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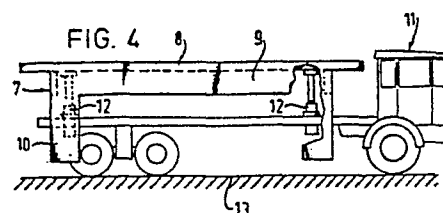
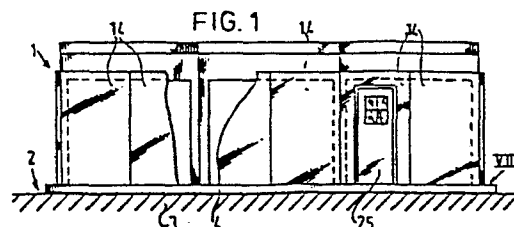
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(54) **Method of erecting a building structure and building structure erected by the same.**

(57) The erection of a building structure (1) in a cheap way by first placing each time a table-shaped structural element (7) on an underground (3) after which wall elements (14) are placed at the sides of said structural element (7).



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Method of erecting a building structure and building structure erected by the same.

The invention relates to a method of erecting a building of prefabricated concrete elements.

Such a method is known

5 In the known methods a flight of dwellings is frequently assembled in an expensive sequence of setting and transport steps, particularly dwellings erected in highly industrialized countries.

10 If such a building system were used in a country not having a modern infrastructure, the means for assembling the building structures usually do not exhibit the same refinement, whilst in many countries water supply and sewer systems and the like are not provided for up to the houses.

15 The invention particularly relates to a method of erecting very cheap building structures, for example, very cheap dwellings, which can be locally assembled without much cost and which can be readily adapted to modified conditions when utility systems are extended so that the dwellings will be more comfortable.

The method according to the invention is characterized in that at least one table-shaped structural element consisting of a horizontal slab of reinforced concrete supported by legs is deposited at its place on an underground, after which prefabricated wall elements are placed against this structural element and subsequently secured by their upper edge to said slab.

A satisfactory fixation of the building structure with respect to the underground is obtained, when for each leg a concrete foot having a recess is provided in the substrate.

In order to erect buildings with reduced risks for the inhabitants, even in regions sensitive to earthquakes, a preferred form of the method is characterized in that the lower end of each leg is arranged in the recess with the interposition of an elastic lining.

In order to provide a high rigidity for the building structure a further developed, preferred method is characterized in that at least two contiguous wall elements are tightened together by means of horizontal tightening elements.

In order to erect a multi-storey building by using the same basic elements a preferred method according to the invention is characterized in that a multi-storey building is erected by superposing at least one table-shaped structural element on the slab of a previously disposed table-shaped structural element.

The invention furthermore provides a building erected by the method according to the invention, in which the reinforced concrete slab is made from light concrete not only to facilitate mounting but also for protection against excessive solar heat or to prevent loss of energy from the dwellings.

For the same reasons in a preferred embodiment of the building the wall elements joined to form a wall are also made from light concrete.

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

In the drawing there is schematically illustrated
in:

Figures 1 and 2 a front view and a side elevation
respectively of a building in accordance with the invention,

5 Figure 3 a vehicle loading a prefabricated building
element at a manufacturing site,

Figures 4 and 5 each a side elevation of the
vehicle shown in Figure 3 at respectively later instants,

10 Figures 6 and 7 each a perspective view during the
erection of the building of Figure 1,

Figure 8 a variant of detail VIII of Figure 7,

Figures 9 and 10 a front view and a side elevation
respectively of the building during the erection by a further
method in accordance with the invention,

15 Figures 11 and 12 a front view and a side elevation
respectively of a further building in accordance with the
invention,

Figures 13 and 14 a front view and a side elevation
respectively of the building of Figures 11 and 12 during the
erection,

20 Figures 15 and 16, 17 and 18 and 19 and 20 a front
view and a side elevation respectively of, each time, a
further building in accordance with the invention, and

25 Figure 21 a front view on a reduced scale of the
building of Figure 19 during the construction.

Figures 1 and 2 show a building 1, forming a
dwelling, constructed by the method in accordance with the
invention.

30 On the building site 2, where this dwelling has to
be erected, a floor 4, for example, of tiles is deposited on
a preferably levelled underground 3. As an alternative, as is
illustrated in Figure 7, only tiles 5 may be deposited on the
spot supporting the walls of the building 1 or even only at
the corners of the building 1.

35 On a manufacturing site 6 usually at a distance
from the building site 2 the table-shaped structural elements
7 are prefabricated from reinforced concrete, each element
consisting of a horizontal slab 8 with longitudinal beams 9

of reinforced, preferably light-weight concrete, to which slab are moulded reinforced concrete legs 10. On the manufacturing site 6 the structural element 7 is loaded on a vehicle 11 provided with hoisting means 12 and transported in the elevated state along a road 13 towards the building site 2, where it is disposed on the underground 3, the slab 8 with its legs 10 being supported by the previously deposited tiles 5. Then, preferably also from the manufacturing site 6, prefabricated wall elements 14 of reinforced, light-weight concrete are transported to the building site 2 and disposed against the structural element 7. As shown in Figures 6 and 7 this can be performed in a simple manner by manual labour, since the wall elements 14 can be readily carried by means of bars 15 by eight persons 16 and can be erected by four persons 16 at the structural element 7 by anchoring the lower edge 17 by means of cables 18 and pins 20 inserted into holes 19 of the wall elements 14 and an anchoring pin 21 inserted into the ground, whilst the upper edge 22 is pulled upwards by the four persons 16 by means of a cable 23, which is passed through a hole 24 in a transverse beam 27 of the structural element 7. Subsequently, the wall elements 14 are each secured to the structural element 7, for example, by means of bolts passed through holes 24 or other connecting members.

The wall elements 14 are provided, as the case may be, with a door 25 or a window 26.

A firm fixation of the building 1 is obtained by providing in the underground 3 for each leg 10 a concrete foot 29 having a recess 28, which is shown for a variant of detail VIII in figure 8. In regions susceptible of earthquakes the lower end 30 of each leg 10 is inserted into the recess 28 preferably with the interposition of an elastic lining 31.

In an alternative shown in Figures 9 and 10 a structural element 32 can be deposited on a substrate 3 by prefabricating a horizontal slab 8 without legs on the manufacturing site 6 and by depositing it at the building site 2 on legs 33, with which it is connected. These legs 33 are

preferably formed by metal pipes bearing on feet 34 embedded in the substrate 3 in order to safeguard the building from earthquakes.

5 In a further embodiment of the method according to the invention, shown in Figures 11 to 14, structural elements 35 consisting each of a horizontal slab 36 of reinforced, light-weight concrete without transverse or longitudinal beams and of two legs 37 rigidly secured thereto in the transverse medium plane and of four detachable legs 38 at the
10 corners, four removable wedges 39 and tiles 5 are supported by the substrate 3 so that the slab 36 is located at a slightly higher level above the substrate 3 than afterwards in the erected building of Figures 11 and 12. The wall elements 14 are orientated to the slab 36 at a place on top of
15 the tiles 5 and are interconnected by means of bracing bars 40 passed through horizontal pipes 41 embedded in the wall elements 14. Finally the wedges 39 are removed and the slab 36 is lowered down to the wall elements 14, whilst the legs 38 are removed and the legs 37 will bear on tiles 5.

20 Figures 15 and 16 illustrate a building 42, which may form a small dwelling and comprises only one structural element 7 which is surrounded on all sides by wall elements 14.

25 Figures 17 and 18 show a building 43 according to the invention, which is distinguished from the buildings described above particularly by an additional roof 44, the elements 45 of which are arranged above slabs 8. The roof elements 45 comprise each a horizontal roof slab 46 with ribs 47 on its lower side; they particularly serve for heat insulation and as an architectural sunshade.
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Figures 19 and 20 show a multi-storey building 48 erected, as shown in Figure 21, by superposing table-shaped structural elements 49 on a slab 8 of a previously disposed structural element 7 with the aid of a hoisting tool 50.

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CLAIMS

1. A method of erecting a building of prefabricated concrete elements, characterized in that at least one table-shaped structural element consisting of a horizontal slab of reinforced concrete supported by legs is deposited at its place on an underground, after which prefabricated wall elements are placed against this structural element and subsequently secured by their upper edge to said slab.

2. A method as claimed in claim 1, characterized in that for each leg a concrete foot having a recess is provided in the substrate.

3. A method as claimed in claim 2, characterized in that the lower end of each leg is arranged in the recess with the interposition of an elastic lining.

4. A method as claimed in anyone of the preceding claims, characterized in that the slab is prefabricated on a manufacturing site at a distance from a building site and is transported towards the building site by means of a road

vehicle provided with hoisting means.

5. A method as claimed in claim 4, characterized in that on the manufacturing site reinforced concrete legs are moulded on the slab.

5 6. A method as claimed in claim 4, characterized in that on the manufacturing site a slab without legs is prefabricated and deposited on legs on the building site.

 7. A method as claimed in claim 6, characterized in that the legs are removed after the wall elements have been
10 put in place.

 8. A method as claimed in claim 7, characterized in that at least two contiguous wall elements are tightened together by means of horizontal tightening elements.

 9. A method as claimed in claim 6, characterized in
15 that the legs are formed by metal pipes.

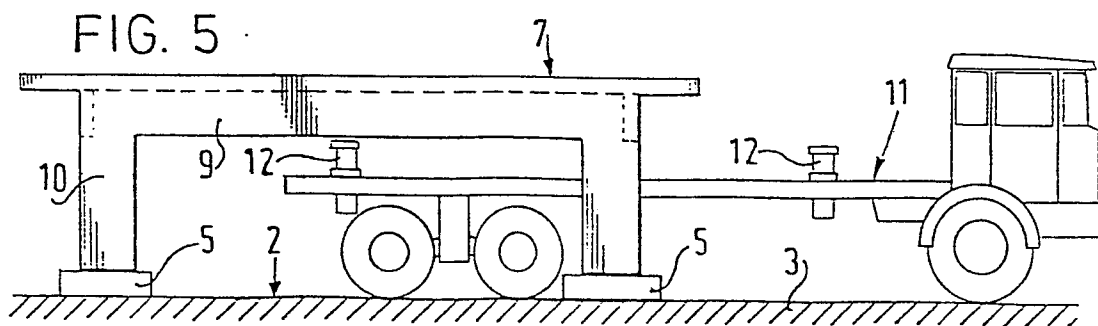
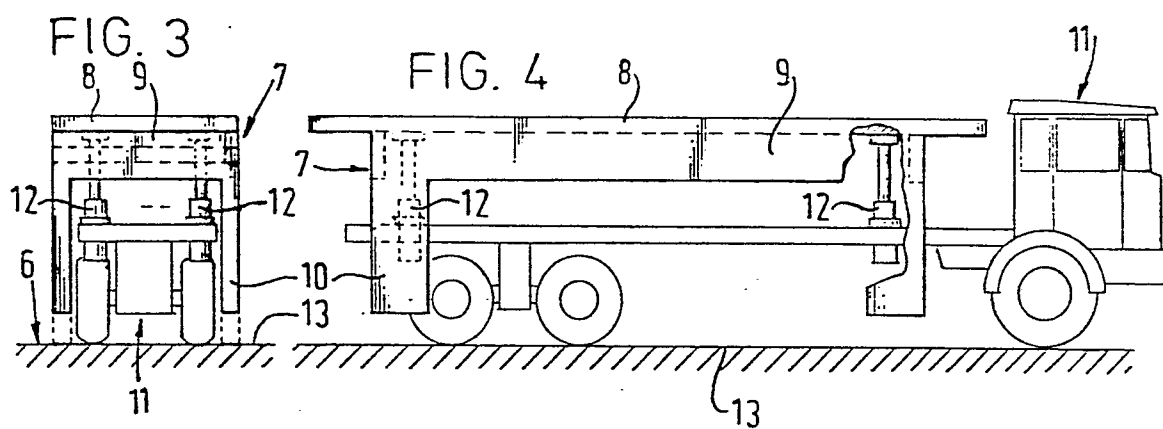
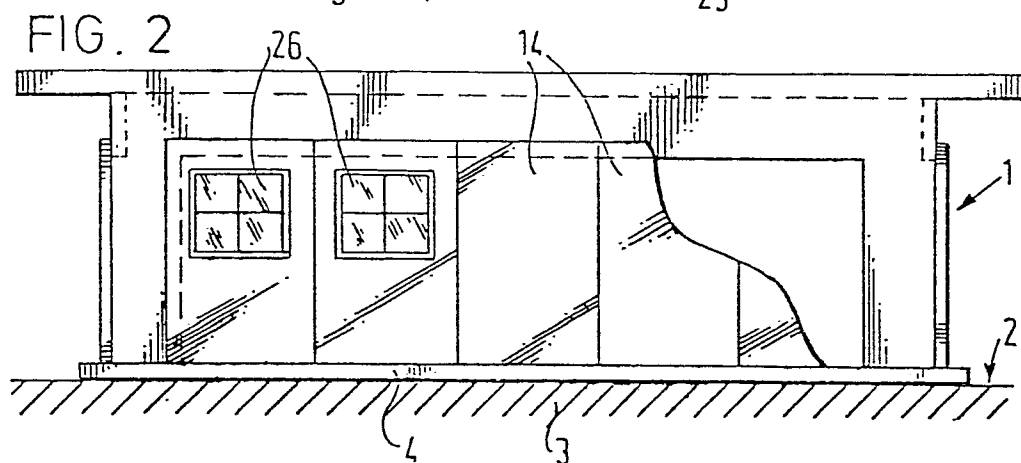
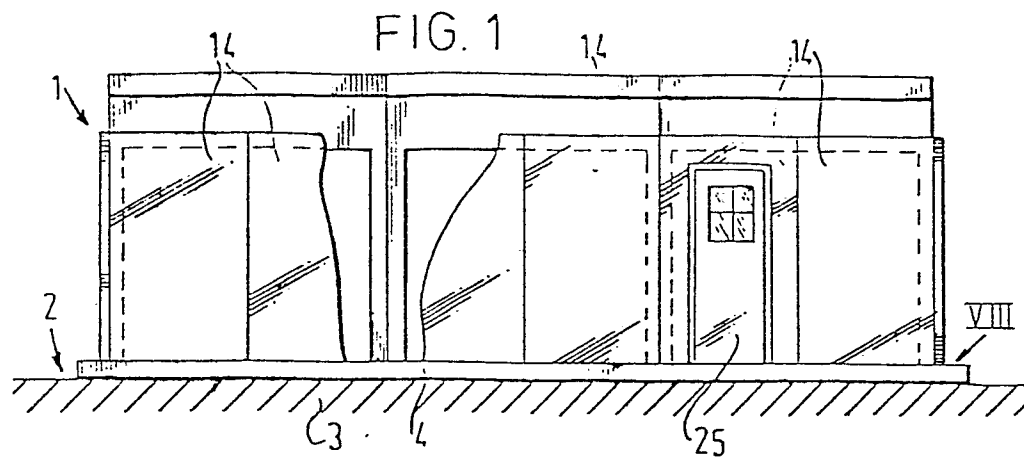
 10. A method as claimed in anyone of the preceding claims, characterized in that the slab consists of reinforced, light-weight concrete.

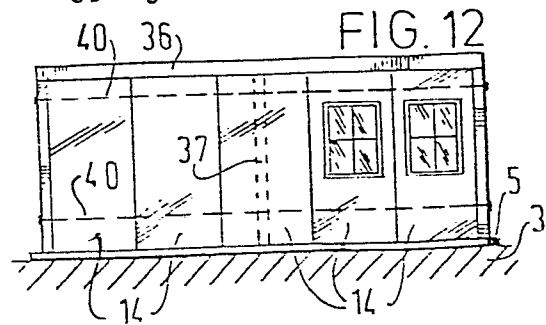
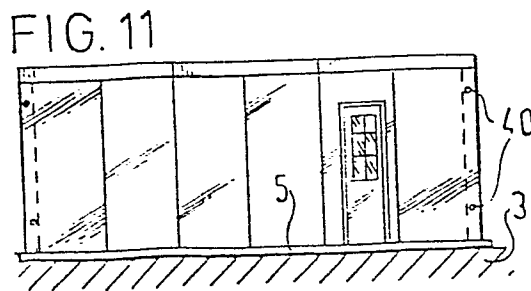
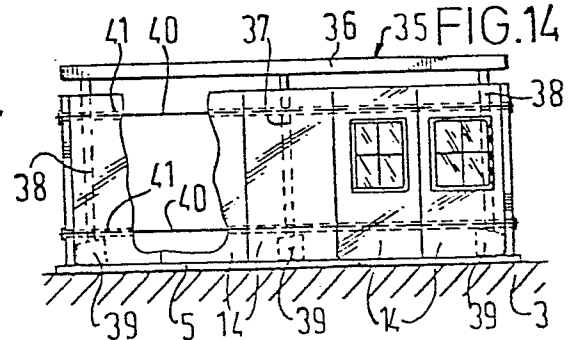
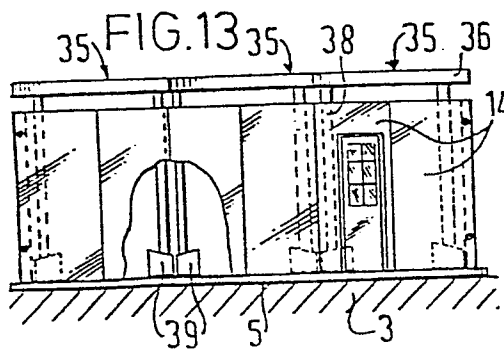
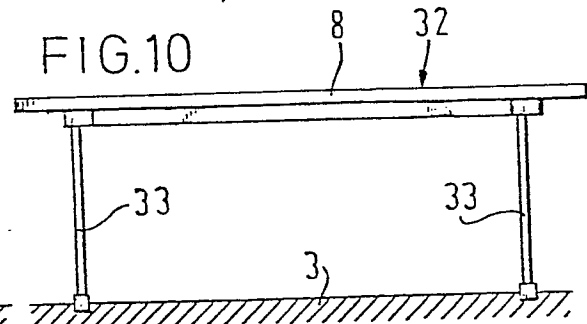
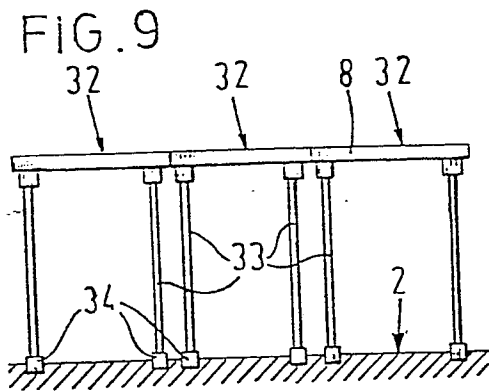
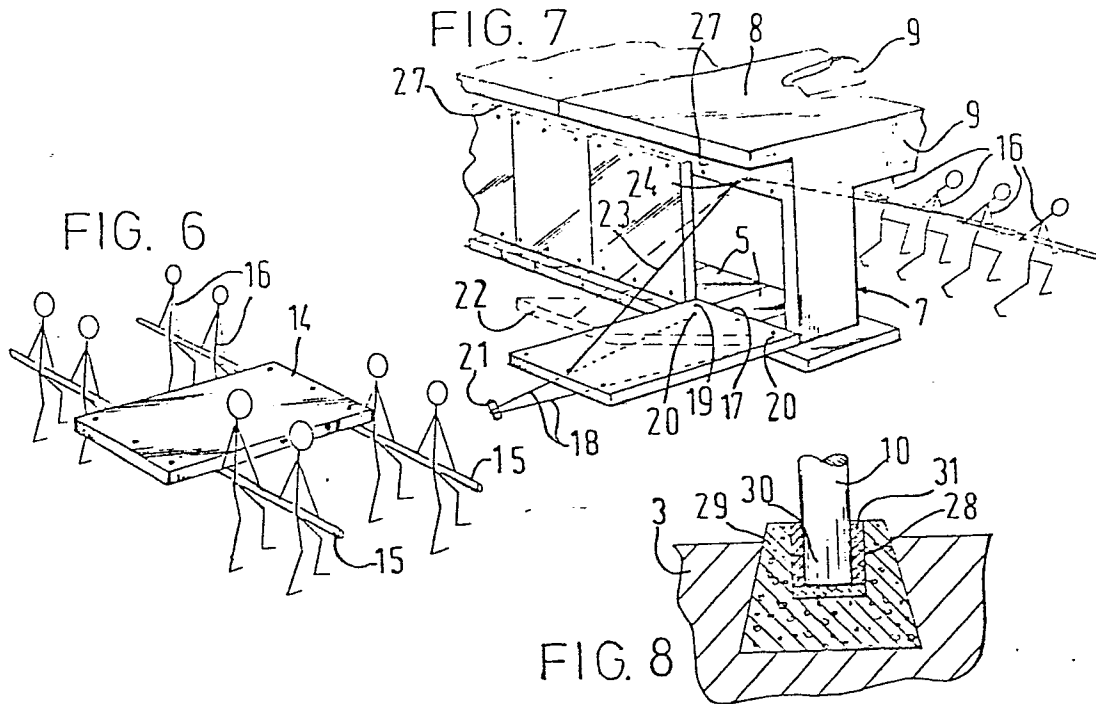
 11. A method as claimed in anyone of the preceding
20 claims, characterized in that the wall elements consist of reinforced, light-weight concrete.

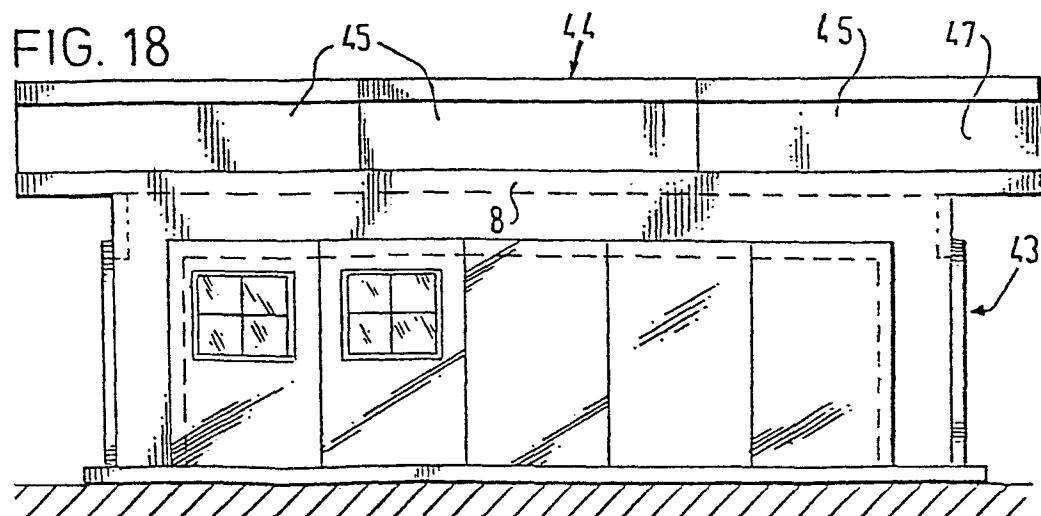
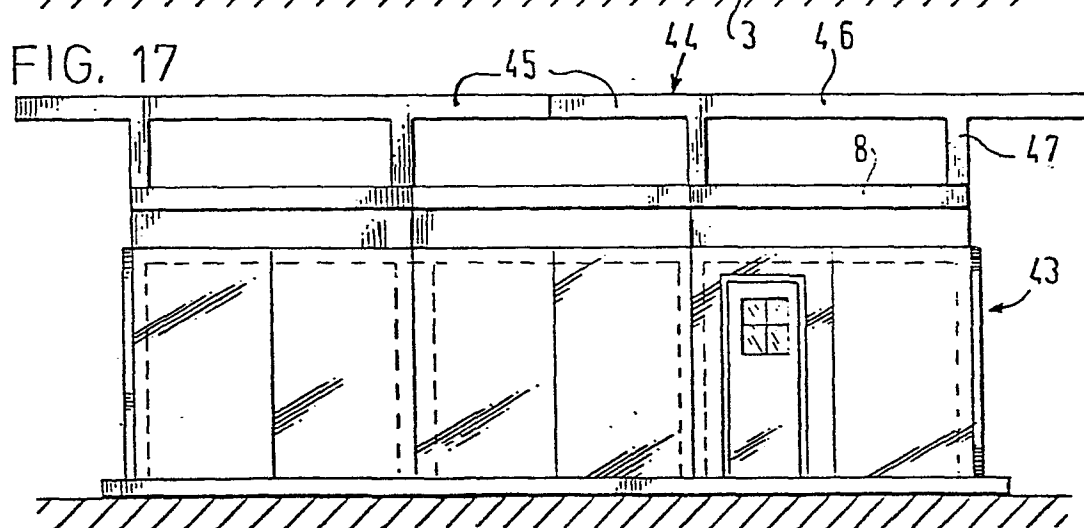
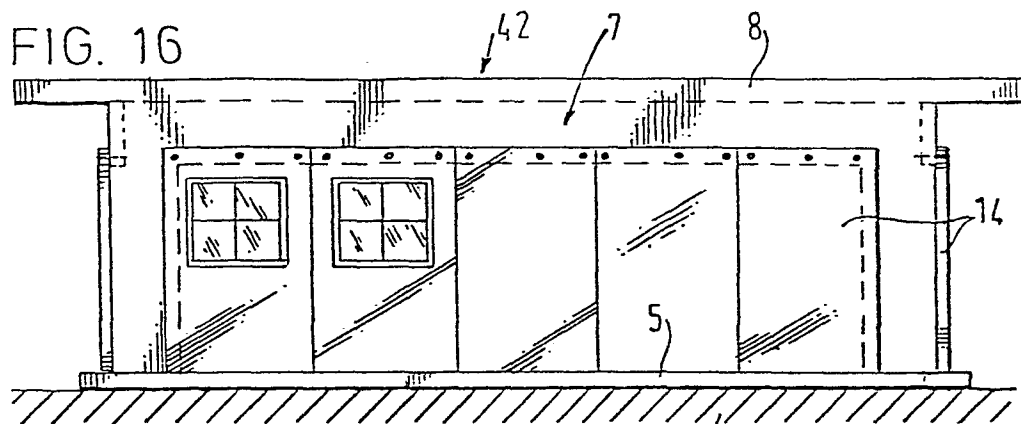
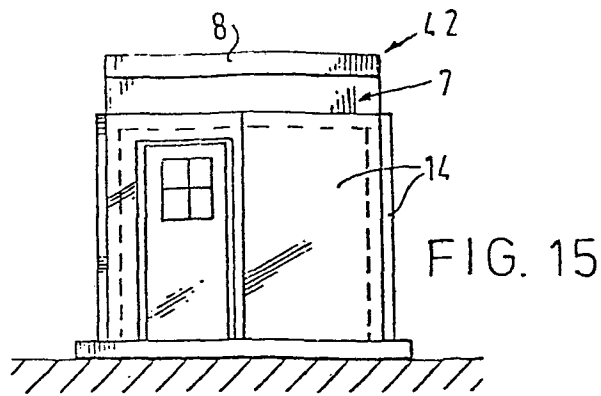
 12. A method as claimed in anyone of the preceding claims, characterized in that a multi-storey building is erected by superposing at least one table-shaped structural
25 element on the slab of a previously disposed table-shaped structural element.

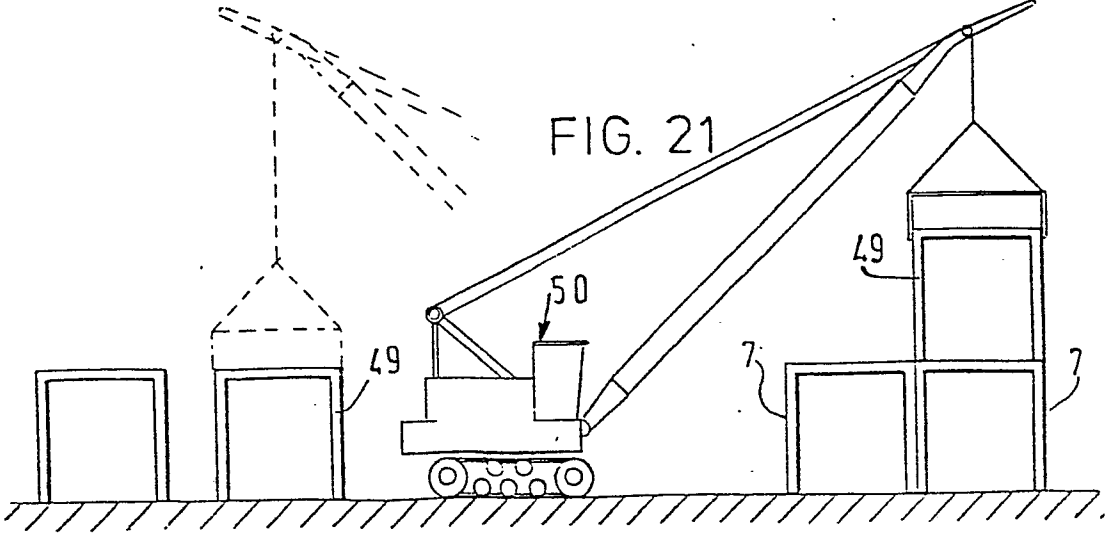
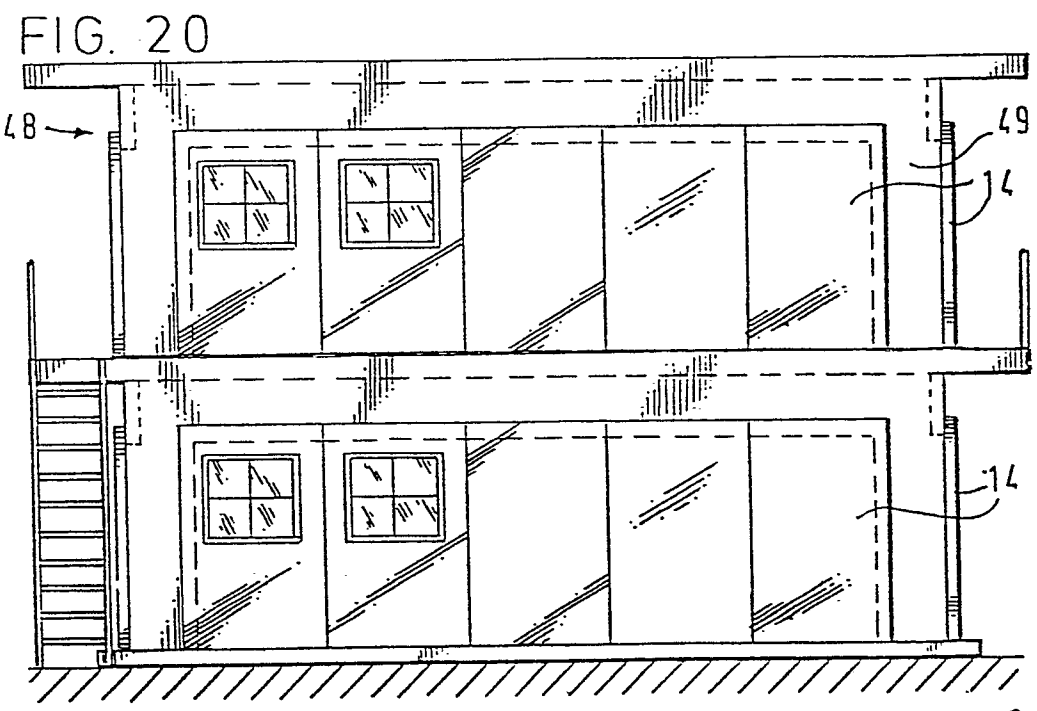
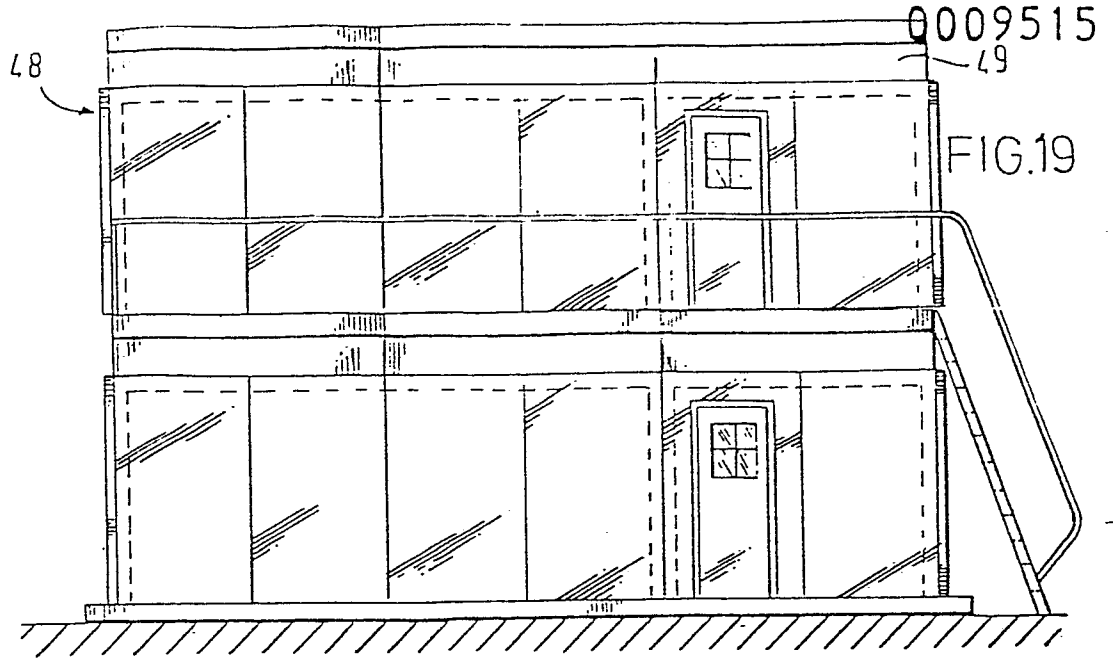
 13. A method as claimed in anyone of the preceding claims, characterized in that an additional roof providing heat insulation is arranged above the slab of a table-shaped
30 structural element.

 14. A building erected by the method claimed in anyone of the preceding claims.











DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ²)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	<p><u>DE - U - 7 314 936</u> (BETON-FERTIG-TEILWERK)</p> <p>* claims 1, 2, 3; page 3 line 34; fig. 1, 7 to 11 *</p> <p>--</p> <p><u>DE - A - 2 427 568</u> (O. FRANZ)</p> <p>* claim 1; fig. 1, 2 *</p> <p>--</p> <p><u>US - A - 3 744 200</u> (E.K. RICE)</p> <p>* fig. 2, 11 *</p> <p>--</p> <p><u>DE - U - 6 804 040</u> (W. LUTZ)</p> <p>* claims 1, 7; fig. 1 to 4 *</p> <p>--</p> <p><u>GB - A - 1 288 585</u> (EUROPA SOCIETE FINANCIERE DE PARTICIPATION)</p> <p>* claim 1; fig. 1 *</p> <p>& DE - A - 1 958 964</p> <p>--</p> <p><u>FR - A - 2 289 686</u> (SOCIETE AUXILIAIRE D'ENTREPRISES)</p> <p>* fig. 1, 2, 4 *</p> <p>--</p> <p>./..</p>	<p>1, 4, 5, 12</p> <p>1, 12</p> <p>1, 12</p> <p>1</p> <p>1</p> <p>1</p>	<p>E 04 B 1/348</p> <p>TECHNICAL FIELDS SEARCHED (Int.Cl.²)</p> <p>E 04 B 1/348</p> <p>E 04 B 1/04</p> <p>E 04 H 1/12</p> <p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant</p> <p>A: technological background</p> <p>O: non-written disclosure</p> <p>P: intermediate document</p> <p>T: theory or principle underlying the invention</p> <p>E: conflicting application</p> <p>D: document cited in the application</p> <p>L: citation for other reasons</p> <p>&: member of the same patent family, corresponding document</p>
<input checked="" type="checkbox"/>	The present search report has been drawn up for all claims		
Place of search	Date of completion of the search	Examiner	
Berlin	19-04-1979	V. WITTEN	

EUROPEAN SEARCH REPORT

Application number
EP 78 200 173.9
- page 2 -

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.?)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<u>DE - C - 1 156 321</u> (L. KESTING) * fig. 1 to 4 * --	4	
	<u>GB - A - 1 367 645</u> (E.K. RICE) * whole document * ----		TECHNICAL FIELDS SEARCHED (Int. Cl.?)