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(54) **FIREPROOF CLADDING PLATE**

(57) The invention relates to a fireproof cladding plate having a front layer (1) formed by a stone panel and a rear layer (2) formed by cellular foam glass.

EP 3 002 386 A1

Description

TECHNICAL FIELD

[0001] The present invention relates to elements and materials for cladding building structures. More specifically, the invention relates to a cladding plate based on fireproof materials which is useful for cladding façades, for example.

PRIOR ART

[0002] Within the technical field relating to the cladding of building structures, use of stone panels for covering façades is known, which panels allow providing a specific desired aesthetic effect (due to the makeup of their external materials which are exposed to view in the cladded structure), a suitable heat and/or sound insulation, as well as an improvement in the impermeability of the structure where they are installed.

[0003] Said panels of the state of the art usually comprise a front layer made of a stone cladding material, such as sandstone, slate, granite, or other materials such as ceramic or porcelain elements, where said layer is usually equipped with rear edges where the anchors of the panels can be embedded for fixing thereof to the cladded surface, thereby forming a concealed fixing system. In these panels, the minimum thickness of the layer of stone material is at least 10 mm. In addition, in order to achieve the effect sought as regards heat insulation, sound insulation and moisture insulation, a rear layer made of an insulating material, for example a polyurethane foam, which is fixed to the surface to be cladded by adhesive and/or mechanical means, is arranged in the panels.

[0004] Although the known panels are widely used for cladding façades, they have the technical problem of being vulnerable in the event of fire, since the materials that make up their rear layer at least partially contribute to the fire spreading. This involves an increased risk for the users of these cladding means and for the general structure to be cladded, when burning thereof occurs.

[0005] In this context, the present invention proposes a solution to the mentioned technical problem through a novel cladding plate that maintains great thermal and sound insulation properties and the materials making up same furthermore have fireproof properties.

DISCLOSURE OF THE INVENTION

[0006] An object of the present invention therefore relates to an effective means for cladding and insulating structures, which is at the same time fireproof, thereby reducing or eliminating the risks of fire spreading in the event of fire. Likewise, the invention allows using layers of stone materials of up to a minimum thickness of 3 mm in embodiments of concealed fixing system, providing a significant improvement with respect to other solutions

on the market.

[0007] Said object of the invention is achieved by means of a fireproof plate preferably comprising a front layer formed by a stone panel and a rear layer formed by cellular foam glass. The properties of the cellular glass allow keeping the insulation capacity of the cladding plate intact (which is comparable to the insulation capacity of known panels), but being furthermore fireproof.

[0008] The stone panel of the front layer is preferably a machined panel and more preferably comprises a material selected from sandstone, slate, granite, marble, limestone, a ceramic material, a porcelain material, a composite-type material, a phenolic material, or any material from those commonly used in cladding panels.

DESCRIPTION OF THE DRAWINGS

[0009] For the purpose of aiding to better understand the main features of the invention, an illustrative and non-limiting drawing of the elements making up same is attached to this specification.

[0010] Figure 1 shows a cladding plate of the invention according to a preferred embodiment thereof, in which the arrangement of its front and rear layers is shown.

DETAILED DISCLOSURE OF A PREFERRED EMBODIMENT OF THE INVENTION

[0011] Figure 1 of the present document depicts a cladding plate of the invention according to a preferred embodiment thereof. A front layer (1) formed by a stone panel and a rear layer (2) formed by cellular foam glass are arranged in said embodiment. As mentioned previously, the stone panel preferably comprises at least one material selected from sandstone, slate, granite, marble, limestone, a ceramic material, a porcelain material, a composite-type material or a phenolic material. The stone panel preferably has a thickness equal to or greater than 3 mm and more preferably comprised between 3 mm and 10 mm.

[0012] The cellular foam glass can in turn be a commercial foam selected from those available on the market, such as Foamglass® foam glass.

[0013] An adhesive material is preferably used to attach the stone panel and the rear cellular foam glass layer (2), this material more preferably being a fireproof cement-based adhesive.

[0014] In a preferred embodiment of the invention, the stone panel of the front layer (1) is a machined panel. This therefore allows the cladding plates to have precise dimensions for integration thereof in a building system, such that it is possible to install a plurality of said plates without errors in installation, or possible gaps or stresses that may negatively affect the insulation of the structure to be cladded.

[0015] The present invention is particularly designed for making ventilated façades, i.e., façades comprising a free space between the wall in which they are placed

and the plates of the façade itself. The cladding plate can alternatively also be installed lined directly on a wall (in exterior insulation and finishing systems, or "EIFS") with a concealed safety anchor embedded in the edge (3) of the plate and made by means of grooving.

[0016] The grooving of the plate is preferably made in the contact area with the rear cellular foam glass layer (2). This provides the advantage that, given that the cellular foam glass has a typical density of 165 kg/m³ and the stone materials have, in average, a density of 2400 kg/m³, the closer the edge (3) is to the stone material and the farther it is from the total thickness of the foam, the higher the resistance that will be obtained.

[0017] Profiles which are fixed to the wall and on which a support for the plates is placed are preferably used to create the mentioned space. In the case of the present invention, vertical profiles with notched sides which are fixed to the wall by means of brackets also having complementary notched sides can be used for assuring correct fixing between both elements.

[0018] The brackets are screwed onto the wall by placing one of the notched faces in contact with the wall. They are screwed onto the corresponding vertical profile on the other notched face. The profiles have a rectangular section with an opening in one of the faces extending vertically along the entire profile.

[0019] The brackets have elongated holes on their faces to allow regulating the position of the bracket in the wall and of the profile with respect to the plumb.

[0020] The support or clamp holding the plates of the façade of the present invention is placed in said profile. The main body of the support is placed in the vertical profile and fixed thereto with mechanical means, such as nuts and bolts, for example. This fixing is made on the face of the profile farthest away from the wall.

[0021] The support also comprises a T-shaped projection in which there are inserted grooves located at the ends of the plates of the present invention used for the façade.

ceramic material, a porcelain material, a composite-type material or a phenolic material.

5. The plate according to any of the preceding claims, where the stone panel has a thickness equal to or greater than 3 mm.

6. The plate according to any of the preceding claims, where the stone panel has a thickness comprised between 3 mm and 10 mm.

Claims

1. A fireproof cladding plate, **characterized in that** it comprises a front layer (1) formed by a stone panel and a rear layer (2) formed by cellular foam glass.
2. The plate according to the preceding claim, where the stone panel (1) is a machined panel.
3. The plate according to any of the preceding claims, comprising a concealed safety anchor embedded in the edge (3) of said plate, made by means of grooving between the front layer (1) and the rear layer (2).
4. The plate according to any of the preceding claims, where the stone panel comprises a material selected from sandstone, slate, granite, marble, limestone, a

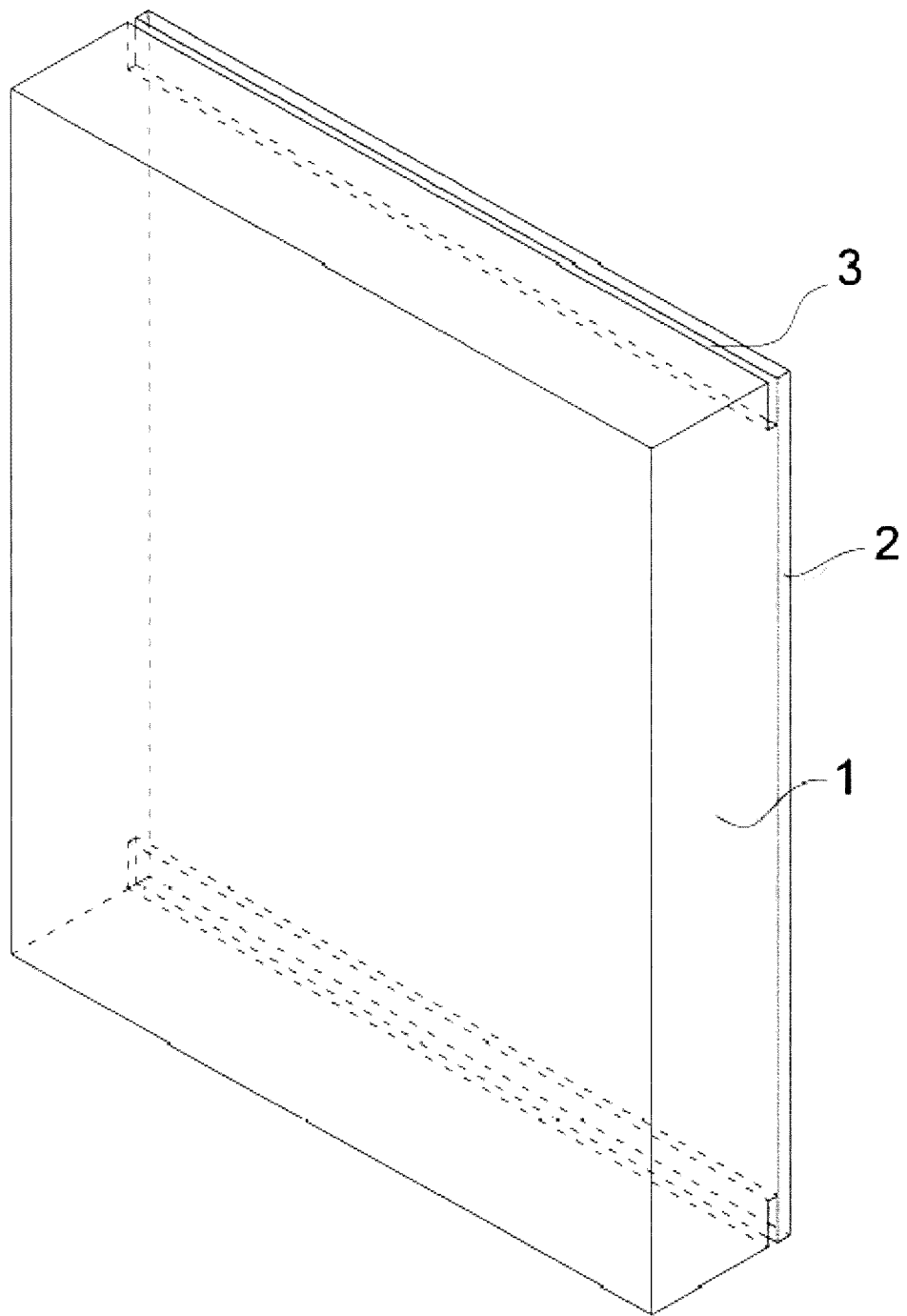


FIG. 1



EUROPEAN SEARCH REPORT

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EP 15 38 2324

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			TECHNICAL FIELDS SEARCHED (IPC)
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Place of search Munich		Date of completion of the search 29 February 2016	Examiner Bourgoin, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document 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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EP 15 38 2324

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82