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(54) **GUTTER SYSTEM**

DACHRINNENSYSTEM

SYSTEME DE GOUTTIERE

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Description

[0001] The invention relates to a gutter system according to the preamble of the main claim.

[0002] Such a gutter system is known from DE-A-1.784.279.

[0003] This document describes a gutter system with gutter elements which comprise, in the region of the end walls, downwardly extending connecting means. A vertically extending discharge pipe may be slid around two adjacent connecting means of two adjacent gutter elements.

[0004] The invention aims to provide a gutter system of the type referred to in the introduction, which minimizes the risk of leakage and simplifies the connection of a discharge pipe.

[0005] To this end, the gutter system according to the invention is characterized as defined in the characterizing portion of the main claim.

[0006] Thus, the invention provides a gutter element which already during the manufacturing thereof, is closed completely tight at both ends by one wall, so that no sealing measures will have to be taken during the mounting of the gutter elements. A discharge pipe can be very easily connected with the coupling piece, owing to the fact that the coupling piece can always be connected to the connecting means of the gutter element with the connecting side for the discharge pipe in any desired position. Thus, the gutter system according to the invention can advantageously comprise a built-in discharge pipe, by placing the connecting side of the coupling piece in such a position that the discharge pipe passes through the plane of the roof. It is, of course, also possible to place the connecting side of the coupling piece in a vertical or other desired position in order to mount the discharge pipe on the outside of the building, as is usual.

[0007] If an appropriate diameter is selected for the tube stub, standard coupling pieces that are commercially available can be used.

[0008] The gutter system according to the invention further has the advantage that it can be very easily mounted on the roof, since it does not require the installation of brackets, as is generally necessary.

[0009] It is to be noted, that WO-A-8.100.873 already shows a discharge pipe coupling piece from tubing.

[0010] According to an advantageous embodiment of the invention, the gutter system comprises mounting strips that are attachable on the roof and that comprise, at both ends thereof, a fixing part capable of cooperating with a fixing means of a gutter element. Because of this, the gutter system according to the invention is suitable for each roof angle.

[0011] Preferably, the coupling piece is a T-coupling piece, mountable between two successive gutter elements. Thus, the T-coupling piece forms, on the one hand, a connection for the discharge pipe and, on the other, a simple coupling between two successive gutter elements.

[0012] At the end of the building, the gutter element can be closed off by a closing cap or it is possible to simply close off one connecting side of a T-coupling piece with the closing cap when mounting a discharge pipe at the end.

[0013] The invention will be further explained below with the aid of the drawings, in which an embodiment of the gutter system according to the invention is shown.

[0014] Figure 1 is a perspective view of an embodiment of the gutter system according to the invention, in which a built-in discharge pipe is used.

[0015] Figure 2 is a perspective view of the gutter system of figure 1, in which a discharge pipe has been fitted on the outside of the building concerned.

[0016] Figure 3 is a perspective view of the gutter system of fig. 1, in which the coupling piece is covered by a cover plate.

[0017] Figure 4 is a perspective view of the gutter system according to the invention, in which the coupling piece is situated at the corner of the building concerned.

[0018] Figure 5 is a perspective view of the gutter system of figure 1, in which the connecting stubs of two adjacent gutter elements are visible.

[0019] Figure 6 is a perspective view of the gutter system of figure 2, showing the coupling piece covered by a cover plate and also giving a schematic representation of a row of tiles.

[0020] The drawings illustrate an embodiment of the gutter system according to the invention, comprising a plurality of prefabricated gutter elements 1, each having an essentially U-shaped cross-section. One leg 2 is considerably longer than the other leg 3. Each gutter element 1 is mounted with the long leg 2 on the roof 4 of a building 5 shown schematically in the drawings.

[0021] For the purpose of mounting the gutter elements 1 on the roof 4, the gutter system comprises mounting strips 6 which are screwed onto the roof 4. Each mounting strip 6 comprises at both ends thereof a fixing part 7 that is capable of cooperating with unspecified fixing means of the gutter element 1. These fixing means can, for example, comprise a rim on the side of the body 8 of the gutter element 1, which is placed under one of the fixing parts 7 of the mounting strips, after which a rim formed at the free end of the long leg 2 is clicked behind the other fixing part 7 of the mounting strips 6.

[0022] During the manufacturing process, the gutter elements 1 have each been provided at both ends with an end wall 9 having a tube stub 10 (see figure 5) for connecting a T-coupling piece of tubing or for placing a closure cap known per se. In this way, it is achieved that a completely tight prefabricated gutter element is provided, so that, during the mounting of the gutter on the building concerned, it is no longer necessary to make joints between successive gutter elements and to seal these. If an appropriate diameter is selected for the tube stubs 10, standard coupling pieces that are commercial-

ly available can be used. The coupling pieces 11 can be reliably and sealingly joined to the tube stubs 10 by usual means. To this end, common rubber sealing rings can be used. It is also possible to join the coupling pieces sealingly to the tube stubs 10 through a glued joint.

[0023] As a T-coupling piece 11 is rotatable with respect to the tube stubs 10 during its mounting, the coupling piece can be mounted in any desired rotational position with respect to the longitudinal direction of the gutter element 1. This allows the coupling piece 11 to be mounted in the position shown in figure 1, so that a built-in discharge pipe 12 can be used. It is, of course, also possible to join the coupling piece 11 in such a way to the tube stubs 10, independently of the angle of the roof 4, that a vertical discharge pipe can be fitted on the outside of the building 5. It will be noted, that the gutter elements 1 on either side of the respective coupling piece 11 are only represented partially in figures 1 and 2, while of one gutter element 1 essentially only the end wall 9 is visible. As figures 1 and 2 show, a grid 14 has been incorporated in the end wall 9 for each tube stub 10, which serves to retain leaves and the like.

[0024] Figure 3 shows that, at the site of a coupling piece 11 not visible in figure 3, a cover plate 15 is mounted, which extends from the free end of the long leg 2 to the short leg 3 of both adjacent gutter elements 1. The cover plate 15 also engages around the body 8 of the gutter elements, so that an attractive closed unit is obtained. The cover plate 15 comprises an auxiliary gutter 16 which opens onto the adjacent gutter elements 1.

[0025] In the situation represented in figure 4, the coupling piece 11 is situated at the corner of a building, so that the cover plate 15 connects only on one side with the gutter element 1. On the other side, the cover plate 15 has an end plate 17.

[0026] Instead of the coupling piece 11, a bend piece can be used for connecting the discharge pipe. It is also possible to attach a closing cap to the tube stub 10 of the gutter element 1, if on that side of the building no discharge pipe is needed. It will be observed that figure 4 shows some tiles 21 of the lower row of tiles.

[0027] In the embodiment according to figure 2, in which the discharge pipe is situated on the outside of the building 5, the gutter system comprises an adapter 18, which connects the discharge pipe 13 to the T-coupling piece 11. In this case a cover plate 19 has been used, which contains an opening for the adapter 18, as can be seen in figure 6.

[0028] The drawings illustrate that each gutter element 1 has a flange 20 on the side of the long leg 2, which closes off the cross-cut rim of the plates of the roof 4. This flange 20 is flush with the body 8 of the gutter element 1.

[0029] The section of figure 3 shows that each gutter element has a semicircular cross-section on the inside. The centre of the respective circle is positioned on the centre line of the tube stubs 10 indicated in figure 5. As a result of this, hardly any water will be retained in the gutter.

[0030] The lower row of tiles 21 lies over the long leg 2 of the gutter elements 1, so that a simple connection of the tiles with the gutter is obtained.

[0031] The gutter elements 1 are preferably manufactured from plastic, and the body 8 in particular can be provided with a suitable reinforcing profile.

[0032] From the foregoing, it will be understood that the invention provides a gutter system, comprising a limited number of different parts and allowing nevertheless a gutter to be mounted simply and directly on the roof of a building, and allowing the use of, as desired, either a built-in discharge pipe or a discharge pipe fitted on the outside of the building, independently of the roof angle. The gutter system according to the invention further has the advantage that prefabricated gutter elements are used, which, with the exception of the tube stubs 10, are completely closed, so that, during the mounting of the gutter, no particular sealing need to be made between the successive gutter elements. If an appropriate diameter is selected for the tube stub 10, standard coupling pieces can be used. The risk of leakage is very small, even in the long term.

[0033] In the embodiment described in the foregoing, the end walls 9 have been manufactured as an integral part of the gutter elements 1. It is, however, also possible to manufacture the end walls 9 separately and to join these through a glued joint or the like to the gutter element 1 to form a unit. Furthermore, instead of a T-coupling piece, a bend piece can be used as a coupling piece for connecting a discharge pipe, for example at a corner of the roof.

[0034] The invention is not limited to the embodiment described in the foregoing, which can be varied in various ways within the scope of the invention.

Claims

1. Gutter system, comprising

- a plurality of prefabricated gutter elements (1) having an essentially U-shaped cross-section with two legs (2,3), of which one leg (2) is considerably longer than the other leg (3) and said longer leg is attachable to the roof (4), said gutter elements further having, at both ends thereof, end walls (9) being preferably integral with the gutter element,
- a coupling piece (11) for a discharge pipe (12,13) for precipitation water, and
- a connecting means (10) provided in the region of the gutter element end walls (9) for connecting said coupling piece (11) to the respective gutter element (1),

characterized in that

- the connecting means is formed by a tube stub (10) extending horizontally from a respective end wall (9),
- the coupling piece (11) is a piece of tubing, such that said coupling piece is connectable in any desired rotational position with respect to the longitudinal direction of the gutter element (1).

2. Gutter system according to claim 1, **characterized** in that the coupling piece is a T-coupling piece (11), mountable between two successive gutter elements (1).

3. Gutter system according to one of the preceding claims, **characterized by** a cover plate (15,19) for a coupling piece, said cover plate extending from the free end of the long leg (2) to the short leg (3) of an adjacent gutter element and comprising a gutter (16) that opens onto the adjacent gutter element (1).

4. Gutter system according to claim 3, **characterized in that** the cover plate (15,19) engages around the outside of the body (8) of the adjacent gutter element (1).

5. Gutter system according to one of the preceding claims, **characterized by** a sealing cap for the connecting means (10) of a gutter element (1) or a connecting side of a coupling piece (11).

6. Gutter system according to one of the preceding claims, **characterized by** a gutter element having a cover cap for connecting a discharge pipe (12-13) to a coupling piece (11).

7. Gutter system according to one of the preceding claims, **characterized** in that each gutter element has mounting strips (6) that are attachable on the roff (4) and that comprise, at both ends thereof, a fixing part (7) capable of cooperating with a fixing means of a gutter element (1).

8. Gutter system according to one of the preceding claims, **characterized in that** each gutter element (1) has a projecting flange (20) on the side of the long leg (2), said flange being flush with the body (8) of the gutter element (1).

9. Gutter system according to one of the preceding claims, **characterized in that** each gutter element (1) has a semicircular cross-section on the inside, the centre of the circle being substantially aligned with the centre of the tube stubs (10).

10. Gutter system according to one of the preceding claims, **characterized in that** the gutter elements (1) are manufactured from plastic.

Patentansprüche

1. Rinnensystem, folgendes umfassend:

- eine Vielzahl von vorgefertigten Rinnenelementen (1) mit im wesentlichen U-förmigem Querschnitt, mit zwei Schenkeln (2, 3), von denen ein Schenkel (2) wesentlich länger als der andere Schenkel (3) ist und der genannte längere Schenkel am Dach (4) befestigt werden kann, die genannten Rinnenelemente weiter an ihren beiden Seiten über Seitenwände (9) verfügen, die vorzugsweise aus einem Stück mit dem Rinnenelement gearbeitet sind,
- ein Koppelungsteil (11) für ein Ablaufrohr (12, 13) für Regenwasser und
- ein Verbindungsmittel (10), das im Bereich der Seitenwände (9) des Rinnenelements angeordnet ist, um das genannte Koppelungsteil (11) mit dem jeweiligen Rinnenelement (1) zu verbinden,

dadurch gekennzeichnet, daß

- das Verbindungsmittel von einem Rohrstumpf (10) gebildet wird, der horizontal von der jeweiligen Seitenwand (9) abgeht,
- das Koppelungsteil (11) ein Stück Rohr ist, so daß das genannte Koppelungsteil, bezogen auf die Längsrichtung des Rinnenelements (1), in jeder gewünschten Drehstellung verbunden werden kann.

2. Rinnensystem nach Anspruch 1, **dadurch gekennzeichnet**, daß das Koppelungsteil ein T-Koppelungsteil (11) ist, das zwischen zwei aufeinanderfolgenden Rinnenelementen (1) montiert werden kann.

3. Rinnensystem nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** ein Abdeckblech (15, 19) für ein Koppelungsteil, wobei das genannte Abdeckblech vom freien Ende des langen Schenkels (2) zum kurzen Schenkel (3) des benachbarten Rinnenelements verläuft und eine Rinne (16) umfaßt, die sich zu dem benachbarten Rinnenelement öffnet (1).

4. Rinnensystem nach Anspruch 3, **dadurch gekennzeichnet,** daß das Abdeckblech (15, 19) um die Außenseite des Körpers (8) des benachbarten Rinnenelements (1) anliegt.

5. Rinnensystem nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** eine Abdichtkappe für das Verbindungsmittel (10) eines Rinnenelements (1) oder eine Verbindungsseite eines Koppelungsteils (11).

6. Rinnensystem nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** ein Rinnenelement mit einer Abdeckkappe zum Anschließen eines Ablaufrohrs an ein Koppelungsteil (11).

7. Rinnensystem nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** daß jedes Rinnenelement Montagestreifen (6) aufweist, die am Dach (4) angebracht werden können und die an ihren beiden Enden ein Befestigungsteil (7) umfassen, das mit einem Befestigungsmittel eines Rinnenelements (1) zusammenwirkt.

8. Rinnensystem nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** daß jedes Rinnenelement (1) einen überstehenden Flansch (20) auf der Seite des langen Schenkels (2) aufweist, wobei der genannte Flansch mit dem Körper (8) des Rinnenelements (1) bündig ist.

9. Rinnensystem nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** daß jedes Rinnenelement (1) einen halbkreisförmigen Querschnitt auf der Innenseite hat, wobei die Mitte des Kreises im wesentlichen mit der Mitte der Rohrstümpfe (10) ausgerichtet ist.

10. Rinnensystem nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** daß die Rinnenelemente (1) aus Kunststoff hergestellt sind.

Revendications

1. Système de gouttière, comprenant :

   - plusieurs éléments préfabriqués (1) de gouttière ayant une section pratiquement en U ayant deux branches (2, 3) dont une branche (2) est considérablement plus longue que l'autre branche (3), et la branche relativement longue est destinée à être fixée au toit (4), les éléments de gouttière ayant en outre, à leurs deux extrémités, des parois (9) d'extrémité qui sont de préférence solidaires de l'élément de gouttière,
   - une pièce d'accouplement (11) d'un tube d'évacuation (12, 13) de l'eau des précipitations, et
   - un dispositif de raccordement (10) placé dans la région des parois (9) d'extrémité de l'élément de gouttière et destiné à raccorder la pièce d'accouplement (11) à l'élément respectif de gouttière (1),

   caractérisé en ce que

   le dispositif de raccordement est formé d'un bout mâle de tube (10) s'étendant horizontalement depuis une paroi respective d'extrémité (9), et
   la pièce d'accouplement (11) est un morceau de tube tel que la pièce d'accouplement puisse être raccordée en toute position voulue en rotation autour de la direction longitudinale de l'élément de gouttière (1).

2. Système de gouttière selon la revendication 1, caractérisé en ce que la pièce d'accouplement est une pièce d'accouplement (11) en T qui est destinée à être montée entre deux éléments successifs de gouttière (1).

3. Système de gouttière selon l'une des revendications précédentes, caractérisé par une plaque de couverture (15, 19) d'une pièce d'accouplement, la plaque de couverture s'étendant depuis l'extrémité libre de la branche longue (2) vers la branche courte (3) d'un élément adjacent de gouttière et comprenant une gouttière (16) qui débouche sur l'élément adjacent de gouttière (1).

4. Système de gouttière selon la revendication 3, caractérisé en ce que la plaque de couverture (15, 19) est disposée autour de l'extérieur du corps (8) de l'élément adjacent de gouttière (1).

5. Système de gouttière selon l'une des revendications précédentes, caractérisé par un capuchon de fermeture étanche du dispositif de raccordement (10) d'un élément de gouttière (1) ou d'un côté de raccordement d'une pièce d'accouplement (11).

6. Système de gouttière selon l'une quelconque des revendications précédentes, caractérisé par un élément de gouttière ayant un capuchon de couverture destiné à raccorder un tube (12-13) d'évacuation à une pièce d'accouplement (11).

7. Système de gouttière selon l'une quelconque des revendications précédentes, caractérisé en ce que l'élément de gouttière comporte des bandes de montage (8) destinées à être fixées sur le toit (4) et qui comprennent, aux deux extrémités, une partie de fixation (7) destinée à coopérer avec un dispositif de fixation d'un élément de gouttière (1).

8. Système de gouttière selon l'une quelconque des revendications précédentes, caractérisé en ce que chaque élément de gouttière (1) a un flasque en saillie (20) du côté de la branche longue (2), ce flasque étant au niveau du corps (8) de l'élément de gouttière (1).

9. Système de gouttière selon l'une quelconque des revendications précédentes, caractérisé en ce que chaque élément de gouttière (1) a une section en demi-cercle à l'intérieur, le centre du cercle étant

pratiquement aligné avec le centre des bouts mâles de tube (10).

10. Système de gouttière selon l'une quelconque des revendications précédentes, caractérisé en ce que les éléments de gouttière (1) sont fabriqués à partir de matière plastique.

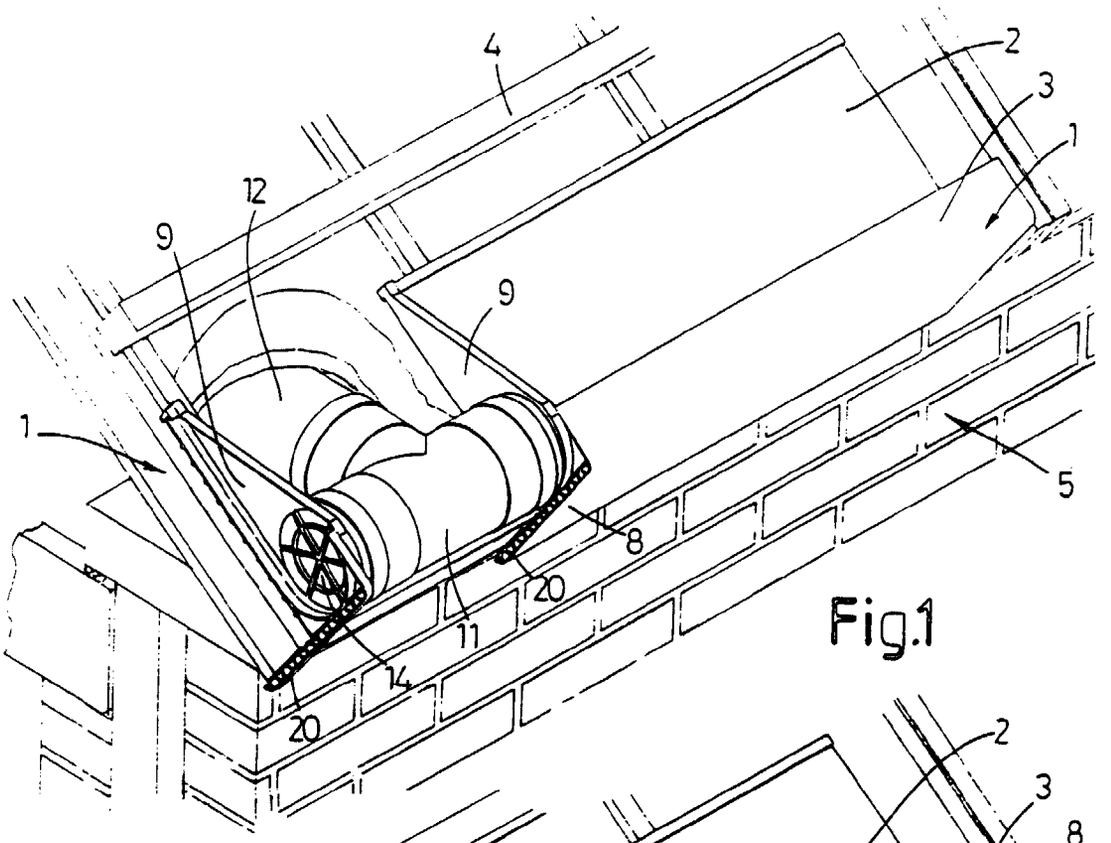

Fig.1

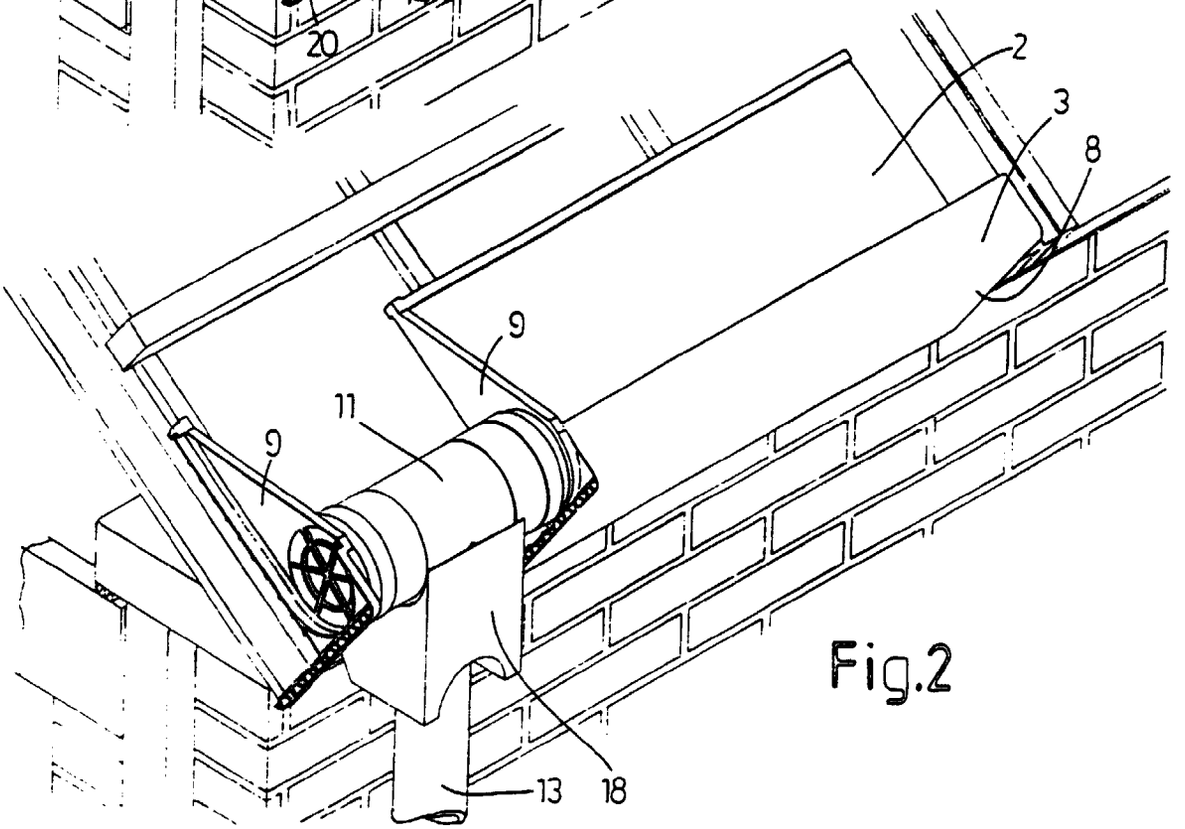

Fig.2

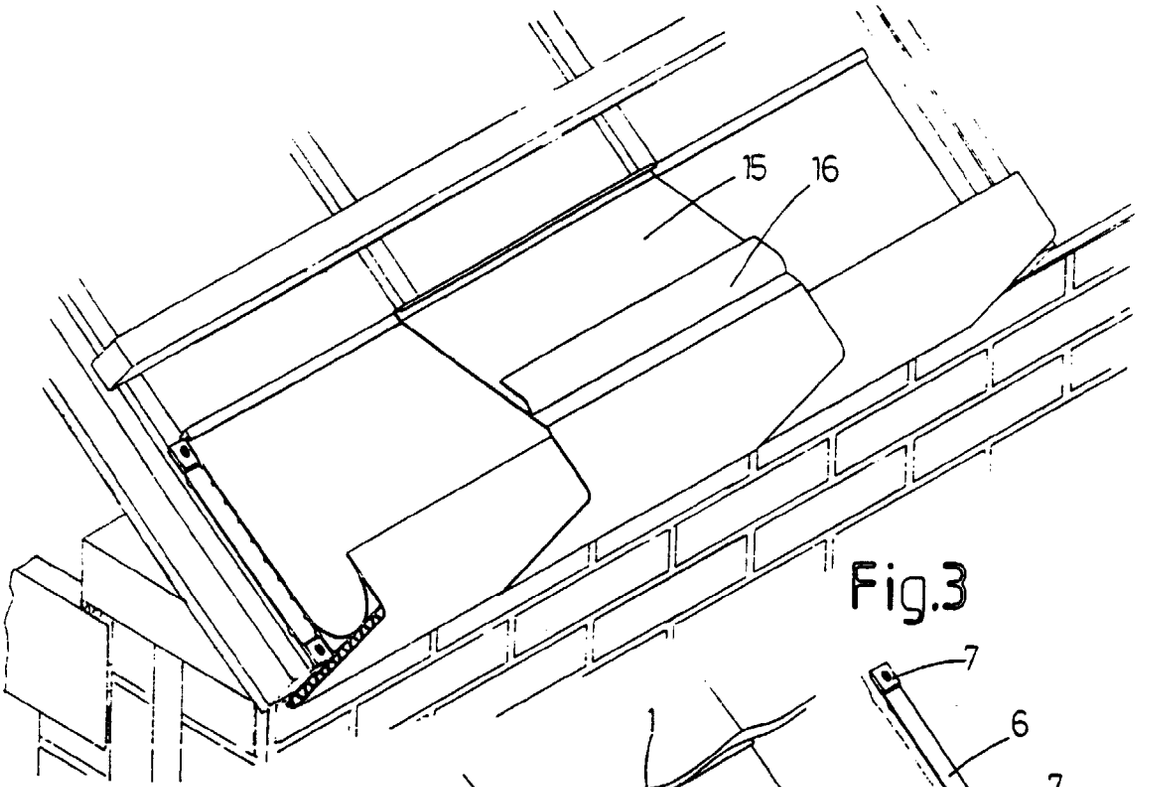

Fig.3

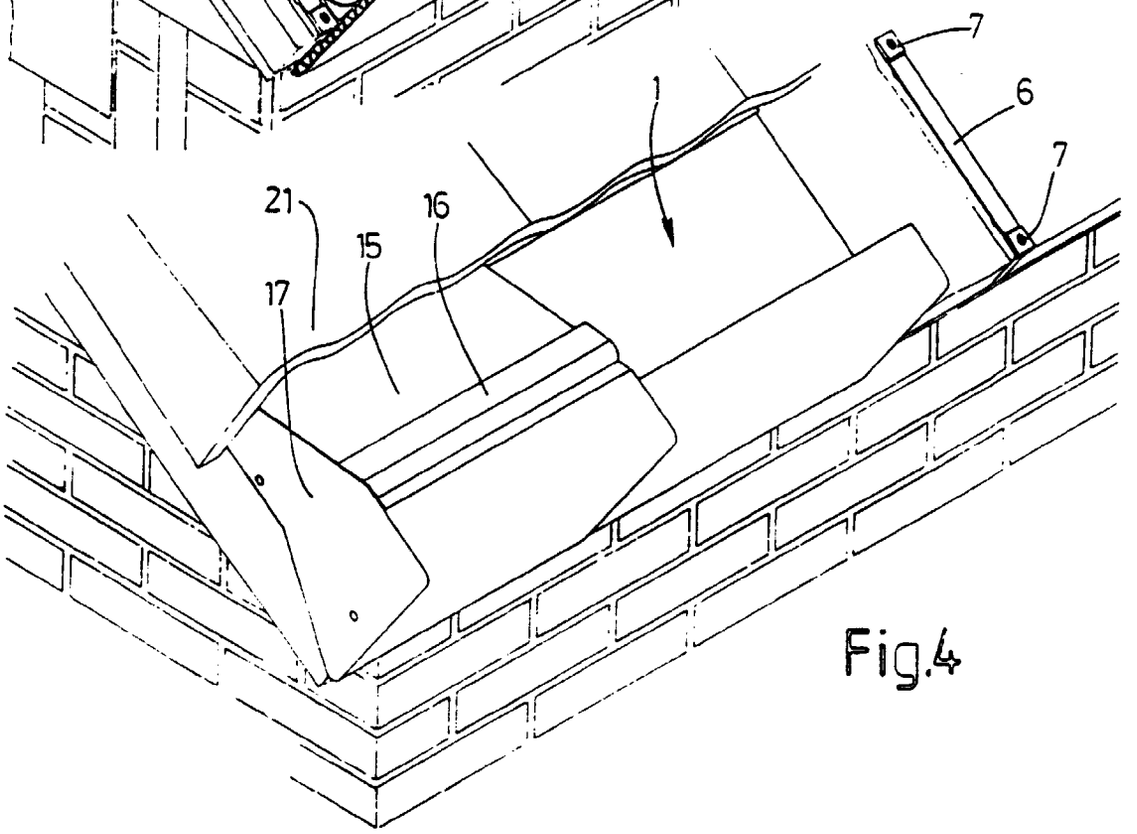

Fig.4

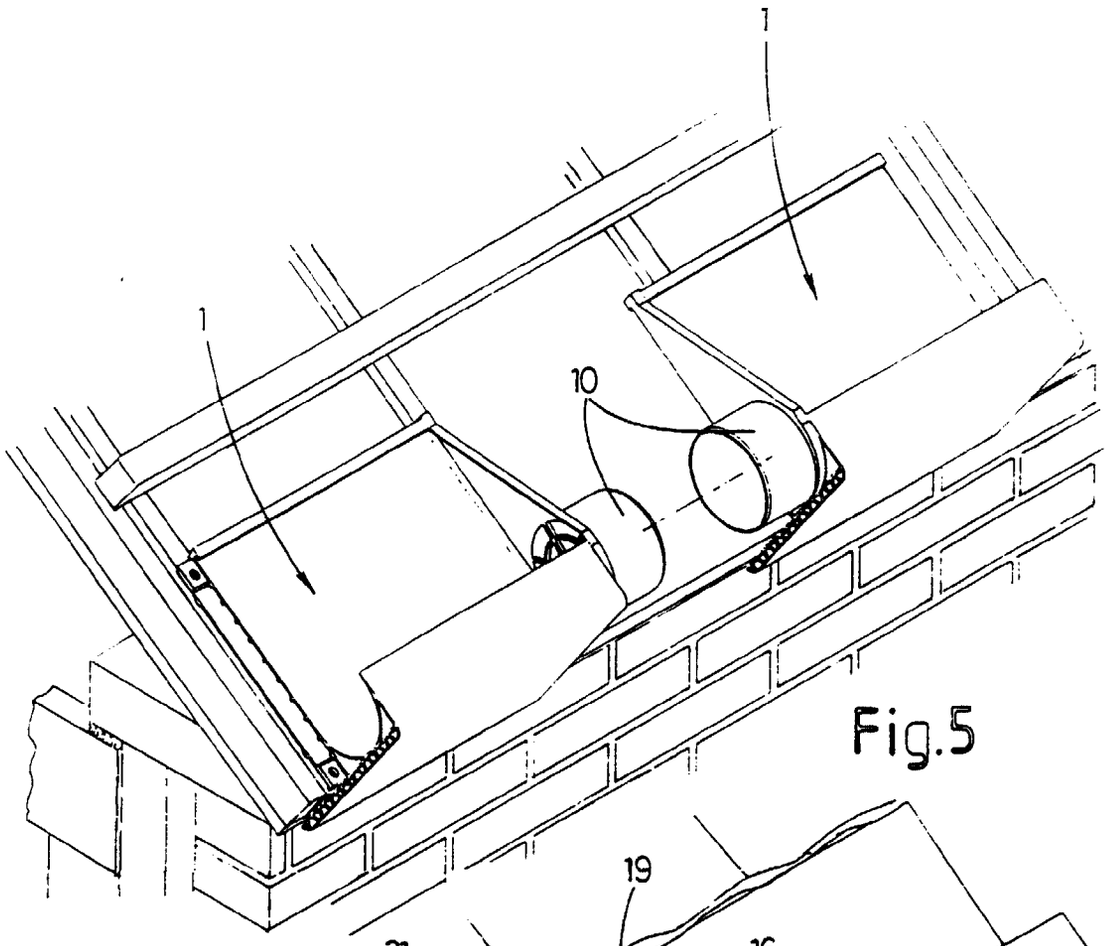

Fig.5

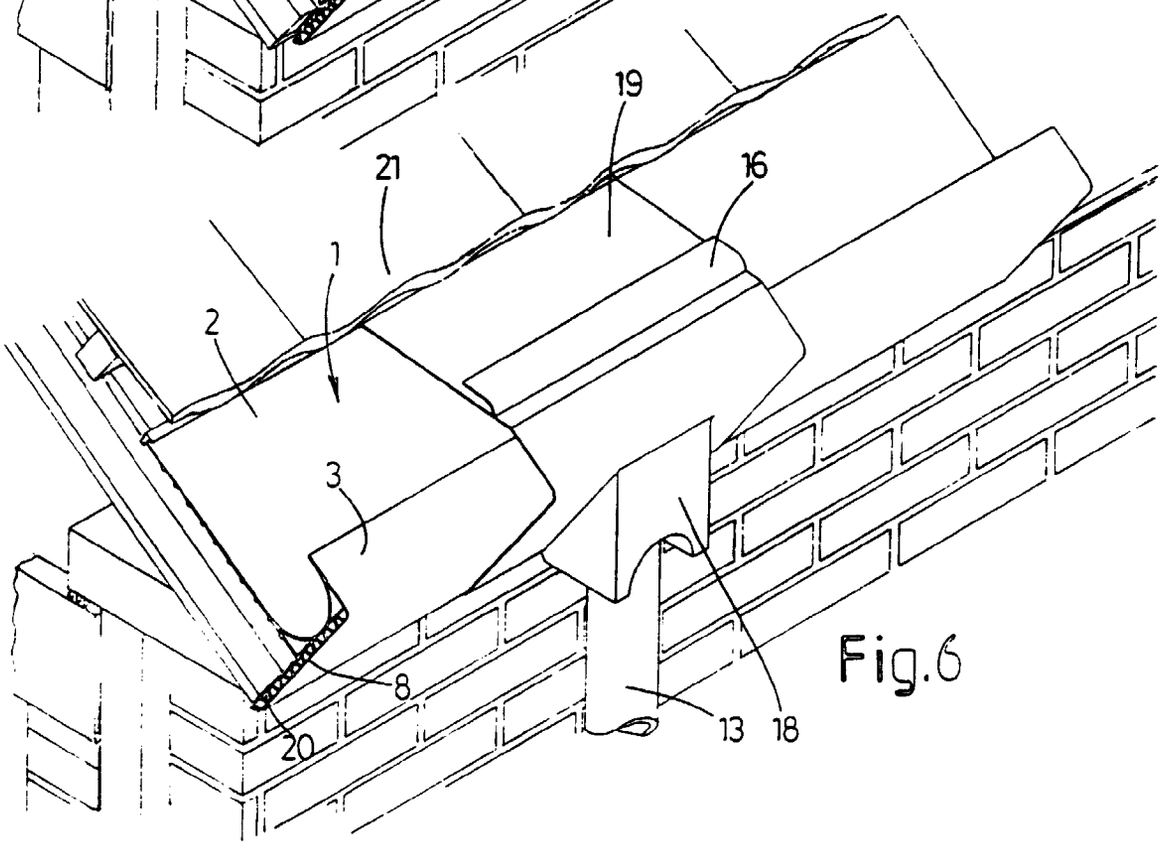

Fig.6