

12 **EUROPEAN PATENT APPLICATION**

21 Application number: 84300665.1

51 Int. Cl.<sup>3</sup>: **E 04 B 1/41**  
**E 04 B 1/56**

22 Date of filing: 02.02.84

30 Priority: 03.02.83 GB 8302964

43 Date of publication of application:  
12.09.84 Bulletin 84/37

64 Designated Contracting States:  
AT BE CH DE FR GB IT LI LU NL SE

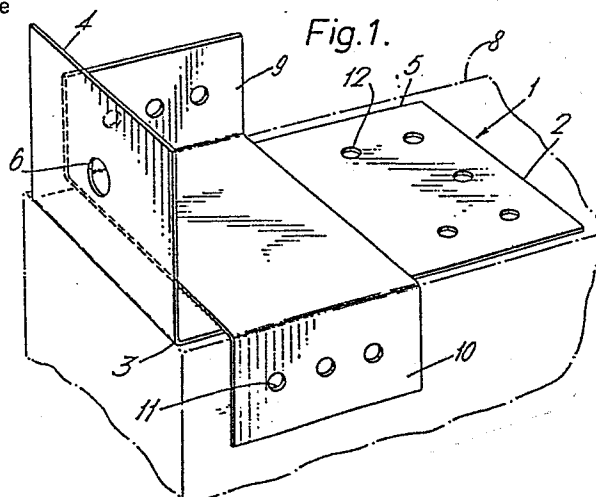
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54 **Tie for walls and other structures.**

57 A tying element 1 for tying a newly built brick or block wall to a pre-existing structure such as a wall is in the form of a generally L-shaped plate, the foot of which is bolted to the existing wall at 7, the leg of the L being interposed between two successive courses of the bricks or blocks. The tie may be provided with side flanges such as 9 and 10 which locate the tie relative to the lower course of bricks and locate the upper course of bricks relative to the tie.



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DESCRIPTIONTITLE: TIE FOR WALLS AND OTHER STRUCTURES

The present invention relates to a tie for tying a newly built wall or other structure made of bricks or blocked to a pre existing structure such as a wall.

Conventional ties for brickwork are generally  
5 made of metal stock shaped to a figure-of-eight shape. This may be fixed to the existing wall and embedded in the mortar between courses of bricks in the new wall.

There has recently become available a new method of tying brick walls together which involves the use of a  
10 plate-like member which is nailed or bolted to the existing wall and has two side flanges which act as guides for the bricks of the new wall. Formed out of the surface of this plate are a number of vertically spaced hooks over which conventional ties can be hooked as they are embedded in the  
15 mortar between courses of bricks.

The present invention seeks to provide an alternative to the above, by means of which the conventional ties can be eliminated.

Broadly, the invention provides a tie element  
20 which is in the form of a plate like element formed in the shape of a "L". The foot of the "L" is secured to the surface of the existing structure at a suitable height so that the leg of the "L" rests on the brickwork already built (if any) and one or more further courses are built on  
25 top of it.

Thus according to one aspect the present invention there is provided a tie for tying a brick or block structure to a pre-existing structure comprising a generally L-shaped plate element, the foot of the "L"  
30 having means for enabling it to be secured to a surface of the pre-existing structure so that the elongate leg of the

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"L" can extend horizontally to define a plane from which one or more successive courses of bricks or blocks may be built up and the leg of the "L" having at least one depending or upstanding flange at one of its side edges to abut the side face of a brick or block.

Preferably, the tie element has two flanges for contacting the side faces of bricks above and/or below it so as to help maintain their vertical alignment. Suitably, one of the upstanding side flanges can be arranged to contact one face of the upper brick and the other side flange to contact the opposite face of the lower brick. Other possibilities are for both flanges to overly the same faces of the respective bricks or blocks, for both flanges to be upstanding or depending so as to contact the same brick or block and for only one upstanding, or depending, flange to be provided.

The foot "L" may be provided with flange along one or both of its lateral edges for also abutting the side face of a brick or block.

The leg of the "L" and/or one or more of the flanges may be provided with through-holes or cut-outs to key plaster or mortar to them.

The first aspect of the invention also provides a tie for tying a brick or block structure to a pre-existing structure comprising a generally L-shaped plate element, the foot of the "L" having means for enabling it to be secured to a surface of the pre-existing structure so that the elongate leg of the "L" can extend horizontally to define a plane from which one or more successive courses of bricks or blocks may be built up and the foot of the "L" having on at least one of its side edges a flange angled to abut the side face of a brick or block.

The invention further provides a method of tying

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a structure comprising successively laid courses of bricks or blocks to a pre-existing structure comprising fixing a tie according to the invention to the pre-existing structure with the leg of the "L" of the tie resting on a support surface and laying at least one course of bricks or blocks with one of the bricks or blocks laid on the leg of the "L".

The invention will be further described by way of example with reference to the accompanying drawings in which:-

FIGURE 1 is a perspective view of one embodiment of the present invention;

FIGURE 2 shows the embodiment of Figure 1 in use; and

FIGURE 3 is a view corresponding to Figure 1 of a second embodiment of the invention; and

FIGURE 4 is a view corresponding to Figure 1 of a third embodiment of the invention.

The wall tie 1 shown in Figure 1 is formed of a generally L-shaped plate 2 formed by folding a metal sheet at 3 so that the "foot" 4 of the "L" and "leg" are at right angles to one another.

The foot 4 of the "L" 2 is provided at its centre with a large hole 6 to enable it to be fixed face to face with the pre-existing wall by means, for example of a bolt 7 (Figure 2).

As can be seen from Figure 2, in use the tie 1 is fixed to the existing wall at a suitable level so that the Leg 5 rests on a desired row of bricks or blocks, preferably with the interposition of a thin layer of mortar. The tie 1 is provided at each side of the leg 5 of the "L" with side flanges 9 and 10, these being perpendicular to the plane of the leg 5 and equally spaced from the centre line of the tie so that the flange 10 is in

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face to face contact with a brick in the course below the tie 1 while the flange 9 will be in contact with the side face of the next brick up. The illustrated tie is particularly suitable for use where the existing wall is stone or concrete as it can simply be bolted on.

Obviously, a number of the ties 1 may be used at vertically spaced intervals in the course of building the new wall. To assist in lining up the ties, and hence the wall, it is convenient to use a straight edge to ensure that the side edges of the "feet" 4 of the ties are in line. To facilitate this, the flanges 9 and 10 are preferably located so that they are spaced from the plane of the foot 4 of the tie 1. Preferably also, they are displaced laterally from the side edges of the leg 5 of the tie 1.

The flanges 9 and 10 may be provided with holes such as 11 for keying of plaster, mortar and so forth and likewise the foot 4 and leg 5 of the tie may also be provided with keying holes such as 12.

As shown, the tie 1 is made from two folded rectangular strips of metal plate secured together, e.g. by spot welding, in overlying relationship. It will be appreciated that the tie could also be made from one metal plate, suitably folded and it could even be manufactured from plastics material. The foot 4 of the "L" may be provided with spacer means to maintain it in spaced parallel relationship with the existing wall. This may be done, for example, by swaging part-cylindrical projections from the foot 4. The spacers may alternatively be made by folding the corners of the foot 4 of the tie or by making three short slits in each of the side edges of the foot 4, and folding the outer two flaps, or the central flap, so formed out of the plane of the remainder of foot 4.

There are many ways in which the embodiment may

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be varied. For example, for use in tying the outer leaf of a cavity wall, the side flange may be omitted from one side of the tie (so that it is invisible from the outside) and in those circumstances the other flange need not have the plaster key holes 11.

Figure 3 shows a further variant where the foot 4 of the "L" is provided with a flange 13 parallel with the leg 5 so as to contact the side face of a brick or block placed on the leg 5. This flange 13 may be provided with keying holes 14 for mortar or plaster. The opposite edge 4b may also have a flange similar to the flange B.

The tie element 1 may be adapted so that the foot 4 extends downwardly from the leg 5.

The plate 2 is preferably of a width rather less than that of the bricks, say, for example, 50 millimeters for 75 millimeters or 100 millimeter bricks. In such an embodiment, the length of the leg 5 is suitable about 100 to 150 millimeters. The inner faces of the side flanges should be spaced apart a distance just greater than the width of the brick or block; a wider version of the tie could be made to accomodate two side-by-side courses of bricks or a course of wider blocks.

The side flanges 9, 10 should be not less than about 2-2.5 cm high so as to be able to cover the mortar between successive courses of bricks or blocks.

Figure 4 shows a further embodiment of the tie 1' in which the leg 5 of the "L" is without flanges and instead the foot 4 of the "L" is provided at one or both lateral edges with a flange 13' folded at right angles to the plane of the foot 4 so as to abut the side face of a brick or block placed on the leg 5. These flanges may again be provided with holes 14 to key mortar or plaster. The version of this embodiment having only one flange 14 has the advantage that it can be stacked to minimise the space required for storage.

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CLAIMS

1. A tie for tying a brick or block structure to a pre-existing structure characterised in that it comprises a generally L-shaped plate element, the foot (4) of the "L" having means (6) for enabling it to be secured to a surface  
5 of the pre-existing structure so that the elongate leg (5) of the "L" can extend horizontally to define a plane from which one or more successive courses of bricks or blocks may be built up and the leg of the "L" having at least one depending or upstanding flange (9,10) at one of its side  
10 edges to abutt the side face of a brick or block.

2. An element according to claim 1 wherein there are two such flanges, one (9) upstanding and one (10) depending from the leg of the "L".

3. An element according to claim 1 wherein at  
15 least one such flange (9,10) is disposed so as to be spaced along the leg of the "L" from the foot of the "L".

4. An element according to any one of the preceding claims wherein one or both lateral edges (4a,4b) of the foot of the "L" is provided with a flange (14)  
20 extending in the direction of the leg of the "L".

5. An element according to any one of the preceding claims wherein the leg (5) of the "L" is provided with keying holes for mortar.

6. A tie for tying a brick or block structure to  
25 a pre-existing structure characterised in that it comprises a generally L-shaped plate element, the foot (4) of the "L" having means (6) for enabling it to be secured to a surface of the pre-existing structure so that the elongate leg of

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the "L" can extend horizontally to define a plane from which one or more successive courses of bricks or blocks may be built up and the foot (4) of the "L" having on at least one of its side edges a flange (13') angled to abutt  
5 the side face of a brick or block.

7. An element according to any one of the preceding claims wherein at least one such flange has holes or cut outs to key mortar or plaster thereto.

8. A method of tying a structure comprising  
10 successively laid courses of bricks or blocks to a pre-existing structure comprising fixing a tie according to any one of the preceding claims to the pre-existing structure with the leg of the "L" of the tie defining the lower surface of at least one course of bricks or blocks  
15 laid on the leg of the "L".



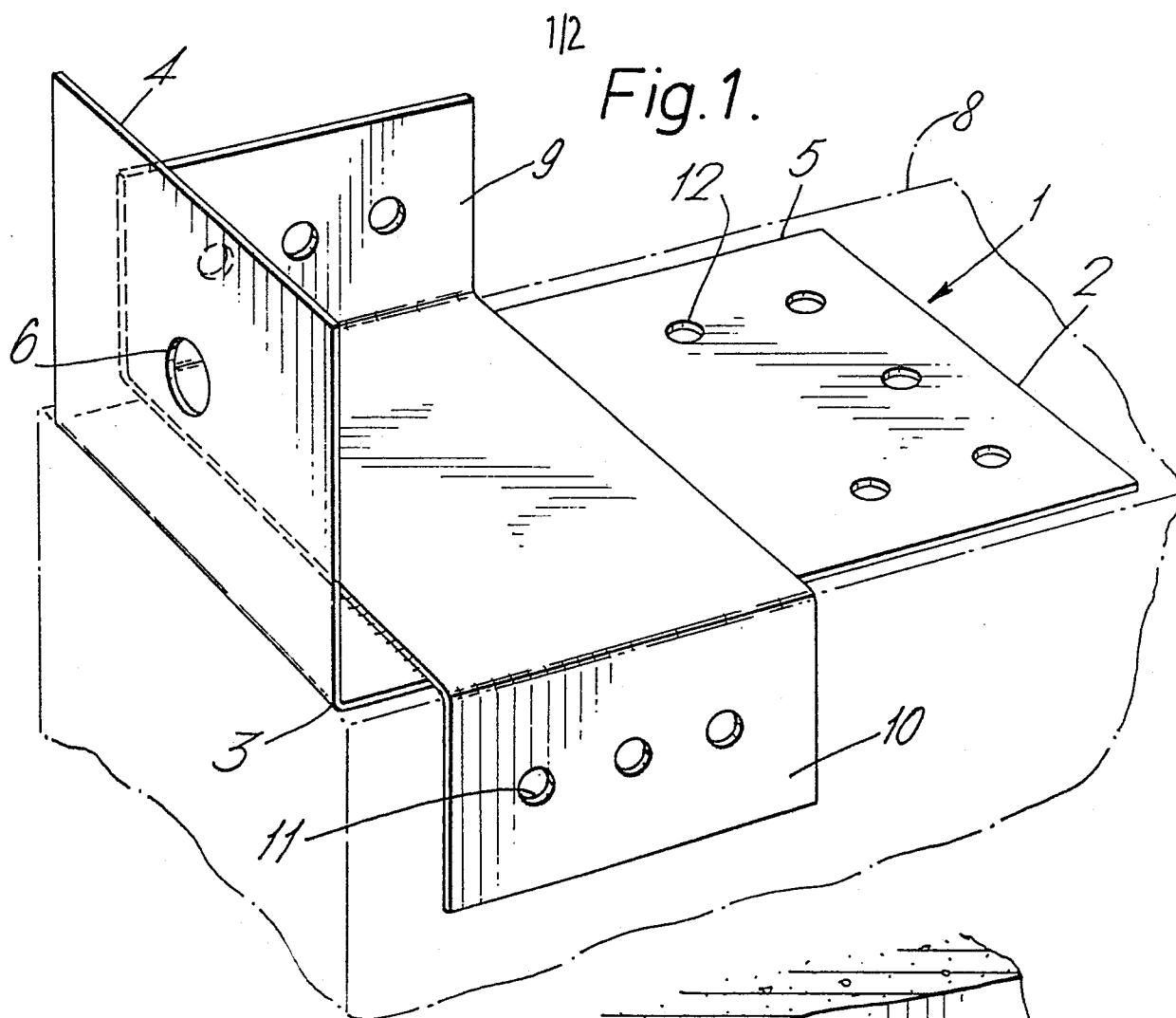
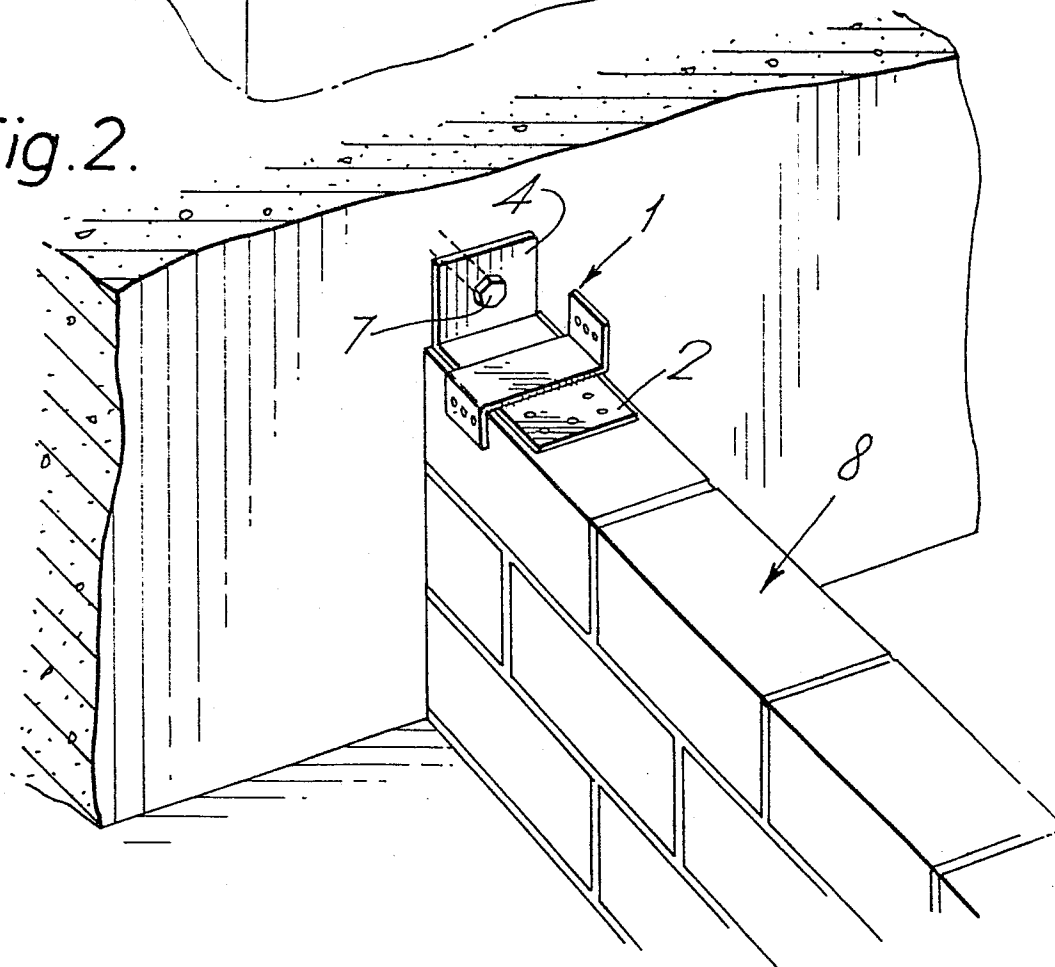
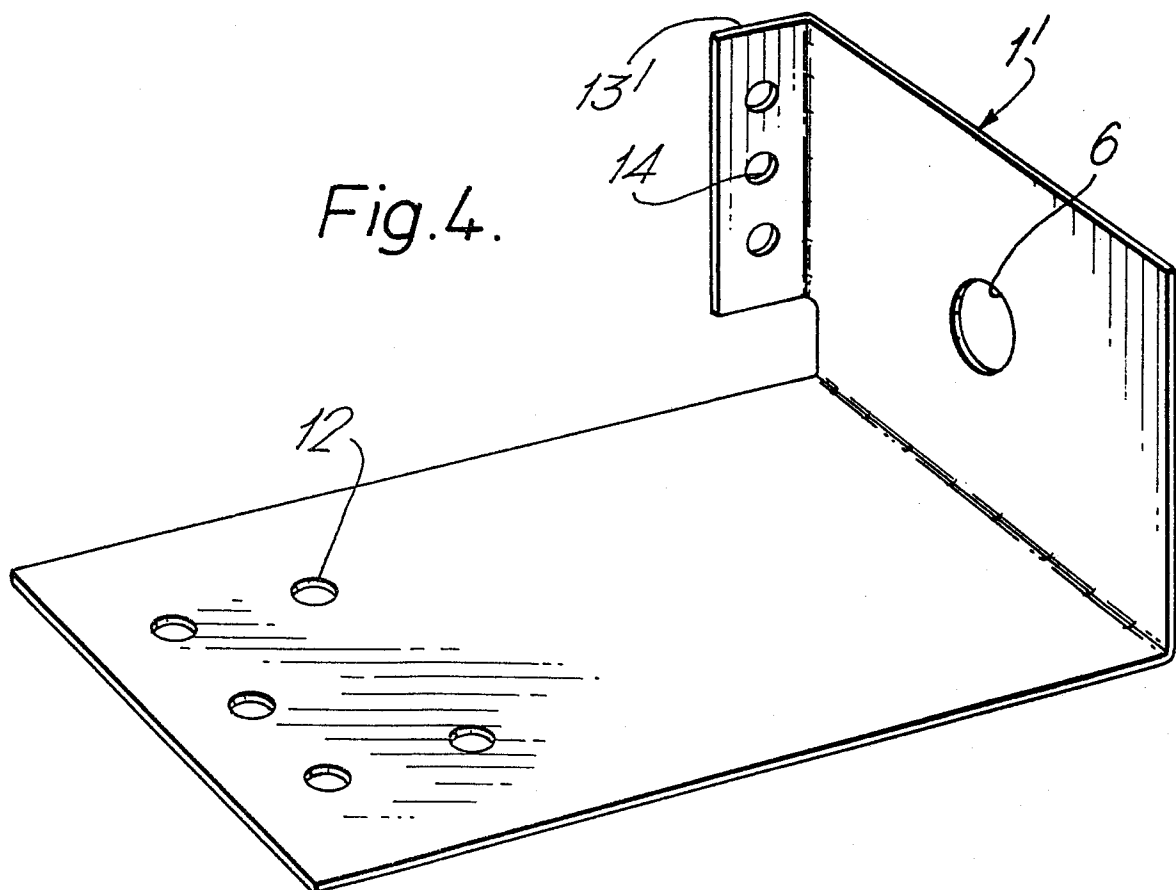
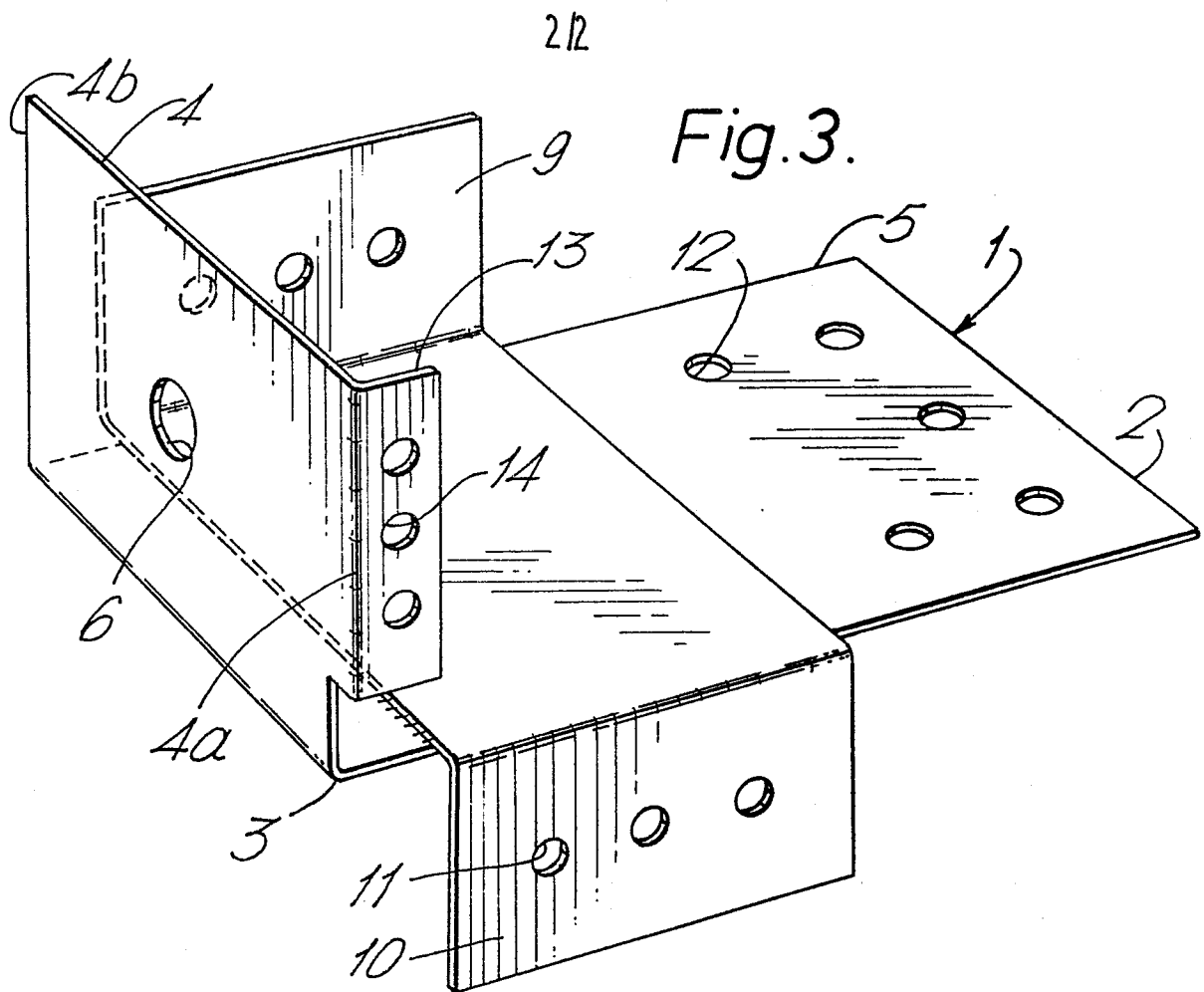


Fig.2.







European Patent  
Office

# EUROPEAN SEARCH REPORT

0118208

Application number

EP 84 30 0665

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. <sup>3</sup> )
Y	US-A-1 606 201 (WILLIS)  * Page 1, line 78 - page 2, line 106; figures 1-5 *	1,3,5,8	E 04 B 1/41 E 04 B 1/56
A		6	
Y	GB-A- 204 517 (CARVELL)  * Page 1, lines 60-94; figures 1-4 *	1,3,5,8	
A		2,6	
A	US-A-3 389 525 (MOODY)  * Column 2, line 61 - column 3, line 47; figures 1-9 *	1,5,6,8	TECHNICAL FIELDS SEARCHED (Int. Cl. <sup>3</sup> )
A	US-A-3 471 988 (ALLEN) * Column 3, line 1 - column 4, line 57; column 6, lines 5-24; figures 1-15,24 *	1,7	E 04 B E 04 F
A	GB-A-1 564 752 (GRINDOD) * Page 2, lines 25-40; figure 4 *	4,6	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15-05-1984	Examiner AYITER J.
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>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</p> <p>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  &amp; : member of the same patent family, corresponding document</p>			