



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
06.11.2013 Bulletin 2013/45

(51) Int Cl.:
E04B 1/00 (2006.01)

(21) Application number: **13165883.3**

(22) Date of filing: **30.04.2013**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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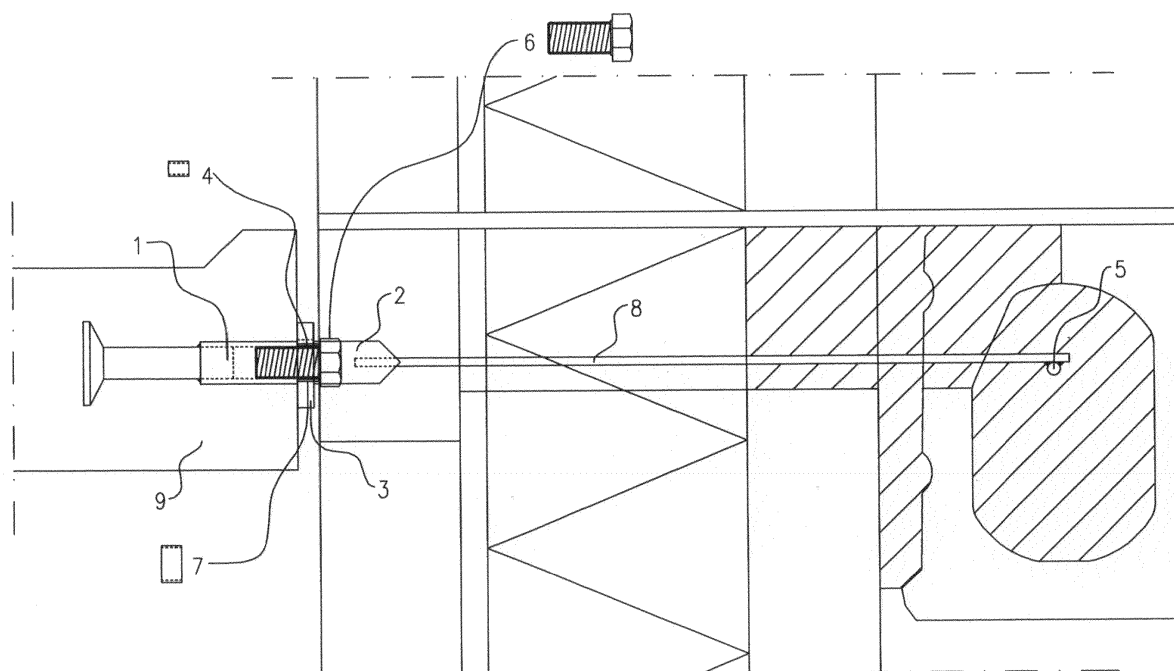
(30) Priority: **02.05.2012 FI 20125478**

(54) **Hinge for balcony**

(57) Object of the invention is a hinge for a balcony which includes a connecting anchor (1) installed in a balcony slab (9). According to the invention the hinge for a

balcony includes a steel section (2-5, 8) adjustably installable to the connecting anchor (1) by means of connecting sections (5, 6), which steel section is fastenable to slabs (10) of a building in connection with installation.

FIG. 1



Description

[0001] The invention relates to a hinge for a balcony according to the preamble of claim 1.

[0002] The hinge for a balcony is used in steel- and concrete-element balconies in fastening balcony slabs to the frame of a building. The balcony hinge transfers horizontal loads directed to the balcony slab from the balcony to the building but allows small vertical movements due to variation in the balcony temperature.

[0003] Prior-art balcony hinges and their use include the following disadvantages. Their parts are not suitable for slab lifting and the lifting requires separate lifting inserts. Fastening the parts of prior-art balcony hinges is awkward and all models of balcony hinges do not endure compression. A further disadvantage is that the models of prior-art balcony hinges are not dimensioned to consider the increased U-value requirements of exterior walls (thicker exterior walls).

[0004] An object of the invention is to introduce a hinge for a balcony which eliminates disadvantages related to prior-art balcony hinges. A particular object of the invention is to introduce a hinge for a balcony which facilitates the handling of balcony elements during manufacture, liftings and fastening and which allows thermal movements of the balcony frame at the same time as it transfers horizontal loads directed to the balcony to the slabs and frame constructions of the building.

[0005] The object of the invention is achieved with a hinge for a balcony which is characterised by what is presented in the claims.

[0006] The hinge for a balcony according to the invention includes a steel section adjustably connectable to a connecting anchor via connecting sections, which is fastenable to the slabs of the building in connection with installation. Then, the steel section in the element used for lifting, moving and installing a balcony element or some other element can be utilised for fastening a balcony or some other element to the frame of the building by means of a separate steel section. Such a balcony hinge is a balcony hinge allowing the movement of the balcony and transferring the horizontal loads (compression, tensile and shearing loads) of the balcony.

[0007] In an advantageous embodiment of the invention in the connection point, there is a connecting plate open of its lower edge, whereby the installation from top down is easy and can be performed without tools. This way of connection is different from those of other balcony hinges.

[0008] In an advantageous further embodiment of the invention, the connecting sections include a connecting screw fastenable to the connecting anchor and between them an elevating sleeve by means of which the distance of the connecting screw from the connecting anchor is adjusted.

[0009] In another advantageous further embodiment of the invention, an adjusting ring is installed in the connecting plate and the adjusting ring is arranged to adjust

the correct position of the steel section in the installation stage.

[0010] The connecting anchor of the balcony hinge is installed in the balcony slab during the manufacture of the slab element. The connecting anchor installed in the balcony slab is used for lifting the balcony slab at the element factory as well as in the transport and transfer stage of the balcony slab. The connecting anchors of the balcony hinges also operate as the lifting inserts of the balcony slab during the installation of the balcony slab. One end of the steel section is installed at the work site in a connection formed by the connecting anchor, the elevating sleeve and the connecting screw and the other end is fastened to the slabs of the building in connection with the installation of the balcony slabs.

[0011] The section in the balcony slab element or other element is versatile and it can be used for stripping and transferring the element and even for binding the load during transport and storage. In the end purpose, an arch section of the balcony hinge is connected via a connecting bolt to this inner thread section in the slab. No separate lifting parts are required, which brings about material savings and saves time. At the work site, the installation of the arch section does not require separate tools, whereby the installation is quicker.

[0012] The balcony hinge according to the invention is easy to install and fasten and it endures shearing, tension and compression. The balcony hinge according to the invention is dimensioned such that its construction also considers the increased U-value requirements of exterior walls. The same connecting anchor is used for transferring horizontal loads directed to the balcony in the use stage of the building.

[0013] The connecting anchor coming to the balcony slab and the connection of the steel section connected to it are designed such that the steel section can be installed freely from top down on top of the sleeve coming between the connecting anchor and the screw.

[0014] The balcony hinge consists of various functional parts which save labour and material during the manufacture, liftings and fastening of the balcony slab. The balcony hinge allows the thermal movements of the balcony frame when it transfers forces directed to the balcony to the slabs and frame constructions of the building.

[0015] The invention will now be described in more detail with reference to the accompanying drawing in which

Fig. 1 shows a side and cut view of an embodiment of a hinge for a balcony according to the invention when the balcony has been installed in place and

Figs. 2 and 3 show a side and top view of the hinge for a balcony according to Fig. 1.

[0016] The main parts of the hinge for a balcony are a balcony-hinge connecting anchor 1, a steel section and balcony-hinge connecting sections 6 and 7. The steel section of the hinge for a balcony includes an arm 8,

flanges 2 fastened to the arm, a connecting plate 3, an adjusting ring 4, and an anchor bar 5. The connecting sections of the hinge for a balcony are a connecting screw 6 and an elevating sleeve 7. The connecting anchor 1 of the hinge for a balcony is installed in a balcony slab 9 at the factory and it also operates as the lifting insert of the balcony slab during transfers and installation. The steel section is fastenable to the connecting anchor by means of the connecting screw 6.

[0017] The arm 8 of the steel section is installed in the slabs of the building in connection with installation. According to Figs. 2 and 3, the arm 8 is in this embodiment a planar part, in the vicinity of the end on the side of the building of which is fastened the anchor bar 5 vertical in relation to it. At the other end of the arm 8 of the steel section are fastened the flanges 2 and between the flanges at a distance from the end of the arm is fastened the connecting plate 3 in the middle of which there is the adjusting ring 4. The connecting plate 3 is a steel plate open of its lower edge. The steel section is settable in its correct place by means of the adjusting ring 4 installed in the connecting plate 3. Furthermore by means of the adjusting ring, the correct position of the steel section is adjusted in the installation stage.

[0018] The connection of the connecting anchor coming to the balcony slab and the steel section connected to it allows a free vertical movement up- or downwards of about ± 7 mm at the same time as the connection conveys horizontal loads directed to the balcony 9 to slabs 10 and the frame constructions of the building.

[0019] The connecting anchor coming to the balcony slab and the connection of the steel section connected to it are such that the steel section can be installed freely from top down on top of the elevating sleeve coming between the connecting anchor and the connecting screw. The elevating sleeve connectable to the connecting anchor is designed such that it allows the vertical free movement of the balcony hinge.

[0020] The balcony hinge according to the invention is manufactured almost totally on stainless steel parts. The sections visible in the construction and in touch with outdoor air are stainless, whereby the life of the balcony hinge is at least the same as the life of the building.

[0021] Even though the description above depicts an embodiment related to a balcony and a balcony element and a hinge for a balcony, it is evident that an equivalent construction can also be used in fastening other elements to the frame of a building by a separate steel section.

[0022] The invention is not limited to the advantageous embodiment described, but it can vary within the scope of the inventive idea presented in the claims.

Claims

1. A hinge for a balcony which includes a connecting anchor (1) installed in a balcony slab (9), **characterised in that** the hinge for a balcony includes a steel

section (2-5, 8) adjustably installable to the connecting anchor (1) by means of connecting sections (5, 6), which steel section is fastenable to slabs (10) of a building in connection with installation.

2. A hinge for a balcony according to claim 1, **characterised in that** in the connection point there is a connecting plate (3) open of its lower edge.
3. A hinge for a balcony according to claim 1, **characterised in that** the connecting sections include a connecting screw (6) fastenable to the connecting anchor (1) and between them an elevating sleeve (7) by means of which the distance of the connecting screw from the connecting anchor is adjustable.
4. A hinge for a balcony according to claim 1, **characterised in that** the steel section of the hinge for a balcony includes an arm (8), arm flanges (2), a connecting plate (3), an adjusting ring (4), and an anchor bar (5).
5. A hinge for a balcony according to claim 4, **characterised in that** the adjusting ring (4) is installed in the connecting plate (3) and arranged to adjust the position of the steel section in the installation stage and during use.

FIG. 1

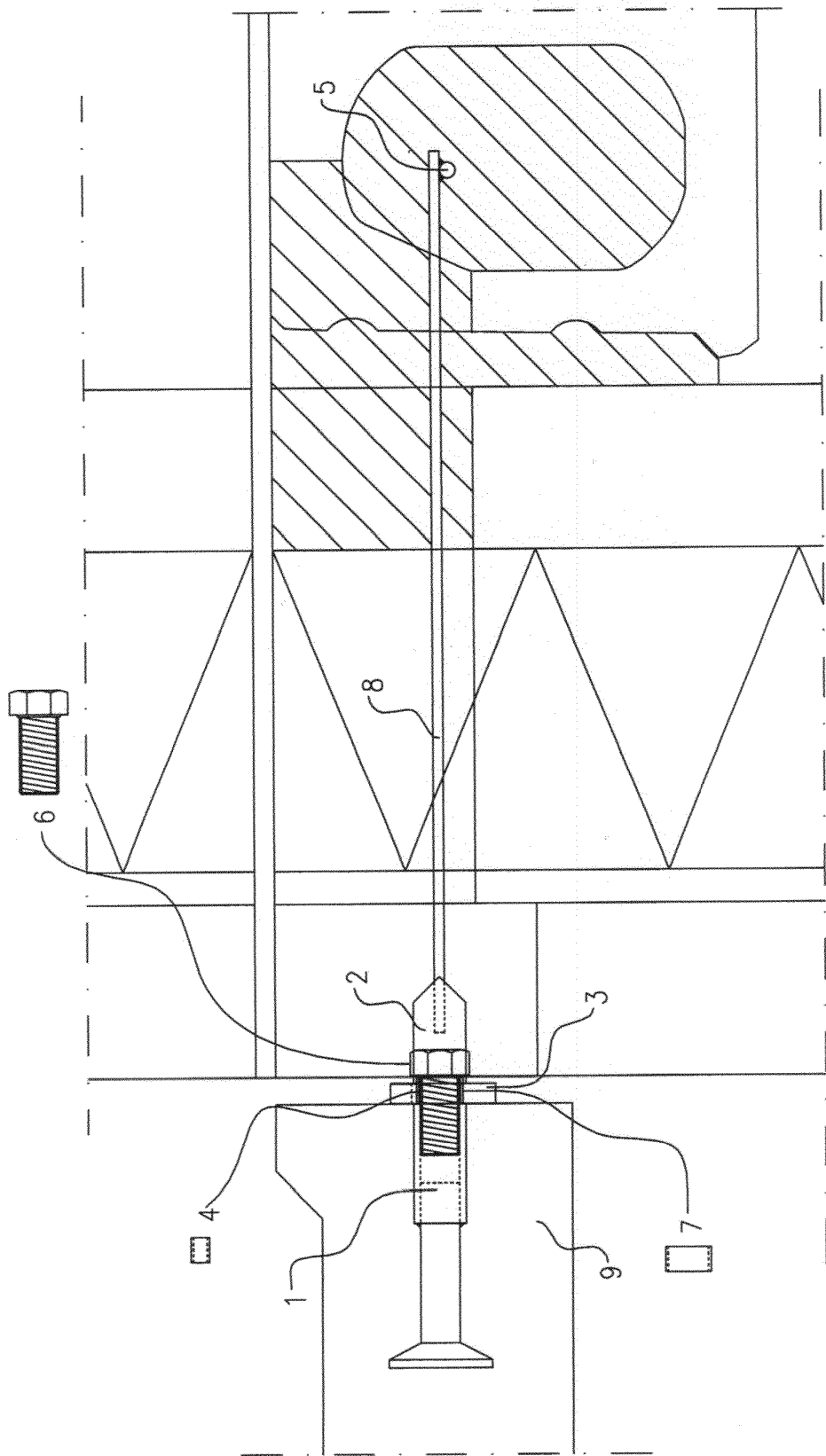


FIG. 2

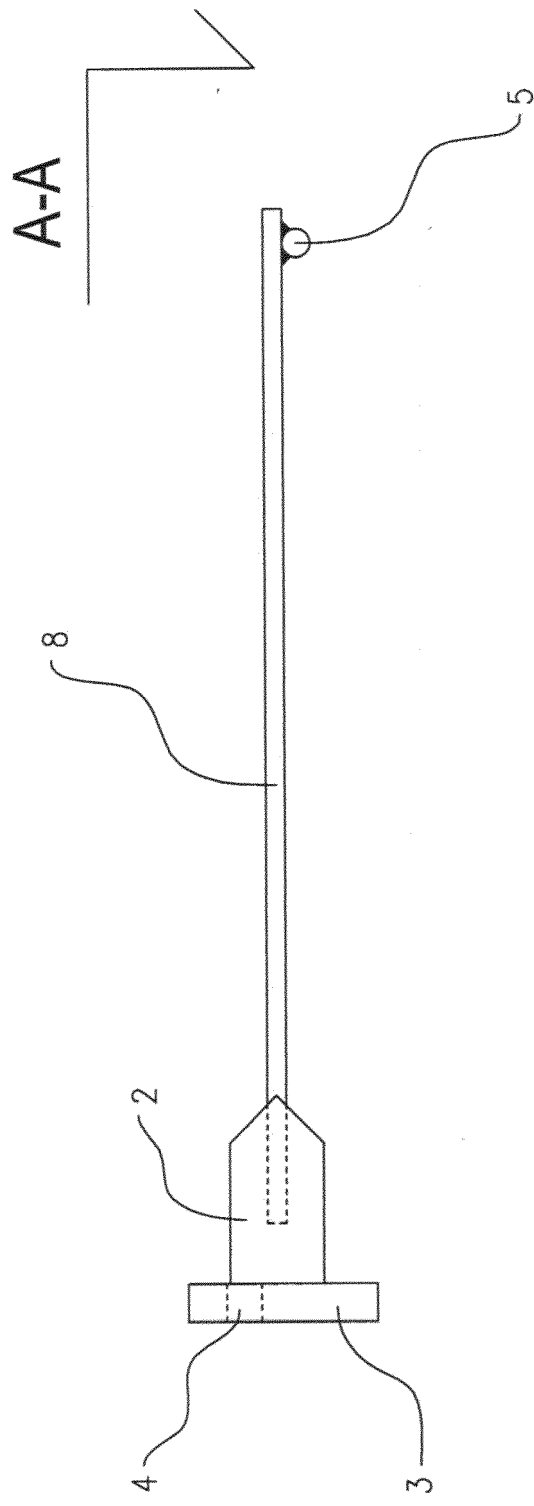


FIG. 3

