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(71) Applicant and

(72) Inventor: **WESOŁOWSKA, Malgorzata** [PL/PL]; ul.
Kosciuszki 17, PL-25-316 Kielce (PL).

(74) Agent: **GARSTKA, Antoni**; Tumlin-Wegle 87,
PL-26-050 Zagnansk (PL).

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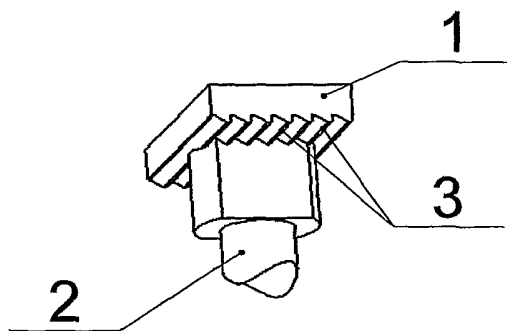
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*For two-letter codes and other abbreviations, refer to the "Guid-
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(54) Title: FASTENING PIN



protrusions of the head of the pin.

(57) Abstract: The essence of the solution, as in the invention, con-
sists in that the head (1) on its core (2) side is provided with fixing
protrusions (3), preferably in the shape of tapered 3-D geometrical
forms. Some embodiments of the fixing protrusions are such protru-
sions which in cross-section are shaped as geometrical figures such
as triangles, rectangles, half-circles or trapeziums. Practice shows
that the most efficient are protrusions shaped as right-angled trian-
gles or harpoon-shaped protrusions. Harpoon-shaped ends of protru-
sions of the head of the pin allow moving elements being joined
with respect to the pin in the last stage of their fastening. The inven-
tion also provides for such embodiments where the fixing protru-
sions are in the shape of pyramids and cones. The fixing protrusions
are particularly efficient when the fastened element also is provided
with protrusions, especially ones corresponding in shape with the

Fastening pin

The subject of the invention is a fastening pin, particularly for fastening objects in floors, walls or the like by inserting same into pre-drilled holes.

Known and commonly used pins for fastening objects in walls are most frequently bipartite, where one element, usually made of plastic, is expanded by the other element, usually a metal screw.

Application PCT/PL2004/000089 discloses a fastening pin provided with resilient elastic protrusions, preferably in the form of tapered geometrical figures, positioned around the core of the pin. This embodiment allows secure fastening of the pin in the wall without the use of binding agents or elements expanding the pin in the hole. Resilient protrusions bending under slight pressure enable easy placement of the pin in the hole without tools, and at the same time they efficiently lock the pin against taking it out of the hole. Sometimes it is required that the fastened elements must not move with respect to one another. When the pressing force of the pin or the nail is not sufficient to resist a force acting perpendicularly to the axis of the pin, intermediate elements are used, such as washers with cuts, to increase friction between the integrated elements. The additional elements prevent the elements moving with respect to one another.

The essence of the solution, as in the invention, consists in that the head of the pin on its core side is provided with fixing protrusions, preferably in the shape of tapered 3-D geometrical forms.

An embodiment of the fixing protrusions is such fixing protrusions which in cross-section have the shape of such geometrical figures as triangles, rectangles,

half-circles or trapeziums. Practice shows that the most efficient are protrusions shaped as right-angled triangles or harpoon-shaped protrusions. Harpoon-shaped ends of protrusions of the head of the pin allow moving elements being joined with respect to the pin in the last stage of their fastening to the wall of the room. Said triangle-shaped protrusions can be positioned radial with respect to the axis of the pin.

Fixing protrusions placed on the head of the pin are particularly efficient when the fastened element also is provided with protrusions, especially if their shape corresponds to the shape of the protrusions on the head of the pin.

The subject of the invention is shown in some embodiments in the drawing, wherein Fig. 1 presents a perspective view of the pin with harpoon-shaped protrusions, Fig. 2 – a view of the pin with protrusions of rectangular shape in cross-section, Fig. 3 – a view of the pin with protrusions of triangular shape, Fig. 4 – a view of the pin with protrusions of semicircular shape, Fig. 5 – a view of the pin with trapezium-shaped protrusions, Fig. 6 – a view of the pin with protrusions of triangular shape situated radial with respect to the axis of the pin, Fig. 7 – a view of the pin with protrusions in the shape of pyramids, Fig. 8 – detail “A” of Fig. 7, Fig. 9 – a view of the pin with conical protrusions, Fig. 10 – detail “B” of Fig. 9, and Fig. 11 – a cross-section of a connector fastened to the wall by a pin with harpoon-shaped protrusions.

The head 1, 1' of the fastening pin on the side of the core 2 is provided with fixing protrusions in the shape of tapered 3-D geometrical forms.

Figures 1 to 6 present heads of the pins with longitudinal fixing protrusions situated in a plane perpendicular to the axis of the core, which protrusions in cross-section have the shape of geometrical figures.

In Fig. 1, protrusions 3 in cross-section are harpoon-shaped.

The head 1 of the pin presented in Fig. 2 is provided with longitudinal protrusions of rectangular cross-section outline, whereas protrusions 5 of the head presented in Fig. 3 in cross-section are shaped as isosceles triangles. The head 1 of the pin presented in Fig. 4 has semicircular longitudinal protrusions 6, and in the embodiment presented in Fig 5, protrusions 7 are trapezium-shaped in cross-section.

Fig. 6 presents head 1' of the pin, provided with provisions 8, which in cross-section are triangular and are situated along the radii.

Fixing protrusions 9, presented in Fig. 7 and Fig. 8, are in the shape of pyramids, and protrusions 10 from Fig. 9 and Fig. 10 are conical in shape.

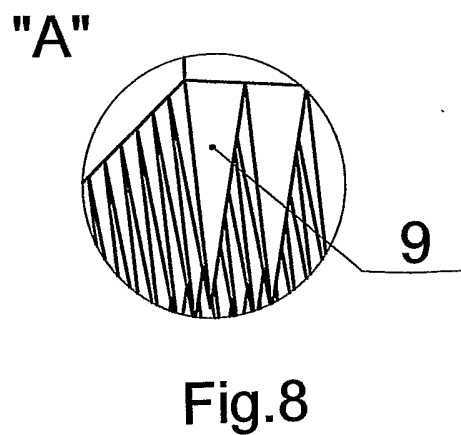
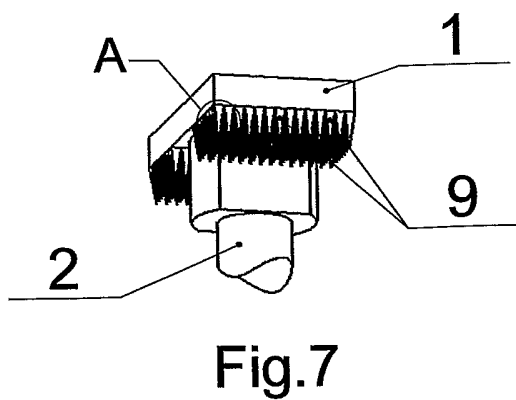
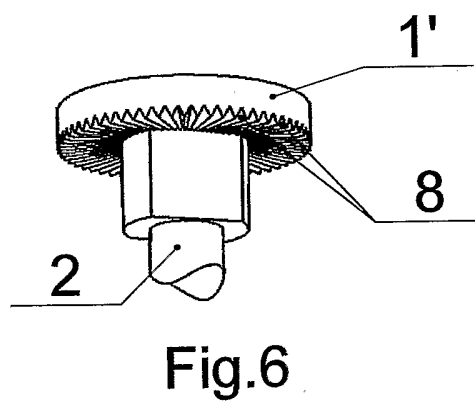
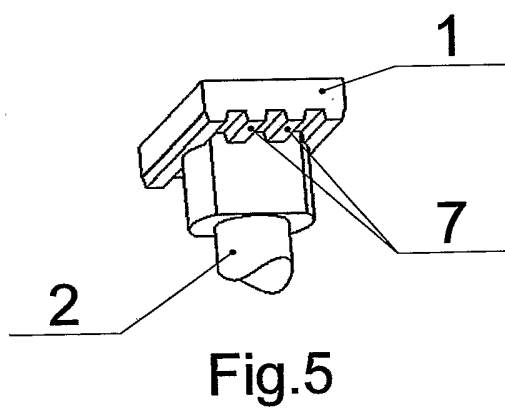
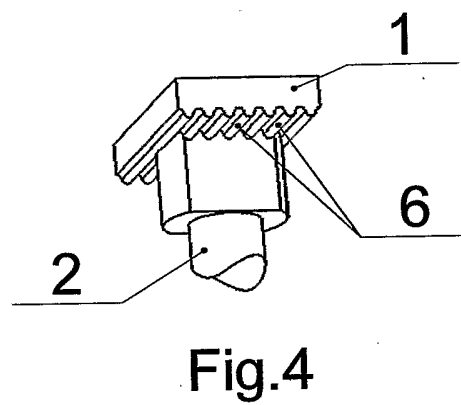
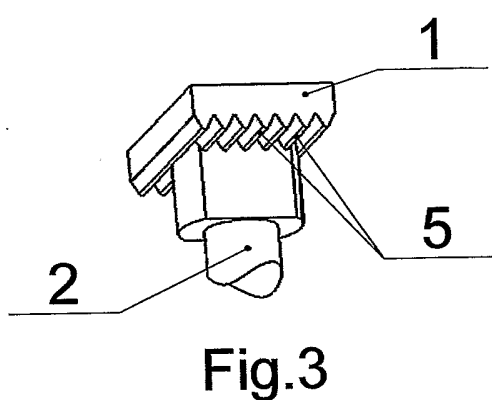
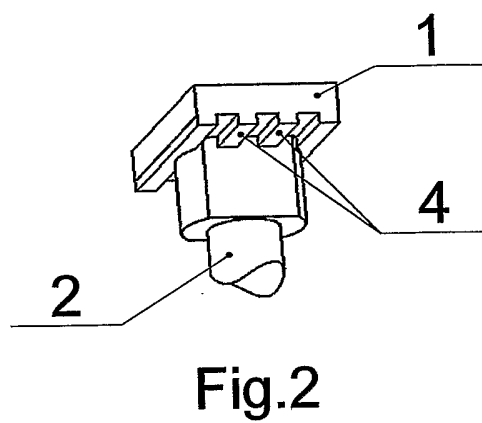
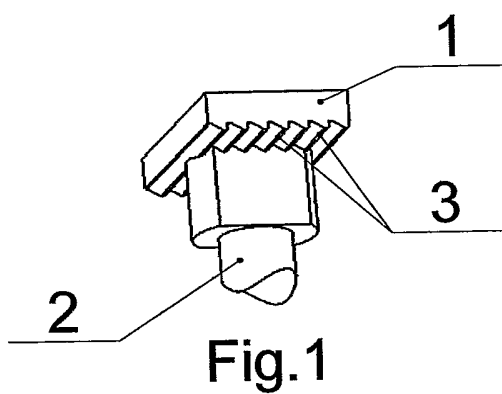
The presented embodiments do not exhaust all possible shapes of fixing protrusions the head of the pin can be provided with. Fixing protrusions are particularly effective when the fixed element also is provided with protrusions corresponding in shape to the protrusions of the head of the pin.

Fig. 11 presents the manner of using the pin to fasten connector 11 of a skirting board 13. The head 1 of the pin is provided with protrusions 3 with harpoon-shaped ends, co-operating with corresponding in shape protrusions 12 of the connector 11. The harpoon-shaped ends of protrusions 3 of the head 1 of the pin and corresponding harpoon-shaped protrusions 12 of the connector 11 ease movement of the connector 11 with respect to the pin, towards the floor, in the final stage of fastening the connector to the wall of the room.

Claims

1. A fastening pin, especially for fastening objects in floors, walls and the like, by inserting same in pre-drilled holes, characterized by that the head (1, 1') of the pin is provided, on the side of the core, with fixing protrusions (3, 4, 5, 6, 7, 8, 9, 10), preferably in the shape of tapered 3-D geometrical forms.
2. A fastening pin as claimed in 1, characterized by that the fixing protrusions (3, 4, 5, 6, 7, 8) are situated in the plane perpendicular to the axis of the pin, are elongated in shape and in cross-section are shaped as geometrical figures.
3. A fastening pin as claimed in 2, characterized by that the fixing protrusions (3, 5) are triangular in cross-section.
4. A fastening pin as claimed in 3, characterized by that the fixing protrusions (3) in cross-section are shaped as triangles with harpoon-like ends.
5. A fastening pin as claimed in 2, characterized by that the fixing protrusions (4) are rectangular in cross-section.
6. A fastening pin as claimed in 2, characterized by that the fixing protrusions (6) are semicircular in cross-section.
7. A fastening pin as claimed in 2, characterized by that the fixing protrusions (7) in cross-section are trapezium-shaped.
8. A fastening pin as claimed in 1, characterized by that the fixing protrusions (8) in cross-section are triangle-shaped and are radial with respect to the axis of the pin.
9. A fastening pin as claimed in 1, characterized by that the fixing protrusions (9) are pyramid-shaped.
10. A fastening pin as claimed in 1, characterized by that the fixing protrusions (10) are cone-shaped.

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2/2

"B"

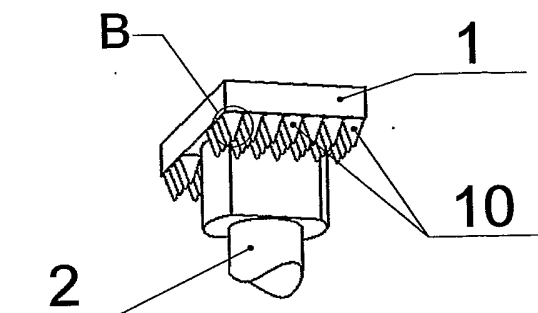


Fig. 9

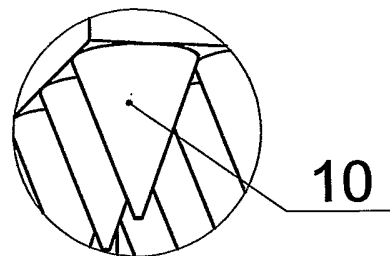


Fig. 10

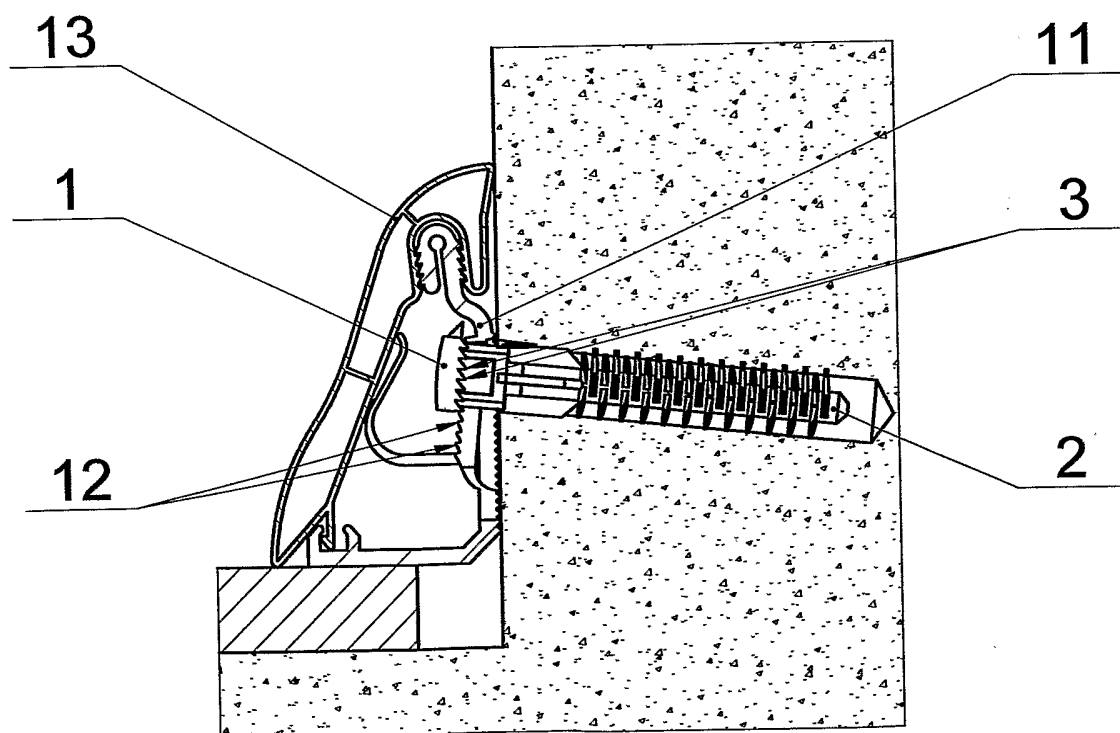


Fig. 11

INTERNATIONAL SEARCH REPORT

International application No

PCT/PL2005/000075

A. CLASSIFICATION OF SUBJECT MATTER

F16B35/06 F16B39/282

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F16B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	the whole document	2-7,10
X	DE 200 12 431 U1 (NATIONAL AEROSPACE FASTENERS CORP., PING JEN) 26 October 2000 (2000-10-26)	1,8,10
A	page 1, last paragraph - page 2, paragraph 1; figure 1 page 3, paragraph 7 - page 4, paragraph 1; figures 2-5	2-7,9
X	DE 25 56 985 A1 (BAUER & SCHAURTE; BAUER & SCHAURTE, 4040 NEUSS, DE) 30 June 1977 (1977-06-30)	1,8
	page 7, paragraph 5 - page 8, paragraph 7; figures 1-8	
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European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

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INTERNATIONAL SEARCH REPORT

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	WO 2005/042986 A (WESOLOWSKA, MALGORZATA) 12 May 2005 (2005-05-12) cited in the application abstract; figure 21 -----	1

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Information on patent family members

International application No

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