



- (51) **International Patent Classification:**  
*E04F 13/08* (2006.01) *E04F 13/14* (2006.01)
- (21) **International Application Number:**  
PCT/IB2012/053447
- (22) **International Filing Date:**  
5 July 2012 (05.07.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**  
105812 7 July 2011 (07.07.2011) PT
- (71) **Applicant (for all designated States except US):** CANDI-GRÉS - CERÂMICA DE GRÉS DA CANDIEIRA [PT/PT]; Rua 2 de Abril, Candieira, P-3780-403 Avelas de Cima (PT).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** ALMEIDA MARTINS, Rui Pedro [PT/PT]; Rua 2 de Abril, Candieira, P-3780-403 Avelas de Cima (PT). MARTINS ALMEIDA, Simão Pedro [PT/PT]; Rua 2 de Abril, Candieira, P-3780-403 Avelas de Cima (PT).
- (74) **Agent:** VIEIRA PEREIRA FERREIRA, Maria Silvana; Clarke, Modet & Co., Rua Castilho, 50-9º, P-1269-163 Lisboa (PT).

- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- without international search report and to be republished upon receipt of that report (Rule 48.2(g))

(54) **Title:** INSULATION BOARD WITH GUIDE GROOVES FOR THE APPLICATION OF COATINGS AND ITS APPLICATION PROCESS

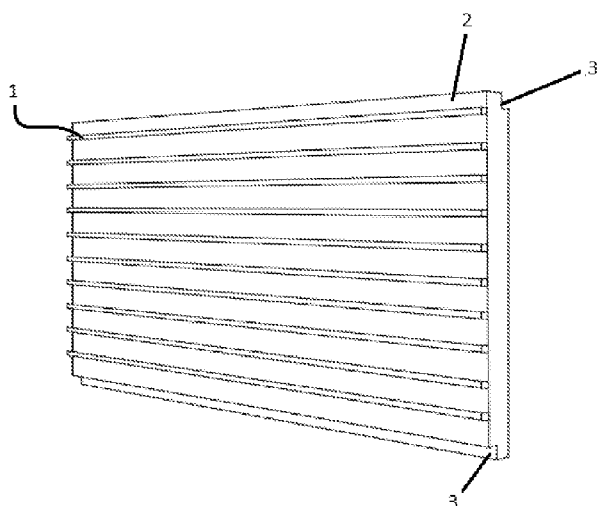


Figure 1

(57) **Abstract:** The present invention refers to an insulation board for the application of coatings, characterized in that it comprises a set of machined guide grooves (1) on one of the sides of the insulation board (2) along the entire length and width of the said side of the insulation board (2) and with a spacing between them which can vary according to the type of coating to be applied, as well as a set of tongue and groove fittings (3) at its ends, as to allow the connection and the adjustment of the said insulation boards (2) in relation to each other. The present invention allows to facilitate the settlement of the coatings without crosspieces or plumb lines, as well as, it allows to initiate the placement of the said coatings at any point of the said side of the insulation board (2).



**DESCRIPTION****"INSULATION BOARD WITH GUIDE GROOVES FOR THE APPLICATION OF COATINGS AND ITS APPLICATION PROCESS"****Technical field of the invention**

This invention relates to an insulation board with guide grooves for the application of coatings and its application process.

**Summary of the invention**

The goal of this invention is to describe an insulation board with guide grooves for the application of coatings which comprises a set of guide grooves (1) machined directly on one of the sides of the insulation board (2) along the entire length and width of the said side of the insulation board (2) and with a variable spacing between them and a set of tongue and groove fittings (3) at the ends of the insulation board (2).

According to a preferred embodiment of this invention the machining process of the guide grooves (1) consists in direct milling on the sides of the insulation board (2).

According to another preferred embodiment of this invention the guide grooves (1) are machined on one of the sides of the insulation board (2) in the horizontal direction.

According to another preferred embodiment of this invention the guide grooves (1) are machined on one of the sides of the insulation board (2) in the cross direction.

According to another preferred embodiment of this invention the insulation board (2) is made of polymeric material or cork.

According to another preferred embodiment of this invention the polymeric material is extruded polystyrene or polystyrene.

According to another preferred embodiment of this invention the distance in between the guide grooves (1) is up to 50 mm and the height of the said guide grooves (1) is comprised between 3 mm and 10 mm.

According to another preferred embodiment of this invention the coating (4) is ceramic, wooden, metallic or polymeric.

It is also a goal of this invention to describe the process for the application of the coating (4) on one of the sides of the insulation board (2) according to the preceding claims, characterized in that it comprises the following steps:

- The preparation of the insulation board (2) with application of a fixing element on the opposite side to that of the application of the coating (4);
- The fixing of the insulation board (2) at a façade by the opposite side to that of the application of the coating (4) and through mechanical fixing means;
  - The preparation of the coating (4) with application of a fixing element on one of the sides of the said coating (4);
- The fixing of the coating (4) in the spacing between de guide grooves (1) of the insulation board (2);

- The rejoining or covering of the existing joints between the coating (4).

#### **Prior art of the invention**

The solutions existing on the market do essentially use insulation boards on which the coating, in particular ceramic, is fixed through glues or cement adhesives and polyurethane (silicones) and with the help of wedges, crosspieces, alignment plumb lines, using crosspieces or other alignment devices of the coating pieces. After drying of the glues, the insulation boards are fixed on the façades to be covered, through the glues or the glue cements and already with the said coating. Other solutions more close to that of this invention choose to place frames applied directly on the insulation boards on which are subsequently placed more coating pieces. This solution is more expensive than that according to this invention and the application process of the coating is slower.

#### **Description of the figures**

For an easier comprehension of this invention there are figures attached hereto, which, represent preferred embodiments of this invention and, yet, do not intend to limit the scope of this invention.

**Figure 1:** Schematic representation of the insulation board with guide grooves for the application of coatings wherein the following numbers represent:

- 1 - Guide groove
- 2 - Insulation board
- 3 - Tongue/Groove fitting

**Figure 2:** Schematic representation of the insulation board with guide grooves for the application of coatings wherein the following numbers represent:

- 1 - Guide groove
- 2 - Insulation board
- 3 - Tongue/Groove fitting

**Figure 3:** Schematic representation of the insulation board with guide grooves for the application of coatings wherein the following numbers represent:

- 1 - Guide groove
- 2 - Insulation board
- 4 - Coating

#### **Detailed description of the invention**

An insulation board with guide grooves for the application of coatings, in particular ceramic chafer, wooden, metallic or polymeric coatings, which comprise a set of guide grooves (1) machined directly on one of the sides of the insulation board (2) along the entire length and width of the said side of the insulation board (2) and with a spacing between them which can vary according to the type of coating (4) to be applied, as well as a set of tongue/groove fittings (3) at its ends, which can present various configurations which depend on the thickness of the insulation board (2) as to allow the alignment and the fitting of the said insulation boards (2) in relation to each other, avoiding errors which would compromise its properties to insulate the façades of buildings where they are supposed to be applied.

Preferably the insulation board (2) is made of extruded polystyrene (XPS), optionally replaced by expanded polystyrene (EPS) or cork. The machining, in particular through direct milling on one of the sides of the insulation board (2), allows the realisation of this type of guide grooves (2) without any moulding process of the material types mentioned above and in a more efficient end less expensive manner than a moulding process through injection and/or thermo-formation. Despite of the possibility to present the dimensions adapted to each type of application, preferably the insulation boards (2) should have a length of 1250 mm and a width of 600 mm, being that the thickness can vary in a range comprised between 30 mm and 300 mm. In the same way, the spacing between the guide grooves (1) can be up to 50 mm and the height of the said guide grooves (1) can vary between 3 mm and 10 mm.

The guide grooves (1) can be machined on one of the sides of the insulation board (2) in the horizontal direction or in the cross direction as to enable various decorative combinations after the settlement of the coating (4).

In the same way, the existence of the guide grooves (1) on one of the sides of the insulation board (2) allows to initiate the application of the coating (4) at any point of the said side, which does not happen with the conventional application of the coating (4), which is characterized in that one starts to apply the said coatings (4) from the inferior limit of the insulation boards (2) towards its superior limit and using wedges, plumb lines or crosspieces in order to maintain their linearity.

The process for the application of the coating (4) on one of the sides of the insulation board (29) consists of the following steps:

- The preparation of the insulation board (2) with application of a fixing element which can be glue or glue cement on the opposite side to that of the application of the coating (4);
- The fixing of the insulation board (2) of a façade on the opposite side to that of the application of the coating (4) and through mechanical fixing means, in particular wall plugs;
- The preparation of the coating (4) with application of a fixing element which can be glue or glue cement on one of the sides of the said coating (4);
- The fixing of the coating (4) in the spacing between the guide grooves (1) of the insulation board (2);
- The rejoining or covering of the existing joints between the coating (4).

**CLAIMS**

1. An insulation board with guide grooves for the application of coatings comprising a set of machined guide grooves (1) on one of the sides of the insulation board (2) and along the entire length and width of the said side of the insulation board (2) and with a variable spacing between them and a set of tongue and groove fittings (3) at the ends the insulation board (2).
2. The insulation board with guide grooves for the application of coatings according to the previous claim, wherein the machining process of the guide grooves (1) consists in direct milling on the faces of the insulation board (2).
3. The insulation board with guide grooves for the application of coatings according to the previous claim, wherein the guide grooves (1) are machined on one of the sides of the insulation board (2) in the horizontal direction.
4. The insulation board with guide grooves for the application of coatings according to claim 1, wherein the guide grooves (1) are machined on one of the sides of the insulation board (2) in the cross direction.
5. The insulation board with guide grooves for the application of coatings according to claim 1, wherein the insulation board (2) is made of polymeric material or cork.



6. The insulation board with guide grooves for the application of coatings according to the previous claim, wherein the polymeric material is extruded polystyrene or polystyrene.
7. The insulation board with guide grooves for the application of coatings according to claim 1, wherein the spacing between the guide grooves (1) is up to 50 mm and the height of the said guide grooves (1) is comprised between 3 mm and 10 mm.
8. The insulation board with guide grooves for the application of coatings according to the previous claims, wherein the coating (4) is ceramic, wooden, metallic or polymeric.
9. A process for the application of coatings on one of the sides of the insulation board (2) according to the previous claims, comprising the following steps:
  - The preparation of the insulation board (2) with application of a fixing element on the opposite side to that of the application of the coating (4);
  - The fixing of the insulation board (2) at a façade by the opposite side to that of the application of the coating (4) and through mechanical fixing means;
  - The preparation of the coating (4) with application of a fixing element on one of the sides of the said coating (4);
  - The fixing of the coating (4) in the spacing between the guide grooves (1) of the insulation board (2);

- The rejoining or covering of the existing joints between the coating (4).

Figures

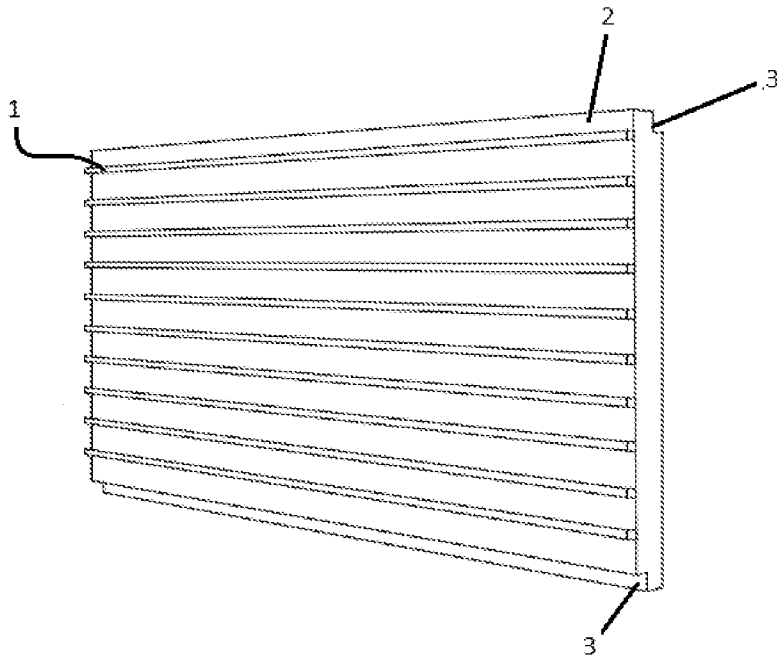


Figure 1

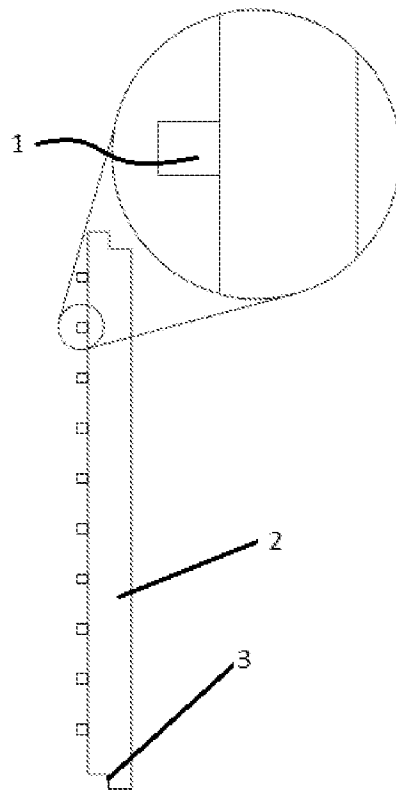


Figure 2

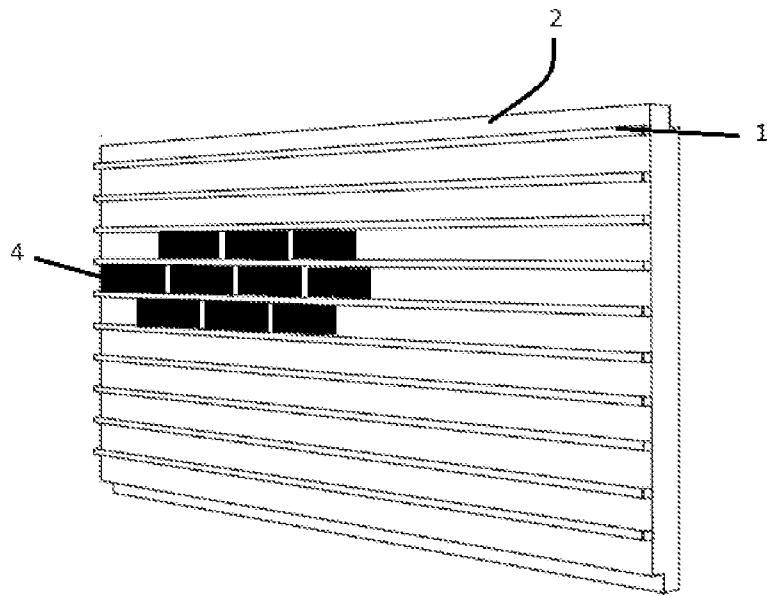


Figure 3