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INSTALLATION SYSTEM

TECHNICAL SCOPE

- 5 The present invention relates to an installation system for the fastening of a sanitary fitting according to the preamble of Claim 1.

PRIOR ART

- 10 EP 2 450 492 disclosed a system for the fastening of a sanitary fitting. Although good results were obtained with the system, in particular as concerns the holding force, installers have wished for a more installation-friendly system. Publications DE 10 2014 111607 and EP 2 752 526 also show fastening systems for sanitary fittings, said fastening systems also
15 having disadvantages during installation.

PRESENTATION OF THE INVENTION

- Proceeding from said prior art, an object underlying the invention is to
20 provide a system which can be installed in an easier manner.

- Said object is achieved by the subject matter according to Claim 1. Accordingly, an installation system for the fastening of a sanitary fitting, for example of a toilet bowl or a urinal, includes an installation frame, a rod
25 which extends along a central axis and has an external tothing, a holding unit which communicates with the installation frame having a housing and at least one clamping jaw which is movably mounted in the housing and comprises a toothed portion which matches the external tothing, via which holding unit the rod is movable into connection with the installation frame.
30 The clamping jaw is movable from an engagement position, in which the external tothing engages in the toothed portion, into a release position, in which the external tothing is located outside the toothed portion so that in the release position the rod is displaceable relative to the clamping jaw in

the direction of the central axis. In the engagement position, the external tothing engages in the internal tothing and a movement predefined by the tothing is then possible. This means that a rough positioning of the rod relative to the holding unit is possible when the at least one clamping jaw is
5 in the release position and a fine adjustment is possible when the at least one clamping jaw is in the engagement position.

The installation system additionally includes an installation tool, with which the clamping jaw is movable from the engagement position into the release
10 position. The installation tool comprises a sleeve portion with a sleeve chamber into which the rod extends during installation, wherein the sleeve portion acts as an installation protection for the rod.

The achievement using the installation tool is that the clamping jaw is
15 actuated and, without engagement in the tothing, the rod can be inserted into the holding unit and can be positioned relative to the clamping jaw, whilst the installation tool acts at the same time as an installation protection for the rod. As a result, the installation is greatly simplified. In particular, the installer no longer has to handle multiple tools but essentially can position
20 the rod roughly in the holding unit with the described tool. Once the installation tool has been removed, the fine adjustment is then effected as a result of rotating the rod.

The installation frame is typically anchored to the building structure in a
25 stationary manner in a room.

The expression "installation protection" is understood in that the rod is protected by the installation tool with respect to external influences during the installation. This means that, in particular when tiles or other surface
30 structures are laid, no mortar or the like can come into contact with the rod. Consequently, the function of the rod is not impaired.

The installation tool preferably consists of a plastics material.

The sleeve chamber comprises a length which receives essentially in full the part of the rod which protrudes freely from the holding unit or from the installation frame, respectively, in such a manner that the rod is protected
5 substantially fully against external influences. Covering the entire freely protruding part of the rod provides the advantage that the rod is substantially fully protected.

The sleeve portion preferably comprises a front end face, from which at least
10 one actuating shoulder protrudes, with which the at least one clamping jaw is movable from the engagement position into the release position.

In a particularly preferred manner, two actuating shoulders, which are arranged opposite one another, are arranged with reference to an axis
15 extending centrally through the sleeve chamber, wherein the actuating shoulders are realized in an identical or different manner with respect to one another. With the two actuating shoulders arranged opposite with respect to one another, the force can be applied more evenly on the at least one clamping jaw.

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The at least one clamping jaw and/or the at least one actuating shoulder preferably comprises an actuating surface which is realized inclined at an angle with respect to the central axis, wherein the at least one actuating
25 shoulder and the clamping jaw act via the actuating surface in such a manner that the clamping jaw is movable from the engagement position into the release position.

The sleeve portion preferably comprises a latching structure which enters into a mechanical engagement with the holding unit and/or the installation
30 frame.

The latching structure is preferably arranged in the region of or on the actuating shoulder.

On its free end which lies opposite the clamping jaw, the sleeve portion preferably comprises a cover which is removable from the sleeve portion. The sleeve chamber can be closed by the cover in relation to the installation
5 frame. In addition, with the cover removed, access can be provided to the sleeve chamber, as a result of which the rod can be moved.

The inside diameter of the sleeve chamber, in a guide portion which faces the at least one clamping jaw, preferably corresponds substantially to the
10 outside diameter of the rod. In addition, the inside diameter of the sleeve chamber is greater in a cover portion which connects to the guide portion opposite the clamping jaws than in the region of the guide portion. The guide portion ensures that the rod is well guided in the region of the clamping jaws, whilst play for good movement is nevertheless present as a result of the
15 larger inside diameter in the cover portion.

There are preferably two clamping jaws arranged opposite one another with reference to the rod, wherein the two clamping jaws are moved symmetrically with respect to one another with the installation tool, in
20 particular are pressed away from one another in a symmetrical manner with respect to one another.

Preferably, a mechanical stop element is present, which, in a starting position, blocks the at least one clamping jaw in the engagement position against a movement into the release position, wherein the mechanical stop
25 element is movable by the installation tool from the starting position into an end position in which the clamping jaw can carry out said movement into the release position.

30 The stop element is advantageous because it provides security against a movement from the engagement position into the release position.

The stop element is preferably mounted movably in the housing and is held in the starting position by means of a spring element, in particular a compression spring.

- 5 The at least one clamping jaw is preferably pressed against the rod with a spring element, in particular a leaf spring.

10 The spring element acting on the clamping jaw is preferably arranged on the stop element which is movable in the housing. This means the spring element is also displaced in the housing. The spring element can then be advantageously realized such that the spring force in the end position of the stop element is lower than in the starting position, which supports the movement of the clamping jaws.

- 15 The at least one clamping jaw is preferably arranged so as to be pivotable about a pivot axis, wherein the pivot axis extends substantially at right angles to and at a spacing from the central axis of the rod.

20 The rod preferably comprises the form of a threaded rod with an external thread, wherein the toothed portion is a portion of an internal thread which matches the external thread.

25 The housing and/or the installation frame preferably comprises at least one access opening through which the rod and parts of the installation tool are inserted into the clamping jaws.

30 The housing is preferably realized separately from the installation frame and is mechanically connected to said installation frame. As an alternative to this, the housing can be provided integrally by the installation frame.

The housing, when seen in the direction of the central axis of the rod, includes a through-opening, through which the rod is guidable out of the

back of the housing in relation to the installation frame, wherein the through-opening is closed preferably by a further installation protection.

A method for installing an installation system according to the above
5 description is characterized in that

in a first step, the at least one clamping jaw is moved with the installation tool from the engagement position into the release position,

that in a second step the rod is inserted through the sleeve chamber into the effective region of the at least one clamping jaw and is positioned
10 based on the installation situation,

that in a third step the installation tool is removed, wherein the at least one clamping jaw is moved from the release position into the engagement position and is moved into the engagement with the rod, and

that in a fourth step of the fine adjustment, the position of the rod is
15 adjusted as a result of rotation about the central axis.

Between the second and the third step, an intermediate step of panelling the front side of the installation frame with a flat wall structure, such as for example with tiles, is preferably carried out.

20 The clamping jaws are preferably blocked by the stop element in the third step.

Further embodiments are provided in the dependent claims.

25 BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the invention are described below by way of the drawings which serve purely for explanation purposes and are not to be
30 seen as limiting. The drawings are as follows:

- Fig. 1 shows a sectional representation of the installation system according to a preferred embodiment, the installation tool not being in engagement with the installation system;
- Fig. 2 shows the sectional representation according to Figure 1, the installation tool being in engagement with the installation system;
- Fig. 3 shows an exploded representation in perspective of the installation system according to Figure 1;
- Figs. 4a-4c show various views of the installation system according to the preceding figures in the starting position;
- Fig. 5 shows various views of the installation system according to the preceding figures during an installation step;
- Fig. 6 shows various views of the installation system according to the preceding figures during an installation step;
- Fig. 7 shows various views of the installation system according to the preceding figures during an installation step;
- Fig. 8 shows various views of the installation system according to the preceding figures during an installation step;
- Fig. 9 shows various views of the installation system according to the preceding figures during an installation step; and
- Fig. 10 shows various views of the installation system according to the preceding figures during an installation step.

DESCRIPTION OF PREFERRED EMBODIMENTS

- An installation system 1 for the fastening of a sanitary fitting, for example of a toilet bowl or a urinal, is shown in the figures.

The installation system 1 is explained in more detail by way of Figures 1 and 2. The installation system 1 includes an installation frame 2 which is shown only rudimentarily, a rod 3 with external toothing 4 and a holding unit 5 which is connected to or can be moved into connection with the installation frame 2, respectively.

The installation frame 2 is fixedly anchored to the building side in a room.

5 The rod 3 then protrudes from the installation frame 2 and a sanitary fitting can be moved into connection with the rod 3 and thus be fastened to the installation frame 2. The rod 3 is connected to installation frame 2 via the holding unit 5 and includes a housing 6 and at least one, here two, clamping jaws 7 which are mounted movably in the housing 6.

10 The clamping jaws 7 comprise a toothed portion 8 which is realized matching the external toothing 4 of the rod 3. The rod is held in the holding unit 5 via the clamping jaws 7. The clamping jaws 7 are movable from an engagement position, in which the external toothing 4 engages in the toothed portion 8, into a release position, in which the external toothing 4 is located outside the toothed portion 8. The rod 3 can thus be displaced
15 relative to the clamping jaw 7 in the direction of its central axis M. This allows a rough adjustment. The engagement position or the release position, respectively, will be explained below in more detail in connection with Figures 5 to 10 when the installation procedure is explained.

20 In addition, the installation system 1 includes an installation tool 9. The clamping jaw 7 can be moved from the engagement position into the release position with the installation tool 9.

25 Figure 1 shows the installation tool 9 at a spacing from the installation frame 2 and from the holding unit 5. The two clamping jaws 7 are arranged in the engagement position here.

30 Figure 2 shows the installation tool 9 in engagement with the installation frame 2 and the holding unit 5. In this case, the installation tool 9 holds the two clamping jaws 7 in the release position, the clamping jaws 7 are first moved from the engagement position into the release position.

The installation tool 9 additionally includes a sleeve portion 10 and a sleeve chamber 11. The rod 3 extends into the sleeve chamber 11 during the installation, the sleeve portion 10 acting as an installation protection for the rod 3. The sleeve portion 10 covers the rod 3 so that the rod 3 is protected with respect to external influences which are generated during the construction of a bathroom or the like.

Further details of the holding unit 5 are explained by the exploded representation in Figure 3.

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The holding unit 5 includes a housing 6 in which the two clamping jaws 7 are pivotably mounted. The clamping jaws 7, in this case, are pivotable about a pivot axis S, which pivot axes are at right angles to and at a spacing from the central axis M of the rod 3. The clamping jaws 7 and the housing 6 comprise corresponding bearing elements 25 for this purpose.

15

Furthermore, a stop element 20 is movably arranged in the housing 6. The stop element 20 acts on each of the two clamping jaws 7 with a cam 26 so that, in their engagement position, they are blocked against movement into the release position. In addition, the stop element 20 comprises an actuating portion 27 which is actuatable by means of the installation tool 9. As a result of said actuation, the stop element 20 is movable from a starting position, in which the clamping jaws 7 are held in the engagement position by means of the stop element 20, into an end position. The clamping jaws 7 are then free from the stop element 20 in the end position and said movement from the engagement position into the release position can be carried out.

20

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The stop element 20 is movably mounted in the housing 6 and is held in its starting position by means of a spring element 21, in each case in the form of a compression spring. When actuated into the end position, the pressure is correspondingly compressed again.

30

One further spring element 22 is arranged per clamping jaw 7. Here, in each case, one spring element 22 presses onto the clamping jaws 7 in such a manner that they are held in their engagement position. Here, the further spring element 22 is in the form of a leaf spring and can either be held on the housing 6 or, however, on the stop element 20. This means that a spring element 22 which acts on the clamping jaw 7 can be arranged on stop elements which are movable on the housing 6.

It is possible to dispense with the stop element depending on the strength of the spring element 22, the spring element 22 then being mounted in the housing in said variant.

It can additionally be seen from Figure 3 that a further installation protection 23 is arranged in the rear end of the housing 6. Said further installation protection 23 is optional and serves for the protection of the rod 3 insofar as said rod projects beyond the housing 6.

As already explained, the installation tool 9 includes a sleeve portion 10 with a sleeve chamber 11. The rod 3 projects into said sleeve chamber 11. The sleeve chamber 11, in this case, comprises a length L which receives substantially in full the part of the rod 3 which protrudes from the holding unit 5 or from the installation frame 2, respectively. Reception in full is to be understood as the rod 3 being protected from external influences by the installation tool 9.

In the embodiment shown, the sleeve portion 10 comprises a front end face 12, from which at least one actuating shoulder 13 protrudes. The at least one clamping jaw 7 is movable from the engagement position into the release position by way of the actuating shoulder 13. At the same time, the optional stop element 20 is correspondingly actuatable by way of the actuating shoulder 13.

Two actuating portions 13 are arranged in the embodiment shown. The two actuating portions 13 are diametrically opposite one another with reference to an axis A which extends centrally through the sleeve chamber 11. In the embodiment shown, the actuating shoulders 13 are each realized identically to one another.

The installation tool 9 comprises an open end of the sleeve chamber 11 opposite the front end face 12. Said open end can be closed with a cover 17. The cover 17, in this case, is realized so as to be removable so that when the installation tool is used, the rod 3 can be accessed.

In the embodiment shown, the at least one clamping jaw 7 and also the at least one actuating shoulder 13 comprise an actuating surface 14 which is realized inclined at an angle with respect to the central axis M. The at least one actuating shoulder 13 acts on the clamping jaw 7 via said actuating surface 14 in such a manner that the clamping jaw 7 is movable from the engagement position into the release position.

In addition, the sleeve portion 13 comprises a latching structure 15 at the front, that is to say in the region of the end face 12. The installation tool 9 can enter into a mechanical engagement with the holding unit 5 and/or the installation frame 2 by way of the latching structure 15.

Looking at Figure 1, it can easily be seen that the inner diameter DI of the sleeve chamber 11 in a guide portion 18 facing the clamping jaws 7 corresponds substantially to the outer diameter DA of the rod 3. Good guiding of the rod 3 in the sleeve chamber 11 can be provided as a result. The inner diameter DI of the sleeve chamber, in this case, is greater in a cover portion 19 which connects to the guide portion 18 opposite the clamping jaws 7 than in the region of the guide portion 18. The achievement of said greater realization is that the rod 3 comprises a certain play inside the sleeve chamber 11.

It can be seen well from Figure 3 that the rod 3 comprises the form of a threaded rod with an external thread. The toothed portion 8 in the region of the clamping jaw 7, in this case, is a portion of an internal thread which matches the external thread. In the engagement position, the gear portion 8, in this case, engages in such a manner in the external thread that the rod 3 can be rotated about its central axis M so that the threaded rod can be screwed into the clamping jaws 7. In the release position, there is no engagement between the toothed portion 8 and the external thread of the rod 3.

Figure 4a illustrates the installation frame 2 a little more. Here, two holding units 5 are arranged on an installation frame 2. The holding units 5 are arranged here at the back of the installation frame 2 so that the rod 3 is able to project from the front of the installation frame. As a result, in the event of a tensile load occurring in a case of loading, the holding unit 5 is pulled against the rear side of the installation frame 2.

Figure 4b shows how the rods 3, which are held by the respective holding unit 5, extend away from the front side 28. In said position, the at least one clamping jaw 7 is arranged in the engagement position and the rod 3 can be actuated about its central axis M and can be screwed in relative to the front side 28 via a screw movement.

Figure 4c shows the use of the installation tool 9. Here, it can easily be seen that the sleeve portion 10 receives the rod 3 fully. The installation tool 9 can be moved into connection with the holding unit 5 or with the installation frame 2, respectively, along the arrow P. The installation frame 2, in this case, comprises a breakthrough 29, through which the actuating shoulder 13 is guided to the clamping jaws 7.

Figure 4d shows how the installation tool 9 is pulled away from the holding unit 5 or from the installation frame 2, respectively, after the rough adjustment.

Figure 5 shows the installation system 1 in its starting position. The two clamping jaws 7 are arranged in the engagement position. The rod 3 has not yet been inserted between the two clamping jaws 7 and the installation tool 9 is arranged at a state prior to engagement in the clamping jaws 7. Furthermore, it can easily be seen that the two cams 26 of the stop element 20 provide a stop for the two clamping jaws 7 at the back in relation to the pivot axis S so that they are prevented from moving into the release position.

Figure 6 shows the first step, the installation tool 9 being in contact here with the two clamping jaws 7. The installation tool 9 has also pushed the stop element 20 rearwards, as a result of which the stop has been lifted via the cams 26 and the clamping jaws 7 have now been moved from the engagement position into the release position. The actuating shoulder 13, in this case, projects between the two clamping jaws 7 and holds them in the release position. The cover 17 can now be removed.

Figure 7 shows the insertion of the rod 3. The rod 3 is inserted into the sleeve chamber 11 in relation to the front end face 12 and is then introduced in the region between the two clamping jaws 7, which are in the release position. On account of the position of the clamping jaw 7 in the release position, the rod 3 can be moved freely between the clamping jaws 7.

Figure 8 then shows how the rod 3 is located between the clamping jaws 7. The rod 3, in this case, penetrates another opening 30 in the rear region of the stop element 20.

Figure 9 then shows the removal of the installation tool 9. In this case, the clamping jaws are moved back into the engagement position because the engagement between the installation tool 9, in particular by way of the actuating shoulder 13, and the clamping jaws 7 is lifted. The cams 26 of the stop element 20

Figure 10 then shows that the threaded rod 3 can then be moved about its own central axis so that a fine adjustment is effected.

LIST OF REFERENCES

5			
	1	Installation system	29 Breakthrough
	2	Installation frame	35 30 Opening
	3	Rod	
	4	External toothing	
10	5	Holding unit	
	6	Housing	DI Inside diameter
	7	Clamping jaw	40 Da Outside diameter
	8	Toothed portion	L Length
	9	Installation tool	M Central axis
15	10	Sleeve portion	S Pivot axis
	11	Sleeve chamber	
	12	Front end face	45
	13	Actuating shoulder	
	14	Actuating surface	
20	15	Latching structure	
	16	Free end	
	17	Cover	
	18	Guide portion	
	19	Cover portion	
25	20	Stop element	
	21	Spring element	
	22	Spring element	
	23	Further installation protection	
	24	Access opening	
30	25	Bearing element	
	26	Cam	
	27	Actuating portion	
	28	Front side	

PATENTKRAV

1. Montagesystem (1) til fastgørelse af en sanitærartikel, for eksempel en toilet-skål eller et urinal, omfattende

5

et montagestativ (2)

en stang (3), som strækker sig langs en central akse (M), med en udvendig fortanding (4),

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en holdeenhed (5), som er forbundet til montagestativet (2), med et hus (6) og mindst en klemkæbe (7), der er monteret bevægeligt i huset (6) og omfatter et fortandet tandafsnit (8), som passer sammen med den udvendige fortanding (4), via hvilken holdeenhed (5) stangen (3) kan bringes i forbindelse med montagestativet (2),

15

hvorved klemkæben (7) kan bevæges fra en indgrebsposition, i hvilken den udvendige fortanding (4) griber ind i det fortandede afsnit (8), til en frigørelsesposition, i hvilken den udvendige fortanding (4) befinder sig uden for det fortandede afsnit (8), således at stangen (3) kan forskydes i forhold til klemkæben (7) i retning af den centrale akse (M),

20

hvorved montagesystemet (1) ydermere omfatter et monteringsværktøj (9), med hvilket klemkæben (7) kan bevæges fra indgrebspositionen til frigørelsespositionen,

kendetegnet ved, at

25

monteringsværktøjet (9) omfatter et muffeafsnit (10) med et muffekammer (11), ind i hvilket stangen (2) strækker sig under montagen, hvorved muffeafsnittet (10) virker som montagebeskyttelse for stangen (2), og hvorved muffekammeret (11) har en længde (L), som helt modtager den del af stangen (3), som rager frit ud fra holdeenheden (5), henholdsvis fra montagestativet (2), på en sådan måde, at stangen (3) er beskyttet mod ydre påvirkninger.

30

2. Montagesystem (1) ifølge krav 1, **kendetegnet ved, at** muffeafsnittet (10) omfatter en forreste endeflade (12), fra hvilken mindst en betjeningsskulder (13)

rager frem, med hvilken den mindst ene klemkæbe (7) kan bevæges fra indgrebspositionen til frigørelsespositionen.

3. Montagesystem (1) ifølge krav 2, **kendetegnet ved, at** to betjeningsskuldre (13), som er arrangeret over for hinanden, er anbragt i forhold til en akse (A), der centralt strækker sig gennem muffekammeret (11), hvorved betjenings-skuldrene (13) er dannet som identiske eller forskellige i forhold til hinanden.

4. Montagesystem (1) ifølge et af kravene 2 eller 3,
10 **kendetegnet ved, at** den mindst ene klemkæbe (7) og/eller den mindst ene betjeningsskulder (13) omfatter en betjeningsflade (14), der realiseres med en hældning i forhold til den centrale akse (M), hvorved den mindst ene betjeningsskulder og klemkæben via betjeningsfladen (14) virker på en sådan måde, at klemkæben (7) kan bevæges fra indgrebspositionen til frigørelsespositionen.

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5. Montagesystem (1) ifølge et af de foregående krav, **kendetegnet ved, at** muffeafsnittet (10) omfatter en rastestruktur (15), som indgår i mekanisk indgreb med holde-enheden (5) og/eller montagestativet (2).

20 6. Montagesystem (1) ifølge et af de foregående krav, **kendetegnet ved, at** muffeafsnittet (10), på dets frie ende (16), som ligger modsat klemkæben (7), omfatter et dæksel (17), der kan fjernes fra muffeafsnittet (10).

7. Montagesystem (1) ifølge et af de foregående krav, **kendetegnet ved, at**
25 muffekammerets (11) indre diameter (DI) i det væsentlige svarer til den udvendige diameter (DA) for stangen (3) i et føringsafsnit (18), som vender mod den mindst ene klemkæbe (7), og **ved, at** den indvendige diameter (DI) for muffekammeret (11) er større i et dækselafsnit (19), der slutter sig til føringsafsnittet (18) over for klemkæberne (7), end i området med føringsafsnittet (18).

30

8. Montagesystem (1) ifølge et af de foregående krav, **kendetegnet ved, at** der er arrangeret to klemkæber (7), som er anbragt over for hinanden i forhold til stangen (3), hvorved de to klemkæber (7) bevæges symmetrisk i forhold til hin-

anden ved hjælp af monteringsværktøjet (9), navnlig trykkes bort fra hinanden på symmetrisk måde.

5 **9.** Montagesystem (1) ifølge et af de foregående krav, **kendetegnet ved, at** der er tilvejebragt et mekanisk anslagselement (20), som i en udgangsposition blokerer den mindst ene klemkæbe (7) i indgrebspositionen mod en bevægelse til frigørelsespositionen, hvorved det mekaniske anslagselement (20) ved hjælp af monteringsværktøjet (9) kan bevæges fra udgangspositionen til en endeposition, i hvilken klemkæben (7) kan udføre bevægelsen ind i frigørelsespositionen.

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10. Montagesystem (1) ifølge krav 9, **kendetegnet ved, at** anslagselementet (20) er lejret bevægeligt i huset (6) og ved hjælp af et fjederelement (21), navnlig en trykfjeder, holdes i udgangspositionen.

15 **11.** Montagesystem ifølge et af de foregående krav, **kendetegnet ved, at** den mindst ene klemkæbe (7) trykkes mod stangen (3) med et fjederelement (22), navnlig en bladfjeder.

12. Montagesystem (1) ifølge krav 11, når krav 11 er afhængigt af kravene 9 eller 10, **kendetegnet ved, at** det på klemkæben (7) virkende fjederelement (22) er arrangeret på det i huset (6) bevægelige anslagselement (20).

25 **13.** Montagesystem (1) ifølge et af de foregående krav, **kendetegnet ved, at** den mindst ene klemkæbe (7) er indrettet til at være svingbar omkring en svingakse (S), hvorved svingaksen (S) strækker sig vinkelret på og i en afstand fra stangens (3) centrale akse (M).

14. Montagesystem (1) ifølge et af de foregående krav, **kendetegnet ved, at** stangen (3) er udformet som en gevindstang med et udvendigt gevind, hvorved
30 fortandingsafsnittet (8) er et afsnit af et indvendigt gevind, der passer sammen med det udvendige gevind.

15 **15.** Montagesystem (1) ifølge et af de foregående krav, **kendetegnet ved, at** huset (6) (set i retning af stangens (3) centrale akse (M)) omfatter en gennemføringsåbning, gennem hvilken stangen kan føres ud fra husets bagside i forhold til montagestativet, hvorved gennemføringsåbningen fortrinsvis er lukket ved hjælp af en yderligere monteringsbeskyttelse.

10 **16.** Montagesystem ifølge et af de foregående krav, **kendetegnet ved, at** huset (6) og/eller montagestativet (2) omfatter mindst en tilgangsåbning (24), gennem hvilken stangen (3) og dele af monteringsværktøjet kan indsættes til klemkæberne.

17. Fremgangsmåde til montering af montagesystemet (1) ifølge et af de foregående krav, **kendetegnet ved, at**

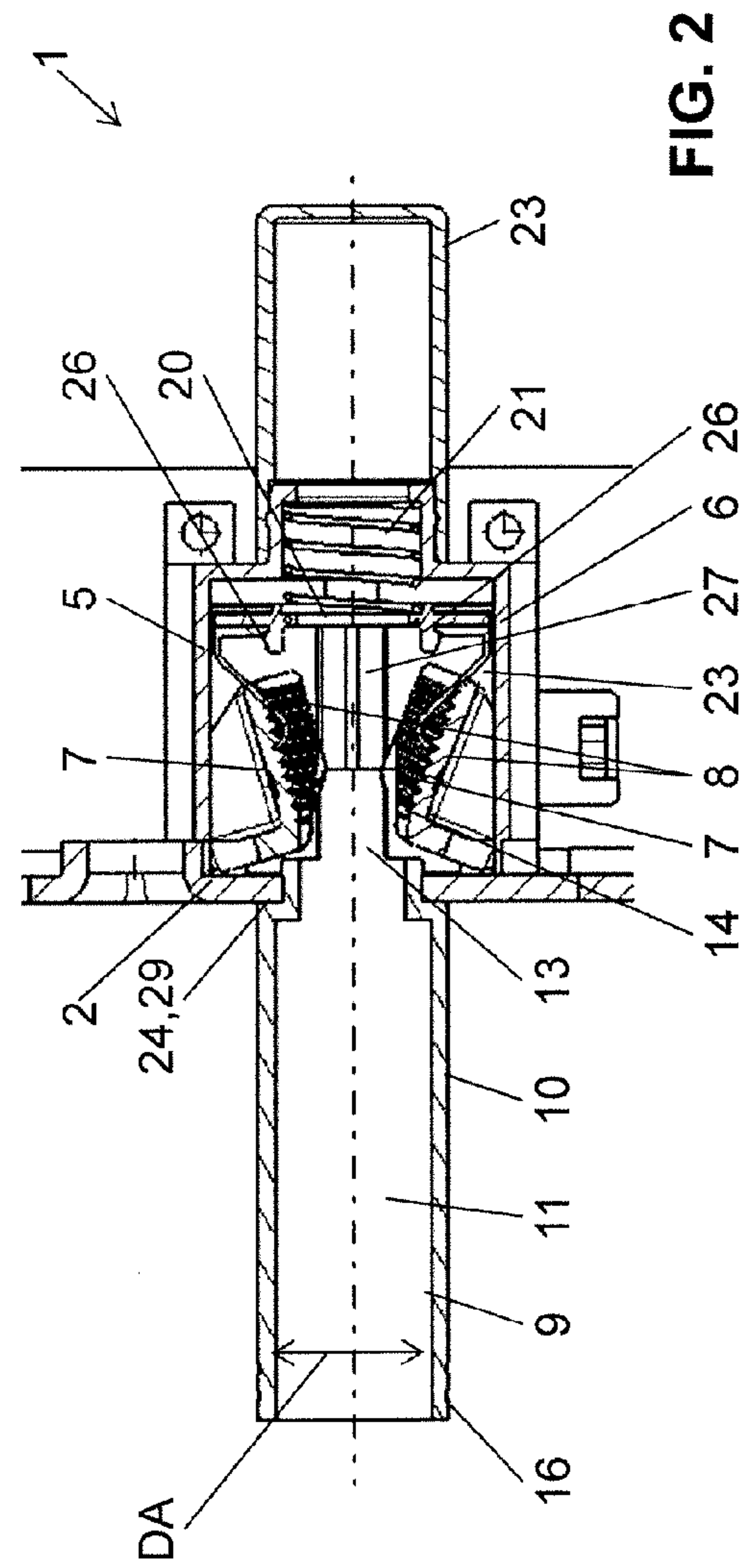
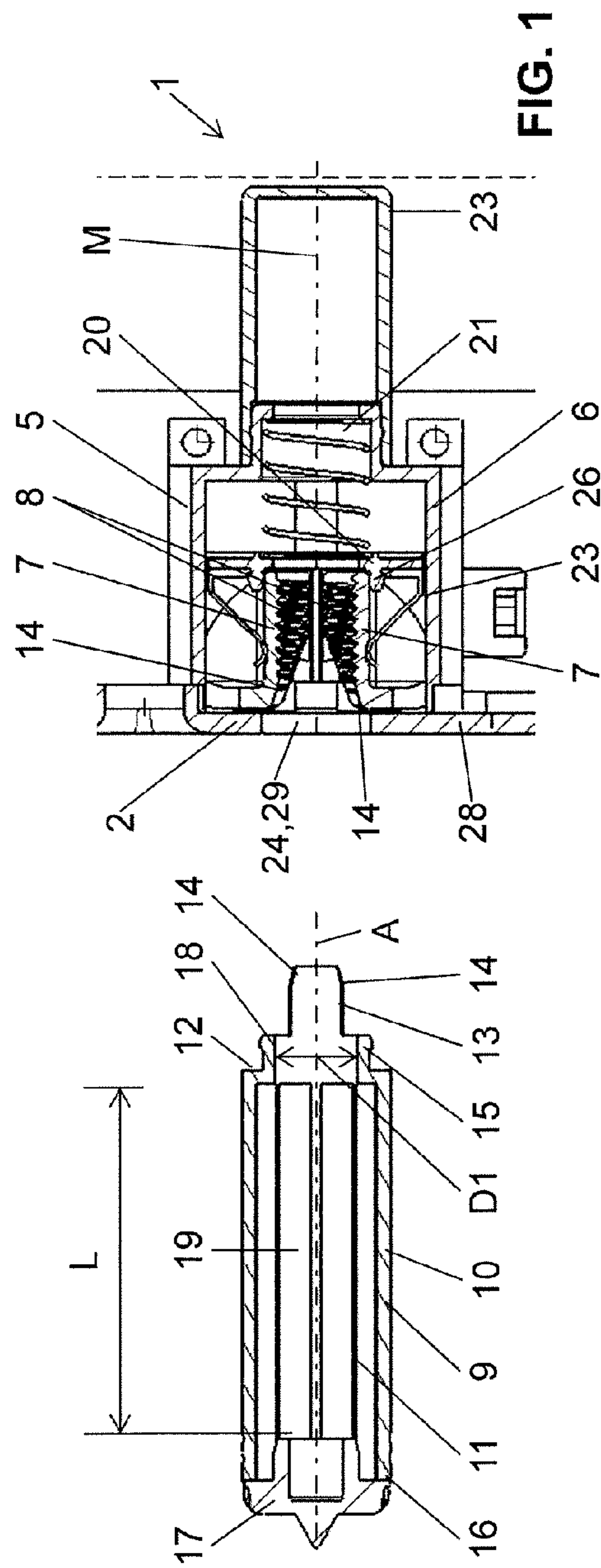
15 i et første trin den mindst ene klemkæbe (7) med monteringsværktøjet (9) bevæges fra indgrebspositionen til frigørelsespositionen, i et andet trin stangen (3) indsættes gennem muffekammeret ind i arbejdsområdet for den mindst ene klemkæbe og positioneres i henhold til indbygningssituationen,

20 i et tredje trin monteringsværktøjet (9) fjernes, hvorved den mindst ene klemkæbe (7) bevæges fra frigørelsespositionen til indgrebspositionen og bringes i indgreb med stangen (3), og i et fjerde trin med finindstilling stangens (3) position indstilles ved drejning omkring den centrale akse (M).

25

18. Fremgangsmåde ifølge krav 17, **kendetegnet ved, at** der mellem det andet og det tredje trin udføres et mellemtrin med beklædning af montagestativets (2) forside med en flad vægstruktur, såsom for eksempel med fliser.

30



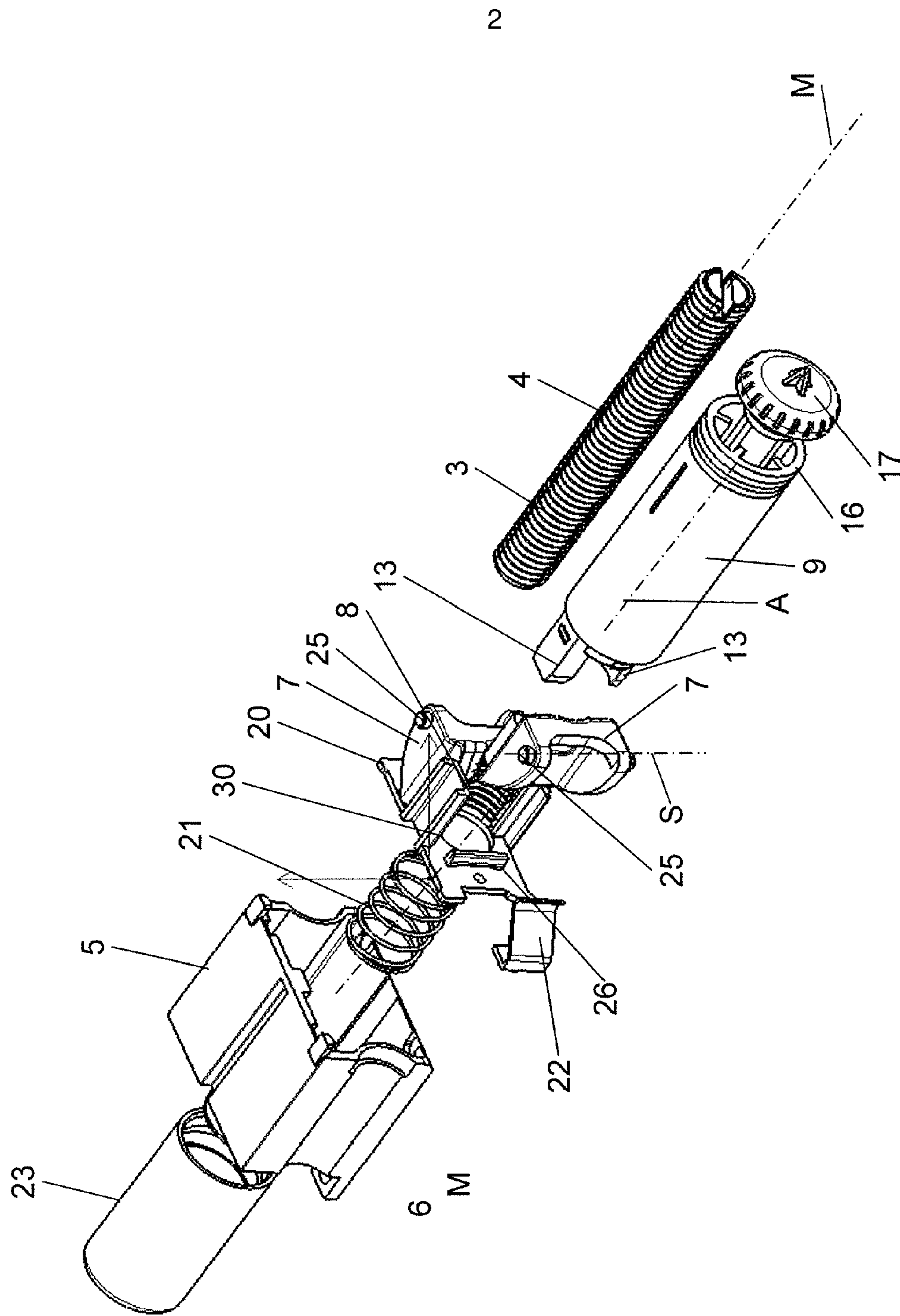


FIG. 3

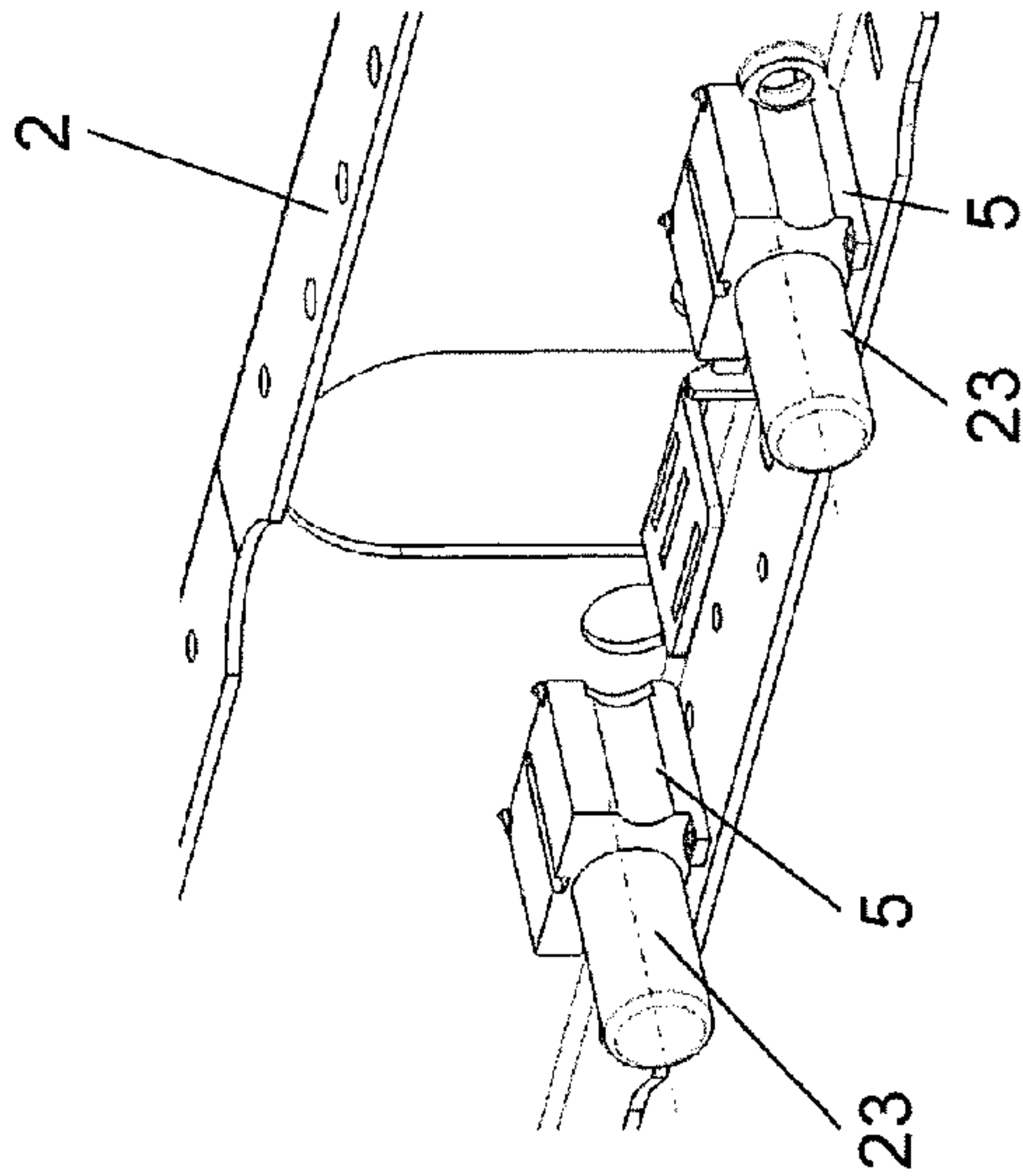


FIG. 4a

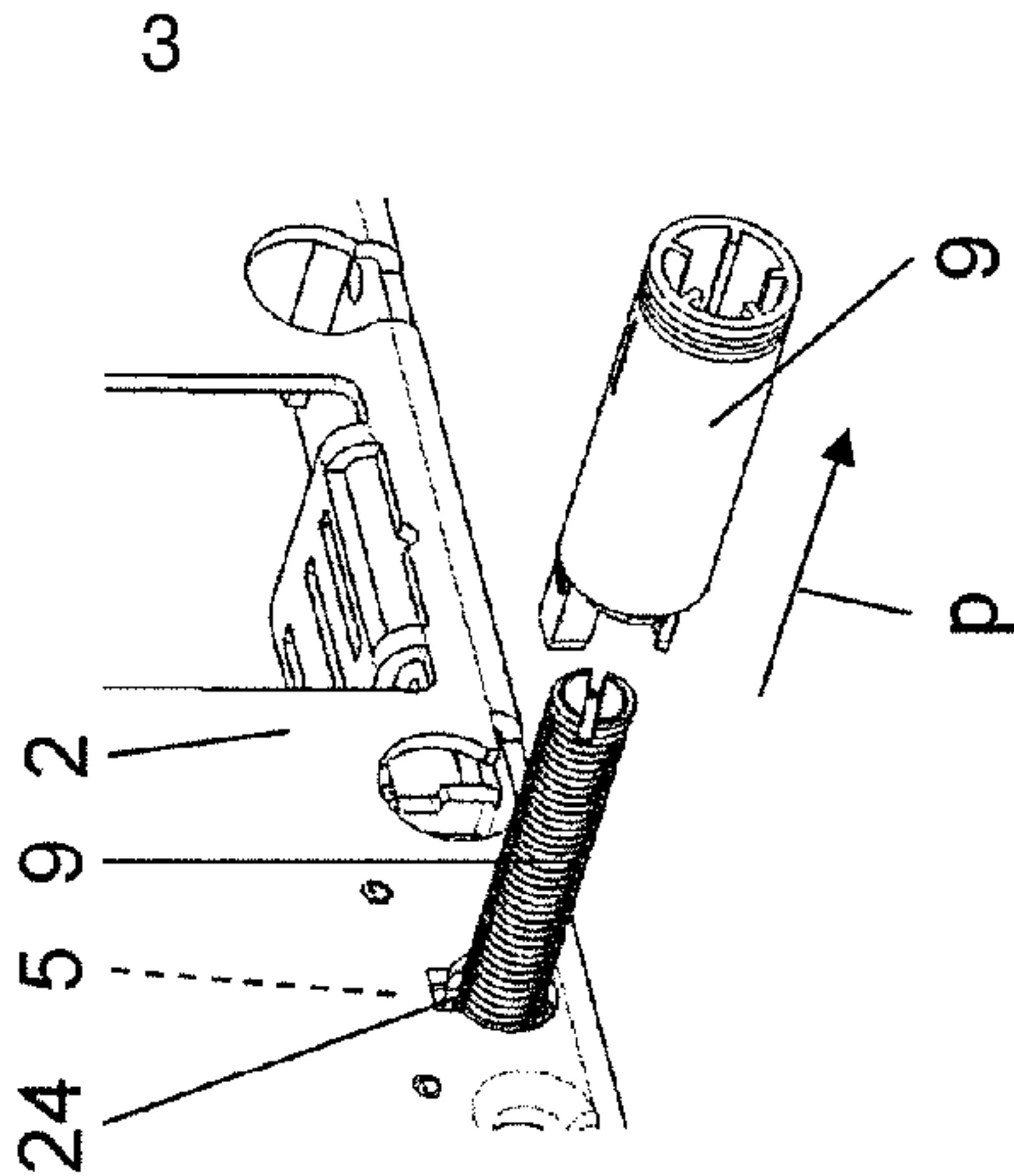


FIG. 4c

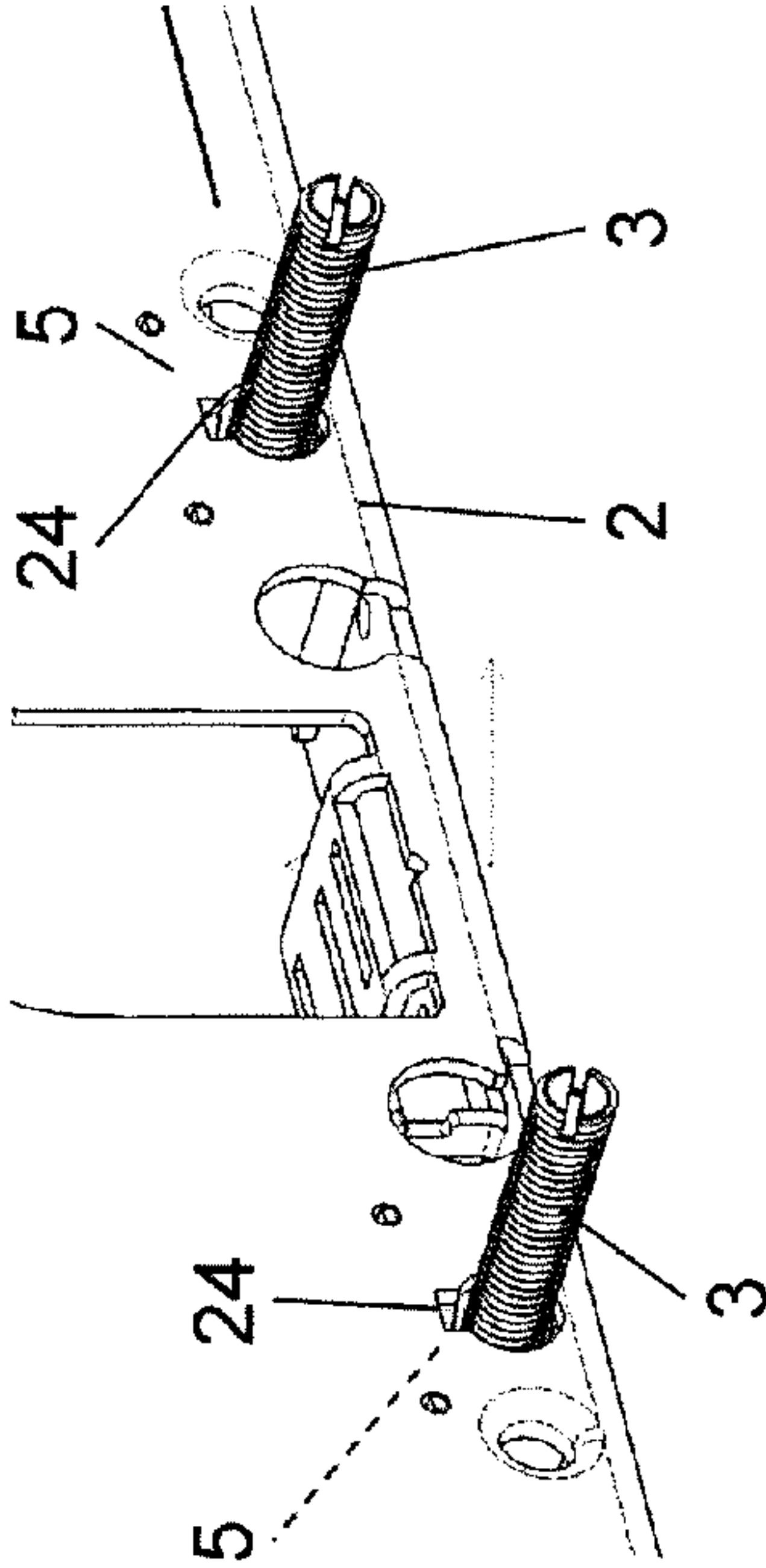


FIG. 4b

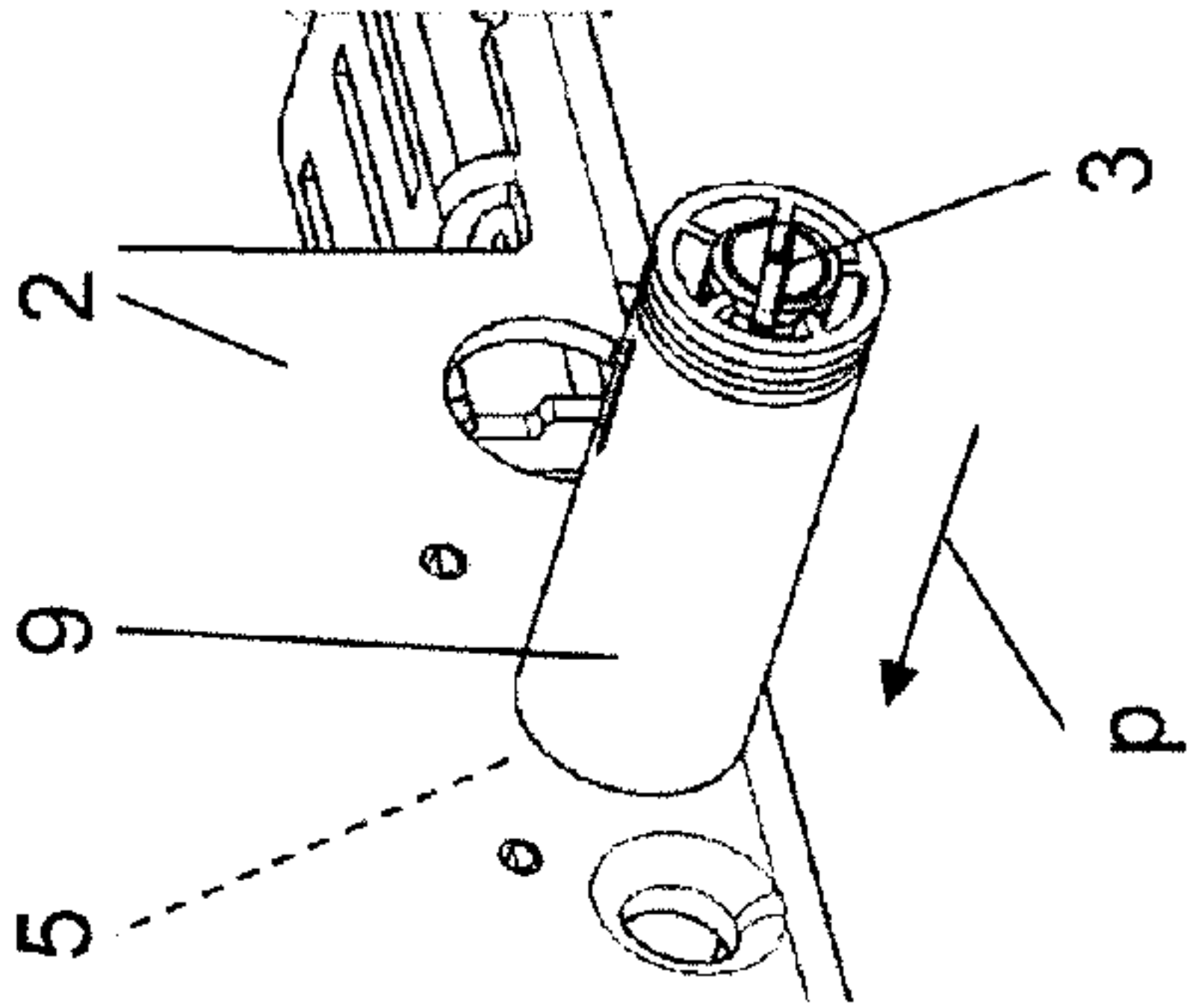


FIG. 4d

FIG. 5

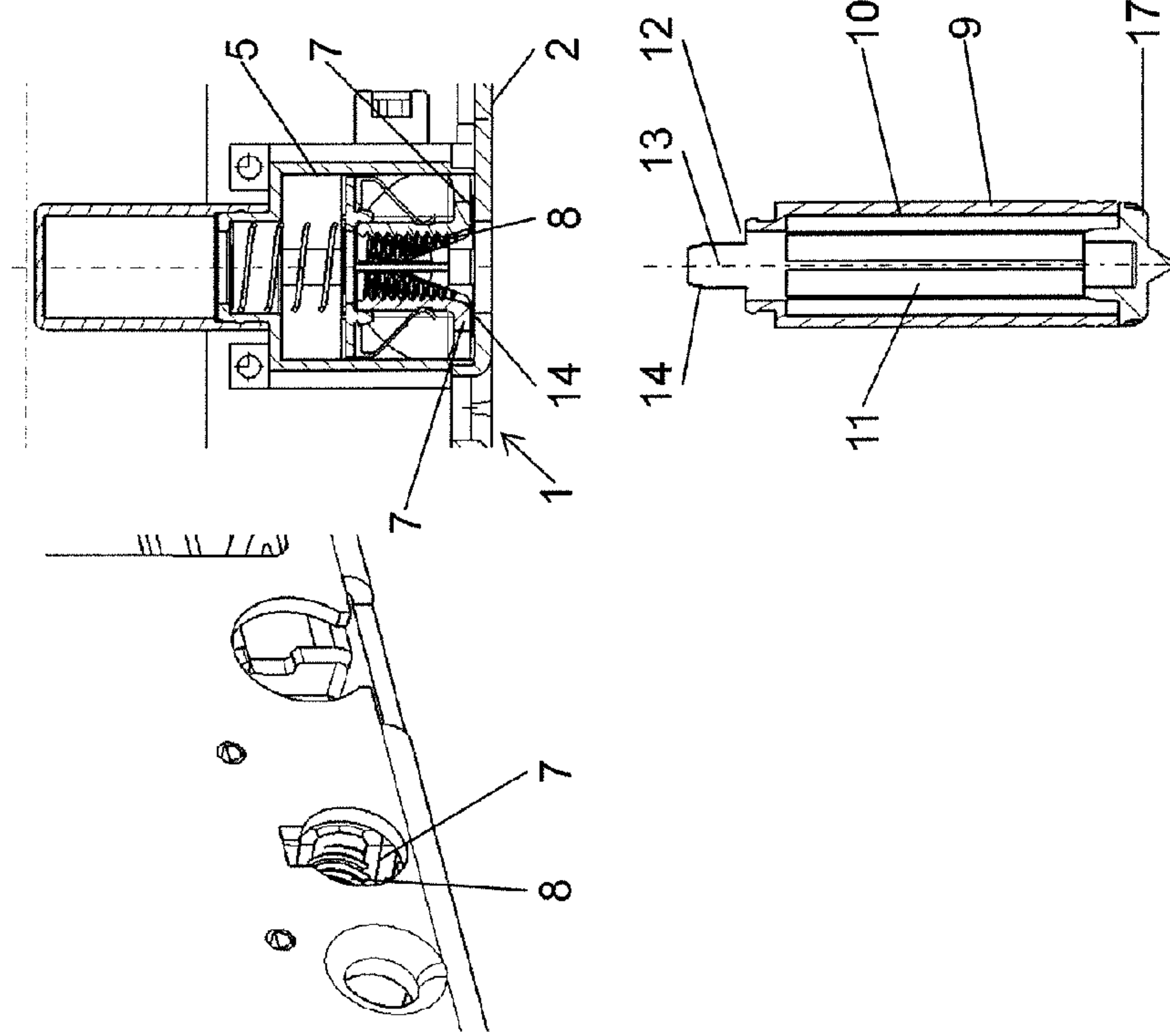


FIG. 6

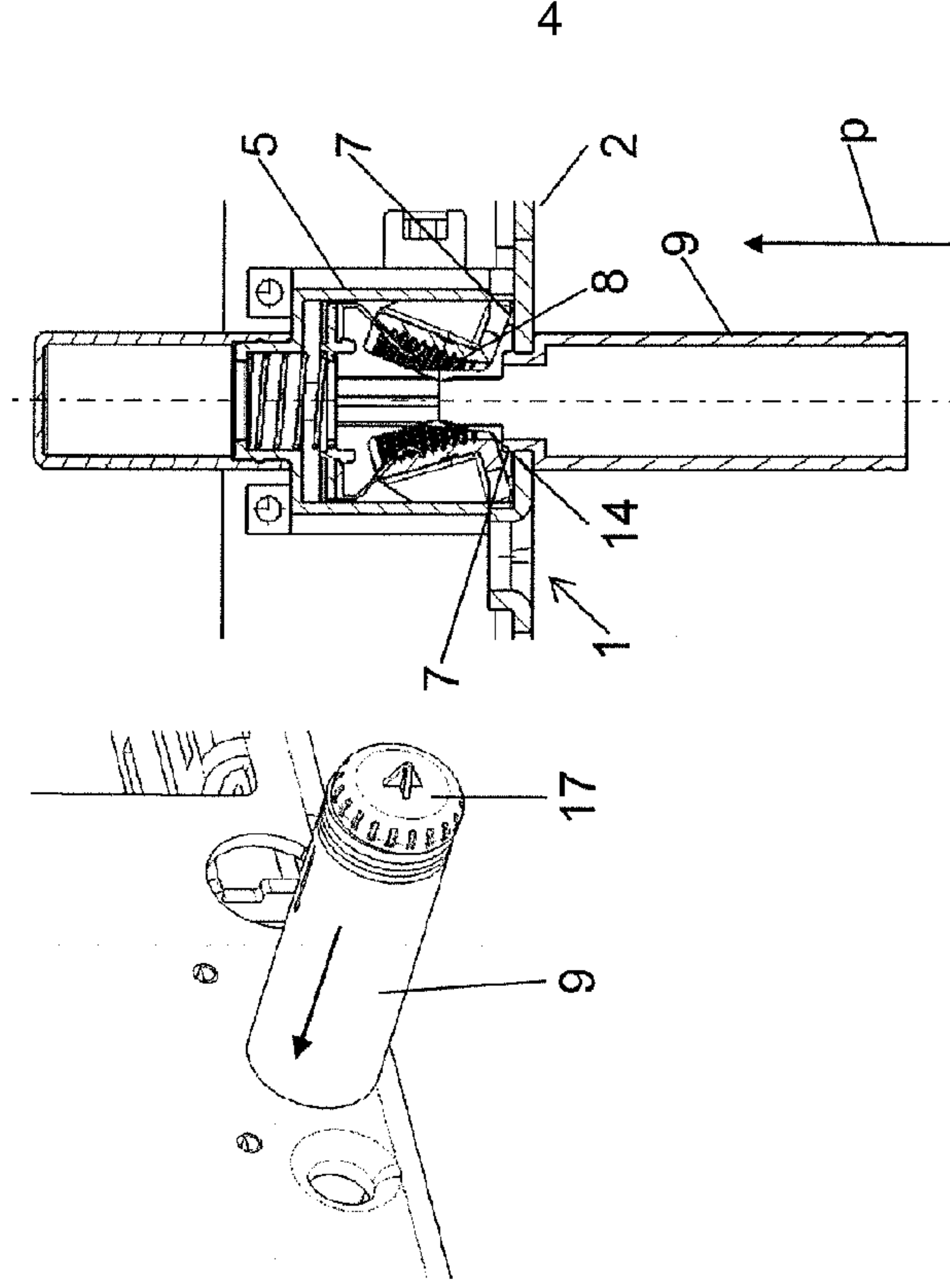


FIG. 7

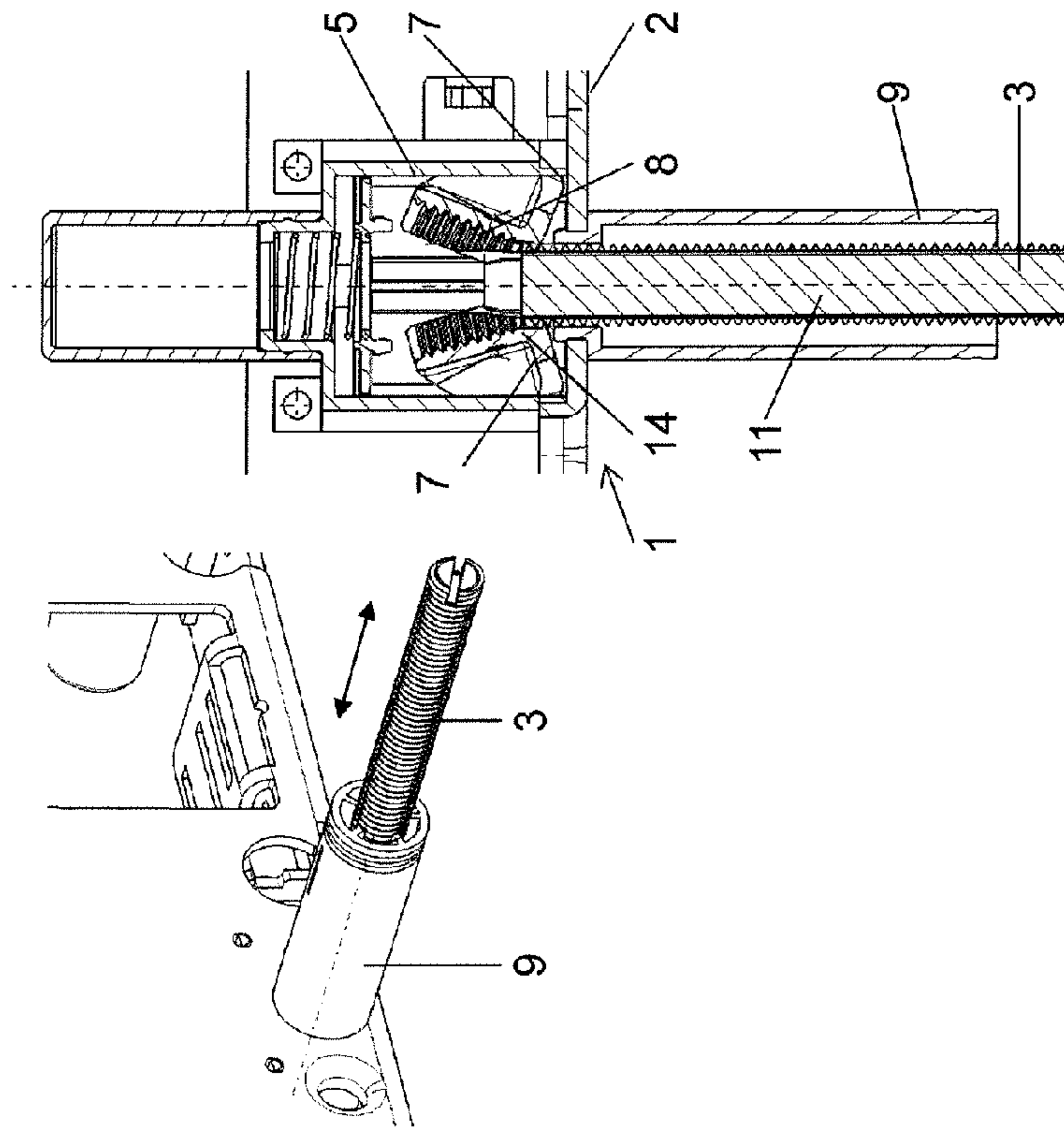
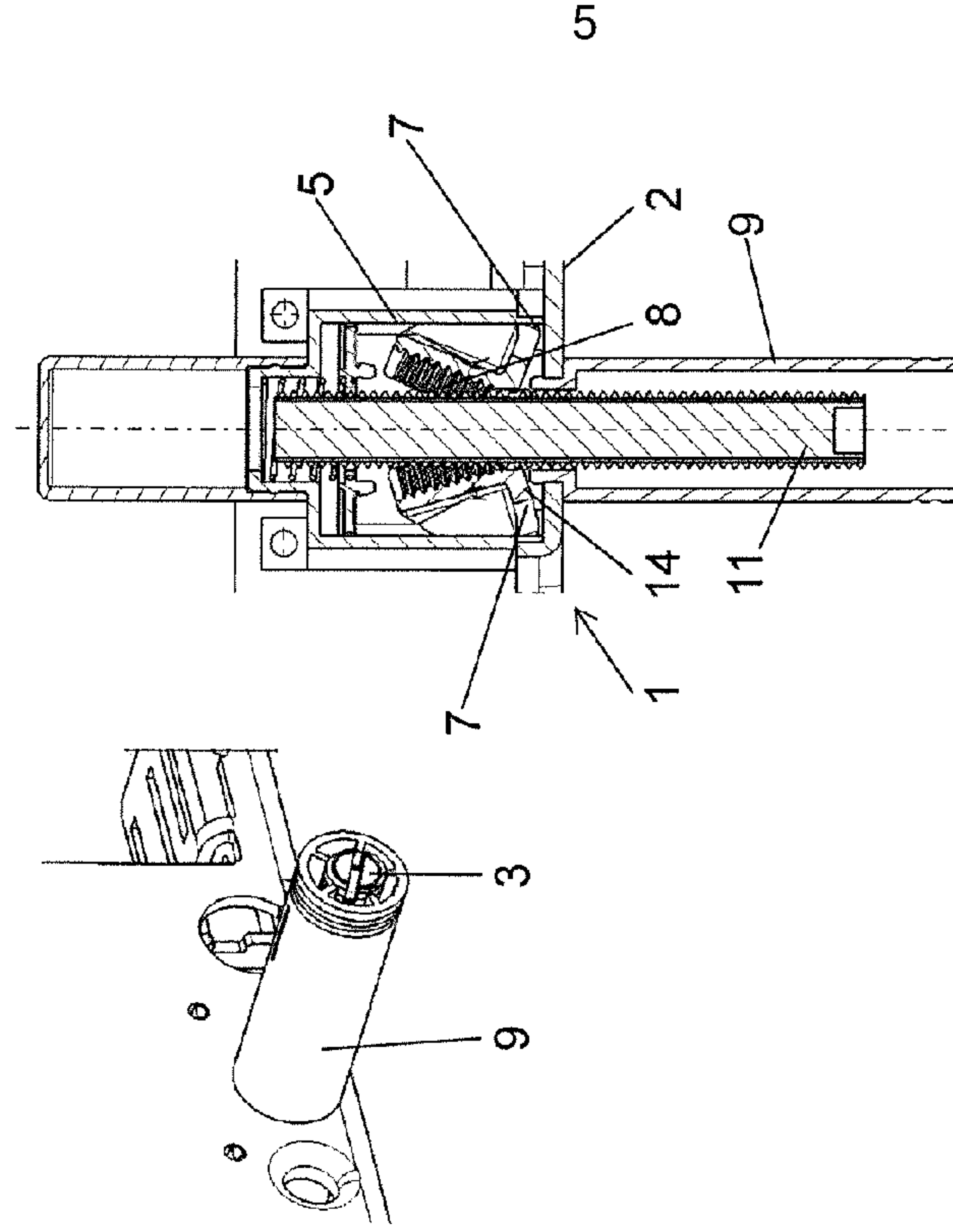


FIG. 8



6

FIG. 10

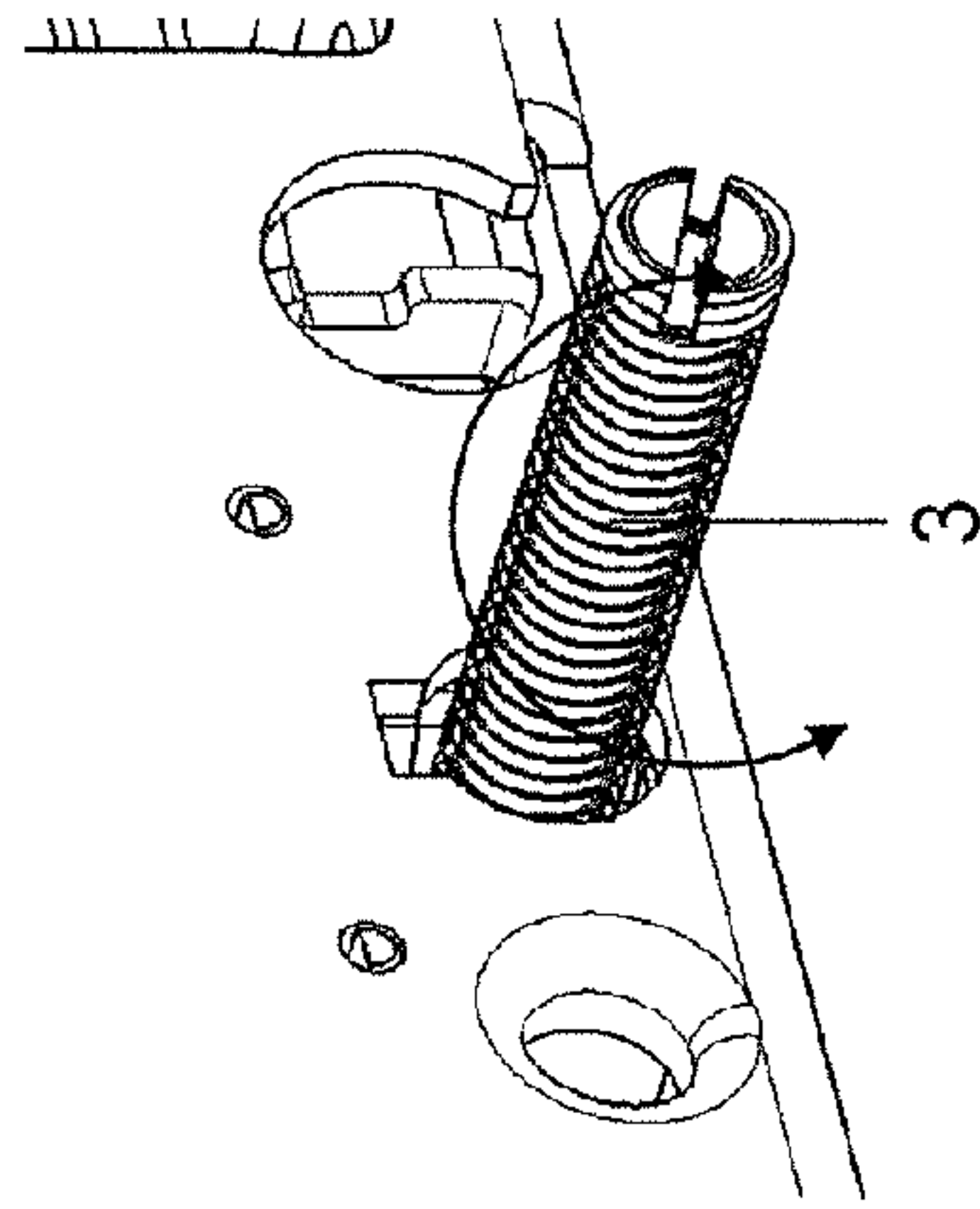


FIG. 9

