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(54) **PARAPET PARTICULARLY FOR STAIRS, TERRACES AND THE LIKE**

(57) Parapet particularly for stairs, terraces and the like, comprising:

- a protection element (11) having a lower extreme (11a) fixable to a walk support and an upper extreme (11b) which extends along a longitudinal direction (A);
- a handrail (12) having a seat (12a) adapted to receive in insertion the upper extreme (11b);
- at least one U-shaped fastening element (13) and having:
- a spine (13a) adapted to be housed in the seat (12a);

- a compartment (13b) for housing an edge (14) of the upper extreme (11b).

The fastening element (13) has a length inferior to the length of the upper extreme (11b) and it is in polymeric material selected between Acrylonitrile Butadiene Styrene and an aliphatic polyamide; also it is dimensioned with respect to the seat (12a) and the edge (14) to be coupled with an interference fit with at least one of the latter.

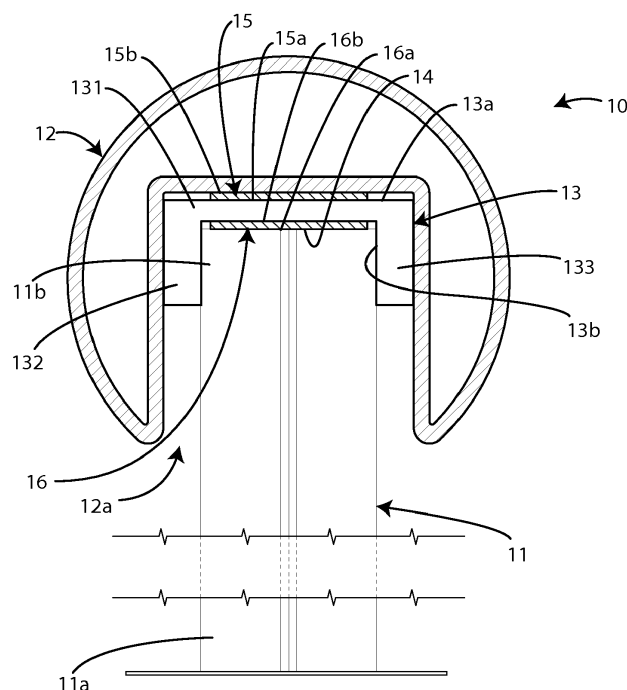


Fig. 1

Description

[0001] The present invention concerns parapet particularly for stairs, terraces and the like.

[0002] In particular, the present invention refers to a parapet consisting of glass sheets or comprising them.

[0003] Nowadays parapets with an essential design are particularly appreciated. In particular, parapets comprising a main body consisting of glass sheets to be installed in a vertical position to form a fence are known.

[0004] On the upper free edge of the slabs, a handrail is coupled which has a seat adapted to receive the edge when inserted.

[0005] To retain the handrail on the edge, a gasket, made of elastomeric, U-shaped material, is inserted into the seat.

[0006] This gasket also has protruding fins designed to increase the friction exerted by it on the edge of the panel and/or on the inner face of the handrail seat.

[0007] In detail, the gasket internally covers the surface of the seat of the handrail along the entire length of the latter and is dimensioned in such a way that, when it is coupled with the edge, it deforms elastically resulting in an interference fit.

[0008] The problem underlying the present invention is that of increasing the assembly and structural simplicity with respect to the known parapets and also improving their structural stability.

[0009] The main task of the present invention is to provide a parapet particularly for stairs, terraces and the like that provides a solution to this problem by solving the aforementioned drawbacks of the parapet described above. Within this aim, it is an object of the present invention to provide a parapet particularly for stairs, terraces and the like which allow obtaining a simpler assembly with respect to traditional parapets.

[0010] Another object of the present invention is to provide a parapet which allows to simplify assembly, obtaining a greater mutual structural holding together of the components.

[0011] Another object of the invention is to provide a parapet which does not require the use of a skilled labour for its assembly.

[0012] This task, as well as these and other objects which will become better apparent hereinafter, are achieved by a parapet particularly for stairs, terraces and the like, according to the attached claim 1.

[0013] Detailed features of the parapet particularly for stairs, terraces and the like according to the invention are reported in the dependent claims.

[0014] Further characteristics and advantages of the invention will become better apparent from the description of a preferred but not exclusive embodiment of a parapet particularly for stairs, terraces and the like according to the invention, illustrated by way of non-limiting example in the accompanying figures, in which:

- figure 1 shows a parapet particularly for stairs, ter-

aces and the like according to the invention in transverse section;

- figure 2 shows a parapet particularly for stairs, terraces and the like according to the invention in side view, in section.

[0015] With particular reference to the aforementioned figures, it is generally indicated with 10 a parapet particularly for stairs, terraces and the like which, in a traditional way, comprises:

- a protection element 11, which preferably consists of a safety glass sheet, having a lower extreme 11a fixable to a walk support and an upper extreme 11b which extends along a longitudinal direction A;
- a handrail 12, which advantageously consists of a tube made of a metal material, having a seat 12a adapted to receive in insertion the upper extreme 11b.

[0016] In accordance with the present invention, the parapet 10 presents a particular peculiarity in that it comprises at least one U-shaped fastening element 13 having:

- a spine 13a adapted to be housed in the seat 12a;
- a compartment 13b for housing an edge 14 of the upper extreme 11b.

[0017] In practice, according to the present invention, it is possible to use a plurality of fastening elements 13 distributed along the edge 13 of the protection element 11, preferably at regular distances, to couple the handrail 12 to the edge 14.

[0018] The fastening element 13 has a length inferior to the length of the upper extreme 11b, measured along the longitudinal direction A, and it is made of a polymeric material selected from Acrylonitrile Butadiene Styrene, in short ABS, and an aliphatic polyamide, generally known as Nylon, preferably loaded with fibres advantageously of glass.

[0019] Moreover, the fastening element 13 is dimensioned with respect to the seat 12a of the handrail 12 and to the edge 14 of the upper extreme 11b to couple with interference with at least one of the latter.

[0020] It has been verified that the holding together of the handrail 12 to the protection element 11 is increased thanks to the use of the fixing element 13 with respect to the traditional parapets, despite the fastening element 13 connecting the handrail 12 to the protection element 11 only in a series of points and not continuously as in traditional parapets.

[0021] In a preferred but not exclusive embodiment of the present invention, the parapet 10 advantageously comprises a first blocking element 15 having a first adhesive face 15a fixed to the spine 13a and a second adhesive face 15b attached to a bottom of the seat 12a to block the first blocking element 15 to the handrail 12.

[0022] Depending on the contingent needs, the parapet 10 can comprise, alternatively or in combination with the first blocking element 15, a second blocking element 16 having a first adhesive face 16a fixed to the edge 14 and a second adhesive face 16b fixed to an inner wall 17 of the compartment 13b for to block the second fastening element 13 to the protection element 11.

[0023] The first fastening element 15 and/or the second fastening 16 preferably consist of a double-sided adhesive tape.

[0024] Advantageously, the first fastening element 15 is made with a double-sided adhesive tape selected from:

- the product is known today with the code PFR-4616 of the 3M company or
- the product is known today with the code VHB of the 3M company, in case a greater gripping strength is required.

[0025] If a particularly effective adherence is required, the edge 14 may preferably be covered with a primer suitable for promoting adhesion of the first adhesive face 15a to edge 14, advantageously said primer is a product of the 3M company known by code 94.

[0026] Prior to application of the primer, advantageously the edge 14 and/or the compartment 13b will be cleaned with a solvent selected from acetone and isopropyl acid preferably by means of a cloth which will be moved in a single direction.

[0027] As previously explained, advantageously the parapet 10 comprises a plurality of fastening elements 13 which preferably have a length of between 30 mm and 100 mm, and more preferably equal to 60 mm, they are also placed at mutual distance along the longitudinal direction A, advantageously included between 100 mm and 300 mm and preferably equal to 180 mm.

[0028] With particular reference to the above figures, the fastening element 13 advantageously comprises a bottom part 131 flat, and two side walls 132 and 133 which extend perpendicularly to the bottom part 131 to form a squared U-shaped profile adapted to couple with the edge 14 which is preferably squared.

[0029] In general, the compartment 13b will be complementary to the edge 14 but with smaller dimensions in order to be coupled with the later with interference.

[0030] For example, in the case of an edge 14 having a thickness of 17.52 mm, the width of the compartment 13b, defined by the distance between the side walls 132 and 133, will preferably be 16.76 mm where the side walls 132 and 133 will have a thickness preferably of about 2.4 mm and the bottom part, a thickness of about 2 mm.

[0031] In the use of a parapet 10, according to the present invention, the fastening element 13 can be coupled over two consecutive protection elements 11 to aid mutual holding and co-planarity, thus simplifying the installation of the parapet 10 itself.

[0032] The invention thus conceived is susceptible of numerous modifications and variations, all of which are

within the scope of protection of the appended claims.

[0033] Furthermore, all the details may be replaced by other technically equivalent elements.

[0034] In practice, the materials used, as well as the contingent shapes and dimensions, may be varied according to the contingent requirements and the state of the art.

[0035] Where the constructional features and techniques mentioned in the following claims are followed by signs or reference numbers, such reference marks or numbers have been affixed with the sole purpose of increasing the intelligibility of the claims themselves and, consequently, they do not constitute in restriction on the interpretation of each element identified, purely by way of example, by such signs or reference numbers.

Claims

1. Parapet particularly for stairs, terraces and the like, comprising:

- a protection element (11) having a lower extreme (11a) fixable to a walk support and an upper extreme (11b) which extends along a longitudinal direction (A);
- a handrail (12) having a seat (12a) adapted to receive in insertion said upper extreme (11b);

characterized in that it comprises at least one U-shaped fastening element (13) and having:

- a spine (13a) adapted to be housed in said seat (12a);
- a compartment (13b) for housing an edge (14) of said upper extreme (11b);

said fastening element (13) having a length inferior to the length of said upper extreme (11b) along said longitudinal direction (A) and being in polymeric material selected between Acrylonitrile Butadiene Styrene and an aliphatic polyamide; said fastening element (13) being dimensioned with respect to the seat (12a) of said handrail (12) and the edge (14) of said upper extreme (11b) to be coupled with an interference fit with at least one of the latter.

2. Parapet according to claim 1, **characterized in that** it comprises a first blocking element (15) having a first adhesive face (15a) fixed to said spine (13a) and a second adhesive face (15b) fixed to an end of said seat (12a) to block said first blocking element (15) to said handrail (12).

3. Parapet according to one of the preceding claims **characterized in that** it comprises a second blocking element (16) having a first adhesive face (16a) fixed to said edge (14) and a second adhesive face

(16b) fixed to an inner wall (17) of said compartment (13b) to block said second fastening element (13) to said protection element (11).

4. Parapet according to claim 3 **characterized in that** said edge (14) is coated with a primer adapted to promote adhesion of the first adhesive face (15a) of said second blocking element (16) to said edge (14). 5
5. Parapet according to one of the preceding claims **characterized in that** it comprises a plurality of said fastening element (13); said fastening elements (13) having a length between 30 mm and 100 mm, and preferably 60 mm, and being placed at a mutual distance, along the longitudinal direction (A) of the said upper extreme (11b), between 100 mm and 300 mm and preferably 180 mm. 10 15
6. Parapet according to one of the preceding claims **characterized in that** said protection element (11) consists of a safety glass plate. 20
7. Parapet according to one of the preceding claims **characterized in that** said handrail (12) consists of a tube of metallic material. 25

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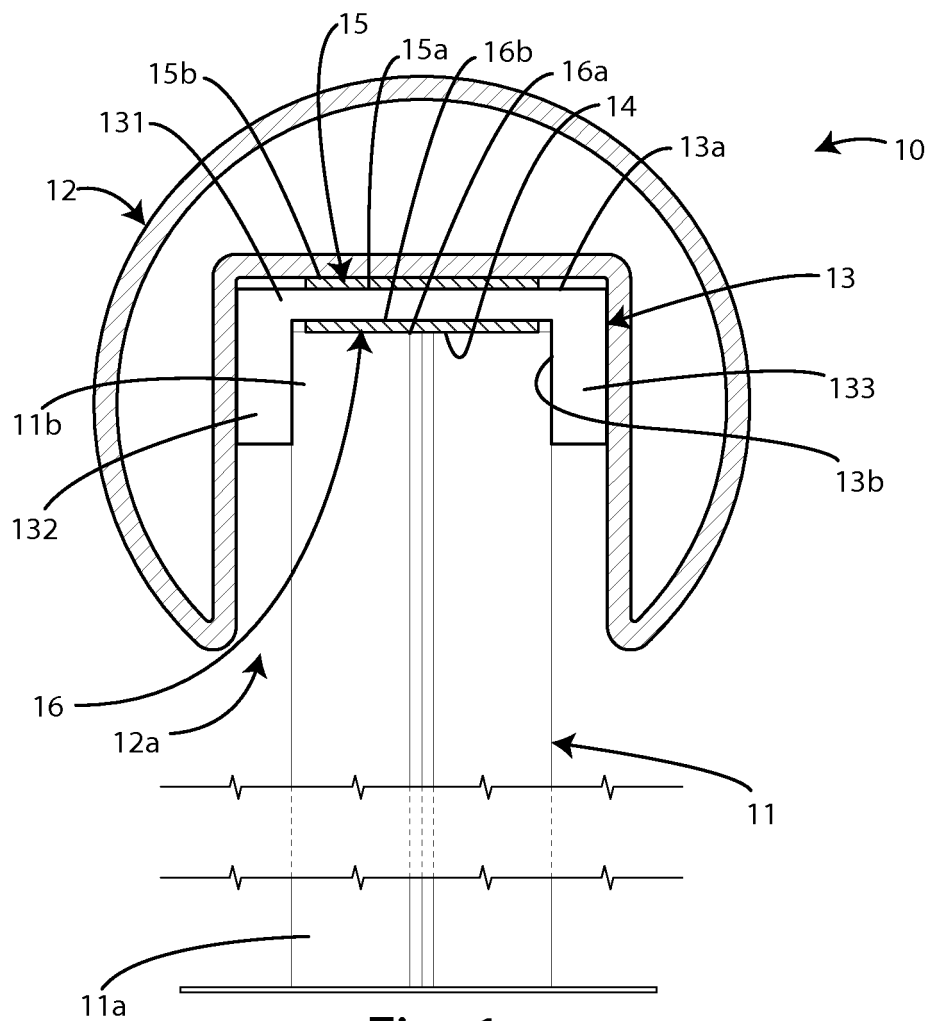


Fig. 1

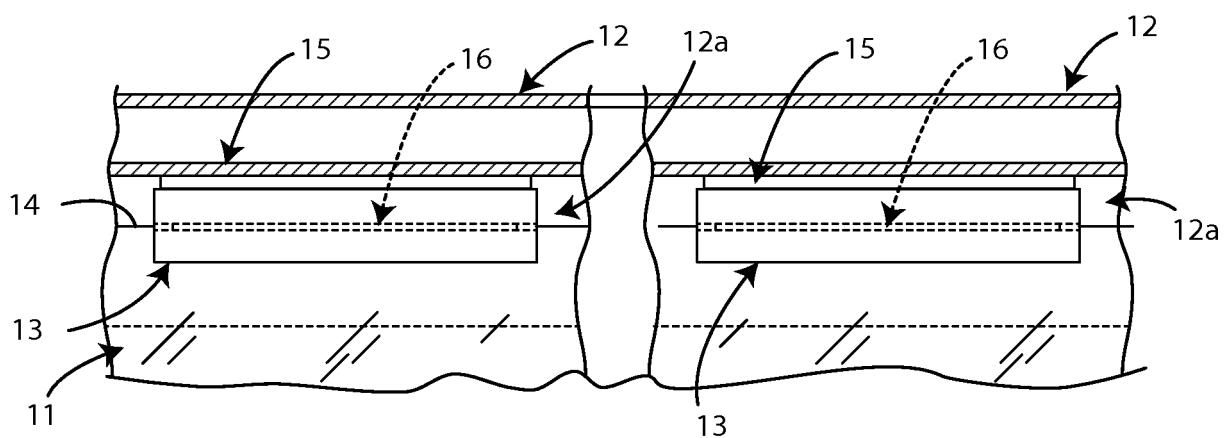


Fig. 2



EUROPEAN SEARCH REPORT

Application Number
EP 18 16 2811

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Y	JP 6 052770 B2 (LIXIL CORP) 27 December 2016 (2016-12-27) * paragraphs [0026], [0027], [0028], [0030], [0032]; figures 1,3,4 *	1-7	INV. E04F11/18
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Y	DE 20 2013 100585 U1 (QINGDAO JINFER INTERNAT TRADING CO [CN]) 19 February 2013 (2013-02-19) * paragraph [0007] *	1-7	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 21 June 2018	Examiner Warthmüller, Almut
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			

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 16 2811

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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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21-06-2018

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EPO FORM P0459

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