig. 10 is largely identical to the sill shown in Fig. 7. However, the sill from Fig. 10 does not have a profile extension. This makes it possible to use the sill in locations where it is undesirable for a part to protrude.

[0060] With the sill from Fig. 10, the drainage duct 4 drains off directly via outlet apertures 21 to the outside due to the fact that the outlet apertures 21 are formed in the front longitudinal wall 2 at a distance from the sill lower side 16. However, the outlet apertures 21 may also be provided at other suitable locations, for example at the location where the front longitudinal wall 2 adjoins the sill lower side 16.

[0061] The sill 1 according to the invention may be made from a plastic, in particular from a fibre-reinforced plastic. The sill 1 may, for example, be made from such a plastic by means of pultrusion. The fibre-reinforced plastic is, for example, glass fibre-reinforced polyester.

In other embodiments, the sill may, for example, be made from metal, such as aluminium or an aluminium alloy. In particular, such a sill may be produced by means of metal extrusion, so that the sill is formed, for example, as an integral element of extruded aluminium. The inlet apertures 20, the outlet apertures 21 and the screw passage 40 may, for example, be formed by bore holes.

[0062] The stop element 60 may, for example, be made of a rubber material, in particular from EPDM.

[0063] The sill 1 has been described in detail with reference to an inward opening outside door 110 having a lip 116. However, embodiments of sills according to embodiments of the invention may also be suitable and used for other passage elements, such as, for example, an outward opening door, a sliding door, a door without a lip, an inward opening window, an outward opening window, a sliding window, a tilting window, a swing/tilt-up door, a swing/tilting window. The assembly 1 of sill and stop element 60 as well as the remainder of the assembly is described in detail with reference to an example in which the sill 1 is fitted on a floor 100. Embodiments of assemblies according to embodiments of the invention may, however, also be suitable for other structural elements than a floor, such as, for example, a wall. Similarly, embodiments of further assemblies according to embodiments of the invention may comprise other structural elements than a floor, such as, for example, a wall.

Claims

1. Sill (1) provided with a drainage duct (4) with a front longitudinal wall (2), a rear longitudinal wall (3), an upper wall (5) and a lower wall (6), as well as a collection channel (9) which, on a side (11) of the rear longitudinal wall (3) which faces away from the drainage duct (4), extends parallel to the drainage duct (4) and is delimited by the rear longitudinal wall (3) and by a bottom channel wall (10), wherein at least one respective passage opening (20, 21) is provided in each of the front and rear longitudinal walls (3, 5) of the drainage duct, as a result of which the collection channel (9) is in liquid communication, via the drainage duct (4), with a drainage zone (25, 26, 36) situated outside the drainage duct (4).
2. Sill according to Claim 1, wherein the bottom channel wall (10) and the bottom wall (6) are substantially in line with one another.
3. Sill according to Claim 1 or 2, wherein the bottom channel wall (10) is provided with a fastening element (50) which is situated at a distance from the side (11) of the rear longitudinal wall (3) which faces away from the drainage duct (4), and which fastening element (50) serves for fastening a stop element (60), preferably made of resilient material.
4. Sill according to Claim 3, wherein the fastening element (50) comprises a T-shaped recess (50) for accommodating a complementary engagement means (61) of the stop element (60).
5. Sill according to Claim 4, wherein the T-shaped recess (50) extends parallel to the drainage duct and thus forms a receiving groove (50).
6. Sill according to one of the preceding claims, wherein the collection channel (9) is furthermore delimited by an elevation (51, 60, 65) situated at a distance from the rear longitudinal wall (11).
7. Sill according to one of the preceding claims, wherein the sill, on the side of the bottom wall (6), is provided with a support part (90) for resting on a securing surface (101), wherein the upper wall (5) extends beyond the front longitudinal wall (2) up to a front covering wall (32) which extends from the upper wall (5) in the direction of the securing surface (101).
8. Sill according to Claim 5, wherein the drainage zone (25) comprises a discharge space (36) which is situated between the upper wall (5), the front covering wall (32) and the front longitudinal wall (2).
9. Sill according to one of the preceding claims wherein the upper wall (5) comprises a sloping part (7) which slopes down to the front longitudinal wall (2).
10. Sill according to one of the preceding claims wherein the upper wall (5) comprises a horizontal part (8) which, during use, lies substantially flat.
11. Sill according to one of the preceding claims, wherein a screw passage (40) is provided in the bottom channel wall (10) of the collection channel (9) which extends through the bottom channel wall (10).
12. Sill according to one of the preceding claims, furthermore provided with screw openings (80, 81) at head ends of the sill, which screw openings extend in the longitudinal direction of the sill.
13. Sill according to one of the preceding claims, wherein the sill is formed integrally.
14. Sill according to one of the preceding claims, made of a metal, such as aluminium or an aluminium alloy, or a plastic, such as a glass-fibre reinforced plastic.
15. Assembly of a sill according to one of the preceding claims, where dependent on Claim 3, and a stop element (60).
16. Assembly according to Claim 15, where dependent on Claim 4, wherein the stop element (60) is provided

with a complementary engagement means (61),

17. Assembly according to Claim 15 or 16, wherein the stop element (60) forms a further boundary of the collection channel (9). 5
18. Assembly according to one of Claims 15 - 17, where dependent on Claim 11, wherein the stop element (60) is adapted to cover the screw passage (40) during use. 10
19. Assembly according to one of Claims 15 - 18, wherein the stop element (60) is made substantially from a rubber material, preferably from an EPDM material. 15
20. Further assembly of a structural element, such as a floor or a wall, (100), provided with a pivotable or displaceable passage element (110), such as a door or a window, as well as an assembly comprising a sill (1) and a stop element (60) according to one of Claims 15-19 and provided on the structural element. 20
21. Further assembly according to Claim 20, wherein the sill, with the passage element closed, extends under the passage element, the passage element being provided, on the lower side, with a first sealing strip (112) which, with the passage element closed, forms a seal with the stop element (60) of the assembly. 25
30
22. Further assembly according to Claim 20 or 21, wherein the passage element is furthermore provided, on the lower side, with a second sealing strip or sealing brush (114) which, with the passage element closed, forms a seal with the upper wall (5). 35
23. Further assembly according to one of Claims 20 - 22, wherein: 40
- the sill, with the passage element closed, extends under the passage element, and
 - the passage element is provided on the inside with a lip (116) which, with the passage element closed, forms a seal with the longitudinal side (61) of the stop element (60) of the assembly facing the lip (116). 45
24. Further assembly according to one of Claims 20 - 23, where dependent on Claim 7, wherein the upper wall (5) extends beyond the structural element and the front covering wall (32) is at a distance from the structural element. 50
25. Further assembly according to Claim 24, furthermore comprising a waterproof film/foil (120) which extends at least along a part of the outer side of the structural element beyond the securing surface (101). 55

Fig 1

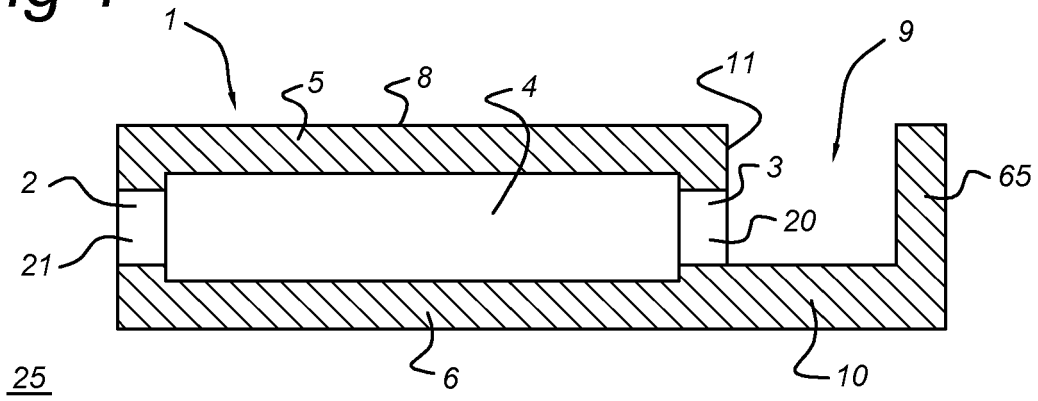


Fig 2

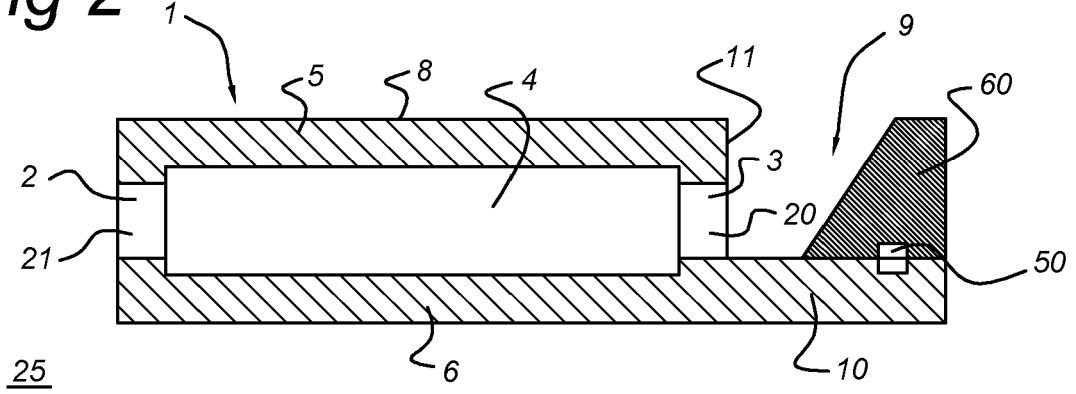


Fig 3

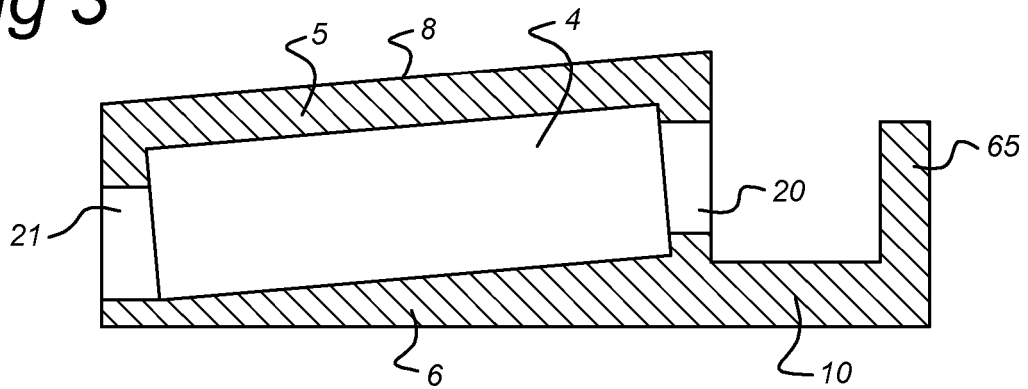


Fig 4

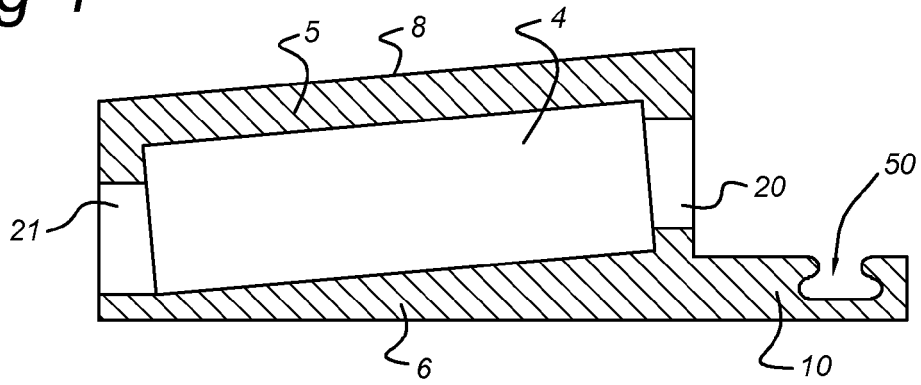


Fig 5

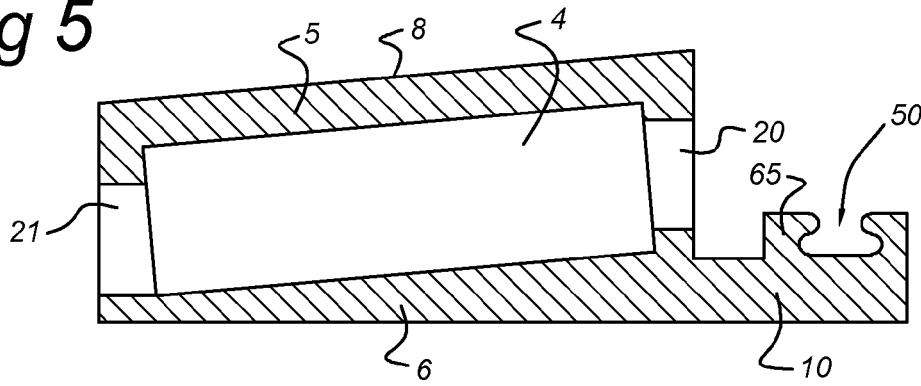


Fig 6

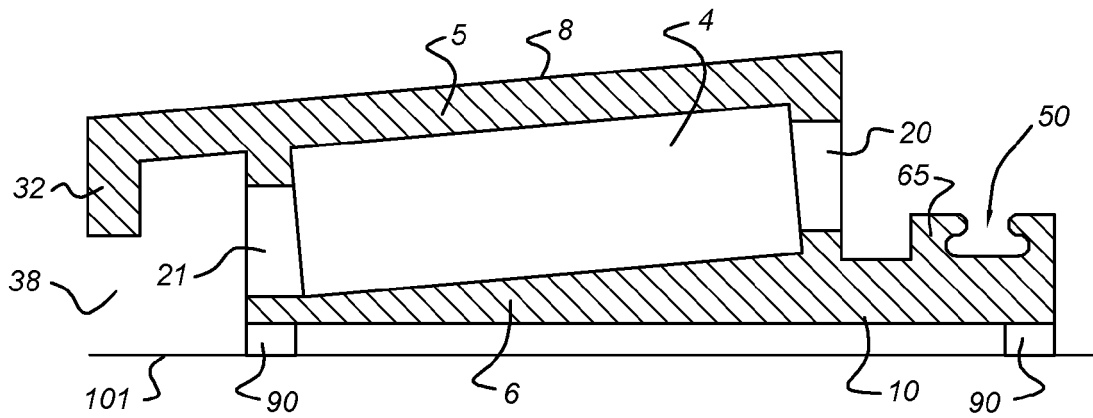


Fig 7

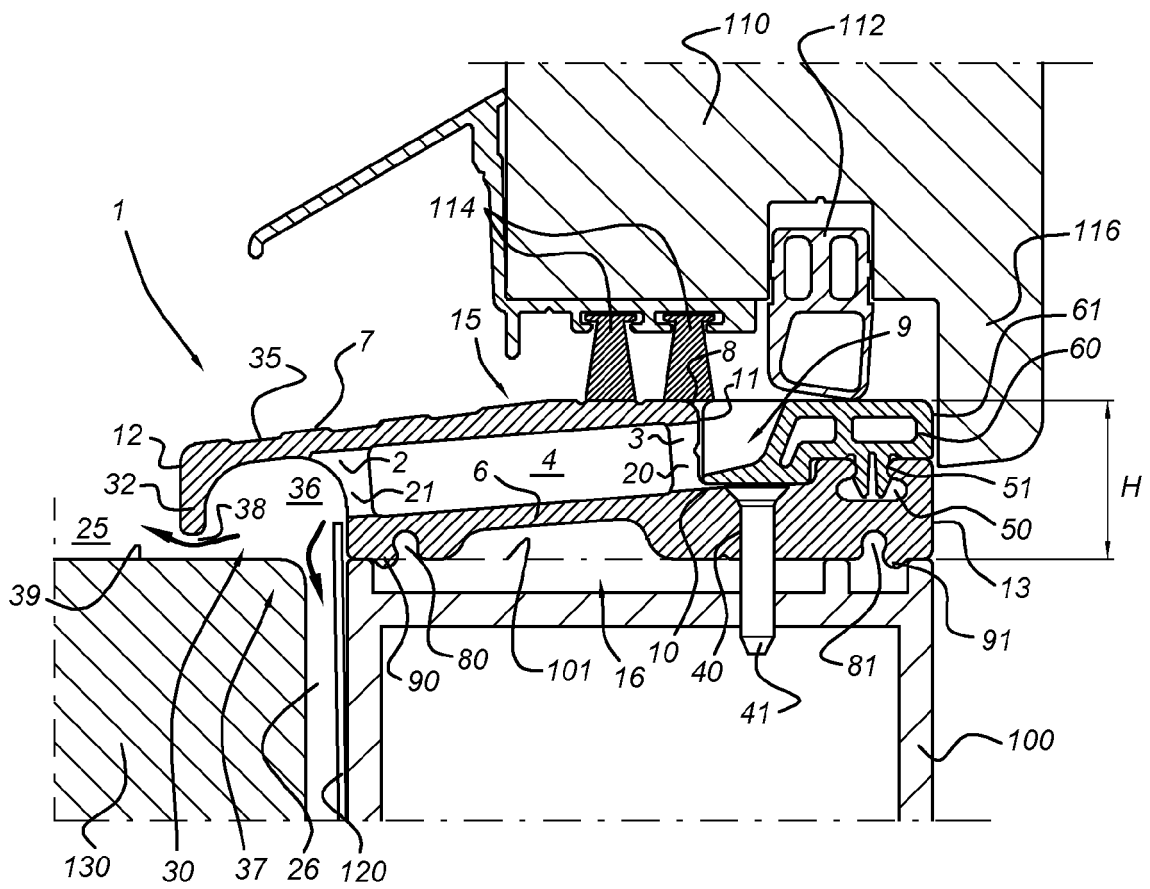


Fig 8

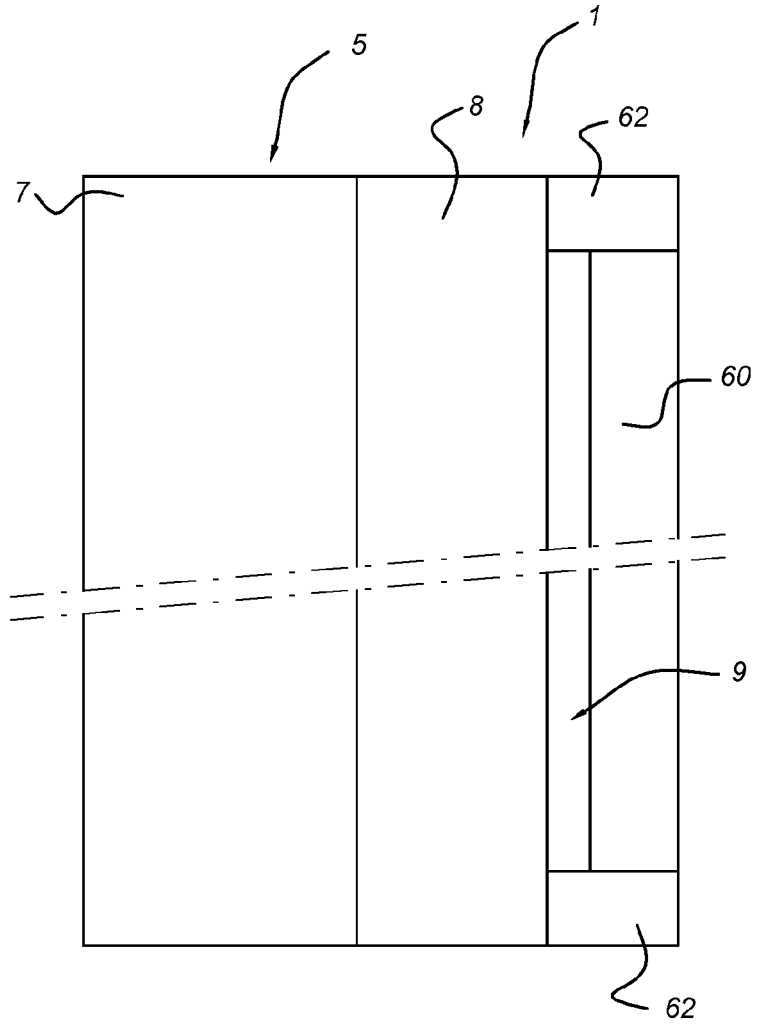


Fig 9

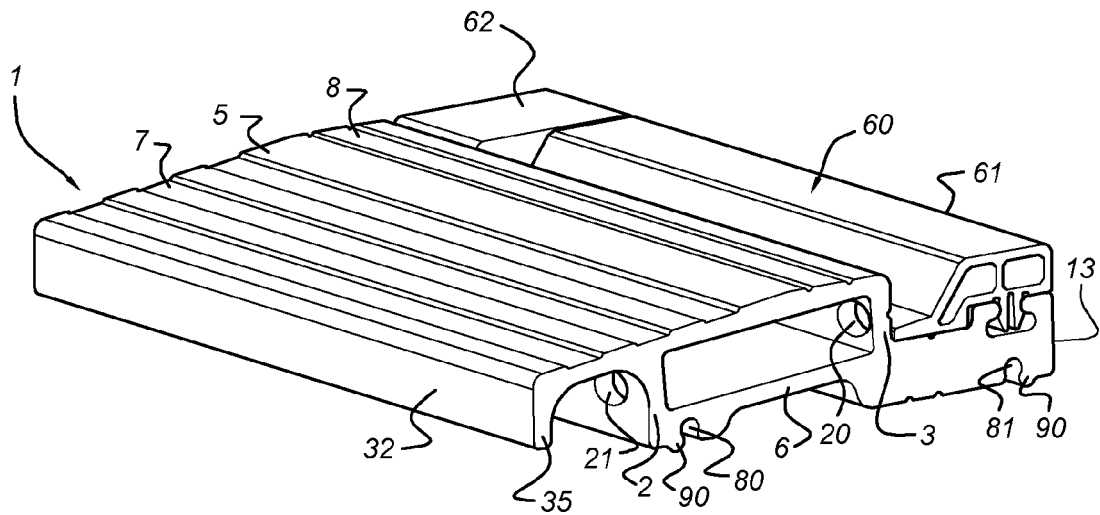
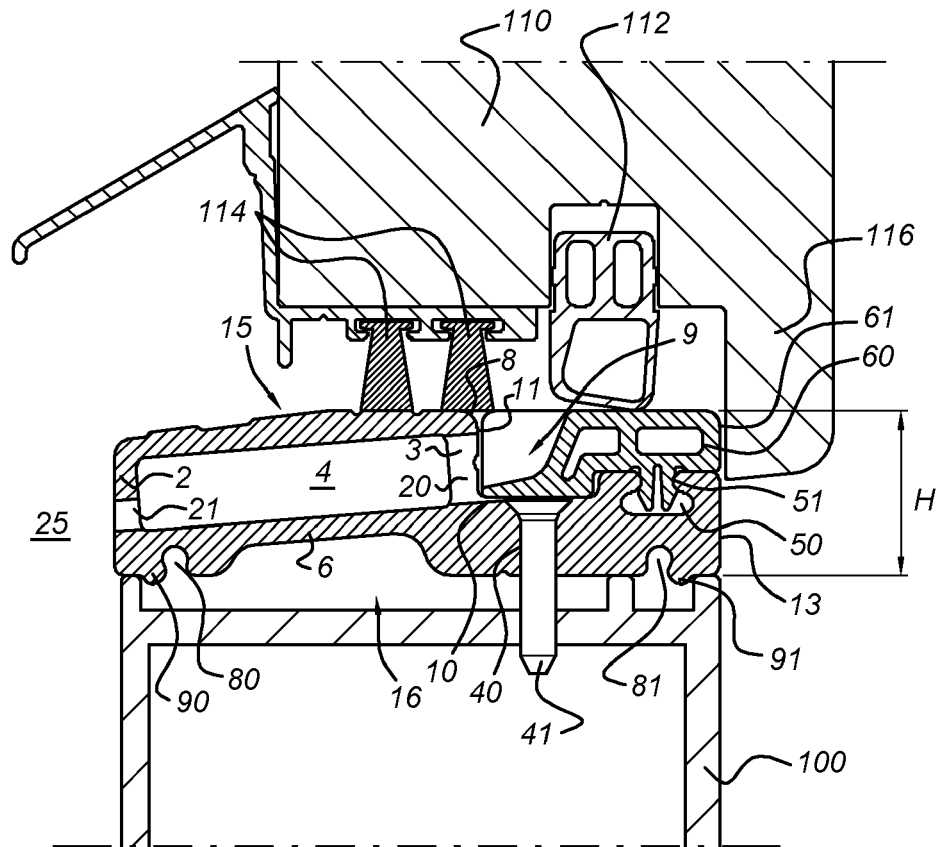


Fig 10





Europäisches
Patentamt
European
Patent Office
Office européen
des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 11 18 1334

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2004/031521 A2 (STANLEY WORKS [US] PREMDOR INTERNAT INC [BB]) 15 April 2004 (2004-04-15) * figures 1B, 5, 12 * * paragraphs [0096] - [0101] * * paragraphs [0105] - [0110] * * paragraphs [0127] - [0128] *	1-10, 12-25	INV. E06B1/70
X	GB 2 361 736 A (ALLPORT BRIAN [IE]; ALLPORT MARK C [IE]; ALLPORT PHILLIP B [IE]; GRAY) 31 October 2001 (2001-10-31) * the whole document *	1,2,4,5, 9,11,13, 14,16, 18,22-25	
X	US 4 310 991 A (SEELY JAMES R) 19 January 1982 (1982-01-19) * the whole document *	1-10,12, 14	
X	US 2009/199486 A1 (WERNLUND CHAD [US] ET AL) 13 August 2009 (2009-08-13) * figure 7 *	1-3, 6-10,13, 14	TECHNICAL FIELDS SEARCHED (IPC)
X	GB 2 418 448 A (ALLMAND SMITH LTD [GB]) 29 March 2006 (2006-03-29) * the whole document *	1-10, 12-21, 24,25	E06B
X	US 2 108 137 A (OFTEDAL PHILIP R ET AL) 15 February 1938 (1938-02-15) * the whole document *	1,2,6,9, 10,13,14	
A	DE 20 2004 004833 U1 (REHAU AG & CO [DE]) 3 June 2004 (2004-06-03) * figure 2 *	4,5,16, 22,23	
A	DE 20 2010 002712 U1 (VEKA AG [DE]) 1 July 2010 (2010-07-01) * the whole document *	1-25	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 21 December 2011	Examiner Blancquaert, Katleen
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

1
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 18 1334

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-12-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2004031521 A2	15-04-2004	AU 2003275291 A1 CA 2501317 A1 WO 2004031521 A2	23-04-2004 15-04-2004 15-04-2004
GB 2361736 A	31-10-2001	GB 2361736 A IE 20000241 A1	31-10-2001 03-10-2001
US 4310991 A	19-01-1982	NONE	
US 2009199486 A1	13-08-2009	NONE	
GB 2418448 A	29-03-2006	NONE	
US 2108137 A	15-02-1938	NONE	
DE 202004004833 U1	03-06-2004	NONE	
DE 202010002712 U1	01-07-2010	DE 202010002712 U1 EP 2360340 A2	01-07-2010 24-08-2011

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- NL 2002323 [0002] [0008]
- NL 1027966 [0005]