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(54) **SECURITY DEVICE FOR A DOOR OR A WINDOW**

(57) The invention relates to a security device for restricting the opening of a door or a window, wherein the security device comprises a base member, an attachment and an arm, wherein the security device is provided with a hinge pin for hingably coupling the arm to the base member about the axis of rotation, wherein both the base member and the arm are provided with bores for receiving the hinge pin in a direction of insertion, wherein the security device is provided with a first blocking element that, at least after receiving of the hinge pin in the bore of the base member, is arranged for blocking access to the hinge pin in a direction opposite to the direction of insertion, wherein the base member is provided with a first mounting channel intersecting with the bore and arranged for receiving the first blocking element.

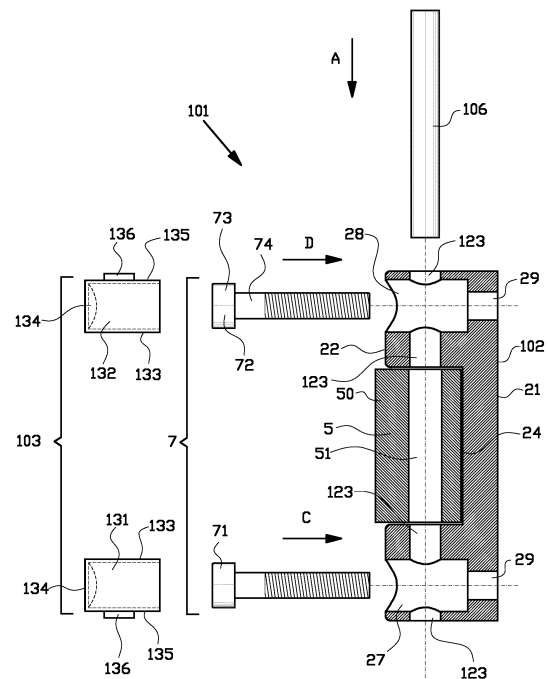


FIG. 7

Description

BACKGROUND

[0001] The invention relates to a security device for restricting the opening of a door or a window with respect to a door frame or a window frame, respectively.

[0002] A known security device, for application to a door and door frame, is known as a door guard. The door guard comprises a base member that is mounted to the door frame, an attachment member that is mounted to the door and an arm extending between the base member and the attachment member. The base member is provided with a bore extending from one end of the base member to the opposite end of the base member. The door guard is further provided with a hinge pin that may be inserted in either direction of the bore to hingably couple the arm to the base member. The hinge pin has a diameter that is slightly larger than the diameter of the bore. The hinge pin thus requires a forceful insertion into the bore and is subsequently retained in the bore by a press fit or force fit.

[0003] Although the force fit of the hinge pin in the bore allows for a relatively easy assembly of the door guard, it also makes the door guard vulnerable to disassembly or demounting of the door guard. When the arm is attached to the attachment member and the door is opened, the door guard will effectively restrict the opening of the door to the range of the arm. A person may reach through the opening, but will be unable to detach the arm from the attachment member. However, the same person can reach the base member and may use a tool, such as a screwdriver, to force the hinge pin out of the bore, thereby decoupling the arm from the base member and ultimately overcoming the restriction imposed by the door guard on the door.

[0004] It is an object of the present invention to provide a security device for restricting the opening of a door or a window with respect to a door frame or a window frame, respectively, wherein the security provided by said security device can be improved.

SUMMARY OF THE INVENTION

[0005] The invention provides a security device for restricting the opening of a door or a window with respect to a door frame or a window frame, respectively, wherein the security device comprises a base member that is arranged to be mounted to the door frame or the window frame, an attachment member that is arranged to be mounted to the door or the window, respectively, and an arm that is hingably coupled to the base member and that is arranged to be rotated about an axis of rotation towards the attachment member for detachable attachment to said attachment member, wherein the security device is provided with a hinge pin for hingably coupling the arm to the base member about the axis of rotation, wherein both the base member and the arm are provided

with bores in line with the axis of rotation for receiving the hinge pin in a direction of insertion, wherein the security device is provided with a first blocking element that, at least after receiving of the hinge pin in the bore of the base member, is arranged for blocking access or at least partially blocking access to the hinge pin in a direction opposite to the direction of insertion, wherein the base member is provided with a first mounting channel extending transverse to and intersecting with the bore in the base member, preferably at or near the far end thereof with respect to the insertion direction, wherein the first mounting channel is arranged for receiving the first blocking element in a blocking position in which the first blocking element intersects with the bore in the base member.

[0006] Thus, the bore can be accessed parallel to the rotational axis from the insertion direction only. Manipulation of the hinge pin, with the intention to extract or remove the hinge pin in the direction opposite to the insertion direction, can be made more difficult, if not impossible. The first blocking element can be inserted during assembly of the security device, instead of already being part of the base member. And although extraction of the first blocking element from the first mounting channel can require some effort, thereby increasing the security of the security device, the first blocking element can ultimately be removed, such that the security device may be disassembled and/or demounted. This may be hard when the first blocking element is integral to the base member.

[0007] In an embodiment the first blocking element is a plug that is arranged to be inserted into the first mounting channel, wherein the plug comprises a wall that is arranged to blind the bore in the base member. Similar to the integral wall, the wall of the plug can prevent insertion of tools, such as a screwdriver, into the bore.

[0008] In an embodiment the plug is provided with a male or female coupling element and the base member is provided with an opposite female or male coupling element, respectively, at the first mounting channel, wherein the coupling element of the plug and the opposite coupling element of the base member are arranged to mesh, wherein the meshing prevents extraction of the plug from the first mounting channel. Thus, it can be ensured that the plug is durably and/or securely coupled to the base member and cannot easily be manipulated or extracted, thereby further increasing the security of the security device.

[0009] In a preferred embodiment thereof the coupling element in the base member is a female coupling element formed by the bore in the base member or an extension thereof, wherein the coupling element in the plug is a protrusion that is arranged to snap into the bore of the base member.

[0010] In an embodiment the coupling member of the plug is provided on a resilient part of the plug, which resilient part is arranged to bend away to facilitate mounting of the plug into the first mounting channel, wherein the resilient part is arranged to return to its original, unbend

state after the coupling element of the plug and the coupling element of the base member have meshed.

[0011] In an embodiment the base member has an externally facing surface surrounding the first mounting channel, wherein the plug is provided with an externally facing surface that is arranged to lie flush with, to be recessed with respect to or to be complimentary to the surrounding external surface of the base member. This prevents that one can easily grip, manipulate or extract the plug.

[0012] In an embodiment the base member is arranged to be mounted with a mounting side thereof to the door frame or window frame by means of a fastener, preferably a screw or a bolt, wherein the first mounting channel is provided with a through hole for allowing the passage of the bolt through the first mounting channel to the mounting side of the base member in a first mounting direction, wherein the first blocking element is arranged to be inserted into the first mounting channel after the passage there through of the fastener, to block access to the fastener in the first mounting direction. Thus, in addition to the first blocking element blocking access to the hinge pin, it may also serve to block access to the fasteners, thereby making it harder, if not impossible, to demount the base member from the door frame when the first blocking element is present.

[0013] In an embodiment the first blocking element is a fastener, preferably a screw or a bolt, wherein the base member is arranged to be mounted with a mounting side thereof to the door frame or window frame by means of the fastener, wherein the first mounting channel is provided with a through hole for allowing the passage of the fastener through the first mounting channel to the mounting side of the base member, wherein the fastener is provided with a fastener head that is arranged to remain in the first mounting channel and a shaft that extends through the through hole for mounting to the door frame or window frame, wherein the fastener head is provided with a circumferential wall with a surface area that is arranged, in the blocking position, to blind the bore in the base member. Similar to the integral wall and the plug, the circumferential wall of the fastener head can prevent insertion of tools, such as a screwdriver, into the bore.

[0014] In an alternative embodiment the security device is provided with a fastener, preferably a screw or a bolt, wherein the base member is arranged to be mounted with a mounting side thereof to the door frame or window frame by means of the fastener, wherein the first mounting channel is provided with a through hole for allowing the passage of the fastener through the first mounting channel to the mounting side of the base member, wherein the fastener is provided with a fastener head that is arranged to remain in the first mounting channel and a shaft that extends through the through hole for mounting to the door frame or window frame, wherein the first blocking element is a bushing which is arranged to be placed around the shaft and against the head of the fastener head prior to the passing of the fastener through the

through hole, wherein the bushing is arranged to be placed in the blocking position in between the head of the fastener and the base member to blind the bore in the base member. Thus, contrary to the previous embodiment, the fastener in the current embodiment can be a regular fastener with a regular head that is not necessarily high enough to blind the bore by itself. The bushing can supplement the height of the head and thus partly block or fully block the access to the bore.

[0015] In an embodiment the security device is provided with a second blocking element that, after receiving of the hinge pin in the bore of the base member, is arranged for blocking access or at least partially blocking access to the hinge pin in the direction of insertion. The hinge pin can thus be locked in from both sides of the bore, thereby preventing access to the hinge pin from both the insertion direction and the direction opposite to the insertion direction. Also, the presence of the second blocking element can increase the number of steps, and thus the effort required to disassemble, decouple and/or demount the security device.

[0016] In an embodiment the base member is provided with a second mounting channel extending transverse to and intersecting with the bore in the base member at or near the proximal end thereof with respect to the insertion direction, wherein the second mounting channel is arranged for receiving the second blocking element in a blocking position in which the second blocking element intersects with the bore in the base member. Similar to the first blocking element, the second blocking element can thus be inserted during assembly of the security device. And although extraction of the second blocking element from the first mounting channel requires some effort, thereby increasing the security of the security device, the second blocking element can ultimately be removed, such that the security device may be disassembled and/or demounted.

[0017] In a preferred embodiment the second blocking element is a plug similar or identical to the aforementioned plug.

[0018] In a preferred embodiment the second blocking element is a fastener similar or identical to the aforementioned fastener.

[0019] In a preferred embodiment the second blocking element is a bushing similar or identical to the aforementioned bushing.

[0020] The various aspects and features described and shown in the specification can be applied, individually, wherever possible. These individual aspects, in particular the aspects and features described in the attached dependent claims, can be made subject of divisional patent applications.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] The invention will be elucidated on the basis of an exemplary embodiment shown in the attached drawings, in which:

figure 1 shows a perspective view from above of a security device according to a first embodiment of the invention;

figure 2 shows a perspective view from below of the security device according to figure 1;

figures 3 and 4 show cross sectional views of the security device according to the lines III-III and IV-IV in figure 1 and figure 2, respectively;

figure 5 shows a perspective view from above of a security device according to a second embodiment of the invention;

figure 6 shows a perspective view from below of the security device according to figure 5;

figures 7 and 8 show cross sectional views of the security device according to the lines VII-VII and VIII-VIII in figure 5 and figure 6, respectively;

figure 9 shows a perspective view from above of a security device according to a third embodiment of the invention;

figure 10 shows a perspective view from below of the security device according to figure 9;

figures 11 and 12 show cross sectional views of the security device according to the lines XI-XI and XII-XII in figure 9 and figure 10, respectively;

figure 13 shows a cross sectional view of a security device according to a fourth embodiment of the invention;

figure 14 shows a cross sectional view of a security device according to a fifth embodiment of the invention; and

figure 15 shows a cross sectional view of a security device according to a sixth embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0022] Figures 1-14 show six security devices 1, 101, 201, 301, 401, 501 according to six exemplary embodiments of the invention. The security devices 1, 101, 201, 301, 401, 501 are arranged for allowing a partial, limited or restricted opening of a door, window or the like with respect to a door frame, a window frame or the like in a manner which is known per se. Said security devices 1, 101, 201, 301, 401, 501 also known as door guards in the application on doors and door frames, thus act as gap keepers, stoppers, limiters or restrictors. The security devices 1, 101, 201, 301, 401, 501 will be described hereafter in more detail.

[0023] Figures 1-4 show a security device 1 according to a first embodiment of the invention. The security device 1 comprises a base member 2 that is arranged to be fixedly mounted to a door frame, a window frame or the like, an attachment member 4 to be fixedly mounted to a door, window or the like and an arm 5 bridging the gap or extending between the base member 2 and the attachment member 4. The security device 1 further comprises a hinge pin 6 for hingably coupling the arm 5 to the base member 2 about a rotational axis R. Typically,

the security device 1 is mounted such that the rotational axis R of the security device 1 extends parallel to or substantially parallel to the rotational axis of the door, the window or the like. The security device 1 is arranged to be fixedly mounted by means of a plurality of fasteners 7, e.g. bolts or screws.

[0024] As shown in figures 3 and 4, the base member 2 is provided with a base body 20 with a flat mounting surface 21 for mounting or fixation of the base body 20 against a door frame, window frame or the like (not shown) and an externally facing surface 22 facing in the opposite direction, away from the mounting surface 21. In this exemplary embodiment, the externally facing surface 22 has a semi-cylindrical form. The base body 20 is further provided with a circular bore 23 for receiving the hinge pin 6 in an insertion direction A, in line with the rotational axis R. In particular, the insertion direction A is oriented downwards, and preferably vertically downwards. The bore 23 has a diameter that is substantially the same or marginally smaller than the diameter of the hinge pin, to allow for a press fit or force fit or the hinge pin 6 in the bore 23.

[0025] The base member 2 is provided with a recess 24 in the middle of the base body 20 with respect to the rotational axis R for receiving the arm 5 in a direction transverse to or perpendicular to said rotational axis R. The recess 24 intersects with the bore 23 in the base body 20 and splits the base body 20 into a first side section 25 on one side of the arm 5 and a second side section 26 on the opposite side of the arm 5 with respect to the rotational axis R. The first side section 25 is located at or near the far end of the base member 2 with respect to the insertion direction A, while the second side section 26 is located at the proximal end of the base member 2 with respect to the insertion direction A. The base member 2 comprises a first mounting channel 27 in the first side section 25 and a second mounting channel 28 in the second side section 26 for receiving a first bolt 71 and a second bolt 72 from the plurality of fasteners 7 in respective mounting directions C, D. Both mounting channels 27, 28 extend transverse to or perpendicular to the rotational axis R and intersect with the bore 23. The mounting channels 27, 28 are accessible from or debouch into the externally facing surface 22 of the base member 2. In the respective mounting directions C, D, at or near the mounting surface 21, the mounting channels 27, 28 merge into through holes 29 for allowing the passage of the bolts 61, 62 through the mounting side 21 and onto or in engagement with the door frame, the window frame or the like directly opposite to the mounting surface 21.

[0026] As best seen in figures 2 and 3, the bore 23 in the base body 20 does not extend all the way through the base body 20. In fact, the base body 20 comprises a first blocking element 3 in the form of a fixedly connected or integral wall or sidewall 30 that intersects with and/or blinds the bore 23 at or near the first side section 25. The sidewall 30 blocks access to the bore 23 and the hinge pin 6 in said bore 23 from a direction B opposite to the

insertion direction A, such that the bore 23 may be accessed parallel to the rotational axis R from the insertion direction A only.

[0027] As shown in figures 1 and 2, the attachment member 4 comprises a foot 40 that is arranged to be fixedly mounted to the door, the window or the like and a protrusion 41 with a knob 42, standing up or standing out from the foot 40 and the main surface of door, the window or the like.

[0028] The arm 5 is provided with a bar-like arm body 50, which has a U-shaped cross section (not shown) which is open in the direction of the attachment member 4 for receiving the protrusion 41 and the knob 42 in a manner which is known per se. As best seen in figure 3, the arm 5 is provided with a bore 51 in the arm body 50, which bore 51 is arranged to be aligned with the bore 23 of the base body 20 when the arm 5 is received in the recess 24 in said base body 20. The diameter of the bore 51 in the arm body 50 is slightly larger than the diameter of the hinge pin 6 to allow the arm 5 to be freely rotatable about the rotational axis R with respect to the hinge pin 6 and the base member 2. The arm 5 is arranged to be rotated or swung about the rotational axis R of the base member 2 onto the knob of the attachment member 4. The knob 41 of the attachment member 40 is arranged to be slidably engaged or attached by inwardly facing flanges (not shown) of the U-shaped cross section of the arm body 50, in a manner which is known per se. The length of the bar-like arm body 50 determines the restricted range over which the door, the window or the like can be opened before being stopped, limited or restricted in its motion by the security device 1. If the security device 1 is correctly mounted, the arm 5 can only be disengaged or detached from the attachment member 4 when the door, the window or the like is closed or substantially closed with respect to the door frame, the window frame or the like.

[0029] As already illustrated in the background of the invention, the known security devices, such as conventional door guards, are vulnerable to manipulation because of the exposed hinge pin, which can be easily forced out of the security device, thereby disengaging the arm from the base member. The following is a description of a method for assembling and mounting of the aforementioned security device 1, which overcomes the aforementioned vulnerability.

[0030] Figures 1 and 3 show the security device 1 prior to assembly and subsequent mounting. The arm 5 is received in the recess 24 in the base body 20 and the bore 51 in the arm body 50 is aligned with the bore 23 in the base body 20. The hinge pin 6 is aligned with said bores 23, 51 and is ready to be inserted in the insertion direction A. The bolts 71, 72 are aligned with the mounting channels 27, 28 for mounting in the respective mounting directions C, D through the through holes 29.

[0031] Figures 2 and 4 show the situation after the assembly and subsequent mounting. First, the bolts 71, 72 have been mounted into the mounting channels 27, 28

with their distal, threaded ends protruding from the mounting surface 21 at the opposite side of the base member 2 with respect to the respective mounting directions C, D, through the through holes 29. By rotation over several revolutions, the bolts 71, 72 have engaged the door frame, the window frame or the like and - as a result - have tightly pulled and/or mounted the base member 2 against the same door frame, the window frame or the like. The bolts 71, 72 are fully accommodated in the mounting channels 27, 28. More in particular, the bolts 71, 72 have moved past the bore 23 in the base body 20, such that the bolts 71, 72 no longer intersect or interfere with the bore 23 or the extension thereof. Subsequently hinge pin 6 is forcefully inserted into the bore 23 of the base body 20 at the second side section 26, through the bore 51 in the arm body 50 and into the continued bore 23 in the base body 20 at the first side section 25. Now, the arm 5 is hingably coupled to the base member 2 via the hinge pin 6.

[0032] It is noted that the hinge pin 6 has a length that allows for complete insertion in the insertion direction A into the bore 23 of the base body 20. The hinge pin 6 can thus be fully accommodated in the base member 2, without any length thereof protruding from the bore 23 in any direction parallel to the rotational axis R. Preferably, the hinge pin 6 is forced into the bore 23 in the insertion direction A such that it is slightly recessed with respect to the second side section 26 of the base body 20. The first blocking element 3, in the form of the sidewall 30, prevents the hinge pin 6 from falling out of the base member 2 in the insertion direction A at the first side section 25. In addition, the sidewall 30 blocks access to the hinge pin 6 from the direction B opposite to the insertion direction A, such that manipulation of the hinge pin 6, with the intention to extract or remove the hinge pin 6 in the direction B opposite to the insertion direction A, will be more difficult, if not impossible from the first side section 25. The presence of the hinge pin 6 in the bore 23 of the base body 20, in particular at the mounting channels 27, 28, additionally prevents access in the respective mounting directions C, D to the bolts 71, 72, thereby making it harder, if not impossible, to demount the security device 1 when the hinge pin 6 is present.

[0033] Figures 5-8 show an alternative security device 101 according to a second embodiment of the invention. Many parts and features of the alternative security device 101 are identical to those described in relation to the security device 1 according to figures 1-4. These corresponding parts and features have been indicated with the same reference numerals and letters and will not be described in further detail. For reasons of conciseness, only the differential parts and features are described below.

[0034] The alternative security device 101 comprises an alternative base body 102, provided with a bore 123 that, in contrast to the bore 23 in figures 1-4, goes all the way through the base body 20. Instead of the sidewall 30 in figures 1-4, the alternative security device 101 com-

prises blocking elements 103 in the form of a first plug 131 and a second plug 132, which are arranged to be mounted in the mounting directions C, D in the respective mounting channels 27, 28. The plugs 131, 132 are each provided with a circumferential wall 133 that is arranged to intersect with and at least partially block access to the bore 123, once the respective plug 131, 132 is inserted into the respective mounting channel 27, 28. Each plug 131, 132 further comprises a externally facing surface 134 that is arranged to lie flush with, to be recessed with respect to or to be complimentary to the surrounding external surface 22 of the base member 102.

[0035] As shown in figure 5, each plug 131, 132 is provided with a resilient section or part 135 which is arranged to bend inwards upon insertion of the plug 131, 132 in the respective mounting channels 27, 28. At the resilient part 135, the plug 131, 132 comprises a male coupling element 136, in this exemplary embodiment in the form of a circular or disc shaped protrusion, which is arranged to mesh with or snap into a female coupling element in the respective mounting channel 27, 28. In this exemplary embodiment the female coupling elements are formed by the outermost ends of the bore 123 in the respective side sections 24, 25. Alternative, the plugs 131, 132 may be provided with female coupling elements (not shown) and the mounting channels 27, 28 are provided with male coupling elements (not shown). The meshing of the coupling element 136 with the bore 123 prevents extraction of the plug 131, 132 from the respective mounting channel 27, 28 in a direction opposite to the respective mounting directions C, D.

[0036] The following is a description of a method for assembling and mounting of the aforementioned alternative security device 101.

[0037] As shown in figures 5 and 7, the plugs 131, 132 are aligned in the respective mounting directions C, D, upstream of the bolts 71, 72 with respect to said mounting directions C, D. The alternative security device 101 is provided with an alternative hinge pin 106, which is shorter than the hinge pin 6 as shown in figures 1-4. The hinge pin 6 is similarly aligned above the bore 123 in the alternative security device 101 for insertion in the insertion direction A. To arrive at the assembled state as shown in figures 6 and 8, the first bolt 71 is inserted into the first mounting channel 27 in the first side section 24. Subsequently, the first plug 131 is inserted into the same first mounting channel 27 until it intersects with the bore 123 and the male coupling element 136 has meshed with and snapped into the bore 123. Preferably, the first plug 131 is inserted until it is in close proximity to the first bolt 71. More preferably, the first plug 131 is hollow or thin-walled, which allows for the first plug 131 to be placed over the first bolt 71. This has the additional advantage that the access to the first bolt 71 via the first mounting channel 27 in the first mounting direction C is at least partially blocked or prevented, thereby making it harder to demount the alternative security device 101.

[0038] In the correctly mounted state of the first plug

131, as shown in figures 6 and 8, the externally facing surface 134 of the first plug 131 lies flush with the externally facing surface 22 of the base member 102. This prevents that one can easily grip, manipulate or extract the first plug 131 in the mounting direction C.

[0039] After the first bolt 71 and the first plug 131 are correctly inserted into the first mounting channel 27, the alternative security device 101 is ready for receiving an alternative hinge pin 106. The first plug 131 has essentially the same effect as the integral sidewall 30 in figures 1-4, namely that it blocks access to the hinge pin 106 from a direction B opposite to the insertion direction A, such that the hinge pin 106 may be inserted parallel to the rotational axis R from the insertion direction A only. As the free length of the bore 123 in the insertion direction A is essentially or effectively shortened by the presence of the first plug 131, the alternative hinge pin 106 is proportionally shorter than the hinge pin 6 according to figures 1-4. In this exemplary embodiment, the alternative hinge pin 106 is shortened even more to also clear the second mounting channel 28, to allow for the subsequent mounting of the second plug 132, as described below.

[0040] After the hinge pin 106 has been inserted, the second bolt 72 and the second plug 132 are subsequently inserted in their respective mounting direction D in the second mounting channel 28 in the same manner as the first bolt 71 and the first plug 131 in respect of the first mounting channel 27. Once both plugs 131, 132 are correctly inserted, the alternative hinge pin 106 is locked in between the circumferential walls 133 of both plugs 131, 132 and cannot easily be extracted from the alternative security device 101 in either direction A, B parallel to the rotational axis R.

[0041] Thus, as the alternative security device 101 blocks access to the alternative hinge pin 106 from both directions A, B parallel to the rotational axis R, it is not strictly necessary to use a press fit or force fit between the alternative hinge pin 106 and the bore 123 in the base member 102.

[0042] It is noted that the second plug 132 in the aforementioned embodiment is entirely optional. The first plug 131 is sufficient to achieve the same effects as described in relation to the security device 1 as shown in figures 1-4. The second plug 132 provides additional security by preventing access to the alternative hinge pin 106, after its insertion, from the insertion direction A. If no second plug 132 is used, the alternative hinge pin 106 may be longer so as to intersect with the second mounting channel 28, as shown for example in figures 2 and 4. This however requires that the second bolt 72 is inserted into the second mounting channel 28 prior to the insertion of the alternative hinge pin 106 in the insertion direction A.

[0043] Figures 9-12 show a further alternative security device 201 according to a third embodiment of the invention. Many parts and features of the further alternative security device 201 are identical to those described in relation to the security device 1 according to figures 1-4 and the alternative security device 101 according to fig-

ures 5-8. These corresponding parts and features have been indicated with the same reference numerals and letters and will not be described in further detail. For reasons of conciseness, only the differential parts and features are described below.

[0044] The further alternative security device 201 is distinguished from the alternative security device 101 according to figures 5-8 by the absence of the plugs 131, 132, which are now replaced by or integrated into alternative fasteners 207, in particular an alternative first bolt 271 and an alternative second bolt 272. The alternative bolts 271, 272 are each provided with a head 273 and a threaded shaft 274. The heads 273 have a height E, measured parallel to the respective mounting direction C, D, which is sufficient in magnitude to block access to or blind the bore 123 in the base member 102 once the alternative bolts 271, 272 are fully inserted and mounted into the respective mounting channels 27, 28. The circumferential surface of the heads 273 of the alternative first bolt 271 and the alternative second bolt 272 thus effectively form an alternative first blocking element 231 and an alternative second blocking element 232.

[0045] The following is a description of a method for assembling and mounting of the aforementioned further alternative security device 201.

[0046] Figures 9 and 11 show the further alternative security device 201 in a state prior to assembly and mounting. The alternative bolts 271, 272 are aligned in their respective mounting directions C, D for mounting into their respective mounting channels 27, 28. The alternative hinge pin 106 has been dimensioned according to the same requirements that are applied to the alternative security device 101 according to figures 5-8 and is aligned for insertion in the insertion direction A above the bore 123 in the base member 102. Figures 10 and 12 show the further alternative security device 201 after assembly. To arrive at this assembled state, the alternative first bolt 271 has been mounted in its mounting direction C into the first mounting channel 27, thereby at least partially blocking and blinding the bore 123 from the direction B opposite to the insertion direction A and preventing access to the alternative hinge pin 106 from said opposite direction B. Now the alternative hinge pin 106 is inserted in the insertion direction A into the bore 123. Subsequently, the alternative second bolt 272 is mounted in its mounting direction D into the second mounting channel 28, thereby at least partially blocking and blinding the bore 123 from the insertion direction A and preventing access to the alternative hinge pin 106 locked in between.

[0047] Again, it is noted that the alternative second bolt 272 is optional as the alternative first bolt 271 already provides a similar effect as the first plug 131 in figures 5-8 and the integral sidewall 30 in figures 1-4. The alternative second bolt 272 merely provides additional security by preventing access to the alternative hinge pin 106 from the insertion direction A. The alternative second bolt 272 may however be replaced by a regular bolt 71 according to figures 5-8. In such case, the regular bolt 71

should be mounted prior to the insertion of the (longer) hinge pin 206 in the insertion direction A.

[0048] Figures 13, 14 and 15 show three further alternatives of security devices 301, 401, 501 according to a fourth embodiment, a fifth embodiment and a sixth embodiment of the invention.

[0049] The security device 301 in figure 13 is substantially identical to the security device 1 in figures 1-4, except for the presence of the shortened hinge pin 106 according to figures 5-8. This shortened hinge pin 106 is arranged to be accurately positioned and retained in the bore 23 in between both mounting channels 27, 28, without interfering or intersecting with said mounting channels 27, 28. Thus, the security device 301 according to figure 13 can be demounted from the door frame by extraction of the bolts 71, 72.

[0050] The security device 401 in figure 14 is substantially identical to the security device 201 in figures 9-12, apart from the presence of alternative bolts 471, 472 in combination with blocking elements in the form of bushings 431, 432. The alternative bolts 471, 472 may have regular heads 473 and regular threaded shafts 474, the length of which is sufficient to at least partly clear the head 473 from the bore 123 in a direction opposite to the respective mounting directions C, D. The bushings 431, 432 are placed around the threaded shafts 474 under the respective heads 473 prior to the mounting of the alternative bolts 471, 472 in the respective mounting channels 27, 28, wherein the bushings 431, 432, after mounting of the bolts 471, 472 intersect with and at least partially block access to the bore 123 in the insertion direction A or the opposite direction B.

[0051] The security device 501 in figure 15 is substantially identical to the security device 101 in figures 5-8, apart from the presence of an alternative base member 502 which is provided with shortened or less deep mounting channels 527, 528. This brings the heads of the bolts 71, 72 at least partially in intersection with the bore 123, thereby causing the heads 73 of the bolts 71, 72 to at least partially block access to the bore 123 and the hinge pin 106 inside the bore 123. In this way, the bolts 71, 72 act as blocking elements similar to the bolts 271, 272 in figures 9-12. Optionally, the bolts 71, 72 may be covered by alternative plugs 531, 532 which are similar to the plugs 131, 132 in figures 5-8, only shorter to compensate for the shortened mounting channels 527, 528. When the alternative plugs 531, 532 are applied, they cooperate with the bolts 71, 72 to completely blind the bore 123.

[0052] It is to be understood that the above description is included to illustrate the operation of the preferred embodiments and is not meant to limit the scope of the invention. From the above discussion, many variations will be apparent to one skilled in the art that would yet be encompassed by the spirit and scope of the present invention.

[0053] In summary, the invention relates to a security device for restricting the opening of a door or a window, wherein the security device comprises a base member,

an attachment and an arm, wherein the security device is provided with a hinge pin for hingably coupling the arm to the base member about the axis of rotation, wherein both the base member and the arm are provided with bores for receiving the hinge pin in a direction of insertion, wherein the security device is provided with a first blocking element that, at least after receiving of the hinge pin in the bore of the base member, is arranged for blocking access to the hinge pin in a direction opposite to the direction of insertion, wherein the base member is provided with a first mounting channel intersecting with the bore and arranged for receiving the first blocking element.

Claims

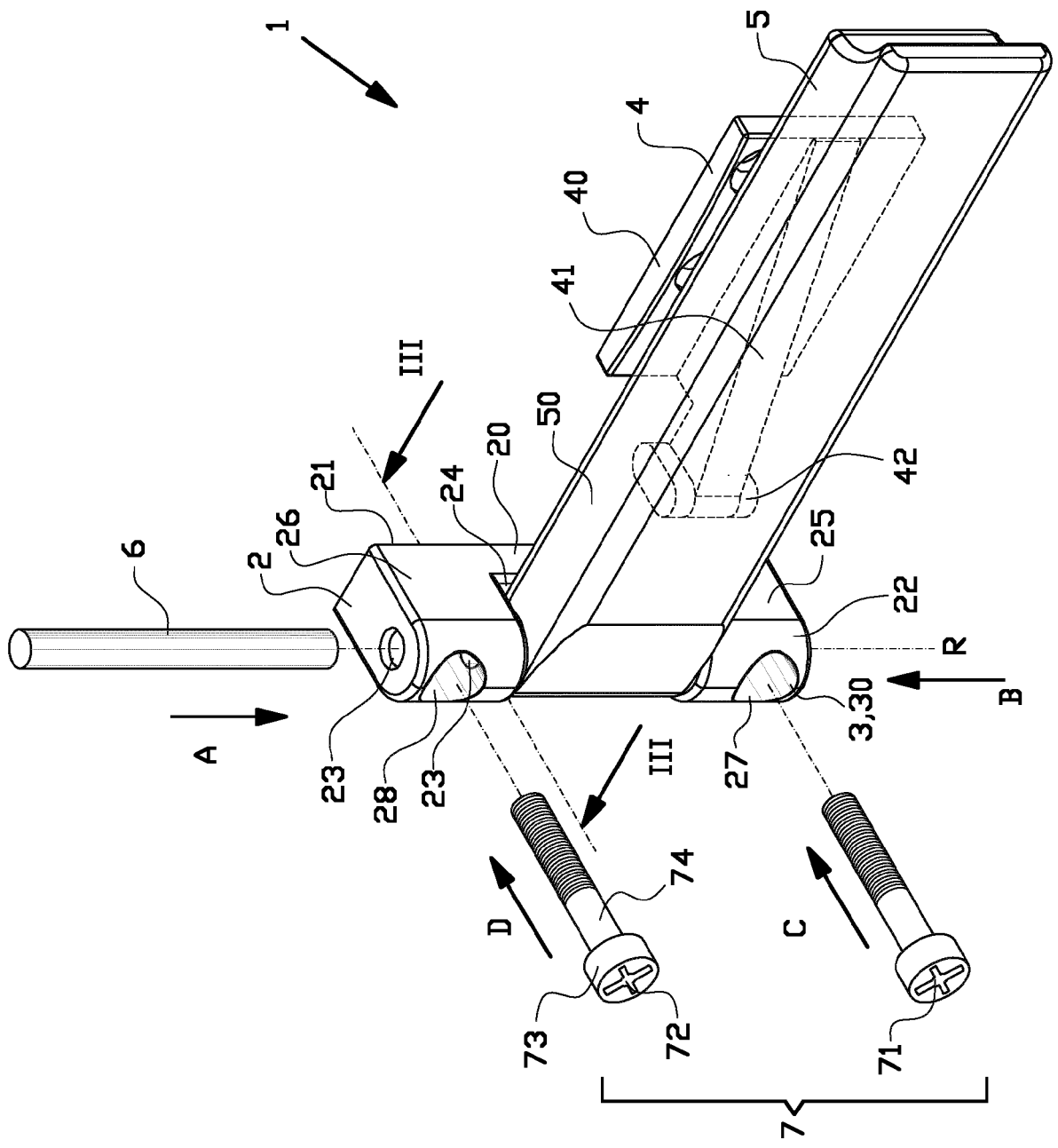
1. Security device for restricting the opening of a door or a window with respect to a door frame or a window frame, respectively, wherein the security device comprises a base member that is arranged to be mounted to the door frame or the window frame, an attachment member that is arranged to be mounted to the door or the window, respectively, and an arm that is hingably coupled to the base member and that is arranged to be rotated about an axis of rotation towards the attachment member for detachable attachment to said attachment member, wherein the security device is provided with a hinge pin for hingably coupling the arm to the base member about the axis of rotation, wherein both the base member and the arm are provided with bores in line with the axis of rotation for receiving the hinge pin in a direction of insertion, wherein the security device is provided with a first blocking element that, at least after receiving of the hinge pin in the bore of the base member, is arranged for at least partially blocking access to the hinge pin in a direction opposite to the direction of insertion, wherein the base member is provided with a first mounting channel extending transverse to and intersecting with the bore in the base member at or near the far end thereof with respect to the insertion direction, wherein the first mounting channel is arranged for receiving the first blocking element in a blocking position in which the first blocking element intersects with the bore in the base member.
2. Security device according to claim 1, wherein the first blocking element is a plug that is arranged to be inserted into the first mounting channel, wherein the plug comprises a wall that is arranged to blind the bore in the base member.
3. Security device according to any one of the preceding claims, wherein the plug is provided with a male or female coupling element and the base member is provided with an opposite female or male coupling element, respectively, at the first mounting channel, wherein the coupling element of the plug and the

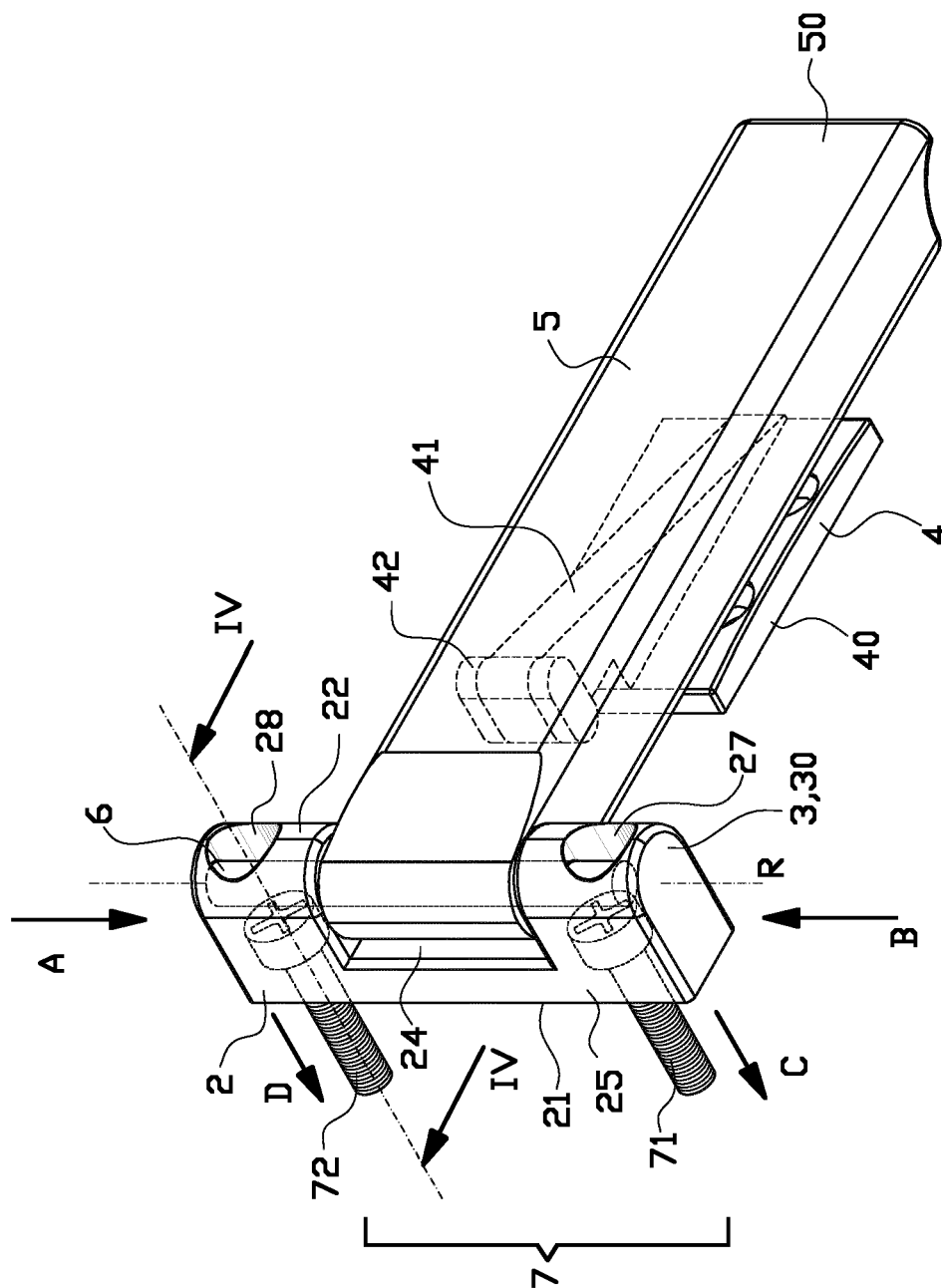
opposite coupling element of the base member are arranged to mesh, wherein the meshing prevents extraction of the plug from the first mounting channel.

4. Security device according to claim 3, wherein the coupling element in the base member is a female coupling element formed by the bore in the base member or an extension thereof, wherein the coupling element in the plug is a protrusion that is arranged to snap into the bore of the base member.
5. Security device according to claim 3 or 4, wherein the coupling member of the plug is provided on a resilient part of the plug, which resilient part is arranged to bend away to facilitate mounting of the plug into the first mounting channel, wherein the resilient part is arranged to return to its original, unbend state after the coupling element of the plug and the coupling element of the base member have meshed.
6. Security device according to any one of claims 2-5, wherein the base member has an externally facing surface surrounding the first mounting channel, wherein the plug is provided with an externally facing surface that is arranged to lie flush with, to be recessed with respect to or to be complimentary to the surrounding external surface of the base member.
7. Security device according to any one of the preceding claims, wherein the base member is arranged to be mounted with a mounting side thereof to the door frame or window frame by means of a fastener, preferably a screw or a bolt, wherein the first mounting channel is provided with a through hole for allowing the passage of the bolt through the first mounting channel to the mounting side of the base member in a first mounting direction, wherein the first blocking element is arranged to be inserted into the first mounting channel after the passage there through of the fastener, to block access to the fastener in the first mounting direction.
8. Security device according to claim 1, wherein the first blocking element is a fastener, preferably a screw or a bolt, wherein the base member is arranged to be mounted with a mounting side thereof to the door frame or window frame by means of the fastener, wherein the first mounting channel is provided with a through hole for allowing the passage of the fastener through the first mounting channel to the mounting side of the base member, wherein the fastener is provided with a fastener head that is arranged to remain in the first mounting channel and a shaft that extends through the through hole for mounting to the door frame or window frame, wherein the fastener head is provided with a circumferential wall with a surface area that is arranged, in the blocking position, to blind the bore in the base member.

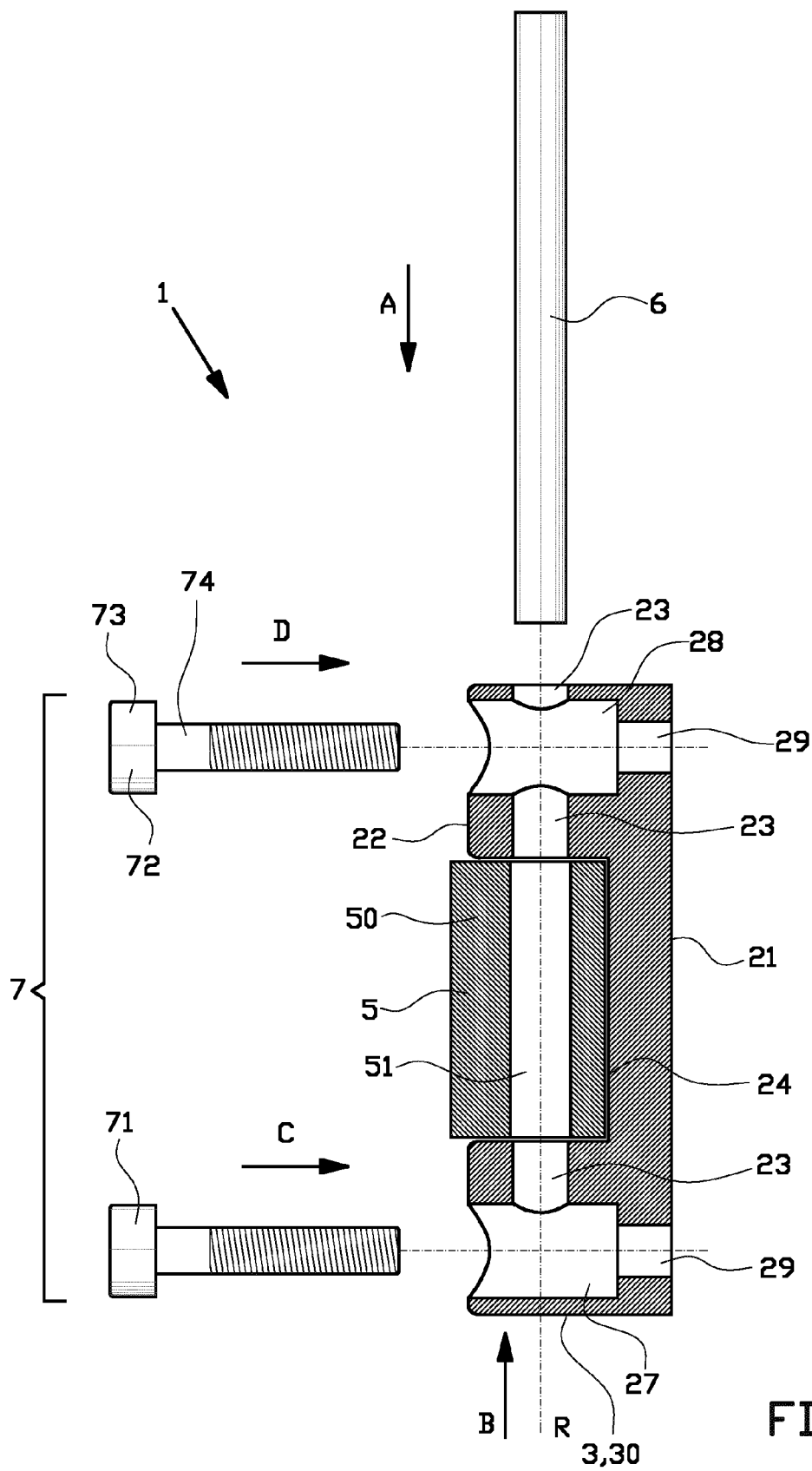
9. Security device according to claim 1, wherein the security device is provided with a fastener, preferably a screw or a bolt, wherein the base member is arranged to be mounted with a mounting side thereof to the door frame or window frame by means of the fastener, wherein the first mounting channel is provided with a through hole for allowing the passage of the fastener through the first mounting channel to the mounting side of the base member, wherein the fastener is provided with a fastener head that is arranged to remain in the first mounting channel and a shaft that extends through the through hole for mounting to the door frame or window frame, wherein the first blocking element is a bushing which is arranged to be placed around the shaft and against the head of the fastener head prior to the passing of the fastener through the through hole, wherein the bushing is arranged to be placed in the blocking position in between the head of the fastener and the base member to blind the bore in the base member.
10. Security device according to any one of the preceding claims, wherein the security device is provided with a second blocking element that, after receiving of the hinge pin in the bore of the base member, is arranged for at least partially blocking access to the hinge pin in the direction of insertion.
11. Security device according to claim 10, wherein the base member is provided with a second mounting channel extending transverse to and intersecting with the bore in the base member at or near the proximal end thereof with respect to the insertion direction, wherein the second mounting channel is arranged for receiving the second blocking element in a blocking position in which the second blocking element intersects with the bore in the base member.
12. Security device according to claim 11, wherein the second blocking element is a plug similar or identical to the plug according to any one of claims 2-7.
13. Security device according to claim 11, wherein the second blocking element is a fastener similar or identical to the fastener according to claim 8.
14. Security device according to claim 11, wherein the second blocking element is a bushing similar or identical to the bushing according to claim 9.

FIG. 1





25 FIG



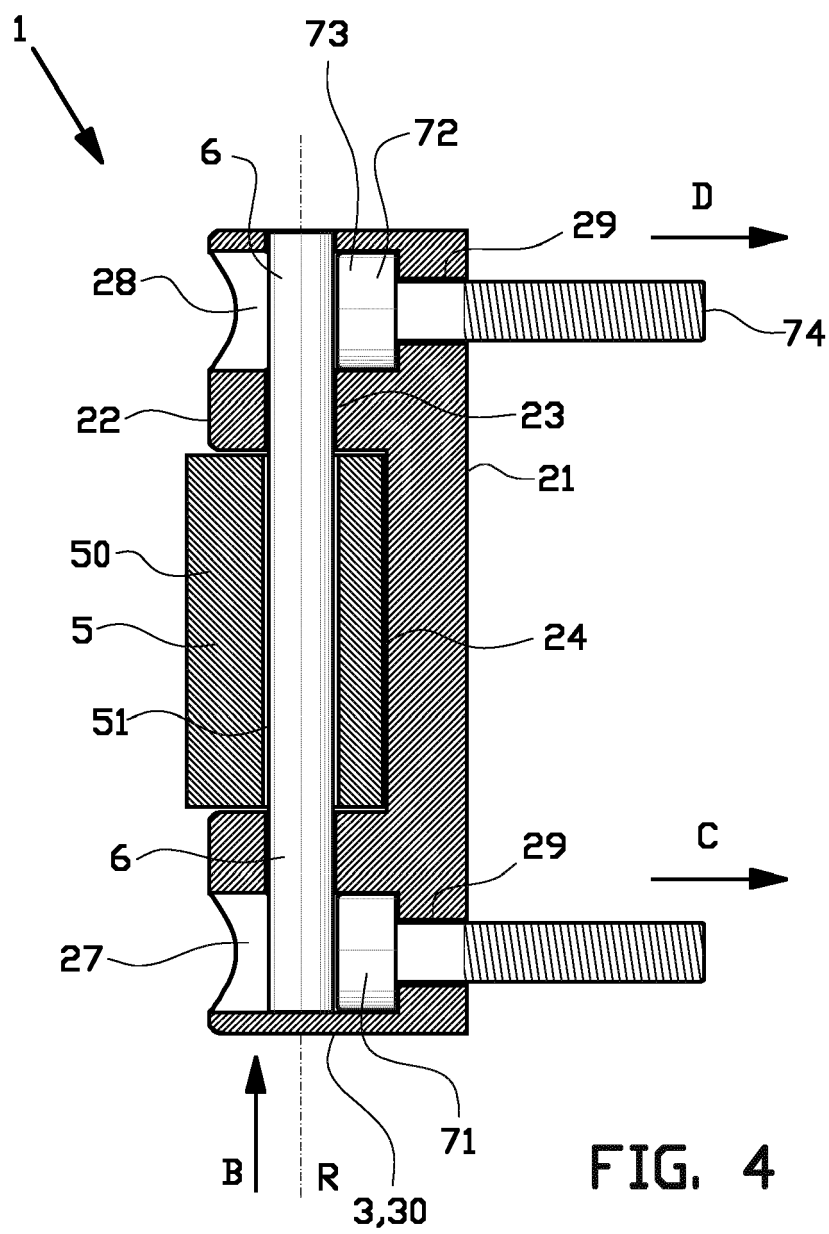
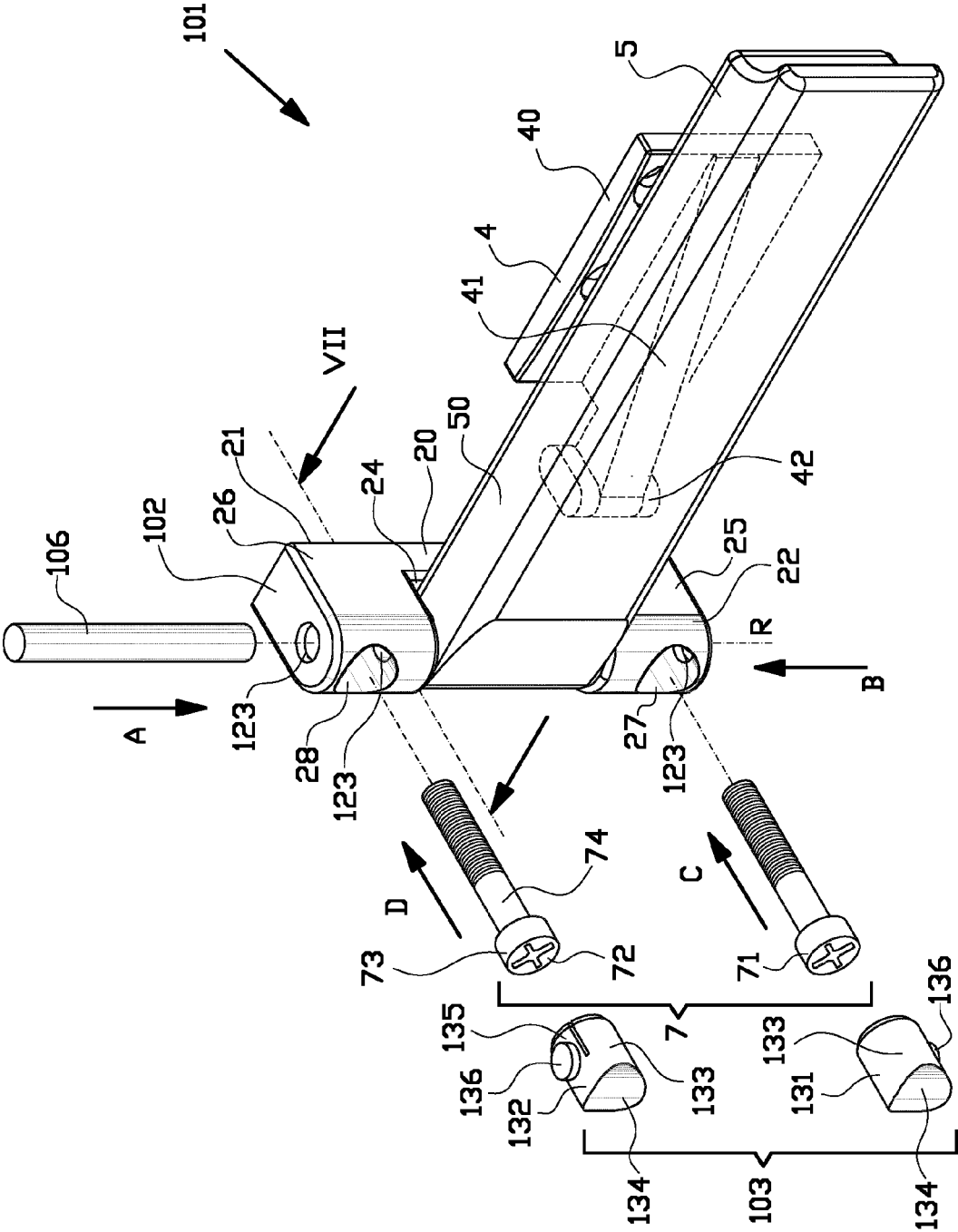


FIG. 5



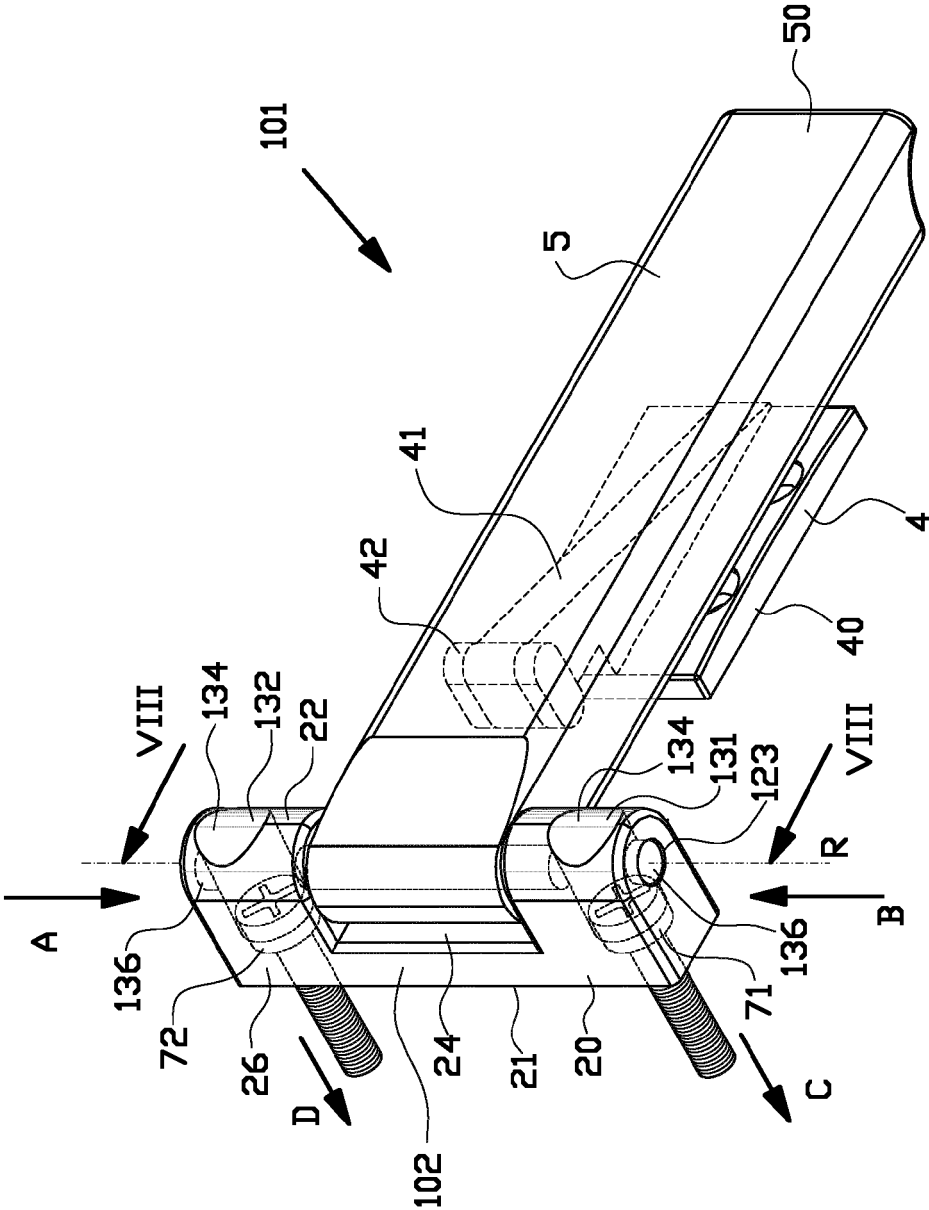


FIG. 6

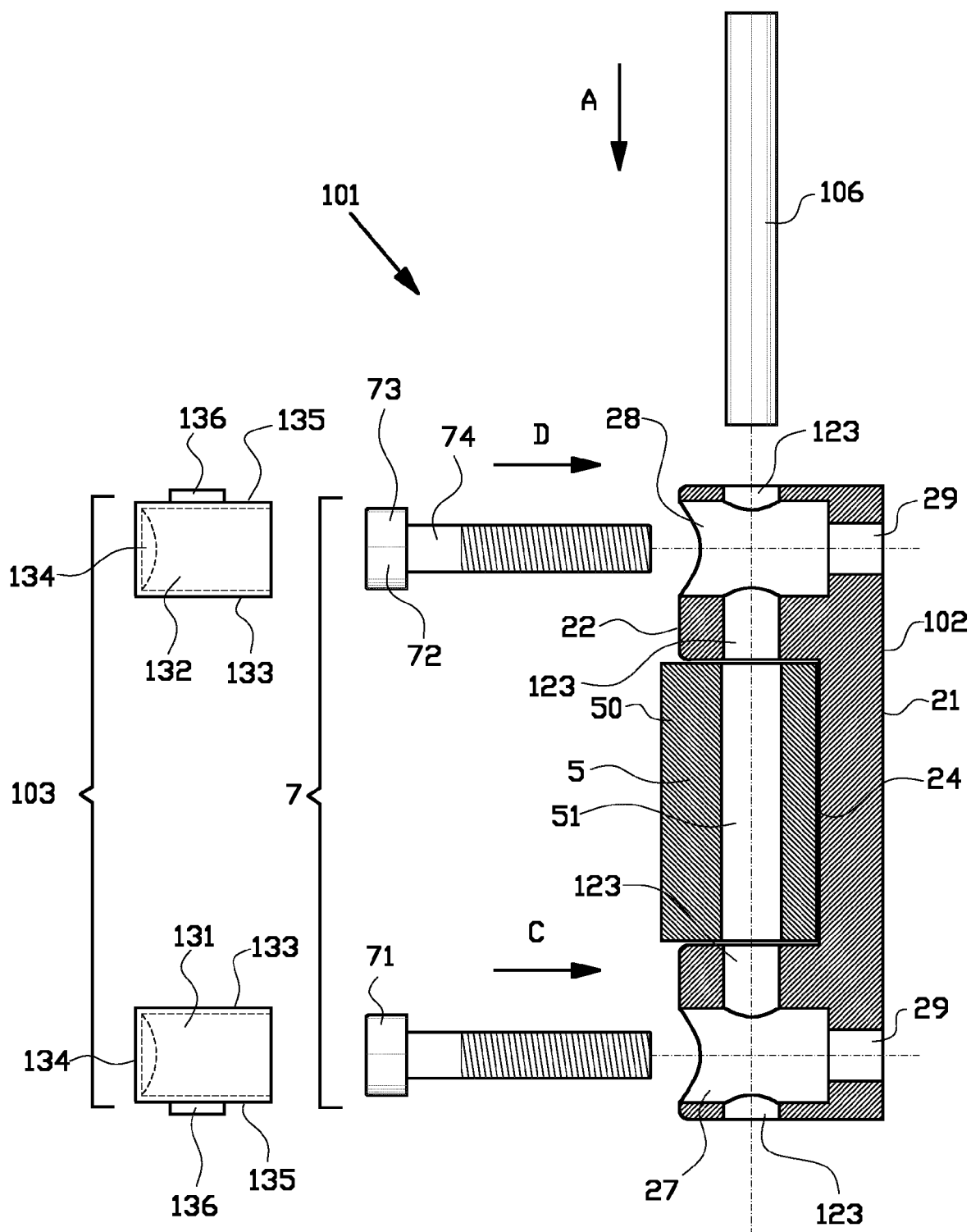


FIG. 7

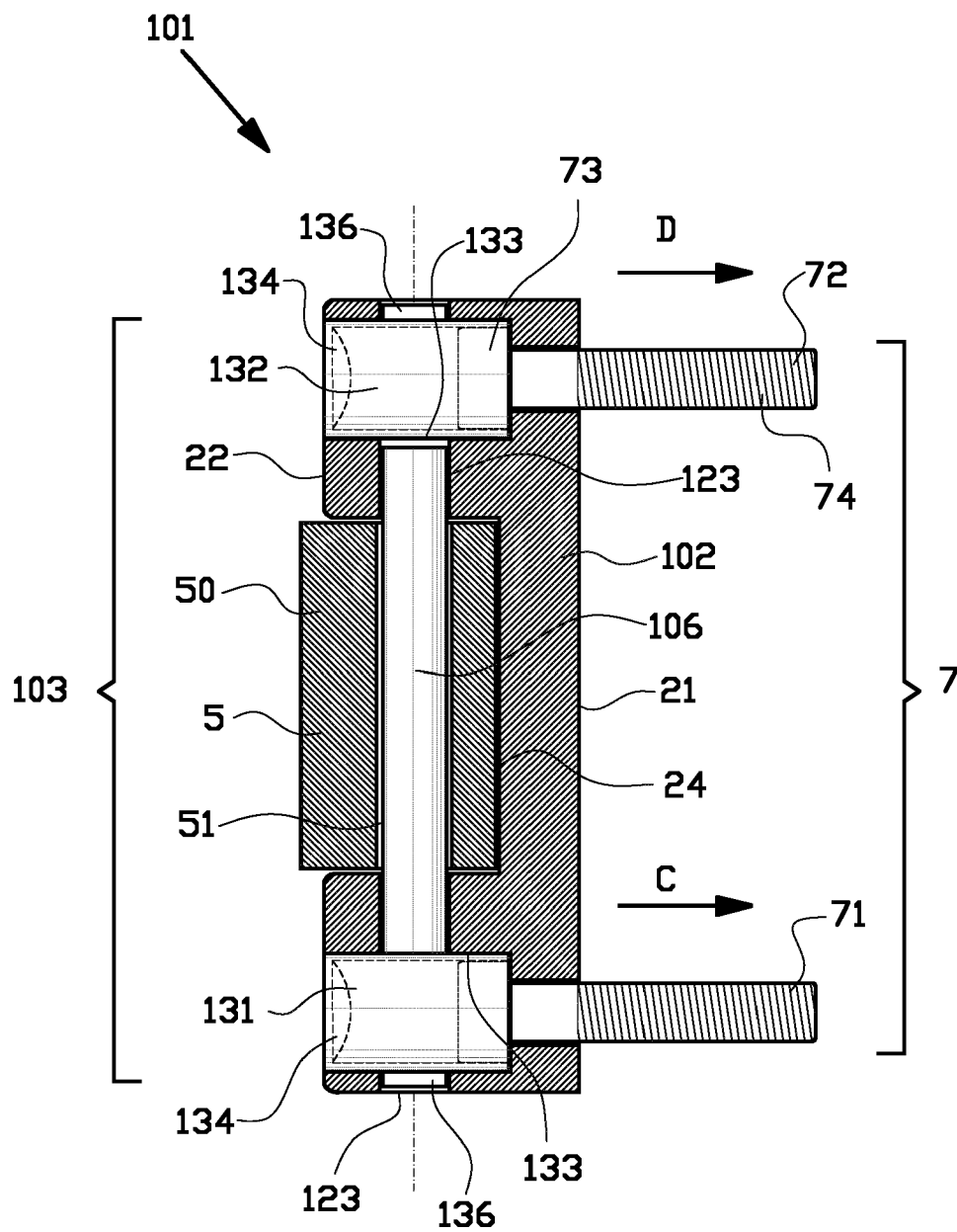


FIG. 8

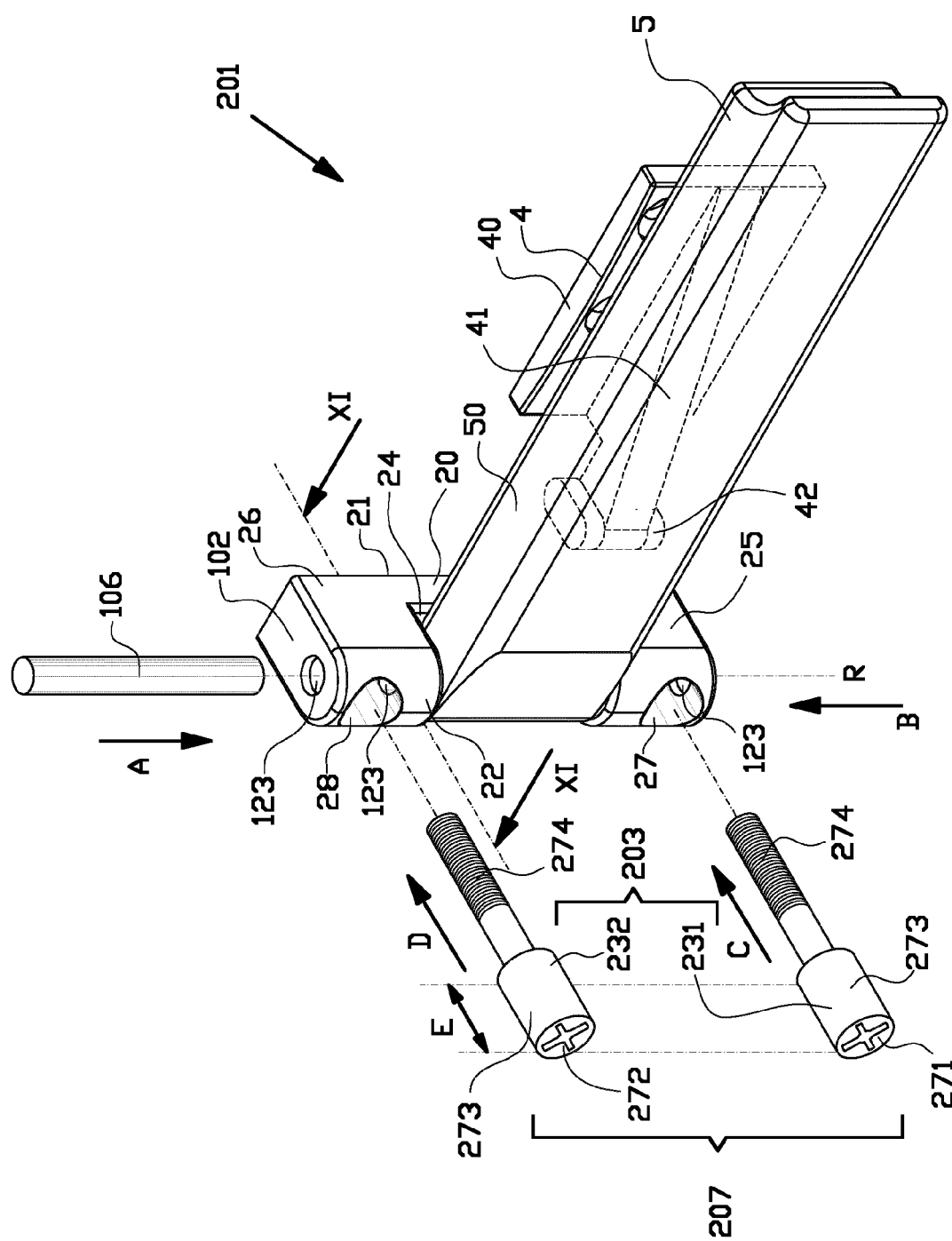


FIG. 9

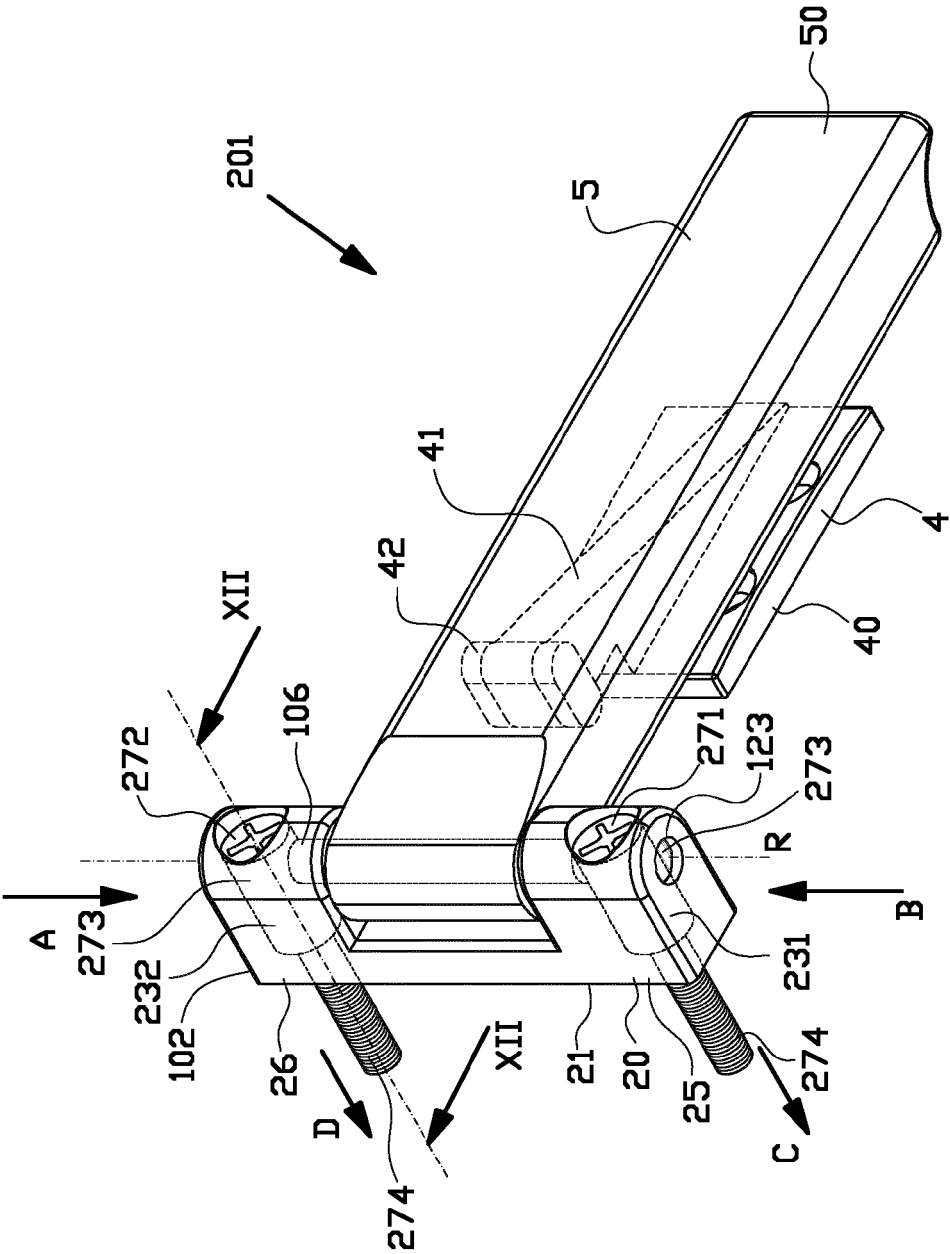


FIG. 10

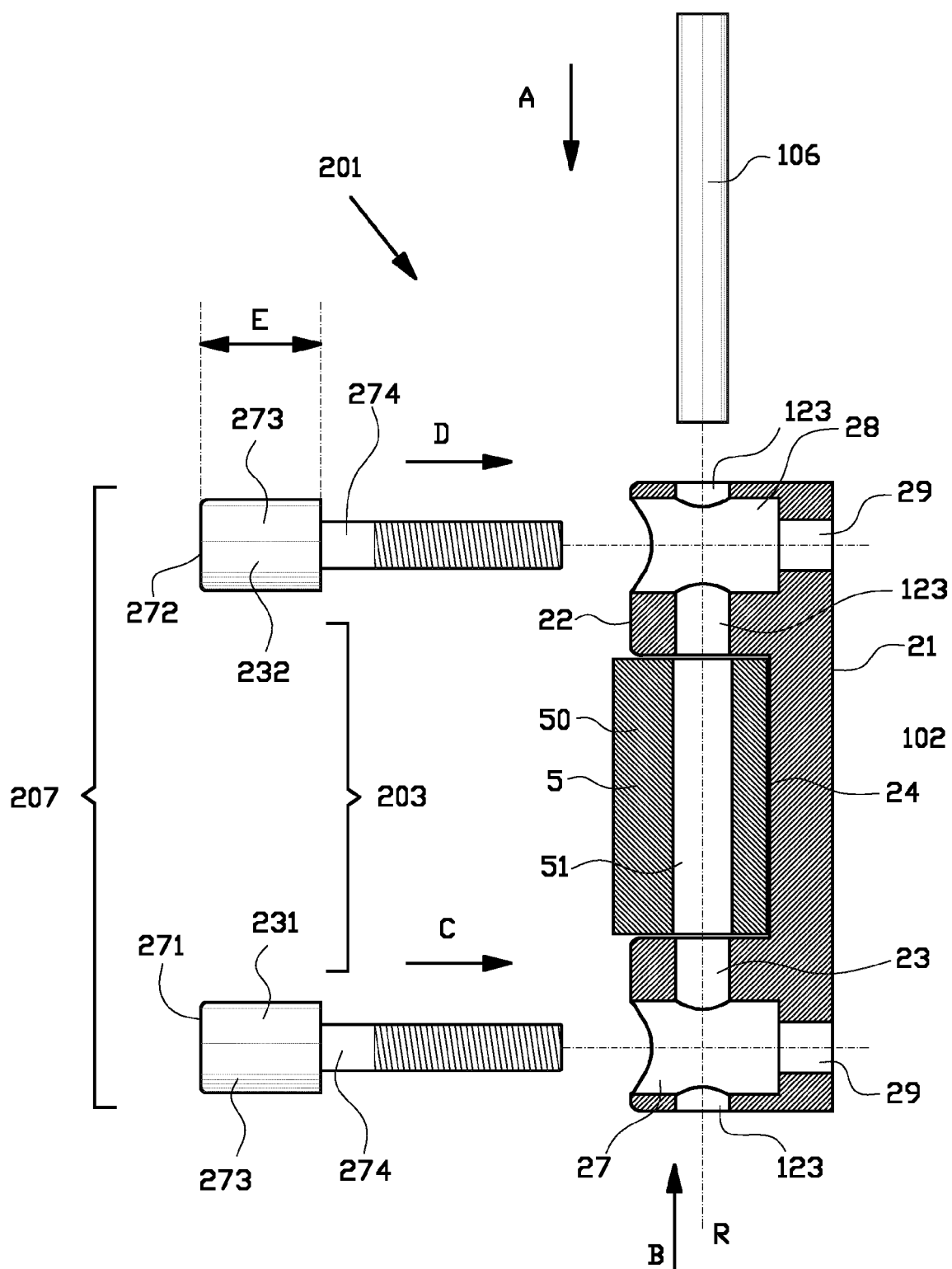


FIG. 11

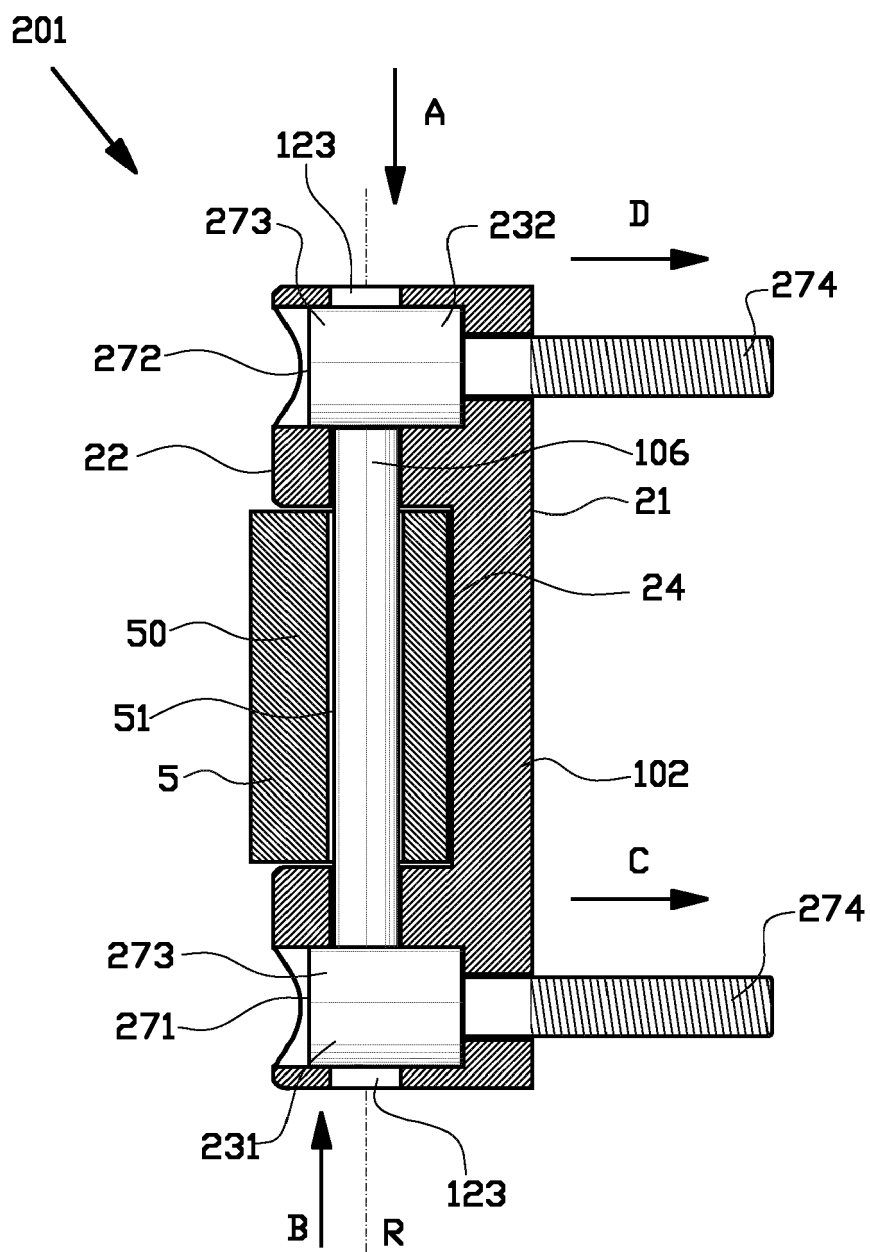
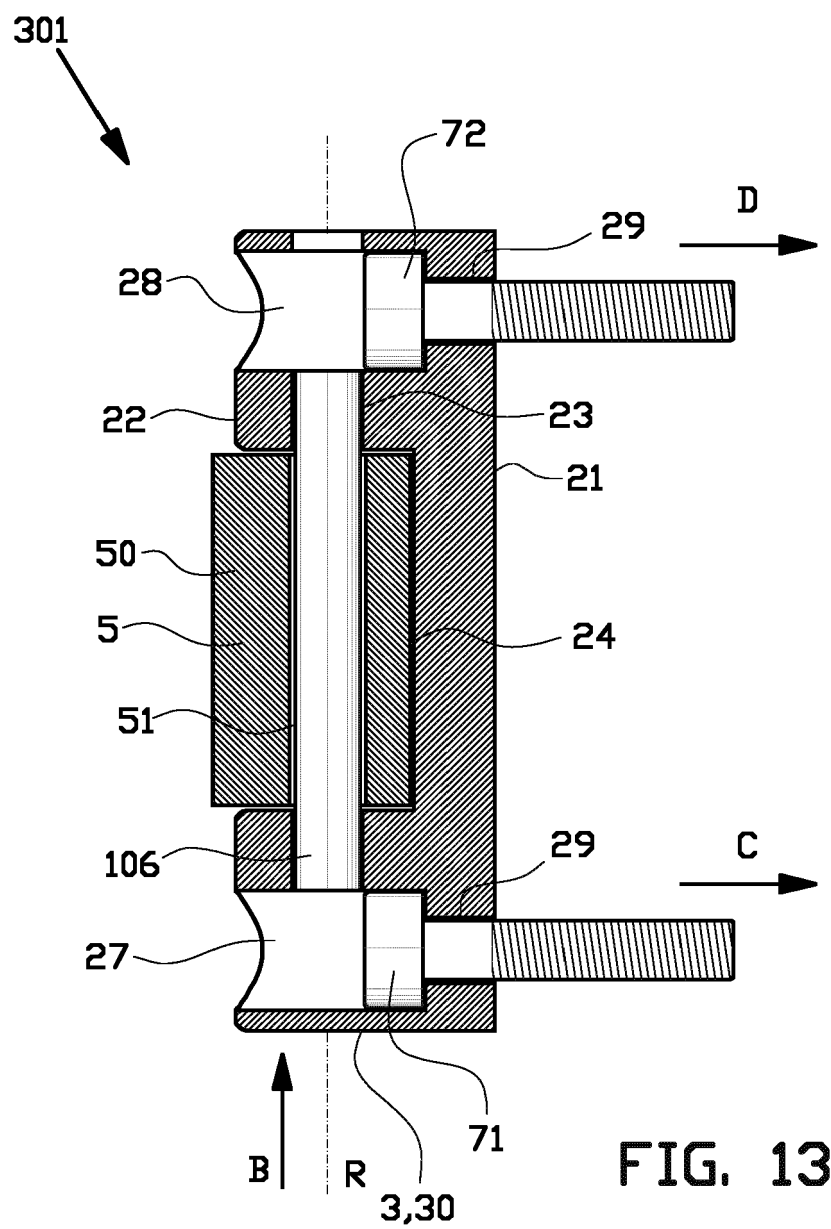


FIG. 12



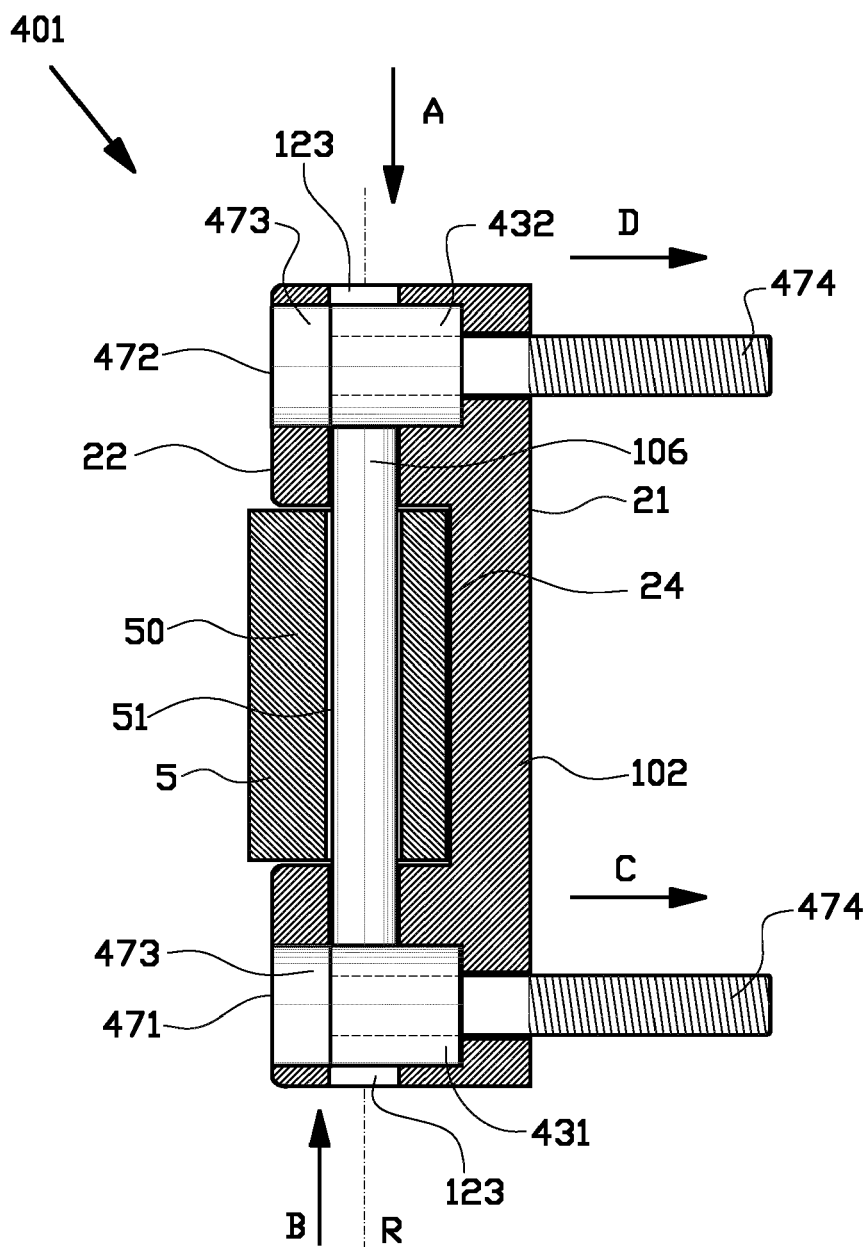


FIG. 14

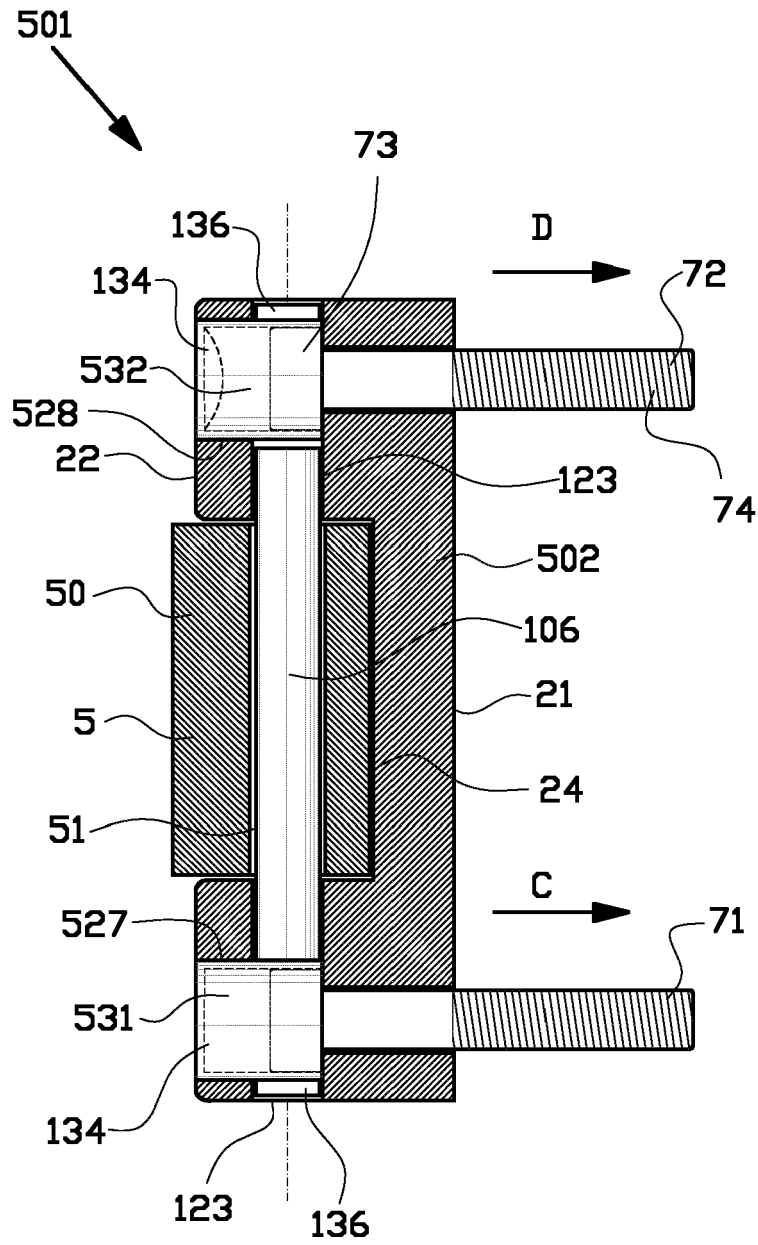


FIG. 15



EUROPEAN SEARCH REPORT

Application Number
EP 15 16 3985

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	FR 2 934 300 A1 (SOCONA [FR]) 29 January 2010 (2010-01-29) * the whole document *	1-14	INV. E05C17/16 E05B9/04
A	JP S54 81899 U (.) 9 June 1979 (1979-06-09) * the whole document *	1-14	
A	JP S62 32169 U (..) 26 February 1987 (1987-02-26) * figure 3 *	1-14	
			TECHNICAL FIELDS SEARCHED (IPC)
			E05C E05B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 23 September 2015	Examiner Geerts, Arnold
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EP 15 16 3985

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23-09-2015

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			JP S6232169 U 26-02-1987

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