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(54) **Partition-panel for interior compartmentation of buildings; procedure and device for its manufacture.**

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(73) Proprietor : **SPAVIK, S.A.**
15, Del Torno
E-22420 Almunia de San Juan (Huesca) (ES)

(72) Inventor : **Marco Gracia, Virgilio**
2, La Balsa
E-22420 Almunia de San Juan (Huesca) (ES)

(74) Representative : **Lehn, Werner, Dipl.-Ing. et al**
Hoffmann, Eitle & Partner Patentanwälte
Arabellastrasse 4 Postfach 81 04 20
W-8000 München 81 (DE)

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Description

This invention relates to a partition-panel constructed from two half-panels and conceived for structuring the interior compartmentation of buildings. It may also be used for backing, as well as suspended or false ceilings. In these latter cases, it is reduced to only one of the two parts.

In the traditional building industry, interior partition walls dividing buildings on the inside and forming the different rooms and passageways are generally made by successively superimposing bricks, more or less light in weight, mainly of the type commonly known as hollow, laid one by one and joined together by a mortar or cement mix. A very slow, laborious procedure is therefore necessary, requiring a certain skill from workers undertaking it so that the partition wall built has the correct qualities as desired. Having built the partition wall, the mortar or binding mix must be allowed to dry and set and further supplementary work must be performed afterwards for final finish, such as making chaces required for embedding electricity, water or any other type of utility conduit and finally, the wall has to be plastered with layers of gypsum plaster on both sides, with which it is finished and ready for subsequent painting or decorating.

This laborious partitioning work involves the use of a large amount of labour and time, with inevitable repercussions as regards high cost of the finished work.

In order to lessen this high cost, there is a need to achieve a partition-panel built with prefabrication techniques, to be delivered on site with the measurements required so that one single panel extends from a room's floor to its ceiling, with both visible sides perfectly finished and ready for painting. It should connect easily and solidly with those adjacent to it, should be made with a sufficiently strong, light building material having suitable heat and sound insulation properties and finally, should be as resistant as its planned use may require. It should have internal ducts avoiding subsequent chace making for embedding electrical conduit, etc.

One possible material that could be used for panels is vibrated lightweight concrete. During vibration operations, apart from the cement and aggregate necessary, the lightweight concrete subjected to this treatment includes the air which the mix has absorbed on its own plus that produced by air entraining agents which must be added when a spongy texture with the threefold purpose of lessening weight, increasing heat/sound insulating properties and increasing its volume is desired.

However, the air tends to rise to the top of the mix, aided to this effect by the actual vibration itself. The result is that whilst the bottom mix surface, in direct contact with the mould's surface, may look quite smooth and flat, the top surface has a rough appearance, with a very large number of tiny holes depending on the distribution of the components, according to weight and grading, and on the air bubbles tending to outcrop on this surface. The top surface of the vibrated panel thus made disqualifies it for use as a partition-panel with a finish on both sides. Additionally, under normal vibration operations, it is not possible to give the panel the internal through ducts required for services.

US-A-38 90 748 describes a structure made of concrete which can be assembled into building modules. After assembling the modules a double structure is produced. Each panel of each module consists of a ribbed slab so that when the modules are assembled together tubular spaces are provided for services. Each slab has a flat side which faces toward the insides of the module and a ribbed side, the ribs being formed between semicircular longitudinal cavities. The slabs are located at 90° to each other by a peg and socket connection system.

US-A-35 03 165 shows a one piece cement panel with longitudinal ducts prefabricated in the panel. One edge of the panel is provided with a trapezoidal fillet whereas the other edge is provided with a similarly shaped recess so that the panels can be joined together, edge to edge.

DE-U-86 25 477 describes a mould for vibration moulding of concrete which consists of a horizontal bottom plate and vertical side plates. Longitudinal beams with an arcuate surface are located above the bottom, with the arcuate surface directed towards the bottom. The device is designed for use on a vibration table.

The object of the present invention is to provide a partition-panel which fulfills the aforesaid requirements and is provided with a secure effective means of connection to a neighbouring structure or additional panel. A further object is to provide a partition panel which is highly fire resistant (up to around 900°) and preferably made in vibrated lightweight concrete which, due to its well known properties, is particularly suited to prefabricated building items.

A still further object of the invention is to provide a complete panel prefabrication system using such ideal material as vibrated, lightweight concrete for making partition-panels and to overcome the difficulty of achieving a panel with internal ducts penetrating right through the whole length.

Yet another object of the present invention is to provide a panel with two basic, visible sides completely finished and ready for simply painting or decorating.

The objects of the invention are solved by a partition-panel for interior compartmentation of buildings, the panel being made of concrete by prefabrication techniques, said panel comprising two contraposed half-panels, each of whose outer side is flat and smooth, the inner side being provided with a succes-

sion of longitudinal channels of arch shaped cross-section, the half-panels being bonded together on their inner sides with cement-adhesive in a face to face relationship such that the channels in each half-panel coincide to form longitudinal through ducts in the finished panel, the spaces separating said ducts forming bonding areas or ribs resulting in a solid, compact partition panel characterized in that,

each half-panel is made of lightweight vibrated concrete having an outer side rendered flat and smooth by its direct contact with the base of a moulding tray 12 and an inner side rendered rough by tiny cavities resulting from the vibration process, each half-panel further comprising a protuberance in the shape of a longitudinal fillet of trapezium shaped cross-section in one of its lateral edges ;

in that each opposite lateral edge comprises a longitudinal recess having the same cross-section as said protuberance and being of a size suitable for enabling adjacent panels to be fitted together by means of a tongue and groove connection ;

and in that each of two outermost ducts 7 located adjacent opposed lateral side edges of the partition-panel 1 are in contact with their respective outside lateral edge via longitudinal slots 8 of rectangular cross-section, said slots 8 running either the whole length of the partition-panel 1 or intermittently at regular interval therealong.

The objects of the present invention are also solved by a method for manufacturing a half-panel of a partition panel for interior compartmentation of buildings comprising the steps of :

mixing a lightweight concrete mixture for about 1 1/2 minutes in a cement mixer until the mixture has a hard, plastic, even appearance ;

pouring said concrete mixture into a basic vibration mould through an upper supplementary mould used for shaping the longitudinal channels ans slots of the half-panel ; and carrying out a vibration process while the upper supplementary mould is in place, said process being carried out in accordance with strength-frequency-time magnitudes whose combination depends on the size of the half-panel, said process being continued until air bubbles in the cement mixture have risen from the bottom of the basic mould by 1 mm without resulting in total compaction, thus creating a homogeneous concrete portion and a bubble mix portion.

The objects of the invention are also solved by a device according to claim 5 for the manufacture of the half-panel.

It can be seen from the foregoing that after vibrating and setting, each half panel displays one flat, smooth face and a rear surface provided with a succession of longitudinal channels, arch shaped in cross section. On joining two of these half panels together back to back, their respective channels fully coincide, forming a succession of holes running through the partition-panels's whole length. These channels are separated by what become the bonding ribs or areas whereby the two component parts will be bonded together into a solid, compact partition-panel.

In order for all the foregoing to be more readily understood, the attached drawings show a practical way of implementing the invention.

Figure 1 shows a perspective view from one end of a partially cut away panel where its structuring can be clearly seen, as well as part of a like panel attached to its side enabling the tongue and groove joint and assembly method between them both to be seen in details.

Figure 2 shows a partial cross sectional view of a tray mould for obtaining a half-panel where the special structuring of its side frames can be seen together with that of the grill framework resting on and fitting into them, which forms the rearside channels in each half-plate.

Finally, Figure 3 shows the device for making and vibrating the basic half-panels to be used in forming the partition-panel in question, both schematically and in partial perspective.

According to an embodiment of the invention, the partition-panel is formed by contraposing two half panels vibrated separately, checking they coincide when brought together and joining them correctly with cement-adhesive on the rough sides resulting from the vibration operations. In this way, they will bond together after the cement-adhesive's setting and a partition-panel will be obtained which, furthermore, demonstrates the advantage of maintaining the typical rigidity of items bonded together, absorbing any possible deformation between them.

So as to provide the partition-panels in question with secure, effective means of connection to their neighbouring panels, one of their side edges where connection is to be made has a salient in the form of a fillet and the opposite one has a slot or recess. These protuberances and recesses are trapezium shaped in cross section and are suitably sized for the salient fillets of one to penetrate the recesses of the next one, forming a groove and tongue joint. This joint is improved and strengthened by the longitudinal outer channels of the panels connecting with the outside via respective slots, also longitudinal but rectangular in cross section, located in the actual edges themselves of the panel. The slots in each panel facing those in the neighbouring one define a space connecting the aforementioned outer channels of both panels, enabling the ducts and communicating slot to be filled in with a cement, plaster or similar mix which, on setting, becomes a solid panel binder.

From Figure 1 it can be seen that the partition-panel 1 is formed by joining the half-panels 2 and 3, along the ribs or bonding areas 4 which determine the compaction of the unit. Each half-panel has a succes-

sion of channels 5 along its inside which, when placed opposite each other, form a succession of longitudinal through ducts 6 of which the outer ones 7 are in contact with the outside edge of the panel through the channels or recesses 8 provided to facilitate bonding between panels by means of a fill mix or mortar 9 occupying the slots 8 and the longitudinal outer through ducts 7 in each half-panel.

This figure likewise shows the longitudinal recesses 10 and protuberances 11 with trapezium shaped cross sections on both side edges of each half-panel. These form the tongue and groove type assembly between two adjacent panels.

The device for performing the manufacturing process basically comprises an absolutely smooth bottomed, tray type mould, preferably made in formica with a bottom stiffening structure and with their respective perimeter enclosing frames. One of the latter's sides facing the lateral edges of the panel has a longitudinally protruding fillet with a trapezium shaped cross section and the other side will have a longitudinal recess with the same cross section. The dimensions involved will be as required to form the aforementioned collateral tongue and groove elements between the different panels.

In order to provide the partition-panel unit with internal, through ducts along its whole length, a framework-grill is laid on the mould's bottom during each half panel's vibrating operations. Such grill is formed by a succession of long, narrow, half round members or parallel bars, with the curved surface immersed in the mix to be vibrated, thus making a corresponding succession of channels with an arch shaped cross section in the half-panel which run the whole length of the latter. The half round bars of this framework are connected and assembled together to form the grill, by using a suitable number of flat cross strips. These strips are bent over at right angles at their ends which fit and adjust to the mould sides.

In order to obtain the rectangular slots in each panel's edge, the two outer bars of the framework which shape the longitudinal channels in the partition-panel have side protuberances, integral therewith, in the form of fillets, also longitudinal, flush with the flat side and with the same rectangular cross section, pointing toward the mould's sides.

As an alternative, the device according to the invention provides for a type of manufacture wherein the rectangular slots located in the partition-panel's edges are not completely continuous lengthwise, but occur only between regularly spaced lengths, to which effect the framework-grill's outer bars will also have rectangular protuberances spaced alternately and regularly thus forming such slots.

Likewise, an alternative can be provided whereby the longitudinal ducts running the inside length of the partition-panel do not reach the end thereof, but are slightly shorter than the panel and centered therein, in which case, on not emerging on its end edges, the panel displays a smooth surface, thus facilitating and improving end-to-end connection between each two panels when necessary. In this case, the length of the framework bars shaping the said ducts will have to be shortened.

Figure 2 shows the setting mould where the basic, flat, totally smooth tray 12 which will preform the visible face of the half-panel can be seen, as well as the special arrangement of the sides 13 where a protruding fillet 14 with trapezium shaped cross section can be seen on one side and a longitudinal recess 14' with the same cross section on the other. These form the tongue and groove elements for joing panels. Here we can also see the special arrangement of the framework 15 made up of a series of half round bars, connected and held together by cross strips 16 which are bent over at their ends forming a square 17 for securing the framework 15 onto the mould's sides 13.

Prolongations in the fashion of fillets 18 with a rectangular cross section can also be seen in this figure. These can be continuous, as seen in the drawing, or be intermittent stretches which, issuing from the lateral bars of the framework 15 and making a single body therewith, form the channels or slots 8 in the lateral edges of the partition-panels.

Finally, Figure 3 shows the panel-making device in a highly schematic way in partial perspective. Mounted on a vibrating table 19 fitted with a vibrator 20 suitably located in an appropriate position, the device transmits vibrations to the tray mould 12 fitted with a bottom stiffening structure 21 where the tongue and groove fillet 14 can be seen on one of its sides 13. The positioning of the framework 15 which forms the channels made in the rear of the half-panels can just be made out too. Naturally, the table 19 has conventional means of articulation facilitating the formwork's striking and removal of the panel from the mould.

The moulding process is as follows :

The partition-panel consists of two parts bonded together. Therefore, moulding is carried out separately for each half panel. In this process, what is to be the visible face of the half-panel is formed on the smooth bottom of the mould.

Prior to concrete pouring, the tray moulds are set up in a suitable manner on a conventional vibrating table which transmits the vibrations for a suitable time. The bar framework constituting the mould accessory for making the channels required in the top face of the half-panel being formed is fitted beforehand to the sides of the aforesaid tray. This framework is secured onto the sides by means of the bent over square ends of the cross strips embracing it. This channel shaping framework is removed at the end of the vibrating process when the channels are sufficiently well formed and before the panel's final setting, noticeably facilitating this setting.

The mix can be poured onto the tray mould before

placing the channel forming framework or the latter can be positioned on the tray and pouring can be made through the spaces existing between the bars, with which the due concrete half-panel thickening finish is facilitated.

The mix is poured into the mould and is spread throughout it. Vibration then begins and lasts for a time which depends on the strength, frequency of vibration and amount of mix. As a guiding example, 125 kg, centrifugal force low frequency vibrating could be used for a 2.60 × 0.60 × 0.04 half-panel, with a vibration time of some 70 seconds. So vibration may be performed by an easy combination of the strength-frequency-time magnitudes. This operation must be carried out in order to achieve not the total concrete compaction by extracting all the air bubbles possible, but simply for the latter to rise sufficiently from the bottom of the mould, i.e. from what is established preferably as an average 1 millimetre from the said bottom surface which will become the outside face. With this treatment, all the air bubbles carried by the concrete mix itself and those we added via the entraining agent create a homogeneous mix of concrete and bubbles higher up, but with a completely smooth visible face, free of bubbles on the surface in contact with the mould's bottom.

Any kind of suitable, lightweight concrete can be used for making the panels. The white cement, type is preferable, since the panel turns out white in colour, plus, because of its good properties, a perlite aggregate to which an air entraining agent will be added to provide internal air bubbles to the effects of lessening weight and increasing insulation properties. Fibre glass or plastic reinforcement may also be added to give the panel greater bending strength in certain cases. Likewise, apart from water, which is always indispensable to concrete making, other types of chemical admixtures can be used in the mix, with different objectives that may be required like, for example, water repellent admixtures, since normal air entraining agents have a physical-mechancial action independent of the chemical reaction.

The proportion of each lightweight concrete component will depend on the characteristics of strength, weight, insulation, etc. required to be given to the partition-panel. As an example, and with no limitation as to scope, hereafter a typical compound made of lightweight concrete containing perlite is described.

To make 1/10 m. of concrete, a mix is made using 40 kgs. of cement (white or normal), 140 litres of perlite (mixing grain sizes), 1/8 litre air entraining agent (amount according to type of concrete), 38 litres of water (according to consistency), 5 grammes of fibre (according to bending stresses).

A normal process will be used, first pouring the water into a cement mixer, then the air entraining agent and cement, following with the perlite aggregate little by little. The mix is made for about 1-1 1/2 (one and a half) minutes until a hard plastic appearance is obtained. The result is then poured quickly into the mould to prevent possible segregation.

Claims

1. A partition-panel (1) for interior compartmentation of buildings, the panel being made of concrete by prefabrication techniques, said panel comprising two contraposed half-panels (2, 3), each of whose outer side is flat and smooth, the inner side being provided with a succession of longitudinal channels (5) of arch shaped cross-section, the half-panels being bonded together on their inner sides with cement-adhesive in a face to face relationship such that the channels (5) in each half-panel (2, 3) coincide to form longitudinal through ducts (6) in the finished panel (1), the spaces separating said ducts forming bonding areas or ribs resulting in a solid, compact partition panel (1) characterized in that,

each half-panel (2, 3) is made of lightweight vibrated concrete having an outer side rendered flat and smooth by its direct contact with the base of a moulding tray (12) and an inner side rendered rough by tiny cavities resulting from the vibration process, each half-panel (2, 3) further comprising a protuberance (11) in the shape of a longitudinal fillet of trapezium shaped cross-section in one of its lateral edges ;

in that each opposite lateral edge comprises a longitudinal recess (10) having the same cross-section as said protuberance (11) and being of a size suitable for enabling adjacent panels to be fitted together by means of a tongue and groove connection ;

and in that each of two outermost ducts (7) located adjacent opposed lateral side edges of the partition-panel (1) are in contact with their respective outside lateral edge via longitudinal slots (8) of rectangular cross-section, said slots (8) running either the whole length of the partition-panel (1) or intermittently at, regular interval therealong.

2. Partition-panel, according to claim 1, characterized by the succession of longitudinal ducts (6) formed inside thereof being shorter than the partition panel (1) so that the end edge surfaces of the partition-panel (1) are flat and smooth.

3. Method for manufacturing a half-panel of a partition panel for interior compartmentation of buildings according to any one of the previous claims, comprising the steps of :

mixing a lightweight concrete mixture for about 1 1/2 minutes in a cement mixer until the mixture has a hard, plastic, even appearance ;

pouring said concrete mixture into a basic vibration mould through an upper supplementary mould used for shaping the longitudinal channels (5, 7) and slots (8) of the half-panel ; and carrying

out a vibration process while the upper supplementary mould is in place, said process being carried out in accordance with strength-frequency-time magnitudes whose combination depends on the size of the half-panel, said process being continued until air bubbles in the cement mixture have risen from the bottom of the basic mould by 1 mm without resulting in total compaction, thus creating a homogeneous concrete portion and a bubble mix portion.

4. Method according to claim 3, characterized in that said concrete mixture includes white cement, an aggregate of perlite, a relative air entraining agent and fibre glass or plastic.

5. Device for the manufacture of a half-panel according to claim 3 or 4 for use with a conventional concrete vibration table, including a base plate (12) and side walls (13) located perpendicular thereto, characterized in that said base plate is a totally flat, smooth plate (12) supported by a bottom strengthening frame (21), one said side wall (13) having a longitudinal protuberance (14) in the form of a fillet with a trapezoidal cross-section facing the centre line of the device and the opposed side wall (13) having a longitudinal recess or slot (14') with a corresponding trapezoidal cross-section so that adjacent half-panels may be joined by means of the longitudinal protuberance (14) of one half-panel (2, 3) fitted into the longitudinal recess or slot (14') of the adjacent half-panel (2, 3); the device further comprising a grill-framework (15, 16) formed of a succession of parallel, long, narrow longitudinal members having the form of half-round bars (15), whereby the curved surfaces of the half-round bars (15) face towards the base plate (12), said half-round bars (15) being joined do form said grill-framework (15, 16) by a plurality of spaced, flat cross strips (16) which are secured to the flat surfaces of said half-round bars (15), said flat strips (16) having right angle bends at the ends which form square end portions (17) thereof which are fitted and secured to the side walls (13) the two outermost half-round bars (15) of said grill framework (15, 16) having integrally formed, longitudinal protuberances (18) and, said protuberances (18) having a rectangular cross-section which protudes laterally from said two half-round bars (15), are flush with the flat surface thereof but not as deep as these and are directed towards the side walls (13) of the device.

6. Device according to claim 5, characterized in that said laterally protruding rectangular protuberances (18) on the two outermost half-round bars (15) of the grill framework (16) are sent along the whole length or in regularly spaced alternating sections thereof.

7. Device according to any of claims 5 or 6, characterized in that the half-round bars (15) are shorter than the base plate (12).

8. Device according to any of the claims 5 to 7, characterized in that the base plate (12) is made of formica.

Ansprüche

1. Trennwandplatte (1) für die Innenaufteilung von Gebäuden, bei der die Platte in Vorfertigungstechnik aus Beton hergestellt ist, wobei die Platte zwei entgegengesetzte Halbplatten (2, 3) enthält, deren jede Außenseite flach und glatt ist, während die Innenseite mit einer Folge von Längskanälen (5) mit einem bogenförmigen Querschnitt versehen ist, und die Halbplatten miteinander auf ihren inneren Seiten mit einem Betonbindemittel Stirnseite an Stirnseite derart zusammengeklebt sind, daß die Kanäle (5) in jeder Halbplatte (2, 3) zusammenkommen, um Längsdurchgänge (6) in der fertigen Platte (1) zu bilden, und die die Durchgänge trennenden Räume Haftflächen oder Rippen bilden, um eine massive kompakte Trennwandplatte (1) zu ergeben, dadurch **gekennzeichnet,**

daß jede Halbplatte (2, 3) aus gerütteltem Leichtbeton mit einer Außenseite, die durch ihren direkten Kontakt mit dem Boden einer Gußform (12) flach und glatt gemacht ist, und mit einer Innenseite, die durch winzige von dem Rüttelvorgang resultierende Hohlräume raut gemacht ist, hergestellt ist, wobei jede Halbplatte (2, 3) weiter einen Vorsprung (11) in der Form eines Längssteges mit trapezförmigem Querschnitt in einer ihrer Seitenkanten enthält;

daß jede entgegengesetzte Seitenkante eine Längsausnehmung (10) mit dem gleichen Querschnitt wie der Vorsprung (11) enthält, die eine geeignete Größe aufweist, um benachbarte Platten miteinander mittels einer Nut- und Federverbindung zusammenzufügen;

und daß jeder von zwei äußersten benachbart an entgegengesetzten Seitenkanten der Trennwandplatte (1) befindlichen Durchgängen (7) über Längsschlitze (8) rechteckigen Querschnitts in Kontakt mit der entsprechenden äußeren Seitenkante steht, wobei die Schlitze (8) entweder über die gesamte Länge der Trennwandplatte (1) oder intermittierend in regelmäßigen Intervallen entlang dieser verlaufen.

2. Trennwandplatte nach Anspruch 1, dadurch **gekennzeichnet,** daß die Folge von innerhalb dieser gebildeten Längsdurchgängen (6) kürzer als die Trennwandplatte (1) ist, so daß die Endkantenoberfläche der Trennwandplatte (1) flach und glatt sind.

3. Verfahren zur Herstellung einer Halbplatte einer Trennwandplatte für die Innenaufteilung von Gebäuden nach einem der vorhergehenden Ansprüche, enthaltend die Schritte:

Mischen einer Leichtbetonmischung für ungefähr 1 1/2 Minuten in einem Zementmischer, bis die Mischung eine harte, plastische, ebene Erscheinung hat;

Gießen der Betonmischung in eine Grundrüttelform durch eine obere, zum Gestalten der Längskanäle (5, 7) und Schlitze (8) der Halbplatte dienende Hilfsform ; und Durchführen eines Rüttelvorgangs, während die obere Hilfsform in Stellung ist, wobei der Vorgang entsprechend Stärke-Frequenz-Zeitgrößen durchgeführt wird, deren Kombination abhängig von der Größe der Halbplatte ist, und der Vorgang fortgeführt wird, bis Luftbläschen in der Zementmischung von dem Boden der Grundform um 1 mm gestiegen sind, ohne daß eine Gesamtverdichtung auftritt, um dadurch einen homogenen Betonteil und einen Bläschenmischteil zu erzeugen.

4. Verfahren nach Anspruch 3, dadurch **gekennzeichnet**, daß die Betonmischung Weißzement, ein Aggregat von Perlit, ein relative-Luft-mitreißendes Agens und Glasfaser oder Kunststoff enthält.

5. Vorrichtung für die Herstellung einer Halbplatte nach Anspruch 3 oder 4, zur Verwendung mit einem konventionellen Betonrütteltisch mit einer Grundplatte (12) und sich senkrecht zu dieser befindlichen Seitenwänden (13), dadurch **gekennzeichnet**, daß die Grundplatte eine vollständig flache glatte, durch einen bodenverstärkenden Rahmen (21) getragene Platte (12) ist, wobei eine der Seitenwände (13) einen Längsvorsprung (14) in der Form eines Steges mit Trapezquerschnitt aufweist, der auf die Mittellinie der Vorrichtung gerichtet ist, und die entgegengesetzte Seitenwand (13) eine Längsausnehmung oder einen Schlitz (14') mit einem entsprechenden Trapezquerschnitt aufweist, so daß benachbarte Halbplatten mittels des in die Längsausnehmung oder den Schlitz (14') der benachbarten Halbplatte (2, 3) eingepaßten Vorsprung (14) einer Halbplatte (2, 3) verbunden werden können, wobei die Vorrichtung weiter folgendes enthält : einen Gitterrost (15, 16), der aus einer Reihenfolge von parallelen, langen, schmalen Längsgliedern in der Form von halbrunden Stäben (15) gebildet ist, seren gekrümmte Oberflächen in Richtung auf die Grundplatte (12) gerichtet sind, wobei die halbrunden Stäbe (15) verbunden sind, um den Gitterrost (15, 16) durch eine Vielzahl von mit Abstand angeordneten flachen Querlatten (16) zu bilden, die an den flachen Oberflächen der halbrunden Stäbe (15) befestigt sind, und die flachen Latten quadratische Endteile (17) von diesen bildende Kröpfungen an den Enden aufweisen, die an den Seitenwänden (13) eingepaßt und befestigt sind, und die zwei äußersten halbrunden Stäbe (15) des Gitterrosts (15, 16) einstückig gebildete Längsvorsprünge (18) aufweisen und die Vorsprünge (18), die einen rechteckigen Querschnitt aufweisen, der seitlich von den zwei halbrunden Stäben (15) herausragt, mit deren flachen Oberfläche, aber nicht so tief wie diese, fluchtend und in Richtung auf die Seitenwände (13) der Vorrichtung gerichtet sind.

6. Vorrichtung nach Anspruch 5, dadurch **gekennzeichnet**, daß die seitlich vorstehenden rechteckigen Vorsprünge (18) auf den zwei äußersten halbrunden Stäben (15) des Gitterrosts (16) sich entlang der gesamten Länge oder in mit regelmäßigem Abstand angeordneten abwechselnden Abschnitten dieser verlaufen.

7. Vorrichtung nach einem der Ansprüche 5 oder 6, dadurch **gekennzeichnet**, daß die halbrunden Stäbe (15) kürzer als die Grundplatte (12) sind.

8. Vorrichtung nach einem der Ansprüche 5 bis 7, dadurch **gekennzeichnet**, daß die Grundplatte (12) aus Resopal hergestellt ist.

Revendications

1. Panneau de cloison (1) pour le compartimentage intérieur de bâtiments, le panneau étant constitué de béton par des techniques de préfabrication, ledit panneau comprenant deux demi-panneaux placés dans des sens opposés (2, 3), dont le côté extérieur de chacun est plat et régulier, le côté intérieur comportant une suite de canaux longitudinaux (5) ayant une section transversale en forme d'arche, les demi-panneaux étant liés ensemble sur leurs côtés intérieurs avec un adhésif en ciment dans une relation face à face de façon que les canaux (5) de chaque demi-panneau (2, 3) coïncident pour former des conduits traversants longitudinaux (6) dans le panneau fini (1), les espaces séparant lesdits conduits formant des zones de liage ou nervures qui se traduisent par un panneau de cloison (1), solide, compact, caractérisé en ce que :

– chaque demi-panneau (2, 3) est constitué de béton vibré léger ayant un côté extérieur rendu plat et lisse par son contact direct avec la base d'un plateau de moulage (12) et un côté intérieur rendu rugueux par de minuscules cavités dues au procédé de vibrage, chaque demi-panneau (2, 3) comprenant en outre une protubérance (11) sous forme d'un collet longitudinal ayant une section transversale en trapèze dans l'un de ses côtés latéraux ;

– en ce que chaque bord latéral opposé comprend un évidement longitudinal (10) ayant la même section transversale que ladite protubérance (11) et ayant une dimension permettant de monter ensemble des panneaux adjacents au moyen d'une connexion par languette et rainure ;

– et en ce que chacun des conduits les plus à l'extérieur (7), situés à un endroit contigu aux bords latéraux opposés du panneau de cloison (1), est en contact avec son bord latéral extérieur respectif via des fentes longitudinales (8) de section transversale rectangulaire, lesdites fentes (8) courant soit sur toute la longueur du panneau de cloison (1) soit par intermittence à des intervalles réguliers de celles-ci.

2. Panneau de cloison, selon la revendication 1, caractérisé en ce que la succession de conduits lon-

gitudinaux (6) formés intérieurement est plus courte que le panneau de cloison (1) de sorte que les surfaces des bords d'extrémité du panneau de cloison (1) sont plates et lisses.

3. Procédé de fabrication d'un demi-panneau pour panneau de cloison destiné à un compartimentage intérieur des bâtiments selon l'une quelconque des revendications précédentes, comprenant les étapes consistant à :

– mélanger un mélange de béton léger pendant environ 1 1/2 minute dans un malaxeur de ciment jusqu'à ce que le mélange ait un aspect dur, plastique, régulier ;

– verser le mélange de béton dans un moule de vibrage de base par l'intermédiaire d'un moule supérieur supplémentaire utilisé pour le façonnage de canaux longitudinaux (5, 7) et de fentes (8) du demi-panneau ; et

– exécuter un processus de vibrage alors que le moule supérieur supplémentaire est en place, ledit processus étant exécuté en conformité avec les valeurs de la force, de la fréquence, du temps, dont la combinaison dépend des dimensions du demi-panneau, le processus étant poursuivi jusqu'à ce que des bulles d'air dans le mélange de ciment se soient élevées à partir du fond du moule de base d'une distance de 1 millimètre sans que cela se traduise par un compactage total, créant ainsi une partie homogène en béton et une partie comportant un mélange avec des bulles.

4. Procédé selon la revendication 3, caractérisé en ce que le mélange de béton comprend du ciment blanc, un agrégat de perlite, un agent d'entraînement relatif de l'air et des fibres de verre ou du plastique.

5. Dispositif pour la fabrication d'un demi-panneau selon la revendication 3 ou 4 pour emploi avec une table classique de vibrage du béton, comportant une plaque de base (12) et des parois latérales (13) placées perpendiculairement à la plaque, caractérisé en ce que ladite plaque de base est une plaque (12) lisse, complètement plane, supportée par un châssis (21) de renforcement du fond, l'une desdites parois latérales (13) ayant une protubérance longitudinale (14) sous forme d'un collet ayant une section transversale trapézoïdale en regard de l'axe du dispositif, et la paroi latérale opposée (13) ayant un évidement longitudinal ou fente (14') avec une section transversale trapézoïdale correspondante, de sorte que des demi-panneaux adjacents peuvent être réunis au moyen de la protubérance longitudinale (14) d'un demi-panneau (2, 3) montée dans l'évidement longitudinal ou fente (14') du demi-panneau adjacent (2, 3) ; le dispositif comprenant en outre une ossature en grille (15, 16) constituée d'une suite d'éléments longitudinaux étroits, longs, parallèles ayant la forme de barres semi-rondes (15), d'où il résulte que les surfaces incurvées des barres semi-rondes sont en regard de la plaque de base (12), lesdites barres semi-rondes (15) étant réunies pour former ladite ossature en grille (15, 5) par une multitude de bandes transversales, plates, espacées (16) qui sont fixées aux surfaces plates desdites barres semi-rondes (15), lesdites bandes plates (16) ayant des cambrures à angle droit aux extrémités qui forment des parties d'extrémité carrées (17) pour elles, qui sont montées et fixées aux parois latérales (13), les deux barres semi-rondes (15) les plus à l'extérieur de ladite ossature en grille (15, 16) ayant des protubérances longitudinales (18), formées en une pièce, et lesdites protubérances (18) présentant une section transversale rectangulaire qui est latéralement en saillie sur lesdites deux barres semi-rondes (15), sont au ras de la surface plate mais non aussi profondes que celles-ci et sont dirigées vers les parois latérales (13) du dispositif.

6. Dispositif selon la revendication 5, caractérisé en ce que lesdites protubérances rectangulaires latéralement en saillie (18) sur les deux barres semi-rondes (15) les plus à l'extérieur de l'ossature en grille (16) courent sur toute la longueur ou dans des sections de celle-ci alternant en étant espacées régulièrement les unes des autres.

7. Dispositif selon l'une quelconque des revendications 5 ou 6, caractérisé en ce que les barres semi-rondes (15) sont plus courtes que la plaque de base (12).

8. Dispositif selon l'une quelconque des revendications 5 à 7, caractérisé en ce que la plaque de base (12) est en formica.

Fig. 1

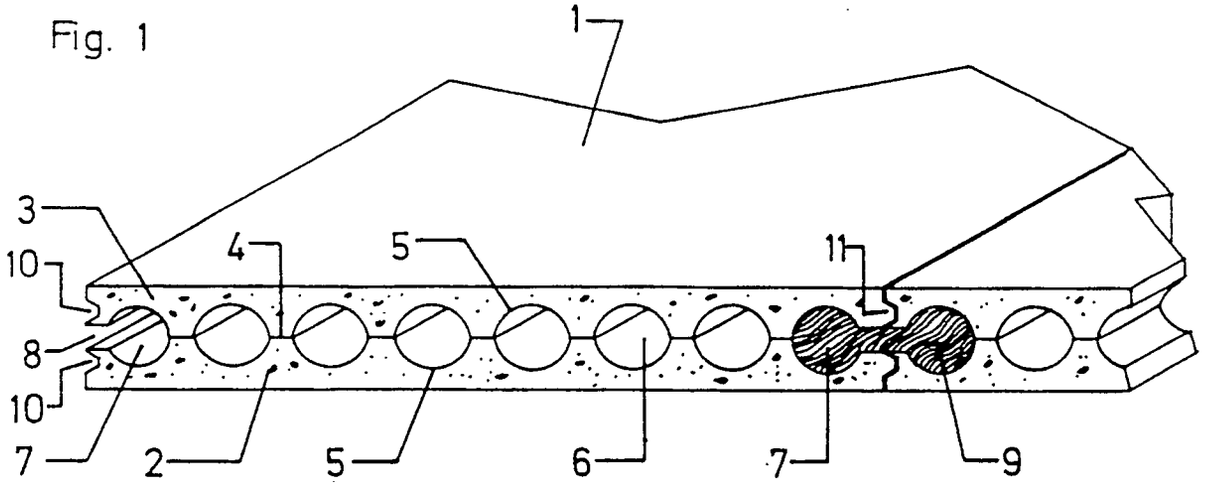

Fig. 2

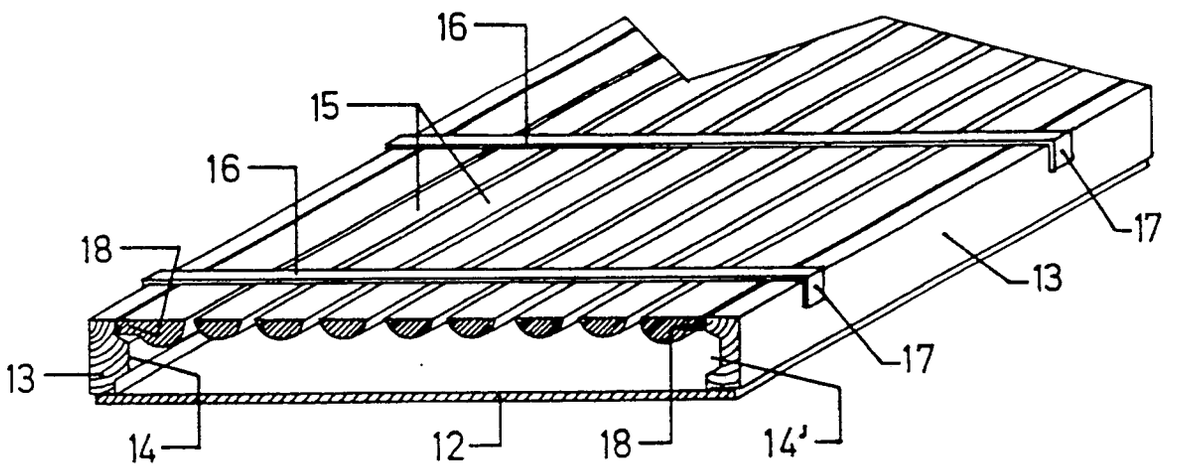

Fig. 3