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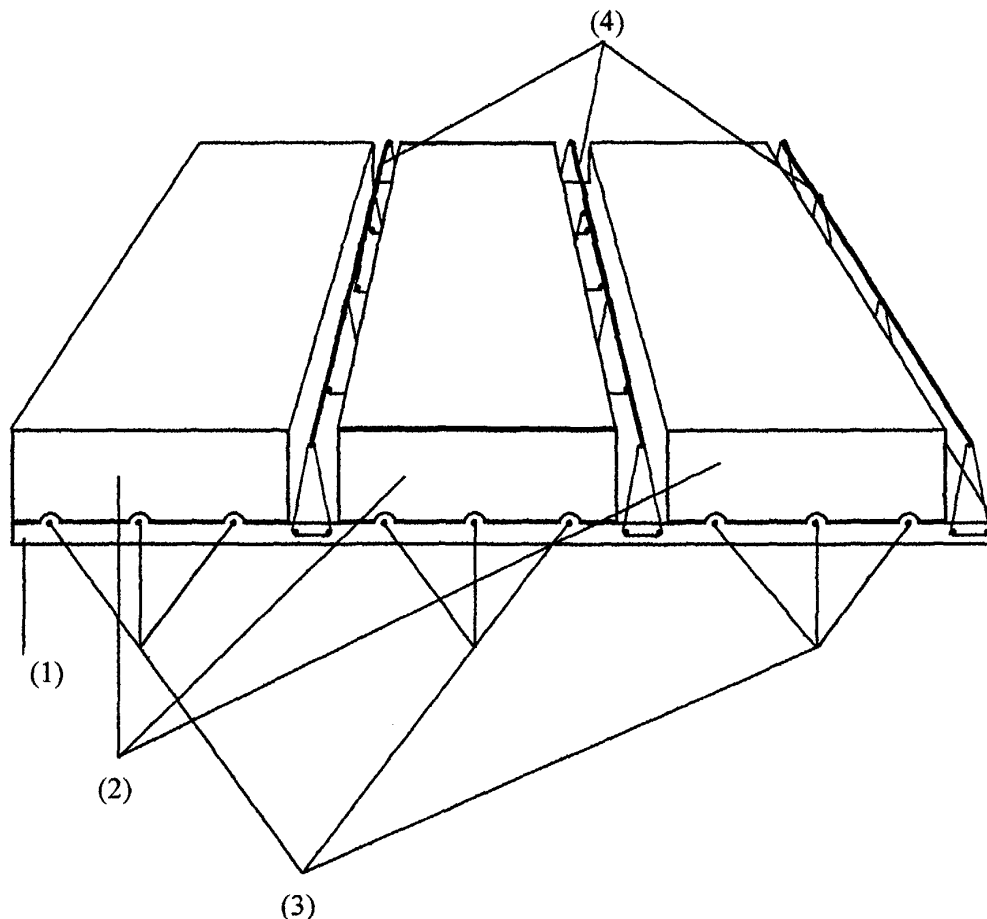
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(54) **Light and insulating form-slabs for floors**

(57) Light and insulating small vault built in expanded polystyrene (2) and reinforced concrete (1) with irons (3) of different widths and lengths which include the irons (4) that constitute the small girders, incorporated

this way to the small vault, which is provided with a great lightness, high thermal and acoustic insulation, and is capable of offering a good adherence for the following whitewashing operation or completion.

FIGURE 2



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Description

[0001] This invention refers to a light and insulating small vault used in the construction industry, made up of a body of expanded polystyrene, concrete and iron, thanks to which important improvements are achieved with regard to the small vaults produced until now, whose improvements affect its construction and increase its strength and the chances for using it.

ANTECEDENTS OF THE INVENTION

[0002] The traditional small vaults made up of vibrated concrete or clay, whose function is to fill the space between one small girder and the other for being able later to extend a layer of concrete over the whole structure with the intention of making the roof or the support are well known. The problems regarding the small vaults made of vibrated concrete are originated mainly because of its own weight which affects, firstly, its construction, which is very slow and tiring and, secondly, they confer a great weight to the whole roof with the consequent necessity of strengthening the structure of the building with numerous concrete pillars for supporting that weight. The problems regarding the small vaults made of clay are caused because of its fragility, given that at the moment of its construction, the workers have to walk on top of the vault that they are building and, when a small vault breaks, they may fall causing severe accidents in the workplace. To avoid these problems, the holder of this invention built a new structure whose fundamental characteristics are the object of this invention.

DESCRIPTION OF THE INVENTION

[0003] The small vault is composed of various polystyrene bodies whose section has a rectangular shape. Its thickness may be different depending on the thickness of the roof which is to be built and its width is variable depending on the necessities of each project. The length may change, so it can be adjusted in each case to the lights which must be covered. Along the length of one of the larger sides of this rectangular expanded polystyrene structure, three grooves are located, inside of which three irons of variable section depending of what is needed are found, sticking out at the ends so they can be welded with the rest of the irons of the structure of the building. The irons that constitute the small girder are included among the polystyrene bodies. This way the joints between the small vaults and the small girders are eliminated giving the structure more strength. The polystyrene body and the irons are joined together by a vibrated concrete layer obtaining multiples of small vaults and small girders. Thanks to this process, a prefabricated is obtained for building, with a lightness that allows reducing the compressive weight of the roof in comparison to traditional roofs, with the consequent re-

duction of the adjustment rate of the whole building and the reduction of cracks in roofs and walls. Moreover, the small vault confers an acoustic and thermal insulation, which is characteristic of the polystyrene and a good resistance to breaks, which is conferred by the reinforced concrete and the irons, reducing the chances of accidents in the workplace, something which is also related to its easy construction because it is built in different lengths so it can cover the space between loading walls or between a bearing wall and a bearing girder.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] For a better understanding of what is explained in this report, drawings of the small vaults are attached. In figure number 1 we can see the three materials from which this small vault is built, indicated with (1) the part which is made of concrete, (2) the polystyrene and (3) the irons which are related to the main patent. In figure number 2 we can see how we add the irons which constitute the small girder (4) to the structure in figure number 1, obtaining a structure of small girders and small vaults, with the concrete (1), the polystyrene (2) and the strengthening irons (3).

DESCRIPTION OF THE FAVOURITE CARRYING OUT

[0005] The small vault is made up of a structure of expanded polystyrene (2) of rectangular section, with the characteristic that it has three longitudinal and parallel grooves in one of its four sides. This element is put in moulds, created to be joined to vibrating benches, and the strengthening irons (3) and the irons for the small girders are put in the grooves. Afterwards, the moulds are filled with concrete, vibrating the whole to obtain a solid and compact structure. The materials used in the building of the small vault are independent of the object of the invention: the concrete may be constituted by dry goods of any kind, the number and size of the irons that are used (like for example electrically welded net). Any alterations in shape and size of the elements which make up the invention are independent of the object, as long as it does not concern its essentiality.

Claims

1. Light and insulating small vault of different widths and lengths, with the characteristic that it is composed of a thick layer of polystyrene (2), joined to a lower reinforced concrete layer (1) which includes the irons (4) which constitute the small girders that are incorporated this way to the small vault and strengthened by the irons (3), offering a good adherence for the following whitewashing operation or completion.

FIGURE 1

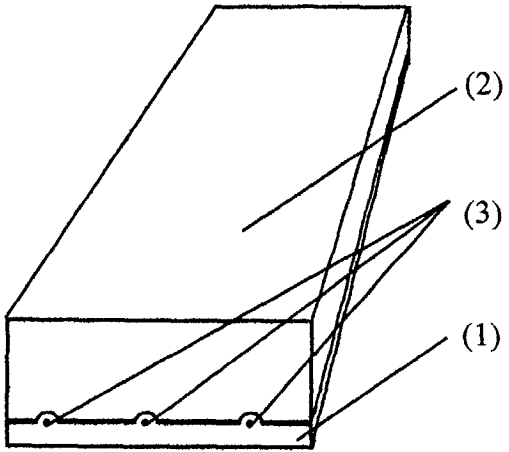
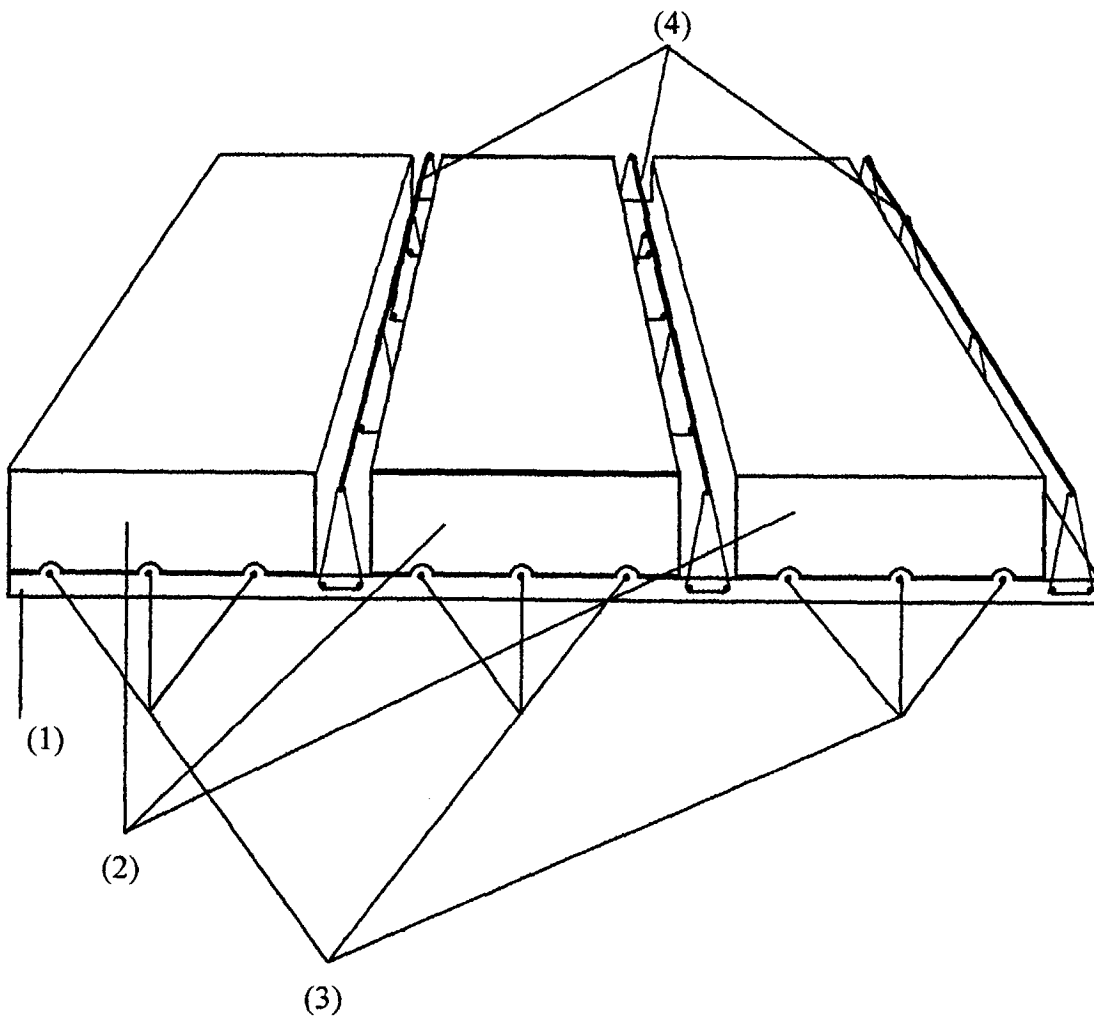


FIGURE 2





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EUROPEAN SEARCH REPORT

Application Number
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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	15 December 2003	Righetti, R	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82