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(71) Applicant: **GEOPLAST S.p.A.**
35010 Grantorto (PD) (IT)

(72) Inventor: **Pegoraro, Mirco**
35010 Grantorto (PD) (IT)

(74) Representative: **Vinci, Marcello**
Ufficio Veneto Brevetti
Via Sorio 116
35141 Padova (IT)

(54) Connecting and plugging element fit for walking on it with double use for modular elements for aerated and/or elevated floors

(57) It is a connecting or extension element (P) for modular elements for the realization of aerated and/or elevated floors made of a linear element in thermoplastic material having generically U-shaped vertical section made of two lateral walls (P1) and an upper arched surface (P2), while both ends of the new element (P) are closed each by a wall (P3). Three lower edges (P4) of the new element (P) has enlarged supporting base provided with relieves or couplers (P4a) fit for allowing the connexion and the fixing of the new connecting and plugging element (P) to the metallic bars (Ar) of the reinforcement of the floor, while the lower edge has no enlarged base in order to allow that the element (P) is flanked to a beam or to an existing edge foundation.

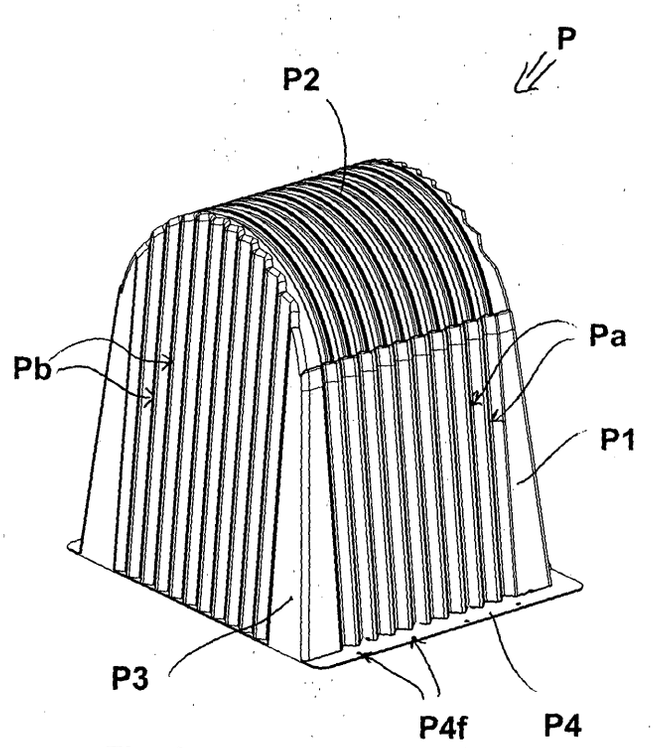

Fig. 1

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Description

FIELD OF THE INVENTION

[0001] This patent relates to the field of the equipment for building, and in particular it concerns the pre-shaped modular elements, known as disposable formworks, for the realization of aerated or elevated floors.

BACKGROUND OF THE INVENTION

[0002] The known disposable modular elements for the realization of aerated floors are generally dome shaped with four or more legs and arc-shaped openings between said legs. Said modular elements are flanked and connected one to the other in a way to realize a continuous grid structure made of modular elements.

[0003] On said structure iron rods for reinforcement, like the electro-welded net or ribbed bars, are positioned and the concrete is poured. In this way it is possible to obtain a monolithic floor, aerated in the lower part and usable, in the aeration space, for the insertion of tubes, ducts, cables and so on.

[0004] Said elements for the realization of elevated or aerated floors have modular dimensions and once installed they occupy, in the two directions, multiples of their modular dimension.

[0005] It often happens that the floor that has to be realized has dimensions that are not exactly modular with respect to elements, that is its length and/or width is not divisible by the module of the modular elements with the consequence that the latter can't completely and exactly cover the surface of the floor, but they leave uncovered one or more stripes with smaller dimensions than the module of the element.

[0006] Connecting or extensions elements for molding that are shaped substantially as an open parallelepiped are known. Said elements have the drawback that it is not possible to walk on it and that they have a series of deep lateral notches for the blocking on the disposable modular formwork that enormously limit their application positions.

[0007] It is known the existence of connecting and plugging elements made of a block full of expanded material, typically expanded polystyrene, having square or rectangular base and lateral walls connected to an upper arc-shaped surface fit for matching with the arc-shaped opening of the modular elements.

[0008] Substantially said connecting and plugging elements are inserted in the lateral arc-shaped openings of the last modular elements in order to complete the floor.

[0009] Preferably said connecting and plugging elements are inserted centrally in the floor, that is the modular elements are positioned starting from the edges of the floor and are connected, as for the fraction of the modular element, generically in the middle of the floor by means of said connecting elements.

[0010] Other known plugging elements, in order to maintain the lightness required by the floor, are usually realized in expanded material, with high encumbrance, cost, and waste of material.

[0011] Said connecting and plugging elements have a smooth upper surface in order to adapt the position of said connecting and plugging elements to the effective distance between the two elements or between one element and the edge. It follows that during the application and predisposition of the lateral formworks, and/or during the pouring of concrete, said connecting and plugging elements can move, thus totally or partially nullifying their function.

SUMMARY OF THE INVENTION

[0012] In order to overcome to the above cited drawbacks a new connecting and plugging element with double utilization, particularly for modular elements for the realization of aerated or elevated floors has been studied and carried out. Aim of the new connecting and plugging element is to close the lateral arc-shaped holes of the modular elements for the realization of aerated or elevated elements by means of a further disposable formwork called connecting or extension element, which is hollow and doesn't move from its position during the equipping of the formwork or during the pouring of the concrete.

[0013] Other not less important aim of the new connecting or extension element is to allow to walk on it safely.

[0014] Other important aim is to be used in both directions, thus involving all the utilization fields and solving all the problems with concrete casting that no other elements actually solve.

[0015] These and other aims, direct and complementary, are achieved by the new connecting and plugging element made of a linear element in thermoplastic material with a generally reverse U shaped vertical section, or anyway with section identical to the shape of the arc-shaped hole of the modular elements and with the connecting and plugging ends closed each by a substantially vertical head or wall.

[0016] The lower edges of the new connecting and plugging element are provided with horizontal plane relieves directed towards the outside so as to make a better bearing base of the new connecting and plugging element.

[0017] In particular said lower edges are larger on three sides, two lateral sides and one head side, they have various holes for the possible fixing by means of nails of the element itself with the lower floor slab and the bearing base of one side is provided with one or more couplers fit for receiving the iron bar constituting the reinforcement of the floor.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0018] The characteristics of the new connecting and plugging element particularly for modular elements for the realization of aerated or elevated floors will be clarified by the following description, referring to the figures attached as a non-limitative example.

[0019] In figure 1 and in figure 2 two axonometric views of the new connecting and plugging element are represented.

[0020] The new connected and plugging element (P) is made of a linear element in thermoplastic material with generically U shaped vertical section or anyway with the section identical to the shape of the arc-shaped hole of the modular elements (M). Substantially the lateral walls (P1) of the new element (P) are generically inclined while its superior surface (P2) is arched, in the same way of the arc-shaped holes of the modular elements (M). The ends of the new element (P), that is the head walls, are closed each by a substantially vertical wall (P3).

[0021] The lower edges (P4) of the new element (P) are horizontally bent towards the outside so as to form a bearing base.

[0022] In particular said lower edges (P4) are present in correspondence to three sides, that is to the two lateral walls (P1) and to the head wall (P3), while it is practically absent in correspondence to the opposite head wall (P3).

[0023] On said lower edges (P4) there are various holes (P4f) in order to allow the fixing of the element (P) itself to the lower floor slab. Moreover, on the lower enlarged edge (P4) of a head wall there are relieves or couplers (P4a) fit for allowing the fixing of the new connecting or extension element (P) to one or more bars of the floor reinforcement (Ar) in order to avoid its sliding toward the inside. On the head walls (P3), on the upper surface (P2) and or on the lateral surfaces (P1) of the new element (P) there are stiffening ribs (Pa) in order to make said element (P) fit for walking on it.

[0024] The new connecting or plugging element (P) constituted as afore described is positioned on the lower floor slab.

[0025] With such a conformation the connecting element (P) can be used in all the situations that normally happen during the realization of concrete casting. Substantially said new element (P) is inserted in the arc-shaped hole of the last modular element (M), in order to reach the actual floor edge.

[0026] Figure 3 shows an example of utilization of the new connecting element (P) with an existing lateral wall. If the edge is, for example, made of a concrete beam or foundation wall it is sufficient to apply in adherence to said beam the new connecting element (P) from the side of the vertical wall without enlarged base (P4). In this way the vertical wall of the connecting element (P) will be adherent to said beam or foundation.

[0027] Figure 4, and in details figure 4a, show an applicative example of utilization of the new element (P) near to the reinforcement (Ar) and for the realization of beams in the thickness of the floor.

[0028] If the edge is made of a beam or reinforced foundation that has not been poured yet, because it is thought to realize a complete concrete casting for edge beam and slab, it is sufficient to apply the new connecting element (P) from the side of the vertical wall with enlarged base provided with couples (P4a) fixed on the bars for the reinforcement (Ar).

[0029] Another solution is that the new connecting and plugging element (P) is positioned for the connection of two spaced modular elements (M), in order to cover the different dimension of the floor with respect to the modular elements (M) along the floor itself.

[0030] According to the above description the new connecting or plugging element (P) can be conveniently used in any situations.

[0031] The new connecting and plugging element (P) allows the realization of aerated or elevated floors for their entire extension.

[0032] The new modular connecting and plugging element (P) doesn't move during the equipping of the formwork or during the pouring of the concrete because the couplers (P4a) prohibit its sliding.

[0033] Figure 5 shows three aligned elements (P), that is three elements (P) positioned with their heads one next to the other and wherein the lower edge of one head is held by the couplers (P4a) of the lower edge of the following element.

[0034] With reference to the above description the following claims are put forth.

Claims

1. Connecting or extension element particularly for modular elements for the realization of aerated and/or elevated floors **characterized in that** it is made of a linear element in thermoplastic material having generically U-shaped vertical section made of two lateral walls (P1) and an upper arched surface (P2), or anyway section identical to the shape of the arc-shaped holes of the modular elements, and wherein both ends of the new element (P) are closed each by a head wall (P3).

2. Element according to claim 1, **characterized in that** one or more lower edges (P4) of the new element (P) are provided with enlarged bearing base.

3. Element according to claim 1, 2, **characterized in that** it has said enlarged base on three sides, two lateral (P1) and a head (P3a), while the base of the other head wall (P3) hasn't any enlargements.

4. Element according to claims 1, 2, 3, **characterized**

in that on said lower edges (P4) there are various holes (P4f) in order to allow the fixing of the element (P) itself to the lower floor slab.

5. Element according to claims 1, 2, 3, 4, **characterized in that** on one or more lower edges (P4) there are relieves or couplers (P4a) fit for allowing the connexion and the fixing of the new connecting and plugging element (P) to the metallic bars (Ar) of the reinforcement of the floor.

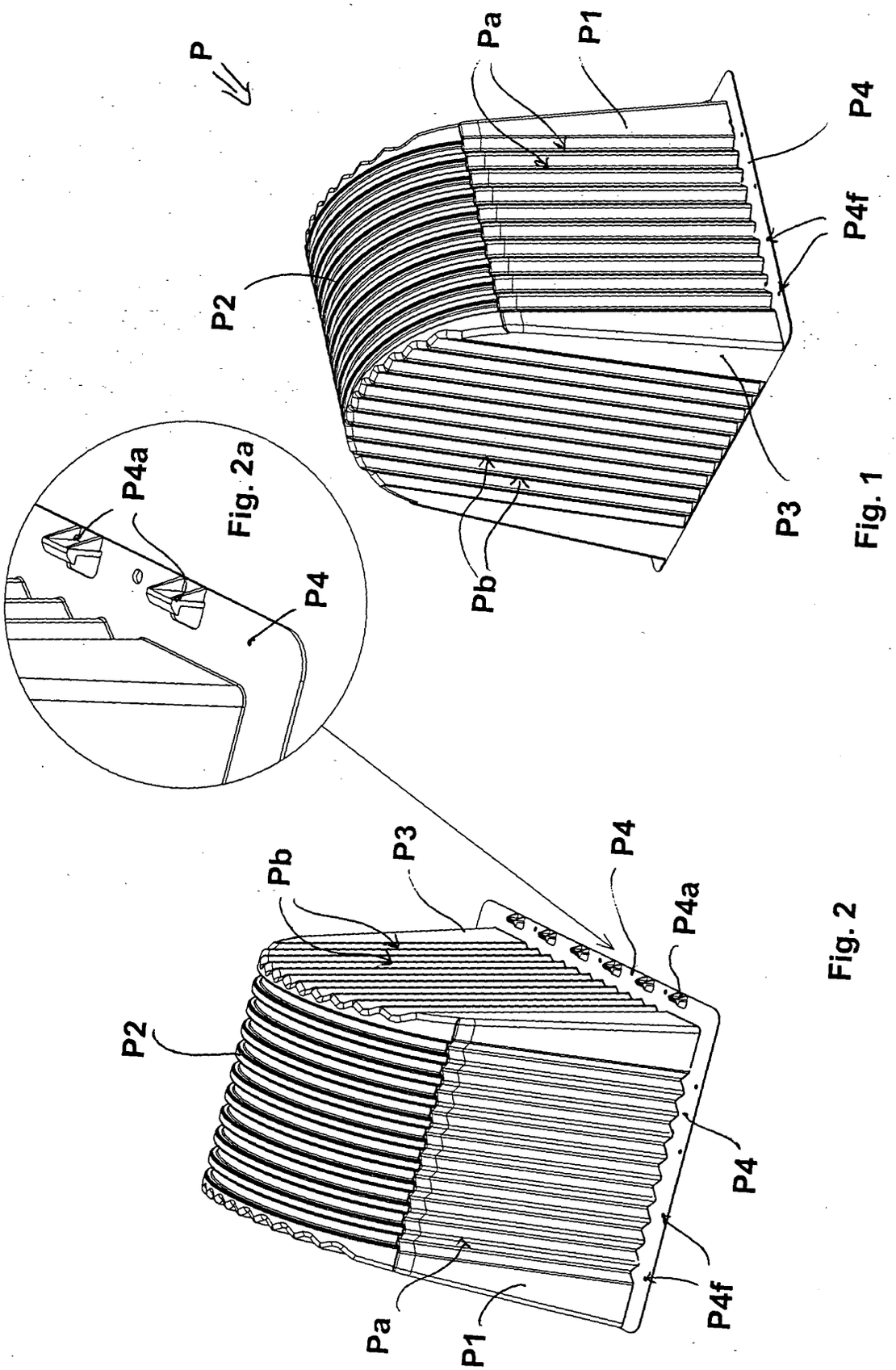

Fig. 1

Fig. 2

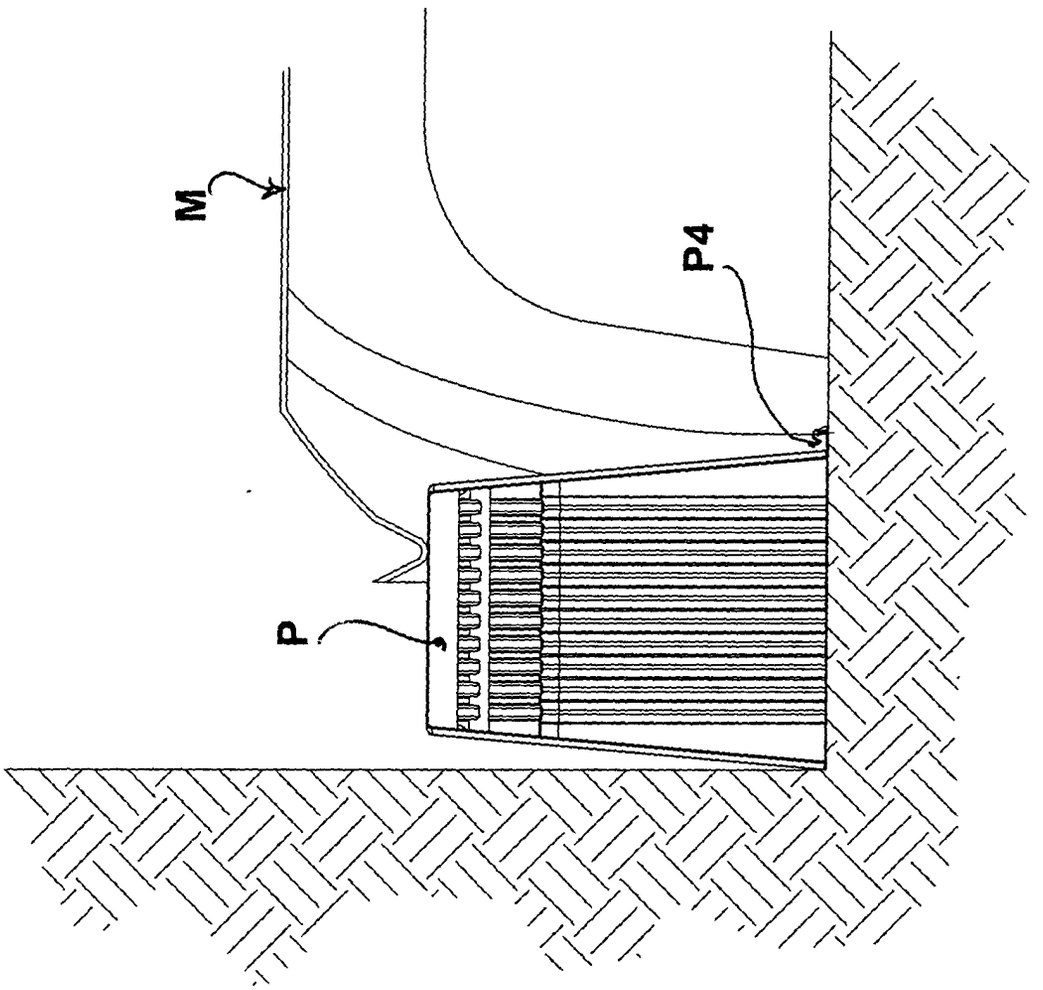

Fig. 3

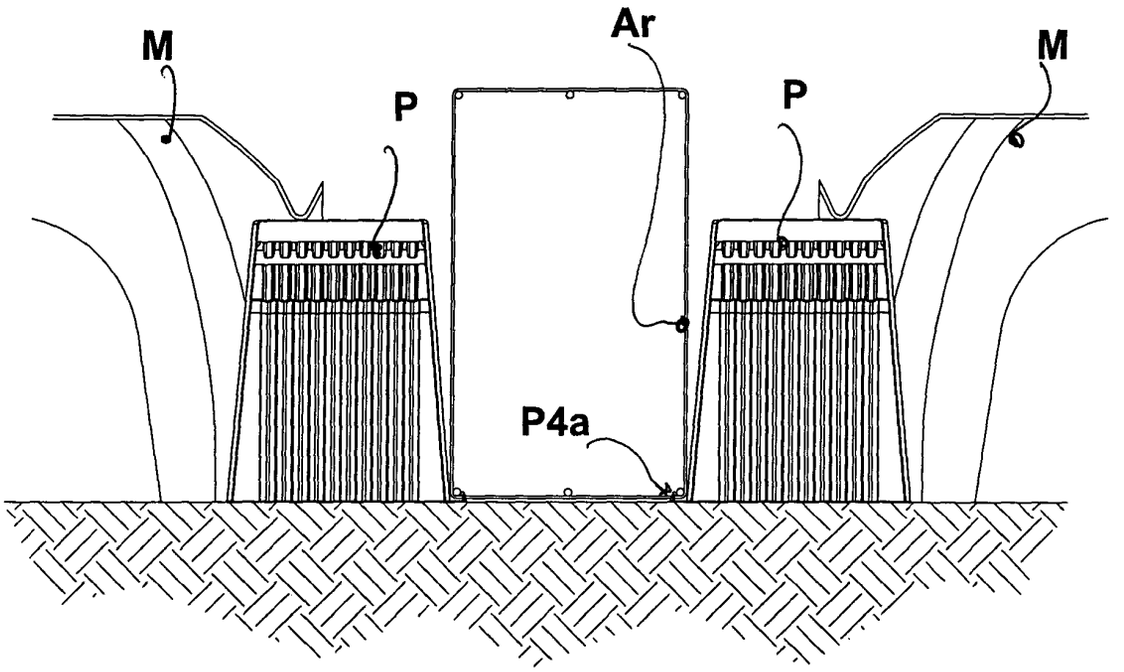

Fig. 4

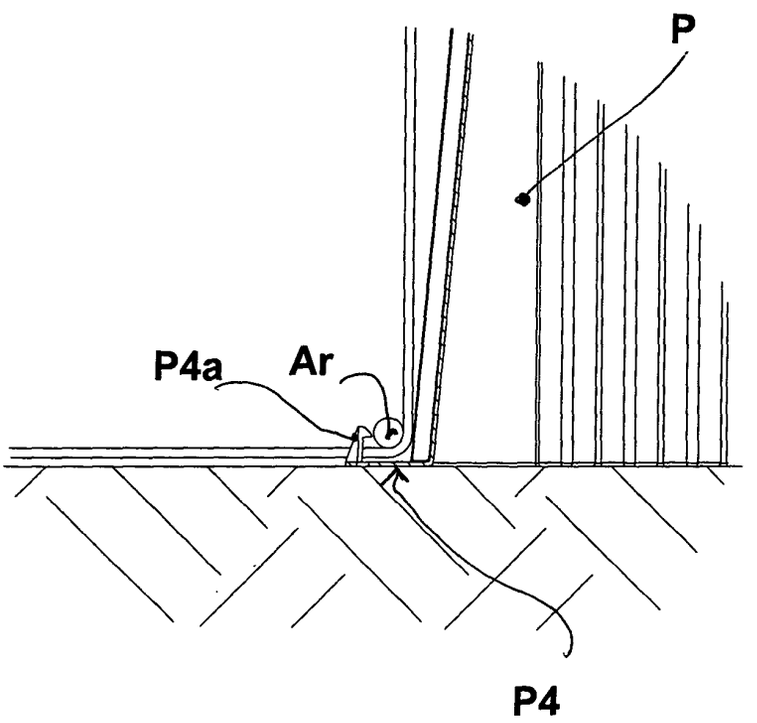

Fig. 4a

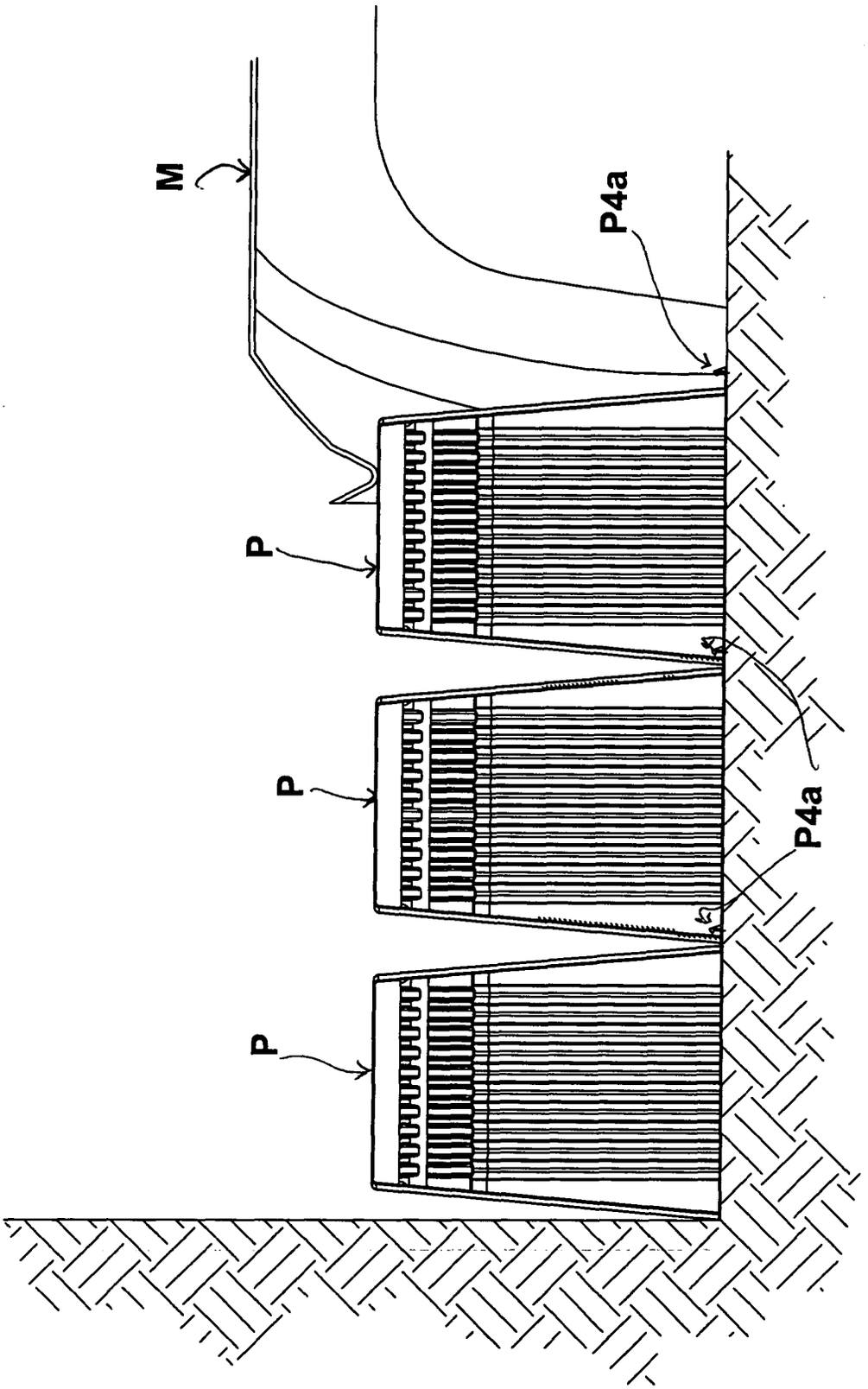

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 04 42 5951

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.7)
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X	EP 1 236 843 A (CRISTALLI, NICOLA) 4 September 2002 (2002-09-04) * column 4, line 5 - column 5, line 36; figures 1-5 *	1-5	
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A	US 5 797 230 A (LASSEN ET AL) 25 August 1998 (1998-08-25) * figures 1,6 *	5	
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

E04F
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 May 2005	Severens, G

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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