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(54) Lower profile for balcony railing

(57) The invention relates to a lower profile for a balcony railing, which comprises a support structure (210, 211 to 213) extending in the longitudinal direction of the lower profile to support the bottom part of one or more railing posts (41 to 45). In the invention, the lower profile (21) for a balcony railing also comprises as an additional part a cover profile (450) to be positioned on the lower profile so as to cover the front (10a) of the balcony slab (10).

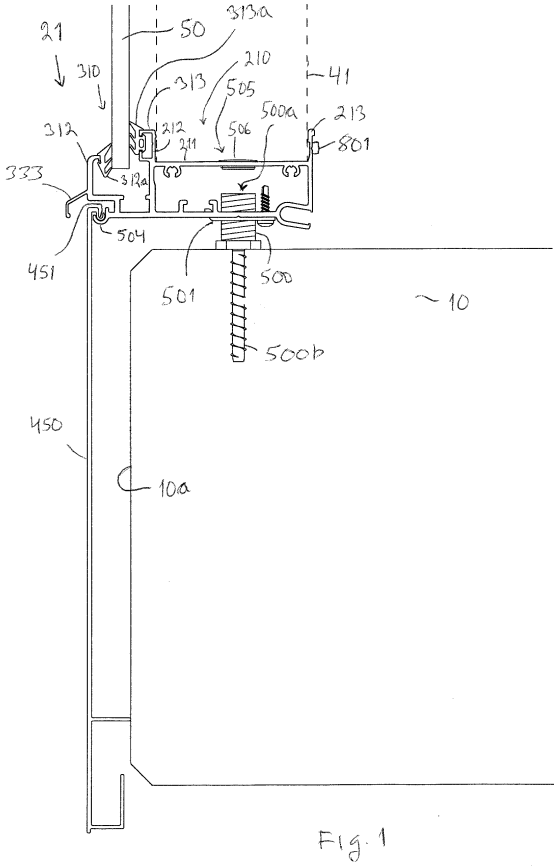

Fig. 1

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Description

Field

[0001] The invention relates to a lower profile for a balcony railing, which comprises a support structure extending in the longitudinal direction of the lower profile to support the bottom part of one or more railing posts.

Background

[0002] So as to assure the safety of being on a balcony, the front edge of the balcony has a railing structure. A railing structure equipped with cover plates also acts as a visibility and wind screen.

[0003] The railing structure is most often fastened to the side of the balcony slab, that is, in practice, to the front edge.

[0004] A second basic way that is also utilised in the present invention is to have the railing structure on the balcony slab. In such a structure, a lower support structure, such as a lower glass strip, of the cover plate structure of the balcony railing is separately fastened to the vertical posts of the railing structure. As for the front end of the balcony slab, it is known to protect the end against weather by painting the end or fastening/anchoring a separate cover plate to cover the end of the balcony slab, for instance.

[0005] Said known solutions are not sufficient in their present form, because there are problems in tightness and the amount of work and costs of the manufacture and installation.

[0006] Thus, there is a need to have a new type of lower profile for a balcony railing.

Brief description

[0007] It is an object of the invention to provide an improved lower profile for a balcony railing. This is achieved by a lower profile for a balcony railing, which is characterised in that the lower profile for a balcony railing also comprises as an additional part a cover profile to be positioned on the lower profile so as to cover the front of the balcony slab.

[0008] Preferred embodiments of the invention are disclosed in the dependent claims. The preferred embodiments enhance the advantages of the basic invention. In an embodiment, the lower profile comprises an integrated support structure that extends in the longitudinal direction of the lower profile and supports the bottom part of the cover plate structure of the balcony railing.

[0009] The improved lower profile for a balcony railing according to the invention and the railing structure that is made possible by it provide several advantages, such as fast manufacture and installation, good strength and tightness, in particular.

List of figures

[0010] The invention will now be described in greater detail in connection with preferred embodiments and with reference to the accompanying drawings, in which

Figure 1 shows an end view of a lower profile according to the invention with an additional part and on top of a balcony slab, and

Figure 2 shows a balcony with a railing structure.

Description of embodiments

[0011] With reference to the figures, the target of application is a balcony 1 with a balcony slab 10, which is a concrete slab 10 of suitable strength, either an element or cast in place. A railing structure 20 comprises a lower profile 21, such as a lower rail 21, on top of the balcony slab. In addition, the railing structure 20 comprises an upper profile 31, such as an upper rail 31, and posts 41 to 45 between the lower profile 21 and upper profile to support the upper profile. The railing structure also comprises a cover plate structure 50 formed of one or more pieces. The cover plate structure 50 can be a railing glass or plate.

[0012] The lower profile 21 may be an aluminium strip, such as profile strip, made by extrusion. The lower profile for a balcony railing comprises a support structure 210 extending in the longitudinal direction of the lower profile to support the bottom part of one or more railing posts 41 to 45.

[0013] In an embodiment, the lower profile 21 for a balcony railing may also comprise, in the same profile, a support structure 310 that extends in the longitudinal direction of the lower profile to support the cover plate structure 50 of the balcony railing from below. In other words, the support structure 310, i.e. a glass strip, supporting the cover plate structure 50 can be part of the same integrated lower profile that also has the support structure 210 of the railing posts, that is, the support structure 310 is not a separate part fastened later on to the lower profile, but formed during the extrusion step or some other manufacturing step of the lower profile. In a preferred embodiment, the lower profile 21 also has an integrated water guide 333, such as a drip mould.

[0014] The support structure 210 for the one or more railing posts 41 to 45 on the lower profile 21 comprises a crosswise support 211 that supports the post from below and side supports 212, 213 that support the post on its edges, on different sides of the bottom end of the post. The post may be fastened to the lower profile 21 by a fastening element 801 that penetrates the side support 213.

[0015] The support structure 310 that is integrated to the same lower profile 21 and supports the cover plate structure 50 comprises side supports 312, 313 that directly or through seals 312a, 313a fastened to the side supports 312, 313 supports the cover plate structure 50

on its bottom part. On the lower profile 21, on an inner side support 313 of the cover plate structure, there is a chamber for the inner seal 313a and on the outer side support 312, there is a bracket for the chamber of an outer seal 312a.

[0016] The cover profile 450 of the front 10a, or front end, of the balcony slab 10 is an additional part of the lower profile 21 to be supported to the lower profile 21. In an embodiment, a connecting structure 504 of the cover profile 450 on the lower profile 21 belongs to the same integral entity as the support structure 210, 211 to 213 for supporting the bottom part of one or more railing posts and the support structure 310, 312, 313 for supporting the bottom part of the cover plate structure 50 of the balcony railing.

[0017] The cover profile 450 of the front 10a of the balcony slab 10 is essentially vertical. It is noted that the cover profile of the front or front end 10a of the balcony slab 10 is essentially parallel to the side supports 212, 213 of the posts and the side supports 312, 313 of the cover plate structure 50.

[0018] In an embodiment, the connecting structure 504 on the lower profile 21 for the cover profile 450 of the front 10a of the balcony slab 10 forms a support structure for a counter-piece 451 on the top part of the cover profile; the implementation may then be such that the connecting surface between the connecting structure 504 on the lower profile 21 and the counter-piece 451 on the cover profile 450 added to the lower profile is curved or otherwise permits their relative rotation, because it facilitates getting the cover profile in the upright position.

[0019] It is noted that the connecting structure 504 that is on the lower profile 21 of the lower profile structure and intended for the cover profile 450 of the end of the balcony slab is at least partly below the support structure 310, 312 of the cover plate structure 50 of the balcony railing.

[0020] The figures show that the outer side support 212 of the support structure 210 supporting the post from below comprises as a projecting structure a side support 313, which is, thus, the inner side support 313 of the cover plate structure 50.

[0021] Figures 1 to 2 show that in an embodiment, the support structure 210, 211 to 213 for supporting the bottom part of one or more railing posts 41 to 45 and the support structure 310, 312, 313 for supporting the bottom part of the cover plate structure 50 of the balcony railing are substantially parallel, when the lower profile is seen from the direction of its end.

[0022] An integrated lower profile 21 intended for a balcony railing and containing several structures and a railing structure 20 containing such a lower profile are described above.

[0023] In the lower profile 21 in Figure 1, there is a height controller 500 to 501 for adjusting the elevation of the lower profile 21 in relation to the balcony slab 10. With it, the effect of the inclination of the balcony slab can be eliminated, that is, the lower profile 21 can be positioned horizontally even though the balcony slab 10 was inclined. For the use of the height controller 500 to 501, the lower profile 21 comprises on its surface 211 a through-hole 505 that is essentially penetrable in the vertical direction, i.e. the adjustment is done by a tool through the surface 211 from the top toward the bottom by means of a driver 500a or turning point in the middle of the part 500. The height controller 500 to 501 also comprises an outer thread sleeve 500 that is turned from above on its driver and that cooperates with an inner thread sleeve 501 in a hole penetrating through the lower surface of the lower profile 21. The driver 501 a is a hex socket, for instance. The rotatable outer thread sleeve 500 is fastened to the balcony slab 10 by a screw 500b. In Figure 1, the through-hole 505 is covered by a shield plug 506 after the adjustment has been made.

[0024] It is obvious to a person skilled in the art that as technology advances the basic idea of the invention may be implemented in many different ways. The invention and its embodiments are thus not restricted to the examples described above but may vary within the scope of the claims.

Claims

1. A lower profile for a balcony railing, which comprises a support structure (210, 211 to 213) extending in the longitudinal direction of the lower profile to support the bottom part of one or more railing posts (41 to 45), **characterised in that** the lower profile (21) for a balcony railing also comprises as an additional part a cover profile (450) to be positioned on the lower profile so as to cover the front (10a) of a balcony slab (10).

2. A lower profile for a balcony railing as claimed in claim 1, **characterised in that** the lower profile (21) for a balcony railing comprises in the same profile a connecting structure (504) for the cover profile (450) of the front of the balcony slab.

3. A lower profile for a balcony railing as claimed in claim 2, **characterised in that** the connecting structure (504) in the lower profile (21) for the cover profile of the front (10a) of the balcony slab (10) forms a support structure for a counter-piece (451) in the top part of the cover profile (450).

4. A lower profile for a balcony railing as claimed in claim 3, **characterised in that** the connecting surface between the connecting structure (504) on the lower profile (21) and the counter-piece (451) on the cover profile (450) added to the lower profile is curved or otherwise permits their relative rotation.

5. A lower profile for a balcony railing as claimed in claim 1, **characterised in that** it also comprises in the same profile a support structure (310, 312, 313)

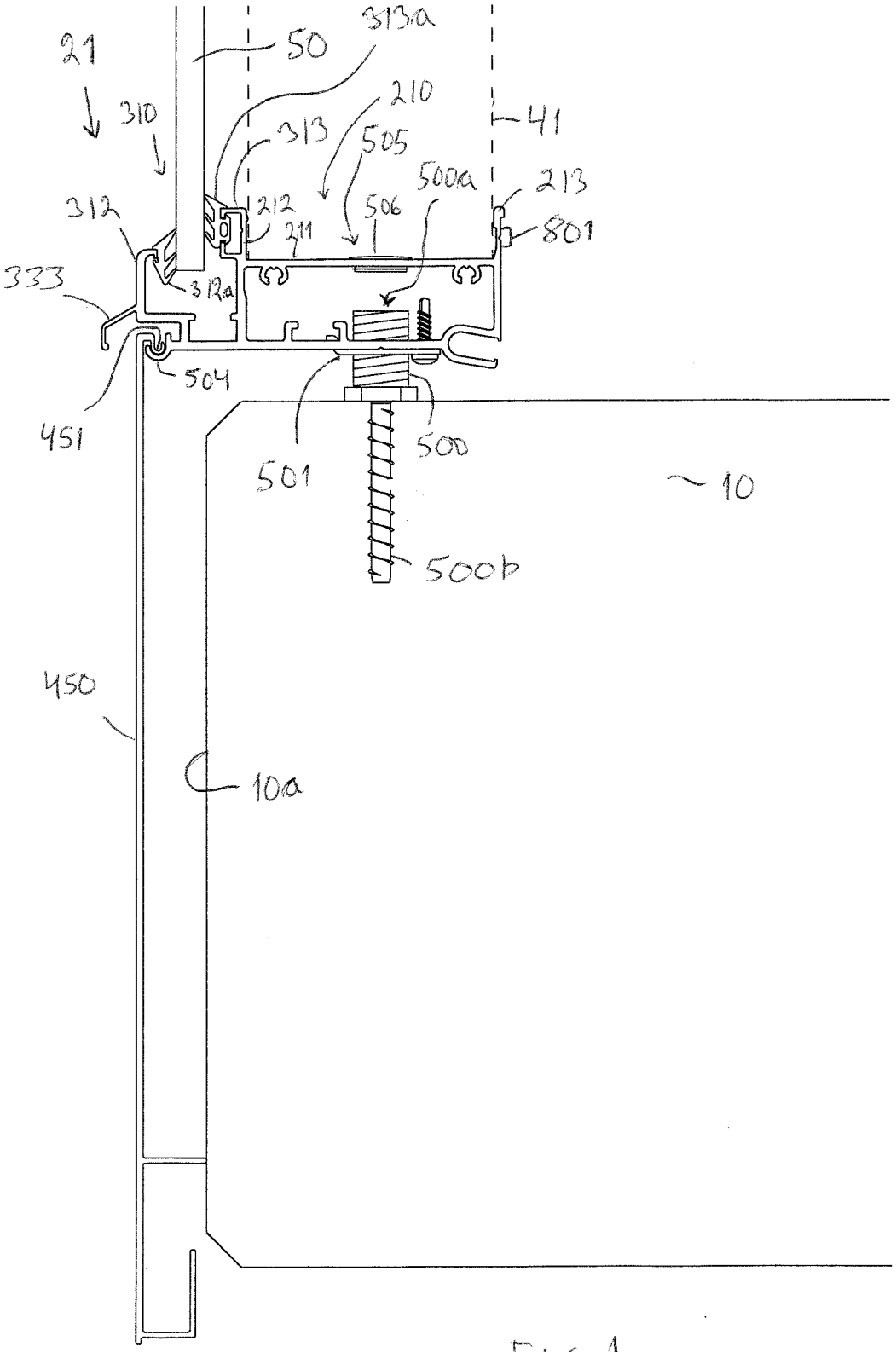
that extends in the longitudinal direction of the lower profile for supporting the bottom part of the cover plate structure (50) of the balcony railing.

6. A lower profile for a balcony railing as claimed in claim 5, **characterised in that** the connecting structure (504) of the cover profile (450) of the front of the balcony slab on the lower profile (21) belongs to the same integral entity as the support structure (210, 211 to 213) for supporting the bottom part of one or more railing posts and the support structure (310, 312, 313) for supporting the bottom part of the cover plate structure (50) of the balcony railing.

7. A lower profile for a balcony railing as claimed in claim 5, **characterised in that** the support structure (210, 211 to 213) for supporting the bottom part of one or more railing posts and the support structure (310, 312, 313) for supporting the bottom part of the cover plate structure (50) of the balcony railing are substantially side by side.

8. A lower profile for a balcony railing as claimed in claim 5, **characterised in that** the connecting structure (504) for the cover profile (450) is at least partly below the support structure (310, 312) of the cover plate structure (50) of the balcony railing.

9. A lower profile for a balcony railing as claimed in any one of the preceding claims, **characterised in that** the lower profile (21) and/or the cover profile (450) supported as an additional part to the lower profile are extruded aluminium profiles.


21
50
313a
310
210
313
505
41
500a
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500b
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Fig. 1

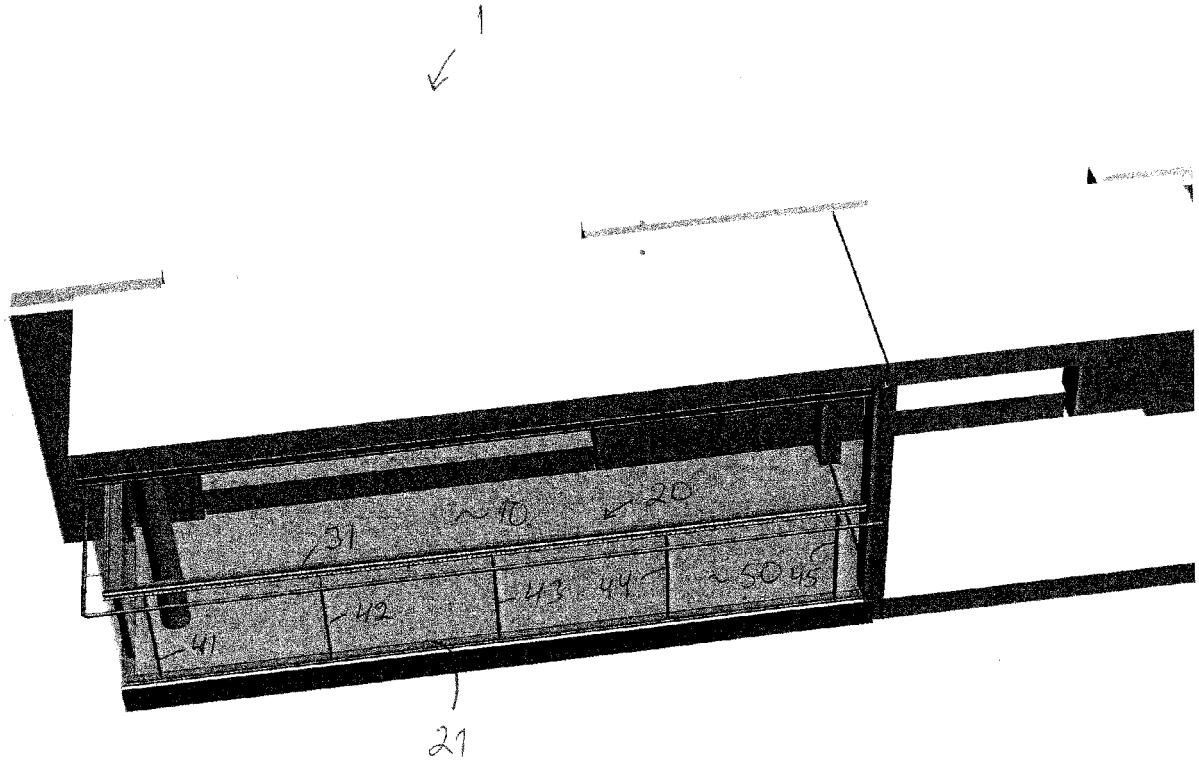

FIG. 2.

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EUROPEAN SEARCH REPORT

Application Number
EP 14 16 3016

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 197 14 060 A1 (ROESGEN HANS PETER [DE]) 8 October 1998 (1998-10-08) * column 2, line 26 - line 31 * * column 2, line 54 - column 3, line 25 * * figure 1 *	1-9	INV. E04F11/18
A	DE 20 2009 013777 U1 (WENDLANDT BALKONBAU GMBH [DE]) 7 January 2010 (2010-01-07) * paragraphs [0001], [0021], [0023] * * figures 1-4 *	1-9	
A	EP 0 789 114 A1 (SKS STAKUSIT KUNSTSTOFF GMBH [DE]) 13 August 1997 (1997-08-13) * column 1, line 3 - line 6 * * column 4, line 16 - line 21 * * column 6, line 33 - line 38 * * figures 1,5 *	1-9	
A,P	EP 2 677 093 A2 (ALUTEC OY [FI]) 25 December 2013 (2013-12-25) * figures 1,2 *	1-9	

TECHNICAL FIELDS SEARCHED (IPC)
E04B
E04F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	10 July 2014	Arsac England, Sally

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 14 16 3016

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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10-07-2014

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