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

(11) **EP 1 801 302 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
27.06.2007 Bulletin 2007/26

(51) Int Cl.:
E04B 5/10 *(2006.01)* ***E04C 3/10*** *(2006.01)*

(21) Application number: **06425835.3**

(22) Date of filing: **13.12.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(30) Priority: **20.12.2005 IT BA20050047**

(71) Applicant: **Plateroti, Ennio**
89013 Gioia Taruo (IT)

(72) Inventor: **Plateroti, Ennio**
89013 Gioia Taruo (IT)

(54) **Floor panel**

(57) The patent for invention of this application regards a panel developed for floor.

The panel is formed by some supporting elements linked to each other and drowned inside every light isotropic material, thermal and acoustic insulating, and with a good mechanical resistance. The resistance of the whole system is established by the pre-compression of an outline of lightened steel, which is inside the panel, and it's obtained thanks to steel wires or staffs, put in tension and properly anchored to the tips of the outline.

The panel is suitable to be used as a structural element in the construction of horizontal and/or inclined supporting elements for civil or industrial buildings.

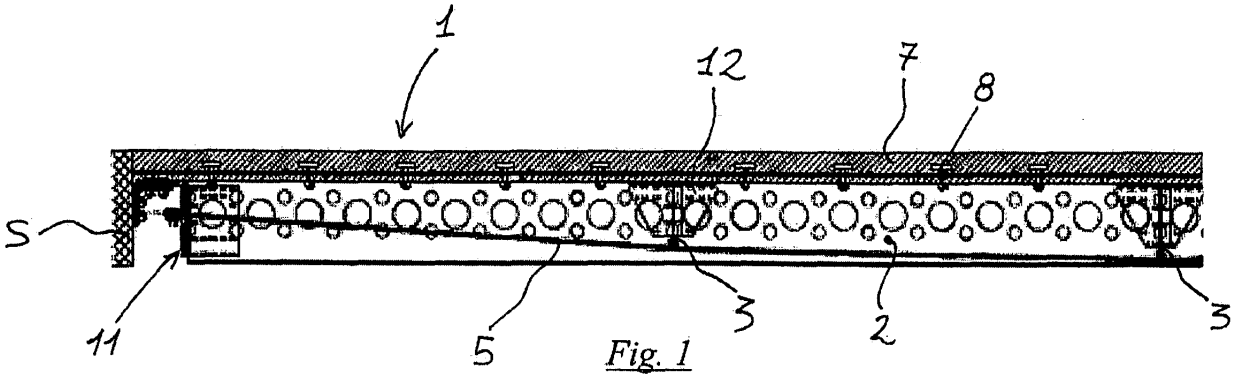

Fig. 1

EP 1 801 302 A2

Description

[0001] The patent for invention of this application regards a panel developed for floor suitable as structural element for the construction of supporting floors for buildings.

[0002] In particular this application regards some improvements to a panel consisting of many elements which interact with one another and contribute as regards to the resistance to the stress actions.

[0003] This panel is composed by a load distributor formed by a body rigid enough and with a thickness suitable to transfer to the supporting elements the loads that weigh down the system uniformly, and by some supporting elements, ropes or metallic staffs, that are inside high-tensile metallic pipes; they create a system placing in it a pre-load which forces it to act as a contrast.

[0004] This kind of floor panel is claimed in the patent application for industrial invention n° BA2005A00028 on behalf of the applicant.

[0005] This panel shows several disadvantages such as the limited load capability.

[0006] Another disadvantage is the so-called rise operation of the rope-pipe system; in fact this operation is very complicated because in this panel there aren't structural elements leading the pipes in their curvature.

[0007] The purpose of this invention is to improve the floor panel through some devices able to increase the load capability.

[0008] Another purpose is to facilitate the pre-load operation and the rise operation of the system composed by staffs, ropes and pipes.

[0009] This purposes are obtained by the panel developed for floor of this invention, then described with the help of the plates attached which illustrate the following drawings, in a not limiting favourite execution of further improvements regarding the invention:

Pic 1: a vista in longitudinal section of one of the supporting elements of the floor panel;
Pic 2: a vista in section of the connecting element and of a distance plate, on the flat;
Pic 3: a vista of the particular of anchor of a supporting element to a main existing structure;
Pic 4: a detailed vista of a gusset plate which is linked to the distance plate;
Pic 5: a vista of the particular of anchor of a supporting element to a main new structure.

[0010] As shown in the drawings attached, number (1) represents the longitudinal section of one of the supporting elements of the floor panel composed of many parallel supporting elements (1).

[0011] Every element (1) is formed by many elements which interact with one another and which resist to the stress actions.

[0012] Every supporting element includes an U-shaped section outline (2) properly lightened by holes (4), distance plates (3) whose length increases as they approach the centre of the panel, and gusset plates of the section (2) attached close to the positioning zones of the distance plates.

[0013] Every distance plate (3) has some apertures (32); every aperture is crossed by a rope or a staff (5) running longitudinally through the whole length of the section (2).

[0014] A pre-load is placed in the ropes and it forces the system to interact as a contrast with the section (2); the size of the pre-load will be extended till it gives a light rise to the section (2) and therefore could cause a light deformation of the panel which will have an upward convexity.

[0015] In order to keep the ropes in tension, each tip (51) crosses a bush (10) tied to the plate (12) for the anchor of the panel to the existing supporting structure and it's blocked by the action of a threaded gudgeon perpendicular to the bush (10).

[0016] In order not to damage the ropes or the staffs (5), the distance plates (3) have a kink (31) in their lower part.

[0017] The system formed by the ropes (5) and by the outline is linked, through suitable means (8), to a metallic net (6) drowned in a pad element (7) formed by every kind of light isotropic material with good thermo-phono-insulating qualities and which has a good mechanical resistance.

[0018] Some materials, such as polyurethane foam, expanded plastics, urethane resins, light concretes, pressed-glued organic materials or every material or system of materials with similar physical characteristics.

[0019] The pad element (7) is a kind of melting-pot which allows the interaction among the external actions caused by the loads and the reactions of the supporting elements that are in the system.

[0020] The anchor plates (12) made of metal or every suitable material, placed in the two tips of the panel, serve to anchor the ropes (5) in order to guarantee that the coercion among these elements last long.

[0021] The section (2), the gusset plates (12) and the distance plates (3) can be made of metal or of every suitable material.

Claims

1. *"Panel developed for floor"* including a first rigid element (7) with the function of load distributor, several supporting elements formed by a system consisting of ropes or metallic staffs (5), a section (2) and distance plated (3); peripheral anchor elements (11) consisting of bars or outlines (13) properly shaped for the connection of the panel to the S elements which form the main structure of the building; a wrapping plaster net (6), nails (8) for the sewing of the net (6) with the section (6), typified by the fact that

• the supporting elements including ropes or metallic staffs (5) are inside a section substantially with an U-shaped section (2) and properly distanced from the outline base (2) through distance plates (3);
• ropes or staffs (5) are properly bent through the distance plates (3) that are inside the outline (2);
• between every distance plates (3) and the section (2) there are some apertures (32); each aperture is reserved to the passage of a rope or a staff (5);
• in the ropes or in the staffs (5) is placed a preload which forces the system to interact with the outline (2) as a contrast, and the size of the preload is extended till it gives a light rise to the panel (1).

2. Panel developed for floor of the claim 1 typified by the fact that the ropes (6) are two for each U-shaped section (2).

3. Panel of the previous claims, typified by the fact that the length of the distance plates (3) increases as they approach the centre of the supporting element and by the fact that in the lower part they have a kink (31).

4. Panel of the previous claims, typified by the fact that the tips of the ropes or staffs (51) are properly blocked through suitable means when they're prevaricated (9-10).

5. Panel developed for floor of the claim 1 typified by the fact that the U-shaped section (2) is properly lightened through holes (4).

6. Panel of the previous claims typified by the fact that near the point of contact of the distance plates (3) with the section (2) there are some gusset plates (12).

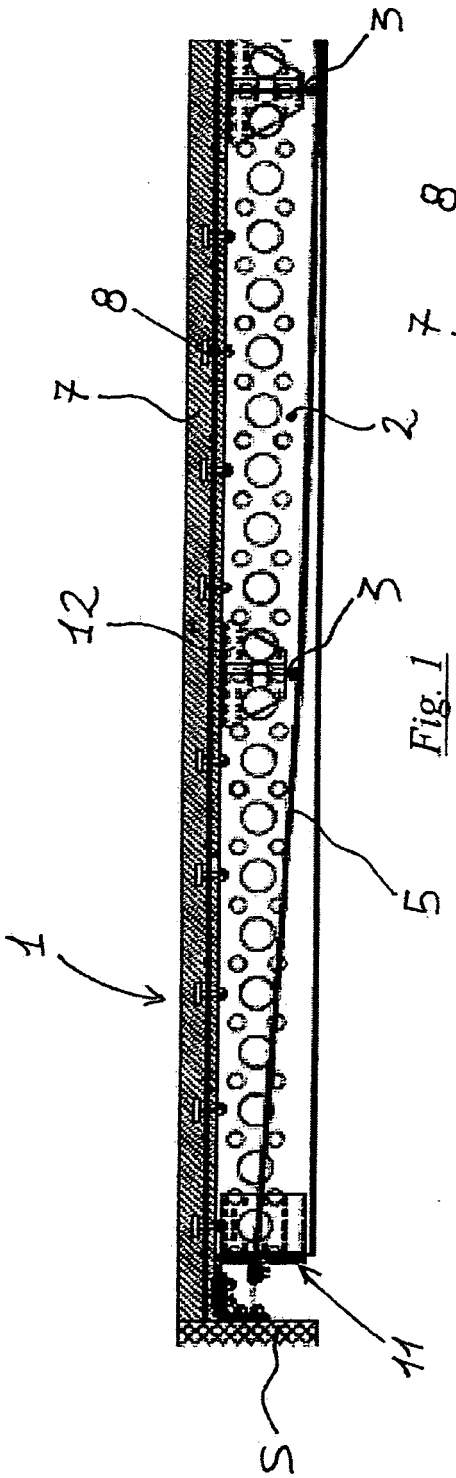

Fig. 1

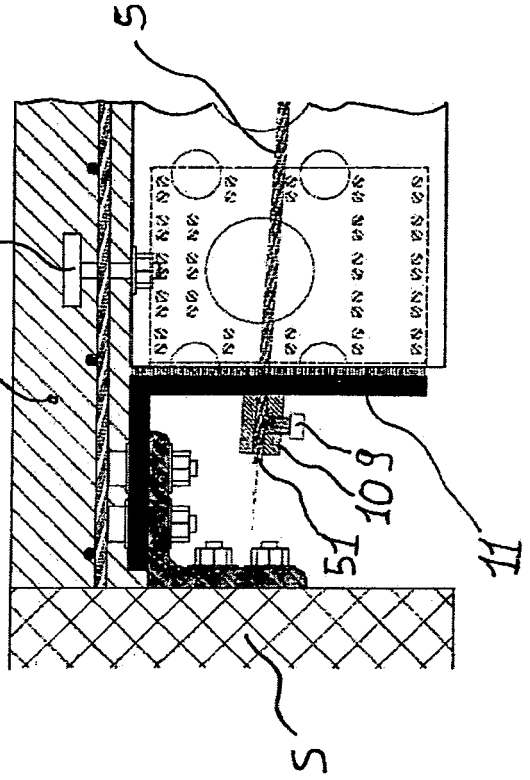

Fig. 3

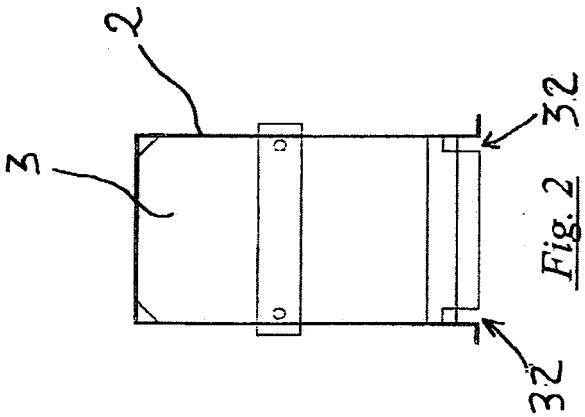

Fig. 2

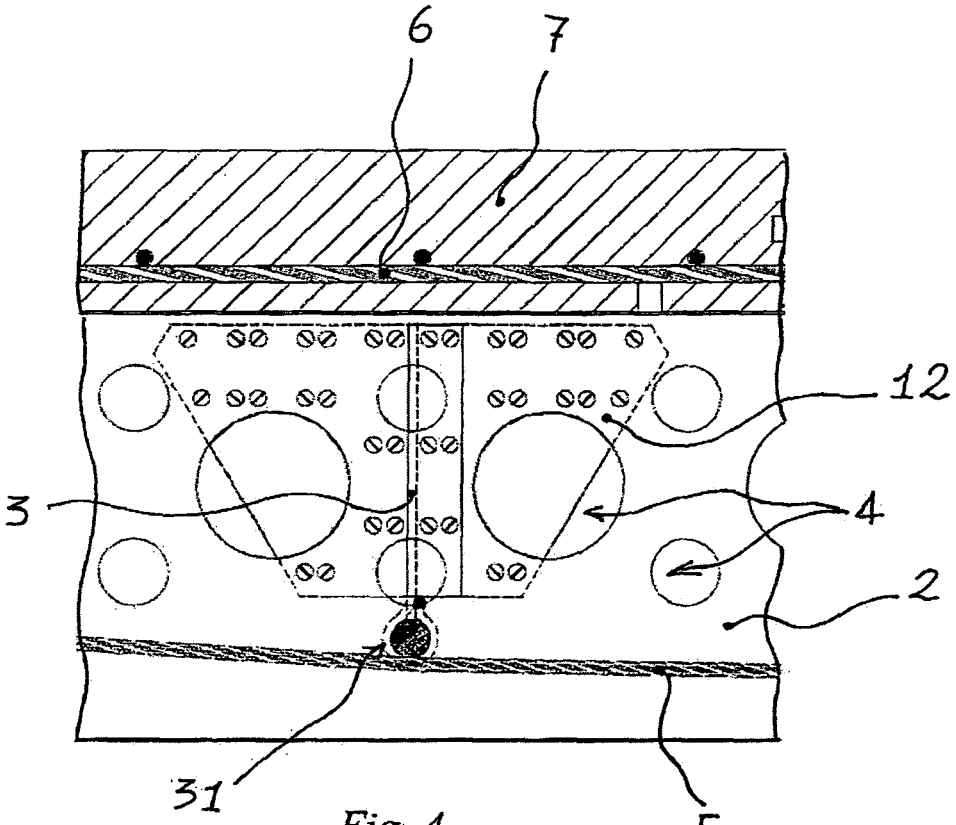

Fig. 4

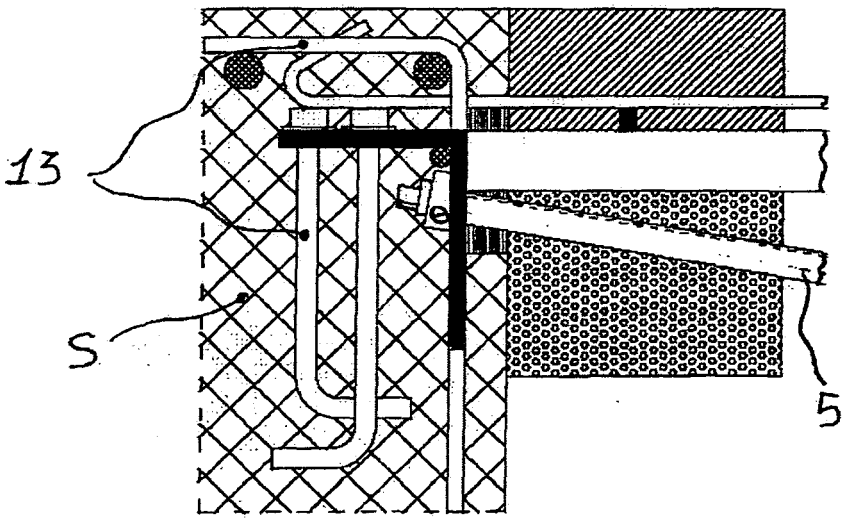

Fig. 5

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO BA200500028 A **[0004]**