(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 310 076 A2**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **88116090.7**

(51) Int. Cl.4: **E04H 1/12**

(22) Date of filing: **29.09.88**

(30) Priority: **30.09.87 IT 2246487 U**

(43) Date of publication of application:
05.04.89 Bulletin 89/14

(84) Designated Contracting States:
AT BE CH DE FR IT LI LU NL

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(54) Multiuse prefabricated shed of glued lamellar wood.

(57) Multiuse prefabricated shed of glued lamellar wood for creating external sheltering areas of protection against atmospheric agents. The shed comprises two foundation plinths of reinforced concrete and as many support columns, each consisting of a pair of uprights of glued lamellar wood, fixed by means of through bolts to a vertical slab projecting from the plinth.

A horizontal beam of glued lamellar wood is positioned between the upper ends of the uprights of each column, being fixed thereto by means of bolts. A plurality of horizontal joists, perpendicular to said beams and fixed into a series of notches provided in said beams, forms the bearing surface for a roof covering the shed.

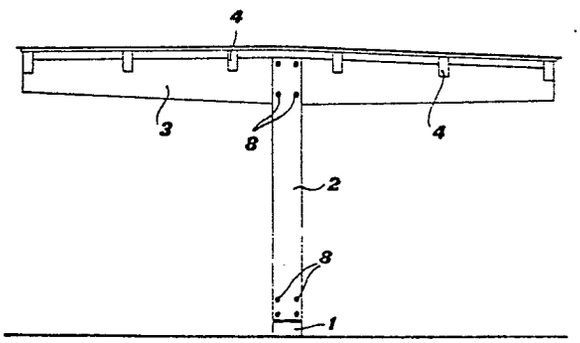

FIG. 1

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MULTIUSE PREFABRICATED SHED OF GLUED LAMELLAR WOOD

The present invention relates to a multiuse prefabricated shed of glued lamellar wood, to create external sheltering areas, protection zones, shaded spots and the like.

The use and construction of sheds, verandas and other structures, designed to create sheltering areas external to the buildings for protection against atmospheric agents, is widely diffused and it can be said to have started at the same time as the construction of buildings, and perhaps even earlier. These are usually light structures of masonry, metallic materials or wood, the cost of which is normally much lower than that of a building having an equal amount of covered surface, thereby allowing - with reduced investments - to extend the possibilities of use of an open-air space to times or periods of the year when the unfavourable weather conditions, either of rain or snow or of too much sun, would make it impossible or uncomfortable to use said space.

As said above, the most varied materials are used for the construction of these sheds but, in any case, these constructions are built up on site following a specific project, both for what concerns the type and the specific dimensions of the shed. Thus, in spite of the simplicity of the structure, it is still necessary to make use, for the construction thereof, of skilled labour dealing in different branches, just as it happens for a normal construction, with obvious consequences on the manufacturing costs - which cannot be reduced to less than a certain extent, due to the need for considerable labour - and on the construction times. It should also be noted that, when a shed has to be built up in particularly delicate spots - a typical case being gardens - the traditional construction ends by greatly spoiling the environment, which often undergoes damage in its green parts, reparable only through several months or, at times, years of great care.

The object of the present invention is hence to supply a multiuse prefabricated shed, very easy to assemble, which can be built up with a few operations, without requiring skilled labour and without having to construct masonry works on site, and the aesthetical features of which are moreover so pleasant as to allow its setting both in public and in private places, for use both as a work-shed and for relaxation and entertainment, or even for ornamental purposes, always with excellent results.

According to the present invention, said object is reached by means of a multiuse prefabricated shed, characterized in that it comprises:

- at least one prefabricated foundation plinth of reinforced concrete, consisting of one or more elements and ending at the top into a substantially rectangular vertical slab comprising at least one through hole;
- at least one vertical support column, consisting of a pair of uprights of glued lamellar wood, each of which comprises at least one through hole at both ends, and being fixed with its lower end to the vertical slab of said plinth, the slab being positioned between said uprights and being rigidly fixed thereto by means of at least one bolt housed in said holes;
- at least one horizontal beam of glued lamellar wood, having at least one through hole in correspondence of its central part, positioned between the upper ends of the uprights of said column and fixed thereto by means of at least one bolt housed in said holes, and having a series of notches on its upper surface, into which is housed a plurality of horizontal joists perpendicular thereto;
- a roof for said shed, fixed to said plurality of joists.

The present invention will anyhow be described more clearly with reference to the accompanying drawings, in which:

Fig. 1 is a front view of the shed according to the present invention, with a solid roof;

Fig. 2 is a plan view of the shed of figure 1, partially illustrating the solid roof;

Fig. 3a is an axonometric view, on an enlarged scale, of the shed of figure 1, showing the connection between the column and a foundation plinth of the underground type;

Fig. 3b is an axonometric view, on an enlarged scale, of the shed of figure 1, showing the connection between the column and a foundation plinth of the ground-level type;

Fig. 4 is an axonometric view, on an enlarged scale, of the shed of figure 1, showing the connection between the column and the beam;

Fig. 5 is an axonometric view, on an enlarged scale, of the shed of figure 1, showing the connection between the beam and two joists, an internal one and an end one;

Fig. 6 is a front view of the shed according to the present invention, with a pergola roof;

Fig. 7 is a plan view of the shed of figure 6, illustrating the pergola roof;

Fig. 8 is an axonometric view, on an enlarged scale, of the shed of figure 6, showing the type of fixing used for the pergola roof;

Fig. 9 is a front view of the shed according to the present invention, illustrating the embodiment with a single column;

Fig. 10 is a plan view of the shed of figure 9;

Fig. 11 is an axonometric view, on an enlarged scale, of the shed of figure 9, showing the connection between the column and the foundation plinth of the underground type; and

Fig. 12 is an axonometric view, on an enlarged scale, of the shed of figure 9, showing the connection between the column and the beam and between this latter and the joists.

As clearly illustrated in the drawings, the prefabricated shed of glued lamellar wood according to the present invention is formed of a reduced number of prefabricated elements of limited dimensions, which can thus be easily transported and which can be assembled on the site of use in a very short while, without requiring any skilled labour.

The main elements of the shed are the foundation plinths 1, the columns 2, the beams 3 and the joists 4, which will now be described in detail.

As shown in figures 3a and 3b, the plinths 1 can be of two types, indicated by reference numbers 1a and 1b. The plinth 1a is of the underground type, that is, suited for use on the soil; a hole of suitable dimensions is dug into the soil and the plinth is lowered therein; the hole is subsequently filled with earth up to the level indicated by the arrow T in figure 3a. The plinth 1b is of the ground-level type, that is, provided with an upper part - exactly like that of the plinth 1a, designed to remain out of the ground - rigidly fixed to a widened base 5. This second type of plinth is suited for use on pavings, onto which the base 5 is anchored with proper adhesives or by other suitable means.

The lower part of the plinth 1a can be formed into several pieces, apt to be mutually restrained, so as to allow carrying the single pieces by hand where it would be impossible or undesirable to use mechanical transport means. Both plinths 1a and 1b have their upper part of identical shape - as already said - and, in particular, they comprise a vertical slab 6, of substantially rectangular shape, onto which is fixed each column 2.

As clearly shown in figures 3 and 4, each column 2 is formed of a pair of identical and opposite uprights 7 of glued lamellar wood, which are fixed to the slab 6, positioned in-between, by means of bolts 8 housed into corresponding through holes provided both at the ends of the uprights 7 and on the slab 6. The number of bolts obviously depends on the dimensions of the uprights and of the plinth and, finally, on the load having to be supported by the column 2, but four bolts will preferably be provided for each connection. At its upper end, each column 2 is fixed in a similar way to the beam 3 - positioned between its uprights 7, similarly to the slab 6 of the plinth 1 - by eventually forming a dap joint, as illustrated in figures 4 and 8.

The beams 3 have a substantially parallelepiped shape, clearly illustrated in figures 1, 2, 6 and 7; they are fixed to the column 2 in correspondence of their central part; they are more or less tapered towards their ends; and they too are made of glued lamellar wood. Of course, in correspondence of their central part, the beams 3 have transversal holes corresponding to the similar holes provided at the top end of the uprights 7. They can eventually be provided with suitable notches in correspondence of similar notches provided in the uprights, so as to form a dap joint between the column 2 and the beam 3, fixed by means of the bolts 8 which, also in this case, will preferably be four.

On their upper surface the beams 3 have a series of notches, into which are housed and fixed by screws the joists 4 close to their end (figures 5 and 8). It is thus possible to join together two plinth/column/beam units (or, alternatively, one plinth/column/beam unit and the wall of a building) in order to obtain a single shed assembly, as clearly shown in figures 2 and 7. The joists 4 have an end part 4a, which overhangs from the beam 3 and which can vary in size so as to create different general aesthetic effects.

The shed according to the present invention can be covered with different roofs allowing it to be used in a very wide range of practical applications.

A solid roof is illustrated in figures 1 and 2. It comprises a series of boards 10, nailed at a short mutual distance onto the upper part of the joists 4, to which they are perpendicular. Onto the boards 10, thus anchored, there are fixed waterproof covering elements, preferably consisting of mutually connected metallic staves.

A pergola roof is instead illustrated in figures 6, 7 and 8. It comprises a second series of joists 11, fixed by screws into suitable notches of the joists 4, so as to form therewith a rectangular mesh pergola, as shown in figure 7. The depth of the notches is such that the upper surfaces of the joists may lie on a single horizontal plane.

The shed according to the present invention may finally be used in a highly simplified form - suited for making pergolas and illustrated in figures 9 to 12 - comprising a single plinth/column/beam unit. In this embodiment, the uprights have a smaller cross section and they are positioned offset, as shown in figures 11 and 12, each being fixed at its ends by only two bolts, even if an overall number of four bolts is still provided for each connection. Also the joists 4 are of smaller dimensions and of modest length, and they are obviously fixed to the beam 3 in correspondence of their centre.

The above clearly explains how the shed according to the present invention has fully reached

its object. It is in fact entirely formed of prefabricated elements of modest dimensions and weight, and thus easy to transport; it is assembled with elementary tools, using very simple elements as bolts and screws; it determines no changes whatsoever in the environment where it is set up, except for the slight digging required to place the plinth into the ground in the event of use on the soil; it can be easily removed and transferred to another site, without any inconveniences; it is finally extremely versatile, as it lends itself -by simply changing the type of roof and/or the number and dimensions of its components - for various valid solutions, apt to satisfy the most disparate requirements.

Claims

1) Multiuse prefabricated shed, characterized in that it comprises:
- at least one prefabricated foundation plinth of reinforced concrete, consisting of one or more elements and ending at the top into a substantially rectangular vertical slab comprising at least one through hole;
- at least one vertical support column, consisting of a pair of uprights of glued lamellar wood, each of which comprises at least one through hole at both ends, and being fixed with its lower end to the vertical slab of said plinth, the slab being positioned between said uprights and being rigidly fixed thereto by means of at least one bolt housed in said holes;
- at least one horizontal beam of glued lamellar wood, having at least one through hole in correspondence of its central part, positioned between the upper ends of the uprights of said column and fixed thereto by means of at least one bolt housed in said holes, and having a series of notches on its upper surface, into which is housed a plurality of horizontal joists perpendicular thereto;
- a roof for said shed, fixed to said plurality of joists.

2) Multiuse prefabricated shed as in claim 1), comprising two plinths, each with a respective column and beam, the two beams being parallel, and a single plurality of joists fixed at their ends to the two beams.

3) Multiuse prefabricated shed as in claim 1), comprising one plinth with respective column and beam, and a single plurality of joists fixed at their ends to the beam and to the wall of a building.

4) Multiuse prefabricated shed as in claim 1), comprising one plinth with respective column and beam, in which the plurality of joists is fixed to the beam in correspondence of the centre of said joists.

5) Multiuse prefabricated shed as in claims 1) to 4), wherein the beam is fixed to the column by way of a dap joint.

6) Multiuse prefabricated shed as in claims 1) to 5), wherein said roof consists of a first covering of side-by-side boards, nailed to said plurality of joists perpendicularly thereto, and of a second waterproof covering anchored to the first one.

7) Multiuse prefabricated shed as in claims 1) to 5), wherein said roof consist of a second plurality of joists, perpendicular to the first plurality of joists and fixed thereto by screws into notches thereof, so as to form a rectangular mesh pergola.

8) Multiuse prefabricated shed as in any one of the previous claims, wherein a total number of four bolts is provided for each column/plinth and beam/column connection.

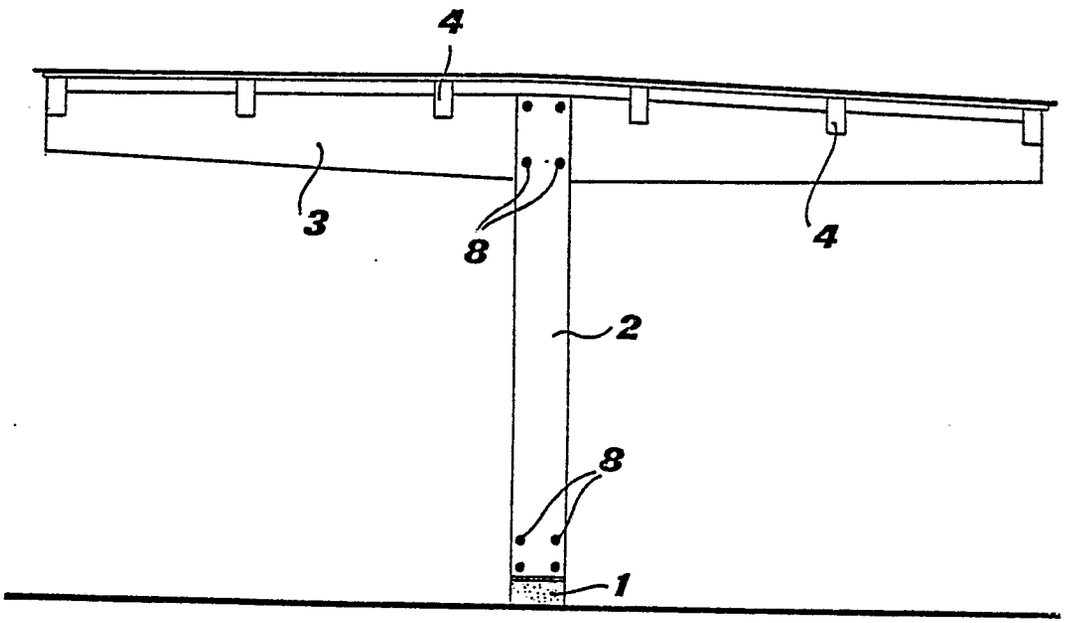

FIG. 1

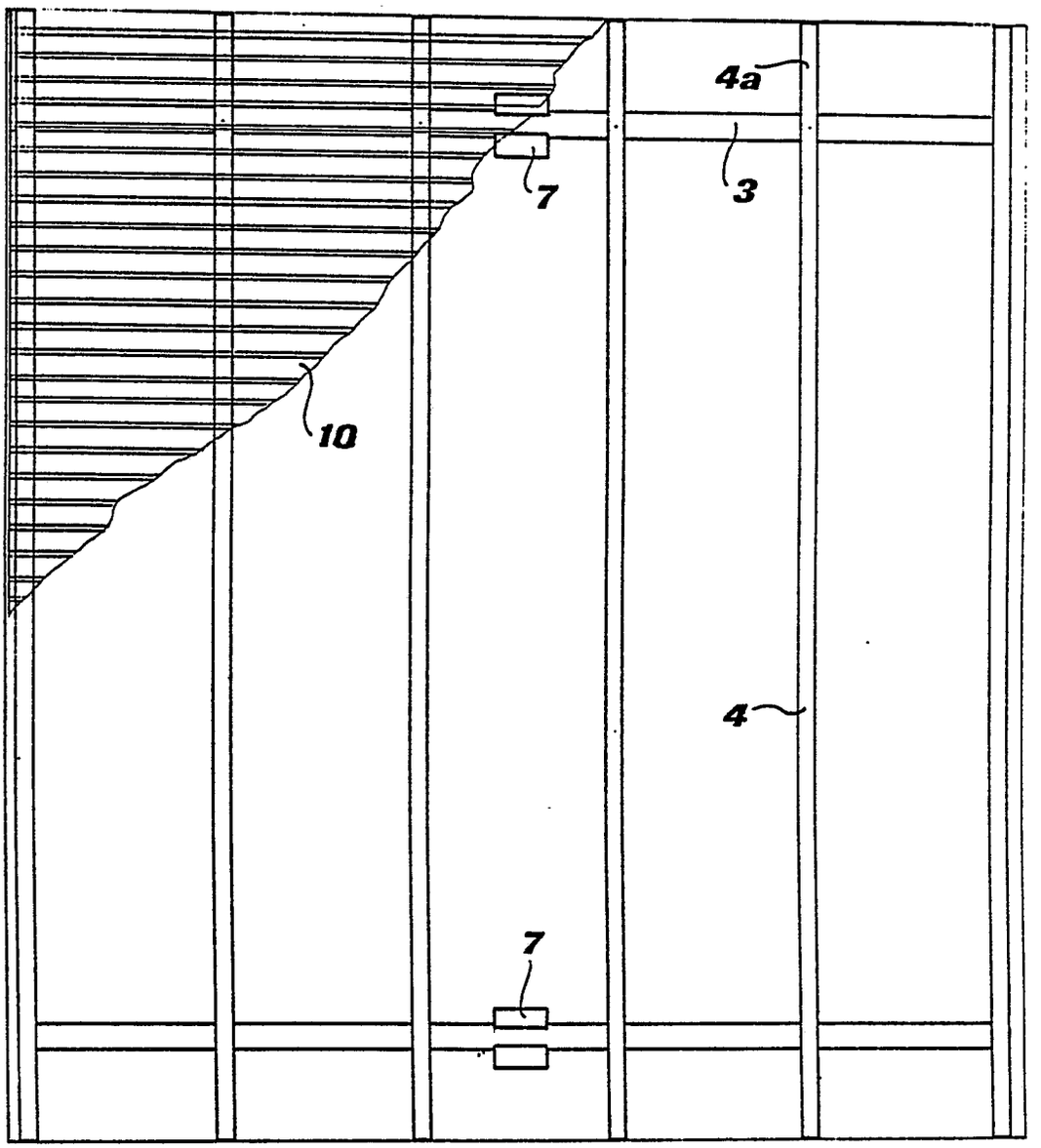

FIG.2

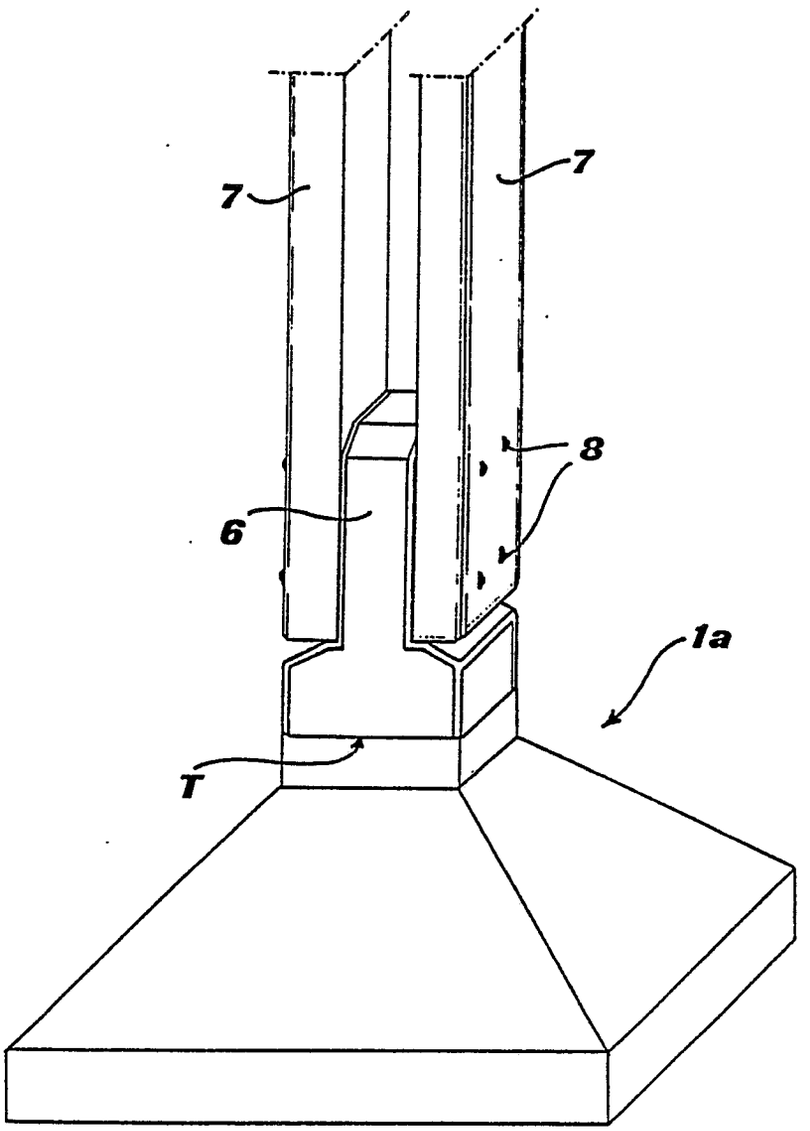

FIG.3a

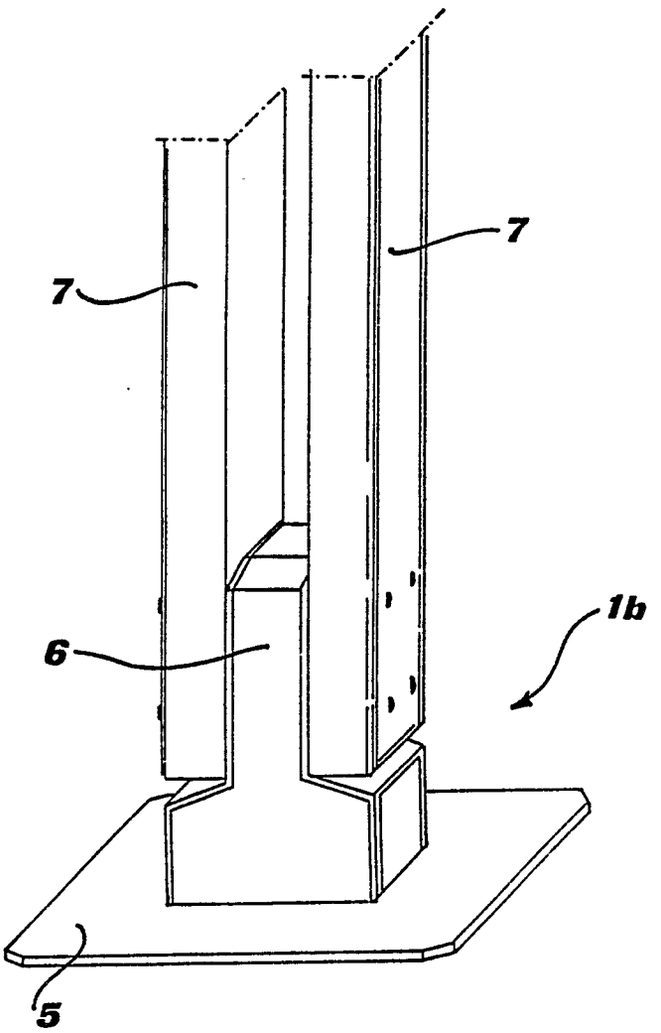

FIG.3b

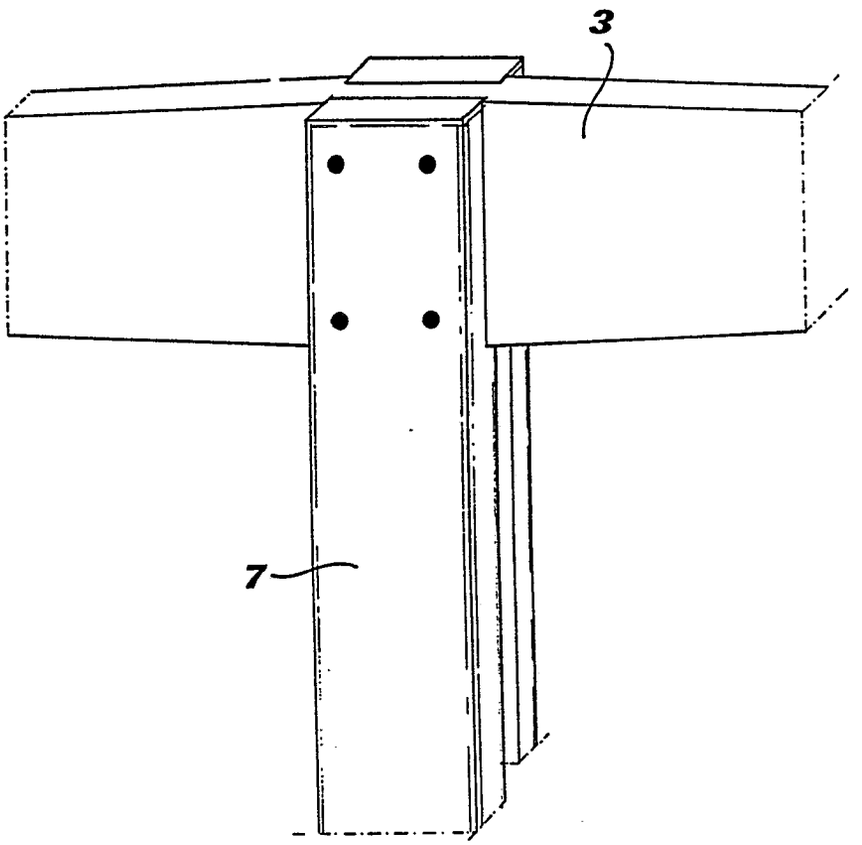

FIG. 4

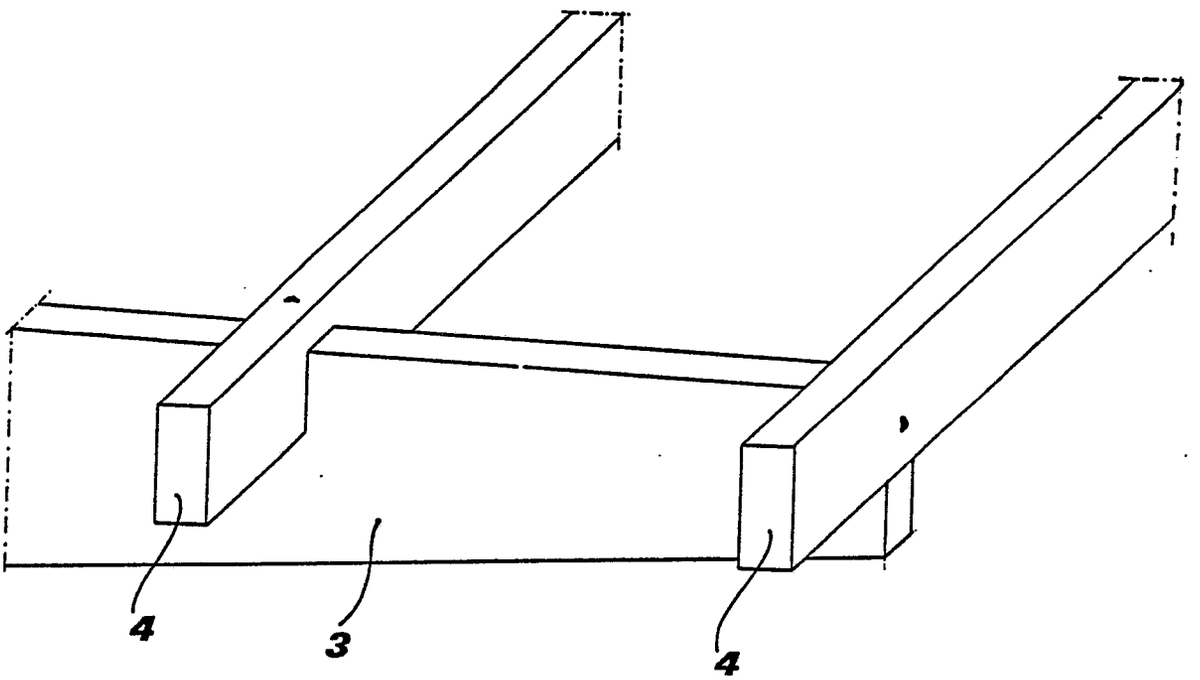

FIG. 5

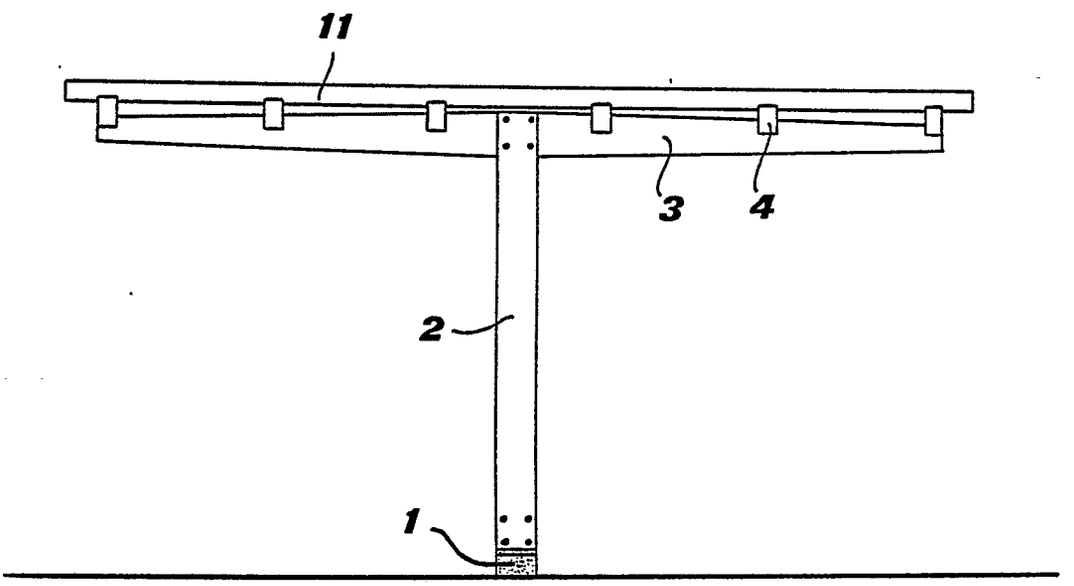

FIG.6

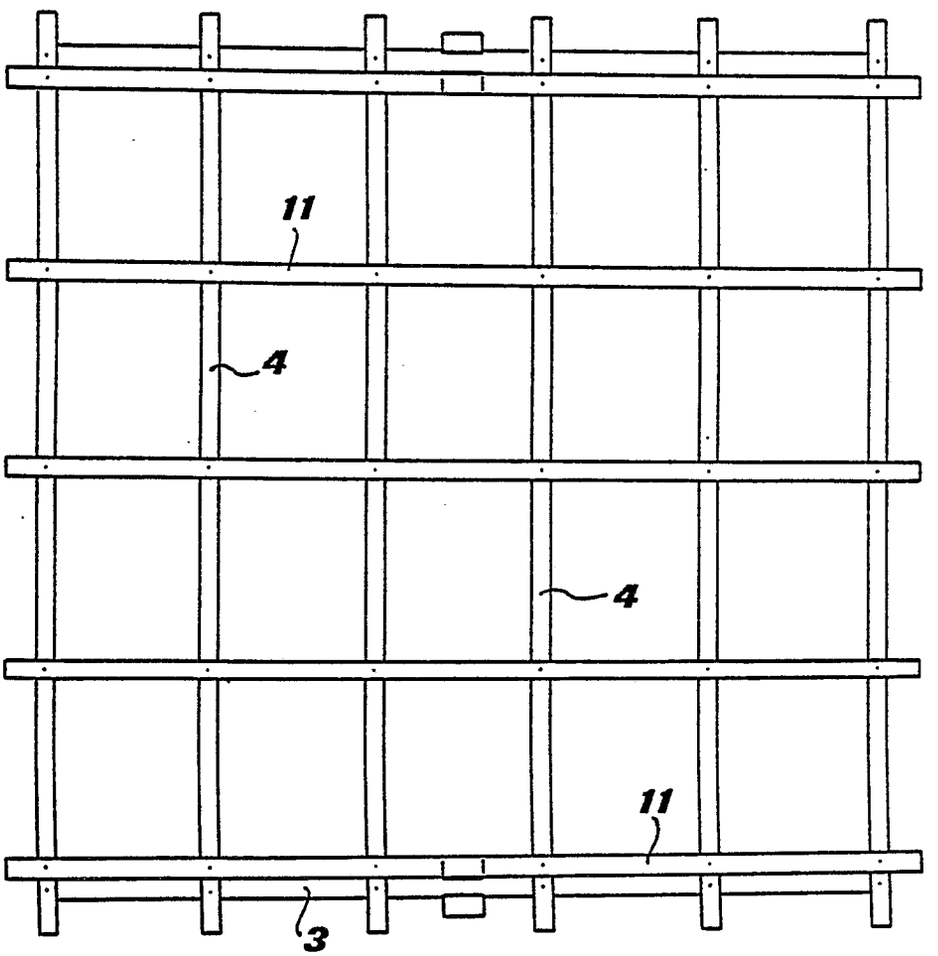

FIG. 7

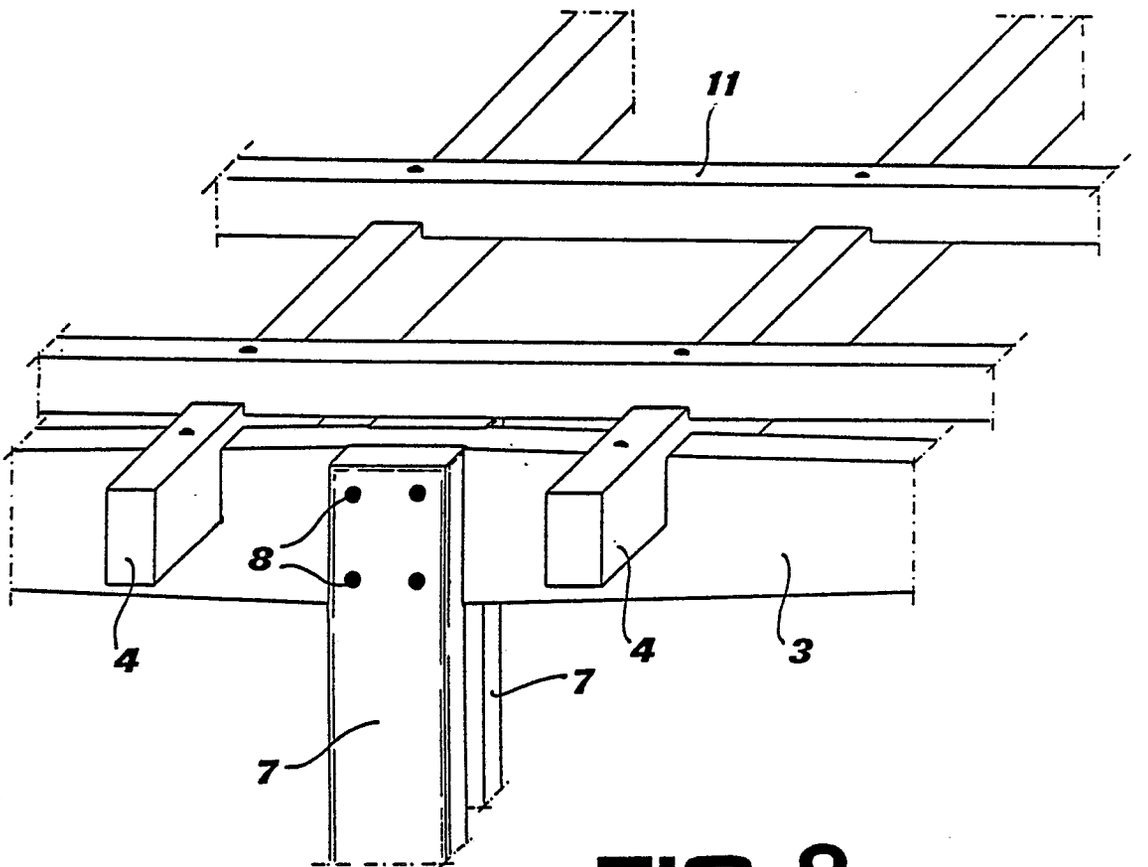

FIG. 8

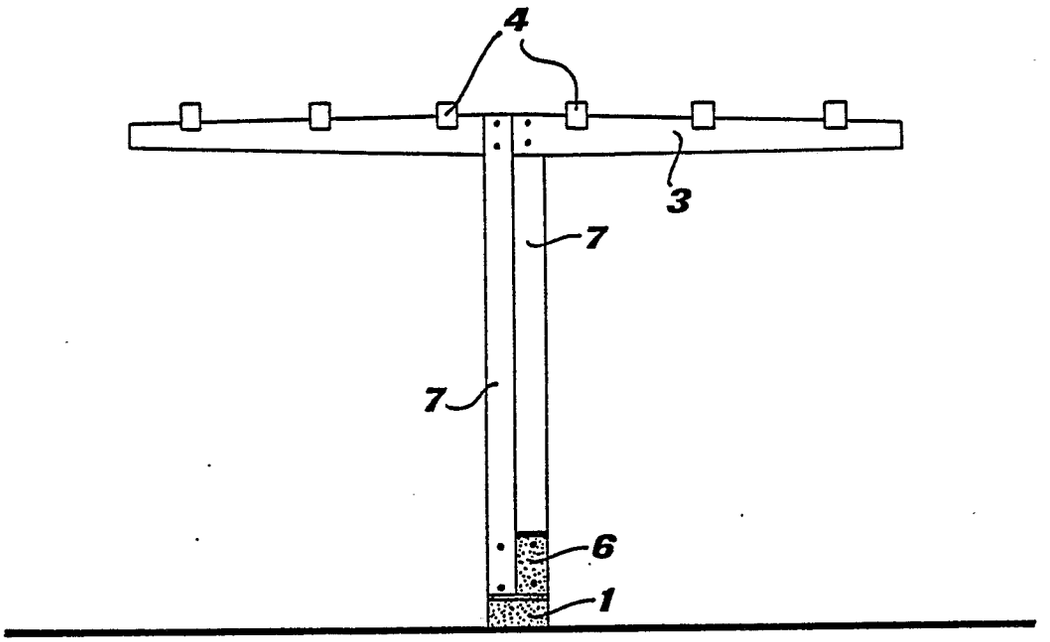

FIG. 9

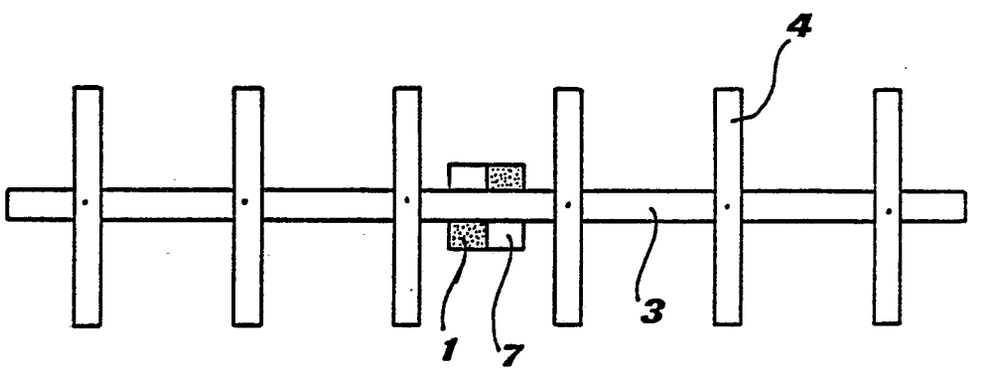

FIG.10

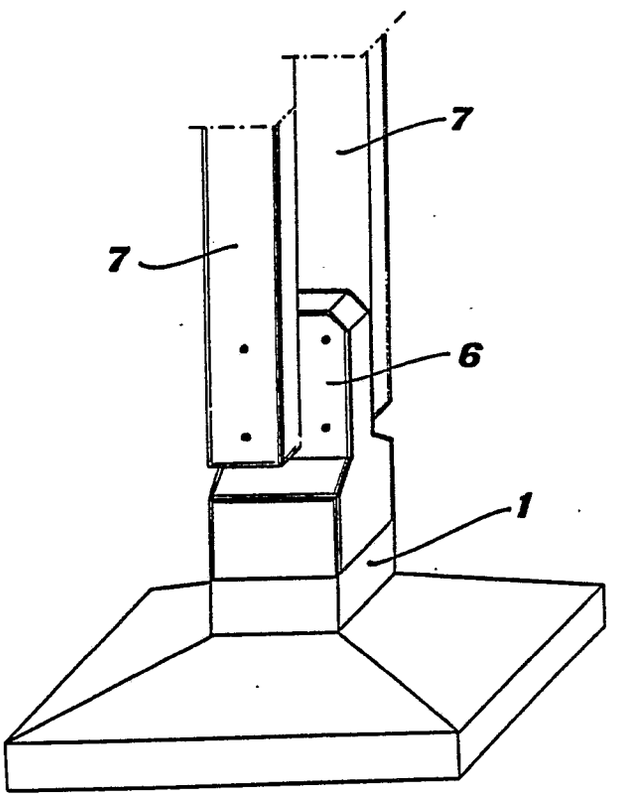

FIG. 11

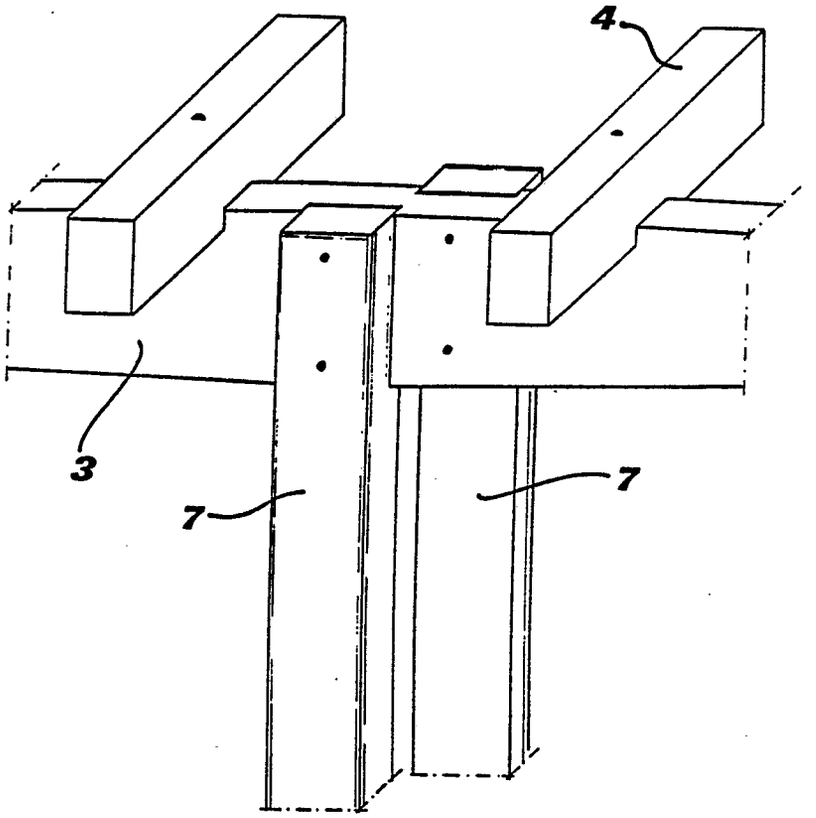

FIG.12