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(71) Applicant: **Knox, Colin James Michael**
Southbrook House
Bovey Tracey, Devon TQ13 9NB(GB)

(72) Inventor: **Knox, Colin James Michael**
Southbrook House
Bovey Tracey, Devon TQ13 9NB(GB)

(74) Representative: **Rees, David Christopher et al**
Kilburn & Strode 30 John Streeteet
London WC1N 2DD(GB)

(54) Cavity tray system.

(57) A cavity tray system for use in a cavity wall. The system comprises a cavity unit 11, a tray 12 and a stopend 15. The tray 12 includes a horizontal base 24 and an upstand 25. The cavity unit 11 includes a channel 19 arranged to receive the top end of the upstand 25 a horizontal web 22 extending rearwardly and a vertically extending insulation member 23.

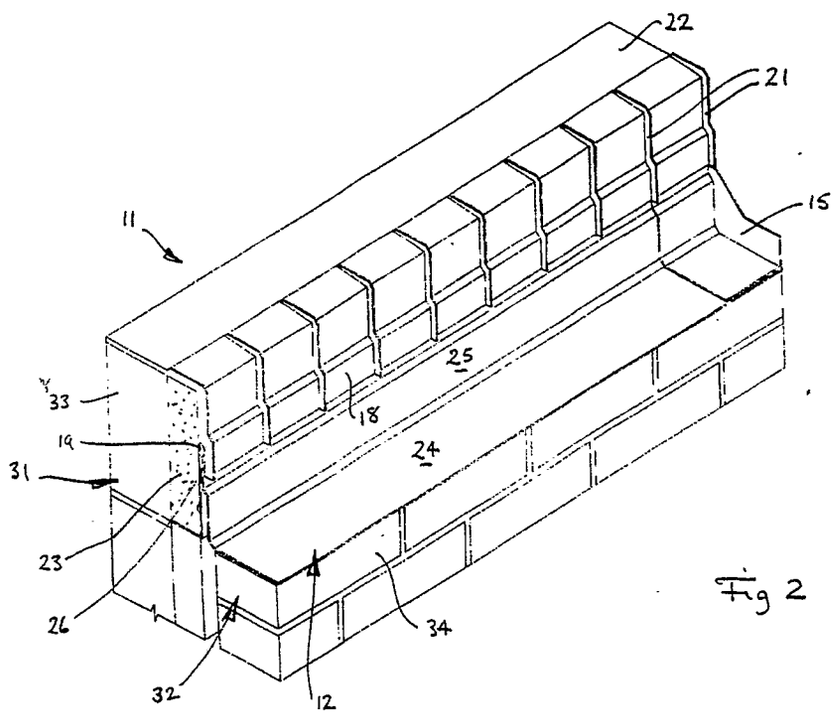

Fig 2

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CAVITY TRAY SYSTEM

The present invention relates to a cavity tray system for use in cavity wall constructions, particularly where an insulating material is to be located in the cavity adjacent the inner leaf.

When a conventional damp proof course (DPC) in the form of plastics or lead sheeting is used in a conventional cavity wall there are various drawbacks. The insulation to be attached to the inner leaf must be cut on site; this tends to be carried out very roughly inaccurately, leading to potential defects where the DPC passes over it, including punctures etc. Furthermore, the DPC tends not to follow the vertical surface of the insulation closely, resulting in a reduction in the effective cavity width. Additionally, there are further potential defects where lap joints between adjacent DPC sheets are unsupported.

The use of cavity trays in place of single DPC sheets represents an improvement, however even this present significant disadvantages. The insulation must be cut on site to allow the cavity tray upstand to fit into it. There tends to be an ineffective contact between the cavity tray upstand and the insulation (or the inner leaf itself) resulting in a potential route for the ingress of water. The pre-attached lead flashing which is generally provided makes the apparatus difficult to handle and is liable to damage.

These drawbacks are even more serious in the case of a stepped conventional cavity tray system used when a cavity wall abuts an inclined surface such as a pitched roof. Under these circumstances, each block of insulation may need to be cut at three levels to accommodate the upstands from trays associated with different brick courses. A great deal of on-site cutting and sizing is required both of the flashing and the trays themselves.

It is an object of the present invention to provide a cavity tray system which avoids or minimises the above disadvantages.

It is a further object of the invention to provide such a system which is particularly suitable for use in a stepped form.

According to the invention, a cavity tray system comprises: a tray and a cavity unit; the tray including a generally horizontal base and an upstand extending generally upwards and rearwards; the cavity unit including means to receive the upstand, a generally horizontal web extending rearwards and a generally vertically extending insulation member.

Thus, in use, the web of the cavity unit would be located in the mortar joint between two brick courses in the inner leaf, with the insulation against the inner leaf surface, and the tray would be positioned with the edge of the upstand located e.g. in a channel in the cavity unit with the base located in the mortar joint between two lower brick courses in the outer leaf, so that the tray spans the cavity.

Since the upstand is received by the cavity unit, a far more effective moisture barrier may be produced. Also, the insulation does not need to be cut.

The tray and cavity units are preferably made from a plastics material. The tray may include a stopend which may be integral or detachable and hence adjust-able in position. The tray may also include some means at its front edge for attaching a flashing. This may be a simple elongate channel or may provide a more complex interlocking profile.

The system of the invention contemplates the incorporation of a suitable flashing, e.g. of lead or a plastics material. The flashing may include an edge formation which is arranged to co-operate with the front edge of the tray. The edge formation may be of a plastics material which is less flexible than the flashing itself.

The web on the cavity unit is preferably continuous but may be interrupted. The means for receiving the upstand is preferably a channel defined by a main vertical wall and an overhang. The overhang may include strengthening ribs. There may also be strengthening ribs on a top wall portion extending rearwards as far as the web. Preferably, the insulation is attached (e.g. by gluing, welding etc.) to the underside of the top wall portion and to the rear of the main wall.

Where the system is intended for use in a stepped situation, the cavity unit may have a series of overhangs forming a corresponding series of channels at different levels, each arranged to co-operate with the upstand of a tray associated with a particular brick course. In this case, the tray and flashing would tend to be shorter in length, and a stopend would be provided at each level.

Where a continuous tray may be required, a joint may be provided between adjacent lengths of cavity unit and tray. This may simply take the form of a cover plate and a tray cover. The cover plate preferably follows the shape of the cavity unit upper surface and overhang and may include a recess arranged to accommodate twc strengthening ribs which may be located at the ends of the adjacent cavity units. The tray cover may simply comprise a sheet following the shape of the tray which can be located over the joint between adjacent trays and may extend into the channels formed by the adjacent cavity units.

The invention may be carried into practice in various ways and some embodiments will now be described by way of example with reference to the

accompanying drawings, in which:-

Figure 1 is an exploded isometric view of the main components of a continuous cavity tray system in accordance with the invention;

Figure 2 is an isometric view of an assembled continuous system with a stopend;

Figure 3 is an isometric view of an assembled continuous system with flashing;

Figure 4 is a vertical section through a cavity wall incorporating the system of Figure 3;

Figures 5A to 5C are successive sectional views showing the fixing of the flashing;

Figures 6, 7 and 8 are isometric sections showing three alternative methods for fixing the flashing;

Figure 9 is an exploded isometric view of a joint in a continuous system;

Figure 10 is an exploded isometric view of a stepped tray system;

Figure 11 is a vertical section through a cavity wall incorporating the system of Figure 10; and

Figure 12 is an isometric view of the system of Figure 10 in use in conjunction with a pitched roof.

Figure 1 shows the basic components of the cavity tray system. They include a cavity unit 11 and a tray. There are two forms of tray, namely, a tray 12 for use without flashing and a tray 13 for use with flashing 14. A stopend 15 may also be provided. The stopend 15 is shown seperate, in which case it may be movable relative to the tray 12, 13, though alternatively, the stopend could be fixed to or integral with the tray.

The cavity unit 11 is of a plastics material and is elongate and generally right angled in section, thereby defining a main vertical wall 16 and a top horizontal wall 17. An overhang 18 extends along the main wall 16 forming a recessed channel 19. Strengthening webs 21 extend over the overhang 15, up the main wall 16 above and back across part of the top wall 17 leaving a plain flat web 22 extending rearwards beyond. A block of insulation 23 is fixed to the inside surface of the main wall 16 and to the undersurface of the top wall, the thickness of the insulation corresponding to the extent of the ribs 21. The main wall 16 is folded beneath the insulation 23.

The tray 12 is an elongate plastics sheet which is also generally right-angled in cross-section. It includes a horizontal base 24 and an upstand 25. The upstand 25 has a top edge portion 26 which is displaced slightly rearwards. The tray 13 is identical to the tray 12 other than in one respect, namely, the presence of a groove 27 along the front edge.

The flashing 14 is an elongate lead sheet 28 with an insert section 29 attached along one edge. The stopend is of plastics material and follows the general profile of the tray 12.

An assembled system is shown in Figure 2 in connection with a cavity wall including an inner leaf 31 and an outer leaf 32. The web 22 is located on top of a course of bricks or building units 33 with the insultation in contact with the outer face of the inner leaf 31. The top edge portion 26 of the tray 12 is located in the channel 19 and the base is positioned on top of a course of bricks 34 in the outer leaf 32. A layer of mortar (not shown) would be formed on each side of both the web 22 and the base 24 and another course of bricks and/or other units would be positioned above. The relative positions are shown more clearly in Figure 4.

The stopend 15 is simply located at a convenient position along the tray 12 and within the channel 19. It can be slid into position with its upper part in the channel 19, so affording an adjustability to suit the perpends of the external brickwork. This minimises the need to cut bricks to size.

The assembled system shown in Figure 3 is similar to that shown in Figure 2 except that no stopend is provided but a flashing 14 is provided. The flashing 14 is located by inserting the insert section 29 into the groove 27 along the edge of the tray 13. This is shown in more detail in Figures 5A to 5C. The insert section 29 comprises a fold 35 along the edge of the flashing 14 and a toe strip 36 having a tapered cross-section. To fix the flashing 14 in position, the fold 35 is pushed into the channel 19 (Figure 5A). The sheet 28 is bent down until it is flush with the wall (Figure 58). The toe strip 36 is then driven home into the fold 35, with its tapered section forcing the lead of the flashing 14 into a secure engagement.

Alternative fixing profiles for the flashing are shown in Figures 6 to 8. In Figure 6, the edge of the tray 41 has a bead 42 defining a curved recess 43. The lead sheet 28 includes a curved section plastics edge strip 44 which locates in the curved recess 43. In Figure 7, the tray 51 has a T-sectioned slot 52 while the lead sheet 28 has a correspondingly shaped edge strip 53 which is inserted into the slot 52 from one end. In Figure 8, the tray 61 has a hook-sectioned slot 62 while the lead sheet has a correspondingly shaped edge strip 63 which is inserted from one end.

In all cases, a waterproof joint between the flashing 14 and tray 13 is provided.

In order to form a waterproof joint between adjacent lengths of cavity unit 11 and tray 12, an arrangement such as that shown in figure 9 may be used. A cover plate 71 and a tray cover 72 are required. The cover plate 71 is of plastics material and follows the shape of the web 22, the top wall 17, the upper part of the main wall 16 and the overhang 18 of the cavity unit 11. It also has a recess 73 corresponding in shape to the ribs 21.

The tray cover 72 is simply a short length of plastics sheet bent to follow the shape of the tray 13.

The joint is formed over the junction of two abutting units by locating the tray cover 72 in position over the joint line between two adjacent trays 13, with its top edge 74 spanning the two recesses 19. The cover plate 71 is positioned over the joint line between the two adjacent cavity units 11 with the two end ribs 75 located within the cavity 73. Both the cover plate 71 and tray cover 72 are preferably glued in position.

The system of the invention is particularly applicable to a stepped cavity tray arrangement. Figure 10 shows the basic components for a three-tier stepped construction. They include a cavity unit 81, a tray 83, and a flashing 84. The tray 83 and flashing 84 are very similar in construction to the tray 13 and flashing 14 but are rather shorter in length. Three trays 83 and flashings 84 may be used with each cavity unit 81.

The cavity unit 81 is very similar to the cavity unit 11 except that there are three overhangs 88 at three different levels, separated from each other by a spacing equal to the height of one brick course. These therefore form three channels 89.

The interconnection is shown in Figure 11, and as can be seen, it is identical to the interconnection shown in the earlier embodiments though there are three connections at three levels, in place of the one connection necessary in the earlier embodiments. In each connection, the top edge of a tray 83 is located in one of the channels 89 and the base of the tray 83 is located on top of the appropriate brick course.

The overall construction is shown in Figure 12. Three trays 83 are positioned with respect to each cavity unit 81 and descend from right to left. Another cavity unit 81 is then employed, three brick course heights lower, and three more trays 83 are employed. The flashing 84 from each tray 83 is bent so as to be flush with the wall until the unction with the roof at which each flashing 84 is bent until it is flush with the roof, with each flashing 84 overlying the adjacent lower flashing 84. This results in a neat aesthetically pleasing yet waterproof construction.

Claims

1. A cavity tray system comprising a tray (12, 13) including a generally horizontal base (24) and an upstand (25) extending generally upwards and rearwards; the system being characterised by a cavity unit (11) including means to receive the upstand (26), a generally horizontal web (22) extending rearwards and a generally vertically extending insulation member (23).

2. A system as claimed in claim 1, characterised in that the tray (12, 13) and/or cavity unit (11) are made from a plastics material.

3. A system as claimed in claim 1 or claim 2, characterised by a stopend (15) which is integral or detachable and hence adjustable in position.

4. A system as claimed in any preceding claim, characterised by means (27) at the front edge of the tray (12, 13) for attaching a flashing (14), preferably in the form of an elongate channel or an interlocking profile.

5. A system as claimed in claim 4 or claim 5, characterised by the further incorporation of a flashing (14) of lead or plastics material, the flashing (14) including an edge formation (29) arranged to co-operate with the said means (27) at the front of the tray (12, 13), the edge material preferably being of a plastics material which is less flexible than the flashing itself.

6. A system as claimed in any preceding claim, characterised in that the horizontal web (22) is continuous and the means for receiving the upstand (26) is a channel (19) defined by a main vertical wall and an overhang (18).

7. A system as claimed in claim 6, characterised by strengthening ribs (21) on the overhang (18) and on a top wall (17) portion extending rearwards as far as the web (22).

8. A system as claimed in any preceding claim, characterised in that the insulation (23) is attached to the underside of the top wall portion (17) and to the rear of the main wall.

9. A system as claimed in any preceding claim, characterised in that the cavity unit (11) includes a series of overhangs (88) forming a corresponding series of channels (89) at different levels, each arranged to co-operate with the upstand (26) of a tray (12, 13) associated with a particular brick course.

10. A system as claimed in any of claims 1 to 8, characterised by a joint for provision between adjacent lengths of cavity unit (11) and tray (13), the joint taking the form of a cover plate (71) and a cover (72), the cover plate (71) preferably following the shape of a cavity unit upper surface and overhang and including a recess (73) arranged to accommodate two strengthening ribs (75) located at the end of the adjacent cavity units (11), while the tray cover (72) comprises a sheet following the shape of the tray (13) and is arranged to be located over the joint between adjacent trays (13) and extends into the channels formed by the adjacent cavity units.

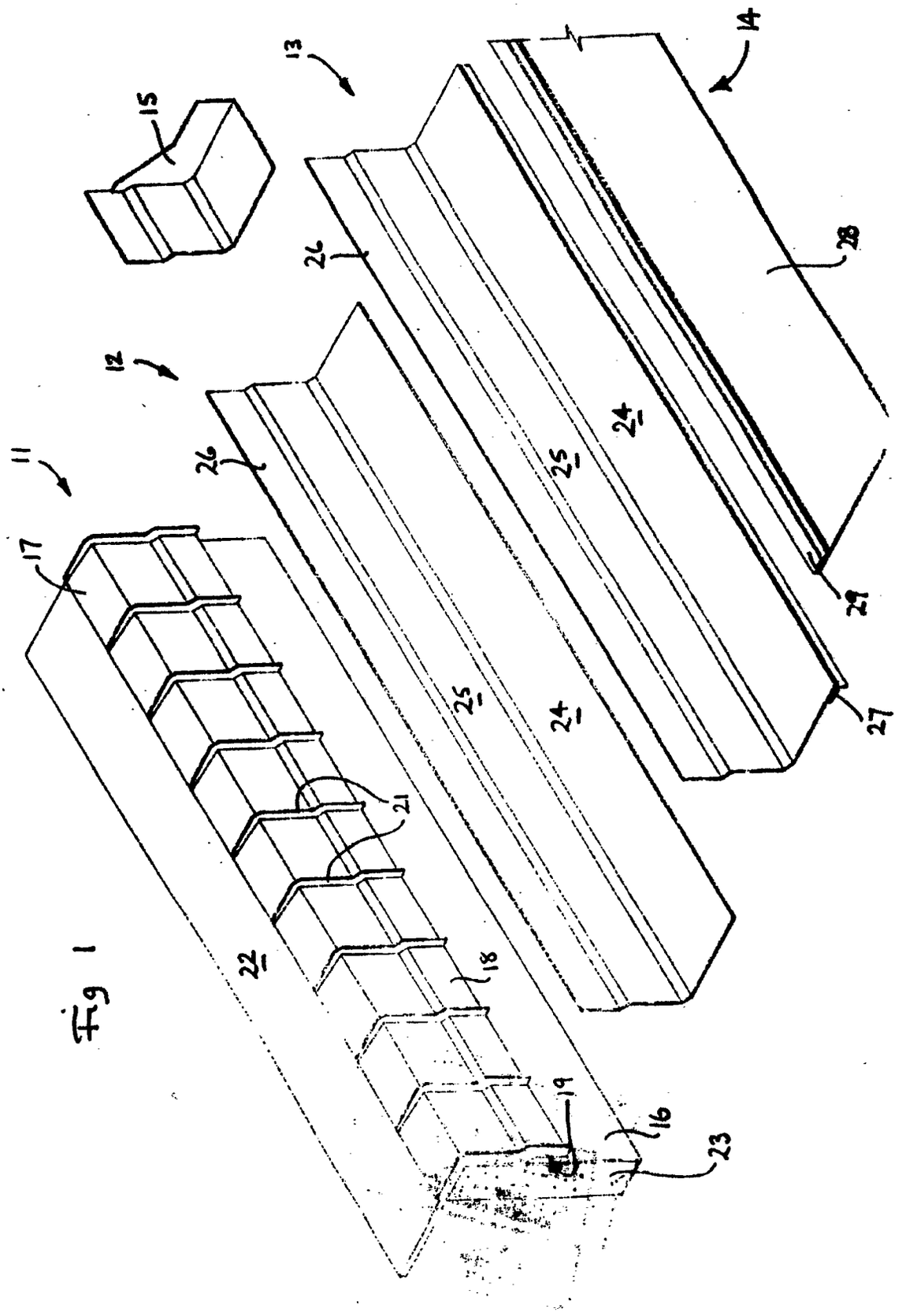

Fig 1

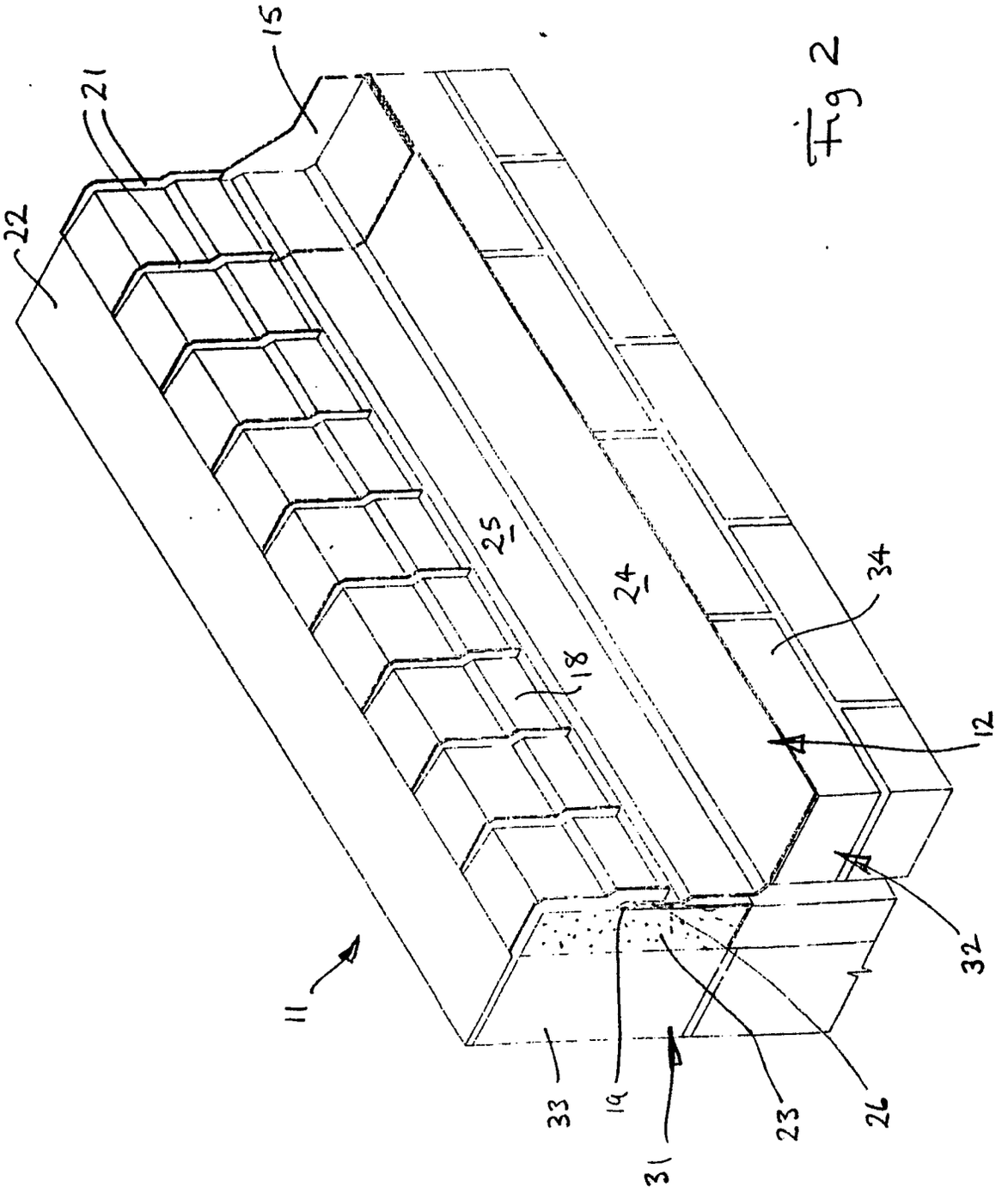

Fig 2

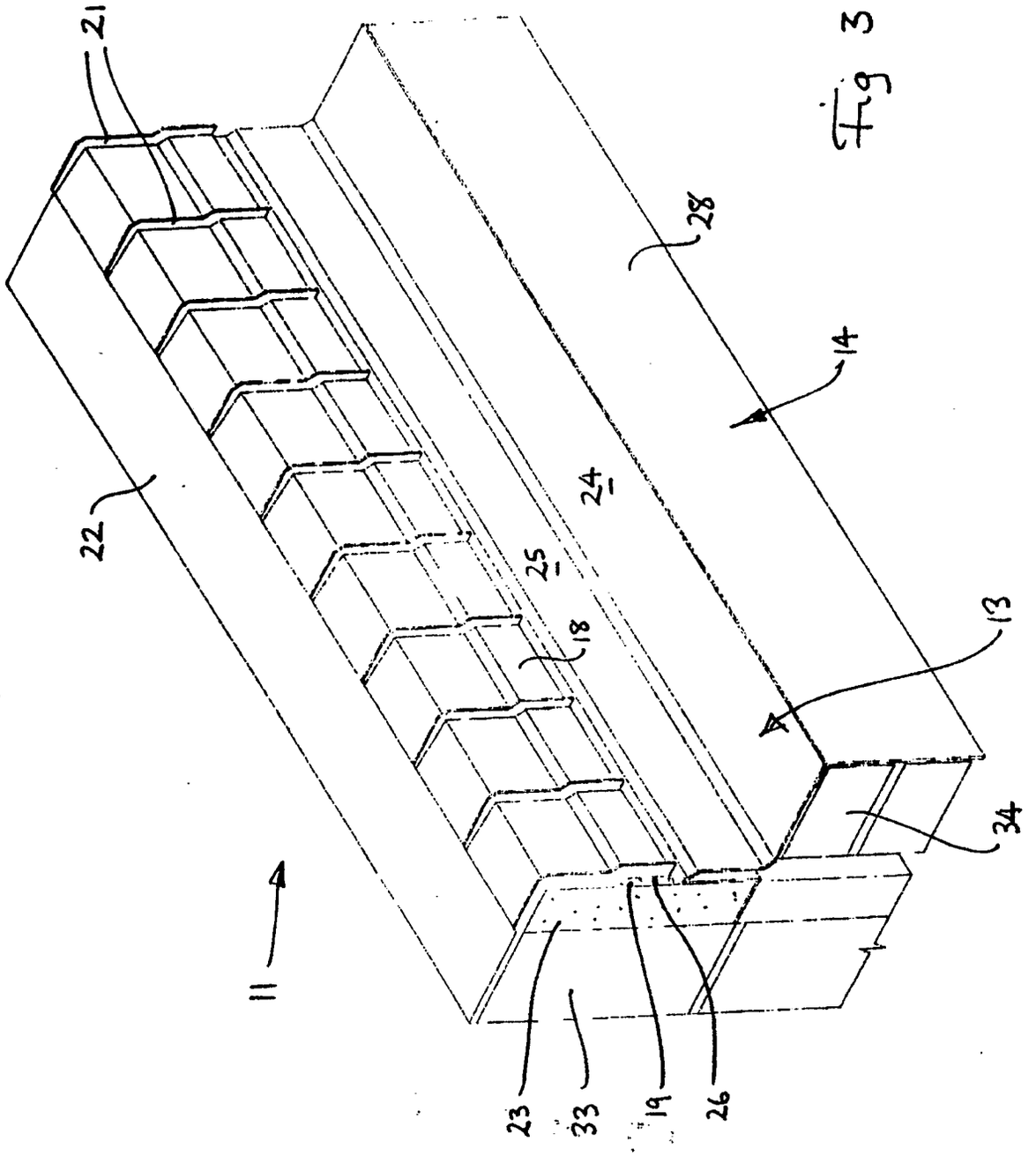

Fig 3

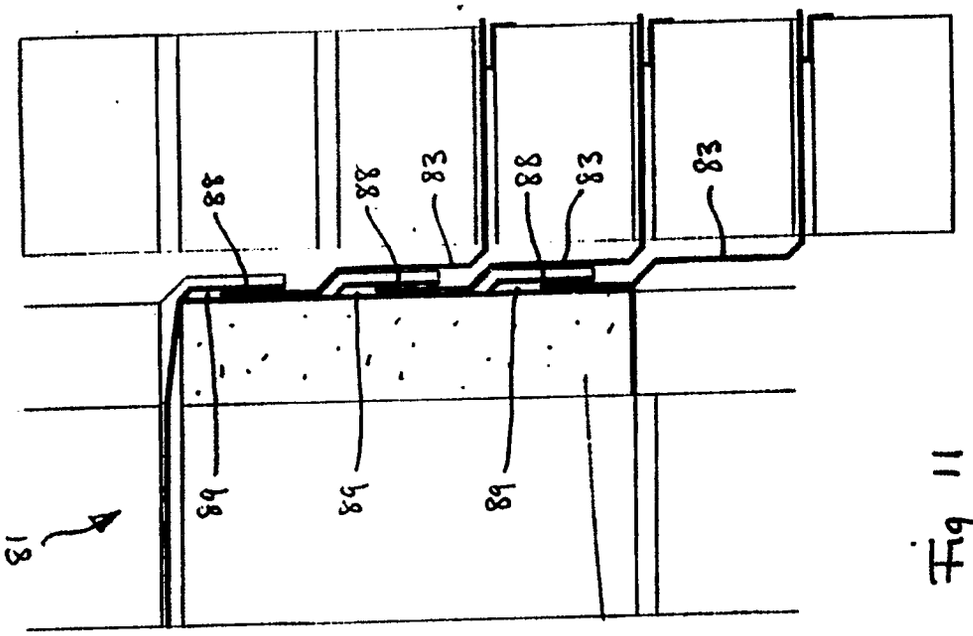

Fig 11

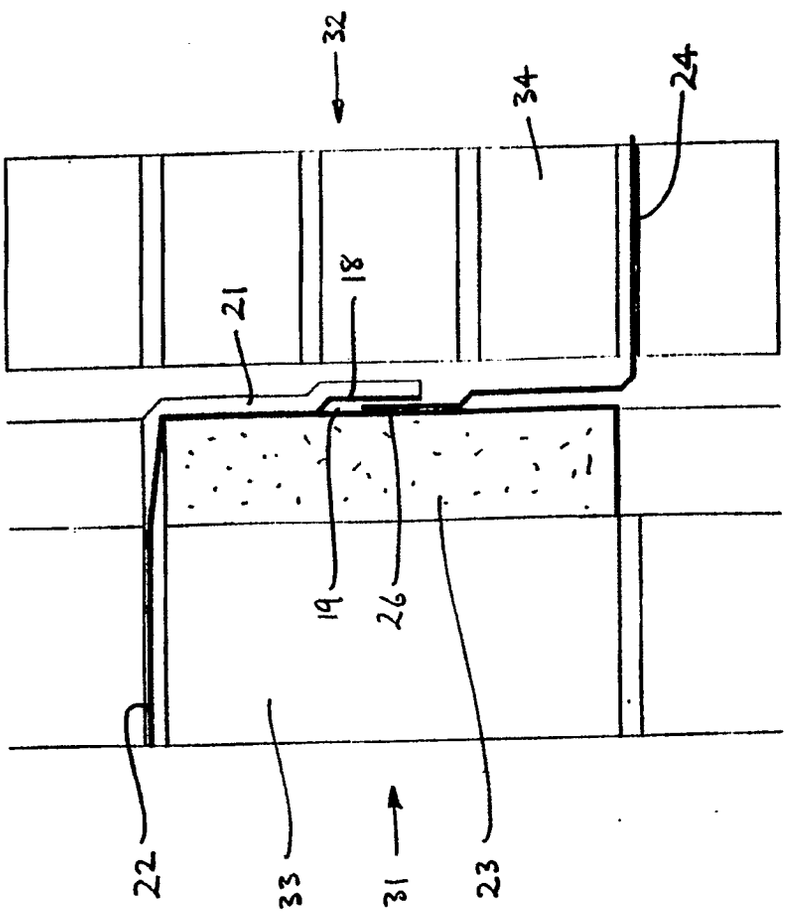

Fig 4

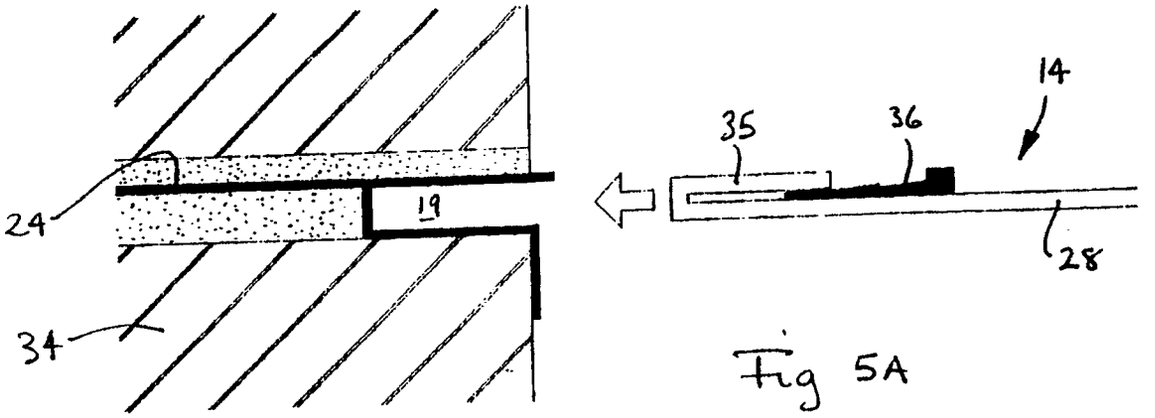

Fig 5A

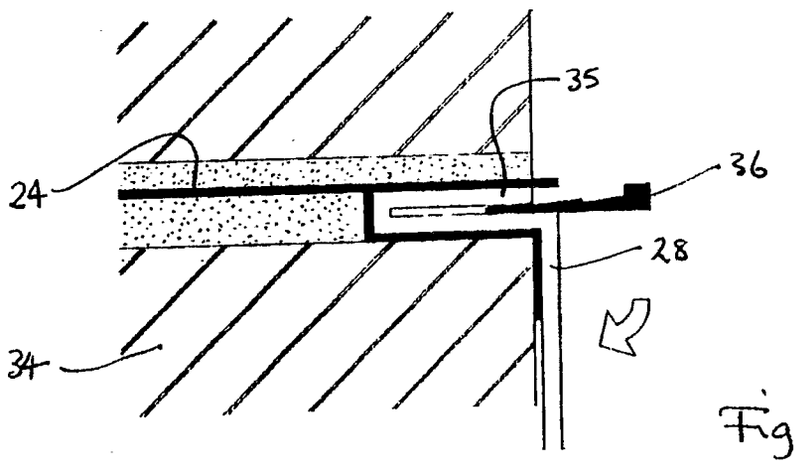

Fig 5B

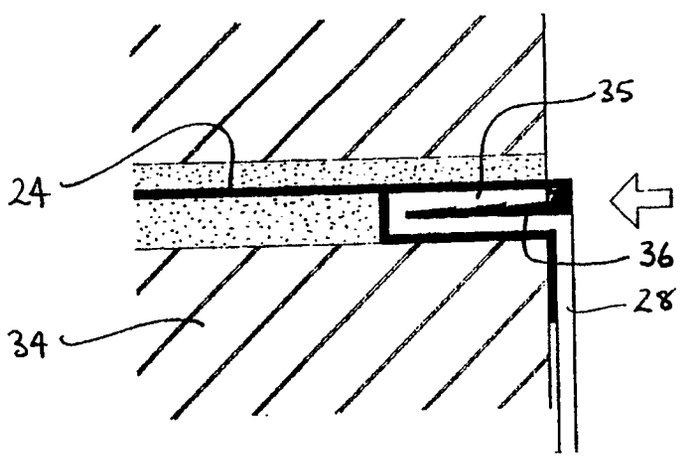

Fig 5C

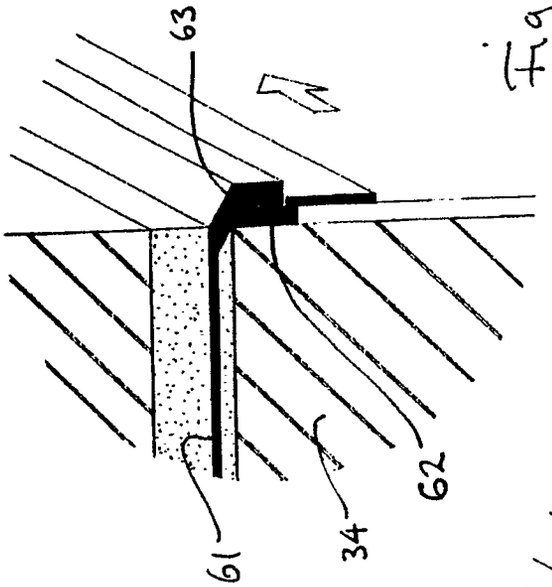

Fig 8

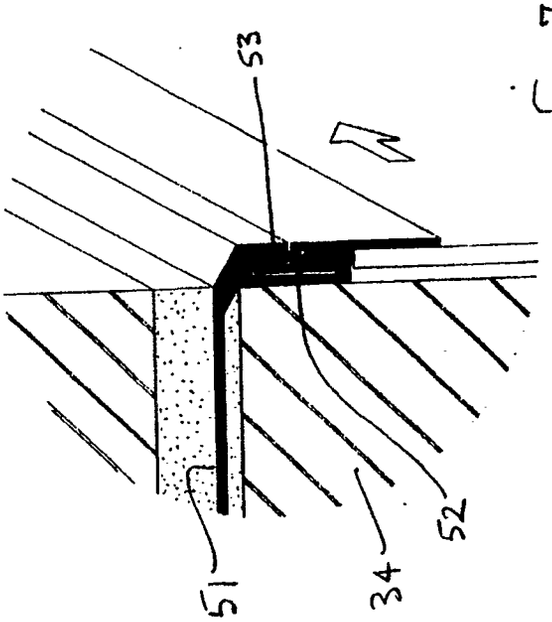

Fig 7

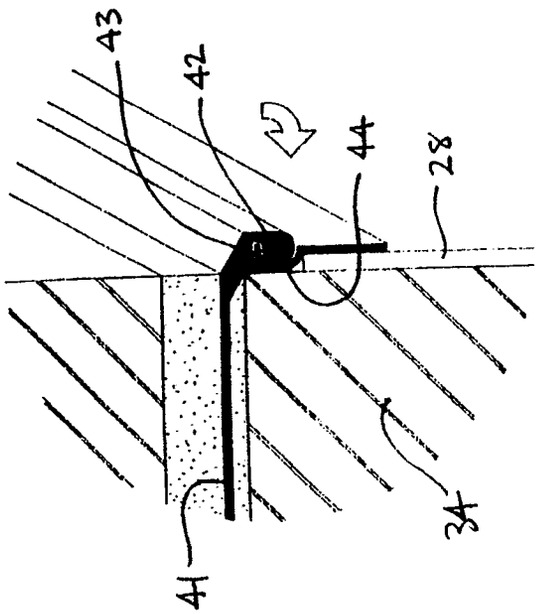

Fig 6

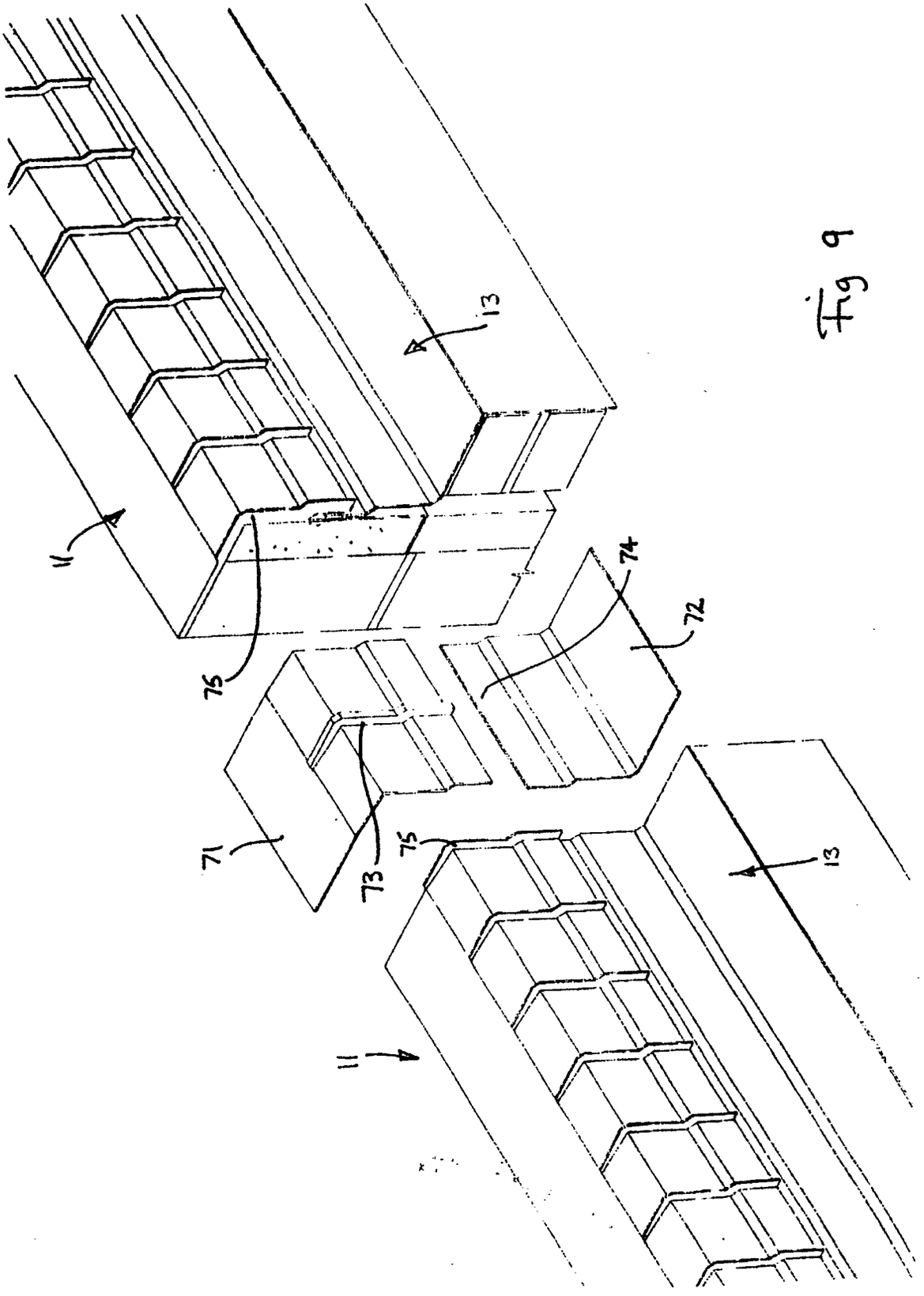

Fig 9

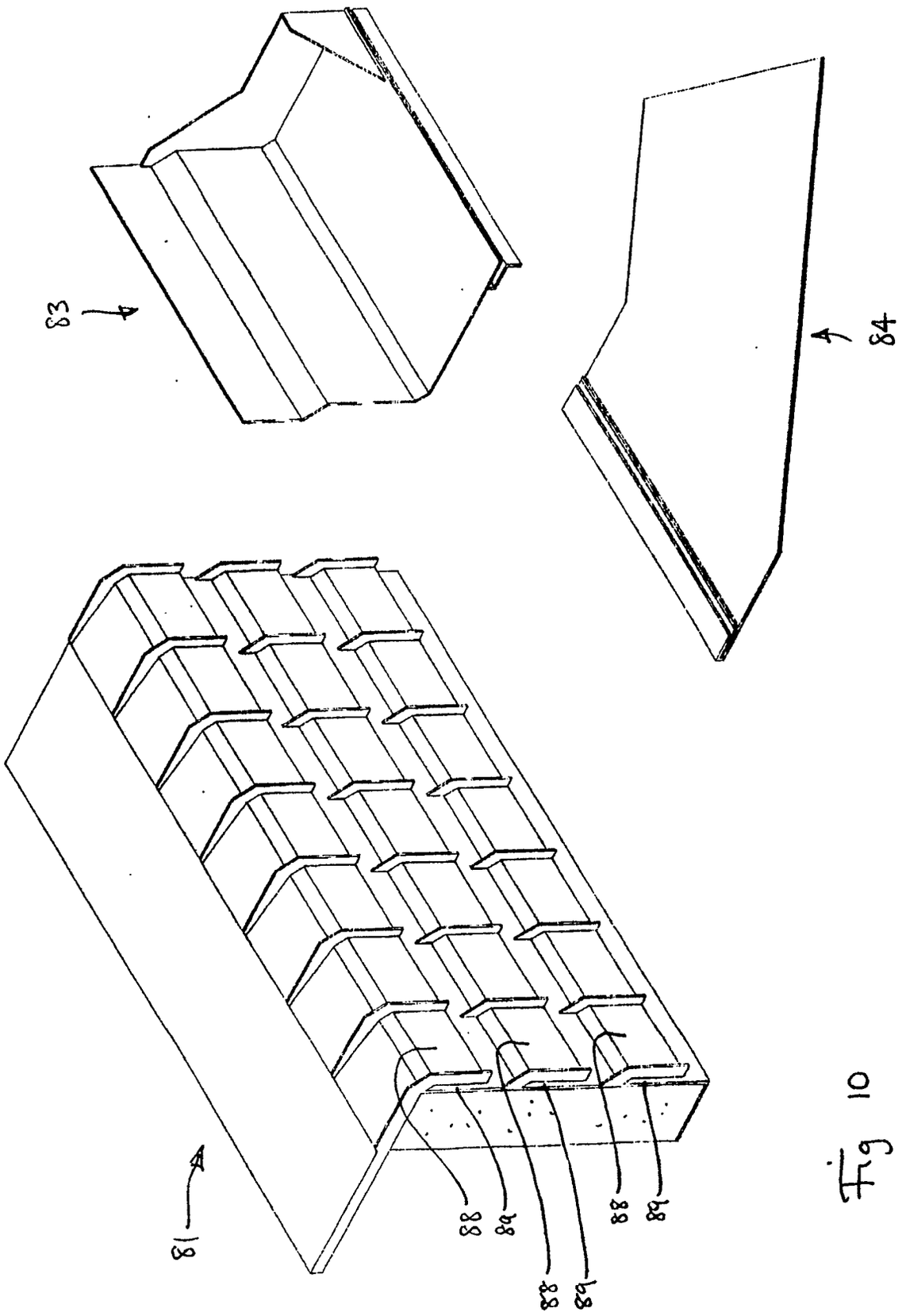

Fig 10

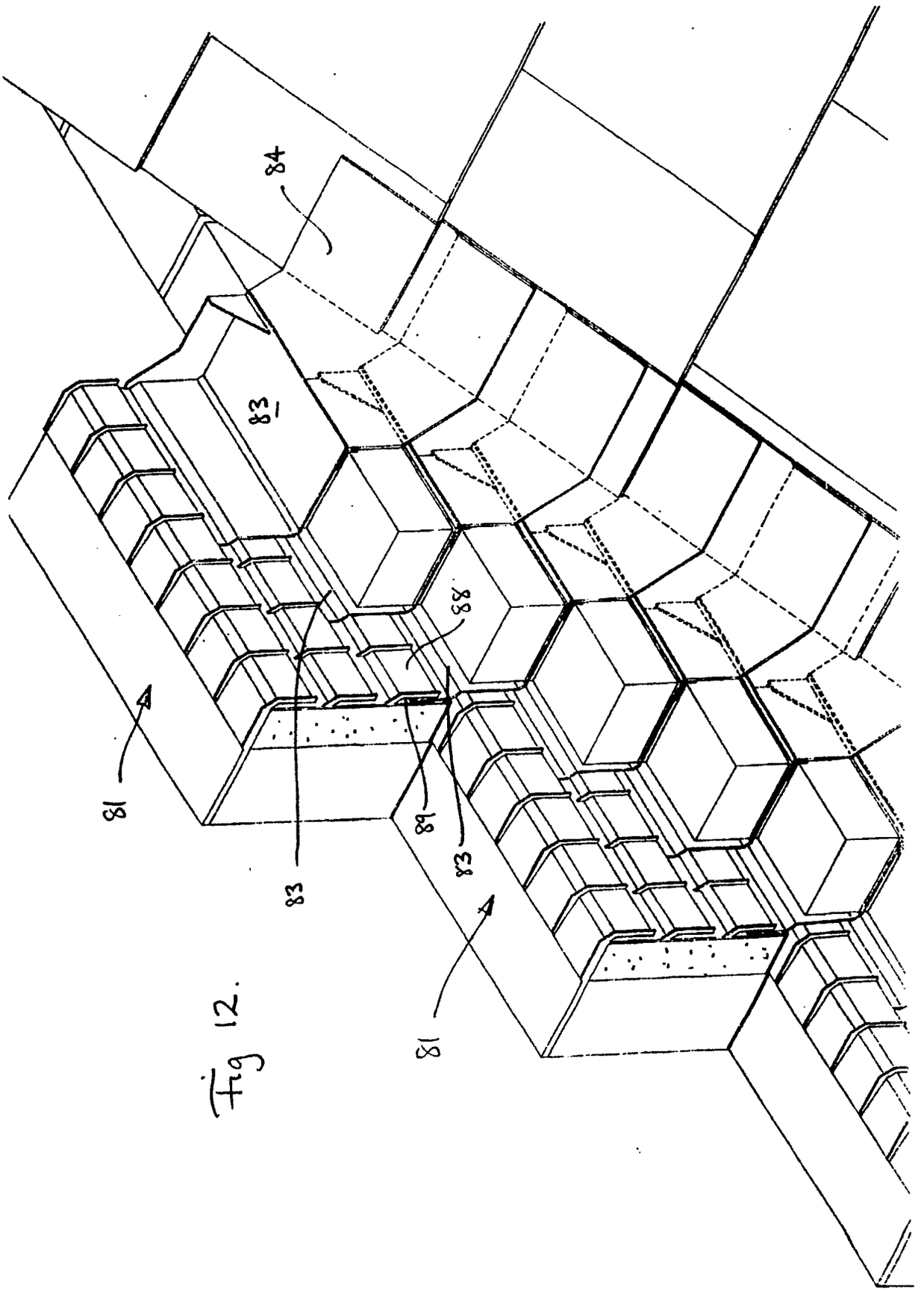

Fig 12.

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 30 8091

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	DE-A-2 946 514 (BLEFA AG) * Page 5, lines 1-13; figure 1 *	1,8	E 04 B 1/70 E 04 D 13/14 E 04 C 3/02
Y		2-5,10	
Y	GB-A-2 164 368 (J.L. SHILLABEER) * Page 1, line 112 - page 2, line 58; figures 1-8 *	2-5	
A		1,10	
Y	EP-A-0 243 079 (GLIDEVALE BUILDING & PRODUCTS LTD) * Column 4, line 62 - column 5, line 21; column 5, lines 33-49; figures 1,6-9,23,26-29 *	10	
A		1-3,7,9	
A	US-A-2 225 992 (F.L. HOESS) * Page 1, left-hand column, line 42 - page 2, left-hand column, line 40; figures 1-5 *	1,4,5	
A	GB-A-2 032 502 (CATNIC COMPONENTS LTD) * Page 1, lines 63-78; figures 1,2 *	1,6	
A	GB-A-2 189 527 (J.L. SHILLABEER) * Page 1, lines 5-19; page 2, lines 20-22; figures 1,2 *	9	TECHNICAL FIELDS SEARCHED (Int. Cl.5) E 04 B E 04 D E 06 B E 04 C
E	EP-A-0 387 043 (TBP INDUSTRIES LTD) * Whole document *	1-8	

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
The Hague	22 October 90	KAPPOS A.

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
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