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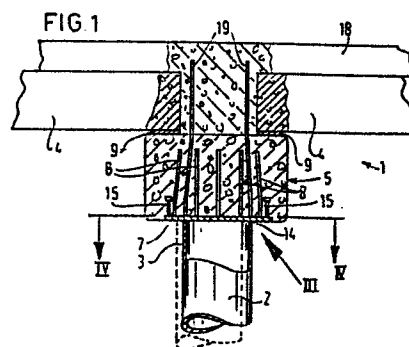
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54 Method for building a building structure and pile framework therefor.

57 In constructing a building structure (1) each girder (4) is positioned on a pile by means of a pile cap-member (5) having on its underside a metal plate which is welded to an accurately or not accurately positioned metal top end (3) of a pile (2).



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Method of constructing a building and pile cap-member for the same.

The invention relates to a method of constructing a building, for example, premises, a bridge, a pier or viaduct, said building comprising at least one pile having a metal upper end and at least one prefabricated concrete girder, 5 which bears on the pile with the interposition of a pile cap-member.

Such a method is known. Herein the pile cap-member is secured, for example, bolted to a specially designed top end of a pile concerned. This method is time-consuming and 10 circuitous, particularly when the top end of the pile, for example, a driven pile is not exactly in the prescribed position.

The invention provides a method improved in this respect in that the pile cap member is prefabricated, to 15 which a metal connecting frame is moulded, whilst the pile cap-member is set on the pile in its required position and in that subsequently the connecting frame is welded to the top end.

In this method the pile cap-member can be readily

and firmly fastened to the top end of the pile independently of the divergences from the prescribed position of said top end.

The invention furthermore relates to and provides a
5 pile cap-member for use in the method embodying the invention, said pile cap-member being characterized in that it is prefabricated of reinforced concrete having a metal connecting frame, to which reinforcing metal elements are welded.

The above-mentioned and further features of the
10 invention will be described more fully with reference to the drawing.

The drawing shows in:

Figure 1 a vertical sectional view of a fraction of
a building structure having a pile cap-member embodying the
15 invention,

Figure 2 a vertical sectional view of a pile
cap-member embodying the invention as shown in Figure 1,

Figure 3 on an enlarged scale detail III of Figure
1,

20 Figure 4 a sectional view taken on the line IV-IV
of Figure 1,

Figure 5 a perspective view of a fraction of a different building structure constructed by the method embodying the invention,

25 Figure 6 a side elevation of a fraction of a further building structure constructed by the method embodying the invention, and

Figures 8, 9 and 10 on an enlarged scale various details of pile cap-members embodying the invention.

30 The building structure 1 constructed by carrying out the method embodying the invention comprises a plurality of piles 2, only one of which is shown in Figure 1. This pile 2 has a metal top end 3, since it is formed, for example completely by a round steel tubing. As shown in Figure 1, two
35 prefabricated girders 4 of reinforced concrete bear on the top end 3 with the interposition of a pile cap-member 5. The pile-cap member 5 is prefabricated from reinforced concrete 6

having a metal connecting frame 7 formed integrally thereto, to which reinforcing metal elements 8 are fastened. The connecting frame 7 is constructed in the form of a plate having a thickness a (Figure 7) such that the carrying capacity K is distributed across a sufficiently large surface b on the concrete 6. As the case may be, washer plates 9 may be arranged between the girders 4 and the pile cap-member 5. After the pile cap-member 5 is arranged on the pile 2 in the required position, the connecting frame 7 is welded to the top end 3.

10 As is shown in Figure 4, the connecting frame 7 is proportioned so that it can be welded in various eccentric positions 10, 11, 12 or 13 to the top end 3 by a weld 14, which is important in the case of inaccurate disposition of the top end 3 relative to a prescribed position.

15 The connecting frame is secured by anchors 15 to the concrete 6. These anchors 15 have round heads 16 (Figures 1 to 5) and bent-over screw-threaded ends 17 (Figures 8 to 10) and are each welded to the connecting frame 7. As is shown in Figure 1, a concrete floor 18 is poured onto the girders 4 and anchored to the pile cap-member 5 by protruding reinforcing elements 19. One, two, three or four girders 4 may bear on one pile cap-member 5.

As is shown in Figure 5, each pile cap-member 21 constitutes together with a concrete girder 20 a monolithic, 25 prefabricated concrete element 23. Each pile cap-member 21 has a connecting frame 27 formed by a plate covering approximately half of the top end 3. The two connecting frames 27 are welded to the top end 3 and, as the case may be, to one another.

30 As is shown in Figure 6, each girder 26 bears on a top end 3 by a pile cap-member 25 integrally formed to only one end of it, whereas the other end 28 bears on a pile cap-member 25 of a further girder 26. Again a connecting frame 7 is secured by a weld 14 to the top end 3.

35 Figure 9 shows the disposition of anchors 15 and the dimensions of the connecting frame 7 suitable to trans-

fer, in the case of a force P , the tractive force Q by the anchors 15 from the pile 2 to the pile cap-member.

The pile cap-member shown in Figure 10 is shaped and proportioned so that shear forces can be transferred from 5a pile 2 to the anchors 15 welded for this purpose to the connecting frame 7.

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C L A I M S

1. A method of constructing a building structure (1), for example, a building, bridge, pier or viaduct, said building structure comprising at least one pile (2) having a metal top end (3) and at least one prefabricated concrete
5 girder (4) bearing on the pile (2) with the interposition of a pile cap-member (5), characterized in that the pile cap-member (5, 21) is prefabricated whilst a metal connecting frame (7) is integrally formed thereto, in that the pile cap-member (5) is disposed on the pile (2) in its required
10 position and in that subsequently the connecting frame (7) is welded to the top end (3).

2. A pile cap-member (5, 21) for use in the method claimed in Claim 1, characterized in that it is prefabricated from reinforced concrete with a metal connecting frame to
15 which reinforcing metal elements (8) are welded.

3. A pile cap-member (21, 25) as claimed in Claim 2, characterized in that together with a concrete girder (20, 26) it constitutes a monolithic, concrete, prefabricated element (23) (Figure 5).

4. A pile cap-member (5) as claimed in Claim 2, 3, characterized in that the connecting frame (7) is constructed in the form of a plate. 0073859

5. A pile cap-member as claimed in Claim 2, 3 or 4, characterized in that the connecting frame (7) is proportioned so that it can distribute the pressure forces (K) from a pile (2) to the concrete (6) of a pile cap-member (5).

6. A pile cap-member (5) as claimed in Claim 2, 3, 4 or 5, characterized in that the connecting frame (7) is proportioned so that it can transfer the tractive forces (Q) from a pile (2) to the anchors (15) welded to the connecting frame (7).

7. A pile cap-member (5) as claimed in anyone of the Claims 2 to 6, characterized in that the connecting frame (7) and the reinforcing elements (19) of the pile cap-member (5) are proportioned so that the shear forces can be transferred from a pile to the anchors (15) welded for this purpose to the connecting frame (7).

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AMENDED CLAIMS

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C L A I M S

1. A method of constructing a building structure (1), for example, a building, bridge, pier or viaduct, said building structure comprising at least one pile (2) having a metal top end (3) and at least one prefabricated concrete
5 girder (4) bearing on the pile (2) with the interposition of a pile cap-member (5), characterized in that the pile cap-member (5, 21) is prefabricated whilst a metal connecting frame (7) is integrally formed thereto said connecting frame (7) having an oversize for compensating relative position
10 differences between the pile cap-member (5, 21) and the top end (3) of the pile (2), in that independent of the position of the top end (3) of the pile (2) the pile cap-member (5) is disposed on the pile (2) in its required position and in that subsequently the connecting frame (7) is welded to the top
15 end (3).

2. A pile cap-member (5, 21) for use in the method claimed in Claim 1, characterized in that it is prefabricated from reinforced concrete with a metal connecting frame to which reinforcing metal elements (8) are welded.

20 3. A pile cap-member (21, 25) as claimed in Claim

2, characterized in that together with a concrete girder (20, 26) it constitutes a monolithic, concrete, prefabricated element (23) (Figure 5).

4. A pile cap-member (5) as claimed in Claim 2 or 5 3, characterized in that the connecting frame (7) is constructed in the form of a plate.

5. A pile cap-member as claimed in Claim 2, 3 or 4, characterized in that the connecting frame (7) is proportioned so that it can distribute the pressure forces (K) from a 10 pile (2) to the concrete (6) of a pile cap-member (5).

6. A pile cap-member (5) as claimed in Claim 2, 3, 4 or 5, characterized in that the connecting frame (7) is proportioned so that it can transfer the tractive forces (Q) from a pile (2) to the anchors (15) welded to the connecting 15 frame (7).

7. A pile cap-member (5) as claimed in anyone of the Claims 2 to 6, characterized in that the connecting frame (7) and the reinforcing elements (19) of the pile cap-member (5) are proportioned so that the shear forces can be transferred from a pile to the anchors (15) welded for this purpose 20 to the connecting frame (7).

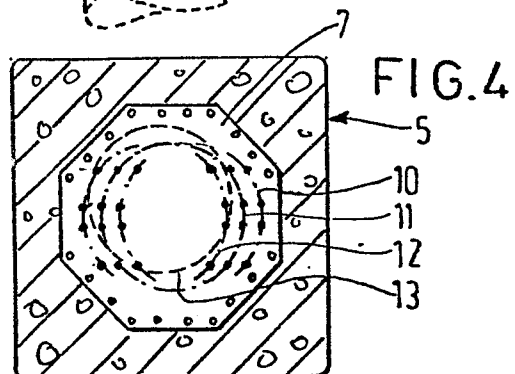
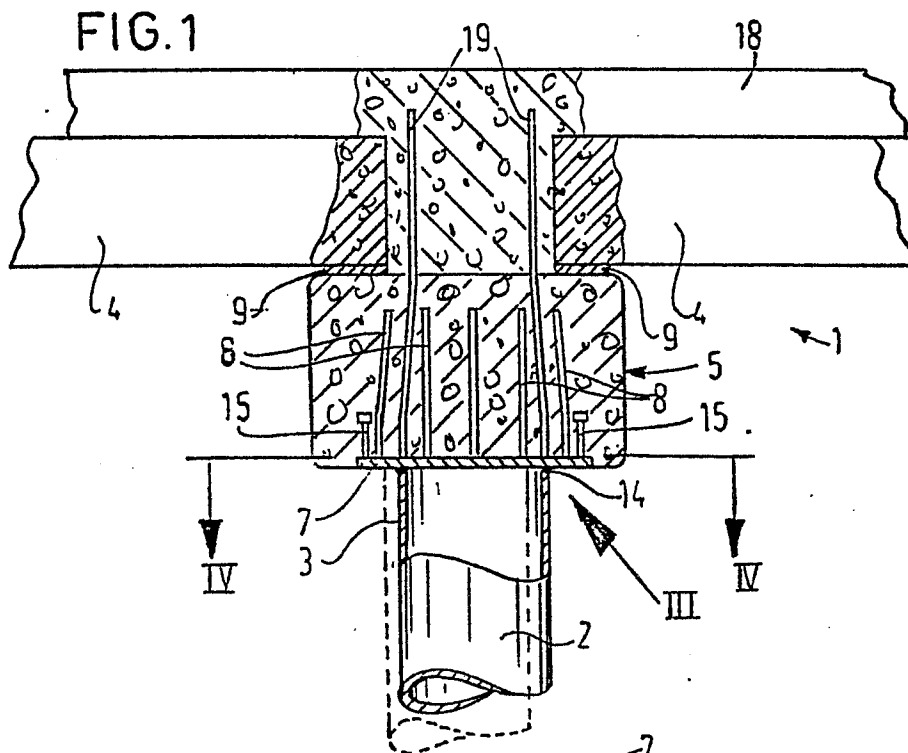
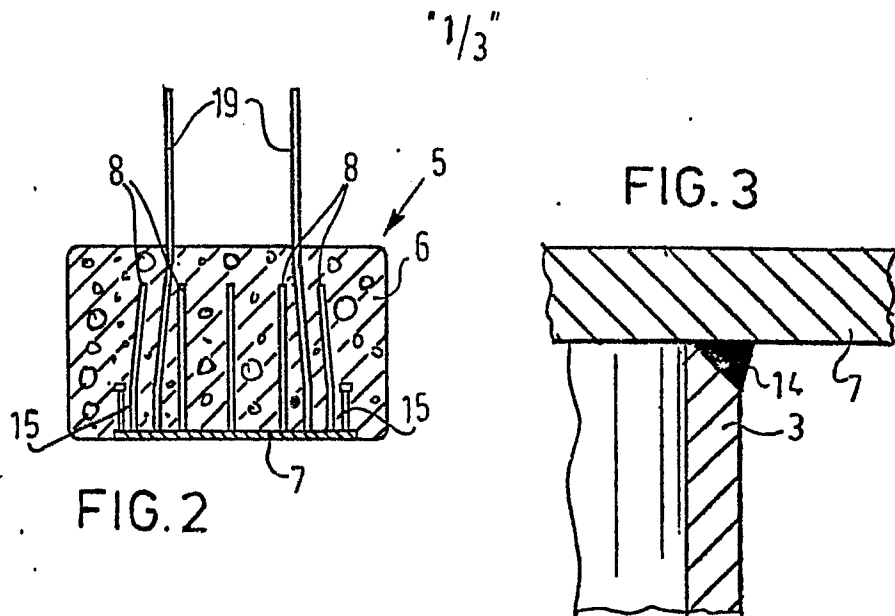


FIG. 5

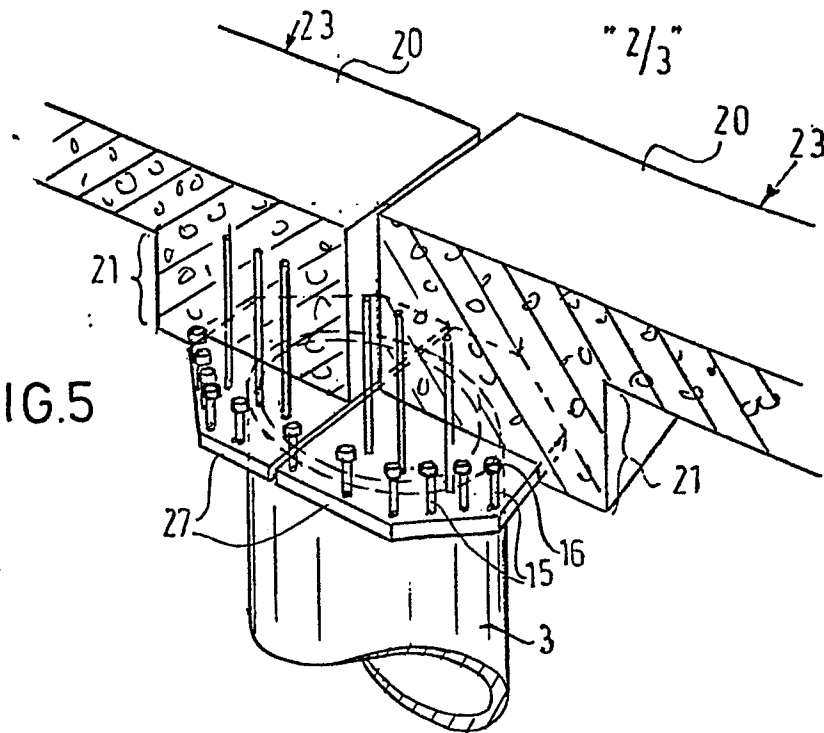


FIG. 6

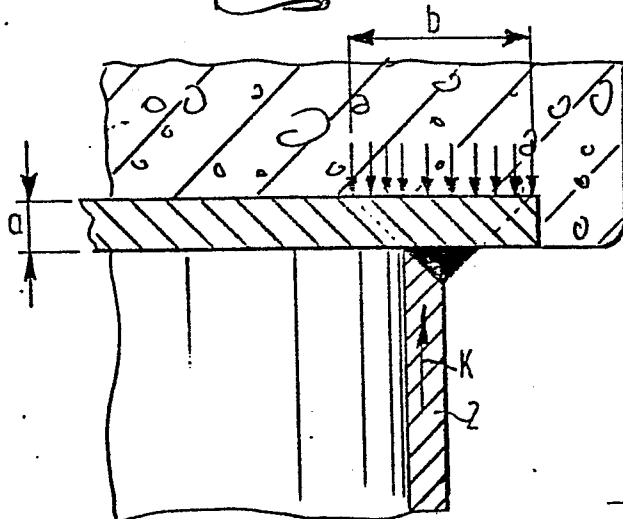
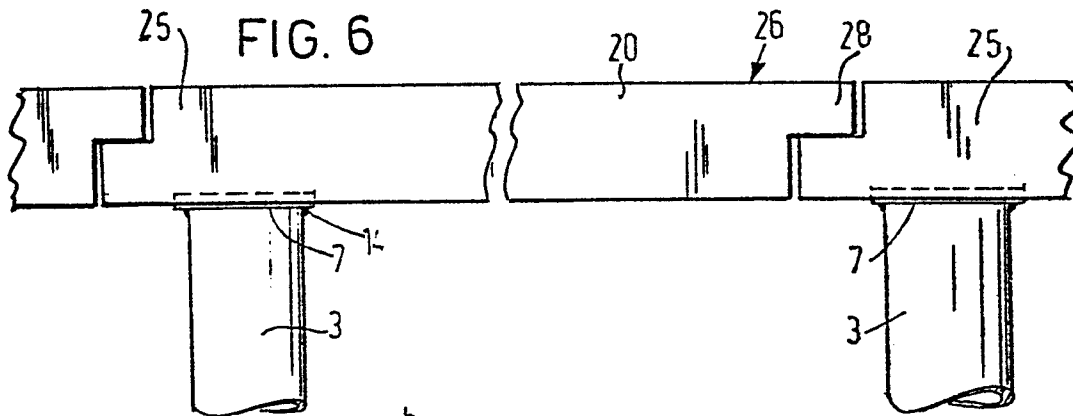


FIG. 7

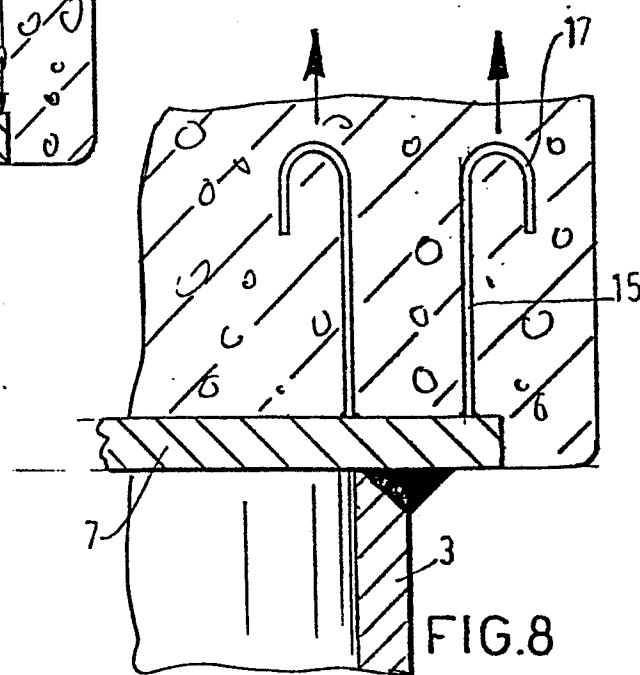
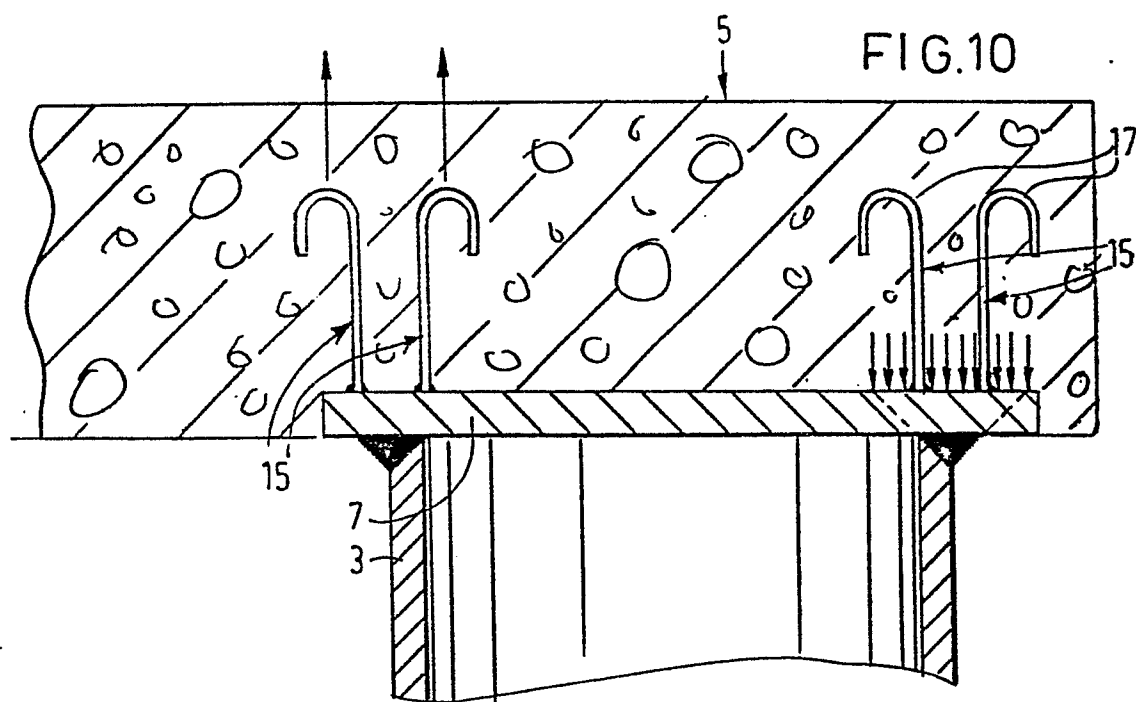
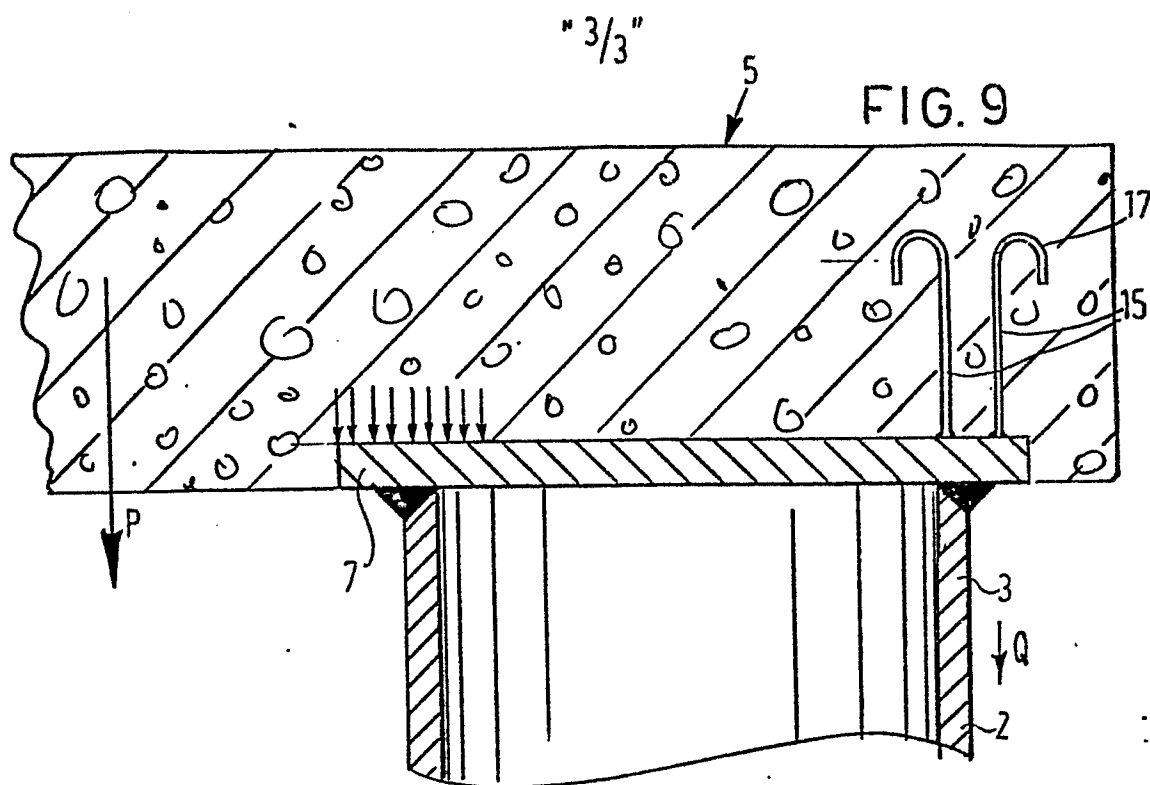


FIG. 8





European Patent
Office

EUROPEAN SEARCH REPORT

0073859

Application number

EP 81 20 1394

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	FR-A-2 318 283 (FOULQUIER) * Page 3, lines 14-34; page 4, lines 20-31; page 6, lines 2-24; figures 1-4,6 *	1,3,4	E 02 D 27/00 E 04 B 1/24 E 01 D 19/02

A	DE-A-2 321 643 (HOCHTIEF) * Page 5, last paragraph; page 6, lines 1-8; page 7, lines 4-7; figures 1,2 *	1,2,4,6	

A	DE-A-2 315 186 (HOCHTIEF) * Page 7, last paragraph; page 8, lines 1-7, 19-21; page 9, lines 4-14; page 10, claims 1,2; page 12, claims 8,9; figures 1,4-7 *	1,2,4	

			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			E 02 D E 04 B E 01 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17-09-1982	Examiner RUYMBEKE L.G.M.
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			