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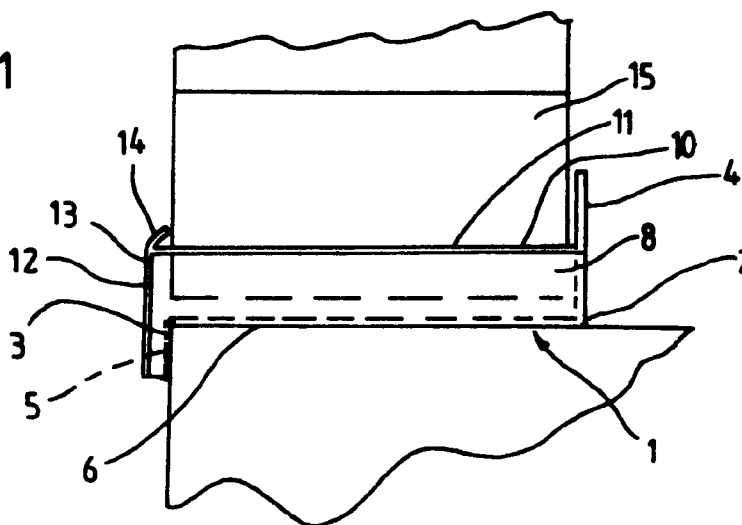
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(54) **Protection element for preventing the ingress of water in a wall and for improving the discharge of water from a wall**

(57) Protection element for preventing the ingress of water in a wall and for improving the discharge of water from a wall made of bricks (15). The protection element is made of plastic or metal and it comprises a bottom plate (1) with a length equal to that of a number of bricks and a width which is substantially the breadth of a brick. The bottom plate is provided at the longitudinal edges (2,3) with perpendicularly flanged longitudinal members (4,5) bent in opposite directions and provided at the

endwise edges (6) with lateral walls (8,9), of which the one (8) is provided along the free edges (10,12) with outwardly flanged cover edges (11,13) which may be U-shaped and which, when placing the elements in a wall, fall over the free edges of the lateral wall of the adjoining element. A separate guide plate (23) may be used for sealing the cavity.

FIG. 1



Description

The invention relates to a protection element for preventing the ingress of water in a wall and for improving the discharge of water from a wall, in particular from a wall made of bricks, which element comprises an elongate bottom plate with a breadth substantially that of a brick, which plate is provided, near at least one longitudinal edge, with a substantially perpendicularly flanged longitudinal member which extends mainly upwards when the element is in use.

Such an element is known from document GB-A-2,164,368, and it is used at those positions in a wall where it is desirable to counter the penetration of water in the wall and to improve the discharge of water from the wall. This is the case e.g. when a wall is constructed on a concrete foundation or at members provided for in the wall, such as at door sills, window sills, balconies and suchlike. When the latter members are made of wood, there is a risk that they will be affected when there is always water present between the sill and the bricks present above it.

The known protection element will in particular be made of plastic, but it can also eventually be made of metal. The element has mainly a L-form in cross-section. The element can be cut off at a certain length, so that it can be made to fit with the total length of a number of bricks used. For connecting the elements to each other, connectors may be used into which the end edges of the elements can be slid. A connector may thereby comprise a lateral wall with two legs perpendicular to it in between which the bottom plate and the longitudinal member connected to it may be received.

Although it is advantageous for an element to be cut off at the desired length, special tools will nevertheless need to be available for this. A great disadvantage, however, is that no water-tight seal is obtained between following elements. It appears that water can penetrate downwards between the two elements at a connector, with a resulting unfavourable outcome.

Further, the bottom plate is provided at the other longitudinal edge with a sleeve for receiving the edge of a slab, which eventually may be made of lead, therein. The provision of such a slab requires a certain expertise, so that skilled workers are necessary. This, of course, calls for considerable expense. In addition, lead is a relatively expensive and environment-polluting material.

As a last point, connecting the elements to each other also costs relatively a lot of time since this has to take place with loose, individual connectors. There is also the risk that the protection element does not come to lie at the proper position, as seen in the direction of the breadth of the wall.

The invention has the objective of eliminating the stated objections and to that end provides for the bottom plate of the protection element also being provided, at the other longitudinal edge, with a substantially perpendicularly flanged second longitudinal member,

which extends in opposite direction to the first longitudinal member, and in that the bottom plate is provided at both endwise edges with a lateral wall perpendicular to the bottom plate and to the longitudinal members, which is fixedly attached to the bottom plate and to the first longitudinal member, which lateral walls extend across such a distance in heightwise direction that the top edge thereof will be positioned next to a brick to be provided in the element, but will not project above it, while at least the one lateral wall is provided at its free edges with outwardly flanged cover edges, which when placing the elements in a wall, may come to fall over the free edges of the lateral wall of the element which lies longitudinally next to it.

The provision of such elements is particularly simple and does not require any particular skill of the bricklayer who lays the bricks of the wall. Due to the presence of the second longitudinal member, the protection element can be placed in the correct position quite accurately. Because the lateral walls will extend in heightwise direction right next to a brick present in the element and because the flanged cover edges fall over the lateral wall of the element lying next to it, water is prevented from seeping inwardly.

This risk can be further alleviated by providing that the cover edges are embodied in a U-shape, such that the edges of the lateral wall of the adjoining element can be received in these cover edges.

By this it is also prevented that the protection elements shift longitudinally relative to each other, such as when bricklaying the wall.

In order to prevent that water is sucked in between the abutting sections of the lateral walls as a result of capillary action, it may be provided that the outer surface of at least one of the lateral walls is provided with an outwardly directed member.

The planes of the lateral walls will therefore lie at some distance to each other across a major part of their surfaces, so that no capillary action will occur. Capillary action occurs only when there is a very small distance between two planes.

The outwardly directed member is preferably provided on the lateral wall which is not provided with the cover edges. By this the outwardly directed member can also serve for stiffening the lateral wall.

The outwardly directed member may thereby be formed by a flanged section of the free edges of the lateral wall concerned.

When an inner cavity wall is provided at the wall in which the elements are received, the first longitudinal member may be provided, just as the case is with the known protection element, with an extension member flanged away from the plane of the longitudinal member and directed away from the other longitudinal member, which must extend up to the cavity wall. The intention thereof is that water which flows downwards along the inner wall, is collected and directed outwardly. To this end the outer wall may eventually be provided with a discontinuous joint.

The surface of the inner wall directed towards the outer wall may, however, be disuniform and thus the breadth of the cavity, too, may vary. By this the extension member of the protection element may not abut the inner wall well everywhere.

According to the invention it is therefore provided that the extension member of the protection element extends across only a part of the breadth of the cavity and that use is made of a loose, bent guide plate, of which one leg extends upwardly from the bending point and abuts the inner wall and the other leg slants downwards from the bending point and extends across the extension member of the protection element to beyond the point where the extension member of the longitudinal member has been bent, to seal the cavity.

With this guide plate, water which eventually flows downwards along the surface of the inner wall directed towards the outer wall, can be collected and discharged outwardly.

By embodying the bottom plate somewhat wider than the breadth of a brick, a void can be obtained between the bricks and the longitudinal member, in which water can be collected so that it can be discharged outwardly. The section of the guide plate projecting across the extension member will substantially abut the bricks. By this it is prevented that mortar falling down behind the bricks during the laying thereof, fills up the void between the bricks and the longitudinal member. The mortar shall remain mainly on the guide plate.

The guide plates may be embodied such that the lateral edges thereof fall over each other to a certain extent.

The invention is further described by means of examples of embodiments, illustrated in the drawings, in which

Figure 1 represents a side-elevational view of an element according to the invention, with sections of a wall, a foundation or a sill schematically indicated; Figure 2 represents a front view of the element as depicted in Figure 1;

Figure 3 represents a sectional view of a member of the protection element according to the invention, in use with a cavity wall whereby the first longitudinal member is provided with a flanged extension member;

Figures 4 and 5 represent sectional views of other embodiments of an element according to the invention; and

Figure 6 represents a cross-sectional view of a section of a cavity wall with protection element, in which an individual guide plate has been used.

The element depicted in Figures 1 and 2 comprises bottom plate 1, of which the longitudinal edges 2 and 3 are provided with the flanged longitudinal members 4 and 5, respectively, which have been indicated in the foregoing as the first longitudinal member 4 and the second longitudinal member 5. Lateral walls 8 and 9,

respectively, adjoin the endwise edges 6 and 7 of bottom plate 1 and longitudinal members 4 and 5. Lateral wall 8 is provided with cover edge 11 at the free edge 10 running parallel to the plane of bottom plate 1 and with cover edge 3 at edge 12 perpendicular to the plane of plate 1. This cover edge 13 is located at some distance on the outside of longitudinal member 5 and may be provided at the top edge with a lip 14 extending freely upwards and inwardly which can connect to the wall made of bricks 15.

It will be clear that cover edges 11 and 13 of the lateral wall of the one element fall over the free edges of the lateral wall 9 of the element adjoining it when two elements are placed next to each other.

The element will have a length such that a number of bricks, such as two or three, may be provided therein, between lateral walls 8 and 9. Of course, other numbers of bricks per element may also be used. This will depend on the purposive use and on the material of which the elements are fabricated. At any rate, the pattern of the bricks will remain wholly similar to the normal pattern.

The height H of the lower lateral wall 9 will be such that it is greater than the thickness of the layer of mortar on which a brick to be placed in the element, will come to rest. The higher edge of lateral wall 8 will thus be positioned next to a brick 15. The higher edge of the lateral wall must also be positioned next to brick 15 and lie below or next to the top edge thereof, so that the bricks of the next layer may be provided staggered.

Figure 3 illustrates the possibility of providing longitudinal member 4 with an outwardly slanting member 16, which is connected to a cavity wall 17 standing at some distance to the aforementioned wall made of bricks 15 in which the element according to the invention is incorporated.

Figure 4 illustrates the possibility of edge 11 of the lateral wall being provided with a downwardly flanged edge 18 so that a U-shaped edge is obtained in which the lateral wall 9 of an adjoining element can be received. The edge 13 of lateral wall 8 may be embodied in a similar way.

In order to prevent that the facing surfaces of lateral walls 8 and 9 of the connected elements lie so close together that a capillary action could occur, the outer surface of lateral wall 9 is provided locally with a rib 19.

In the embodiment according to Figure 5, the edges of lateral wall 9 are provided with an outwardly flanged member 20 which is received in the U-shaped edge of the element lying next to it.

Figure 6 illustrates the possibility of providing a void 21 between the bricks 15 of the wall and the longitudinal member 4.

The extension member 16, which is connected to the longitudinal member 4, extends across only part of the width of the cavity 22. A guide plate 23 is laid on the extension member 16, of which (guide plate) the one leg 24 is connected to the inner wall 17 and the other leg 25 extends right up to the bricks 15 of the wall. Water falling

on the guide plate 23 can flow through between edge 26 of leg 25 and the bricks 15 of the wall and can be discharged. To that end a vertical joint may eventually be left open between two bricks 15.

It will be apparent that only a few possible embodiments of an element according to the invention have been illustrated and described in the foregoing, and that several modifications may be brought about without departing from the spirit of the invention.

Claims

1. Protection element for preventing the ingress of water in a wall and for improving the discharge of water from a wall, in particular from a wall made of bricks (15), which element comprises an elongate bottom plate (1) with a breadth substantially that of a brick (15), which bottom plate (1) is provided, near at least the one longitudinal edge (2), with a substantially perpendicularly flanged longitudinal member (4), which extends mainly upwards when the element is in use, **characterized in that** the bottom plate (1) is provided also, at the other longitudinal edge (3), with a substantially perpendicularly flanged second longitudinal member (5), which extends in opposite direction to the first longitudinal member (4), and in that the bottom plate (1) is provided at both endwise edges (6,7) with a lateral wall (8,9) perpendicular to the bottom plate (1) and to the longitudinal members (4,5), which (lateral wall) is fixedly attached to the bottom plate (1) and to the first longitudinal member (4), which lateral walls (8,9) extend across such a distance (H) in heightwise direction that the top edge thereof will be positioned next to a brick (15) to be provided in the element, but will not project above it, while at least the one lateral wall (8) is provided at its free edges (10,12) with outwardly flanged cover edges (11,13), which when placing the elements in a wall, may come to fall over the free edges of the lateral wall (9) of the element which lies longitudinally next to it.
2. Protection element according to claim 1, **characterized in that** the cover edges (11,13) of the lateral wall (8) are embodied in a U-shape, such that the free edges of the lateral wall (9) of the adjoining element can be received in these cover edges (11,13).
3. Protection element according to claim 1 or claim 2, **characterized in that** the outer surface of at least one of the lateral walls (9) is provided with an outwardly directed member (19,20).
4. Protection element according to claim 3, **characterized in that** the outwardly directed member (19,20) is provided on the lateral wall (9) which is not provided with cover edges (11,13).
5. Protection element according to claim 4, **characterized in that** the outwardly directed member of the lateral wall (9) is formed by a flanged member (20) of the free edges of the lateral wall (9) concerned.
6. Protection element according to any of the preceding claims, **characterized in that** the first longitudinal member (4), which in laid state is positioned on the inside of the wall (15) and is directed upwards, is provided with an extension member (16) bent away from the plane of the longitudinal member (4) and directed away from the other longitudinal member (5), which (extension member) extends only across part of the breadth of the cavity (22), and in that use is made of a loose, bent guide plate (23), of which the one leg (24) extends upwards from the bending point and abuts the inner wall (17) and the other leg (25) slants downwards from the bending point and extends across the extension member (16) of the protection element to beyond the point where the extension member (16) of the longitudinal member (4) has been bent, to seal the cavity.

FIG. 1

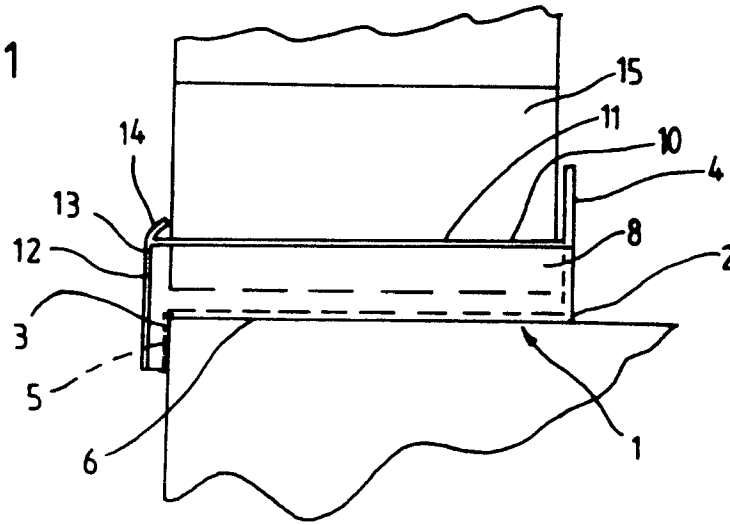


FIG. 2

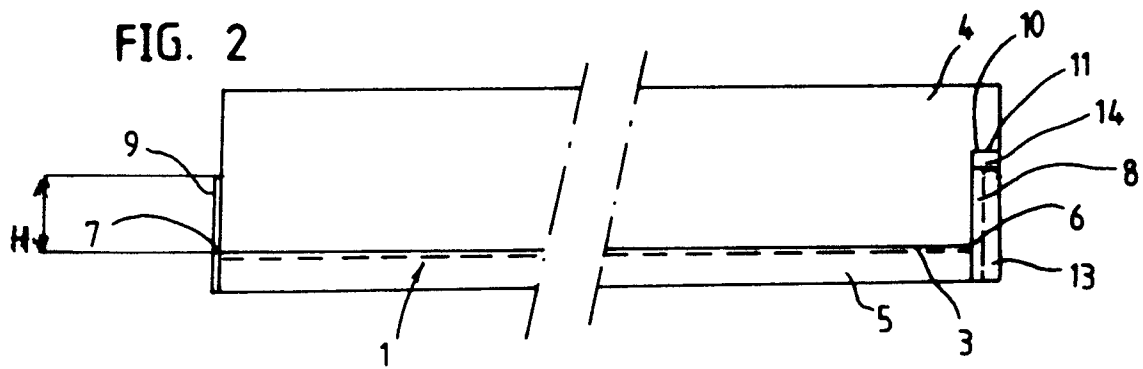


FIG. 3

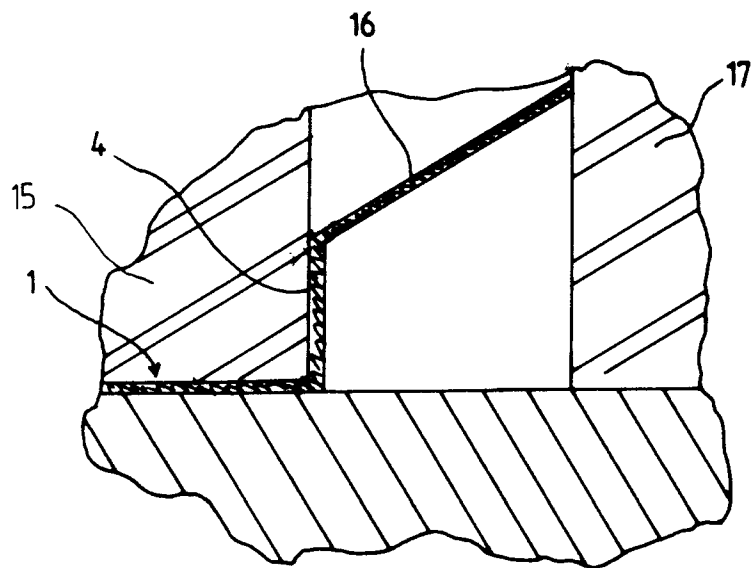


FIG. 4

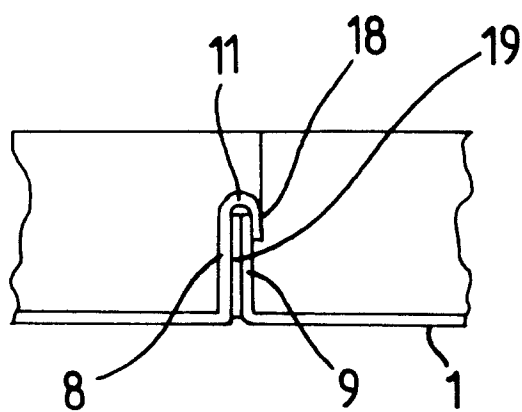


FIG. 5

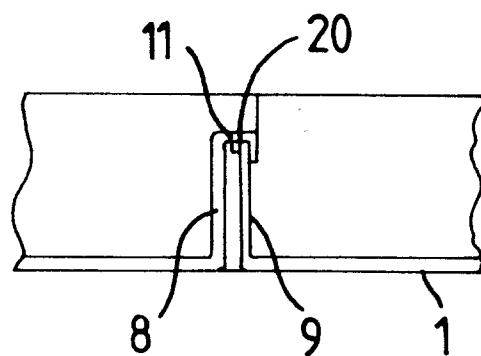
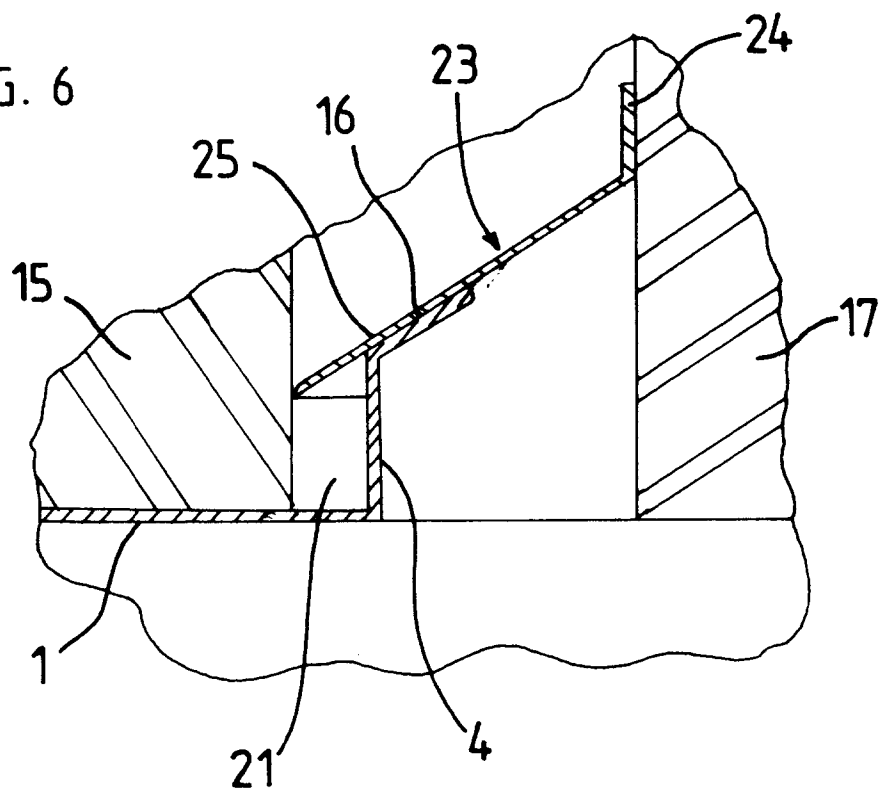


FIG. 6





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EUROPEAN SEARCH REPORT

Application Number
EP 96 20 0949

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	NL-A-6 500 162 (SCHLEGEL) 12 July 1965 * figures 1-3 *	1	E04B1/70
A	GB-A-2 164 368 (SHILLABEER) 19 March 1986 * abstract; figure 8 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E04B E04C E04H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19 July 1996	Examiner Clasing, M
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