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(54) **DEVICE FOR TILES LEVELLING**

(57) The subject of the invention is a device for tiles levelling, in particular for adhesive-fixed cladding tiles, which allows the tiles to be positioned in one plane through levelling of the neighbouring tiles.

The device for tiles levelling according to the invention has the body (1) provided in its central part with a passage opening (2) inside of which there is a slidingly fitted core (4) of the body (3) provided with a positioning element (14) and a main knob (5), whose flange (27) is

fixed inside the seat (28) of the holder (29), whereby in the corners (6), (6'), (6''), (6''') of the body (1) there are threaded passage openings (7), (7'), (7''), (7''') for spacer knobs (8), (8), (8''), (8''') arranged on a square plan, whereas in the cross-section transversal to their longitudinal axis the opening (2) and the core (4) are in the shape of a polygon or an irregular geometric figure of the contour in the shape of arcs.

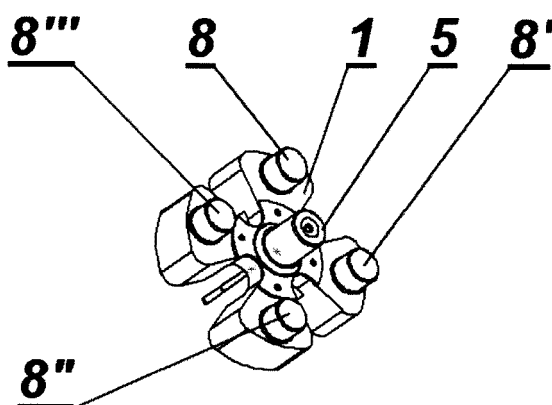


Fig. 13

Description

[0001] The subject of the invention is a device for tiles levelling, in particular for adhesive-fixed cladding tiles, which allows the tiles to be positioned in one plane by levelling the neighbouring tiles.

[0002] Up to now, tile cross spacers have been used during laying ceramic tiles or other materials on walls, floors and other surfaces on which distance between contact surfaces of tiles is fixed. Tile cross spacers are provided with a pin of fixed diameter resting on four arms positioned in one plane which is perpendicular to the pin axis, whereby each spacer arm is located at an angle of 90° in relation to the next one. During tiles mounting tile cross spacers are positioned between contact surfaces of the tiles or in their corners, and the tiles are pressed to each other - in this way obtaining a fixed-width joint after the adhesive sets is ensured. Pins which protrude above the tiles surface are removed through mechanical destruction, and then this cavity is filled in with grout.

[0003] By using the previously known tile cross spacers, surfaces of high aesthetic qualities as regards joints appearance can be obtained; however, obtaining a level surface of the laid tiles is not ensured since the cross spacers cannot compensate for height differences between the neighbouring tiles.

[0004] A mounting and distancing element, owing to which a fixed width of the slit between the neighbouring tiles and positioning of top surfaces of all laid tiles in one plane can be obtained, is known from the Polish patent application P. 403536. The mounting and distancing element is in the form of a monolithic, spatial solid equipped with a base connected to a pin which is perpendicular to it, whereby on one edge of the pin base a cradle provided with a flat stand connected with two arc-convex surfaces is located, and on the other edge of the base a cradle provided preferably in its central part with a flat stand connected with two arc-convex surfaces is located, which cradles are inseparably attached to each other through a connector, whereby in the top part of the cradle a cuboidal base of the first pin with a rounded necking at the top is located, whereas on the other end of the base above the cradle the other cuboidal pin, which in its top part has a ridge whose bottom surface is inclined at an angle not greater than 20° and is tilted by not more than 20°, is located, whereas the base surface and the pin surface are located in one plane, like the surfaces opposite to them.

[0005] The purpose of the invention is to construct a device for cladding tiles levelling that allows the tiles to be positioned in one plane through levelling of two to four neighbouring tiles.

[0006] The device for tiles levelling according to the invention is characterised by that it has a body provided in its central part with a passage opening inside of which a core of the body provided with a positioning element is slidingly fitted, and a main knob whose flange is fixed inside the holder seat, whereby in the corners of the body

there are threaded passage openings for spacer knobs arranged on a square plan, whereas the opening and the core in the cross-section transverse to their longitudinal axis are in the shape of a polygon or an irregular geometric figure of the contour in the shape of arcs, different from a circle. The core is provided with a blind hole for the guide bar of the positioning element. The positioning element is in the shape of a four-bar cross. The positioning element according to the variant is in the shape of a three-bar cross. The positioning element according to the variant is in the shape of a coaxial double-arm lever. The body of the device is preferably in the shape of a four-arm rosette. In the cross-section transversal to their longitudinal axis the passage opening and the core are preferably in the shape of a regular polygon. In the cross-section transversal to their longitudinal axis the passage opening and the core are preferably in the shape of an irregular polygon. In the cross-section transversal to their longitudinal axis the passage opening and the core are preferably in the shape of a geometric figure of the contour in the shape of arcs, different from a circle.

[0007] The subject of the invention in the form of a device for tiles levelling is presented in the embodiment on the drawing, where in Fig. 1 individual components of the device for tiles levelling are presented in the axonometric view from the front part of the body, Fig. 2 presents individual components of the device for tiles levelling in the axonometric view from the bottom part of the body, Fig. 3 presents individual components of the device for tiles levelling in side view, Fig. 4 presents the body of the device in the shape of a four-arm rosette in the bottom view, Fig. 5 presents the body of the device in the shape of a four-arm rosette in the axonometric view from the bottom side, Fig. 6 presents the components of the device core, Fig. 7 presents the spacer knob in the axonometric view, Fig. 8 presents the main knob in the axonometric view, Fig. 9 presents the positioning element in the form of a four-bar cross in the axonometric view, Fig. 10 presents the positioning element in the form of a three-bar cross in the axonometric view, Fig. 11 presents the positioning element in the form of a double-arm lever in the axonometric view, Fig. 12 presents the device for tiles levelling provided with a positioning element in the form of a double-arm lever in the axonometric view from the bottom part, Fig. 13 presents the device for tiles levelling provided with a positioning element in the form of a double-arm lever in the axonometric view from the front part, Fig. 14 presents the device for tiles levelling positioned between two cladding tiles in the axonometric view, and Fig. 15 presents six devices for tiles levelling positioned between four cladding tiles in the front view.

[0008] As it is presented in the drawing, the device for tiles levelling has a body 1, preferably in the shape of a four-arm rosette. In the central part of the body 1 there is a passage opening 2, preferably in the shape of a cuboid, for the cuboidal body 3 of the core 4 provided with a main knob 5. The main knob 5 is provided on the circumference with a flange 27, which is fixed inside the

seat **28** located in the holder **29**, which is inseparably attached to the body **1**. In the branches **6**, **6'**, **6''**, **6'''** there are threaded passage openings **7**, **7'**, **7''**, **7'''** for spacer knobs **8**, **8'**, **8''**, **8'''**. The core **4** is provided with a blind hole **9** for the guide bar **10**, whose one end is positioned inside the hole **9**, and for its clamping inside the hole **9** the screw **11** screwed into opening **12** is responsible. The other end of the guide bar **10** is provided with a threaded end **13** and is used to mount on it the positioning element **14** through screwing it into the threaded opening **15**. The positioning element **14** can be in the shape of a four-bar cross **16** or in the shape of a three-bar cross **17** or in the shape of a coaxial double-arm lever **18**.

[0009] Operation of the device for tiles levelling consists in that tiles **19**, **20** laid on an adhesive substrate are laid with the joint **21** retained or tiles **22**, **23**, **24**, **25** are laid with the joint **21** retained. Then, before the adhesive sets, in case of tiles **19**, **20** the end of the positioning element **14** in the form of a double-arm lever **18** is inserted into the joint **21** or in case of tiles **22**, **23**, **24**, **25** the end of the positioning element **14** in the form of a four-bar cross **16** is inserted. Insertion of the positioning element **14** into the joint **21** is possible owing to the axial shift of the cuboidal body **3**, whose axial movement along the passage opening **2** forces the turn of the knob **5**. The knob **5** has a threaded opening **30** into which a threaded end of the core **4** is screwed. Then, when the body **1** is turned by an angle of approximately 45°, the arms **16** or **17** or **18** move under the tiles and in turn, through turning back the main knob **5**, the core **4** moves, which results in the movement of the tiles towards the stands **26**, **26'**, **26''**, **26'''** of the spacer knobs **8**, **8'**, **8''**, **8'''**, and thus their positioning in one plane is obtained. After the adhesive sets, the body **1** is turned by an angle of approximately 45° and it removes the arms **16** or **17** or **18** from the joint.

3. A device according to Claim 2, **characterised by that** the positioning element (**14**) is in the shape of a four-bar cross (**16**).
4. A device according to Claim 2, **characterised by that** the positioning element (**14**) is in the shape of a three-bar cross (**17**).
5. A device according to Claim 2, **characterised by that** the positioning element (**14**) is in the shape of a coaxial double-arm lever (**18**).
6. A device according to Claim 1 or 2 or 3 or 4 or 5, **characterised by that** the body (1) is preferably in the shape of a four-arm rosette.
7. A device according to Claim 1, **characterised by that** in the cross section transversal to their longitudinal axis the passage opening (**2**) and the core (**4**) are preferably in the shape of a regular polygon.
8. A device according to Claim 1, **characterised by that** in the cross section transversal to their longitudinal axis the passage opening (**2**) and the core (**4**) are preferably in the shape of an irregular polygon.
9. A device according to Claim 1, **characterised by that** in the cross section transversal to their longitudinal axis the passage opening (**2**) and the core (**4**) are preferably in the shape of a geometric figure of the contour in the shape of arcs, different from a circle.

Claims

1. A device for tiles levelling **characterised by that** it has the body (**1**) provided in its central part with a passage opening (**2**) inside of which there is a slidably fitted core (**4**) of the body (**3**) provided with a positioning element (**14**) and a main knob (**5**), whose flange (**27**) is fixed inside the seat (**28**) of the holder (**29**), whereby in the corners (**6**), (**6'**), (**6''**), (**6'''**) of the body (**1**) there are threaded passage openings (**7**), (**7'**), (**7''**), (**7'''**) for spacer knobs (**8**), (**8'**), (**8''**), (**8'''**) arranged on a square plan, whereas in the cross section transversal to their longitudinal axis the opening (**2**) and the core (**4**) are in the shape of a polygon or an irregular geometric figure of the contour in the shape of arcs.
2. A device according to Claim 1, **characterised by that** the core (**4**) is provided with a blind hole (**9**) for the guide bar (**10**) of the positioning element (**14**).

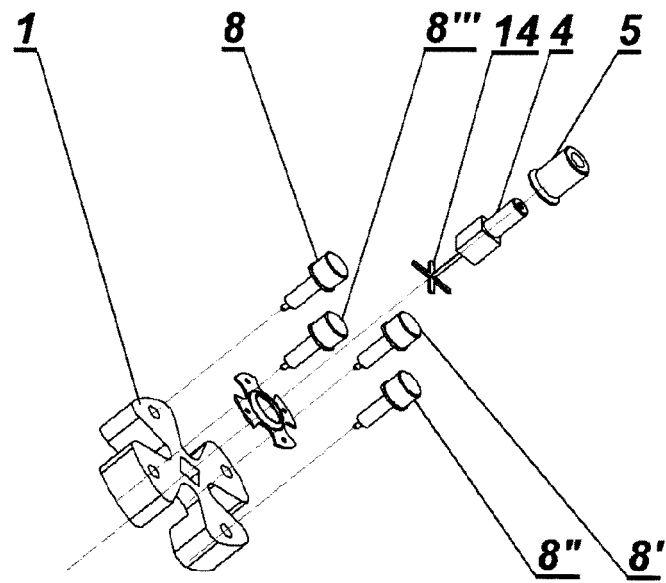


Fig. 1

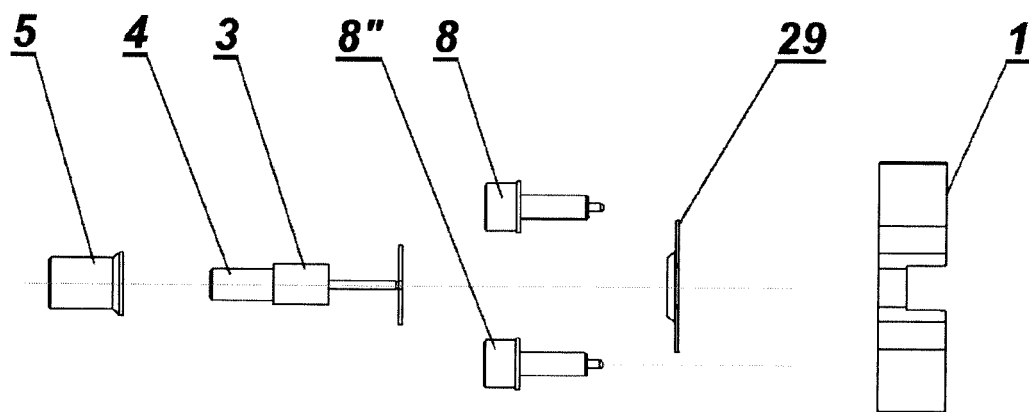


Fig. 3

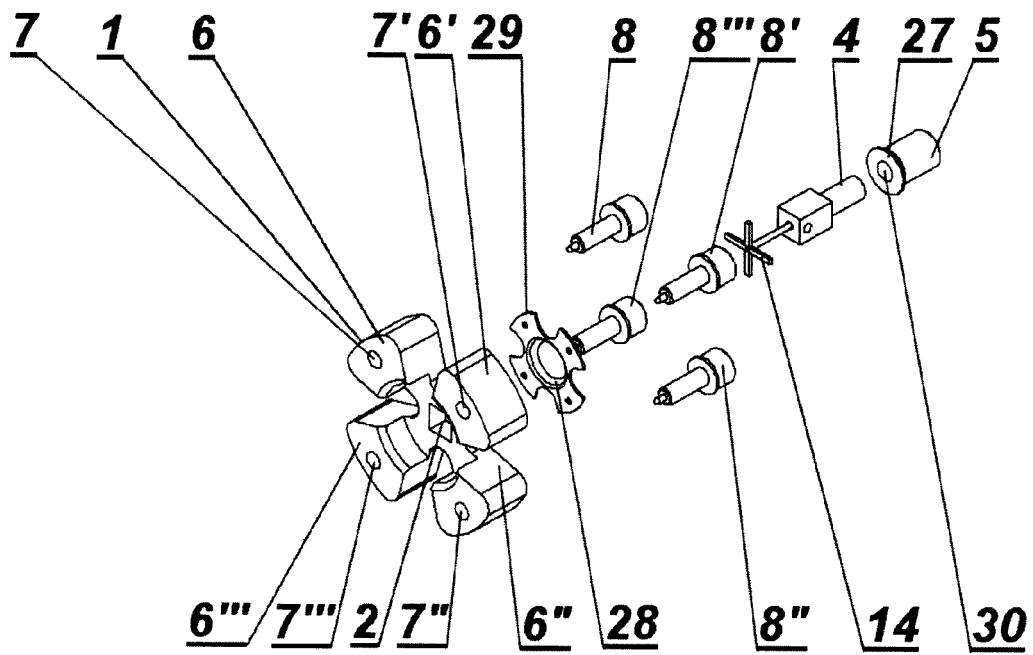


Fig. 2

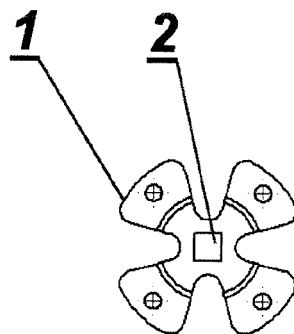


Fig. 4

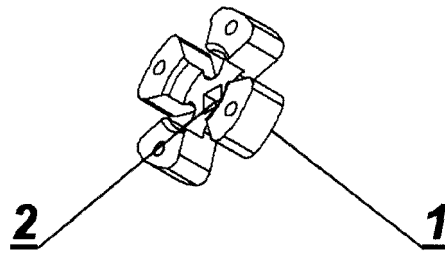


Fig. 5

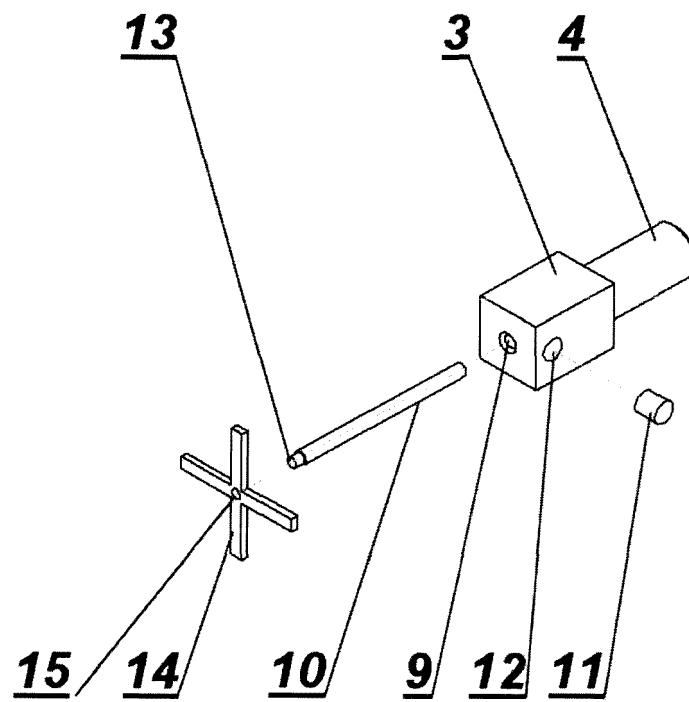


Fig. 6

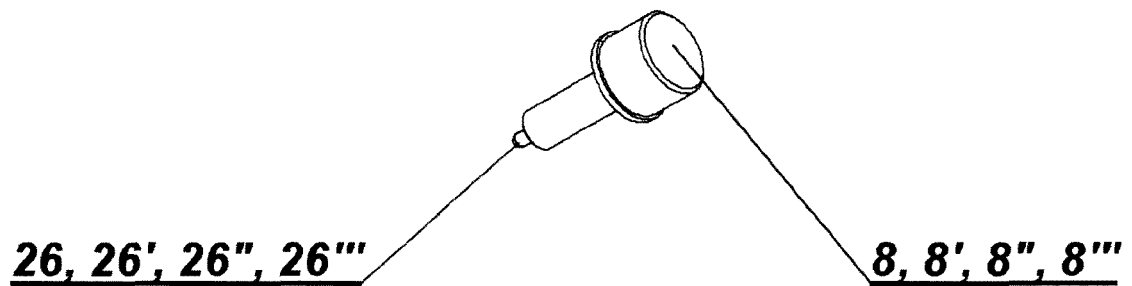


Fig. 7

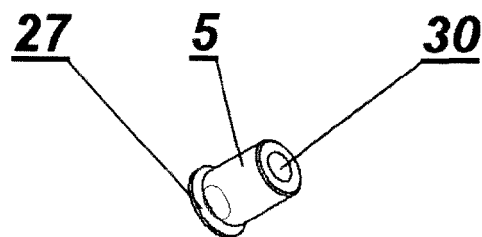


Fig. 8

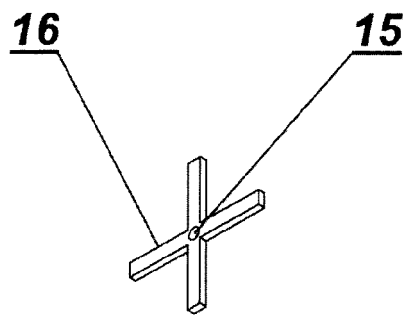


Fig. 9

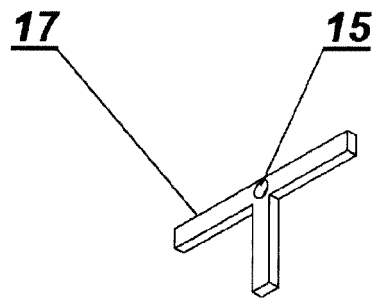


Fig. 10

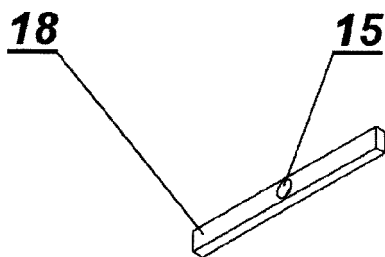


Fig. 11

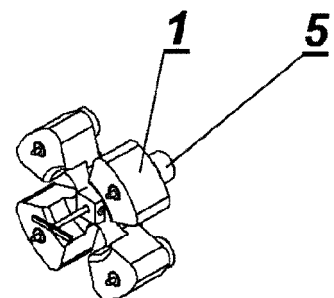


Fig. 12

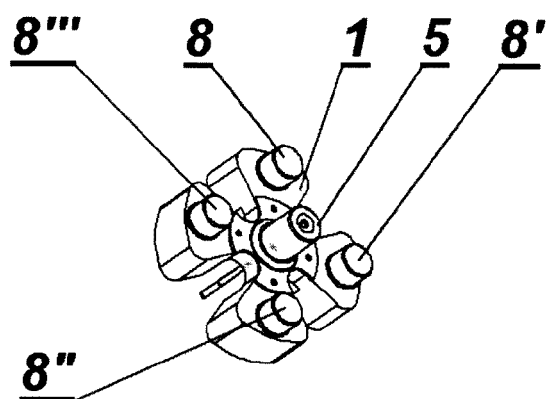


Fig. 13

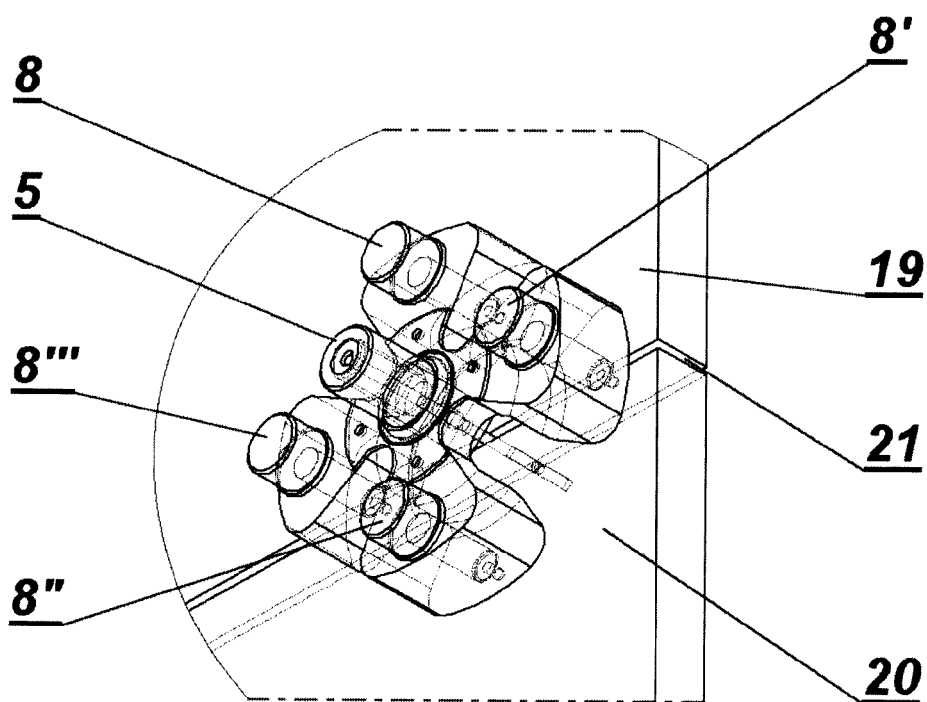


Fig. 14

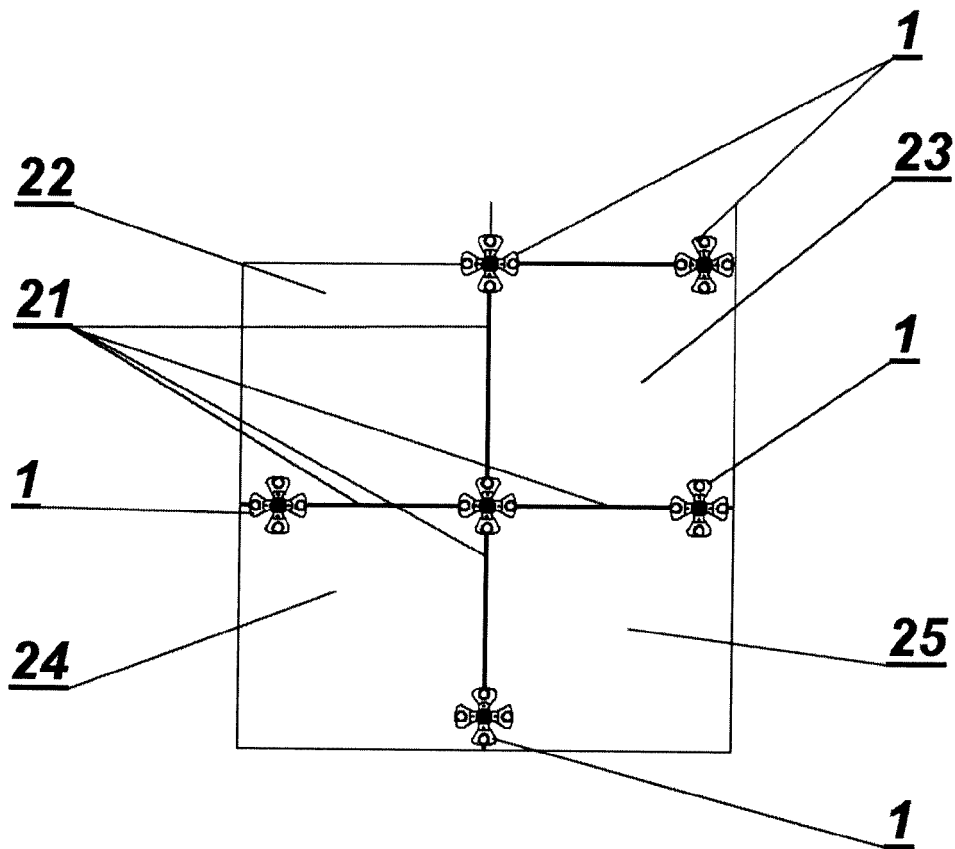


Fig. 15



EUROPEAN SEARCH REPORT

Application Number
EP 15 46 0004

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 23 01 169 A1 (SCHAEFER WERKE KG) 25 July 1974 (1974-07-25) * the whole document *	1-9	INV. E04F21/00
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			E04F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 8 June 2015	Examiner Bourgoin, J
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EP 15 46 0004

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08-06-2015

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JP H0821077 A	23-01-1996	NONE	
US 2006260243 A1	23-11-2006	NONE	

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