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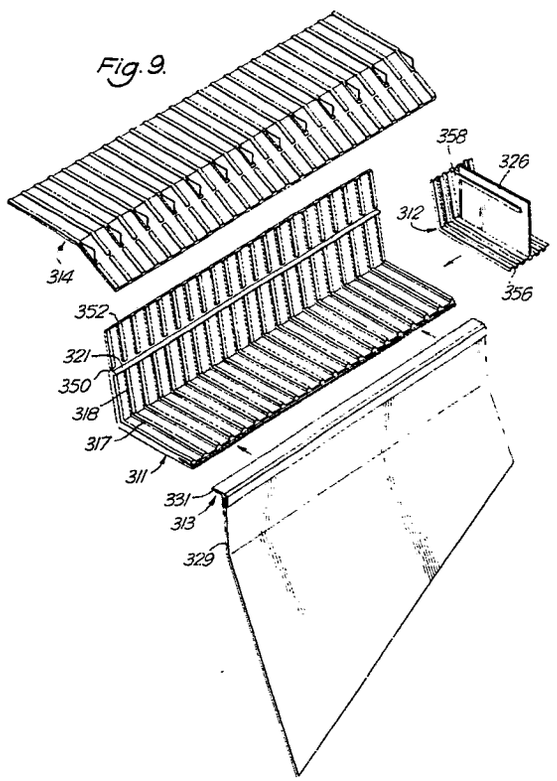
(54) Cavity wall tray.

(57) A cavity wall tray system comprises an outer tray portion (311), and inner tray portion (314), a stopend (312) and a flashing strip (313). The outer tray has a horizontal portion (315) which rests on the outer cavity wall and an inclined rear wall portion (316). The inner tray has a horizontal portion (333) which rests on the inner wall leaf and an inclined portion (334) which extends towards the outer leaf. The stopend is free and may be located at a desired postion along the outer tray portion.

Fig. 9.



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CAVITY WALL TRAY

This invention relates to cavity trays for use with cavity wall constructions. Preformed cavity trays are now frequently employed as damp proof courses in cavity wall constructions, in favour of plastics or lead sheeting which must be fabricated on site.

Cavity trays may be used in three general situations. Firstly, they are used in ground level damp proof courses which are generally continuous, but may be interrupted along their length by various features such as doors. When trays are used, they are of finite length and must therefore be joined securely to ensure a water-proof connection. Furthermore, when an interrupting feature is encountered, a tray with a stopend must be used, and this tray must be cut so that the stopend is located against the feature. This tends to affect the joint to the adjacent tray adversely, and requires that bricks be cut to fit the tray size.

The second situation is where a cavity wall abuts a lower horizontal surface, such as a flat roof. It is normal practice in such circumstances to install cavity trays so that they follow the line of contact, in order to prevent any rain penetrating to regions beneath the roof, where the outside leaf of the cavity wall becomes an inner leaf. Again, the trays are required to be generally continuous, but may be interrupted along their length by various features such as windows. As with the ground level DPC trays must be connected and stopends must be used. Again, bricks and trays must be cut so that the stopend abuts the interrupting feature which is disadvantageous.

The third situation occurs where a cavity wall abuts an inclined surface such as a pitched roof. It is normal practice to install cavity trays at such abutments so that they follow the inclined line of contact in order to prevent rain penetrating regions beneath the roof where the outside leaf of the cavity wall become an inner leaf. Thus, the positions of the trays are displaced along the wall in adjacent brick courses.

In order to limit movement of moisture along the wall into the region below the roof, the trays include a vertical stopend located in the joint between two adjacent bricks in a course.

It is desirable from an aesthetic point of view to ensure that the flashing on the outside of the outer leaf, connected to the cavity tray, also follows the incline of the roof. Unfortunately, the pitch angle of a roof may vary between about 20°C and 45°C. This means that bricks must be cut on site to fit into the space up to the stopend after the tray has been located in position, the position of the tray being determined by the abutting roof.

The present invention aims to provide a cavity tray system that can be adapted for use in any of the situations mentioned above and which overcomes the above-mentioned disadvantages. Accordingly, the invention provides a cavity tray system for a cavity wall, comprising a tray for bridging a cavity between inner and outer wall leafs, the tray having a base portion and an inclined rear wall portion extending upwardly therefrom, characterised by a movable stopend, and in that the tray and the stopend have locating means for locating the stopend at a desired position on the tray.

The provision of the movable stopend obviates the need to cut bricks at obstacles so reducing building time and labour costs. It also removes the temptation for builders to avoid the necessity of cutting bricks by using unsuitable infilling in the gap which should be filled by cut-bricks. For obstacles such as doors the tray itself must be cut. However, in some instances the uncut tray may extend beneath an obstacle with the stopend abutting the side of the obstacle.

The invention has the further advantage that when used with interconnected trays the joint between trays is not affected by the position of the obstacle.

When used with walls abutting sloped roofs, the tray can be located at the desired position relative to the roof, and the stopend can be positioned to accommodate a whole brick. Moreover, it means that a single size of tray can be used for a wide range of roof pitches.

Preferably, the stopend comprises a base portion and an inclined rear wall portion corresponding in shape to the base and rear wall portions respectively of the tray, and an end portion. The ridges and grooves are formed on the base and rear wall portions of the stopend and the tray. This arrangement allows the stopend to be arranged in a large number of different positions on the tray. As the space between adjacent grooves and ridges is small the stopend can be positioned accurately without the need for large amounts of mortar to fill the gap between the end brick and the stopend. The end portion of the stopend may be located at any point along the base portion.

The invention also provides a cavity tray system in which the tray includes a flashing strip having an edge portion for attachment to an edge portion of the tray. The flashing strip is preferably a flashing clip having a rebated channel on one of said edge portions and a barbed flange on the other of said edge portions. A lead sheet may be attached to the flashing clip. This aspect of the invention has the advantage that the flashing may

be attached on site, making transport and storage much more easy. Moreover, the flashing strip can be attached after the tray has been positioned on the cavity wall facilitating location of the tray.

One preferred embodiment of the invention is intended for use where trays overlap in a straight run. The trays are provided with end portions arranged to overlap, at least one of a pair of overlapping ends having an adhesive layer thereon. The adhesive layer is preferably applied to one layer and protected by a layer of masking paper until the tray is to be joined to another. Other methods of connecting trays may be used and in another preferred embodiment the trays have protruding ledges and recessed portions at the ends of the base portions of connecting trays, the protruding ledge of one tray being shaped to be received in the recessed portion of an adjacent tray.

Preferably, the tray comprises inner and outer tray members, the other tray member including the said base and inclined rear wall portions and receiving the said stopend, and the inner tray member comprising a horizontal wall portion for arrangement on a course of bricks of the inner leaf of a cavity wall, and an inclined portion extending downwardly therefrom, whereby, in position, the inner and outer tray members bridge the cavity. It is not necessary for the inner and outer tray members to be in contact. All that is required is that the members span the horizontal width of the cavity. The inner member may be located several centimetres above the outer member.

In one embodiment, when in position with the horizontal wall portion of the inner tray member lying on a course of the inner leaf of the cavity wall, and the base of the outer member on a lower course of the outer leaf, the inclined portion of the inner tray member at least partically overlaps the inclined rear wall of the outer tray member.

Both inner and outer trays may be provided with strengthening means in the form of a series of ridges and grooves. As well as strengthening, the grooves help to prevent moisture from running along the length of the trays and, on the horizontal portions, help to key the tray members into the mortar.

Preferably, the upwardly extending rear wall portion comprises a hinge portion extending parallel to the base portion and defining upper and lower parts of the rear wall portion, whereby the upper part is pivotable with respect to the tray. Provision of the hinge enables the tray to be used with cavity walls of different cavity widths or with varying depths of insulation applied to the cavity.

The system may also include corner units for interconnecting trays lying in different vertical planes. The corner units have the advantage of allowing trays suitable for use with sloping roof, and which do not have interconnecting means, to be attached to trays for use with continuous runs which do. Moreover, it allows continuity of the tray system around covers.

Embodiments of the invention will now be described by way of example and with reference to the accompanying drawings, in which:-

Figure 1 is an exploded diagram of a cavity tray system embodying the invention;

Figure 2 is an assembled diagram of the system of Figure 1;

Figure 3 is a vertical section through the junction between the stopend and the tray, on an enlarged scale;

Figures 4 and 5 are enlarged isometric views of the joints between the tray and the second horizontal portion and flashing respectively;

Figure 6 is a vertical section through a joint between two adjacent trays.

Figure 7 is a perspective view of an alternative flashing strip;

Figure 8 is a view similar to Figure 2 showing a further alternative flashing strip;

Figure 9 is an exploded diagram of a further cavity tray embodying the invention; and

Figure 10 is a partial exploded diagram showing how adjacent trays may be adhered to one another.

As shown in Figures 1 and 2, the cavity tray system basically comprises four components, namely, an outer tray member 11, a moveable stopend 12, a flashing strip 13 and inner tray member 14.

The tray 11 shown is about two brick-lengths long. However, it may be up to two metres in length, or more. It has a horizontal base portion 15 and an inclined rear wall portion or back 16 both of which are formed with a series of grooves 17, 18 respectively which extend at right-angles to the length of the wall with which the system is to be used. The grooves strengthen the structure and prevent moisture from running along the length of the tray. Moreover, on the horizontal portion they assist in keying the tray into the mortar. The free front edge of the base 15 has a rebated channel 19 along its length (Figure 5) while the back 16 has a flat strip 21 running along its length, connected to the back by a neck 22 (Figure 4). This defines a downwardly extending flat 23 and an upwardly extending channel 24 which is rebated in a similar way to channel 19. The back extends upwards beyond the strip 21.

At one end, the base 15 has a cutaway 41 (Figure 6) and at the other a ledge 42 of a corresponding size. As shown in detail in Figure 6, the cutaway 41 has a stud 43 protruding into it while the ledge has a corresponding hole 44; naturally, these could be reversed. In order to fit two trays 11

together, the ledge 42 of one outer tray 11 is located in the cutaway 41 of an adjacent outer tray 11 and the stud 43 is snap-fitted into the hole 42. This should produce a waterproof joint though a seal of some type, such as an adhesive or tape may also be used.

Alternatively or in addition a similar ledge/cutaway arrangement may be present at the back 16.

The stopend 12 has a base 25, a vertical end wall 26 and a back 27 which is inclined in the same way as the back 16 of the outer tray 11. The undersurface of the base 25 has a series of ridges 28 which correspond to the grooves 17 and the rear surface of the back 27 has a similar series of ridges (not shown) which correspond to the grooves 18. The stopend is removable and may be positioned at any desired location along the outer cavity tray 11.

The flashing strip 13 comprises a lead sheet 20 and an edge strip 31 of plastic material bonded to the lead sheet 29. The edge strip 31 has a barbed flange 32 which is a snap-fit in the rebated channel 19.

The inner tray 14 comprises a horizontal part 33 and a downwardly inclined sheet 34. The free bottom edge of the sheet 34 has a barbed flange 35 which is a snap-fit in the rebated channel 24.

To assemble and locate the tray system, an outer tray 11 is located in position on an outer wall leaf 36 as shown in Figure 2. The edge strip 31 is snap-fitted into the channel 19 and the free bottom edge of the sheet 34 is snap-fitted into the channel 24, so that the horizontal part 33 of the inner tray 14 lies on the inner leaf 37, with a sheet of insulating material 38 on the cavity surface of the inner leaf 37, behind the inclined sheet 34.

The next outer tray 11 is then clipped into position using the ledge 42 and a cutaway 41 and the process is repeated. When a obstruction, such as a door is reached, the relevant outer tray 11 is cut to size and a stopend is located at the position determined by the obstruction.

The embodiment described is particularly suitable for use with ground level damp proof courses. The embodiment may easily be adapted for use where a cavity wall abuts an inclined surface. All that is required is a different flashing strip. A suitable strip 113 is shown in Figure 7. This strip comprises, as before, an edge strip 131 of plastics material, for example PVC bonded to a lead sheet 129. However, in this embodiment the lead sheet 129 extends over several courses of bricks to prevent rain and moisture penetrating into regions where the cavity wall abuts an inclined surface such as a pitched roof.

In the embodiment the stopend 112 is positioned to coincide with the position of a joint between two bricks in the course above so avoiding the need to cut bricks to accommodate the stopend. The next courses of bricks can then be laid on the inner and outer leaves 137, 136 , covering the outer tray 111 and the inner tray 114. The process is then repeated at the next level, with the next tray (not shown) displaced along the wall to a position determined by an abutting roof (not shown) and with the stopend located at a position determined by the disposition of the bricks.

It will be appreciated that it is not necessary for the tray 111 to be provided with the joint for attaching adjacent trays shown in Figure 6 when used with sloped walls in this manner.

Figure 8 illustrates how the embodiment of Figures 1 to 6 may be modified for use where a cavity wall abuts a lower horizontal surface such as a flat roof. In this case, as illustrated in Figure 8, the flashing strip must extend over and lie on a portion of the lower horizontal surface which is represented in Figure 8 by an additional brick 230. This may easily be achieved by using a lead sheet of a depth midway between the sheets used in the two examples previously described, although different sheet lengths could be used where required. The sheet is moulded to extend across onto the upper surface of the lower horizontal surface and lies flat on that surface.

Figure 9 shows a further embodiment of a cavity tray. Although this embodiment is shown and described with reference to preventing the ingress of moisture at the junction of cavity walls and pitched roofs it is equally applicable to the situations described with reference to Figures 1 to 6 and Figure 8. As will be appreciated by the reader skilled in the art, the addition of some means for connecting adjacent trays would be necessary, for example that described with reference to Figure 6 and that to be described with reference to Figure 10.

The embodiment Figure 9 again comprises four basic components and for convenience these are given the same reference as the embodiment of Figure 1 incremented by 300.

The outer cavity tray 311 has a similar ridge and groove arrangement along its base 315 and inclined back 316 to the embodiment of Figure 1. However, ridges 317, 318 stand proud of the base and back. The flat strip is replaced by a rib 321 extending along the back parallel to the base approximately half way up the back. Above the rib 321 is a connecting portion 350 of reduced thickness which allows the upper portion 352 of the back to be inclined at an angle to the back. This enables the tray to span a range of cavity widths.

The inner tray 314 of the modified tray has a flat portion 333 which sits on a course of bricks of the inner leaf of the cavity wall and a sloped

portion 334 which extends into the cavity and over the upper portion 352 of the back. Thus, the inner leaf portion 334 terminates above the upper surface of upper portion 352. This arrangement is preferable to the interlocking arrangement of the previous embodiments as, in practice it is difficult to achieve precise location, such as is needed for interlocking. In some circumstances the upper portion may rest on the lower portion but it is only necessary that the upper portion extends just over the edge of the lower portion so that moisture falling off the upper portion will be caught by the lower portion.

The flashing 313 is similar to that of the embodiment of Figure 7, having a PVC portion 331 with a flanged portion for engagement in channel 319 in the cavity tray 311 and a slot 354 along its length into which is fitted a lead flashing sheet. The sheet may be attached by adhesive or by any other suitable method.

The stopend 312 is provided with a series of closely spaced grooves 356 on the undersides of the base and rear wall. Mid-way along the stopend is fixed an end portion 326 which is held by a portion 358 moulded into the rear wall.

Referring now to Figure 10, an alterntive method of connecting adjacent trays to that of Figure 6 is shown, The overlapping portion 360 of one tray 311 is provided with a layer of double sided adhesive tape 362. To join two trays together a layer of backing paper 364 is removed from the adhesive tape and the end 364 of the adjacent tray is placed on top of the adhesive portion.

In order to allow trays of the sort described with reference to Figure 9, that is those for use with pitched roofs, to be connected with other trays, corner units may be provided. These enable trays without specific provision for attachment to other trays to be so attached and allow tray systems to continue unbroken around corners.

Claims

1. A cavity tray system for a cavity wall, comprising a tray (11; 211; 311) for bridging a cavity between inner and outer wall leafs, the tray having a base portion (15; 215; 315) and an inclined rear wall portion (16; 216; 316) extending upwardly therefrom, characterised by a movable stopend (12; 212; 312), and in that the tray and the stopend have locating means (17, 18, 28; 356) for locating the stopend at a desired position on the tray.

2. A cavity tray system according to claim 1, wherein the locating means comprises a series of ridges and grooves (17, 18, 28; 356) on the stopend (12; 212; 312) and on the tray (11; 211; 311).

3. A cavity tray system according to claim 2, wherein the stopend comprises a base portion (25) and an inclined rear wall portion (27) corresponding in shape to the base and rear wall portions respectively of the tray, and an end portion (26).

4. A cavity tray system according to claim 3, wherein the ridges and grooves are formed on the base and rear wall portions of the stopend and the tray.

5. A cavity tray system according to any of claims 2 to 4, wherein the ridges and grooves are closely spaced.

6. A cavity tray system according to any of claims 1 to 5, comprising a flashing strip (13; 213; 313) having an edge portion (31; 231; 331) for attachment to an edge portion of the tray.

7. A cavity tray system according to claim 6, wherein the edge portions of the flashing strip and the tray comprise means for clipping the strip to the tray (19, 32).

8. A cavity tray system according to claim 7 wherein the clipping means comprise a flashing clip having a rebated channel (19) on one of said edge portions and a barbed flange (32) on the other of said edge portions.

9. A cavity tray system according to claims 6, 7 or 8 wherein the flashing strip comprises a plastics edge portion (31; 231; 331) having a lead strip (29; 229; 321) attached thereto.

10. A cavity tray system according to any previous claim, wherein the tray comprises means for connecting adjacent trays (41, 42; 360).

11. A cavity tray system according to claim 10, wherein the connecting means comprises end portions (360) of adjacent trays arranged to overlap , at least one of a pair of overlapping ends having an adhesive layer (362) thereon.

12. A cavity tray system according to any preceding claim, wherein the tray comprises inner and outer tray members (11, 14; 211, 214; 311, 314), the outer tray member (11, 211, 311) including the said base and inclined rear wall portions and receiving the said stopend, and the inner tray member (14, 214, 314) comprising a horizontal wall portion for arrangement on a course of bricks of the inner leaf of a cavity wall, and an inclined portion extending downwardly therefrom, whereby, in position, the inner and outer tray members bridge the cavity.

13. A cavity tray system according to claim 12, wherein in position, the inclined portion of the inner tray member at least partially overlaps the inclined rear wall of the outer tray member.

14. A cavity tray system according to any preceding claim, wherein the upwardly extending rear wall portion comprises a hinge portion (350) extending parallel to the base portion and defining upper and lower parts of the rear wall portion,

whereby the upper part (352) is pivotable with respect to the tray.

15. A cavity tray system according to any preceding claim, comprising corner units for interconnecting trays lying the different vertical planes.

16. A cavity tray system comprising a tray (11; 211; 311) for bridging a cavity between inner and outer wall leafs, the tray having a base portion (15; 215; 315) and an inclined rear wall portion (16; 216; 316) extending upwardly therefrom, and a flashing strip (13; 213; 313) for attachment to the base portion, characterised in that the flashing strip and the tray each have an edge portion, the edge portion of one of the strip and the tray being a snap fit with the other portion.

Fig.1.

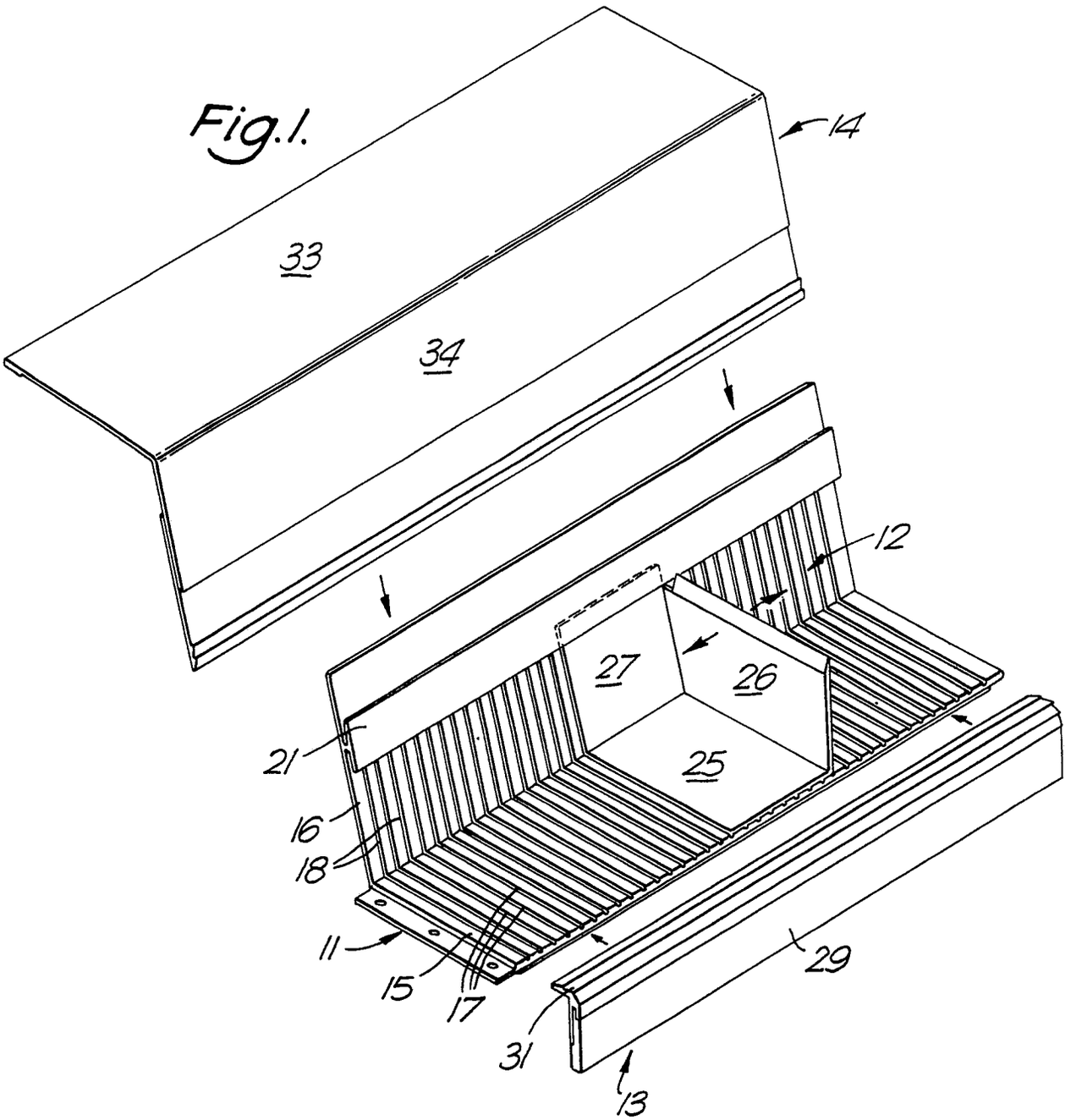


Fig.2.

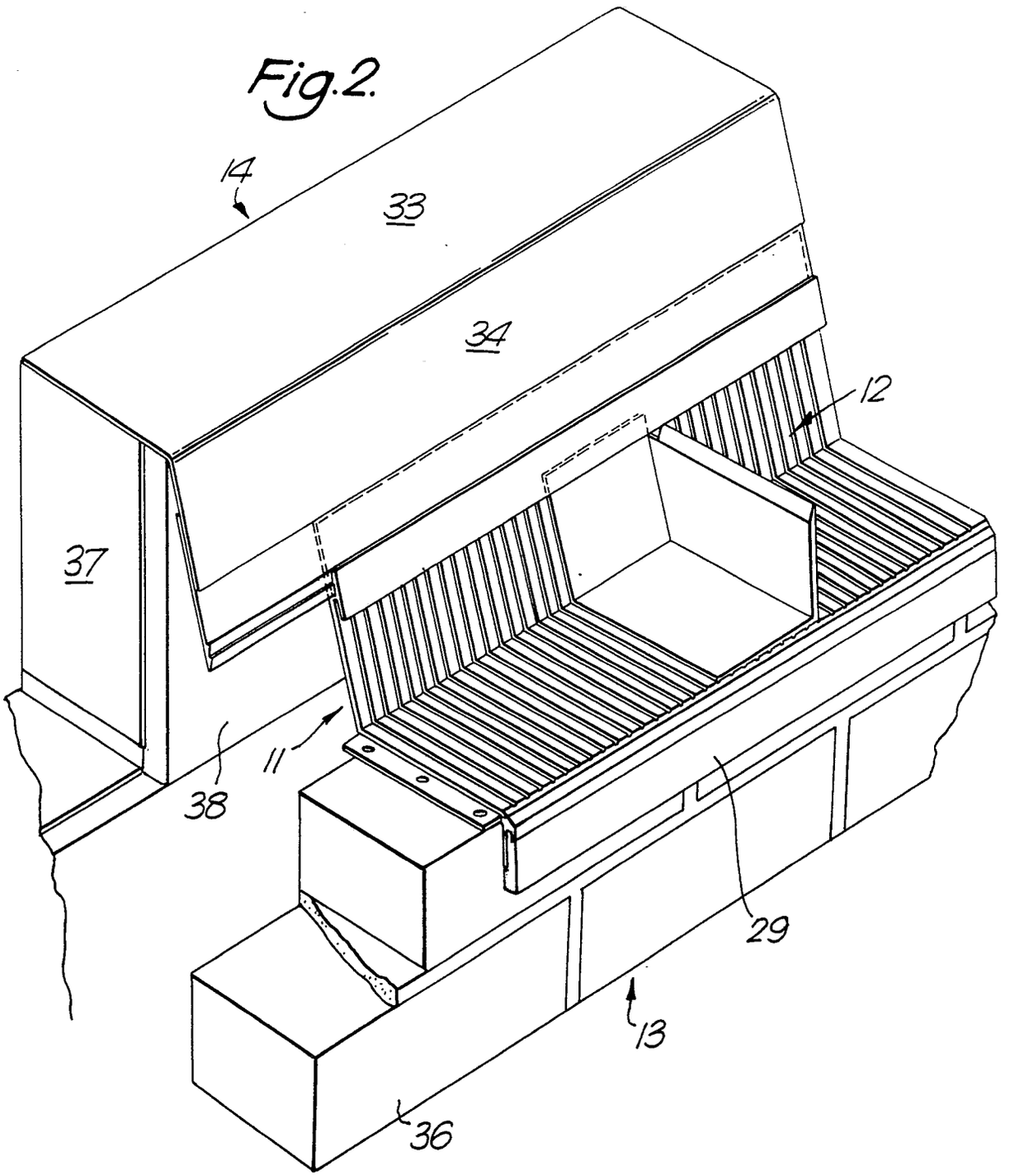


Fig.4.

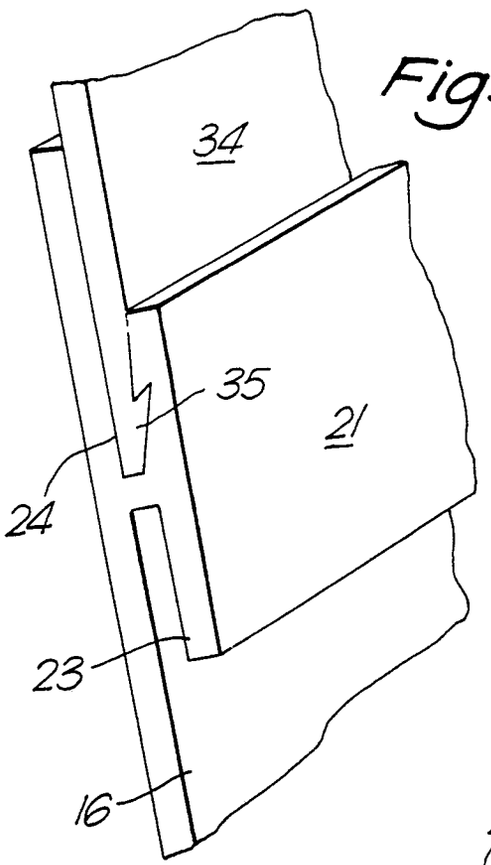


Fig.3.

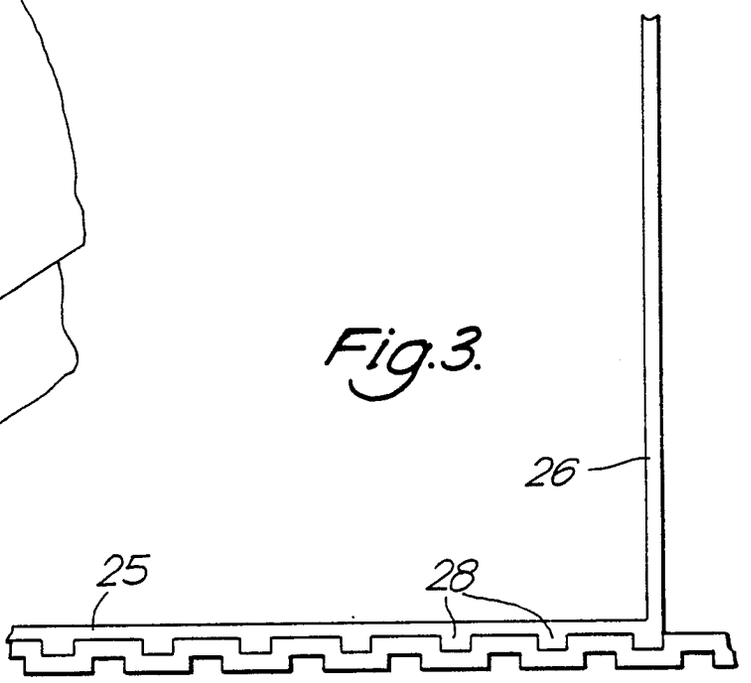


Fig.5.

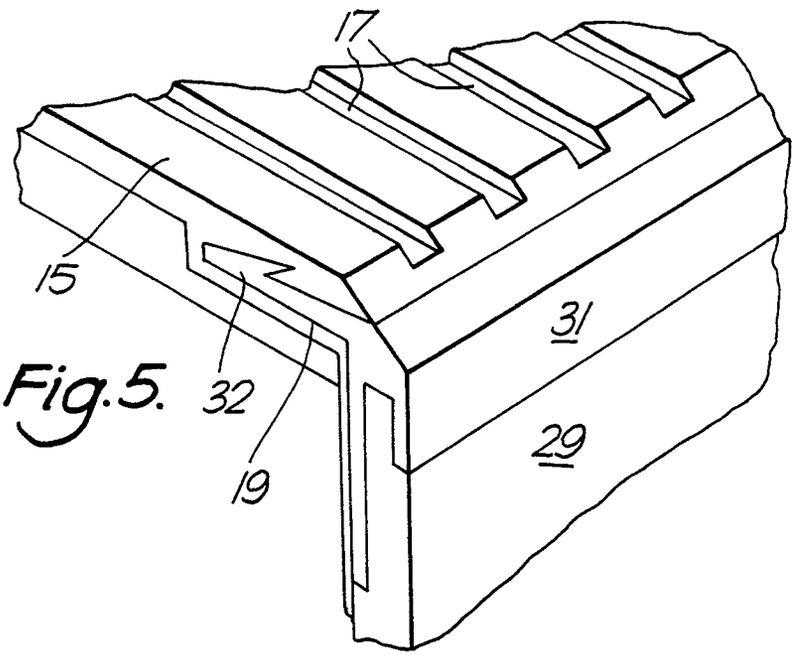


Fig. 6.

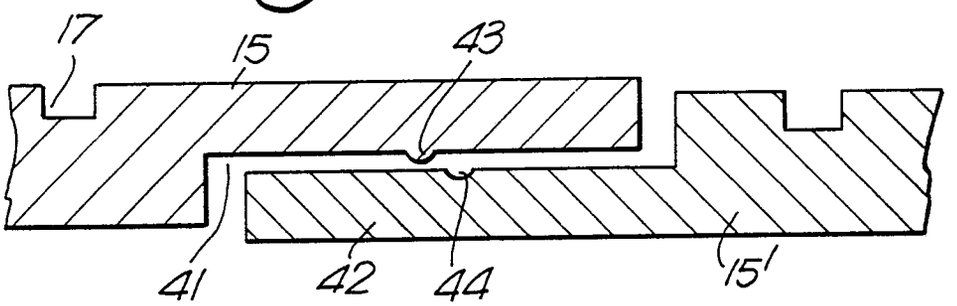


Fig. 7.

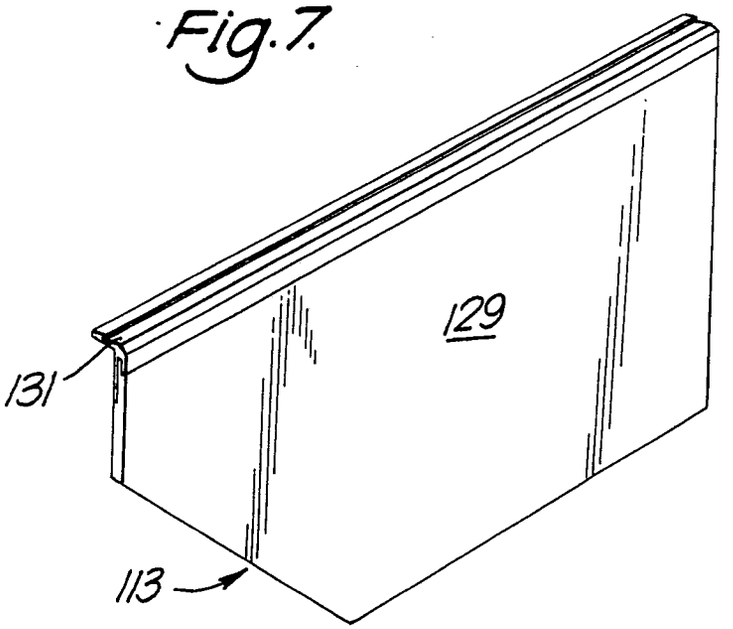


Fig.8.

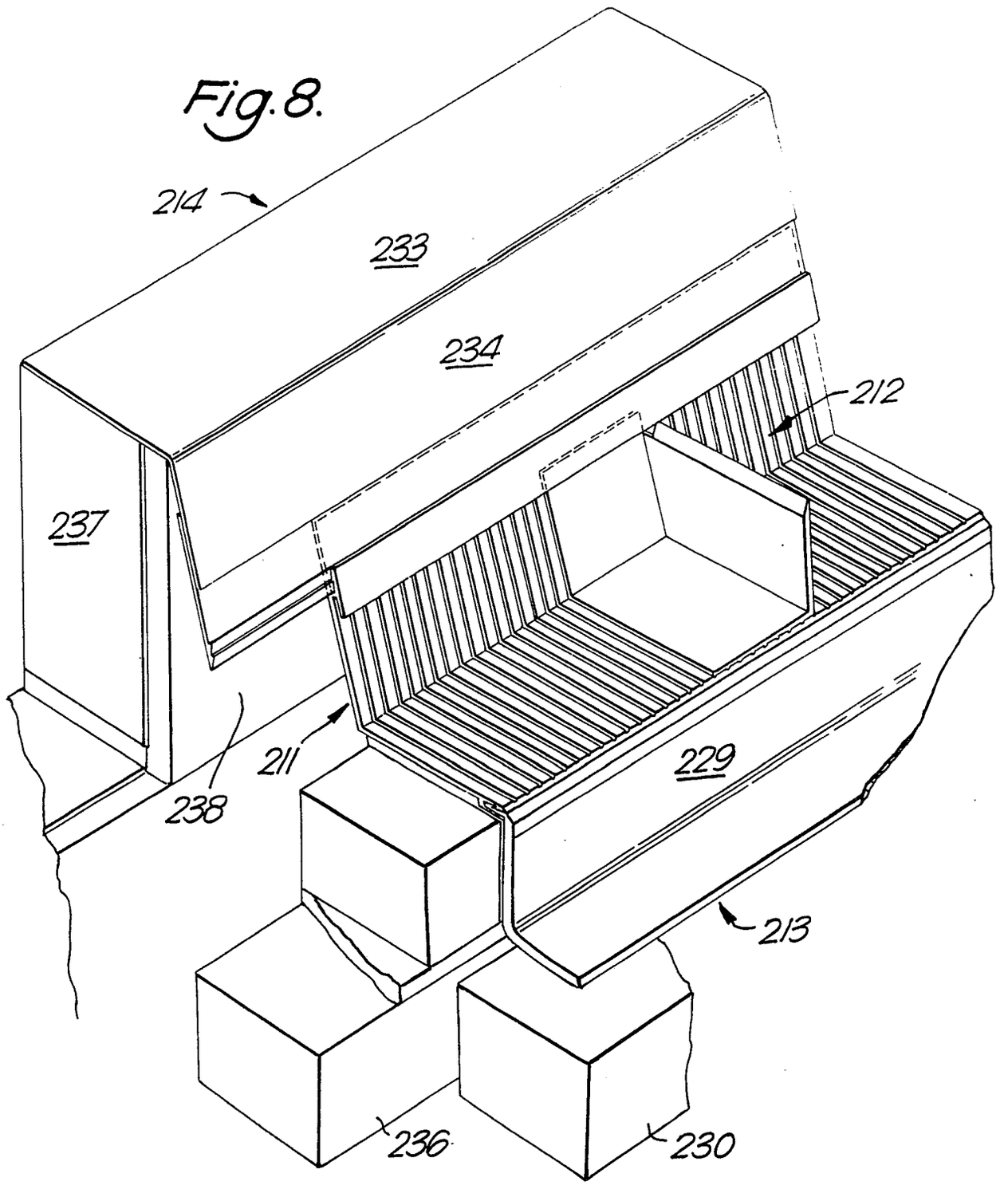
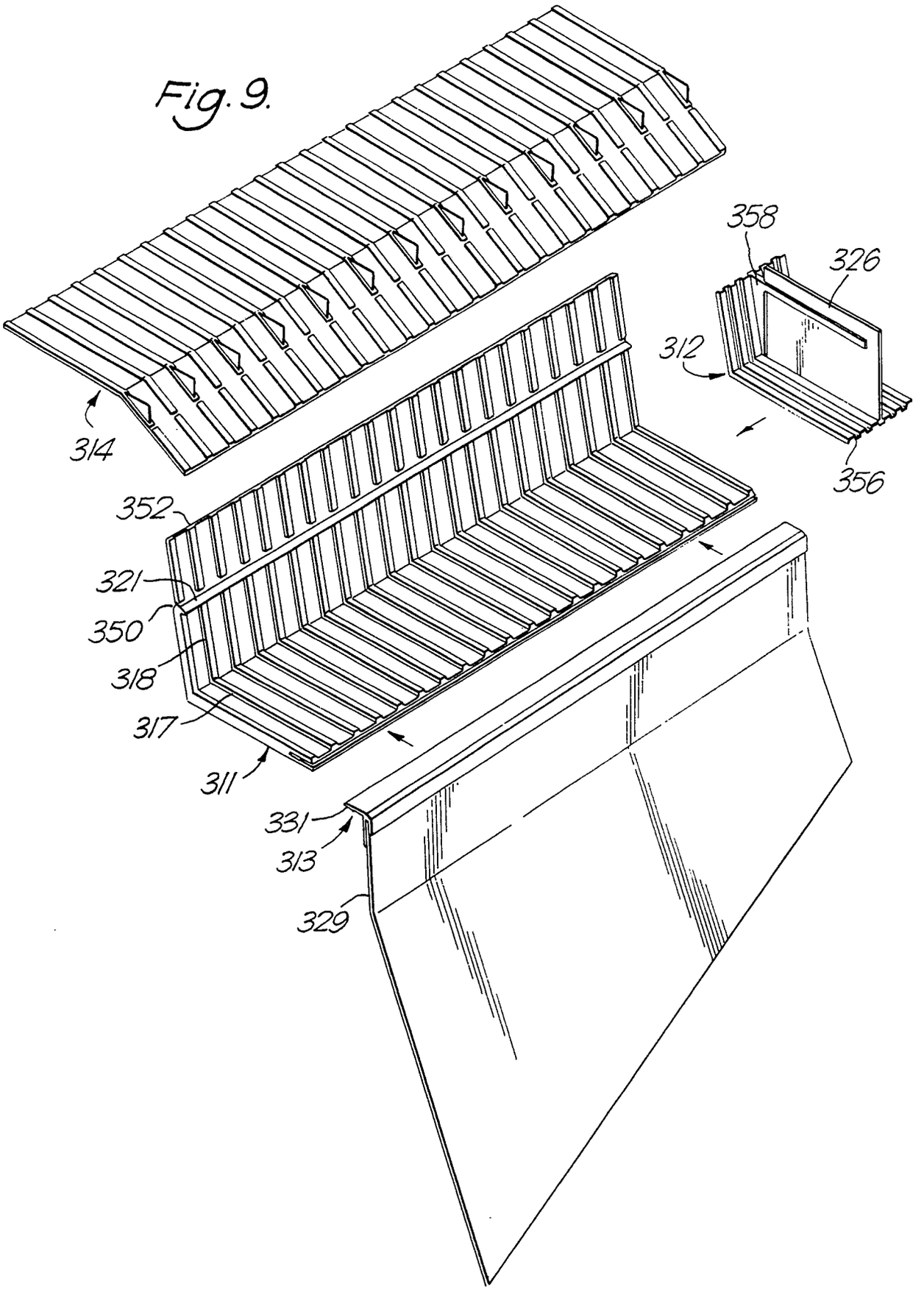


Fig. 9.



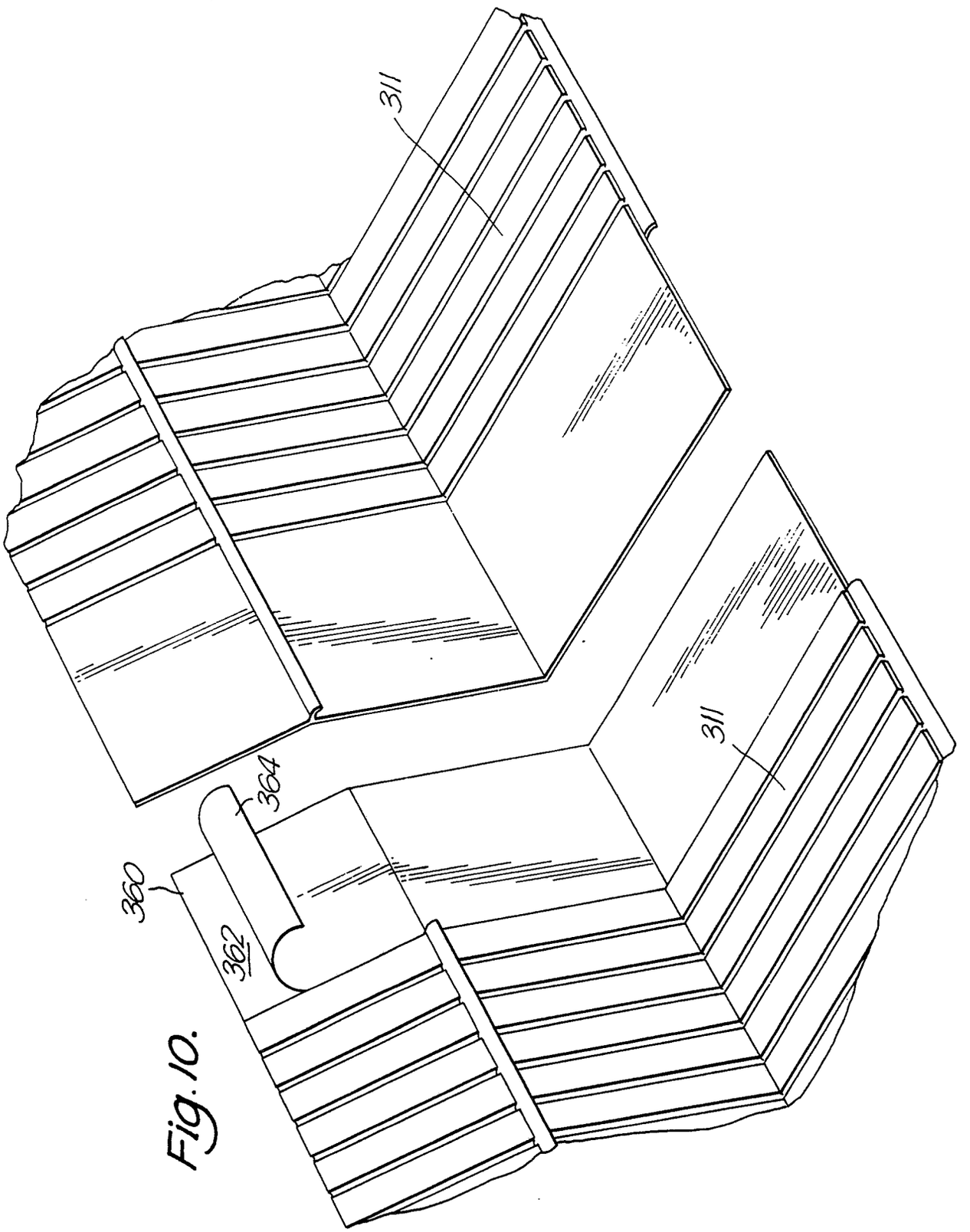


Fig. 10.

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 30 2452

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.5)
X	EP-A-0 243 079 (GLIDEVALE BUILDING & PRODUCTS LTD) * Whole document *	1-5,10, 15	E 04 D 13/14
Y		6,14,16	
Y	GB-A-1 086 226 (PEARL BRENDA SHILLABEER) * Figure 6; page 2, lines 4-15 *	6	
Y	GB-A-2 164 368 (JOHN LOUIS SHILLABEER) * Figures 1,7,8; page 1, line 112 - page 2, line 100 *	14	
A		1,6,7	
Y	GB-A-1 399 505 (ETABLISSEMENTS LAGESSE ET NEYMARC) * Figure 1; page 2, line 64 - page 3, line 24 *	16	
A		6-8	
A	GB-A-1 466 079 (JULIAN EDWIN HAMBY MUSTOE) * Figures 5,7; page 2, lines 12-24 *	6-9	TECHNICAL FIELDS SEARCHED (Int. Cl.5) E 04 D E 04 C E 04 B
A	US-A-2 225 992 (HOESS) * Figures 1-5; page 1, line 42 - page 2, line 40 *	6,12,13 ,16	
A	DE-A-2 556 713 (AIT ANGEWANDTE ISOLIERTECHNIK M. FISCHER KG) * Figure 1; page 4, lines 15-25 *	11	
A	GB-A-2 138 466 (DAVID JOHN BIRCHALL) * Figure 1; page 1, lines 64-67 *	13	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	17-05-1990	KISING A.J.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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& : member of the same patent family, corresponding document

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