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(54) Continuoulsy engraved laminated aluminium and use thereof in panels

(57) The sheet (1) of aluminium, anodised in any colour or of the gloss type, is continuously engraved during its unwinding, either milled, or machined by lathe with numeric control, by means of cutter or squarer, with disk blade, circular saw or other means, defining some channels without remains or burrs of the extracted material, as well as of variable depth tied to the thickness of the aluminium sheet, the finishes of the groove (2) being configured in "Vee" or in half round or in square cut, as well as in combination of these last two finishes with the first, the sectioning of the unwound and engraved sheet defining some plates with the appearance of tiles or of multiple small tiles, provided with equidistant grooves (2) according to axes.

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to continuously engraved laminated aluminium for pieces and plates, as well as the use thereof in products obtained from the same, of among the engraved laminated metallic elements, as well as of among the pieces and plates that use this type of sheets.

[0002] This invention is characterized in the sheet of a continuously engraved aluminium spool, as well as a special construction of miscellaneous pieces and plates with the same.

BACKGROUND OF THE INVENTION

[0003] The pieces of aluminium stair tread are well known which are found in the doorways to buses, trains, as well as in the internal stairways of the latter when they have two levels, the same as in the runway steps to aircraft and in many other means where elements are required that prevent the footwear of the users from slipping.

[0004] To this end, the pieces have some small protuberances in a checkerboard arrangement which serve to secure the sole of the footwear and prevent slipping. An alternative to the checkerboard design and providing the same securing effect, grooves are stamped.

[0005] These pieces are very expensive to manufacture and have to be produced unifying requirements of their various applications, the object being to obtain acceptable mass production costs.

[0006] Also known are engraved metal plates which substitute for the conventional linings of enclosures habitually implemented with tiles or with mosaic assemblies. These linings are found universally in all types of application which need not comply with strict health requirements, such as the walls of an operating theatre.

[0007] These plates, for their reduced size are also expensive and the dimensional limitations arise from the dimensions acceptable in the stamping press.

[0008] In no known case, either in registered applications or on the market is continuous engraving found of laminated aluminium unwound directly from the spool of this material.

[0009] On the other hand, the applicant holds the registration presented on 25.10.2004, N° 200402546, termed "Procedure for obtaining non-planar structures of metallic external surface and structure obtained by said procedure", which has a plate with a determined layering, manipulated so that a structure is obtained decomposable into consecutive planes with only edges of the laminated aluminium being seen.

[0010] Another registration of the same person is the application EP 05381014.9, of 08.03.2005, termed: "Resistant panel for construction", built symmetrically with respect to its main central plane, from a central layer of polystyrene, which incorporates some ducts and which is covered with two resistant, symmetrical wooden layers, covered in turn by individual coatings of glass fibre followed by some fine external sheets of aluminium and all the layers being glued to each other, the assembly constituting the group a pressed panel which has slots passing through one of the aluminium sheets, as well as through the two resistant layers and through the central layer, until reaching the internal face of the other sheet and penetrating partially therein, allowing a noncontinuous regulated construction with the panel.

[0011] The applicant is unaware of the existence of continuously engraved aluminium sheets for panels or pieces, which resolve the problems described above with the simplicity and effectiveness of the invention that is disclosed hereunder.

DESCRIPTION OF THE INVENTION

[0012] The present invention relates to continuously engraved laminated aluminium for pieces and plates, as well as the use thereof in products obtained from the same, of among all those engraved laminated metallic elements, as well as of among all those pieces and plates which employ these engraved sheets, in a multitude of industrial and domestic uses.

[0013] This invention is characterized in the sheet of a continuously engraved spool of aluminium, either milled, or machined by a lathe with numeric control, by means of cutter or squarer, with disk blade, circular saw or other means, defining some grooves without remains or burrs of the extracted material, as well as of variable depth tied to the thickness of the aluminium sheet.

[0014] The aluminium sheet has an anodised finish in any colour or is of the type termed "gloss" which can serve as a mirror.

[0015] The sheet is engraved with finishes in Vee, for example, with an appropriate disk for this form, or they can be half-round or square cut. In any one of these last two finishes and, especially, for the construction with the same of various plates with the appearance of floor or wall tiles, the image can be reinforced of the transversal grooves in square cut or in half round with a new pass along the axis of any one of these grooves, in Vee and of less depth, the result being a finish which does not differ from that of conventional lining with tiles.

[0016] On the other hand, if the finish of the aluminium is of the gloss type, it is sufficient to have a plurality of outer grooves, transversal to each other, in any one of the finishes described and framing with them a broad central flat space, whereby the mirror concept is greatly enhanced. This type of finish is opportune for substituting the conventional glass mirrors in schools, jails, elevators and, in general, in those places where their replacement is advisable for reasons of minimizing risks.

[0017] Lastly, both in aluminium anodised in diverse colours and in the gloss type finish, any one of the groove shapes generates reflections which enhance the appear-

ance of the piece or plate aesthetically.

[0018] Finally, this invention is characterized in a special construction with this engraved sheet of a sandwich panel in which, preferably, this coat of engraved aluminium is mounted on the main visible face of the panel and another aluminium sheet, this without engraving, on the opposing outermost face, other layers of diverse materials being mounted internally, in accordance with the earlier registrations of the applicant and for diverse ends, of reinforcement, of thermal insulation or other purposes, compatible with the characteristics required of the pieces or plates of lining, such as can be pre-fireproofing.

[0019] The engravings of pieces like steps and, also, in those of plates can have any finish, including complex drawings, corporate images or other identifying, promotional elements, etc.

DESCRIPTION OF THE DRAWINGS

[0020] The present descriptive specification is complemented with a set of drawings, which illustrate but in no way restrict the preferred embodiment of the invention.

[0021] Figure 1 is a perspective of a section of the end of a sandwich panel with the sheet of gloss type aluminium, engraved and in a mirror finish.

[0022] Figure 2 is the perspective of a corner piece corresponding to the lining of a wall or partition of an enclosure.

PREFERRED EMBODIMENT OF THE INVENTION

[0023] In view of the aforesaid, the present invention relates to continuously engraved laminated aluminium for pieces and plates, as well as the use thereof in products obtained from the same, of among the engraved laminated metal elements, as well as of among the pieces and plates that use these engraved sheets, essentially characterized in that the aluminium sheet (1), anodised in any colour or of the gloss type, is continuously engraved during its unwinding, either milled, or machined by lathe with numeric control, by means of cutter or squarer, with disk blade, circular saw or other means, defining some channels without remains or burrs of the extracted material, as well as of variable depth tied to the thickness of the aluminium sheet, preferably of between 1 and 10 mm, with corresponding depths of between 0.3 and 3 mm.

[0024] The finishes of the groove (2) are V-shaped, in half round or in square cut, as well as in combination of these last two with the first.

[0025] Likewise characterizing is the construction with the same of plates with the appearance of tiles or of multiple small tiles, as well as corner pieces (5) of enclosures, all provided with equidistant grooves (2) according to axes, complete stair pieces, sheets (1) which incorporate a plurality of outer grooves, framing a wide central flat space.

[0026] The grooved (2) sheet (1) is incorporated externally on a sandwich panel (3) which, preferably, has another aluminium sheet (4), without engraving, on the opposing outer face of the panel (3) and, internal to both sheets (1) and (4) other layers of appropriate materials are incorporated, as reinforcement, thermal insulation. Other applications, such as corner pieces (5) of linings or steps, require for the angular configuration thereof, the pre-grooving of the panel (3), from the sheet (4) and the intermediate layers up to the internal face of the sheet (1), prior to the angular bending of the same.

[0027] The essential nature of this invention is not altered by variations in materials, form, size and arrangement of the component elements, described in a non-restrictive manner, sufficient for an expert to proceed to its reproduction.

Claims

1. Continuously engraved laminated aluminium, of among the engraved laminated metallic elements, essentially **characterized in that** the sheet (1) of aluminium, anodised in any colour or of the gloss type, is continuously engraved during its unwinding, milled or machined by lathe with numeric control, by means of cutter or squarer, with disk blade, circular saw or other means, defining some channels without remains or burrs of the extracted material, as well as of variable depth tied to the thickness of the aluminium sheet, the finishes of the groove being (2) configured in Vee or in half round or in square cut, as well as in combination of these last two finishes with the first, the sectioning of the unwound and engraved sheet defining some plates with the appearance of tiles or of multiple small tiles, provided with equidistant grooving (2) according to axes.

2. Continuously engraved laminated aluminium, according to the previous claim, **characterized in that** the sheets (1) incorporate a plurality of outer grooves, framing a wide central flat space.

3. Continuously engraved laminated aluminium, according to the previous claim, **characterized in that** in the sheets (1) the engravings have any finish, included complex drawings.

4. Products obtained from continuously engraved aluminium sheet, of among the plates which use these engraved sheets, according to the previous claims, **characterized in that** the grooved (2) sheet (1) is incorporated externally on a sandwich panel (3) which, preferably, has another aluminium sheet (4), without engraving, on the opposing outer face of the panel (3) and, internally to both sheets (1) and (4) other layers of appropriate materials are included, as reinforcement, thermal insulation.

5. Products obtained from continuously engraved aluminium sheet, of among the pieces which use these engraved sheets, according to the previous claims, **characterized in that** in applications, like corner pieces (5) of linings or like steps, they are grooved suitably from the sheet (4) and the intermediate layers to the internal face of the sheet (1) of the panel (3), prior to the angular bending of the latter.

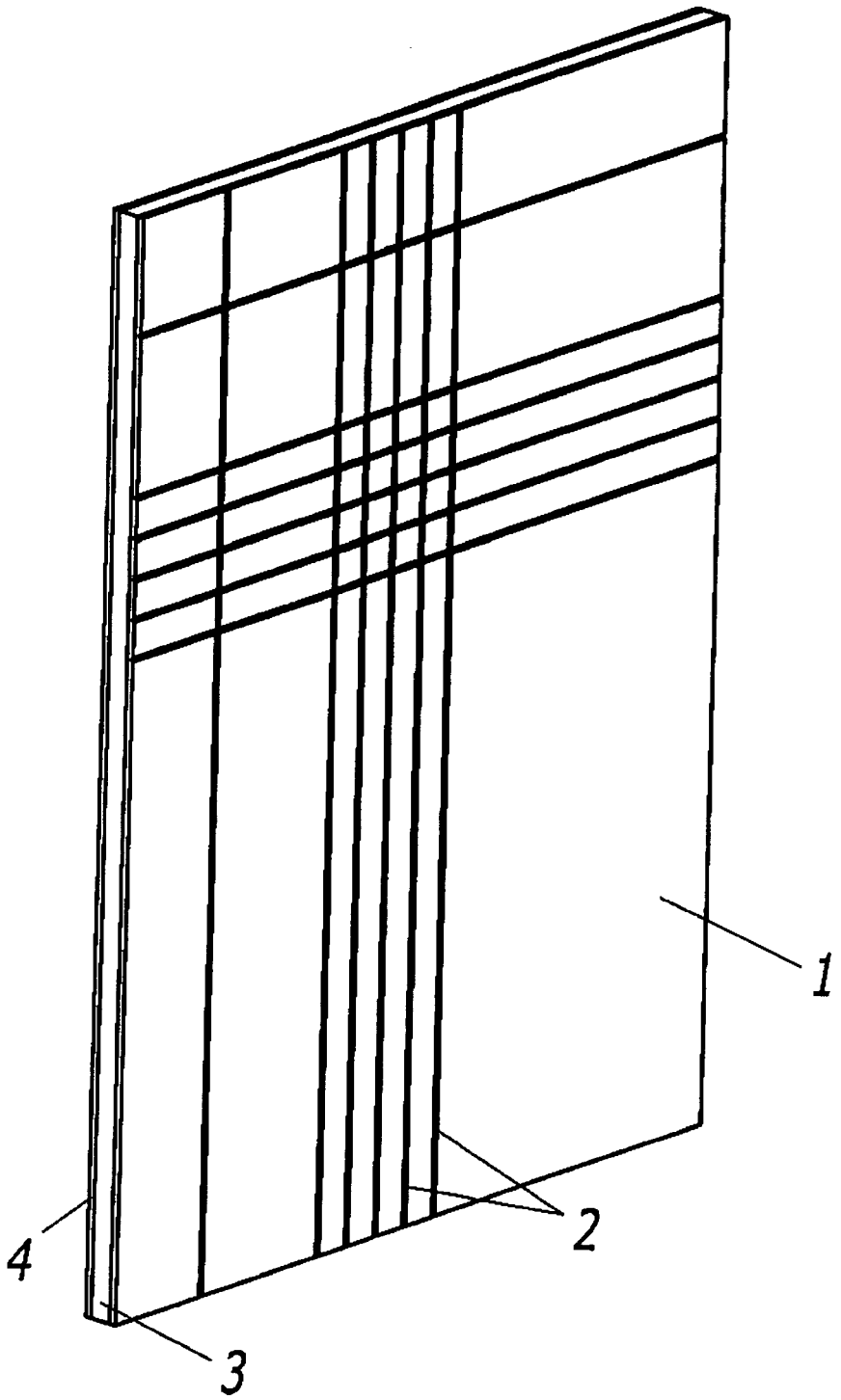

FIG.1

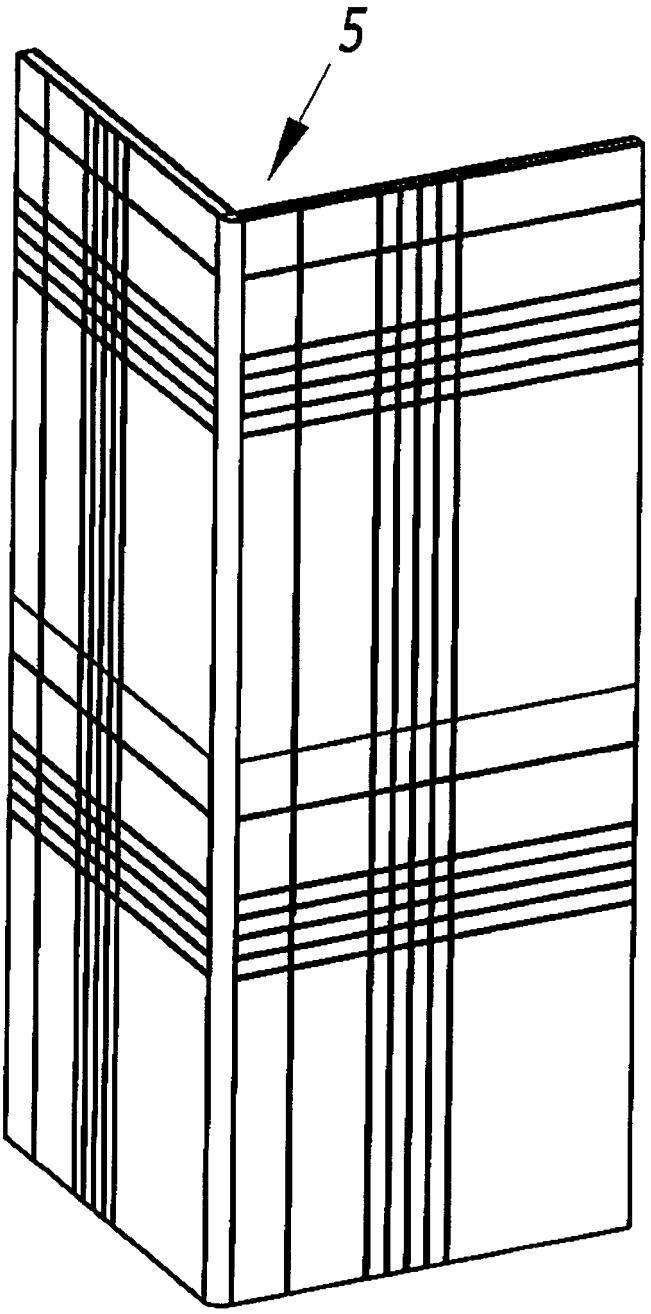

FIG.2

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 38 1018

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 212 343 A (NARASIMHAN, MANDAYAM C) 15 July 1980 (1980-07-15) * column 5, line 31 - column 6, line 38 * * column 7, line 40 - column 7, line 42 * * column 7, line 55 - column 8, line 32 * * figures 1-8; example 1 * -----	1-5	B21B15/00 B23K13/00 B22D11/00 B21C1/00 B21C37/00 E04F11/00 E04C2/00
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TECHNICAL FIELDS SEARCHED (IPC)

B21B
B23K
B22D
B21C
E04F
E04C
E04B
B44C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	22 December 2005	Sartor, M

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 05 38 1018

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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