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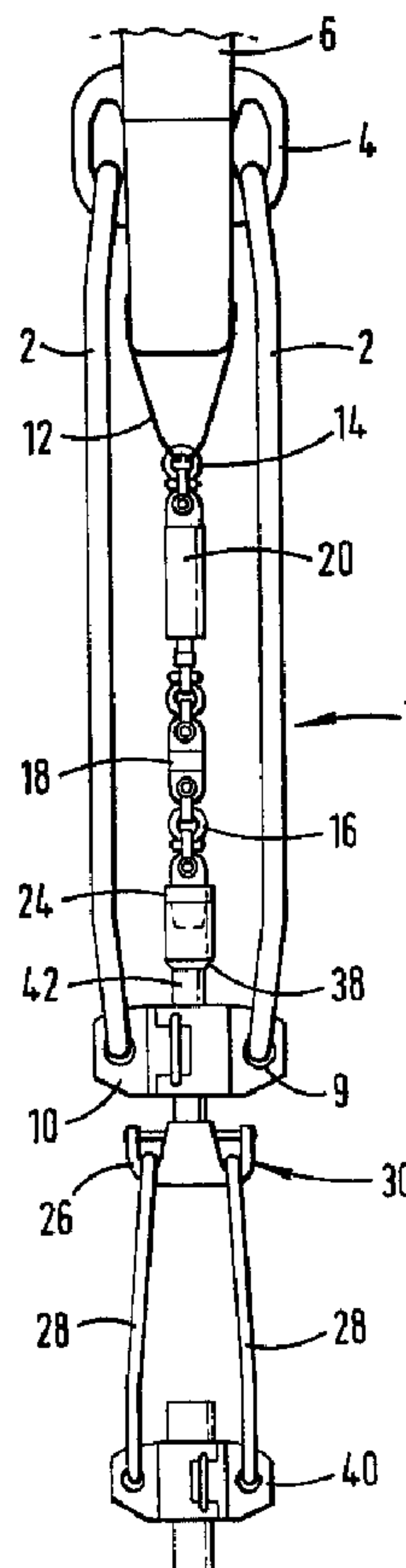
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(57) Abrégé/Abstract:

An apparatus for facilitating the connection or disconnection of a tubular to or from a string of tubulars, which apparatus comprises a weight compensating device (20) which can be suspended from a travelling block (6) or a top drive is disclosed. In one



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embodiment, said apparatus further comprises at least one bail (2) which can support a primary elevator (10) and which can, in use, be raised and lowered by said weight compensating device (20) to enable a tubular (32) to be raised and lowered with respect to a string of tubulars and which can move to a load bearing position in which it can raise and lower said string of tubulars. This invention also provides a method, a device and an elevator.

ABSTRACT

An apparatus for facilitating the connection or disconnection of a tubular to or from a string of tubulars, which apparatus comprises a weight compensating device (20) which can be suspended from a travelling block (6) or a top drive is disclosed. In one embodiment, said apparatus further comprises at least one bail (2) which can support a primary elevator (10) and which can, in use, be raised and lowered by said weight compensating device (20) to enable a tubular (32) to be raised and lowered with respect to a string of tubulars and which can move to a load bearing position in which it can raise and lower said string of tubulars. This invention also provides a method, a device and an elevator.

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**APPARATUS AND METHOD FOR FACILITATING CONNECTION OF A
TUBULAR TO A STRING OF TUBULARS**

This invention relates to an apparatus and method for facilitating connection of a tubular to a string of tubulars and particularly, but not exclusively to connecting a stand of casing to a string of casing. This invention also relates to a device for facilitating connection of a tubular to a string of tubulars and to an elevator.

During the drilling of oil and gas wells it is necessary to connect and disconnect tubulars for use therein. Recently, there has been the need to use casing of a very large diameter for lining the well. In particular, modern casing may be forty-eight inches (1.2m) in diameter.

The weight of a single joint of modern casing causes many problems. In particular, casing is usually threaded. When a joint of casing is connected and disconnected from the string of casing, there is a high probability that the threads will become damaged by collisions therebetween.

It has been proposed to use a device called a "single joint compensating elevator" as disclosed in EP-A-0 171 144. The device enables the weight of a single joint to be compensated for, such that when the joint is lowered or raised to or from a string, the effective weight of the joint is zero. A pneumatic bellows or the like allows small adjustments to be made to allow the joint of casing to be made up to the string of casing. The device also allows over compensation to be made, such that upon disconnection of a joint from the string of casing, the joint springs from the string of casing. The device depends from the primary elevator of the rig, with a single joint elevator depending therefrom.

The above described arrangement requires the device to be attached to the elevator prior to each connection or disconnection and removed therefrom prior to lowering or raising the string, which is carried out by the primary elevator. This procedure wastes valuable rig time.

US patent no. 4813498 discloses a complex device for suspending a power swivel from a travelling block. The device includes an active counterbalance which supports the power swivel to allow vertical displacement of the power swivel relative to

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the travelling block. By fully extending the counterbalance the weight of the pipe string can be brought to bear directly on the travelling block.

According to the present invention there is provided an apparatus for facilitating the connection or disconnection of a tubular to or from a string of tubulars, comprising a weight compensating device which can be suspended from a travelling block or a top drive and at least two bails, which can support a primary elevator and which can be raised and lowered by said weight compensating device to enable a tubular to be raised and lowered with respect to a string of tubulars and which can move to a load bearing position in which they can raise and lower said string of tubulars, characterised in that the weight compensating device is located substantially between the bails. The apparatus provides for selectively supporting the at least one joint with the wellbore apparatus.

The invention also provides an apparatus for facilitating the connection or disconnection of a tubular to or from a string of tubulars, which apparatus comprises a weight compensating device which can be suspended from a travelling block or a top drive characterised in that said apparatus further comprises a member which can support and primary elevator and which can, in use, be raised and lowered by said weight compensating device to enable a tubular to be raised and lowered with respect to a string of tubulars and which can move to a load bearing position in which it can raise and lower said string of tubulars wherein said weight compensating device is arranged between said travelling block or said top drive and said primary elevator.

The invention also provides a method for facilitating the connection or disconnection of a tubular to or from a string of tubulars using the apparatus of the invention, said method comprising the step of allowing the weight of said primary elevator to be compensated for together with said tubular.

The invention also provides an elevator provided with a bearing to facilitate rotation between said elevator and an item held in said elevator wherein said bearing is located on a compressible member compressible in response to weight of the at least one joint on the at least one roller.

The invention also provides a device for facilitating the connection or disconnection of a tubular to or from a string of tubulars, said device comprising a rim

for attachment to a tubular, said rim suitable for resting on a bearing of a primary elevator. Preferably, the rim forms part of a cap.

In another aspect, the invention provides a compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint, a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint, a wellbore elevator adapted to be connected to the wellbore apparatus for selectively supporting the joint compensator and the at least one joint, and a connection sub having a top portion connected to and below the joint compensator, a mid portion extending through the wellbore elevator and a bottom portion, the lower elevator being suspended below and connected to the bottom portion of the connection sub.

In another aspect, the invention provides a method for compensating for the weight of a wellbore tubular member, the method comprising holding at least one joint with a lower elevator of a compensator system, the compensator system comprising a joint compensator suspended below wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint, the lower elevator being suspended below and interconnected with the joint compensator for releasably holding the at least one joint, a wellbore elevator connected to the wellbore apparatus for selectively supporting the joint compensator and the at least one joint, and a connection sub having a top portion connected to and below the joint compensator, a mid portion extending through the wellbore elevator, and a bottom portion, the lower elevator being suspended below and connected to the bottom portion of the connection sub, and compensating with the joint compensator for the weight of the at least one joint.

In another aspect, the invention provides a compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint, a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one

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joint, a wellbore elevator adapted to be connected to the wellbore apparatus for selectively supporting weight of the at least one joint, and a swivel coupled to the joint compensator and the lower elevator.

In another aspect, the invention provides a compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint, a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint, and a wellbore elevator adapted to be connected to the wellbore apparatus for selectively supporting the weight of the at least one joint, the wellbore elevator having an interior channel therethrough and at least one roller mounted thereon to facilitate movement of the at least one joint with respect to the wellbore elevator.

In another aspect, the invention provides a compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint, a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint, a wellbore elevator adapted to be connected to the wellbore apparatus for selectively supporting the joint compensator and the at least one joint, and two bails including a first bail and a second bail suspending the wellbore elevator from the wellbore apparatus, the joint compensator comprising a first joint compensator having a top end connected to the wellbore apparatus and a bottom end secured to the first bail, and a second joint compensator having a top end connected to the wellbore apparatus and a bottom end secured to the second bail, the joint compensators serving to selectively compensate the weight of the at least one joint.

In another aspect, the invention provides a compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising a joint compensator adapted to be

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suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint, a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint, a wellbore elevator adapted to be connected to the wellbore apparatus and operatively coupled to the joint compensator, and a swivel connected to and between the joint compensator and the lower elevator.

In another aspect, the invention provides a compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint, a first elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint, a second elevator connected to the wellbore apparatus and operatively coupled to the joint compensator, and a swivel coupled to and between the joint compensator and the first elevator.

In another aspect, the invention provides a weight compensator system for compensating for the weight of at least one tubular member, the compensator comprising a wellbore apparatus for raising and lowering the at least one tubular member, a tubular gripping member for gripping the at least one tubular member, the tubular gripping member being operatively connected to the wellbore apparatus, a joint compensator having a first end operatively connected to the wellbore apparatus, a second end operatively connected to the tubular gripping member, and a fluid operated piston and cylinder arrangement for compensating for the weight of the at least one tubular member, and a swivel coupled to the joint compensator and one of the tubular gripping member and the wellbore apparatus.

In another aspect, the invention provides an apparatus for facilitating the connection or disconnection of a tubular to or from a string of tubulars, the apparatus comprising a travelling block or top drive, a weight compensating device connected to the travelling block or top drive, a lower elevator connected to the weight compensating device for supporting the tubular and arranged so that it is movable by the weight compensating device so as to enable the tubular to be raised and lowered with respect to the string of tubulars, and at least one bail movable by the weight compensating device

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between, a load bearing position in which the top end of the bail is supported by the travelling block or top drive and the bottom end of the bail supports the lower elevator, so that the weight of the lower elevator and any tubulars supported therein is held by the travelling block or top drive and not by the weight compensating device, and non-load bearing position in which the top end of the bail is not supported by the travelling block or top drive, so that the weight of the lower elevator and any tubulars supported therein is held by the weight compensating device, wherein the weight compensating device is located substantially between the travelling block or top drive and the lower elevator.

In another aspect, the invention provides an apparatus for facilitating the connection or disconnection of a tubular to or from a string of tubulars, the apparatus comprising a travelling block or top drive, a weight compensating device connected to the travelling block or top drive, at least one bail supported at a top end thereof by the travelling block or top drive, and a lower elevator connected to the weight compensating device for supporting the tubular and arranged so that it is movable by the weight compensating device so as to enable the tubular to be raised and lowered with respect to the string of tubulars, wherein the lower elevator is movable by the weight compensating device between a load bearing position in which the lower elevator is supported by the bottom end of the at least one bail, so that the weight of the elevator and any tubulars supported therein is held by the travelling block or top drive and not by the weight compensating device, and a non-load bearing position in which the lower elevator is not supported by bottom end of the at least one bail, so that the weight of the lower elevator and any tubulars supported therein is held by the weight compensating device, wherein the weight compensating device is located substantially between the travelling block or top drive and the lower elevator.

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For a better understanding of the present invention, reference will now be made, by way of example, to the accompanying drawings, in which:

5 Figure 1a is a side view of a first embodiment of a system in accordance with the present invention, in use, in a first stage of operation;

Figure 1b is a front view of the system of Figure 1a;

10 Figure 1c is a front view of the system of Figure 1a in a second stage of operation;

Figure 1d is an enlarged view of the system of Figure 1a in said first stage of operation;

Figure 1e is an enlarged view of the system of Figure 1a in said second stage of operation;

15 Figure 2a is a side view of a second embodiment of a system in accordance with the present invention, in use, in a first stage of operation;

Figure 2b is an enlarged view of part of the system of Figure 2a;

20 Figure 3a is a view of the system of Figure 2a in a second stage of operation;

Figure 3b is an enlarged view of part of the system of Figure 3a;

25 Figure 4a is a front view of a third embodiment of an apparatus in accordance with the present invention, in use in a first stage of operation;

Figure 4b is a front view of the apparatus of Figure 4a, in use, in a second stage of operation;

30 Figure 4c is a side view of the apparatus of Figure 4a, in use;

Figure 5 is a front view of a fourth embodiment of an apparatus in accordance with the present invention, in use;

35 Figure 6 is a front view of a fifth embodiment of an apparatus in accordance with the present invention, in

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use;

Figure 7a is a view in perspective, of a part of the apparatus of Figure 3a;

Figure 7b is a view in perspective of the part of
5 the apparatus of Figure 7a;

Figure 7c is an alternative to the part of the apparatus of Figure 7a;

Figure 8 is an alternative arrangement of part of the apparatus of Figure 7a;

10 Figure 9a is a view of a device in accordance with the present invention situated above a tubular;

Figure 9b is a view of the device of Figure 9a located on said tubular; and

15 Figure 9c is a perspective view of the device of Figure 9a.

Referring to Figures 1a - 1e, there is shown a system in accordance with the present invention, generally identified by reference numeral 1.

20 System 1 comprises main bails 2 suspended from the eyes 4 of a rig's travelling block 6. Lower ends 8 of the main bails 2 extend through eyes 9 of an upper elevator 10. Cables 11 support the travelling block 6 in a rig (not shown).

25 Slings 12, made of, for example, steel or synthetic cables, are connected at their top ends to a lower end of the travelling block 6 and at their bottom ends to a lift eye 14 of a joint compensator 20 (which may be any known joint compensator, air cylinder compensator, hydraulic cylinder compensator, or air spring compensator,
30 including any device for joint compensation disclosed herein.

An optional swivel 18 has its top end connected to a lower eye 22 of the joint compensator 20 and its bottom end connected to a shackle 16 which itself is connected
35 to a top end of a sub 24. The sub 24 is threadedly

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connected to a standard, commercially available lift assembly 30 which has a lower hook end 26 to which are releasably connected links 28. A lower elevator 40 is connected to the lower ends of the links 28.

5 Both the elevators 10 and 40 may be any suitable known elevator and any elevator disclosed herein. As shown each elevator 10 and 40 is a hinged-door type elevator which is openable to receive a tubular and closable and latchable for holding a tubular. Slip-type
10 elevators may be used. A stand 36 of two tubular joints 32 and 34 is held by the elevator 40 and supported by the system 1. Although two tubular joints are shown, it is to be understood that the system 1 can support one or a plurality of two, three, four or more joints, including
15 an entire tubular string extending down into a wellbore.

Figures 1b and 1d show the system 1 at a first stage of operation. The stand 36 of two tubular joints is being lifted by the system 1, and the weight of the stand 36 is being compensated for.

20 Figures 1c and 1e show the single joint compensator 20 in an extended position. The sub 24 abuts the top of the elevator 40. The system can now hold the weight of the entire string of tubulars to which the stand 36 may be attached or detached.

25 Initially, the elevator 40 is latched onto a new stand of tubulars. With the travelling block 6, the stand is lifted to a vertical position. At this point, a shoulder 38 of a shaft 42 of the assembly 30 is bottomed out on a corresponding shoulder 44 of a bowl 46 of the
30 elevator 10. The compensator 20 is then activated to compensate for the weight of the stand, raising the shaft 42 so that the elevator 10 no longer supports the stand, as shown in Figure 19D.

35 While the stand's weight is compensated for by the compensator 20, the stand is easily manipulable and its

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lower end is positioned above and then lowered into a top joint of a tubular string being supported by the rig's slips on the rig floor (not shown). As the stand is made up into the string, the compensator 20 permits the compensated lowering of the stand. When the joint is made up, the rig slips are released; the travelling block system raises the system 1; the shoulder 38 bottoms out on the bowl's shoulder 44; and then the rig's system supports and lowers the entire string. Again the rig slips are set; the elevator 40 is released; and the process of adding an additional stand begins again. A reverse process is used for break-out operations, with the joint compensator 20 activated prior to or following initial lifting up on the string and setting of the rig's slips. As a joint is unscrewed and rising, the joint compensator 20 compensates for the weight of the joint.

Figures 2a and 2b show a system 50 according to the present invention with some parts that are like those of the system 1 and which bear the same identifying numerals. Slings 52 through the eyes 4 connect the tops of joint compensators 51 to the eyes 4. Clamps 53 releasably clamp the lower ends of the joint compensators 51 to the bails 2. Shackles 54 provide for pivoting of the joint compensators 51.

As shown in Figure 2b, an upper part 55 of the tubular 32 is resting on rollers (one shown) 57 rotatably mounted to the elevator 40's body. The rollers 57 are like the rollers in Figure 7a. As shown in Figure 3b, the rollers 57 have been moved down, compressing compression members (not shown, see Figures 5a, 5b). As shown in Figure 3a, the joint compensators 51 are compensating for the weight of the tubulars 32, 34; and the top shackles of the bails 2 are riding up in the eyes 4. The eyes 4 are not at this point bearing the weight through the entire length of the bails 2 of the system 50

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and the tubulars 32, 34. As shown in Figure 3b, the elevator 40, bails 2 and eyes 4 are bearing this weight and the joint compensators 51 are not compensating for the weight of the tubulars. Typical control lines and control apparatus (not shown) are used with the compensators 51.

Figures 4a to 6 show a system 100 according to the present invention with the travelling block 6 with the cables 11 supporting the system 100 in a rig derrick (not shown). The bails 2 support the elevator 10 which holds the tubulars 32, 34 (all as in Figure 1a previously described). Slings 12 support joint compensator 20 below the travelling block 6 and slings 53 connect the joint compensator 20 to the elevator 10 so that the joint compensator (as shown in Figure 4a) compensates for the weight of tubulars held by the elevator 10. Figure 4b shows the eyes 4, bails 2 and elevator 10 supporting the tubulars 32, 34 (and whatever may be connected thereto). The joint compensator 20 may be any compensator disclosed herein (as may be the compensator 70, Figure 4d). Typical control lines and control apparatus are used with the joint compensator 20 (and the compensators 20, 70) or such lines and apparatus as disclosed herein (as is the case for any compensator in Figures 1a, 2a, 3a, and 5).

Figure 5 shows a top drive system 150 according to the present invention suspended below a travelling block 72 with eyes 62 to which are connected a swivel 63, a power train 64 and a top drive 65. A guide dolly 66 holds and guides the top drive 65. Lift eyes 67 connected to the top drive support bails 68 which support a lower elevator 69 (like the elevator 20). A joint compensator 70 is connected to a lower end of a lift sub 72 which is connected to the top drive 65 and slings 71 interconnect the lower elevator 69 and the joint compensator 70.

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Figure 6 shows an embodiment of the system 150 compensating for the weight of a tubular 32 (or a tubular string including the tubular 32). The embodiment of Figure 6 has an elevator 74 instead of the lift eyes 67 of Figure 5. There is also provided a circulating head 73 for use with circulating fluids in the tubulars to be connected and disconnected to or from a string of tubulars.

Figures 7a and 7b show a roller bearing assembly 200 with segments 171, 172, and 173 which are insertable into an elevator to facilitate rotation of a tubular with respect to the elevator. A plurality of rollers 180 are rotatably mounted to the segments 171, 172, and 173. Arms 179 extends inwardly on each side of each roller 180. A base member 174 disposed beneath the roller bearing assembly 200 has three segments 175, 176, and 177 each with two or three upwardly projecting supports 178. In operation a tubular disposed in the bearing assembly 200 is initially supported by the rollers 180. As the tubular is lowered or elevator is raised weight applied to the rollers increases, pushing the segments 171 to 173 down, and thereby arms 179 compress compressible members 199 adjacent each support 178. Eventually the supports 178 (see Figure 7b) project up beyond the top of the rollers 80 and bear the weight of the tubular and other tubulars, if any, attached to it. The compressible members 199 may be made of any suitable compressible and/or cushion material, including, but not limited to elastic materials, rubber, elastomeric materials, and/or a spring or springs of suitable spring force, and/or vented gas filled bladders (in one aspect which are selectively refillable) and/or any combination thereof. Alternatively, no compressible members are used in the system of Figure 7a (or of Figure 9).

Instead of three segments the bearing assembly

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and/or base may be made of two, four or more segments. As shown in Figure 7c, an assembly 300 according to the present invention has a bearing assembly 301 and a base 302 which are not segmented.

5 Bearing assemblies as in Figures 7a and 7c may be used in any suitable tubular handling apparatus or device, including, but not limited to, pipe handlers, pipe positioners, elevators, spiders, and tongs.

10 Figure 8 illustrates a particular embodiment of a bearing system 400 with a plurality of rollers 402 (one shown) useful in assemblies as in Figures 7a and Figure 7c. Each roller 402 is rotatably mounted to a support 404 which is disposed above a compressible member (or material) 406. The support 404 is releasably disposed in
15 a slot 408 in an elevator body 410. Each support 404 may be held in place with one or more set screws and/or bolts. Such a system may be used in any item listed (pipe handlers, etc.) in the preceding paragraph.

20 Figures 9a and 9b illustrate a lift cap 530 for use with various wellbore tubulars for providing a support surface 532 which can rest on a bearing assembly (as, for example in Figures 7a and 7c). The lift cap 530 has a generally cylindrical body 534 with an end 535 which may be threadedly engageable on a threaded end 540 of a
25 tubular 542 (Figure 24B). The wall 544 of the tubular 542 is received in a recess 536 around the cap's body 534. Lift/rotation holes 538 (one of two shown in Figure 9a) facilitate lifting and rotation of the cap 530. Set screws 533 through holes 537 secure the cap 530 to the
30 tubular 540 to prevent unwanted unscrewing of the two. Figure 9c shows a central channel 539 through the lift cap 530.

It is envisaged that the invention is suitable for use with pipe, drill pipe, work strings and casing.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising:

a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint;

a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint;

a wellbore elevator adapted to be connected to the wellbore apparatus for selectively supporting the joint compensator and the at least one joint; and

a connection sub having a top portion connected to and below the joint compensator, a mid portion extending through the wellbore elevator and a bottom portion, the lower elevator being suspended below and connected to the bottom portion of the connection sub.

2. The compensator system of claim 1, wherein the wellbore apparatus is a rig travelling block.

3. The compensator system of claim 1, wherein the wellbore apparatus is a top drive system and connectors connect the joint compensator to the lower elevator.

4. The compensator system of any one of claims 1 to 3, wherein the connection sub has a shoulder so that the wellbore elevator supports the connection sub, the lower elevator and the at least one joint when the shoulder rests on the wellbore elevator.

5. The compensator system of any one of claims 1 to 4, wherein the at least one joint is a plurality of interconnected wellbore tubular members.

6. The compensator system of claim 5, wherein the plurality of interconnected wellbore tubular members includes members in a wellbore in the earth.

7. The compensator system of any one of claims 1 to 6, further comprising at least one bail connected to the connection sub and to the lower elevator for suspending the lower elevator from the connection sub, and movable between a load bearing position in which the top end of the bail is supported by the wellbore apparatus and the bottom end of the bail supports the lower elevator, so that the weight of the lower elevator and the at least one joint supported thereby is held by the wellbore apparatus and not by the joint compensator, and a non-load bearing position in which the top end of the bail is not supported by the wellbore apparatus, so that the weight of the lower elevator and the at least one joint supported thereby is held by the joint compensator.
8. The compensator system of any one of claims 1 to 7, further comprising a swivel connected to and between the joint compensator and the connection sub.
9. The compensator system of any one of claims 1 to 8, wherein the connection sub is a lifting sub.
10. The compensator system of any one of claims 1 to 9, wherein the wellbore elevator has an interior channel therethrough and at least one roller mounted thereon to facilitate movement of the at least one joint with respect to the wellbore elevator.
11. The compensator system of claim 10, wherein the at least one roller is mounted above a compressible member compressible in response to the weight of the at least one joint on the at least one roller.
12. The compensator system of any one of claims 1 to 11, further comprising two bails including a first bail and a second bail suspending the wellbore elevator from the wellbore apparatus, the joint compensator comprising a first joint compensator part having a top end connected to the wellbore apparatus and a bottom end secured to the first bail, a second joint compensator part having a top end connected to the wellbore apparatus and a bottom end secured to the second bail, the joint compensator parts being provided for selectively compensating for the weight of the at least one joint.

13. A method for compensating for the weight of a wellbore tubular member, the method comprising:

holding at least one joint with a lower elevator of a compensator system, the compensator system comprising:

a joint compensator suspended below wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint, the lower elevator being suspended below and interconnected with the joint compensator for releasably holding the at least one joint;

a wellbore elevator connected to the wellbore apparatus for selectively supporting the joint compensator and the at least one joint; and

a connection sub having a top portion connected to and below the joint compensator, a mid portion extending through the wellbore elevator, and a bottom portion, the lower elevator being suspended below and connected to the bottom portion of the connection sub; and

compensating with the joint compensator for the weight of the at least one joint.

14. The method of claim 13, wherein the wellbore apparatus is a rig travelling block, the method further comprising selectively supporting the at least one joint with the wellbore apparatus.

15. The method of claim 13, wherein the wellbore apparatus is a top drive system and connectors connect the joint compensator to the lower elevator.

16. The method of any one of claims 13 to 15, wherein the at least one joint is a plurality of interconnected joints.

17. A compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising:

a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint;

a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint;

a wellbore elevator adapted to be connected to the wellbore apparatus for selectively supporting weight of the at least one joint; and

a swivel coupled to the joint compensator and the lower elevator.

18. The compensator system of claim 17, wherein the joint compensator is coupled to the lower elevator using one or more slings.

19. The compensator system of claim 17 or 18, wherein the wellbore elevator is connected to the wellbore apparatus using two or more bails.

20. The compensator system of any one of claims 17 to 19, wherein the wellbore apparatus comprises a rig block.

21. The compensator system of any one of claims 17 to 20, wherein the at least one joint comprises a plurality of interconnected tubular members.

22. A compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising:

a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint;

a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint; and

a wellbore elevator adapted to be connected to the wellbore apparatus for selectively supporting the weight of the at least one joint, the wellbore elevator having an interior channel therethrough and at least one roller mounted thereon to facilitate movement of the at least one joint with respect to the wellbore elevator.

23. The compensator system of claim 22, wherein the at least one roller is mounted above a compressible member compressible in response to the weight of the at least one joint on the at least one roller.

24. The compensator system of claim 22 or 23, wherein the at least one roller is a plurality of spaced apart rollers.

25. A compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising:

- a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint;

- a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint;

- a wellbore elevator adapted to be connected to the wellbore apparatus for selectively supporting the joint compensator and the at least one joint; and

- two bails including a first bail and a second bail suspending the wellbore elevator from the wellbore apparatus;

- the joint compensator comprising a first joint compensator having a top end connected to the wellbore apparatus and a bottom end secured to the first bail, and a second joint compensator having a top end connected to the wellbore apparatus and a bottom end secured to the second bail, the joint compensators serving to selectively compensate the weight of the at least one joint.

26. A compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising:

- a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint;

- a lower elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint;

a wellbore elevator adapted to be connected to the wellbore apparatus and operatively coupled to the joint compensator; and
a swivel connected to and between the joint compensator and the lower elevator.

27. A compensator system for compensating for the weight of at least one joint, comprising a wellbore tubular member, the compensator system being provided for use below wellbore apparatus, supporting the at least one joint, the compensator system comprising:

a joint compensator adapted to be suspended below the wellbore apparatus and connected thereto for selectively compensating for the weight of the at least one joint;
a first elevator suspended below and interconnected with the joint compensator for releasably holding the at least one joint;
a second elevator connected to the wellbore apparatus and operatively coupled to the joint compensator; and
a swivel coupled to and between the joint compensator and the first elevator.

28. A weight compensator system for compensating for the weight of at least one tubular member, the compensator comprising:

a wellbore apparatus for raising and lowering the at least one tubular member;
a tubular gripping member for gripping the at least one tubular member, the tubular gripping member being operatively connected to the wellbore apparatus;
a joint compensator having:
a first end operatively connected to the wellbore apparatus;
a second end operatively connected to the tubular gripping member; and
a fluid operated piston and cylinder arrangement for compensating for the weight of the at least one tubular member; and
a swivel coupled to the joint compensator and one of the tubular gripping member and the wellbore apparatus.

29. The compensator system of claim 28, further comprising a second tubular gripping member.

30. The compensator system of claim 28 or 29, wherein the tubular gripping member comprises an elevator.

31. An apparatus for facilitating the connection or disconnection of a tubular to or from a string of tubulars, the apparatus comprising:

- a travelling block or top drive;

- a weight compensating device connected to the travelling block or top drive;

- a lower elevator connected to the weight compensating device for supporting the tubular and arranged so that it is movable by the weight compensating device so as to enable the tubular to be raised and lowered with respect to the string of tubulars; and

- at least one bail movable by the weight compensating device between:

- a load bearing position in which the top end of the bail is supported by the travelling block or top drive and the bottom end of the bail supports the lower elevator, so that the weight of the lower elevator and any tubulars supported therein is held by the travelling block or top drive and not by the weight compensating device; and

- non-load bearing position in which the top end of the bail is not supported by the travelling block or top drive, so that the weight of the lower elevator and any tubulars supported therein is held by the weight compensating device;

wherein the weight compensating device is located substantially between the travelling block or top drive and the lower elevator.

32. The apparatus of claim 31, wherein the lower elevator is connected to the top drive via a part of the at least one bail.

33. The apparatus of claim 31 or 32, wherein said at least one bail depends from the travelling block or top drive by way of ears.

34. The apparatus of claim 33, wherein said ears allow vertical movement of said at least one bail relative thereto.

35. An apparatus for facilitating the connection or disconnection of a tubular to or from a string of tubulars, the apparatus comprising:

a travelling block or top drive;
a weight compensating device connected to the travelling block or top drive;
at least one bail supported at a top end thereof by the travelling block or top drive; and
a lower elevator connected to the weight compensating device for supporting the tubular and arranged so that it is movable by the weight compensating device so as to enable the tubular to be raised and lowered with respect to the string of tubulars;
wherein the lower elevator is movable by the weight compensating device between:
a load bearing position in which the lower elevator is supported by the bottom end of the at least one bail, so that the weight of the elevator and any tubulars supported therein is held by the travelling block or top drive and not by the weight compensating device; and
a non-load bearing position in which the lower elevator is not supported by bottom end of the at least one bail, so that the weight of the lower elevator and any tubulars supported therein is held by the weight compensating device;
wherein the weight compensating device is located substantially between the travelling block or top drive and the lower elevator.

36. The apparatus of any one of claims 31 to 35, wherein a wellbore elevator is provided to be connected to the travelling block or top drive for selectively supporting the weight compensating device and the tubular.

37. The apparatus of claim 36, wherein a connection sub having a top portion connected to and below the weight compensating device, a mid portion extending through the wellbore elevator and a bottom portion, the lower elevator being suspended below and connected to the bottom portion of the connection sub.

38. The apparatus of claim 37, wherein the connection sub has a shoulder so that the wellbore elevator supports the connection sub, the lower elevator and the tubular when the shoulder rests on the wellbore elevator.

39. The apparatus of claim 37 or 38, further comprising a swivel connected to and between the weight compensating device and the connection sub.

40. The apparatus of any one of claims 36 to 39, wherein the wellbore elevator has an interior channel therethrough and at least one roller mounted thereon to facilitate movement of the tubular with respect to the wellbore elevator.

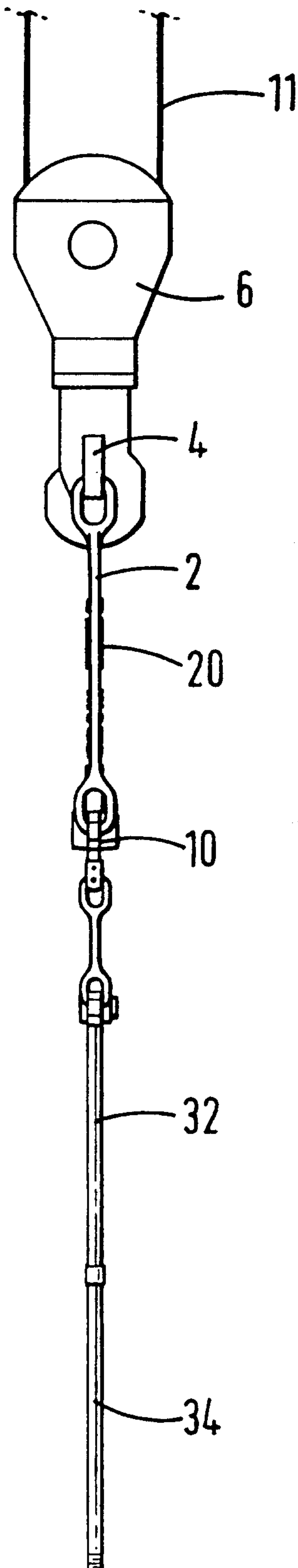
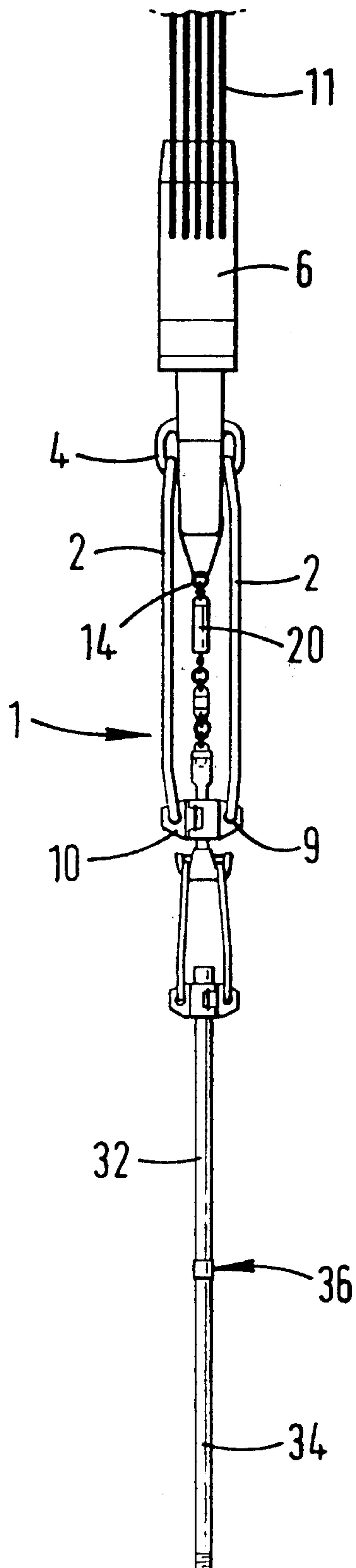
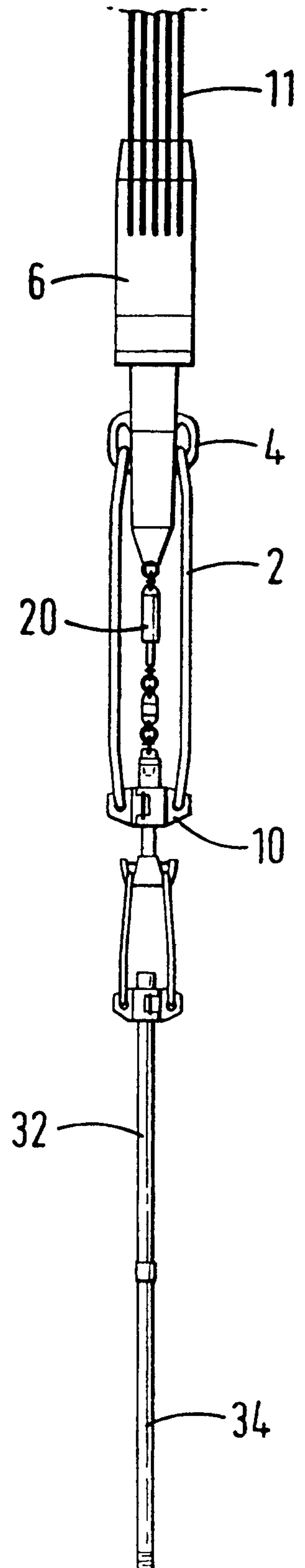
41. The apparatus of claim 40, wherein the at least one roller is mounted above a compressible member compressible in response to the weight of the tubular on the at least one roller.

42. The apparatus of any one of claims 31 to 40, further comprising two bails including a first bail and a second bail suspending the lower elevator from the travelling block or top drive, the joint compensator comprising a first joint compensator part having a top end connected to the travelling block or top drive and a bottom end secured to the first bail, a second joint compensator part having a top end connected to the travelling block or top drive and a bottom end secured to the second bail, the joint compensator parts being provided for selectively compensating for the weight of the tubular.

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FIG. 1a**FIG. 1b****FIG. 1c***Marks & Clerk*

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FIG. 1d

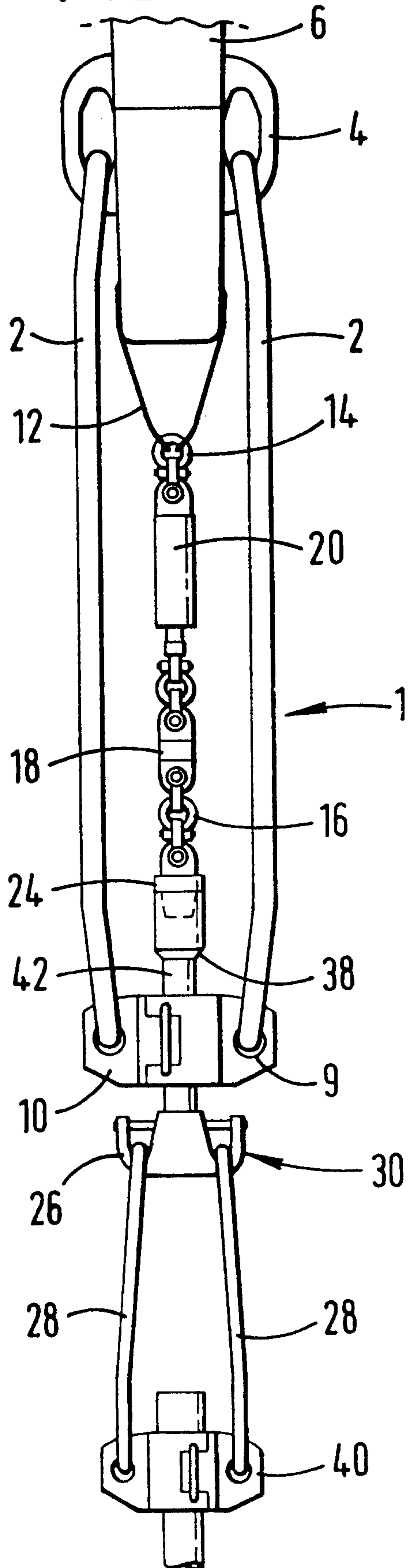
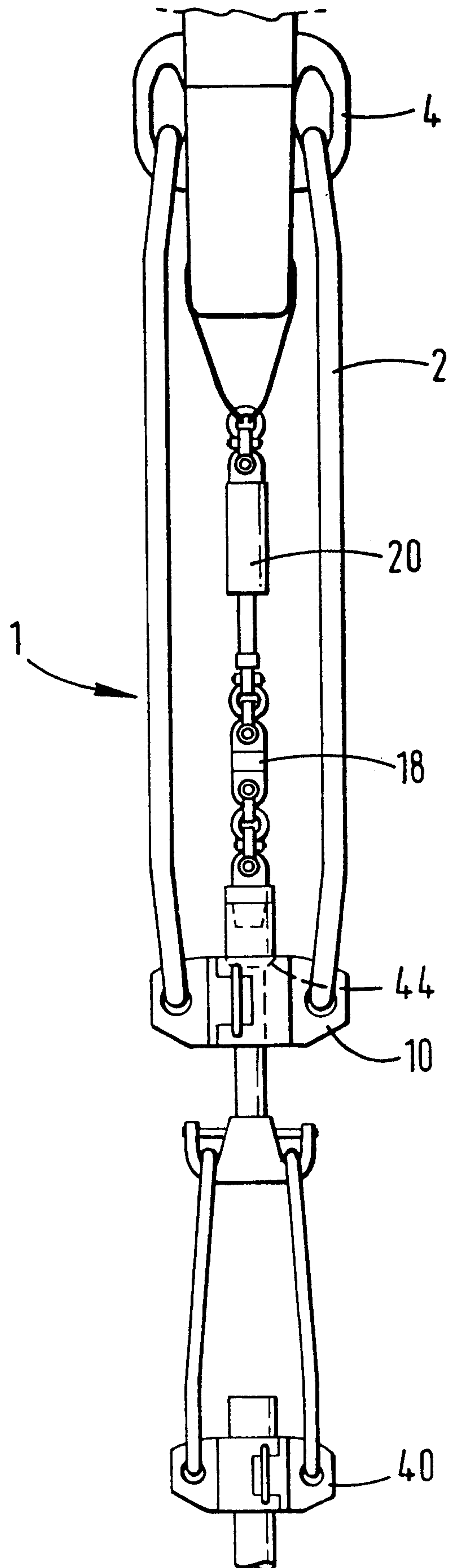
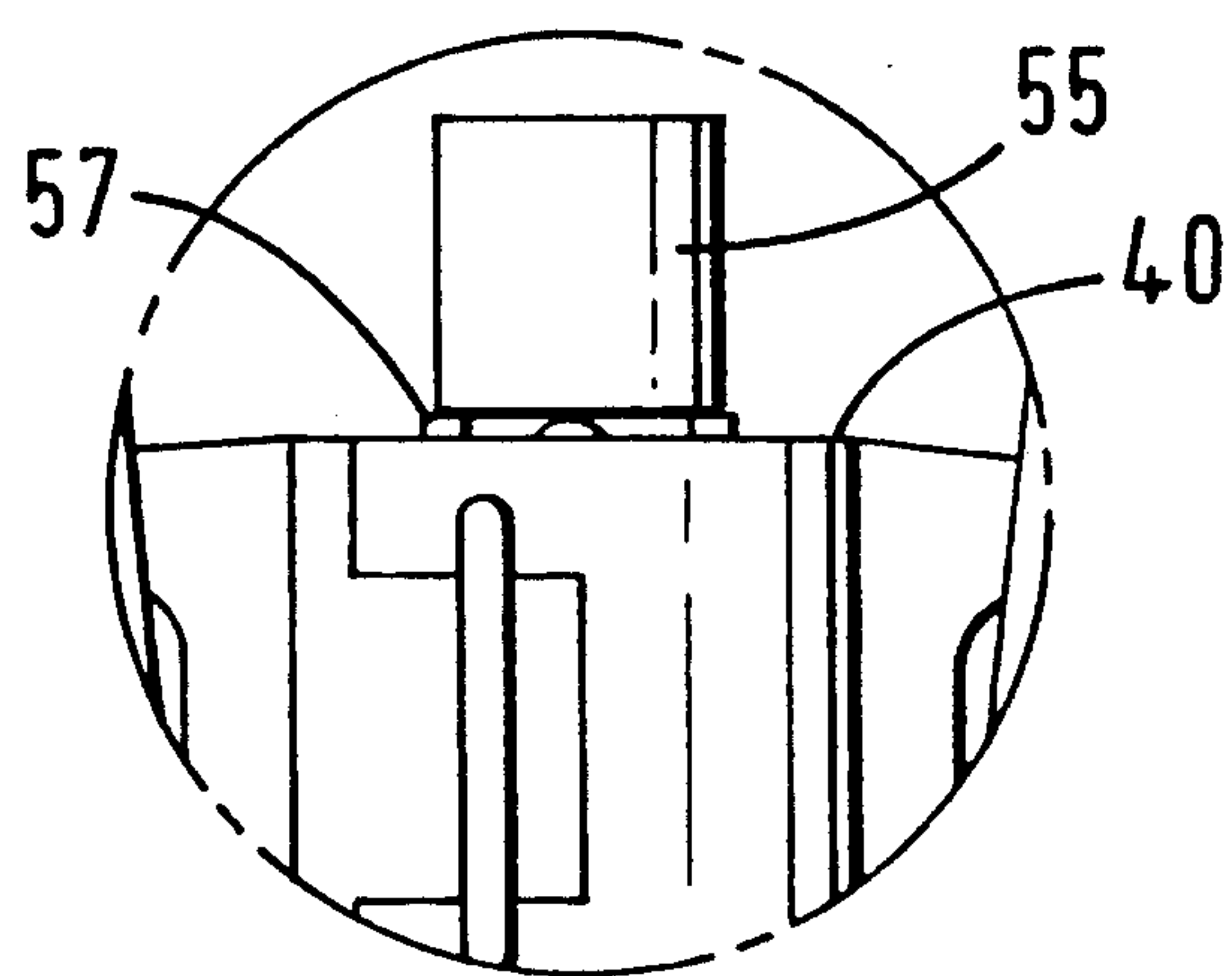
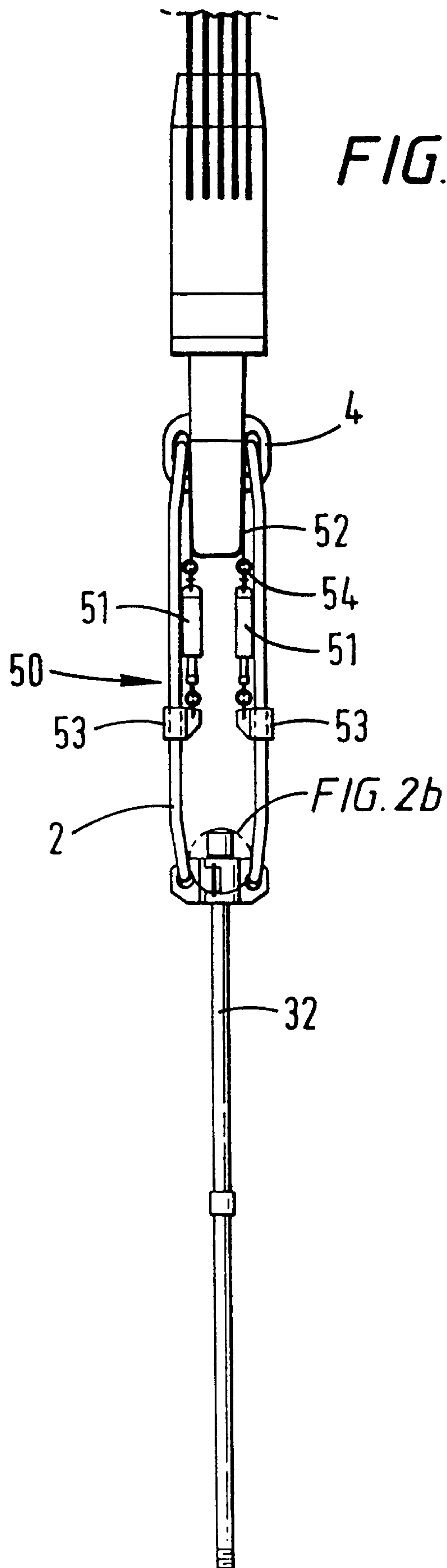


FIG. 1e

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FIG. 2a**FIG. 2b***Marks & Clerk*

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FIG. 3a

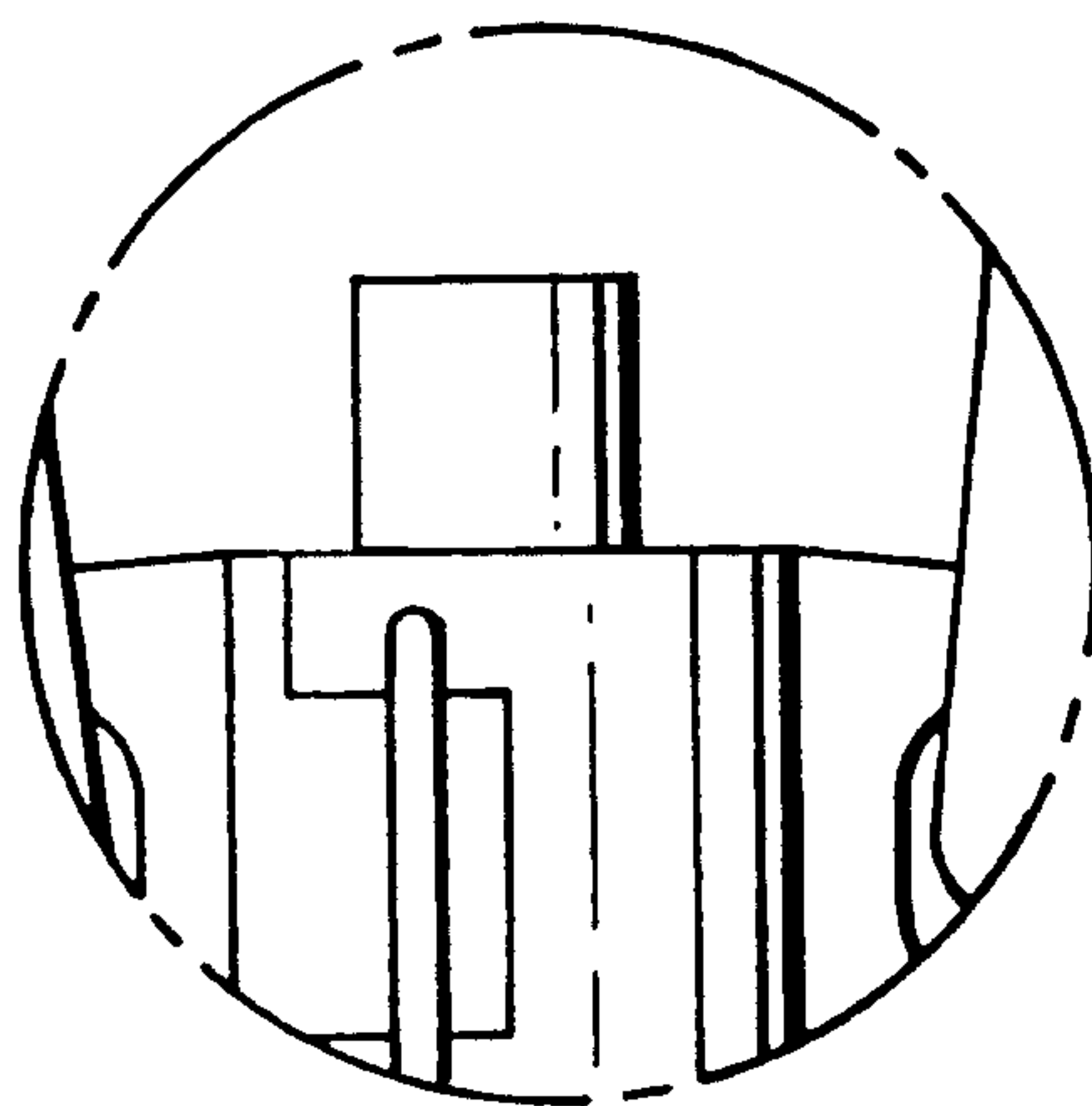
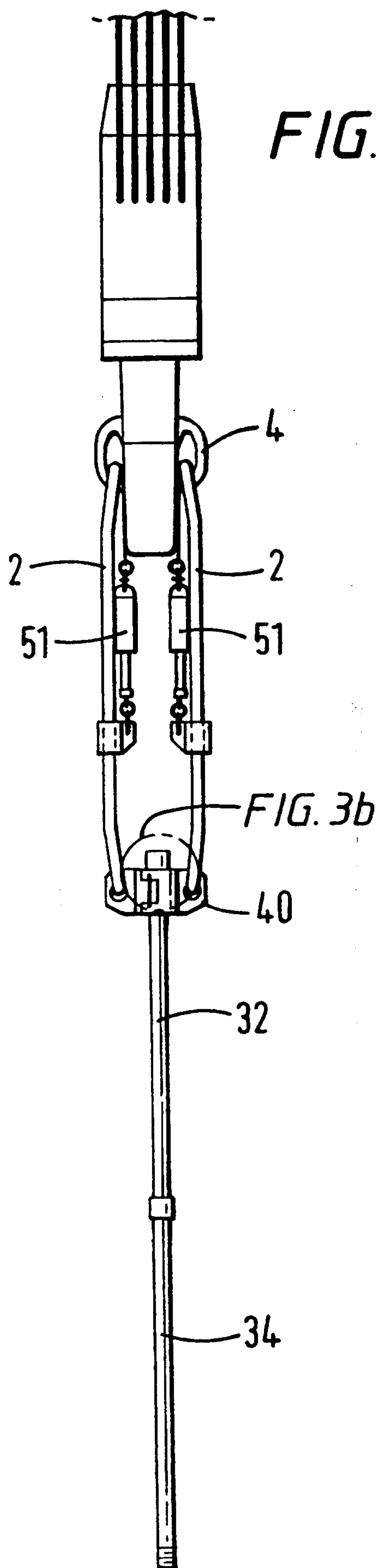


FIG. 3b

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FIG. 4a

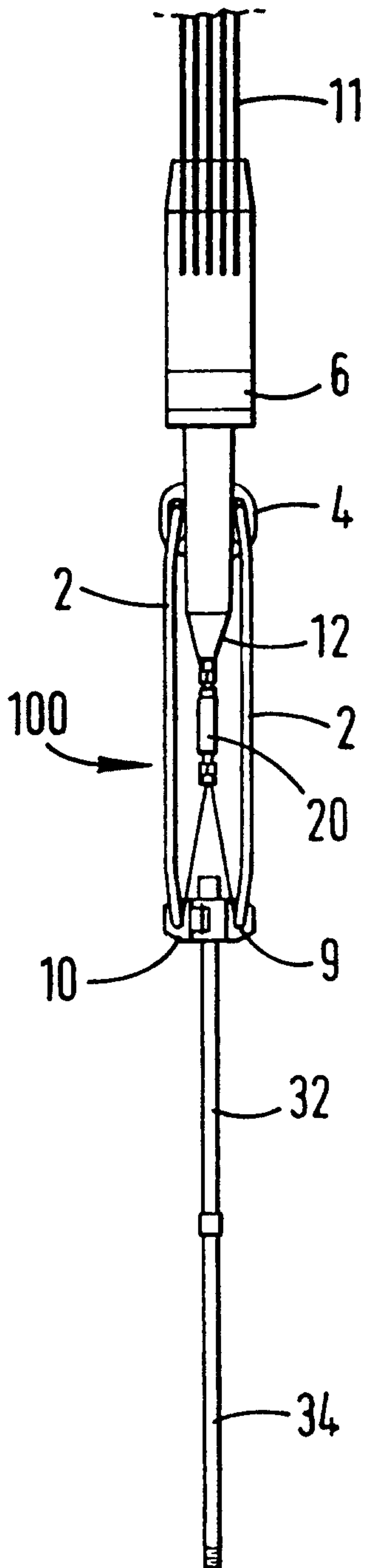


FIG. 4b

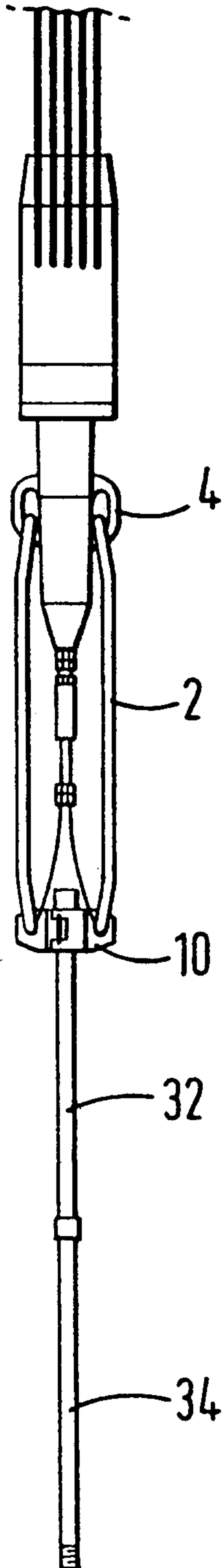
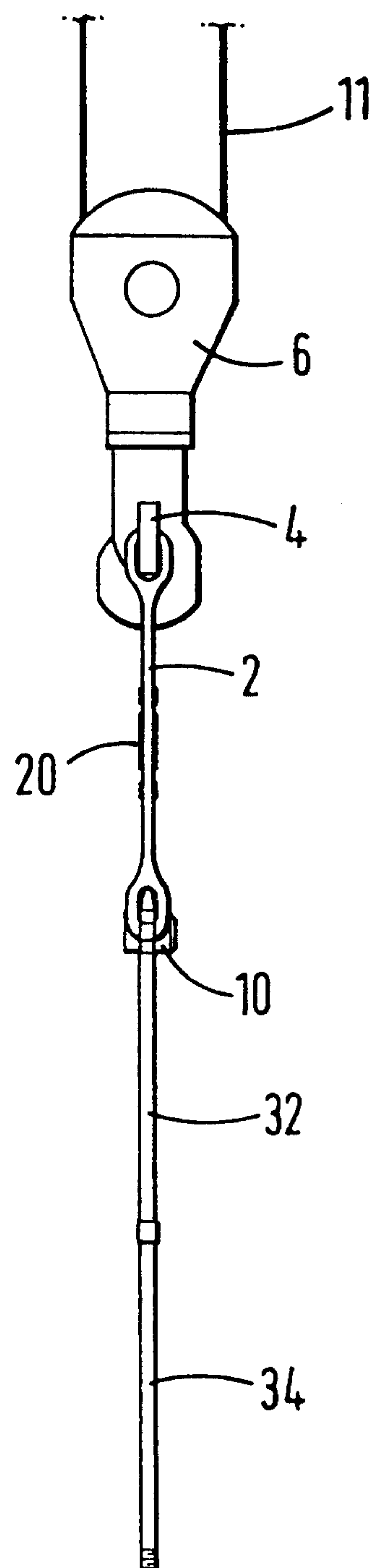


FIG. 4c

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FIG. 5

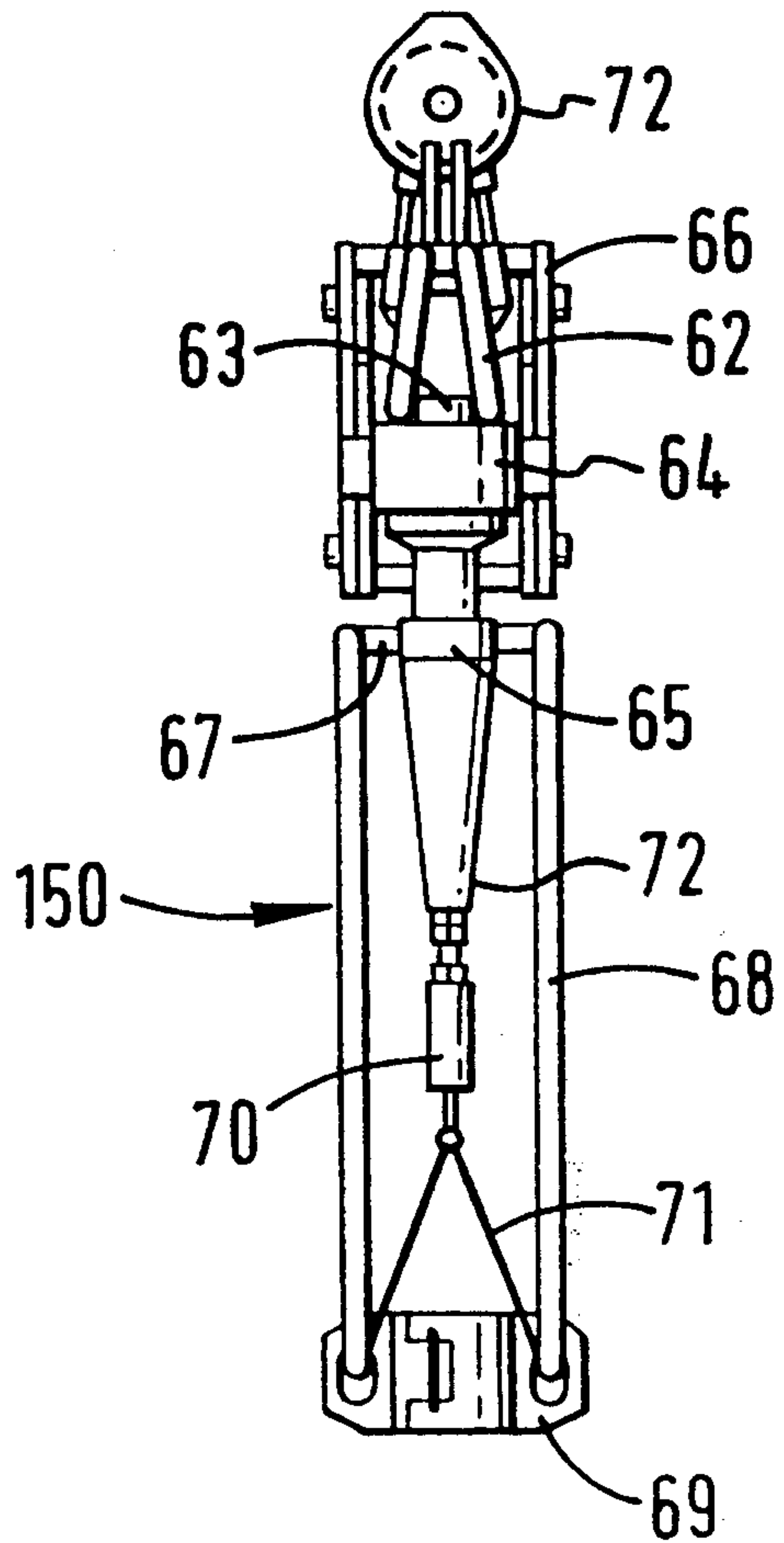


FIG. 6

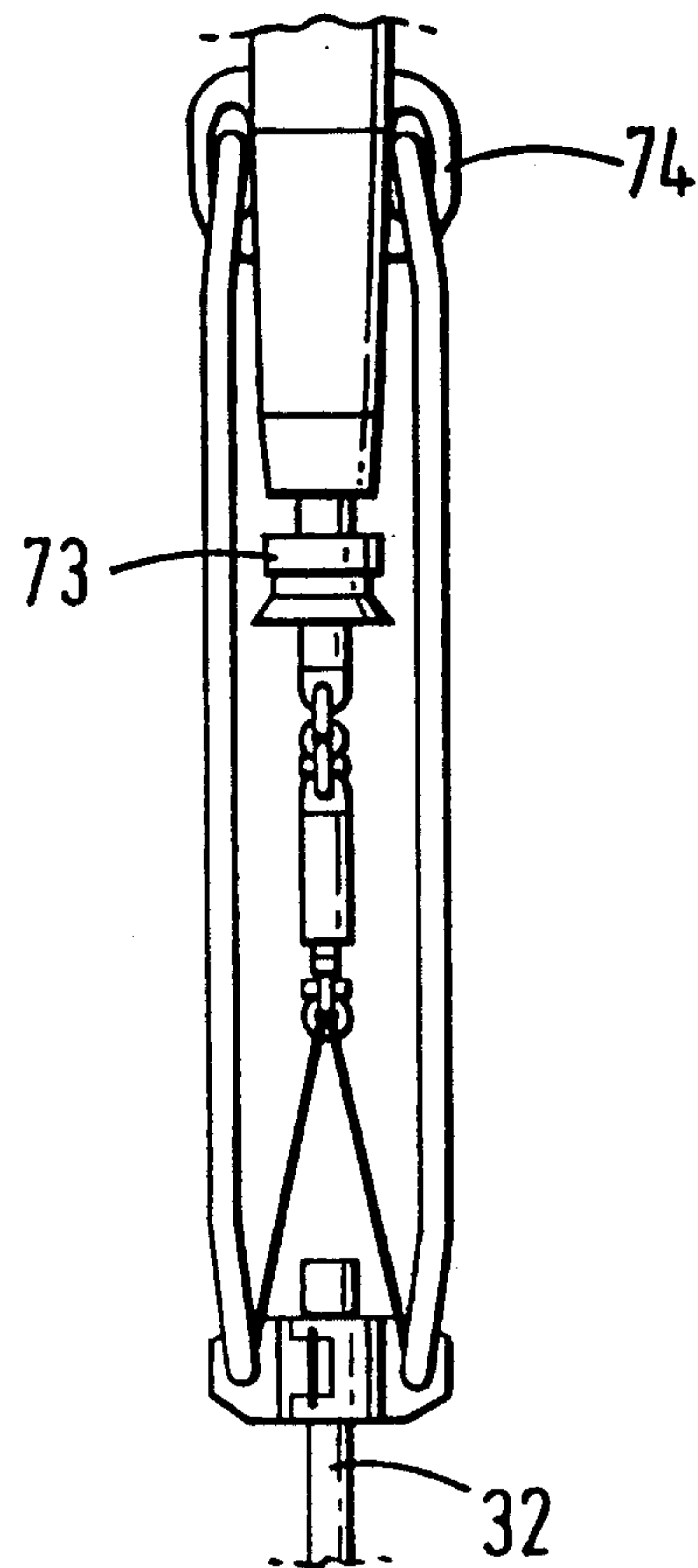


FIG. 7a

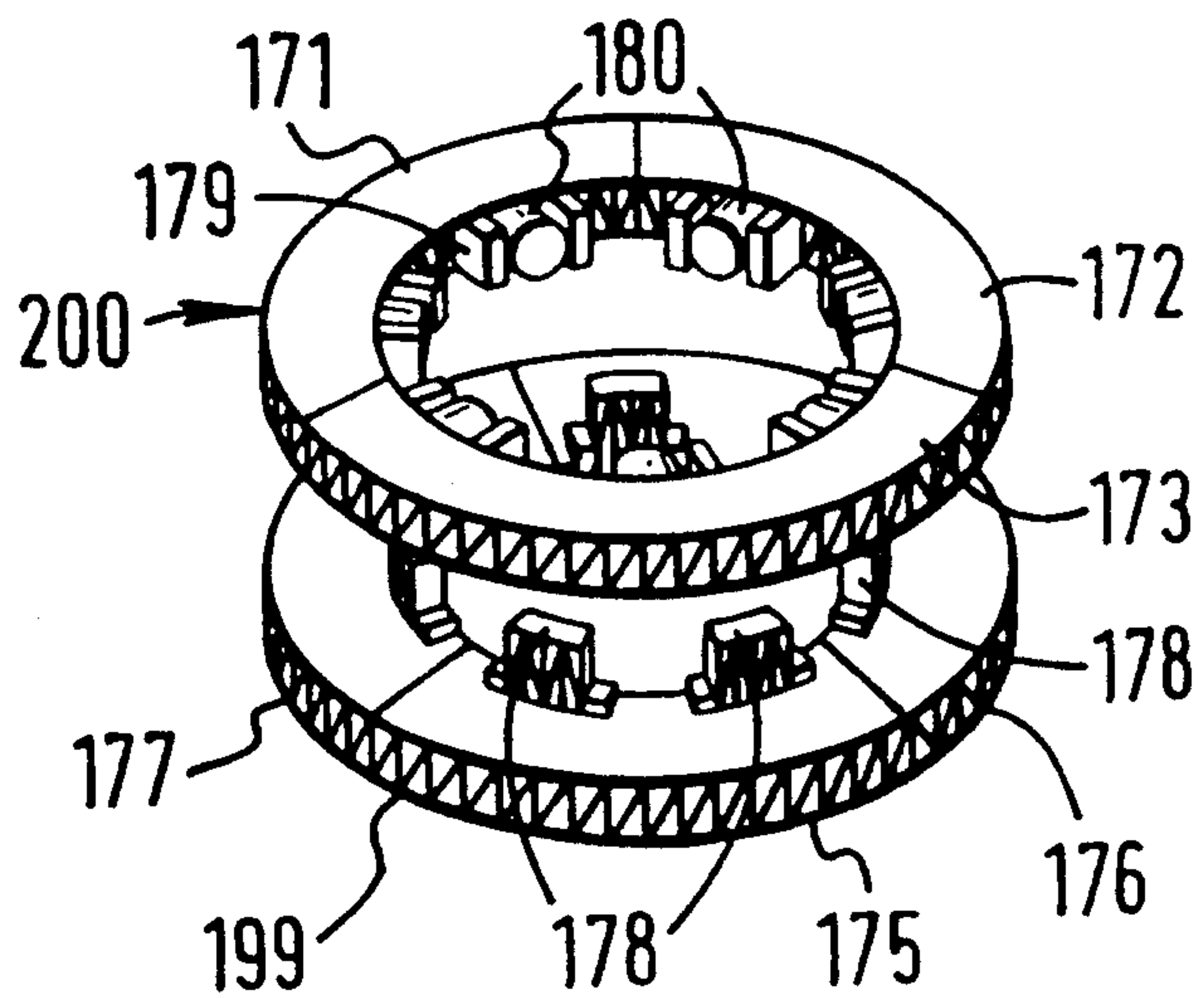
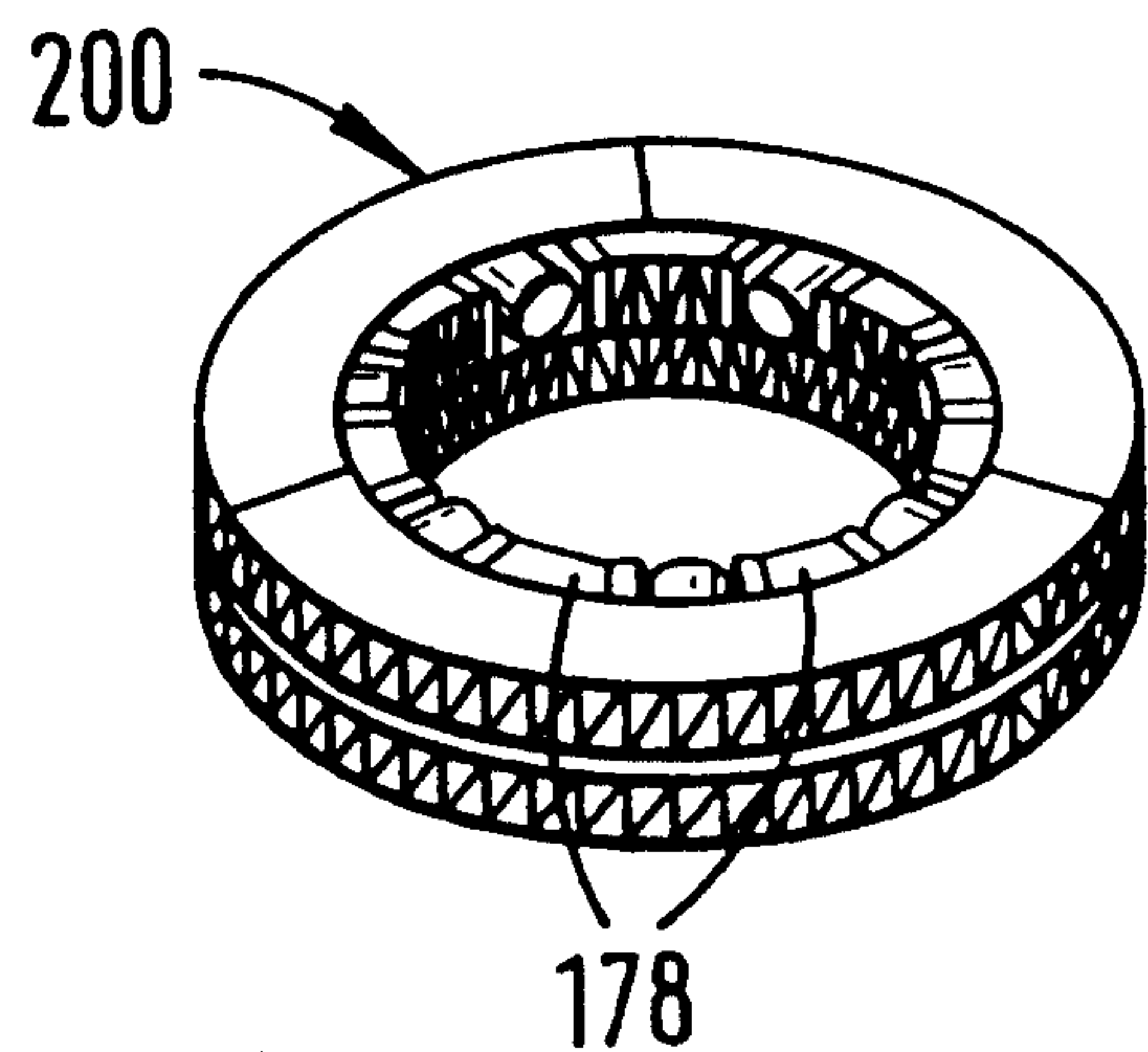
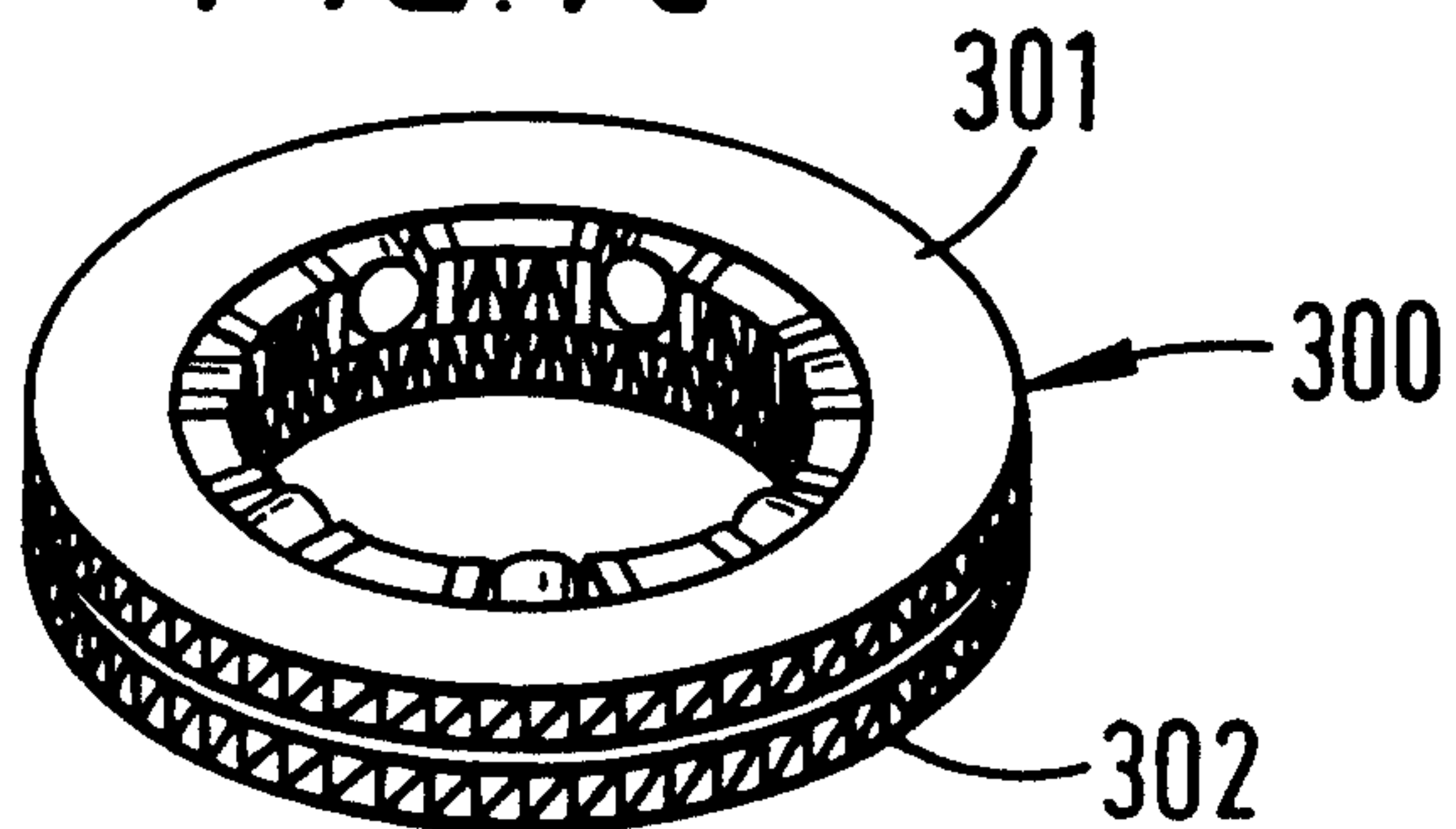
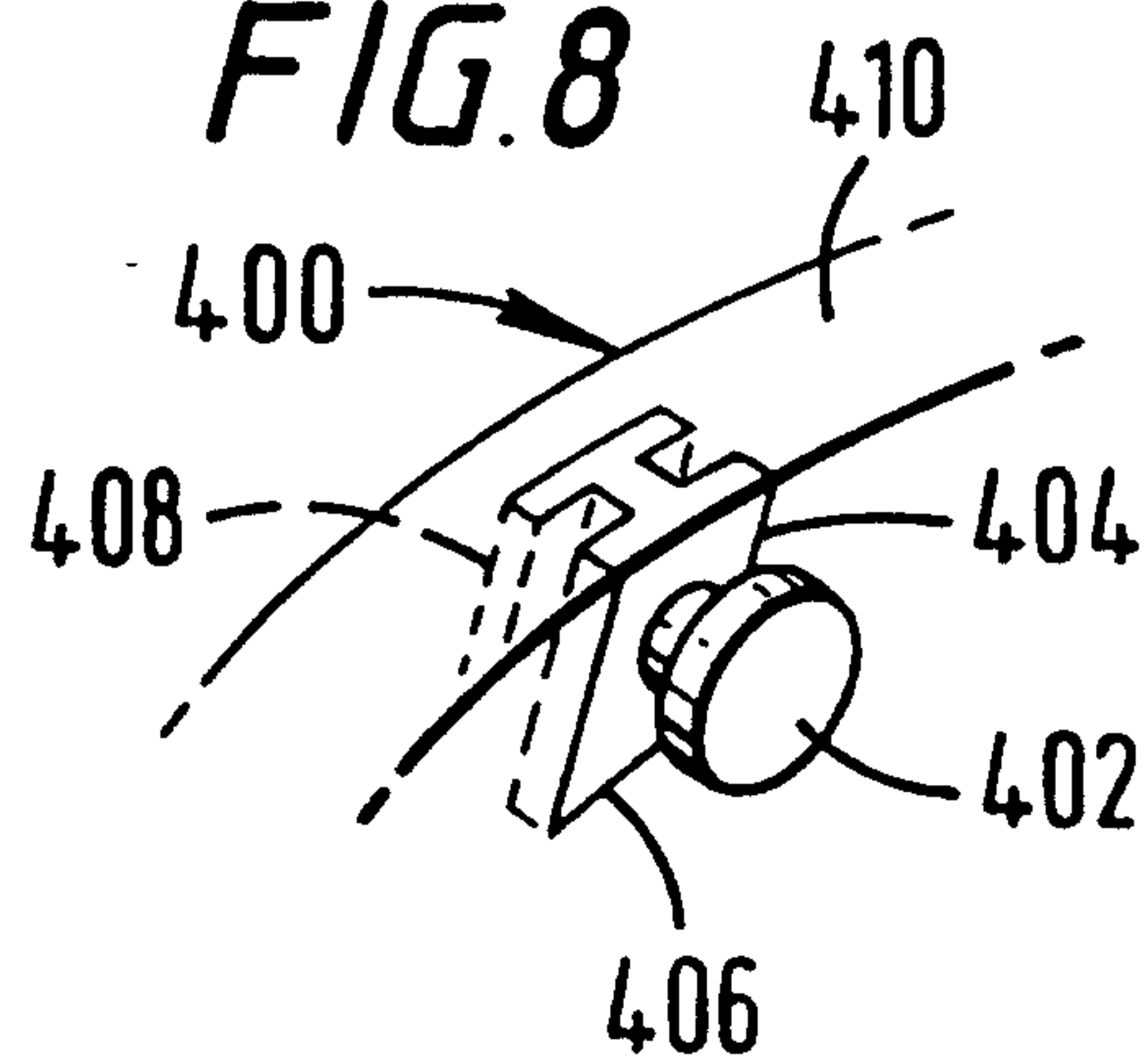
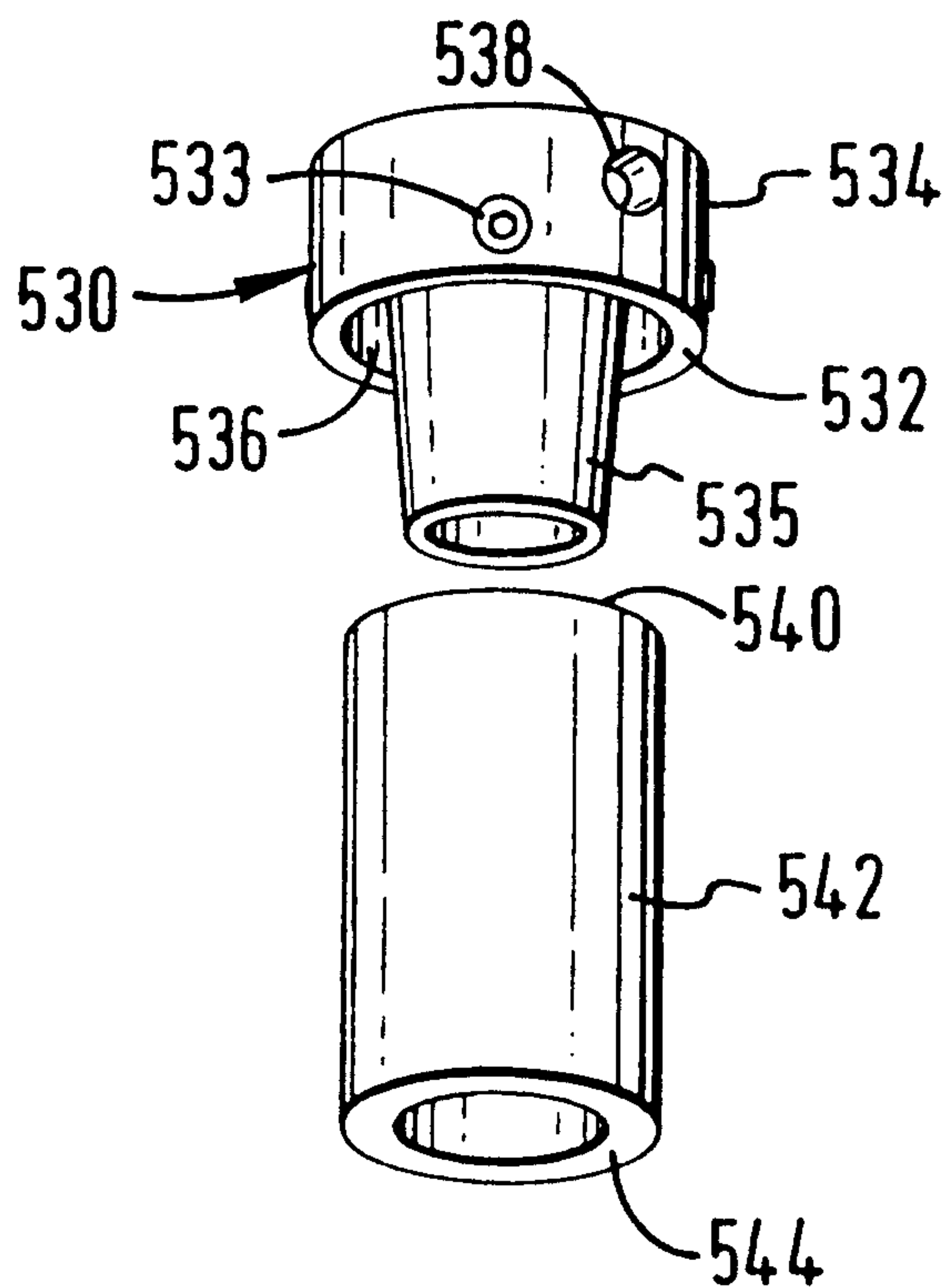
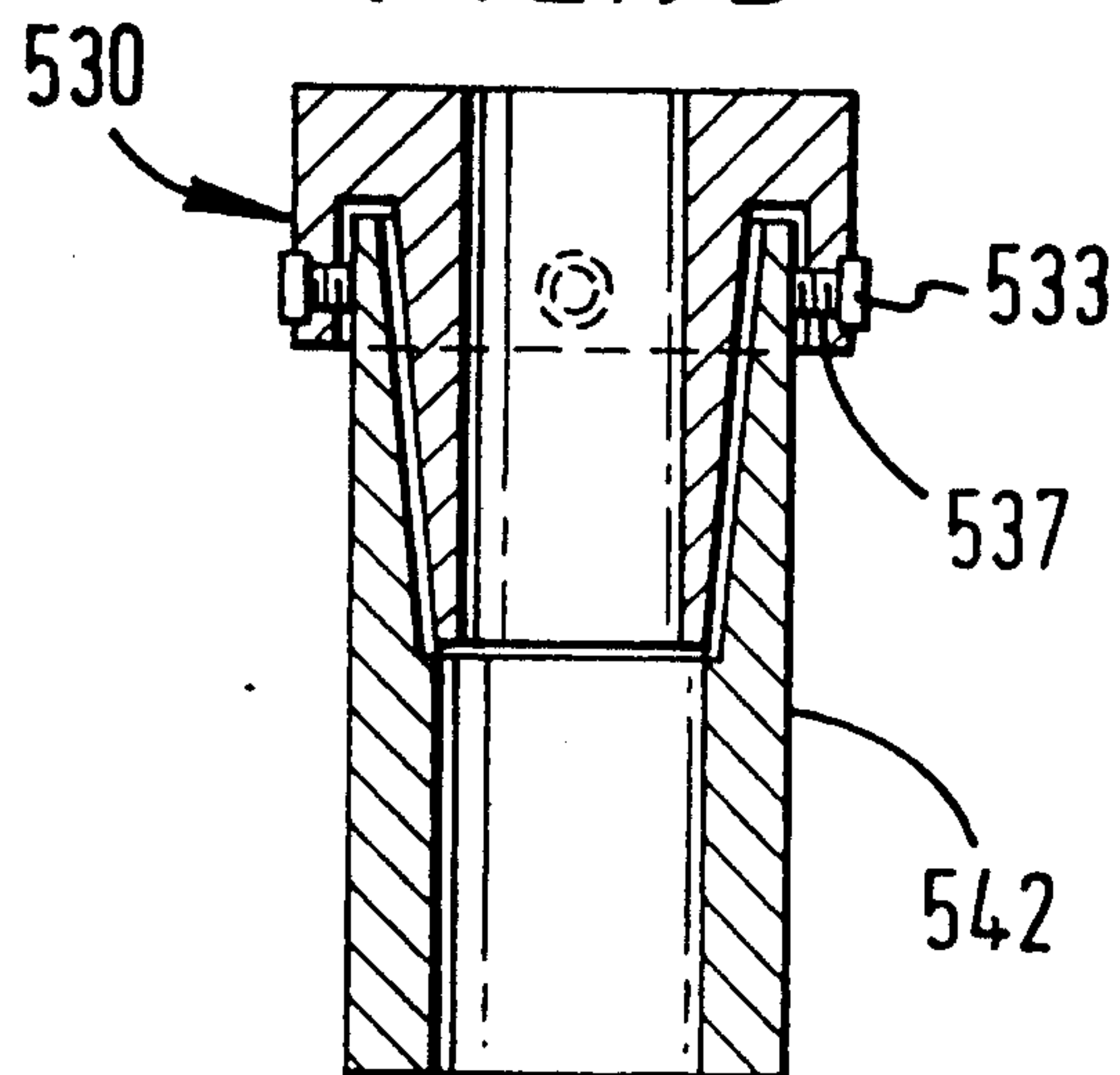
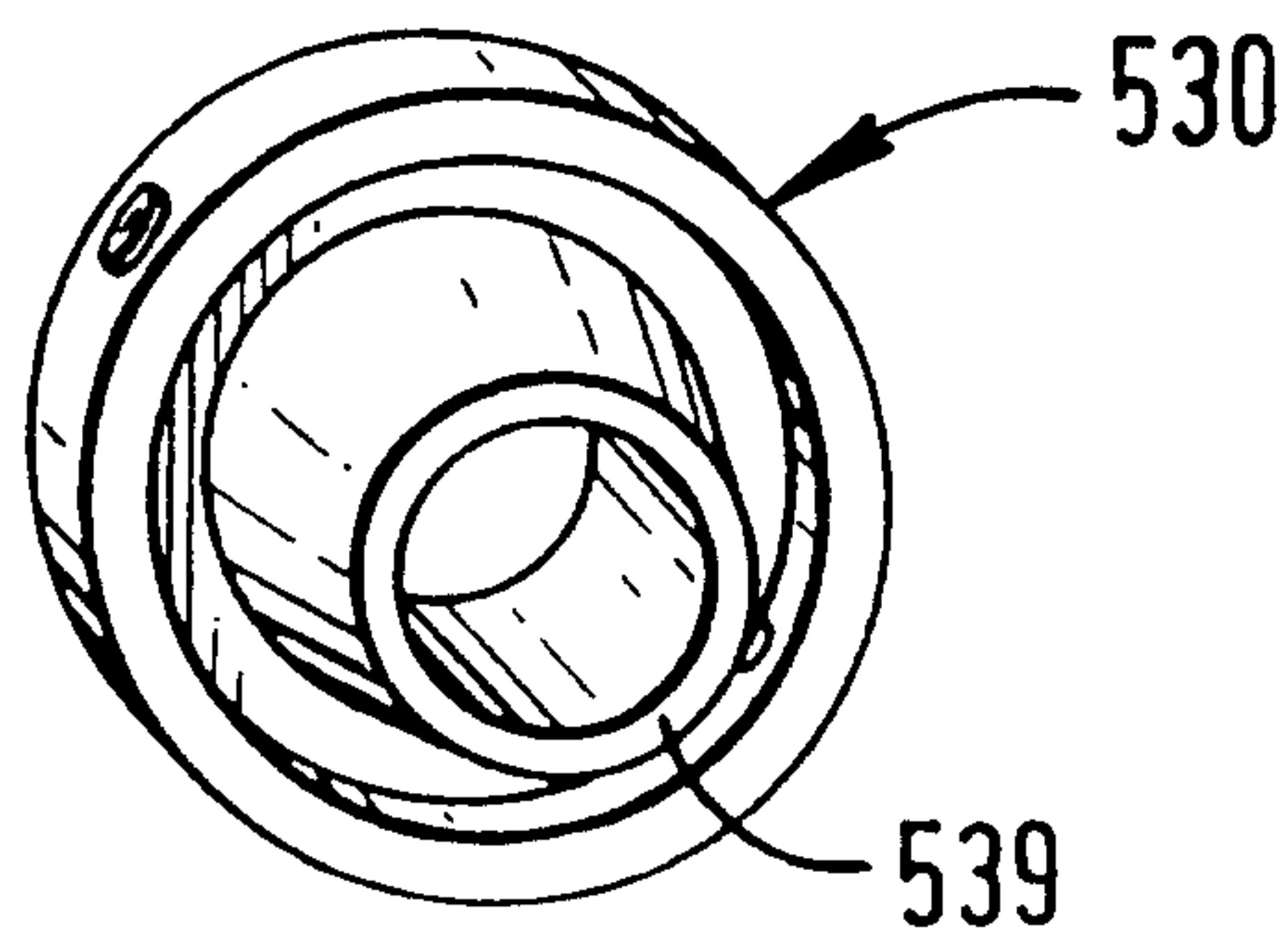


FIG. 7b

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FIG. 7c**FIG. 8****FIG. 9a****FIG. 9b****FIG. 9c***Marks & Clerk*

