



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/EP82/00247 (22) International Filing Date: 15 November 1982 (15.11.82) (31) Priority Application Number: 8105234 (32) Priority Date: 19 November 1981 (19.11.81) (33) Priority Country: NL (71)(72) Applicant and Inventor: TEBBE, Robert, Wilhelmus, Johannes, Maria [NL/NL]; 8, Beethovenlaan, NL-4837 CH Breda (NL). (74) Agent: SIEMENS, Andreas, Meinhard, Ernest; 8, Roskam, NL-4813 GZ Breda (NL). (81) Designated States: AT (European patent), AU, BE (European patent), BR, CH (European patent), DE (European patent), DK, FI, FR (European patent), GB (European patent), HU, JP, LU (European patent), NO, RO, SE (European patent), US.		Published <i>With international search report.</i> <i>With amended claims.</i>
(54) Title: A METHOD FOR PREFAB SYSTEM BUILDING AND ELEMENTS FOR SAME (57) Abstract A method for the construction of premises using prefabricated elements of a modular type provided with apertures for securing bars (5) and screw covers and with securing nibs (7) and securing slabs (8), to be compiled with the aid of coupling collars (6) and connected by securing bars (5) with screw thread into screw covers. The drawings illustrate the components of the prefabricated system. Drawing A is a vertical cross-section of a wall element, showing a sloped top edge and internal horizontal and vertical lines representing structural layers and apertures. Drawing B is a horizontal cross-section of a base or floor element, showing a rectangular shape with internal lines. Drawing C is a vertical cross-section of a coupling collar or joint element, showing a cylindrical shape with internal features and apertures.		

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A method for prefab system building and elements for same.

The invention relates to a method for prefab system building of houses and of premises in general for several purposes, as well as to elements used for said method.

Methods for constructing with preformed parts are known.

- 5 For these known methods parts of floors, walls and roofs and of larger units are used which are supplied as such at the place of destination and which are compiled in the conventional manner.

The disadvantages of these known methods are mainly that the parts and units are not appropriate to be compiled by unskilled persons, that weight
10 and volume mostly are too large, that the period of time required for constructing is rather long, that for the building operations large and expensive machinery will be inevitable and that the construction completed will not comply with requirements on the long term, related to the nature of the soil and to the climate, in spite of official regulations.

- 15 Therefor a method of operating has been searched whereby these disadvantages and inconveniences could be prevented.

The method as referred to in the introduction is characterized according to the present invention in that compact modular elements provided with securing nibs and securing slabs in a standardized way are compiled with
20 the aid of coupling collars in a sequence previously determined by a numbering, and that said elements are attached to adjacent elements by means of securing bars provided with screw-thread into screw covers of these elements, and consecutively the connection is tightened with a coupling key.

- 25 The elements used for this method of operating are to be provided only in a restricted number of typical shapes, i.e. in the form of floor-, wall-, roof- and head-frontage modular elements, having standardized sizes according to an algebraic series.

The sizes and weights of these are such that they can easily be carried, supported and transported by constructors' labourers.

The material can be wood, artificial stone material, plastic, metal, concrete, Ytong or Santorin building material or a similar product or a
5 combination of same.

The securing bars and the screw covers are applied in a manner such that the fastening of consecutive modular elements is carried into effect in shifted position.

By means of the application of the coupling collars, securing slabs,
10 securing nibs and securing bars an extremely accurate gauging in the connection of the elements will be obtained.

The modular elements may be provided with means for utility joints and for conduit leads or parts of same for the supply of gas, water and electrical current, as well as with apertures for ventilation, sewerage,
15 etc.

The elements are numbered consecutively and this numbering can be included in the added directions for use, whereby the putting into practice of the parts will be simplified considerably.

The size of the elements is preferably 2600mm length and 600mm width at
20 the most.

The weight is preferably 60kg at the most.

The elements can be packed in the form of packages ready for do-it-yourself construction and can be supplied in such a form to the building site.

The shape of the elements according to the invention and the manner of
25 using the system is illustrated in details as shown in the enclosed figures 1 through 13.

However the invention is not restricted to the examples of the performances as drawn.

In figure 1 the elements are shown isometrically as seen from above or
30 from underneath, in the front and side view.

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Therein 1 is a flooring, wall or roof element, as seen from the said directions.

In figure 2 a head frontage element is shown in the same way.

In figure 3 it is shown how the elements are to be joined and connected by means of the parts as described, whereby an accurate gauging is obtained. Therein 1 are the elements, 2 is a coupling collar, 3 is a securing nib and 4 is the securing slab as provided for the mode of operating according to the present invention. In figure 4 the placement of the coupling collar 2 and the way of joining is shown. Figure 5 shows a cross section of a side wall of a building constructed as a skeleton using the elements.

Figure 6 shows a view of such a wall. In the figures 5 and 6 the directions of cross sections are indicated as A-A', B-B' and C-C'. These said cross sections are shown in the figures 7 and 8 in more detail. In figure 9 it is shown, how the joined elements are connected with each other by means of a securing bar 5. The way of connecting is shown in more detail in figure 10. Therein 5 is the securing bar and 4 is the securing slab.

Figure 11 shows an isometric view of the skeleton of a premise built upon a foundation by means of the serial numbered modular elements as described, wherein the wall elements are fixed upon the floor elements by means of the coupling collars, and the higher floor elements are fixed upon the wall elements by these means. The placement, junction and fixation is shown in more detail in figures 12 and 13, wherein 3 indicates the securing nibs. A premise built in this way can be dismantled again, while the quality of the compiling modular elements remains unchanged, and with these very elements it can be rebuilt elsewhere, such that one obtains a house again having a constructional and statical quality and performance equal to that of the previous premise.

By an extension with further elements a reconstruction or an enlargement of the house can easily be made.

The construction of such a premise type may be reproduced in a simple way as well. There is also a possibility of removal or displacement, because this type of premise can be demounted, with a minimum of expenses.

The advantages of constructing by means of the present system are, among others, the low price, the small sizes and weights of the elements, such that no cranes or other heavy machinery are to be used, furthermore the simple manner of obtaining the junctions, such that the assembly and

erecting can be done by unskilled labour, if any, and the high stability and gauging accuracy which can be obtained, as well as the minor maintenance required for this type of construction.

This method is an entirely "dry" manner of constructing a premise, i.e. no
5 mortar is necessary for the connection of the modular elements.

The mounting can be carried out upon conventional foundations such as upon pickets or piling and upon concrete base.

If piling is necessary with regard to the soil quality, a smaller number of piles than the usual number will be obligatory because of the small
10 weight construction.

For the normal one-family dwelling house an extremely short construction time can be realised.

Internal accomodation such as sheathing, coverings of walls, ornamentals, doors, window panes, shutters, frames and the like can be exchanged easily
15 so that the dwelling will remain in an individual appearance, adapted to the taste of the user, with regard to the interior as well as to the exterior.

The invention also relates to the manufacture of the elements and to dwellings which can be obtained with the method of operation and which can be
20 erected respectively with the elements.

It is of its very nature that premises and dwellings can be built also in part by the described method and in part according to conventional techniques.

Premises erected according to the present method or even partially constructed according to this method possess an improved resistance against damages
25 inflicted by mining or by earth quakes compared to houses built in the conventional way.

The system can also be used in regions where entirely divergent climatological requirements exist, such as in development countries, since the
30 technical and constructional properties of the elements and the requirements to which the premises will be submitted can be adapted.

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Claims:

1. A method for the construction of houses and other premises using pre-fabricated elements, consisting of customary building materials, characterized in that compact modular elements provided with apertures for securing bars and screw covers and with securing nibs and securing
5 slabs in a standardized way, are compiled with the aid of coupling collars in a sequence previously determined by a numbering, and that said elements are attached to adjacent elements by means of securing bars provided with screw thread into screw covers of the elements, and consecutively the connection is tightened with a rotatory coupling key.
- 10 2. A method according to claim 1, characterized in that the elements are manufactured in the form of floor-, wall-, roof- and head frontage elements and that they are of standard sizes according to an algebraic series.
- 15 3. A method according to claim 1, characterized in that the elements consist of wood, artificial stone, plastic, metal, concrete material, Ytong - or Santorin material or similar material or of a combination thereof.
- 20 4. Elements for the erection of premises, characterized in that said elements are provided with securing nibs, securing slabs and apertures for coupling collars, securing bars and screw covers.
5. Elements according to claim 4, characterized in that said elements are made as shown in figure 3, wherein 1 is the element, 2 is the coupling collar, 3 is a securing nib, 4 is a securing slab.
- 25 6. Premises, partially or entirely erected using the method according to one or several of claims 1 through 3, or by the application of elements according to claims 4 or 5 respectively.

(Figures).



AMENDED CLAIMS

(received by the International Bureau on 06 April 1983 (06.04.83))

(amended)

1. A method for the construction of houses and other premises using prefabricated elements, consisting of compact modular elements of customary building materials provided with apertures, characterized in that said elements with securing bars and screw covers and with adjusting nibs and slabs in a standardized way are compiled with the aid of coupling collars in a sequence previously determined by a numbering, and that said elements are attached to adjacent elements by means of said securing bars provided with screw thread into screw covers of the elements, and consecutively the connection is tightened with a rotatory coupling key.

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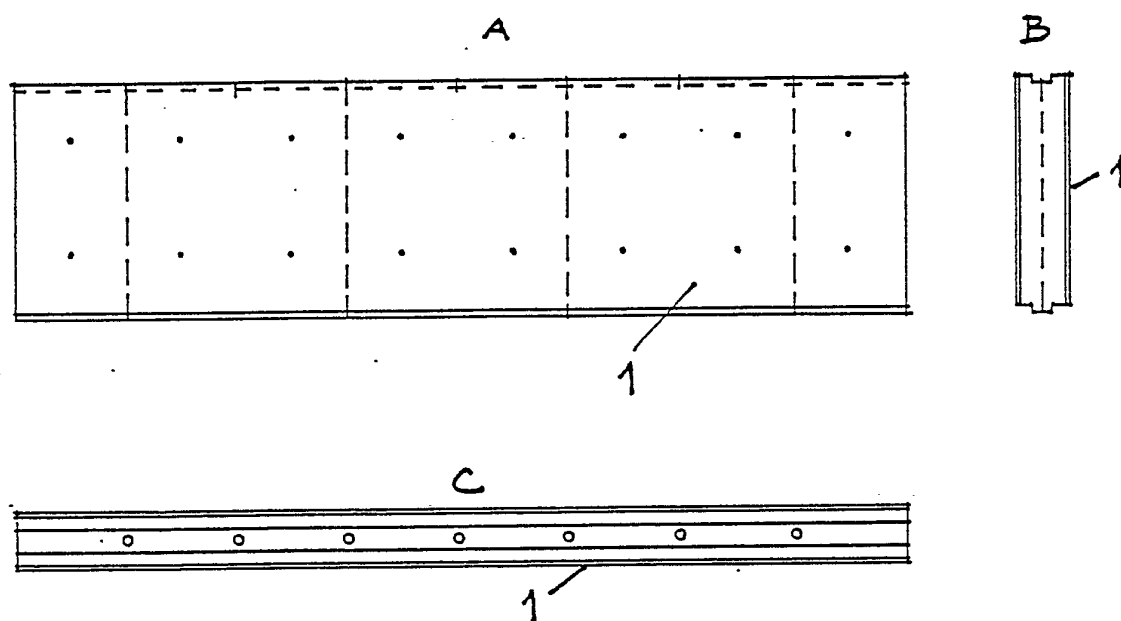


Fig. 1

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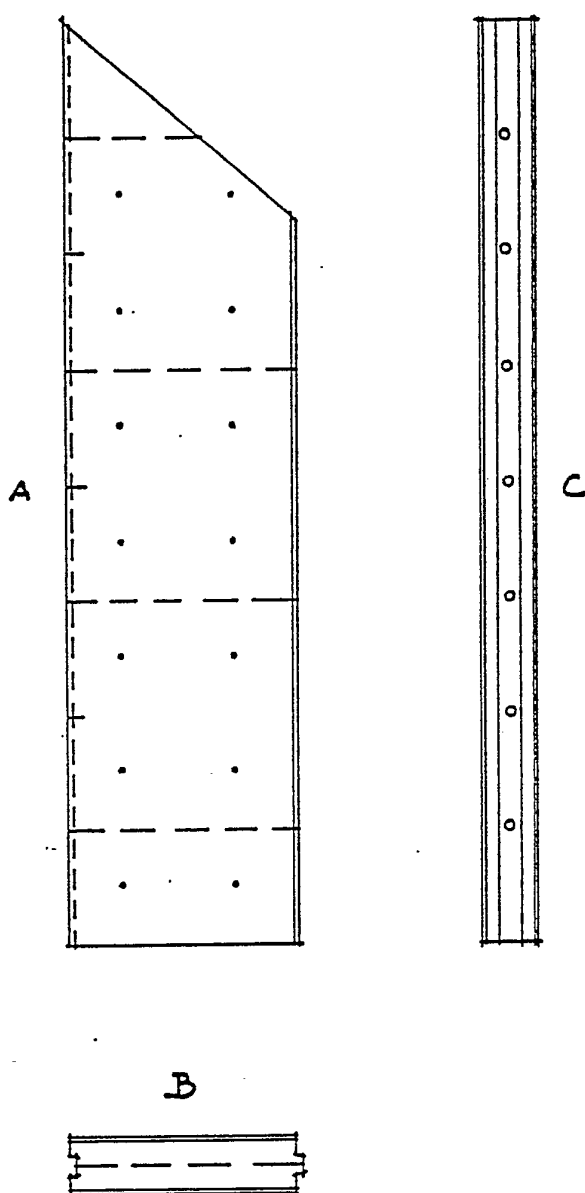


Fig. 2

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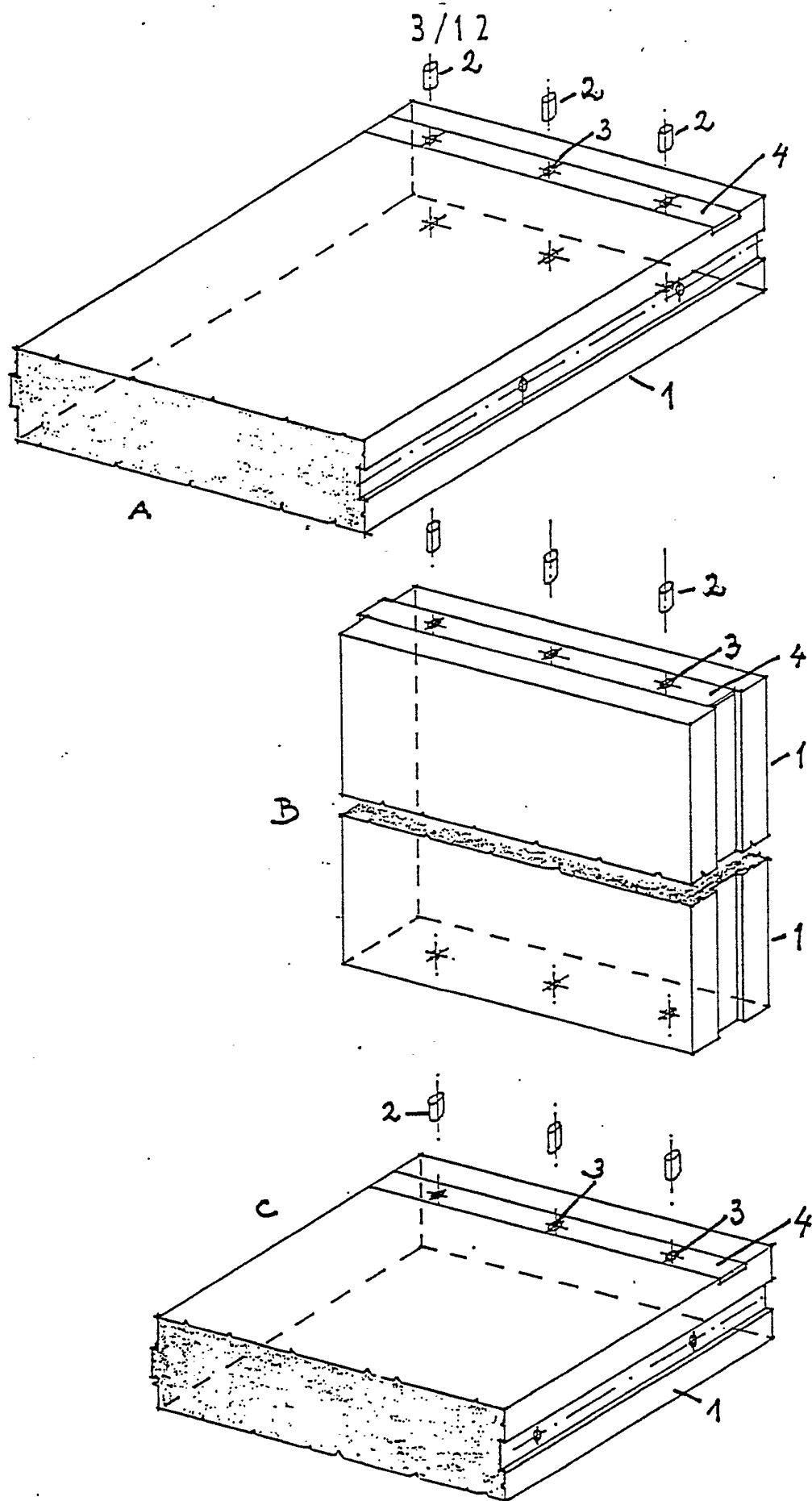


Fig. 3

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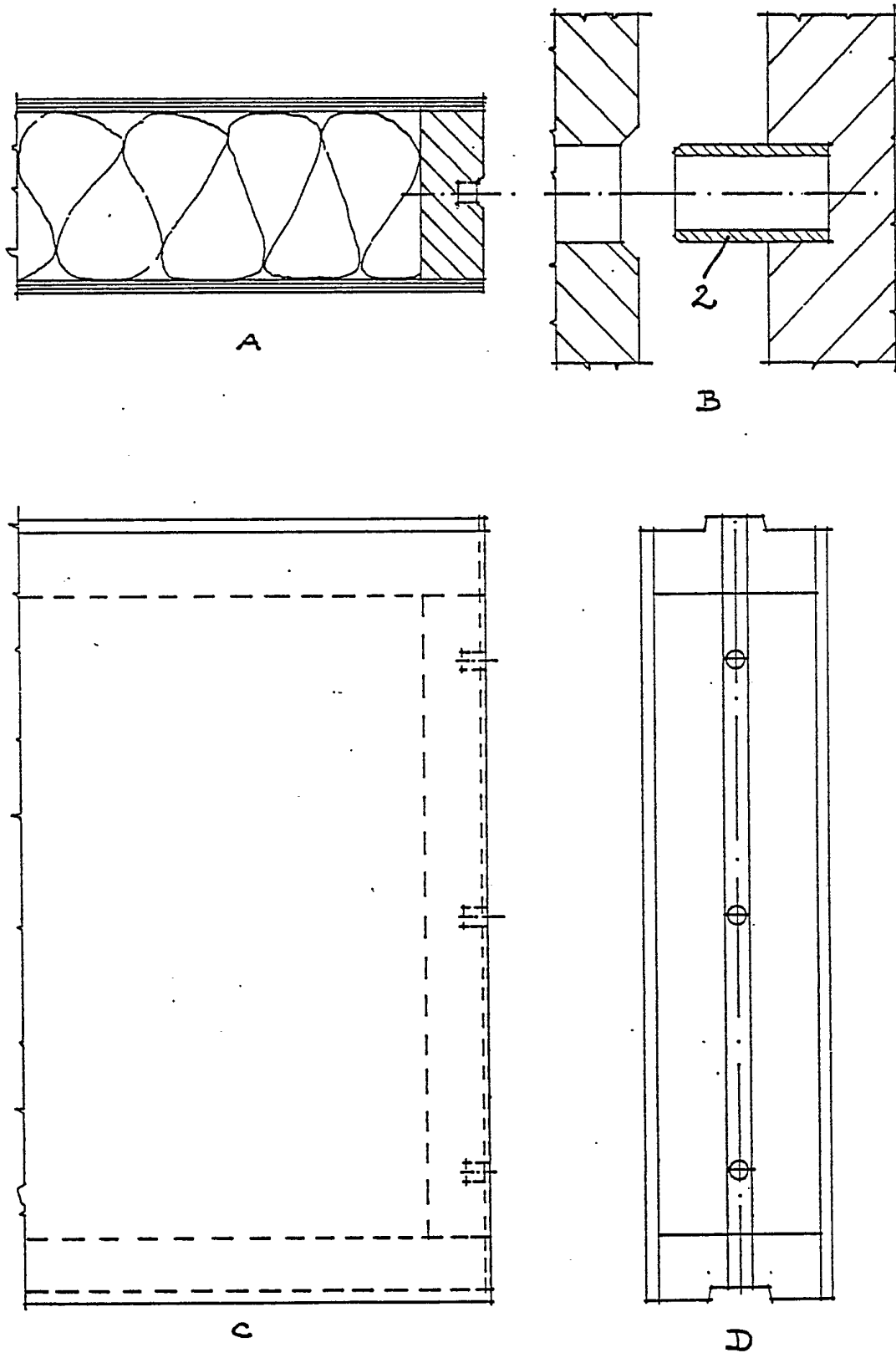


Fig. 4

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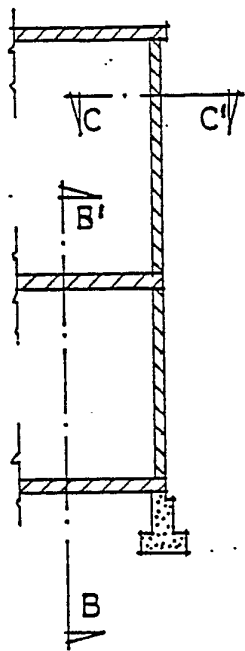


Fig. 5

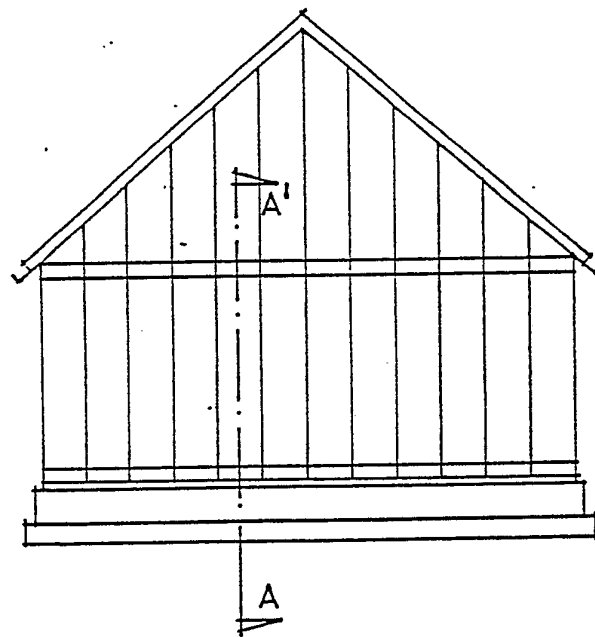
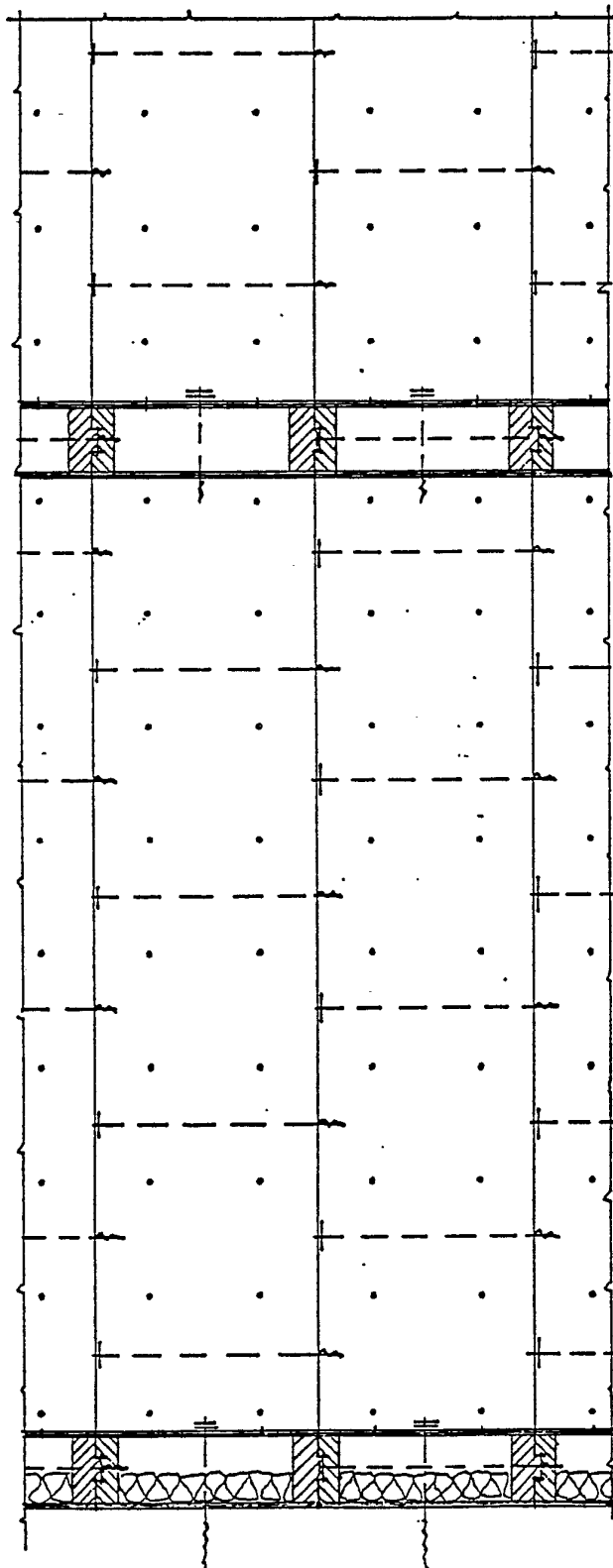


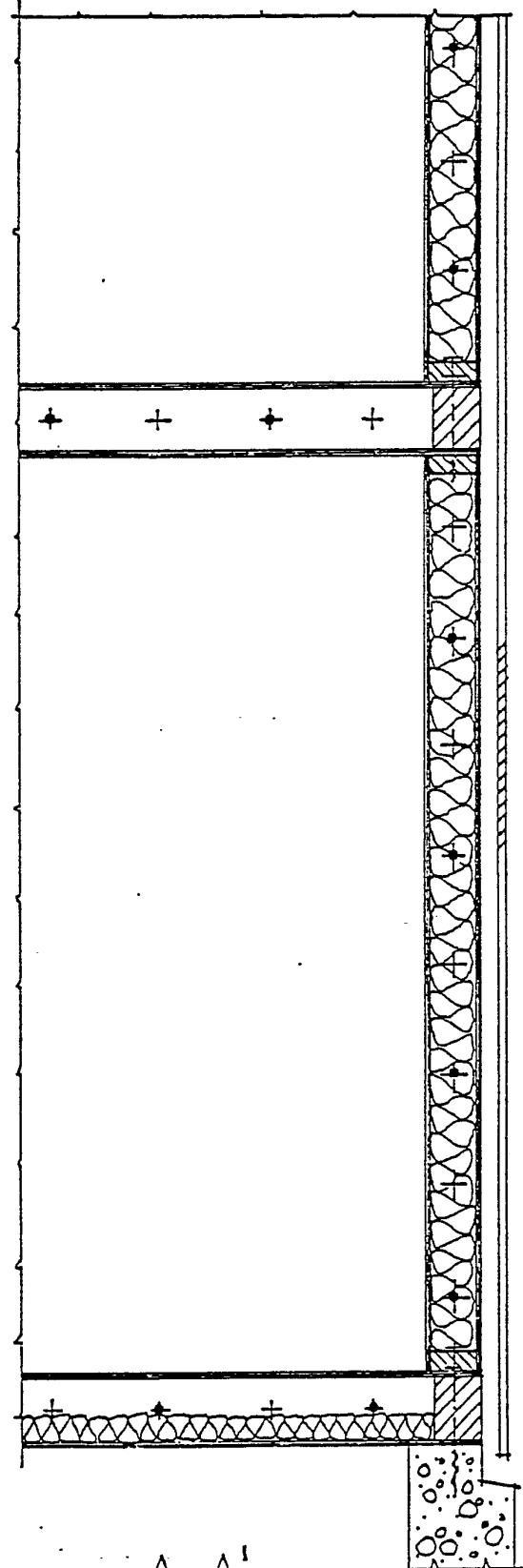
Fig. 6

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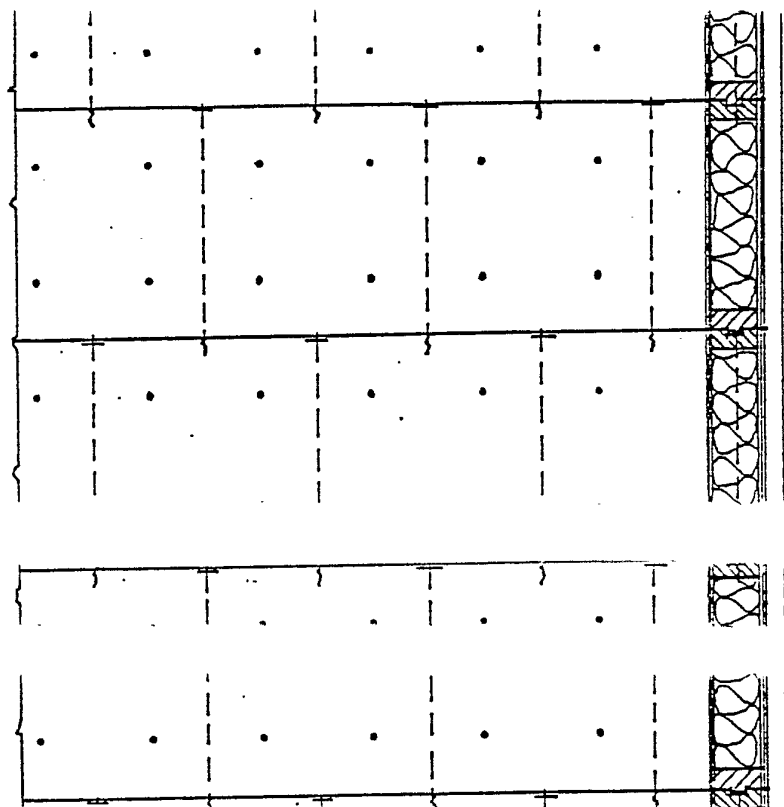
B - B'

Fig. 7



A - A'

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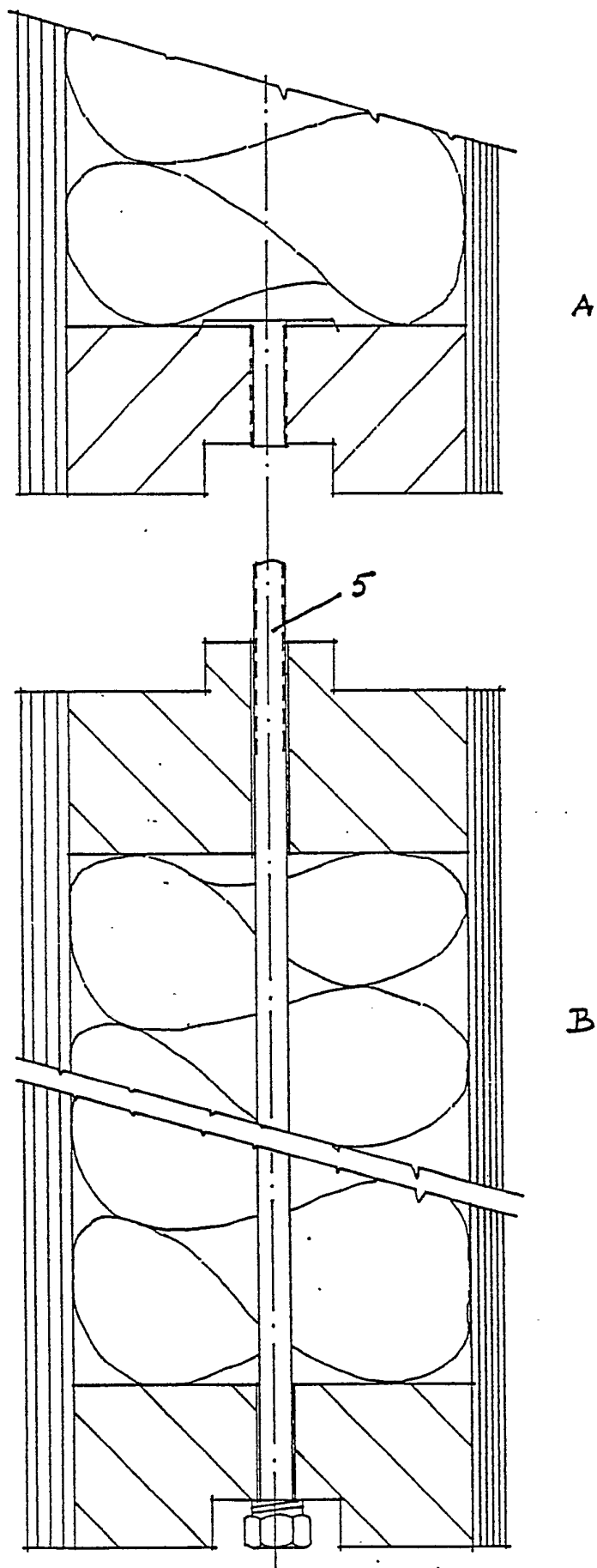


Fig. 9

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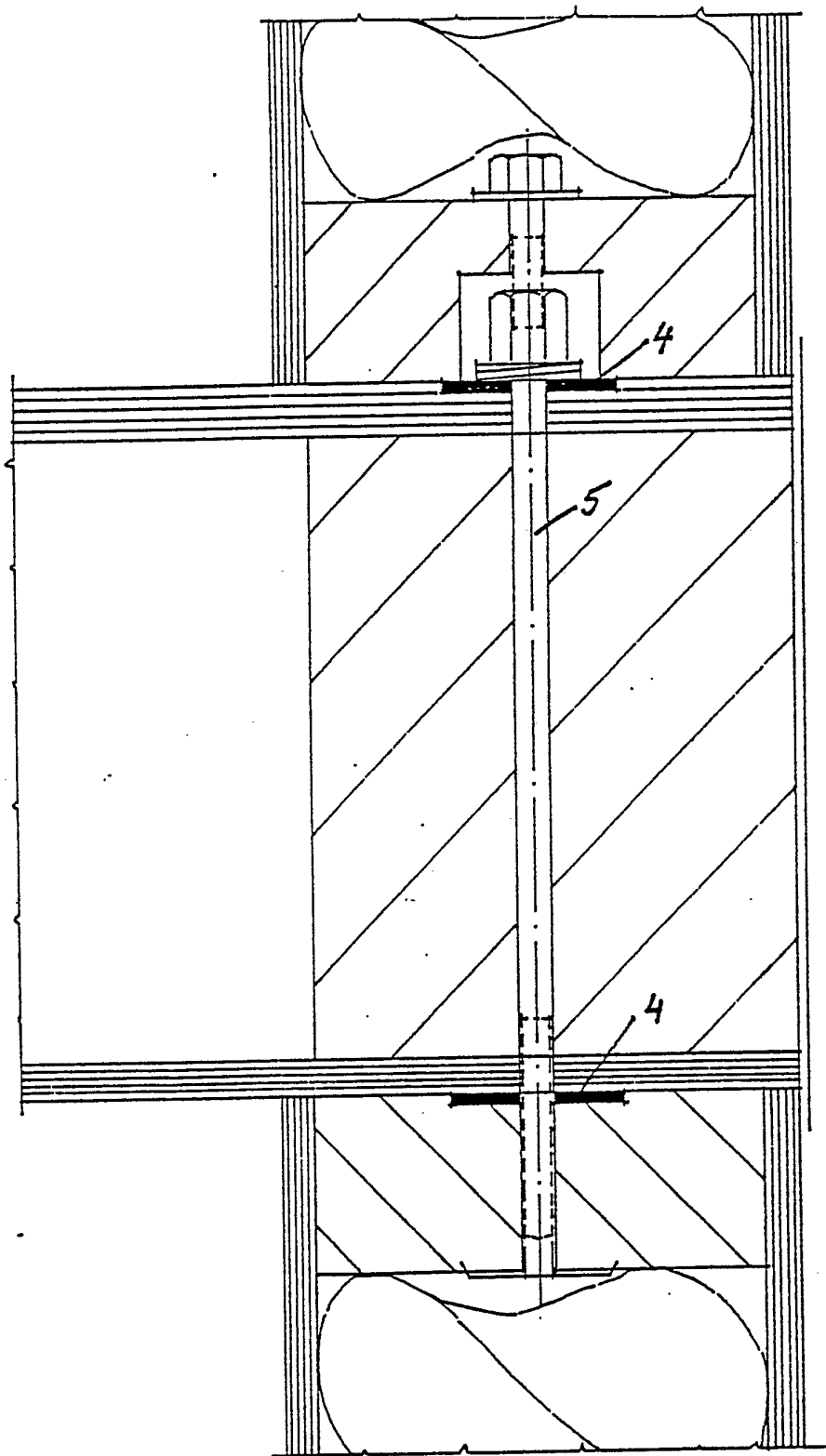
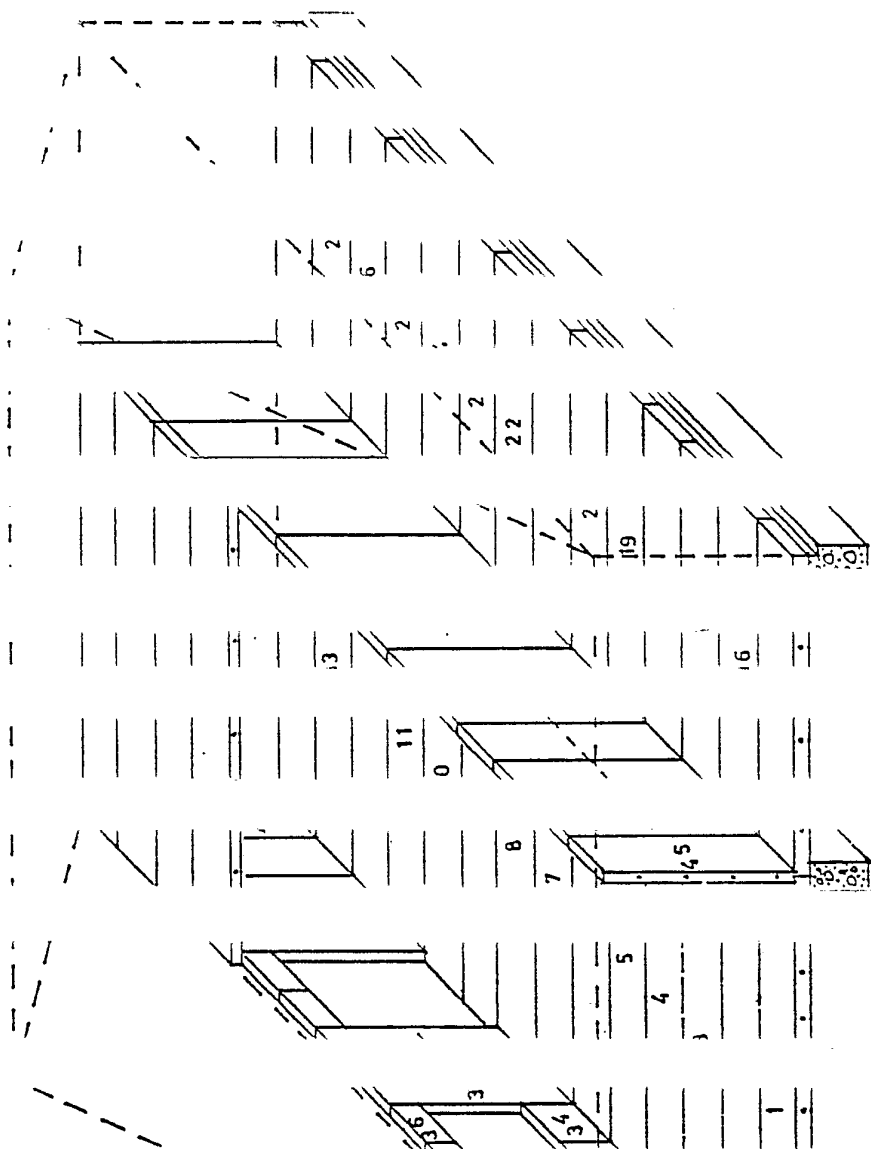


Fig. 10



F . 11

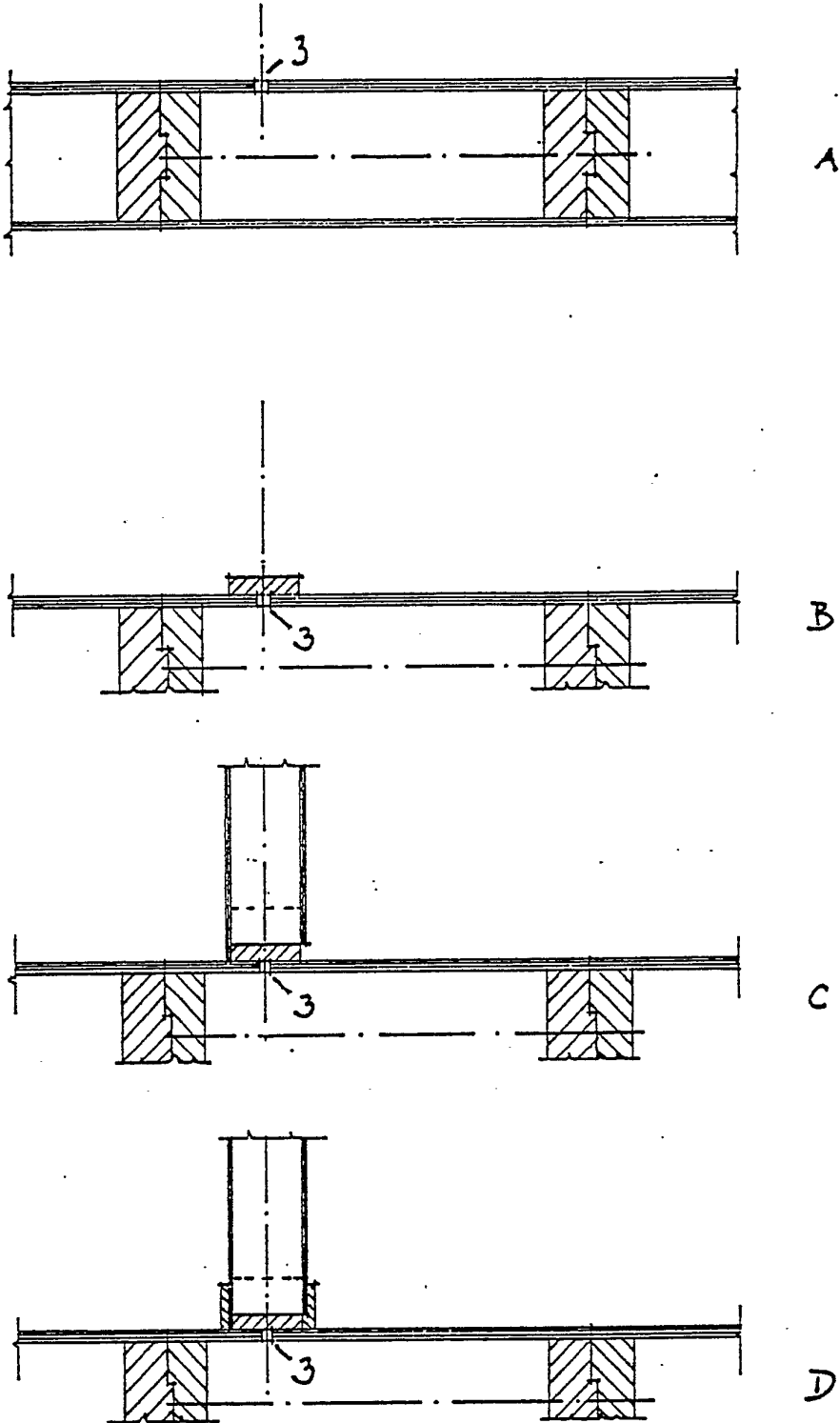


Fig. 12

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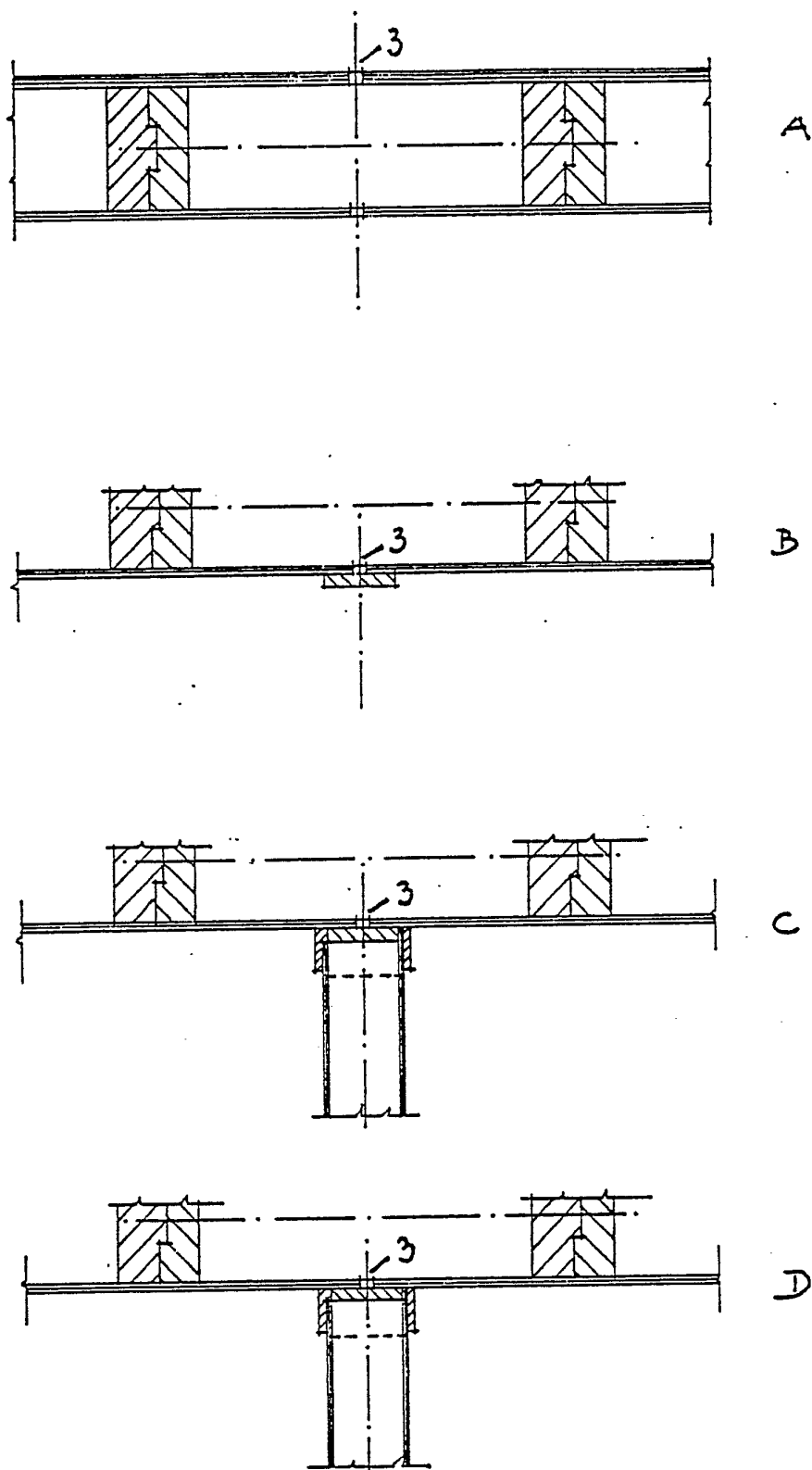


Fig. 13

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INTERNATIONAL SEARCH REPORT

International Application No PCT/EP 82/00247

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ³		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC ³ : E 04 B 2/70; E 04 B 1/343		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁴		
Classification System	Classification Symbols	
IPC ³	E 04 B	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁵		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴		
Category [*]	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
X	FR, A, 918754 (CORK) 18 February 1947 see page 2, lines 51-104; page 3, lines 1-67; figures 1-5	1,2,3,4,5,6
A	US, A, 3820293 (OHE) 28 June 1974 see column 9, lines 4-67; column 10, lines 1-68; column 11, lines 1-68; column 12, lines 1-52; figures 4,5,9,10,11,15,16	1,2,3,4,5,6
A	AU, B, 454655 (MELVILLE) 14 May 1970 see page 3, lines 12-22; page 4, lines 1-26; page 5, lines 1-26; figures 1-6	1,2,3,4,5,6
A	FR, A, 518901 (McAVOY) 2 June 1921	
A	FR, E, 22643 (ERVILLE) 4 August 1921	
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IV. CERTIFICATION		
Date of the Actual Completion of the International Search ³	Date of Mailing of this International Search Report ³	
27th January 1983	10th. February 1983	
International Searching Authority ¹	Signature of Authorized Officer ²⁰	
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