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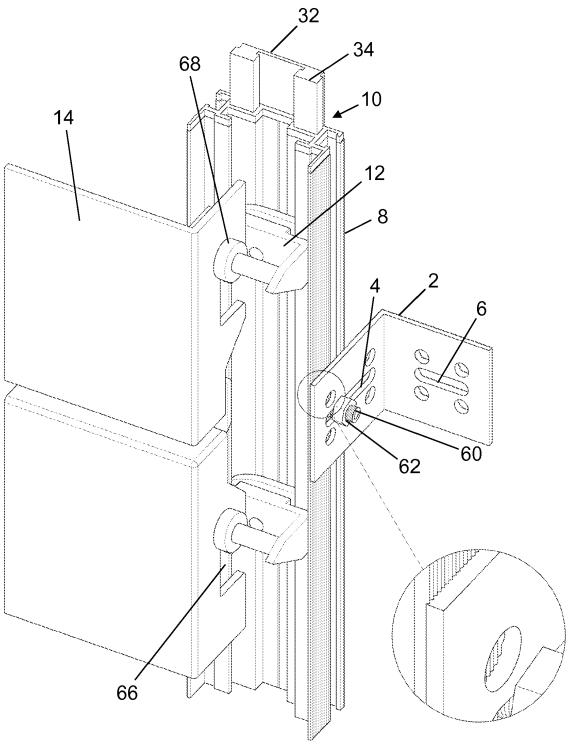
(54) Fixing system for ventilated walls

(57) A fixing system for ventilated walls, comprising:
- a C-shaped profile (8) with its parallel edges bent inwards to form two flanges (20),
- a U-shaped coupling block (12) with its arms (38) joined together by a bar (40) forming a support element for the cladding panels, the central portion of said block being of substantially rectangular-plan parallelepiped shape corresponding to the space bounded by the bent edges (20) and by the base wall of the C-shaped profile, said block having an edge of one of the two major sides connected to an edge of one of the two minor sides by a curved portion, the curved portions being diagonally opposite,
- an element (58) inserted into a bush (56) provided in the central portion of the block and opposingly engaging the central portion of the C-shaped profile.

FIG. 1



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Description

[0001] The present invention relates to a fixing system for ventilated walls.

[0002] Ventilated walls are known, formed by applying to a masonry or other wall a cladding made from panels mounted at a certain distance from the wall, such as to form an air duct between the wall and the cladding.

[0003] The panel is generally fixed to the wall by C-profiles which are mounted vertically with their cavity facing outwards from the wall and remotely adjustable to it. Fixing pins for the box-like panels are inserted into the groove of the profiles.

[0004] This known system presents however certain drawbacks, and in particular:

- a certain laboriousness in inserting the pins into the cavity of the vertical profiles, as this operation can only be carried out from the end of the profile,
- a considerable time loss and laboriousness if the pins need to be removed and replaced following breakage, as this operation requires the prior removal of all the pins positioned above or below that to be replaced.

[0005] These drawbacks are eliminated according to the invention, by a wall fixing system as described in claim 1.

[0006] The present invention is further clarified hereinafter with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of the fixing system according to the invention,
Figure 2 is a plan view of the upright,
Figure 3 is a perspective view of the fixing block, and
Figure 4 is a perspective view showing the steps involved in inserting the block into the profile.

[0007] As can be seen from the figures the fixing system of the invention comprises substantially:

- an angle bracket 2 of extruded aluminium comprising slotted holes 4, 6 respectively,
- an upright 8,
- a nylon junction tube structure 10 for the superposed uprights,
- a coupling block 12 for the cladding panels 14.

[0008] The upright 8 is formed of extruded aluminium and comprises a C-shaped portion 16, the central core of which is provided with a groove 18 and with webs 22 having 90°-bent edges 20 provided with two V-shaped ribs 24 facing the groove. Each web 22 extends into L-shaped appendices 26, 28 respectively.

[0009] The outer surface of the larger portion 30 of the L-shaped appendix 26 is knurled for the reasons stated hereinafter.

[0010] The junction tube structure 10 presents a central part 32 and two lateral blocks 34, the shape of which corresponds to the seats 36 formed by the L-shaped appendix 28 together with the base wall of the groove 18.

[0011] The coupling block 12 consists substantially of a U-piece the arms 38 of which are spaced apart by a distance slightly less than the distance between the portions 30, they being connected together by a cylindrical piece 40 and to the central core 42, which extends into two profiled parts 44, 46 respectively.

[0012] The part 44 is of substantially rectangular-plan parallelepiped shape with the distance between the minor sides substantially corresponding to the distance between the facing edges 20 of the webs 22 and with the minor sides provided with two diagonally facing curved portions 48.

[0013] Likewise, the part 46 is of substantially rectangular-plan parallelepiped shape with the distance between the minor sides substantially corresponding to the distance between the webs 22 and provided with two diagonally facing faceted curved portions 50.

[0014] The part 46 forms with the U-piece two parallel grooves 52, that outer surface of the part 46 facing the groove 52 being provided with two V-shaped grooves 54 having their distance between axes equal to the distance between the axes of the V-shaped ribs 24 of the upright 8.

[0015] The coupling block is also provided with a bush 56 in which a through screw 58 engages.

[0016] To assemble the fixing system, the procedure is as follows: the L-shaped angle brackets 2 are firstly fixed to the wall of the building, then the uprights 8 with the junction tube structures 10 inserted into the grooves 36 are fixed to that angle bracket portion perpendicular to the wall. The connection between the uprights and angle brackets is made by bolts having their rectangular-plan parallelepiped head inserted into the seat formed by the L-shaped appendices 28 and 30, and their shank 60 inserted into the slotted hole 4 and locked by a nut 62.

[0017] During this stage, the engagement between the knurled surface of the upright and that of the angle bracket prevents mutual slippage.

[0018] The vertically disposed coupling block (see Figure 4) is then inserted into the upright and then rotated through 90° on the side in which the faceted portions 48, 50 are present, such that the minor surfaces of the parts 44 and 46 lie vertically and the ribs 24 engage in the corresponding grooves 54.

[0019] Then after positioning the coupling element at the desired height along the upright 8, the screw 58 is rotated such that the thrust of the head of the shank against the base wall of the slot 18 prevents slippage of the element within the cavity.

[0020] The cladding panel 14 is then applied to the cylindrical piece 40 at a coupling slot 66 provided in the side edge. The stability of the horizontal configuration is ensured by applying to the cylindrical piece a washer 68, which provides the correct distance between adjacent panels.

[0021] When the coupling block needs to be removed, the screw 58 is firstly rotated to disengage it from the profile base, after which the block 12 is rotated to bring it into the horizontal position, and then extract it from the profile groove.

[0022] From the aforegoing it is apparent that the fixing system of the invention enables coupling blocks to be easily inserted into and removed from C-shaped uprights without having to remove other blocks.

Claims

1. A fixing system for ventilated walls, comprising:

   - a C-shaped profile (8) with its parallel edges bent inwards to form two flanges (20),
   - a U-shaped coupling block (12) with its arms (38) joined together by a bar (40) forming a support element for the cladding panels, the central portion of said block being of substantially rectangular-plan parallelepiped shape corresponding to the space bounded by the bent edges (20) and by the base wall of the C-shaped profile, said block having an edge of one of the two major sides connected to an edge of one of the two minor sides by a curved portion, the curved portions being diagonally opposite,
   - an element (58) inserted into a bush (56) provided in the central portion of the block and opposingly engaging the central portion of the C-shaped profile.

2. A system as claimed in claim 1, **characterised in that** the C-shaped profile has its central portion provided with a groove (18), and the bent edges (20) of its webs (22) provided with a rib (24) facing the profile cavity.

3. A system as claimed in claim 2, **characterised in that** each web (22) extends into L-shaped appendices (26, 28) respectively.

4. A system as claimed in claim 1 , **characterised in that** the external surface of the larger portion (30) of the L-shaped appendix (26) is knurled.

5. A fixing system as claimed in claim 1, **characterised by** also comprising junction tube structures (10) consisting of a central part (32) and two lateral blocks (34) engageable in seats (36) formed by the L-shaped appendices (28) together with the base wall of the groove (18).

6. A system as claimed in claim 1, **characterised in that** the central portion of the block extends into two profiled parts (44, 46) respectively, each of which is of substantially rectangular-plan parallelepiped shape.

7. A system as claimed in claim 6, **characterised in that** the distance between the minor sides of the part (44) substantially corresponds to the distance between the facing edges (20) of the webs (22).

8. A system as claimed in claim 1, **characterised in that** the distance between the minor sides of the part (46) substantially corresponds to the distance between the webs (22).

9. A system as claimed in claims 2 and 6, **characterised in that** the part (46) forms with the central portion of the block two parallel grooves (52), that outer surface of the part (46) facing the groove (52) being provided with two V-shaped grooves (54) having their distance between axes equal to the distance between the V-shaped ribs (24) of the profile.

FIG. 1

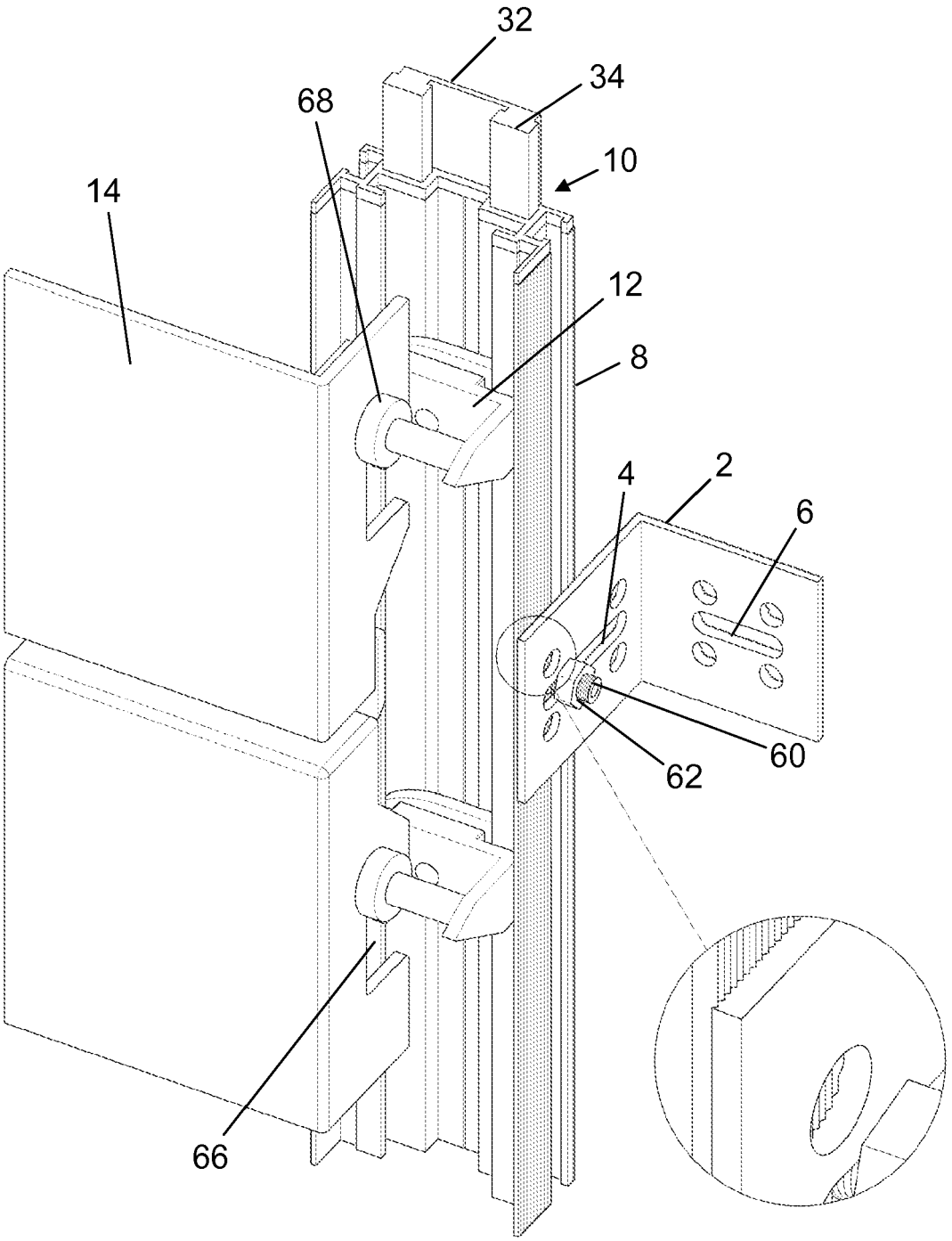


FIG. 2

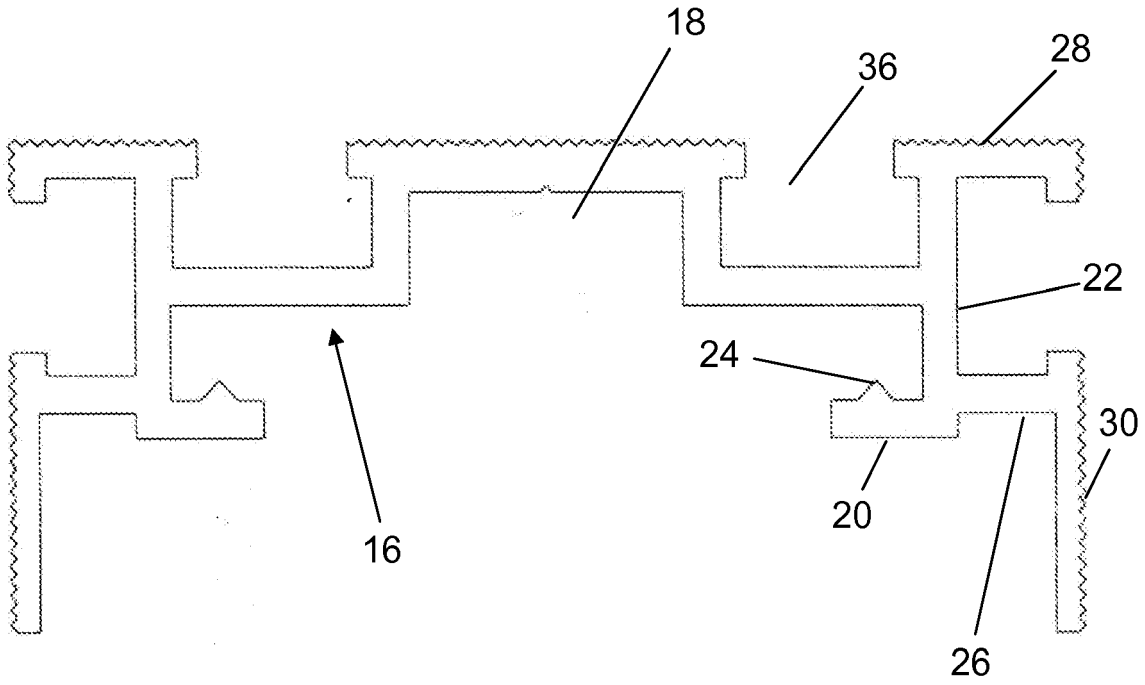


FIG. 3

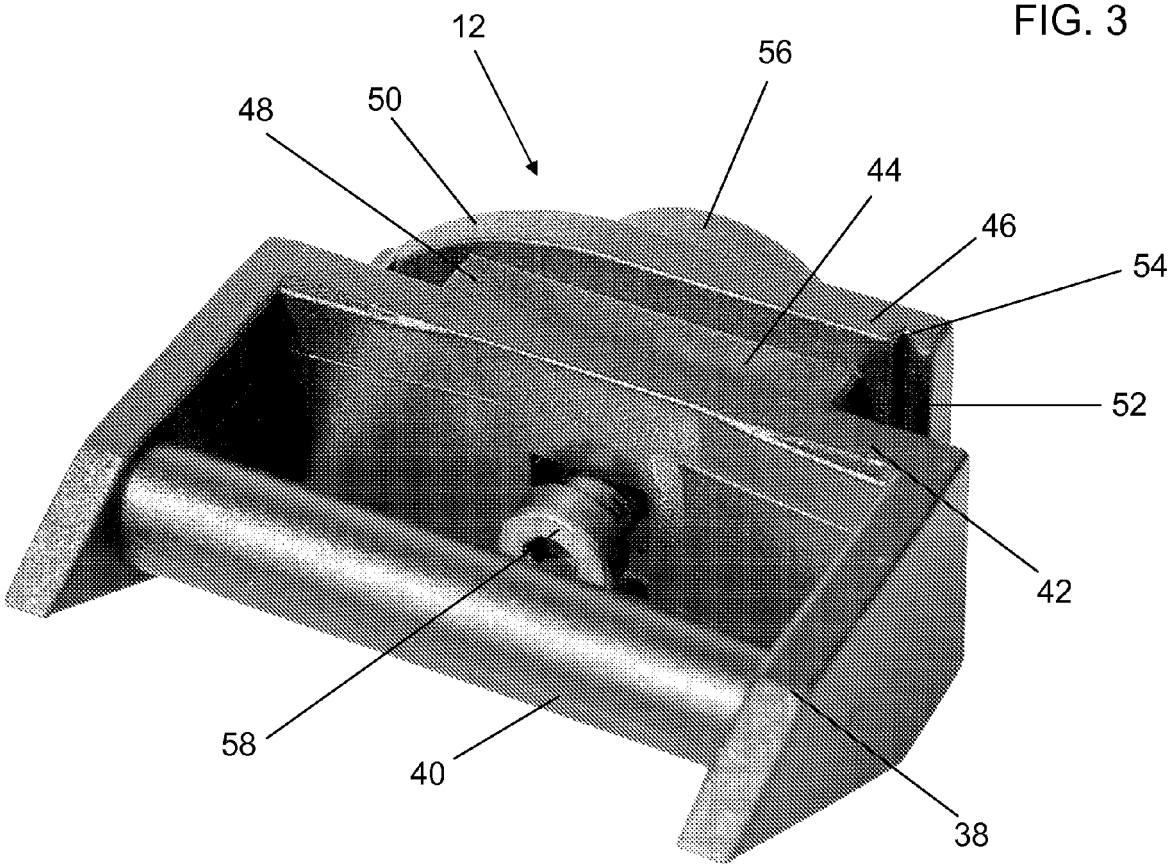
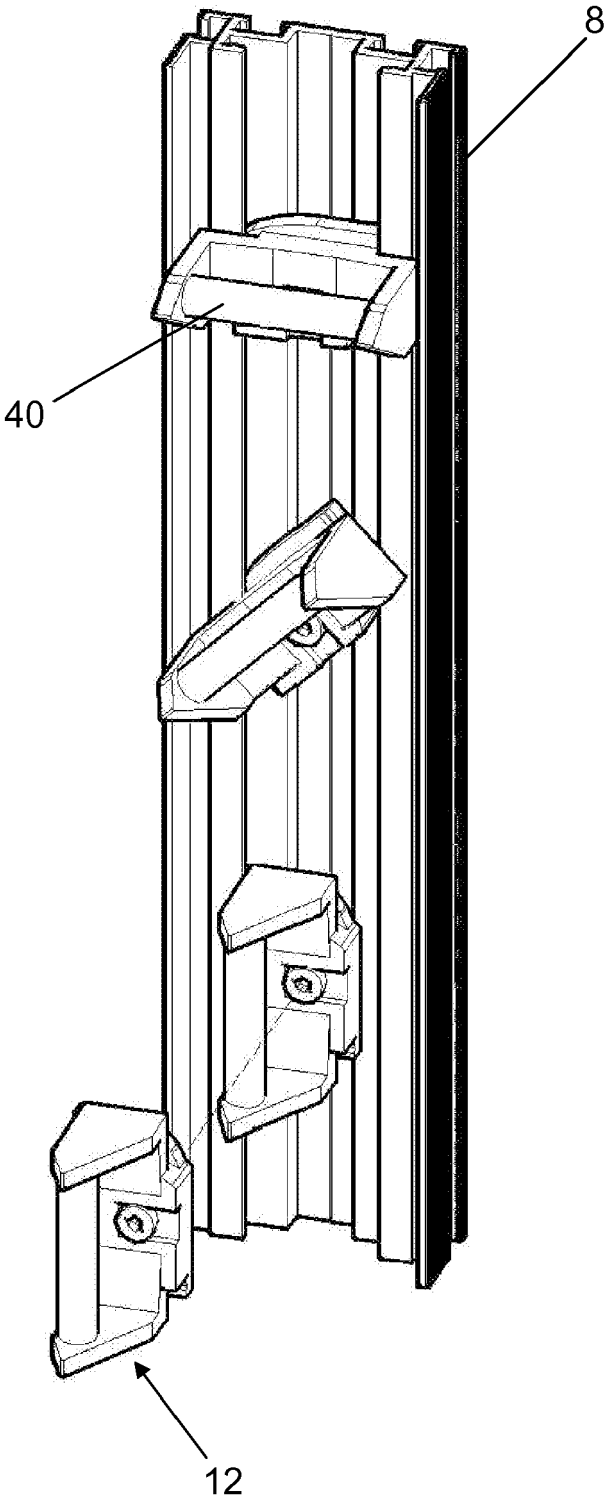


FIG. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 10 18 6401

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	EP 0 205 793 A2 (ICKLER AG [CH]) 30 December 1986 (1986-12-30) * page 4, line 19 - page 9, line 29 * * figures 1-3 *	1,8	INV. E04F13/08
Y	DE 10 2005 044322 A1 (NBK KERAMIK GMBH & CO [DE]) 5 April 2007 (2007-04-05) * paragraph [0023]; figures 2,3 *	1,8	
A	WO 2007/138634 A2 (STARPUR S R L [IT]; COMITINO ANTONIO [IT]) 6 December 2007 (2007-12-06) * page 2, line 27 - page 3, line 3; figures 4,5 *	1,8	

TECHNICAL FIELDS SEARCHED (IPC)
E04F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	7 February 2011	Severens, Gert

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07-02-2011

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