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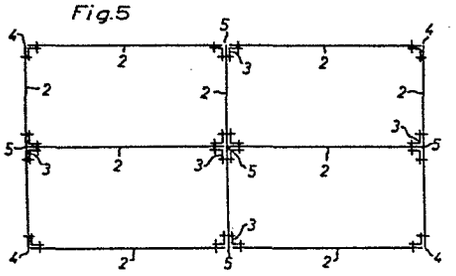
(54) **Foundation.**

(57) A building foundation, which is especially suitable for use in earthquake-threatened areas, within regions where there is a risk of settling and the like, consists of a shape-permanent rigid frame (1) of metal or other hard metal-like material, said frame (1) being intended to rest directly against the ground, suitably on a sand bed.

Fig.5



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BUILDING FOUNDATION

The present invention relates to a building foundation which is especially suitable for use in earthquake-threatened areas, within regions where there is a risk of settling and the like. Characteristic of the invention is that it consists of a shape-permanent rigid frame of metal or other hard metal-like material intended to rest directly on the ground, suitably on a sand bed. This foundation is superior to previously known foundations because in case of for instance an earthquake it is not subjected to any breakage as is the case for instance in concrete foundations. Add to this that the foundation according to the invention is easily transported and mounted. On the building site few preparations are needed since the foundation is to rest directly on the ground, suitably on a sand bed.

The invention will be described more fully below with reference to the accompanying drawing which shows a foundation, chosen by way of example, and some embodiments of beams included in the foundation. In the drawings: -

Fig. 1 is a side view of one of the beams;

Fig. 2 shows a cross-section of said beam together with a side plate on a larger scale:

Fig. 3 shows part of another beam with fastening means in cross-section;

Fig. 4 is a section on line IV-IV in Fig. 3; and

Fig. 5 is a top view of the foundation chosen by way of example.

The foundation consists of a shape-permanent rigid frame 1 of metal, such as aluminium or iron. The frame 1 may also consist of a plastic material equalling metal in hardness and other properties.

The shape-permanent rigid frame 1 is composed of a number of straight metal beams 2 which by angle-shaped coupling means are interconnected at the corners 4 and other coinciding points 5. The number or longitudinal and transverse beams 2 included in the frame 1 is determined on the

basis of the size of the foundation and the desired strength characteristics of the frame 1.

The preferred beam 2 illustrated in Fig. 1 is of generally I-shaped cross-section, the top part 6 and the bottom part 7 consisting of moulded aluminium profiles which are interconnected by the web 8 of the beam 2. The web 8 consists, more exactly, of inclined struts arranged between the top part 6 and the bottom part 7 and constituting, together with the top part 6 and the bottom part 7, a framework. According to another embodiment the web 8 may consist of a sheet of some other suitable material which must not necessarily be metal.

As appears from Fig. 2 the top part 6 of the beam 2 has in cross-section the general form of an upwardly open U into which a wooden beam 9 or the like is to be placed to permit nailing of a floor structure to the foundation. The upwardly open U is provided at its free branch ends with inwardly directed projections 10 for fixing the wooden beams 9 to the U. This fixation is further facilitated in that the projections 10 are provided with sharp edges 11 adapted to penetrate down into the wooden beams 9. Initially the projections 10 are inclined upwardly to permit the wooden beams 9 to be inserted into the U without hindrance of the edges 11. After insertion of the beams the projections 10 are bent down so that the edges 11 will penetrate into the wood.

As appears from Fig. 2 the bottom part 7 of the beam 2, which is I-shaped in cross-section, forms a cross-piece having the end portions 12 bent down so that the bottom part is arched. Due to this configuration the beam 2 is well apt to rest on a sand bed.

The beam 2 has, at least on one side and preferably on both sides of the top part 6 and the bottom part 7, fastening means 13 and 14 for a side plate 15 of sheet metal or the like covering the beam side. The plate 15 has at its upper edge a bend 16 intended to catch in the fastening means 13. The lower edge of the plate 15 is intended to rest against the means 14 and the application against said means

may be secured by means of screws. The application can also be secured by laying sand or the like up against the lower edge of the plate 15.

In the embodiment shown in Figs. 3 and 4 the top part 6 of the I-beam 2 is provided with a T-shaped groove 17 for insertion and fixation of fastening means 18 for the floor structure. The fastening means 18 is provided with a base plate 19 so shaped that it can be inserted from above into the groove 17 and can be fixed in the groove 17 by turning relative thereto, as will appear from the drawing.

As to size the foundation according to the invention may vary within wide limits. Normally, however, it will be especially suitable for use in single-unit dwellings and like detached houses. The beam 2 according to Fig. 1 may in these cases suitably be given a length of about 6 m and a height of about 50 cm. In this embodiment the foundation according to Fig. 5 will have a length of about 12 m and a width of about 6 m, and the transverse beams 2 are uninterrupted.

The invention is not limited to that described above and shown in the drawing but may be modified within the scope of the claims.

CLAIMS

1. Building foundation, which is especially suitable for use in earthquake-threatened areas, within regions where there is a risk of settling and the like, comprising a shape-permanent rigid frame (1) of metal or other hard metal-like material, said frame (1) being intended to rest directly on the ground, suitably on a sand bed.

2. Building foundation as claimed in claim 1, w h e r e i n the shape-permanent rigid frame (1) is composed of straight metal beams (2) which are interconnected by coupling means (3) in the corners (4) and any other coinciding points (5), the bottom parts (7) of said metal beams (2) being disposed over such a width that they together constitute a supporting surface for the frame (1) when this rests directly on the ground.

3. Building foundation as claimed in claim 2, w h e r e i n the beams (2) have a generally I-shaped cross-section, the bottom parts (7) of the beams (2) being formed as cross-pieces with downwardly bent end portions (12).

4. Building foundation as claimed in claim 3, w h e r e i n the top parts (6) of the beams (2) of I-shaped cross-section are formed with a T-shaped groove (17) for means (9 ; 18) which facilitate mounting of the floor structure in the foundation.

5. Building foundation as claimed in claim 4, w h e r e i n the T-shaped groove is formed of an upwardly open U which is provided at its free branch ends with inwardly directed projections (10) having sharp edges (11) for fixation of wooden beams (9) inserted in the U.

6. Building foundation as claimed in any of claims 3 - 5, w h e r e i n the beams (2) of generally I-shaped cross-section are provided, at least on one side of the top part (6) and the bottom part (7), with fastening means (13, 14) for a side plate (15) covering the beam side.

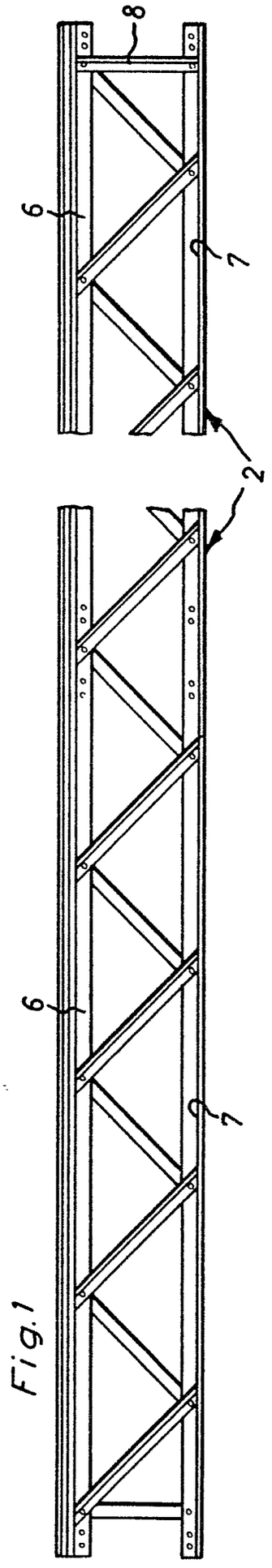

Fig.1

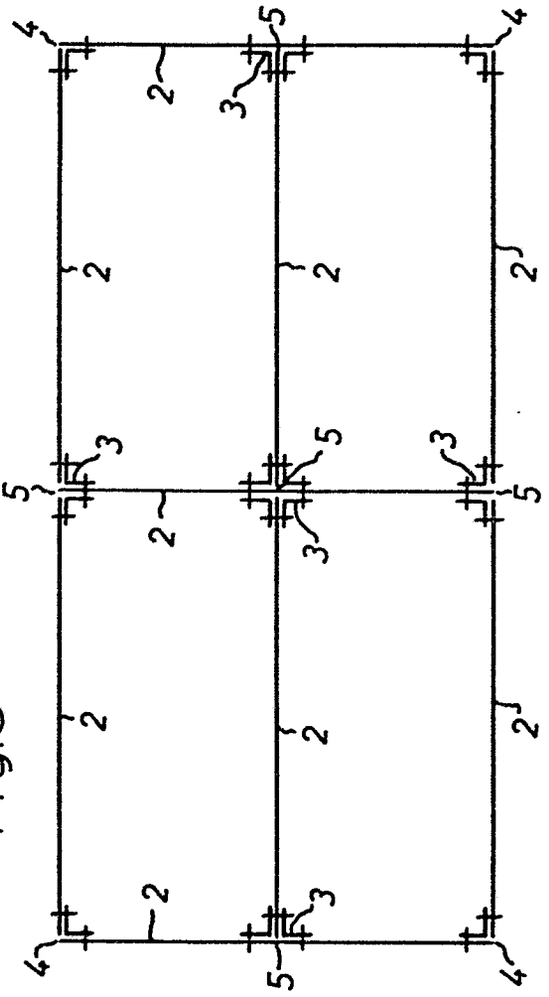

Fig.5

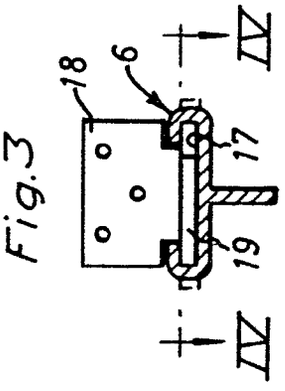

Fig.3

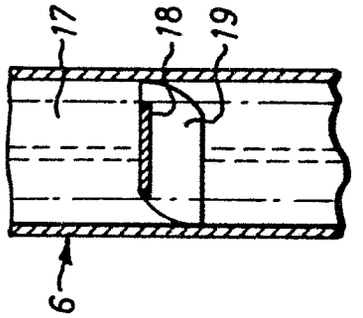

Fig.4

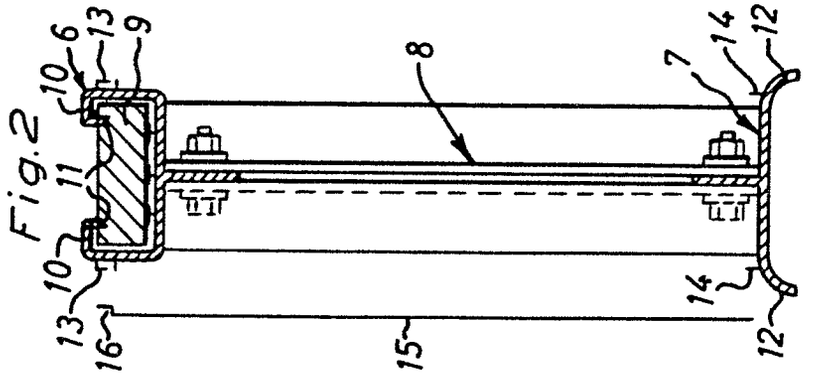

Fig.2

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EUROPEAN SEARCH REPORT

Application number
EP 82 85 0038

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	US - A - 2 595 633 (BLACK) * column 2, lines 23-55; column 3, lines 1-13, 58-65; column 5, lines 55-66; figures 1,9,10,11*	1,2,3	E 02 D 27/34 E 04 H 9/02
X,P	US - A - 4 263 762 (REED) * column 2, lines 11-29, 54-61; figures 1,2,3 *	1,2,6	
A	NL - A - 74 15 144 (MARLEY HOMES) * page 2, lines 24-31; page 3, lines 2-6; figure 1 *	1	
A	GB - A - 756 922 (SOMMERFELD) * page 2, lines 25-30; figure 4 *	4	TECHNICAL FIELDS SEARCHED (Int. Cl. ³) E 02 D E 04 B E 04 H
A	GB - A - 825 059 (BROCKHOUSE STEEL STRUCTURES) * page 2, lines 85-93; figures 2,5 *	5	
A	US - A - 3 791 087 (SIGAL)		
A	FR - A - 2 161 002 (WAGNER)		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	17-06-1982	RUYMBEKE

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
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