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54 **Building frame anchorage joint.**

57 An anchorage joint (20) to secure a timber frame of a building to a concrete foundation (15) comprises a bar (21) adapted to have one end (22) embedded within the foundation (15). A sleeve (25) encompasses the exposed end of the bar (21), the sleeve being adapted to be fixed to a timber member (13) of a timber frame and engaged by the bar (21) to thereby secure the member (13), and therefore the frame, to the foundation (15).

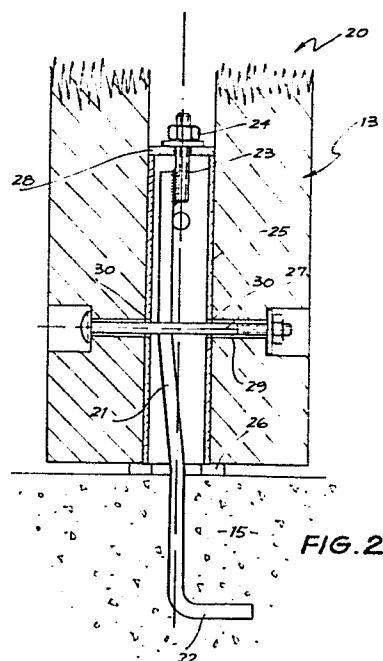


FIG. 2

"A BUILDING FRAME ANCHORAGE JOINT"

The present invention relates to the manufacture and erection of prefabricated frames for buildings, and more particularly to timber frames of such buildings and attachment thereof to foundations.

It is a disadvantage of known methods of anchoring timber frames to foundations, that the frames require a high degree of precision in manufacture since the position of the anchorage bolts may vary as much as ± 1 mm.

It is an object of the present invention to overcome or substantially ameliorate the above disadvantages.

There is disclosed herein an anchorage joint to secure a timber frame of a building to concrete foundations, said joint comprising: a bar adapted to have one end portion securely embedded within the foundation so as to extend generally vertically therefrom, a sleeve to encompass the exposed portion of said bar and adapted to abut said foundation so as to extend generally vertically therefrom, said sleeve defining a hollow having a transverse cross-section greater than the transverse cross-section of said rod to thereby allow transverse relative movement between the rod and sleeve, tensioning means coupling an upper portion of said rod and an upper portion of said sleeve, said means being adapted to engage said rod so as to tension same while applying the resulting reaction force to said sleeve to thereby secure the sleeve to the foundation, and frame engaging means fixed to said sleeve to which said frame is to be fixed.

A preferred form of the present invention will now be described by way of example with reference to the accompanying drawings, wherein:

Figure 1 schematically depicts in perspective view a house frame and foundation attached thereto;

Figure 2 is a schematic part sectioned elevation of an anchorage joint to secure the frame of Figure 1 to the foundation of Figure 1;

Figure 3 is a side elevation in part section of a further anchorage joint to be used to secure the frame of Figure 1 to the foundation of Figure 1.

Figure 4 is a plan view of the top portion of the anchorage bolt of Figure 3;

Figure 5 is a plan view of the lower portion of the anchorage bolt of Figure 3;

5 Figure 6 is a side elevation of the sleeve and timber engaging portions of the anchorage joint of Figure 3;

Figure 7 is a plan view of the sleeve of Figure 6 sectioned along the line A-A thereof;

10 Figures 8 and 10 are sectioned side elevations of a further anchorage joint to be used to secure the frame of Figure 1 to the foundation of Figure 1; and

Figures 9 and 11 are plan views of the anchorage joint of Figures 8 and 10 sectioned along the lines A-A thereof.

15 In Figure 1 there is schematically depicted a timber frame 10 having a plurality of generally vertical timber members 11 joined by a plurality of horizontal members 14. The frame 10 is secured to concrete or brick foundations 15 by way of anchorage joints 16.

20 Firstly with particular reference to Figure 2, there is schematically depicted an anchorage joint 20 adapted to engage a timber member 13 to secure it to the foundation 15. The anchorage joint 20 includes a rod 21 which is bent so as to have a generally L-shaped lower
25 section 22 which is securely embedded within the foundation 15. The rod 21 extends upwardly from the foundation 15 and includes a threaded portion 23 which is adapted to engage a nut 24. The joint 20 further includes a sleeve
30 25 which encompasses the exposed portion of the rod 21 and abuts the foundation 15 by means of a flange 26. Connecting the sleeve 25 and rod 21 is a transverse member 28 which transfers tension forces in the rod 21 to the sleeve 25 so as to secure the sleeve 25 to the foundation 15.

35 Fixed to the sleeve 25 is the timber member 13 by means of a bolt 27. The bolt 27 extends through a passage 29 formed in the member 13 and openings 30 formed in the sleeve 25. It should be appreciated that the rod 21 is not straight but is bent so as to be located spaced from the longitudinal axis of the sleeve 25 to allow the bolt 27

to pass through the centre of the sleeve 25.

Now with reference to Figures 3 to 5 wherein there is depicted an anchorage joint 40 which secures the vertical timber member and horizontal timber members 14 to the foundation 15. The anchorage joint 40 includes a rod 41 which as previously, is secured within the concrete foundation 15, a sleeve 42 which is engaged by a transverse member 43 which transfers tension forces in the bolt 41 to the sleeve 42 so as to secure the sleeve 42 to the foundation 15.

The rod 41 is provided with an upper threaded part 44 which is engaged by a nut 45. As described previously the joint 40 is provided with passages 46 which allow a bolt 47 to pass through the sleeve 42 and passage 48 formed in the member 13 to secure the member 13 to the sleeve 42. The lower portion of the anchorage joint 40 includes a plurality of fins 49 which are located within slots 50 formed in the timber members 14. The fins 49 are provided with holes 51 which allow a bolt 52 to pass therethrough to thereby secure the members 14 to the anchorage joint 40 by way of a passage 53 formed in the timber members 14.

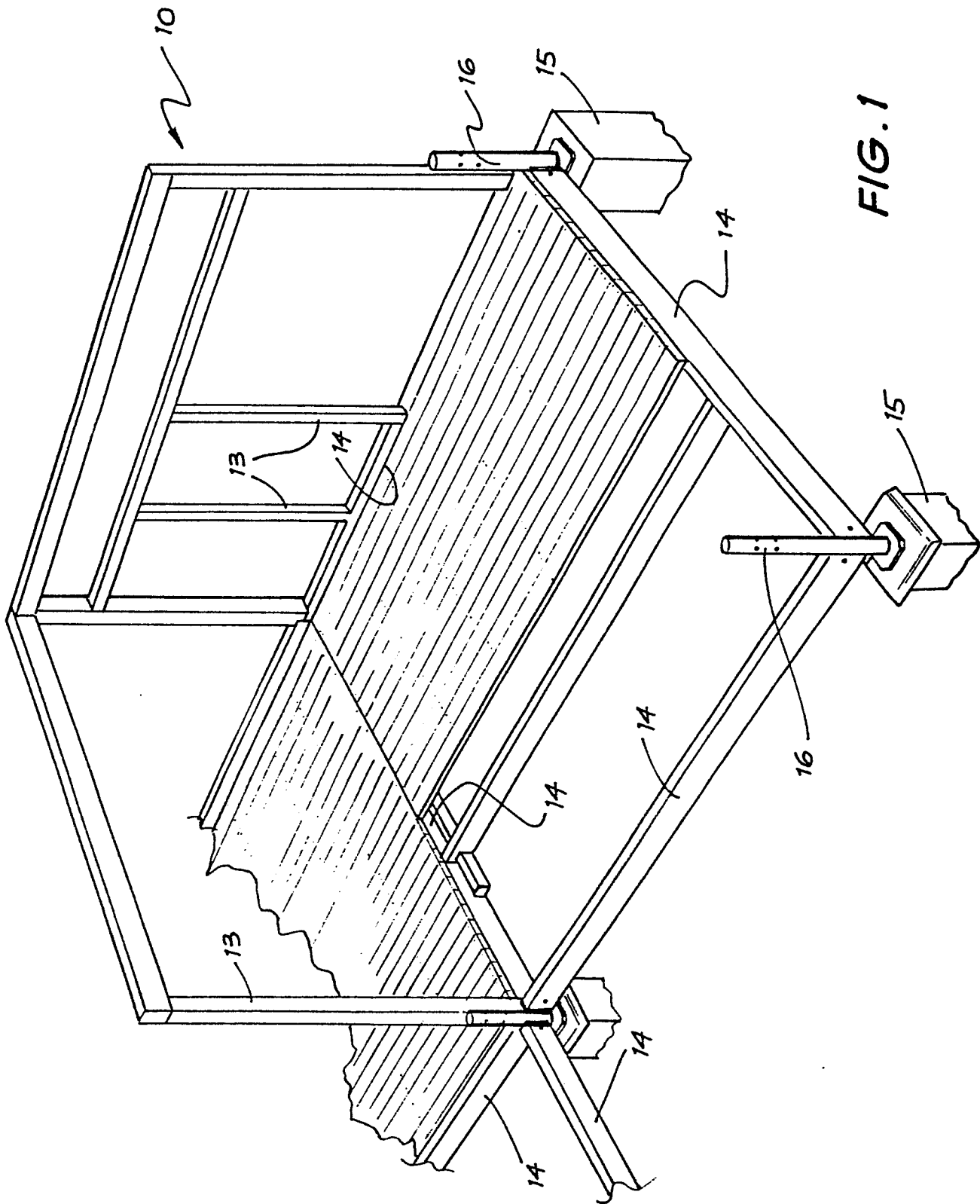
In Figures 6 to 11 there are depicted alternative forms of the sleeve which forms part of the anchorage joints, which various forms enable the timber members 13 and 14 to be fixed to the foundations 15. As can be seen from Figures 6 and 7, the sleeve depicted therein enables four horizontal members 14 together with a vertical member 13 to be secured to the foundation 15. On the other end, the sleeve of Figures 8 and 9 is adapted to secure two horizontal members 14 and a vertical member 13 to the foundation 15 while lastly, in Figures 10 and 11, the sleeve depicted therein enables three horizontal members 14 and a vertical member 13 to be secured to the foundation member 15.

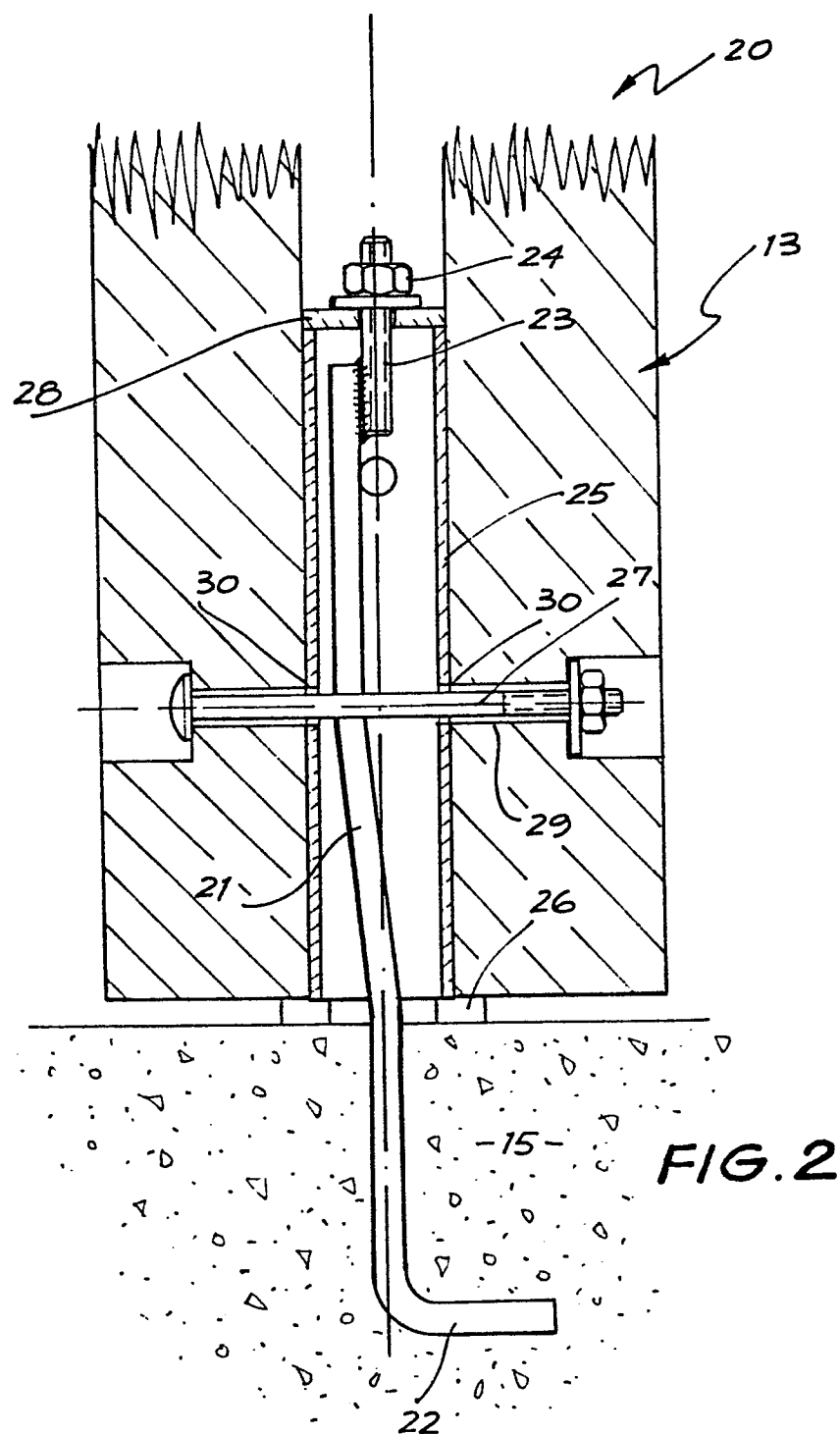
CLAIMS

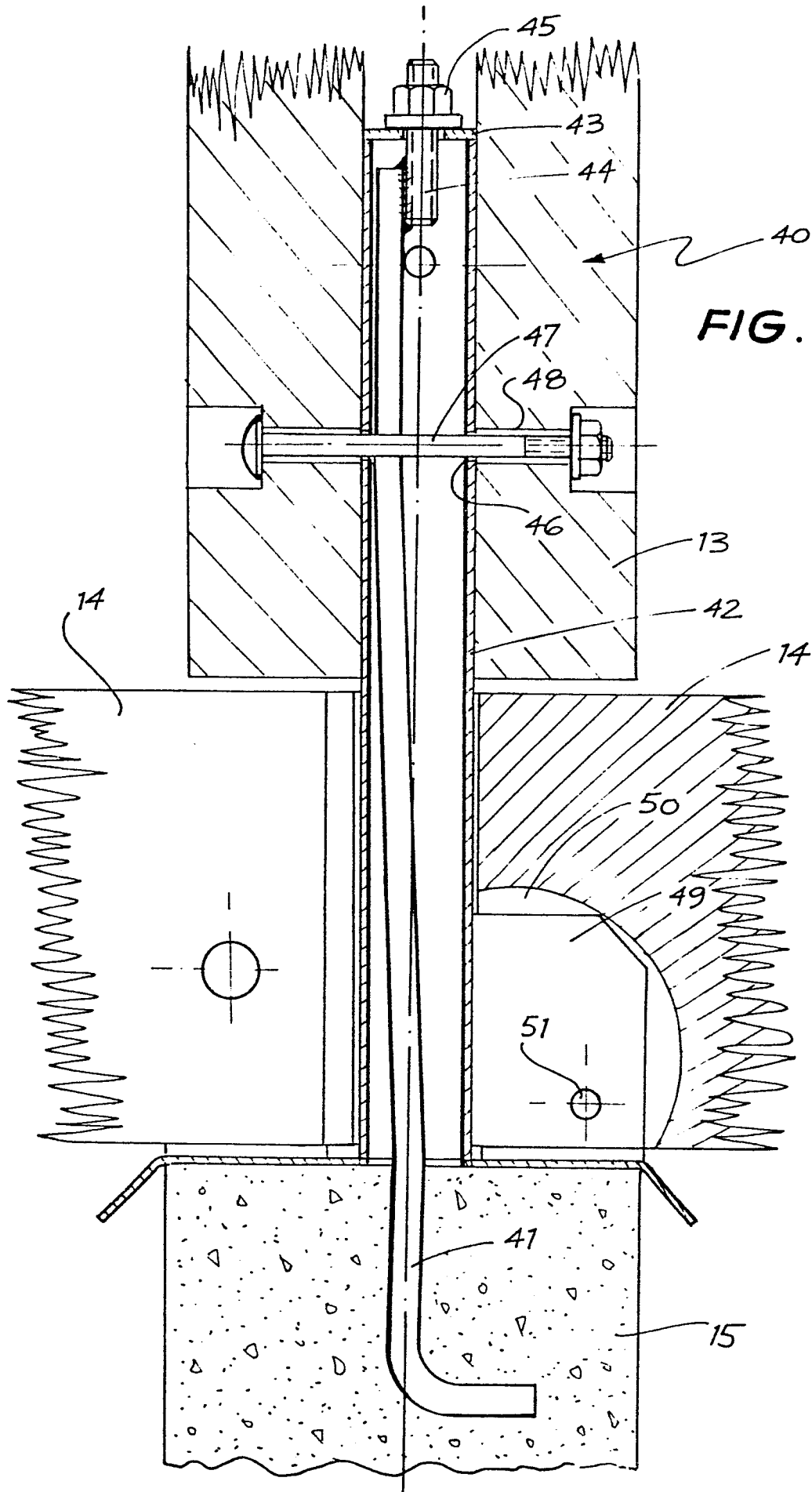
1. An anchorage joint to secure a timber frame (10) of a building to concrete foundations (15), said joint being characterised by: a bar or rod (21 or 41) adapted to have one end portion (22) securely embedded within the
5 foundation (15) so as to extend generally vertically therefrom, a sleeve (25 or 42) to encompass the exposed portion of said rod (21 or 41) and adapted to abut said foundation (15) so as to extend generally vertically therefrom, said sleeve (25 or 42) defining a hollow having
10 a transverse cross-section greater than the transverse cross-section of said rod (21 or 41) to thereby allow transverse relative movement between the rod (21 or 41) and sleeve (25 or 42), tensioning means (24 or 45) coupling an upper portion (23 or 44) of said rod and an upper portion
15 of said sleeve, said means (24 or 45) being adapted to engage said rod so as to tension same while applying the resulting reaction force to said sleeve to thereby secure the sleeve to the foundation, and frame engaging means (27, 47 or 49) fixed to said sleeve (25) to which said frame is to be fixed.
- 20 2. The anchorage joint of claim 1, wherein said frame engaging means includes at least one generally vertically orientated fin (49) fixed to the sleeve.
3. The anchorage joint of claim 1, wherein said frame engaging means includes at least one passage (30)
25 extending through the sleeve enabling the location therein of a bolt (27) to be attached to the frame.
4. The anchorage joint of any one of claims 1 to 3, wherein said rod (21 or 41) is of a generally L-shaped configuration.
- 30 5. An anchorage joint substantially as hereinbefore

described with reference to the accompanying drawings.

6. In combination, a timber frame and anchorage joint substantially as hereinbefore described with reference to the accompanying drawings.







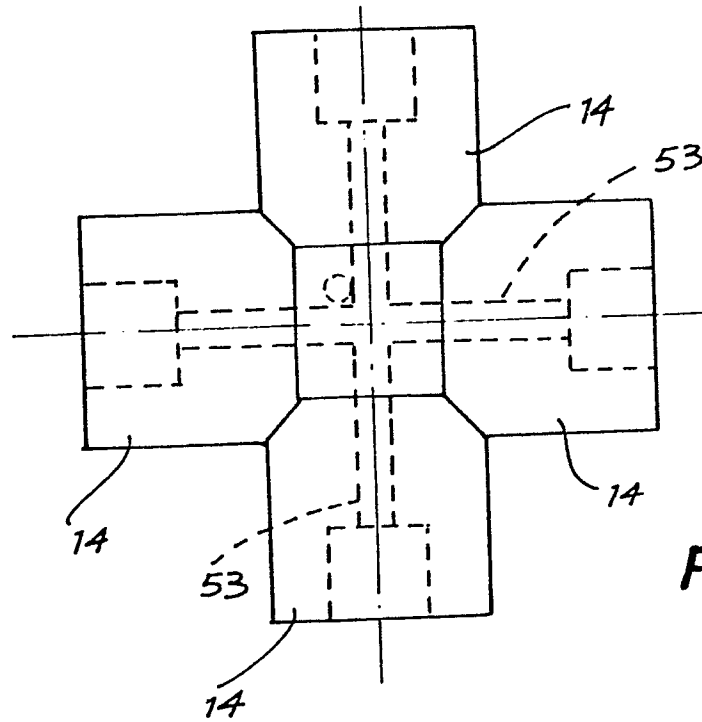
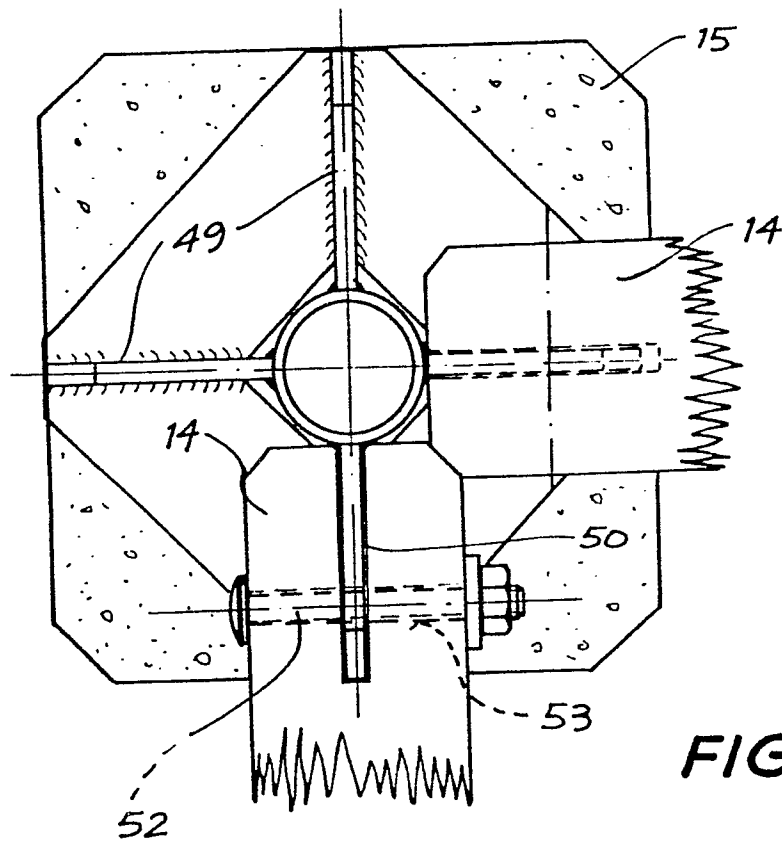
**FIG. 4****FIG. 5**

FIG. 6

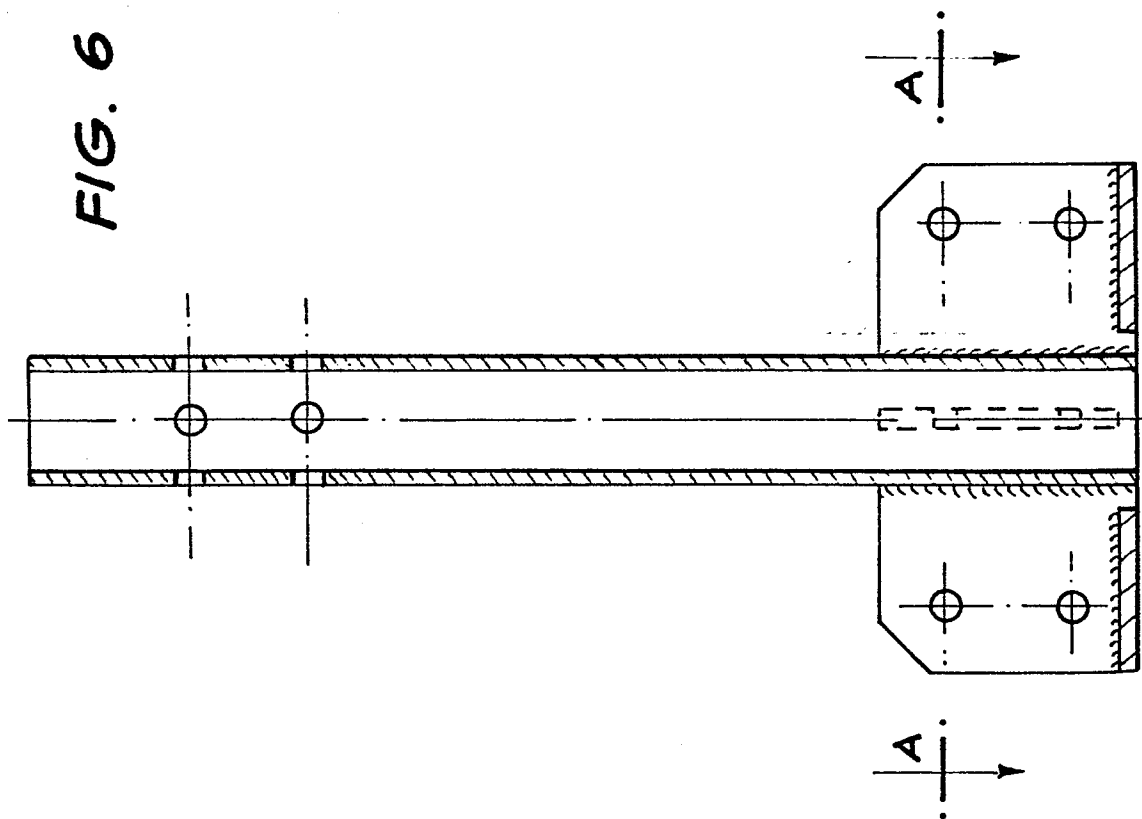


FIG. 7

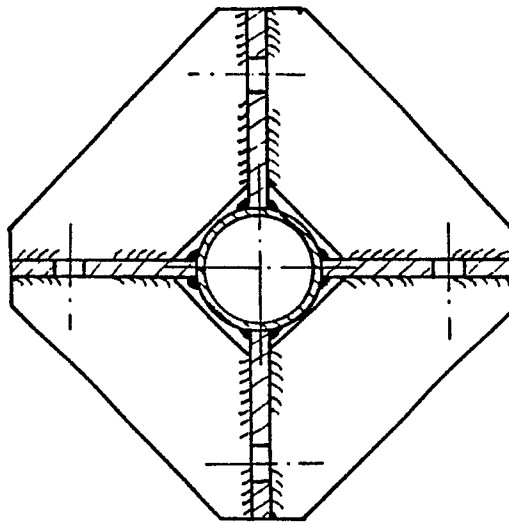


FIG. 9

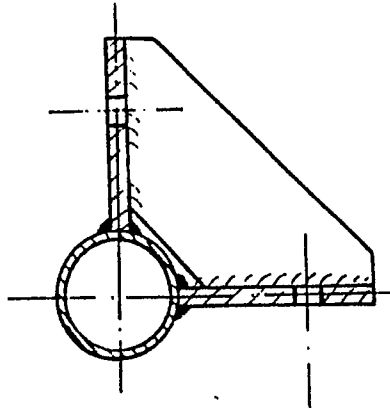


FIG. 8

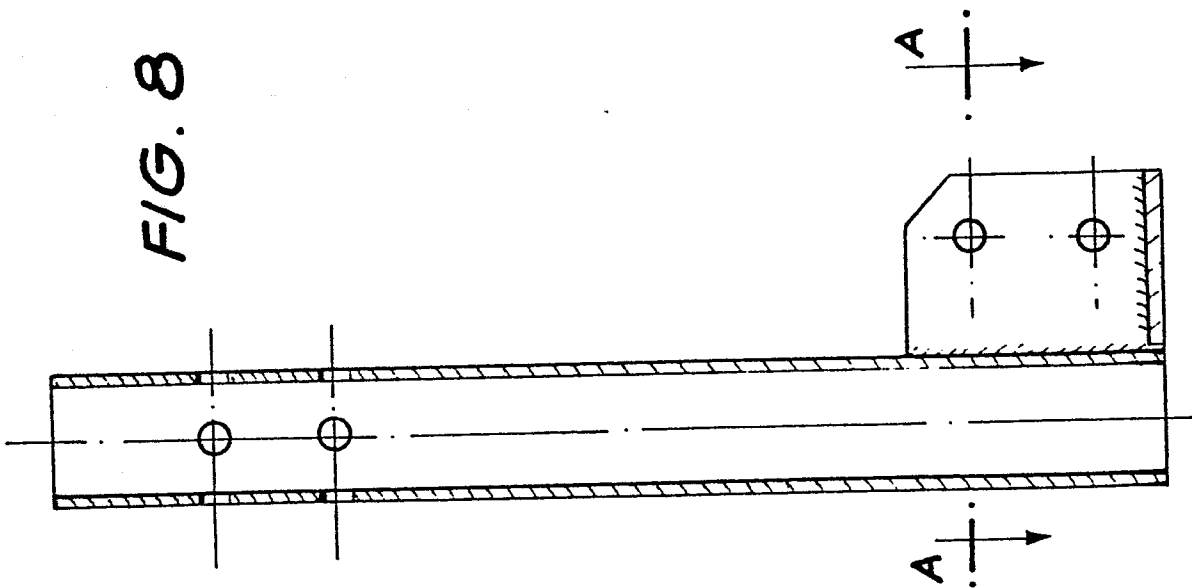
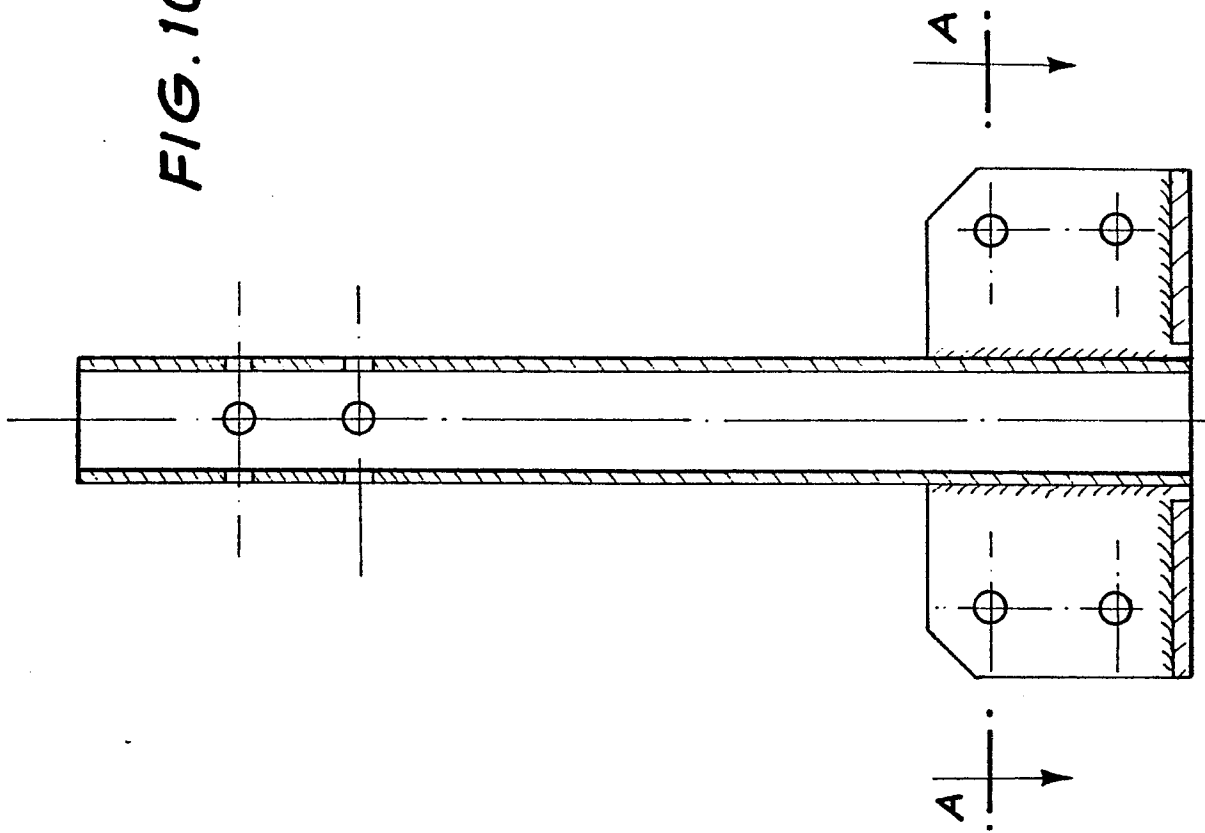
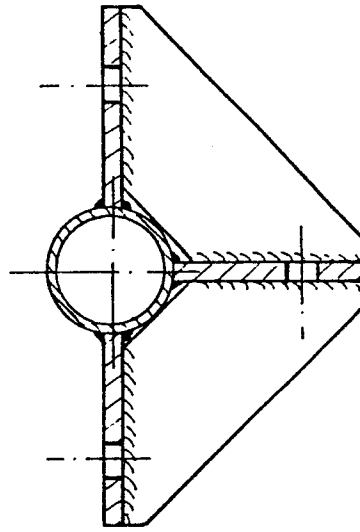


FIG. 10*FIG. 11*



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. 3)
X	<u>US - A - 2 797 446</u> (MILLER) * column 3, lines 47-75; column 4, lines 1-39; figure 5 * ---	1,4,6	E 04 B 1/00
A	<u>FR - A - 1 402 673</u> (DURET) * page 1, column 2, lines 11-39; page 2, column 1, lines 1-42; figures 1-4 * ---	1	
A	<u>CH - A - 293 955</u> (ALUMINIUM) * page 1, lines 62-68; page 2, lines 1-36; figures 1,2 * ---	1,3	
A	<u>GB - A - 1 262 330</u> (MISAWA) * page 2, lines 110-130; page 2, lines 1-8; figure 9 * ---	1,4,6	TECHNICAL FIELDS SEARCHED (Int. Cl. 7) E 04 B
A	<u>GB - A - 1 238 852</u> (ALTON)		
A	<u>US - A - 3 458 184</u> (SCHLOSSER)		
A	<u>US - A - 2 689 987</u> (BERGER)		
A	<u>FR - A - 2 082 024</u> (SALEFRAN) -----		
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11-06-1982	Examiner SCHOLS
CATEGORY OF CITED DOCUMENTS			
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		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 & : member of the same patent family, corresponding document	