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(71) Applicant: **EUROIMPIANTI S.r.l.**
Via Francesco Crispi, 13
I-14100 Asti(IT)

(72) Inventor: **Poggi,Luigi Andrea**
Via Poggi 10/B
I-37010 Affi(Verona)(IT)
Inventor: **Nosenzo,Giusseppe**
Via Cinzenco Maina 22
I-14100 Asti(IT)

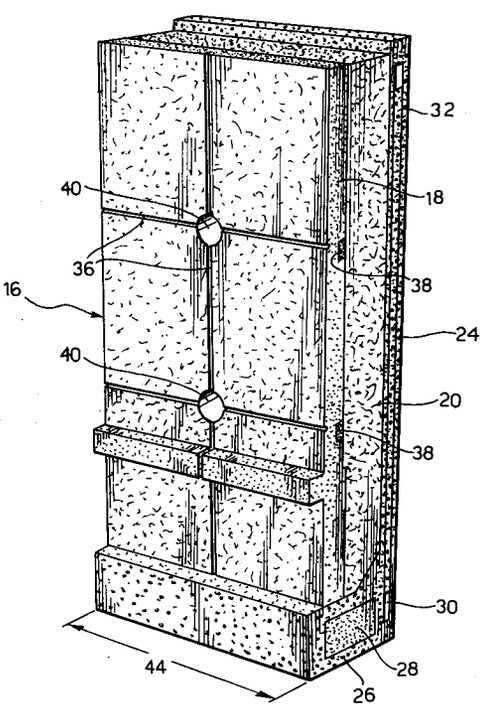
(74) Representative: **Gerbino, Angelo**
c/o JACOBACCI-CASETTA & PERANI S.p.A.
Via Alfieri 17
I-10121 Torino (IT)

(54) A prefabricated module for forming walls for kilns for drying and baking tiles.

(57) The module is in the form of a panel (16) and includes: an inner layer (18) of refractory or heat-resistant material, at least one intermediate layer (20) of thermally-insulating material, and an outer, load-bearing layer (24) of cement, concrete or a similar material, the bottom of which extends to form a base (26) for supporting the inner layer (18) and the at least one intermediate layer (20).

A plurality of elongate stiffening elements (27), the ends of which incorporated in the outer load-bearing layer (24) and in the inner, refractory layer (18) respectively and which extend through the at least one intermediate layer (20), hold the panel (16) together. At least a cavity (30) communicating with the exterior is made in the load-bearing layer (24).

FIG. 2



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The present invention relates to a prefabricated module for forming walls for tunnel-type kilns for drying and baking tiles. The modules are in the form of panels and, in use, are placed side by side so as to constitute two continuous facing walls the tops of which are connected by a roof.

More particularly the present invention relates to a prefabricated module including:
an inner layer of refractory or heat-resistant material,
at least one intermediate layer of thermally insulating-material,
an outer, load-bearing layer, the bottom of which extends to form a base for supporting the inner layer and the at least one intermediate layer, and
a plurality of elongate stiffening elements, the ends of which are set in the outer, load-bearing layer and in the inner, refractory layer respectively and which extend through the at least one intermediate layer so as to hold the panel together.

A prefabricated module of this kind is disclosed by FR-A-2488702.

The load-bearing layer of this known module is made of metal, such as structural steel.

The object of the present invention is to provide a prefabricated module having better mechanical properties and corrosion resistance than the known ones.

This object is achieved by a prefabricated module of the above mentioned kind wherein the outer load-bearing layer is of cement, concrete or a similar material and has at least a cavity, which communicates with the exterior.

The module according to the invention, due to the load-bearing layer of cement or concrete, which has a high torsional rigidity, suitably bears the stresses of the transport and installation and lasts well.

The cavity of the load-bearing layer increases the heat dispersion and makes more uniform the temperature profile of the concrete layer, avoiding therein crackings. These latter would be produced by steep temperature gradients, due to the thickness and the low thermical conductivity of the concrete layer.

The modules according to the invention are self-supporting by virtue of the presence of the outer load-bearing layer which has a support base and they can therefore be used without the need for additional, special support elements.

Advantages and characteristics of the present invention will become clear from the detailed description which follows with reference to the appended drawings, provided by way of non limiting example, in which:

Figure 1 is a schematic view of a portion of a kiln the side walls of which are formed by prefabricated modules according to the invention, and

Figure 2 is a perspective view of a prefabricated module according to the invention.

A tunnel-type kiln for drying and baking tiles (Fig. 1) is formed by two facing side walls 2 the tops of which are connected to a roof 4 by brackets 3 and the bottoms of which bear on a bed 6. All these elements define a cavity 8 through which trolleys 12 loaded with the tiles 14 to be dried and baked can move along tracks 10 fixed to the bed 6.

Claims

1. A prefabricated module (2) for forming walls for tunnel-type kilns for drying and baking tiles (14) and the like, which is in the form of a panel (16) and includes:

   an inner layer (18) of refractory or heat-resistant material,

   at least one intermediate layer (20) of thermally-insulating material,

   an outer, load-bearing layer (24), the bottom of which extends to form a base (26) for supporting the inner layer (18) and the at least one intermediate layer (20), and

   a plurality of elongate stiffening elements (27), the ends of which are set in the outer, load-bearing layer (24) and in the inner, refractory layer (18) respectively and which extend through the at least one intermediate layer (20) so as to hold the panel (16) together,

   characterized in that the outer, load-bearing layer (24) is of cement, concrete or a similar material and has at least a cavity (30), which communicates with the exterior.

2. A module according to Claim 1, characterized in that said cavity (30) communicates with the exterior through at least two holes (34) disposed in the top and bottom portions of the panel (16) respectively.

3. A module according to Claims 1 or 2, characterized in that the cavity (30) is occupied by a hollow block (32).

4. A module according to any one of the preceding claims, characterized in that the panel (16) has at least one through hole (40) in which a socket (42) for a burner, a blower, or a closure plug can be inserted sealingly.

5. A module according to any one of the preceding claims, characterized in that the surface of the refractory layer (18) which is intended to be in contact with the atmosphere in the kiln has a series of incisions (36) for enabling the refractory material to expand.

6. A module according to any one of the preceding claims, characterized in that at least one metal reinforcing grid is incorporated in the load-bearing layer (24).

7. A module according to any one of the preceding claims, characterized in that the inner layer (18) and the intermediate layer (20) are formed of the same heat-resistant and insulating material.

8. A kiln having walls comprising a prefabricated module according to any of claims 1 to 7.

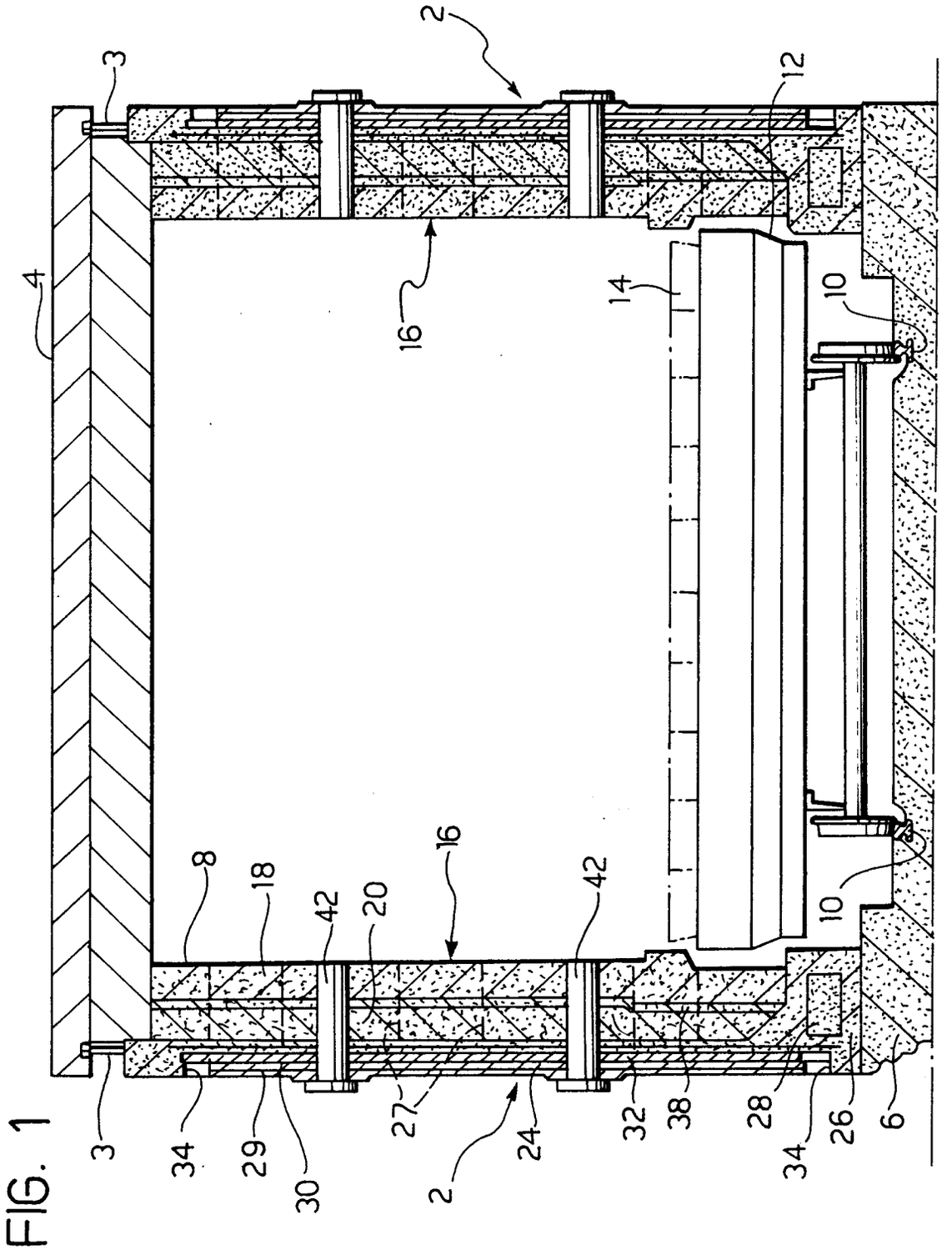
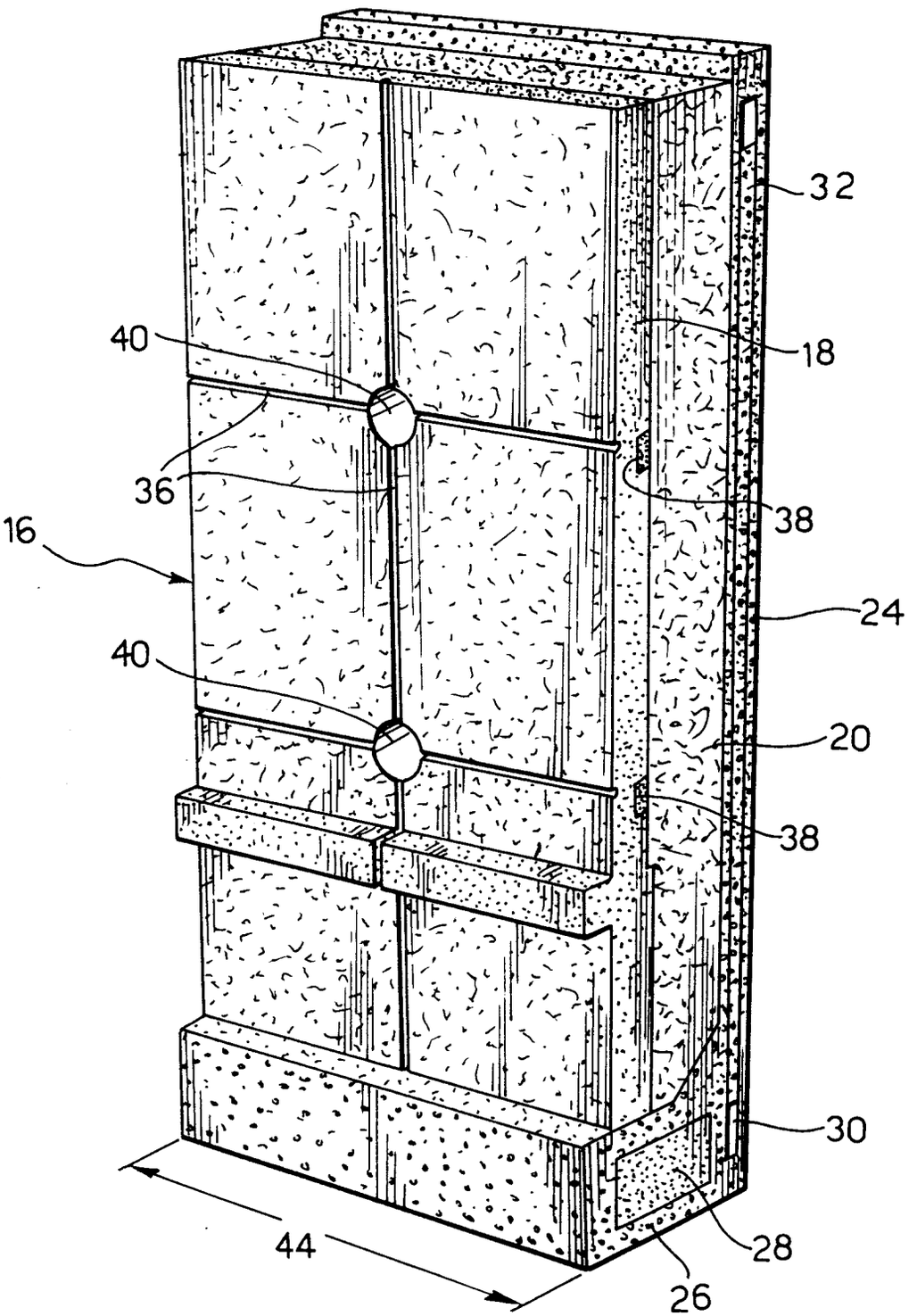


FIG. 1

FIG. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 92 11 5699

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.5)
A	GB-A-1 546 540 (B.J.WILCE)		F27D1/06 F27B9/34
A	FR-A-2 448 702 (PLASTES SPA)		
A	AT-A-356 689 (AUSTRIA PLIBRICO)		
A	US-A-1 741 679 (G.W.DAVEY)		
A	DE-A-2 831 151 (BULTEN-KANTHAL)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

F27D
F27B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	11 NOVEMBER 1992	COULOMB J.C.

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X : particularly relevant if taken alone
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