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(54) **WELLBORE ANCHOR**

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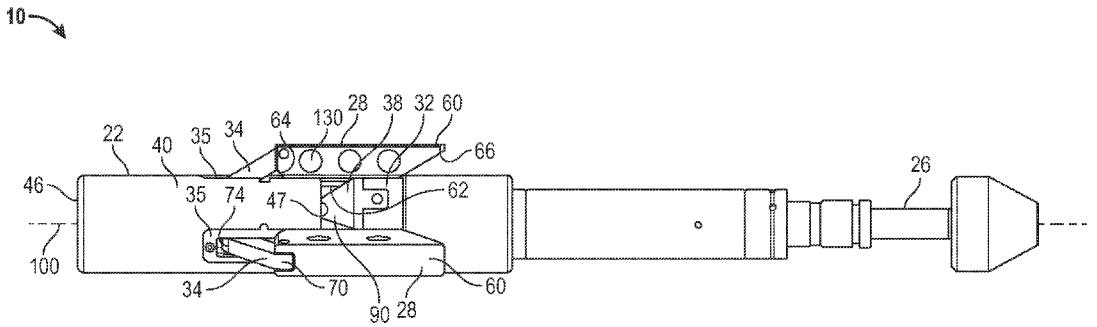
(57) **ABSTRACT**

An anchor tool has a body, a plurality of slips coupled to the body, each of the slips hingedly coupled to a link at a first end, each of the slips slidably retained in a channel at a second end and each of the slips operably moveable from a retracted orientation to an expanded orientation.



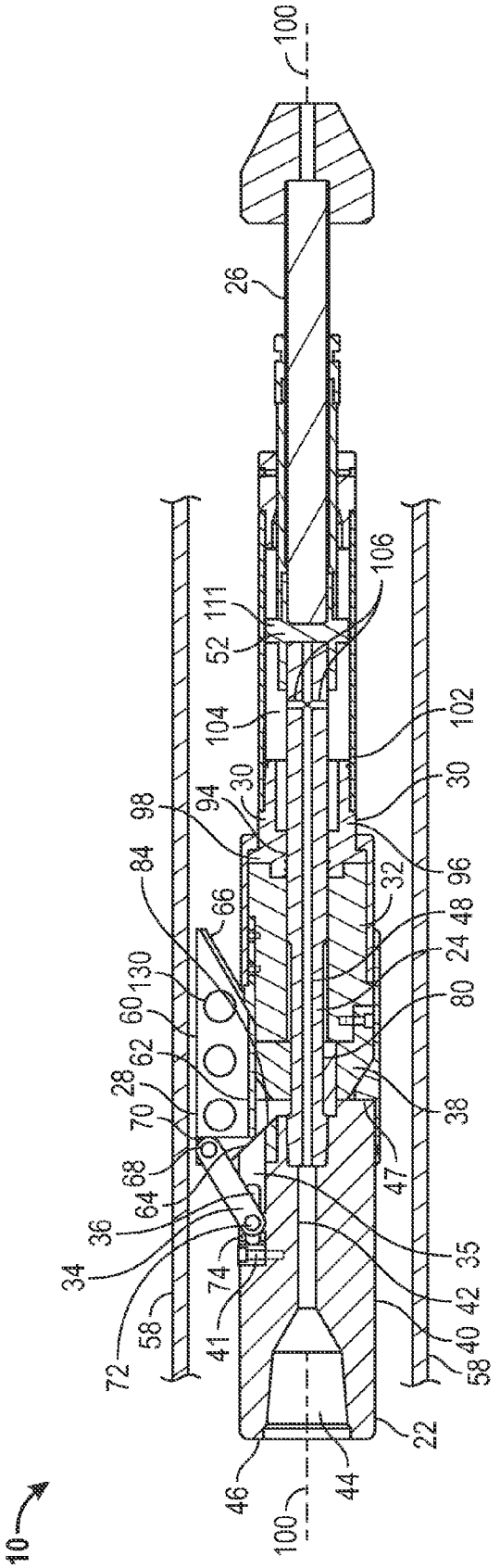

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FIG. 1

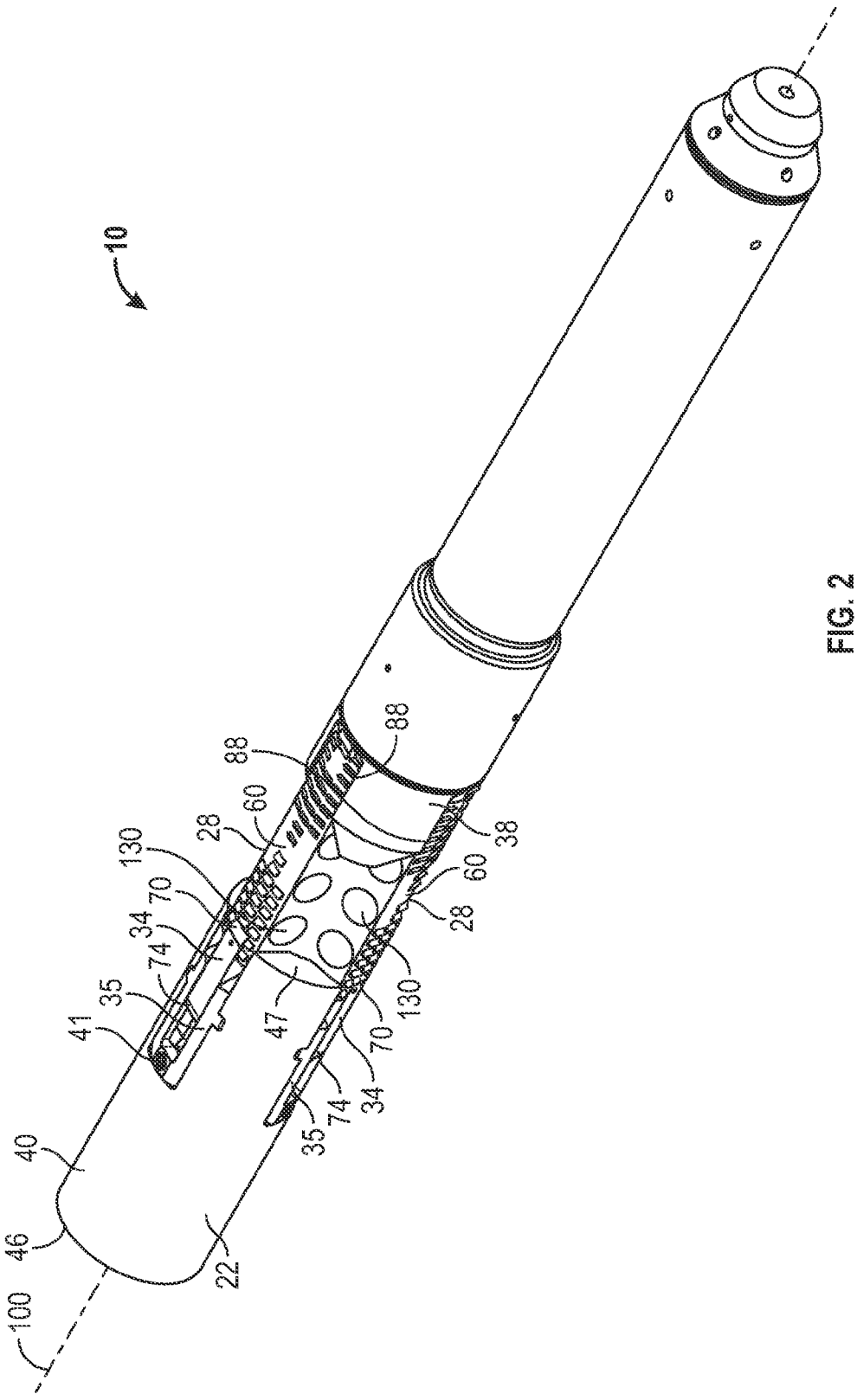
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FIG. 2

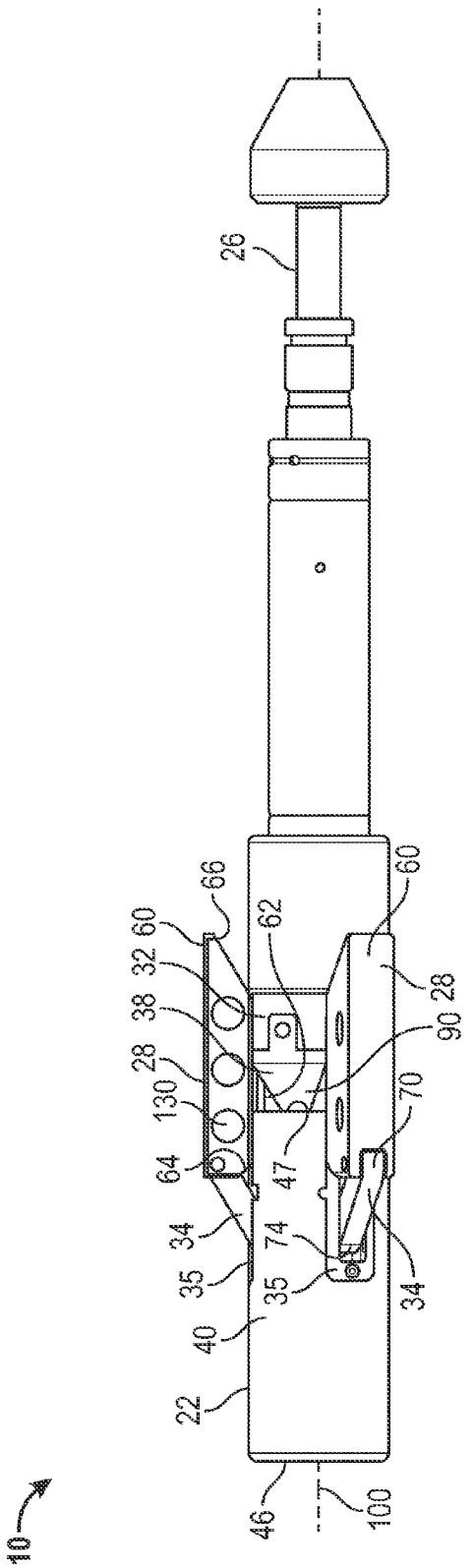
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FIG. 3

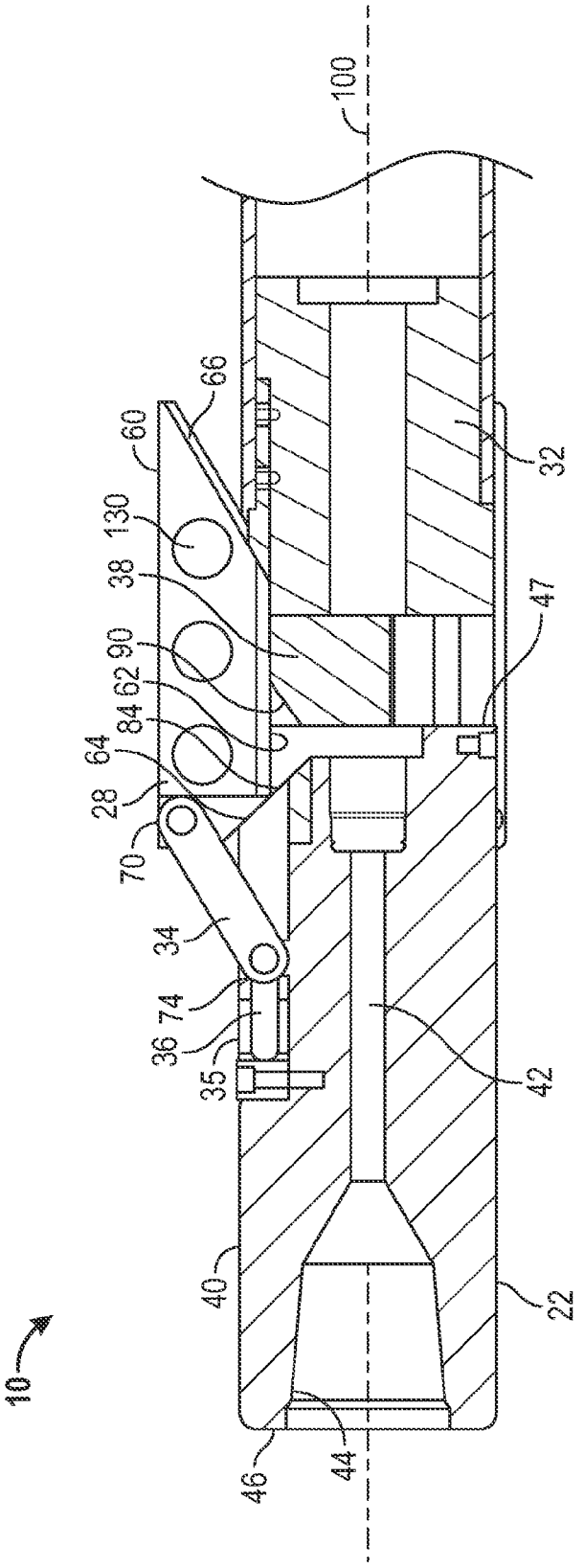

FIG. 4

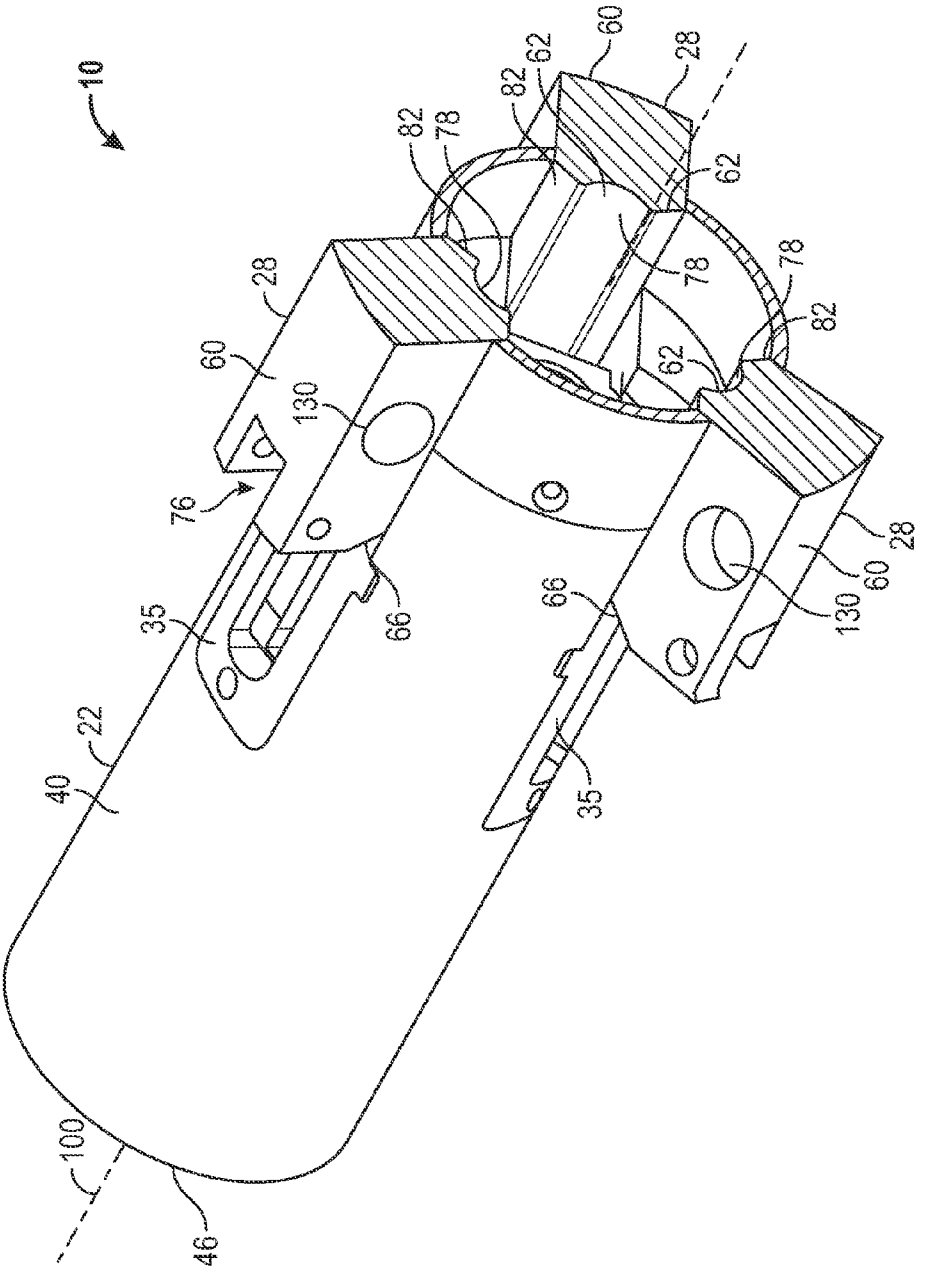

FIG. 5

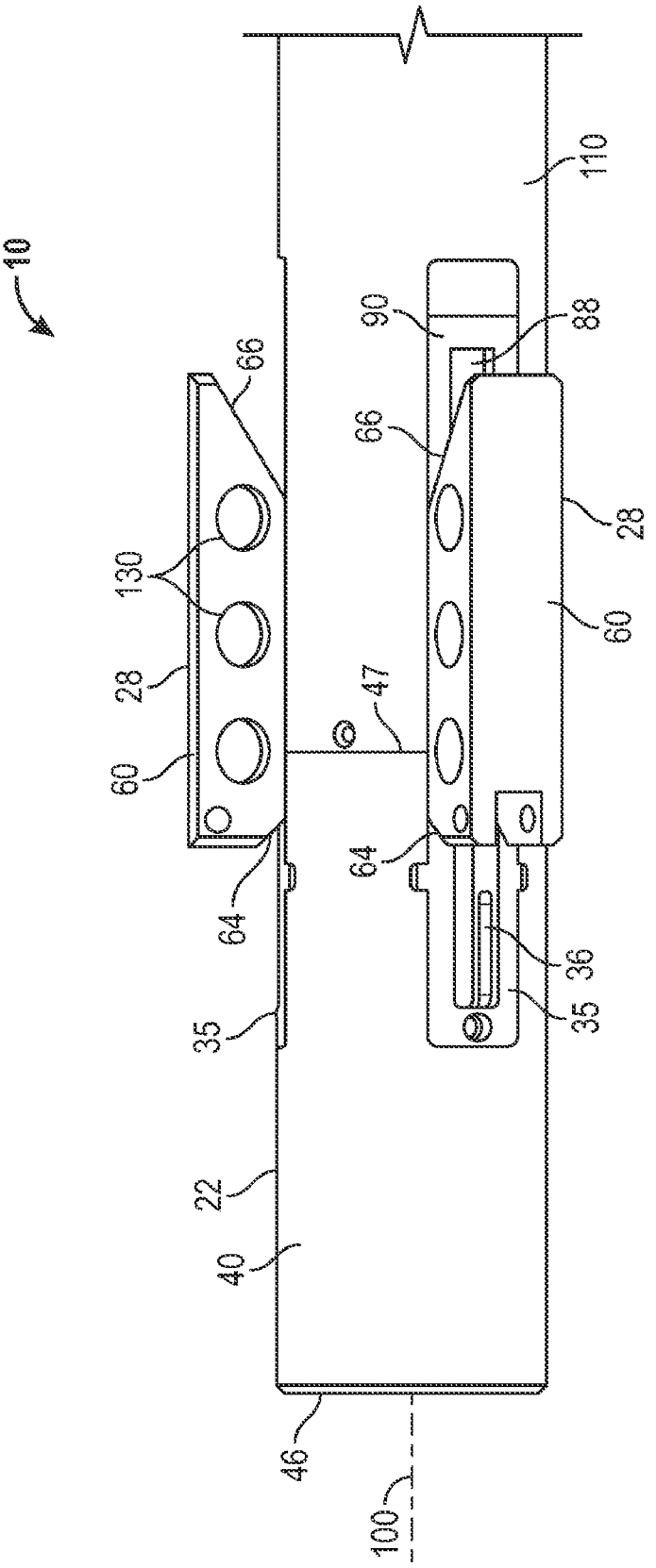

FIG. 6

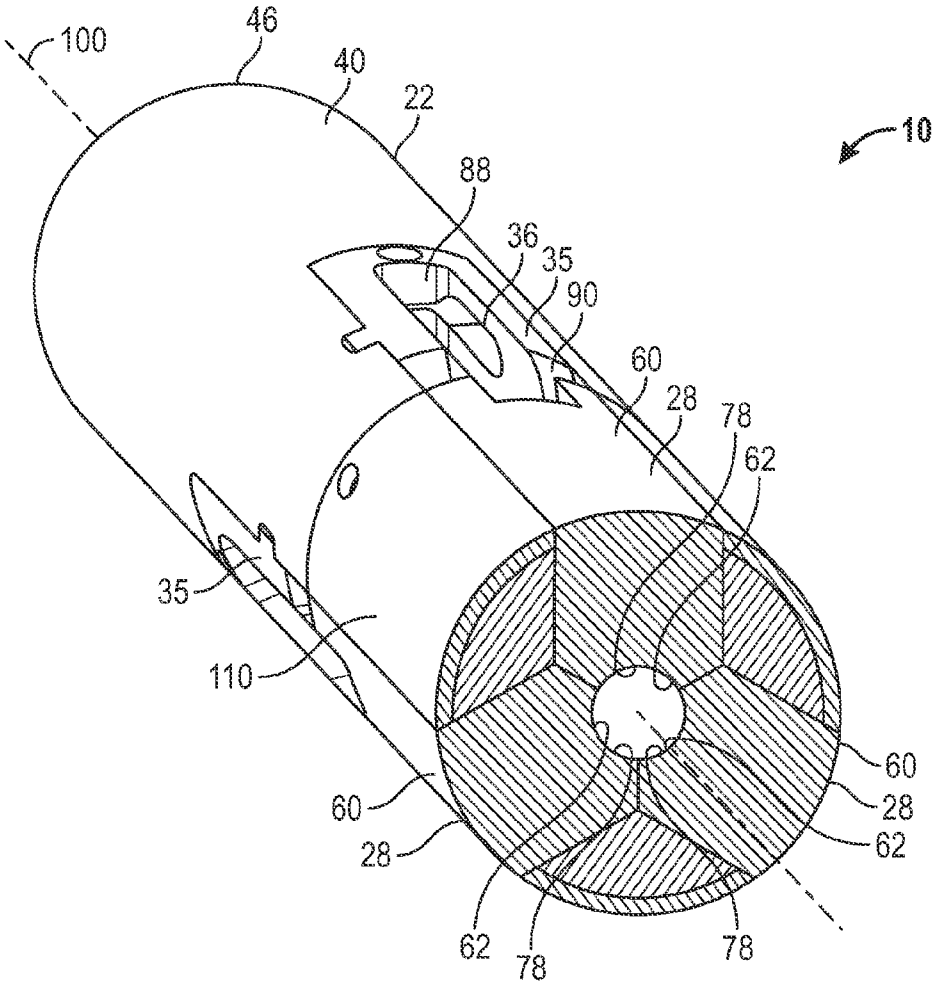

FIG. 7

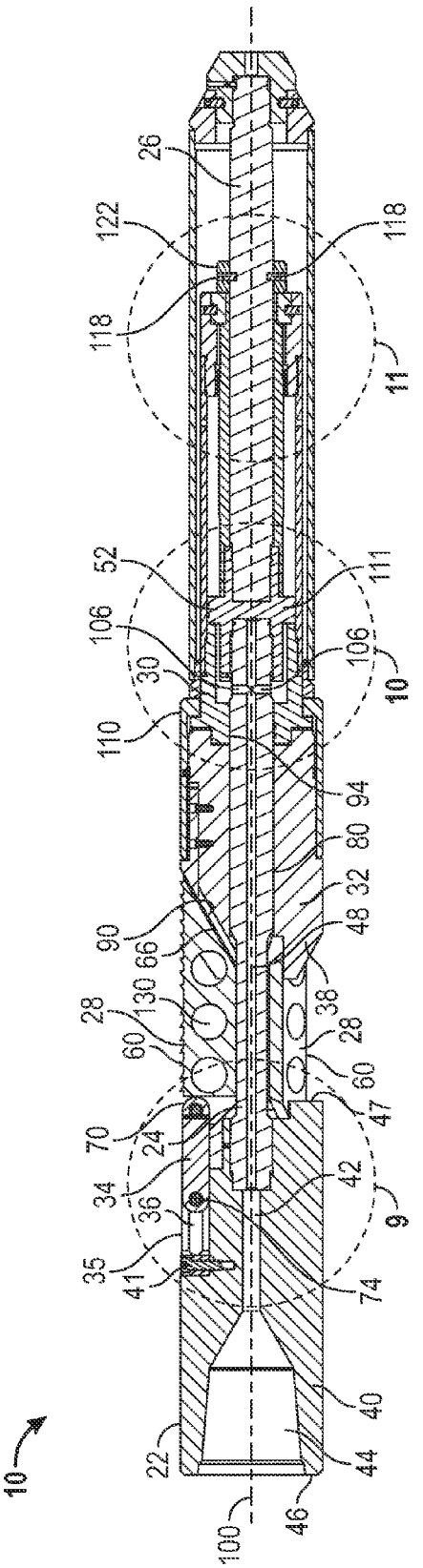
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FIG. 8

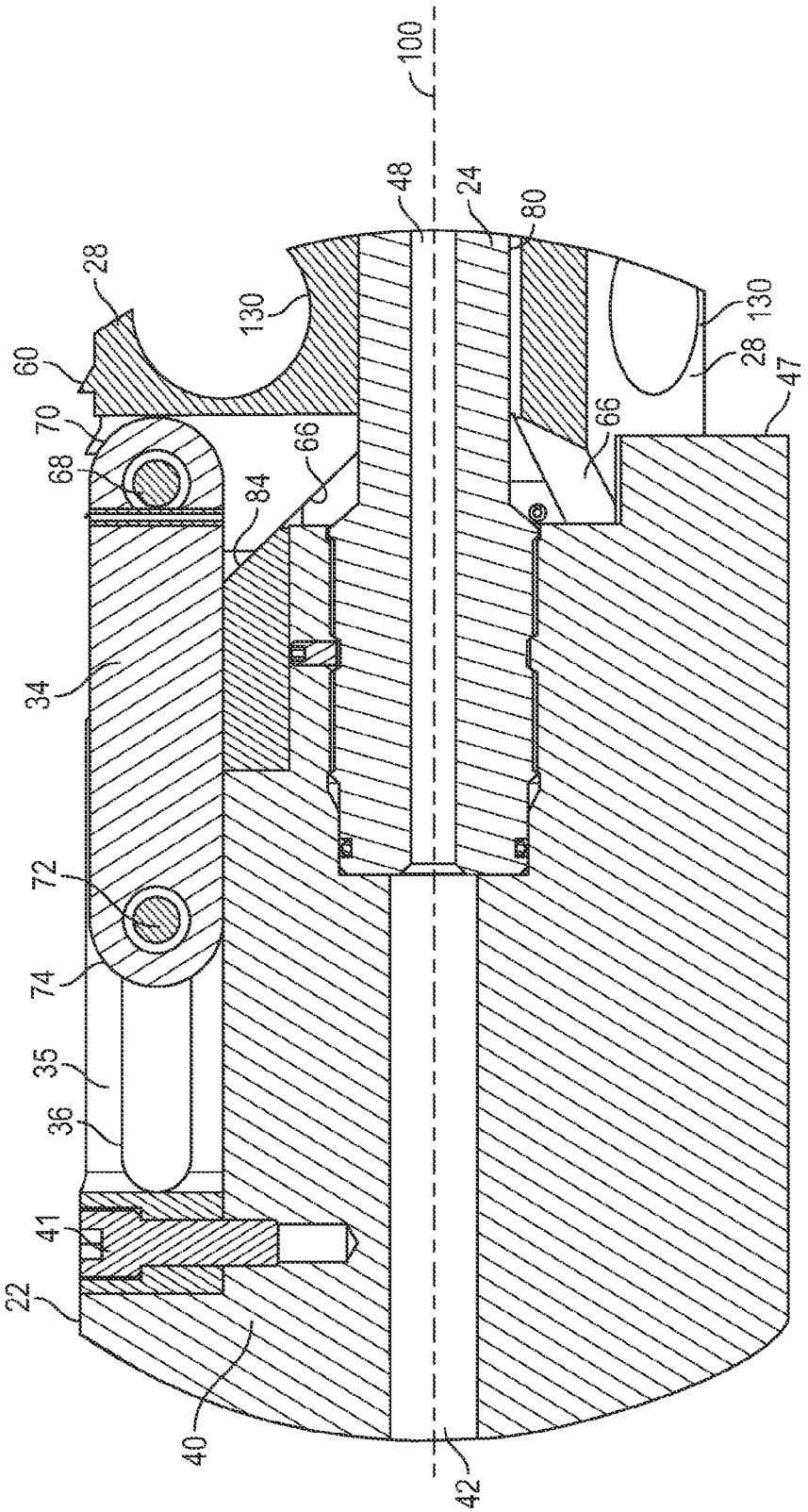
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FIG. 9

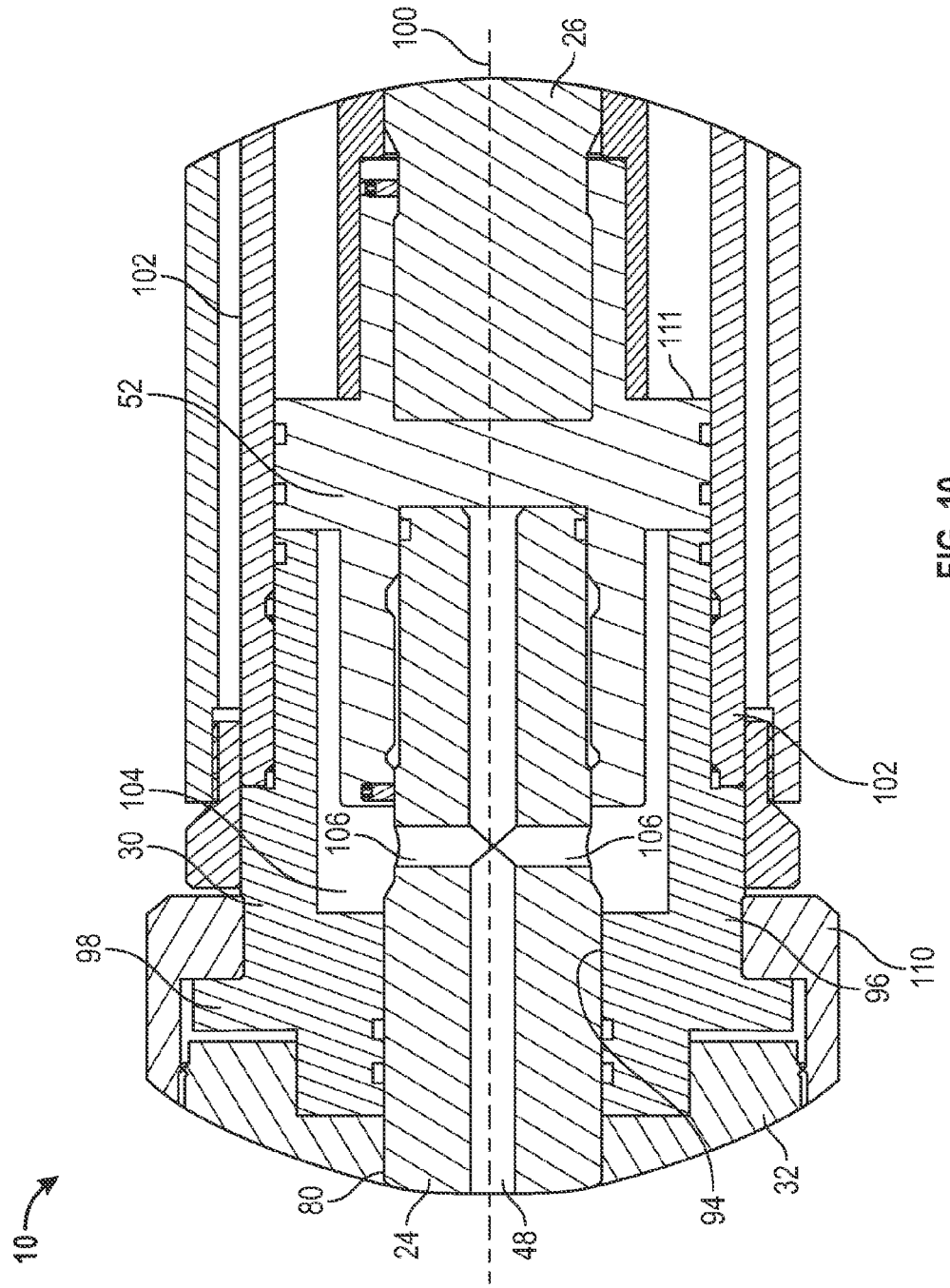
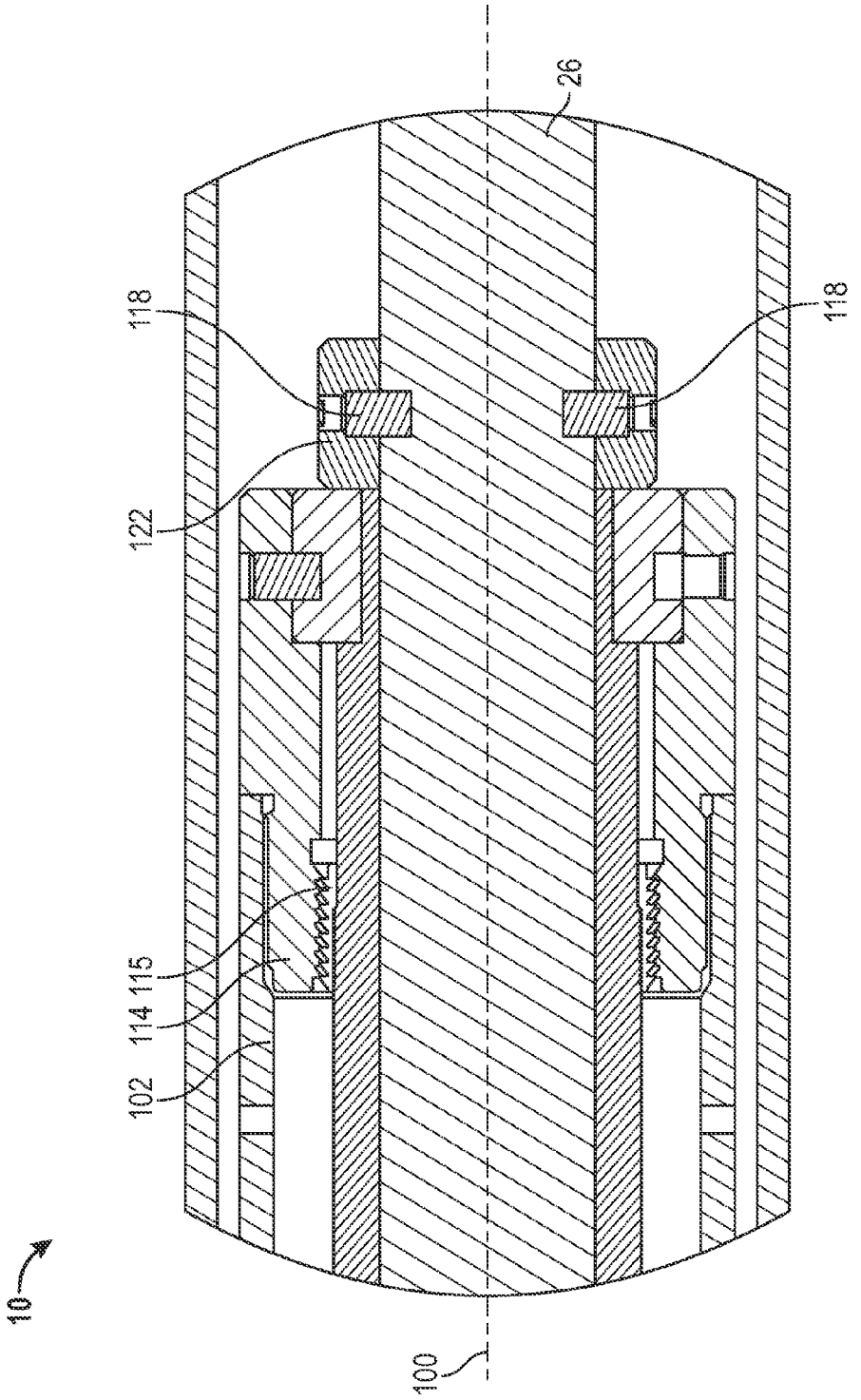


FIG. 10



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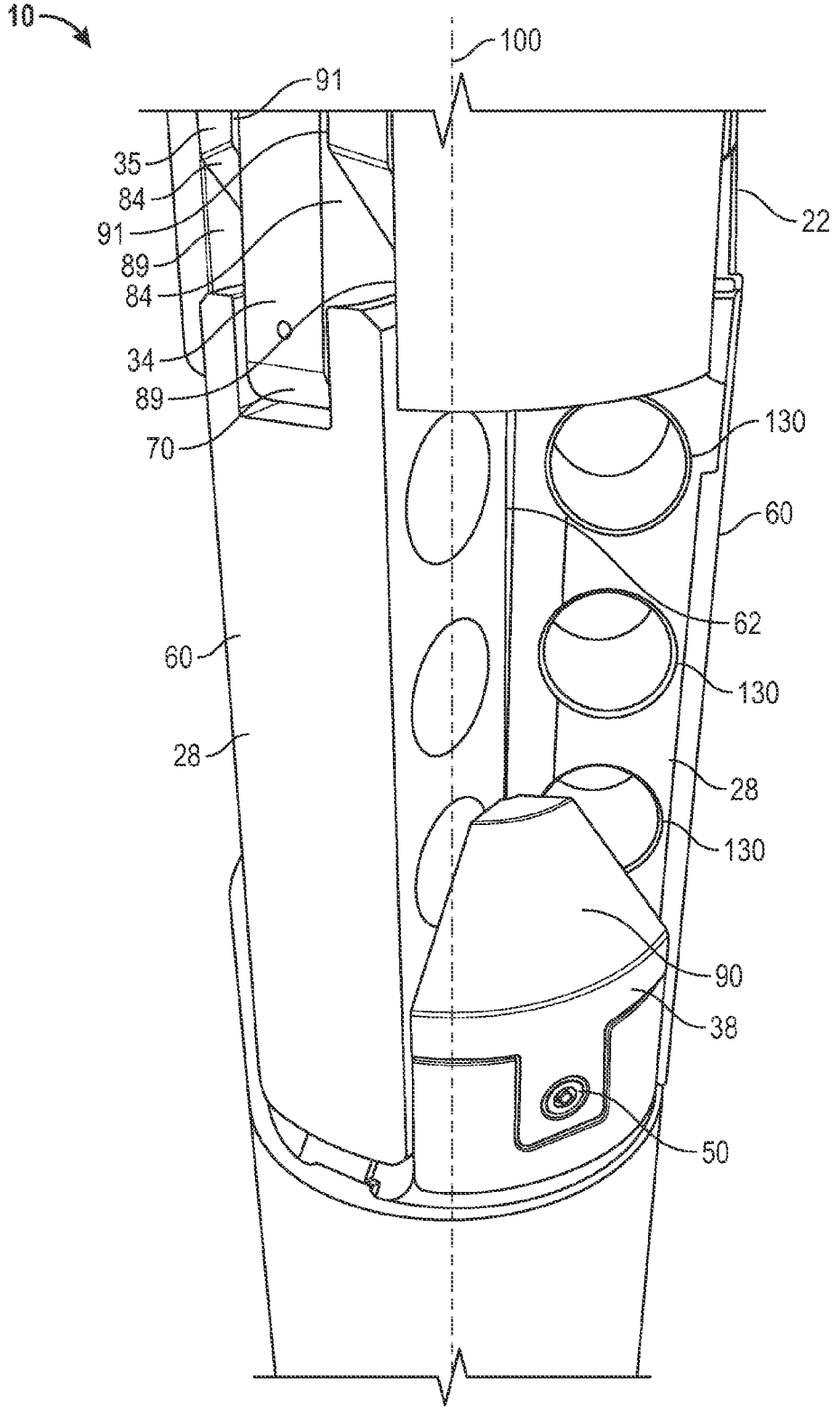
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FIG. 12

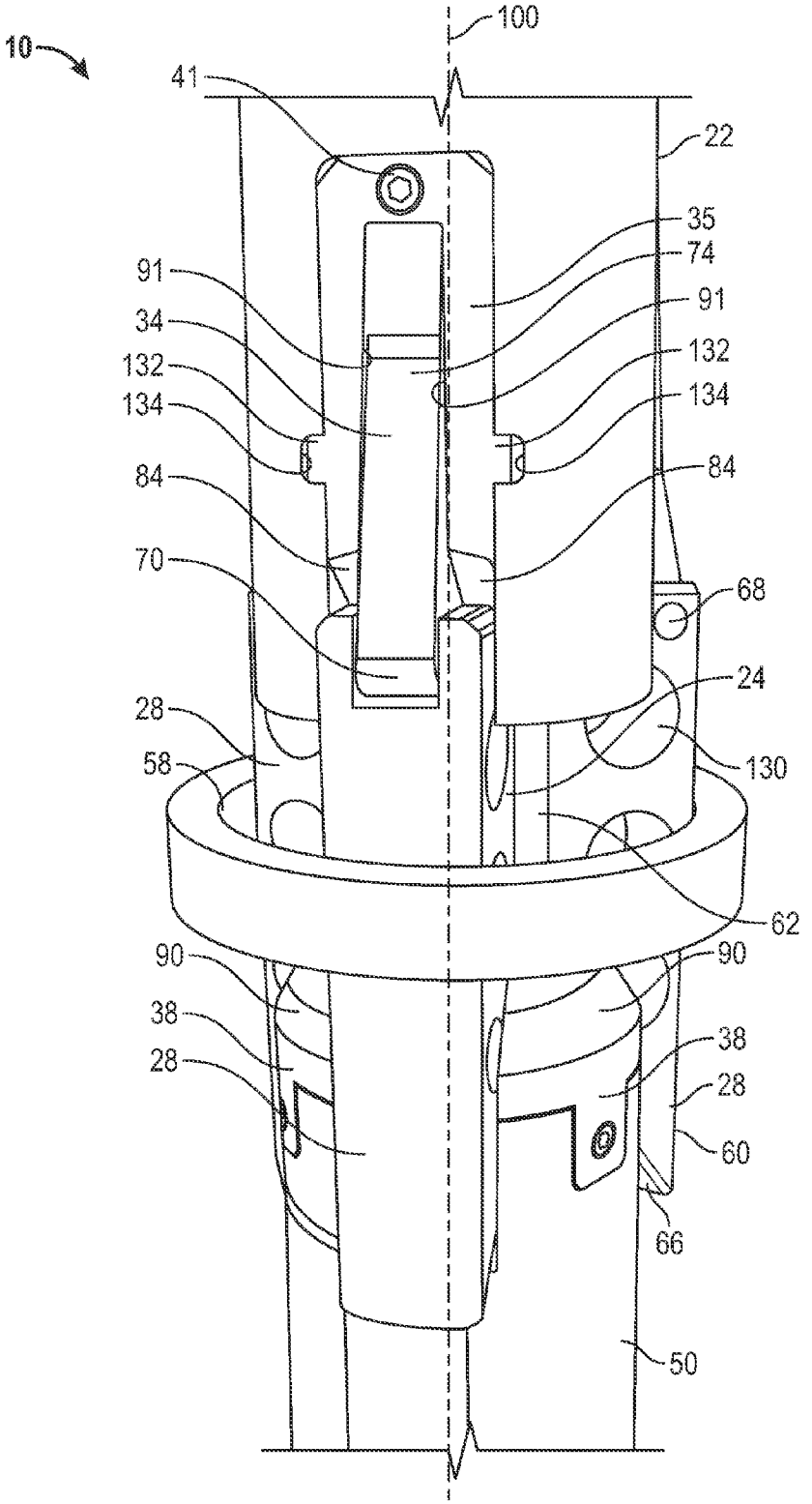
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FIG. 13

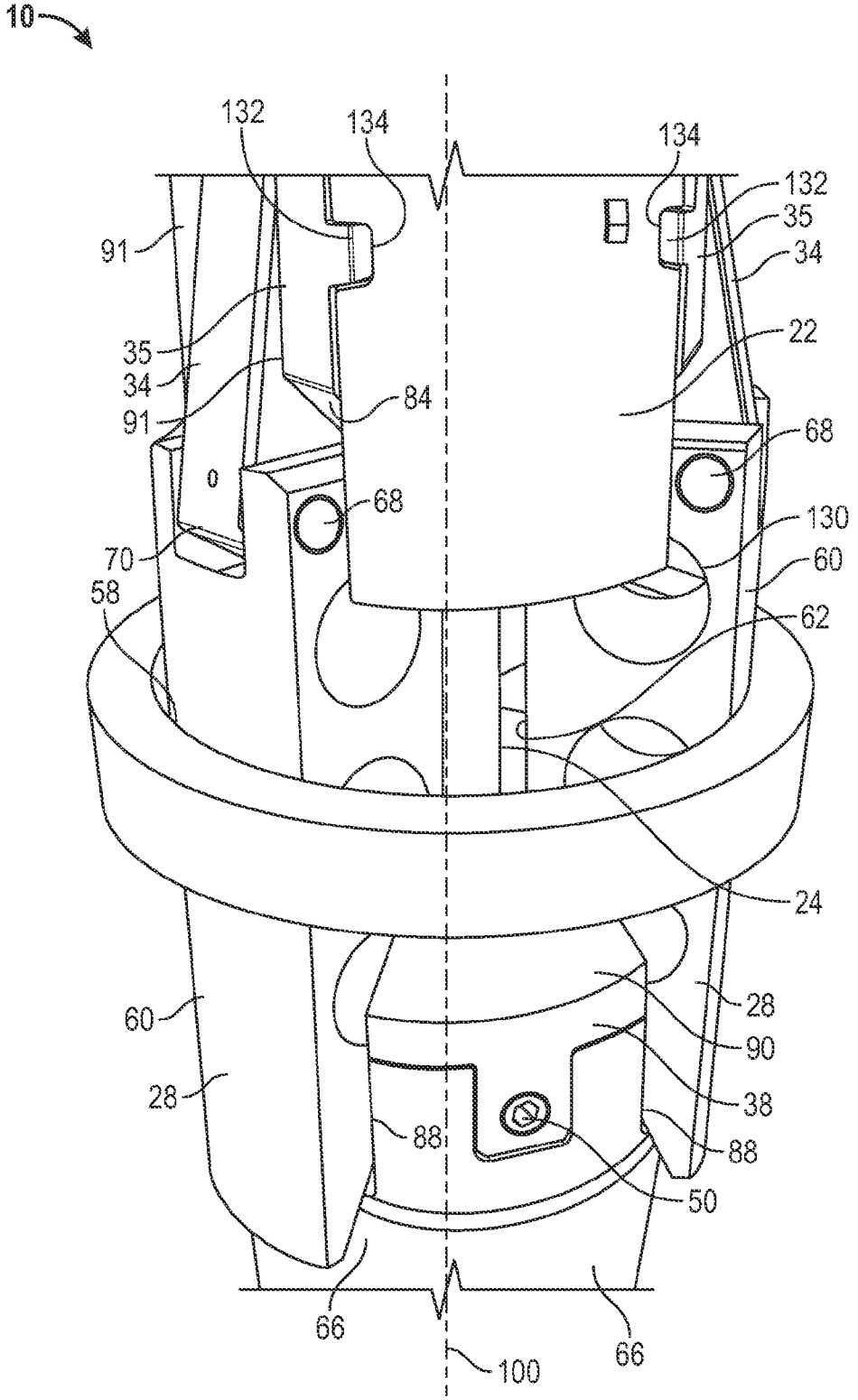
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FIG. 14

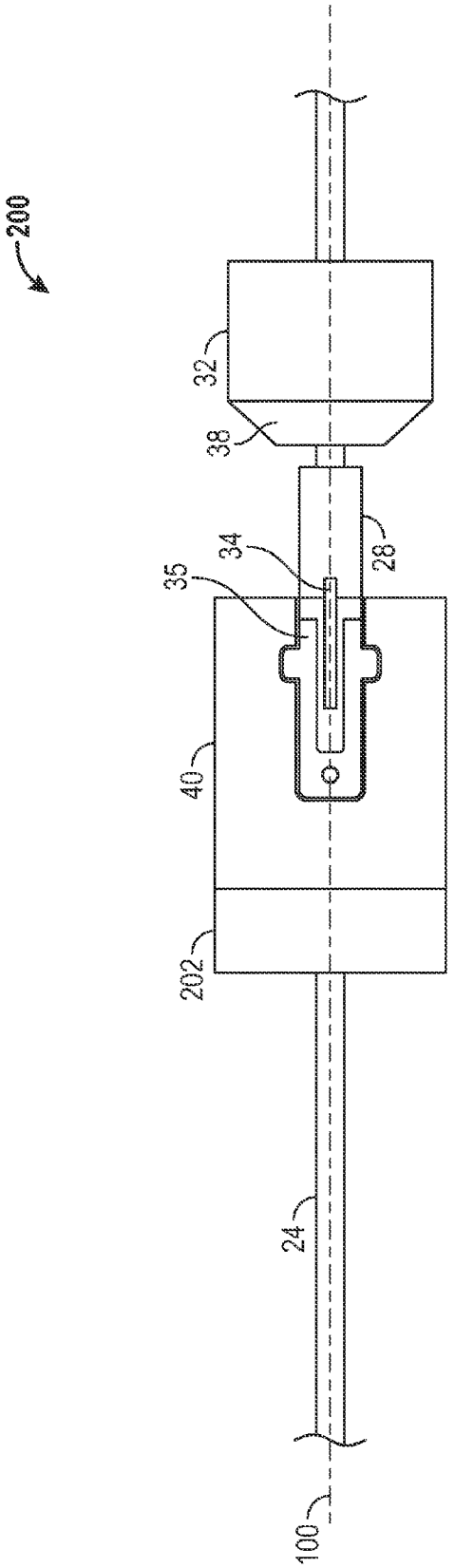

FIG. 15

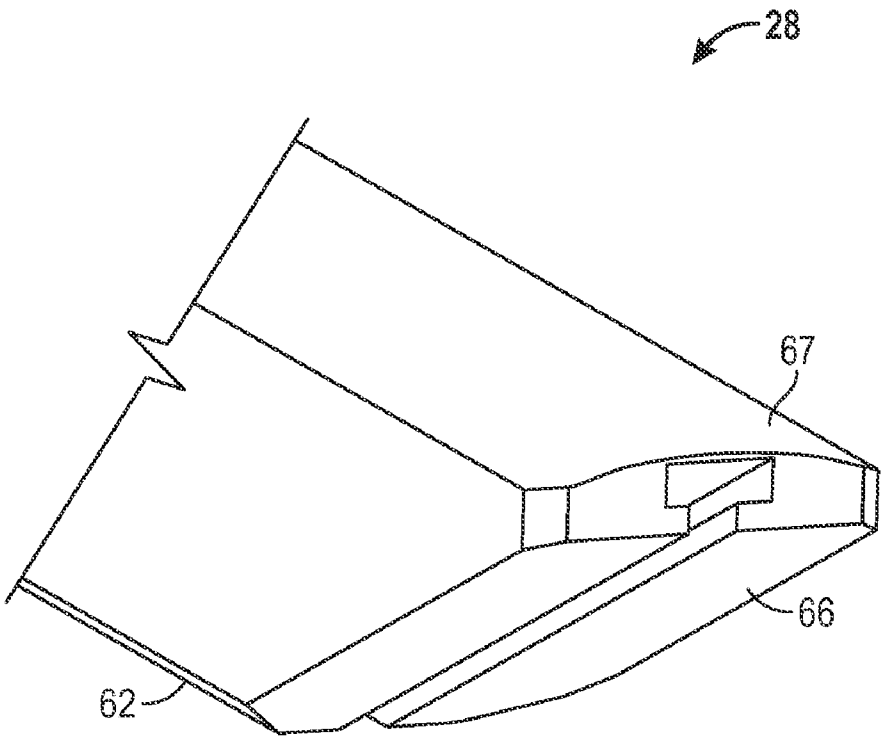

FIG. 16

WELLBORE ANCHOR

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable.

BACKGROUND

[0003] The present invention relates to tools for use in well drilling operations. More specifically, the present invention relates to an anchor for securing a tool within a well bore.

[0004] Many operations performed in the course of exploration and production of oil and gas require that axial forces be applied to tools and other devices inside of a wellbore. In many instances the tool must be supported at a specific location inside the wellbore with an anchoring device. Downhole tool anchors and other isolation devices, comprising packers and plugs, have been extensively utilized in the industry. An exemplary application for an anchor involves a whipstock to be installed in a wellbore to facilitate drilling of additional wellbores in different directions off of the original or primary wellbore.

[0005] "Dog" anchoring devices extend from within the envelope of the body of a tool into a pre-installed channel placed along the completion string within the wellbore. These types of anchors can withstand large forces, but require anchoring grooves at predetermined locations along the completion string. "Slip" anchors apply an anchoring force against the wellbore by extending small gripping plates, commonly known as slips, to the side of the surrounding wellbore.

[0006] Other anchoring devices utilize pistons or rams which can be moved radially outward from the tool body to engage the circumference of a wellbore. Still other systems employ linkage systems to expand against a wellbore surface. Other types of anchors use fluid to lift anchoring surfaces which move vertically along a track or rail system. Other anchor types require an expansion or explosion of combustible materials to generate the required pressure to expand the anchoring surfaces against the side of the wellbore.

[0007] Whipstocks are used to drill additional multi-directional wellbores from a primary wellbore. A whipstock is a long steel casing which contains an inclined plane to cause the drill bit to deflect from the original wellbore at an angle. It is often necessary that an anchor be placed to securely hold the whipstock in place.

[0008] Prior art anchoring devices comprise, but are not limited to, the following:

[0009] U.S. Pat. No. 4,153,109 discloses an anchor having annular slip sections for engaging a casing. Upper and lower expanders have frustoconical shaped ends to engage the slip structures.

[0010] U.S. Application No. 20090071659 filed by Spencer, et al, published Mar. 19, 2009, discloses a technique for anchoring a tool in a wellbore. The technique utilizes one or more arms pivotally mounted to a structure for movement between a radially inward position and radially outward position that anchors the tool to a surrounding wall. A wedge component is positioned to selectively engage the arms.

[0011] U.S. Pat. No. 5,350,016 issued to Thornton, Jr. on Sep. 27, 1994 discloses a wellbore anchor tool which employs at least one pair of individual slip segments which wrap at least partially around a mandrel passing through the tool, the individual slip segments carrying bearing surfaces and restraint members for holding the slip segments in the tool but at the same time in slidable engagement with the tool.

[0012] U.S. Pat. No. 6,035,939 issued to Carter on Mar. 14, 2000 discloses a whipstock system having an anchor apparatus, the anchor apparatus incorporating a slip having an inclined surface and a toothed engaging surface for engaging a casing.

[0013] U.S. Pat. No. 5,154,231 issued to Bailey, et al on Oct. 13, 1992 discloses a one-trip whipstock assembly incorporating a hydraulically set anchor which comprises an interlock for maintaining the anchor in its set position. An anchor is connected to the lower end of the assembly. Slip elements are expanded outwardly in response to the fluid pressure to engage the casing and set the anchor.

[0014] U.S. Pat. No. 5,878,818 issued to Hebert, et al on Mar. 9, 1999 discloses a mechanically set anchor wherein a plunger extending from a base end of an anchor body activates a pin type trigger which releases a spring utilized to set multiple slips extending from the body of the anchor. Continued downward compressive forces fully set the slips into the borehole pipe casing. The anchor is mechanically released by upward pull to shear release pins.

[0015] U.S. Pat. No. 5,829,531 issued to Hebert, et al on Nov. 3, 1998 discloses a mechanically set anchor, commonly used with a whipstock assembly, wherein a plunger extending from a base end of an anchor body activates a pin type trigger which releases a spring utilized to set multiple slips extending from the body of the anchor.

[0016] U.S. Pat. No. 5,350,016 issued to Thornton, Jr. on Sep. 27, 1994 discloses downhole anchor tools. Individual slip segments are mounted about a mandrel with sloping surfaces engaging a sloping drive surface.

[0017] U.S. Pat. No. 7,086,462 issued to Rutley, et al on Aug. 8, 2006 discloses an anchor assembly. Upper frictional members are spring-tensioned. Lower frictional engagement members slide along a conical engagement surface causing the lower frictional members to extend outwardly and engage the inner surface of the casing.

[0018] U.S. Pat. No. 6,920,927 issued to Hirth on Jul. 26, 2005 discloses a wellbore anchoring device for anchoring a down-hole tool comprising an expandable cone having an annular integral shoulder, defining the large end of a conical annular recess on an outer surface of the cone, and a resilient slip positioned within the annular recess. Axial travel of the slip is limited by engagement with the shoulder.

[0019] U.S. Pat. No. 7,431,080 issued to Wright, et al. on Oct. 7, 2008 discloses an anchor having slips at one end and a tapered opposite end for mating with a slip cone. The slip assembly **40** is slidingly connected to the mandrel outer surface and travels along this surface to the slip cone for actuation. A pin travels along a pattern on outer surface of the mandrel to advance the slip assembly and to retract the slip assembly.

[0020] U.S. Pat. No. 7,588,078 issued to O'Brien on Sep. 15, 2009 discloses an anchor having ramps that extend through apertures in slip structures giving the slips a ramp to ride out in a radial direction.

[0021] U.S. Pat. Nos. 7,178,589, 7,377,328 and 7,448,446 to all disclose slips having angled extensions along the sides

of the slips extending at an angle to the backs of the slips. Extensions fit within corresponding channels in recesses of the slip housings.

SUMMARY

[0022] An anchor for securing a tool within a well bore comprises a plurality of slips connected to an anchor body, each slip hingedly connected to a link at a first end and each slip slidably retained in an anchor body channel at a second end, the slip connection arm hingedly connected to the anchor body. A piston contained within an annular opening is axially moveable on a mandrel toward the slips to force slips outward to engage a surrounding surface of a wellbore or casing. Inclined guide surfaces facilitate slip extension. Upon slip extension, slips are held in fixed orientation by the links and channels provided in the anchor.

[0023] In some embodiments, an anchor tool includes a body, a plurality of slips coupled to the body, each slip hingedly coupled to a link at a first end, each slip slidably retained in a channel at a second end, each slip operably moveable from a retracted orientation to an expanded orientation. The link may be coupled to and selectively received within a complementary link recess of the body. The slip may be selectively at least partially received within a complementary slip recess of the body. The anchor tool may further comprise a mandrel coupled to the body and extending from the body, and a cap coaxially aligned with the mandrel and having an inclined surface to engage an inclined inner surface of each slip. The cap may be slidably received on the mandrel such that the inclined surface engages each slip inclined surface between the retracted and expanded orientations. Each link may hingedly couple each slip to the body between the retracted and expanded orientations. The cap may be movable in response to application of a fluid pressure to an exterior of the mandrel. In response to moving the cap toward the body, each slip may move between the retracted orientation and the expanded orientation.

[0024] In some embodiments, an anchor tool includes a body including an outer diameter, the body being substantially coaxially aligned with a central axis of the anchor tool, a link coupled to the body, the link being both retractable relative to the body and rotatable relative to the body, a cap comprising an inclined surface, the cap being coaxially aligned with the central axis, and a slip, the slip being rotatably coupled to the link and the slip comprising an inclined surface configured for selective sliding engagement with the inclined surface of the cap. The link may be selectively received within a complementary link recess of the body. The slip may be selectively at least partially received within a complementary slip recess of the body. The anchor tool may further comprise a mandrel, the mandrel being rigidly coupled to the body and the mandrel being slidably received through the cap. The cap may be movable in response to increasing a fluid pressure supplied to the anchor tool. The cap may be movable in response to application of a fluid pressure to an exterior of the mandrel. In response to moving the cap, the slip may be moved radially relative to the central axis. The slip may be substantially prevented from rotating relative to the central axis. The mandrel may comprise a central passage and an associated flow orifice for receiving fluid.

[0025] In some embodiments, an anchor tool includes a body including an outer diameter and a recess, a link pivotally coupled to the body in the recess and below the outer diameter, a slip pivotally coupled to the link, the slip comprising an engagement surface, and a cap moveably coupled to the body, wherein the slip is captured between the body and the cap, the cap moveable to engage a cap engagement surface with the slip engagement surface. The link may be translatable relative to the body.

[0026] In some embodiments, a method of operating an anchor tool includes locating the anchor in a well bore, altering a fluid pressure supplied to the anchor tool, moving a cap of the anchor tool toward a body of the anchor tool, wherein a slip of the anchor tool is connected to the body via a rotatable link and wherein the cap includes an inclined surface, and in response to moving the cap toward the body, radially moving the slip relative to the central axis while substantially preventing rotation of the slip relative to the central axis.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] Referring now to the figures, wherein like elements are numbered alike in the several drawings:

[0028] FIG. **1** is a schematic cross-sectional view of the anchor tool depicting a connection link and slip extended;

[0029] FIG. **2** is a view of the anchor tool with connection links and slips retracted;

[0030] FIG. **3** is a view of the anchor tool with connection links and slips extended;

[0031] FIG. **4** is a partial cross-sectional view of the anchor tool with slips extended;

[0032] FIG. **5** is a partial cross-section, isometric view of a segment of the anchor tool with slips extended;

[0033] FIG. **6** is a side view of an anchor tool segment with slips extended.

[0034] FIG. **7** is a partial cross-section, isometric view of a segment of the anchor tool segment with slips retracted;

[0035] FIG. **8** is a cross-sectional view of the anchor tool;

[0036] FIG. **9** is a detail of the anchor tool depicting a slip and link;

[0037] FIG. **10** is a detail of the anchor tool depicting a piston and connector;

[0038] FIG. **11** is a detail of the anchor tool depicting a shear pin;

[0039] FIG. **12** is an oblique side view of an anchor tool according to an alternative embodiment of the disclosure showing the anchor tool with slips in a near fully retracted state;

[0040] FIG. **13** is an oblique side view of the anchor tool of FIG. **12** showing the anchor tool with slips in a partially extended state;

[0041] FIG. **14** is an oblique side view of the anchor tool of FIG. **12** showing the anchor tool with slips in an extended state to contact a casing wall;

[0042] FIG. **15** is a schematic view of an anchor tool according to another alternative embodiment of the disclosure; and

[0043] FIG. **16** is a partial oblique view of a slip according to an alternative embodiment of the disclosure.

DETAILED DESCRIPTION

[0044] Referring to FIGS. **1-3**, schematic representational views of anchor **10** are depicted. Anchor **10** generally comprises subassembly **22**, upper mandrel **24**, lower mandrel **26**, slips **28**, links **34**, piston **30**, cylinder **32** and cylinder cap **38** having inclined channels **88**. Anchor **10** is depicted in FIGS.

1 and 3 with a slip 28 expanded for engagement with a casing wall 60 while FIG. 2 depicts slips 28 retracted into subassembly 22.

[0045] Referring again to FIG. 1, subassembly 22 comprises assembly body 40. In some embodiments, a link receiver 35 comprising a longitudinal link slot 36 may be intermediate the link 34 and the body 40. In some embodiments, a receiver bolt 41 may be used to join the link receiver 35 to the body 40. Body 40 comprises a hollow cylinder having a central passage 42. Body 40 defines a central axis 100. Passage 42 extends along axis 100. Threading 44 is provided at the upper end 46 of body 40 for attachment to a pipe string (not shown).

[0046] Body 40 is attached at its lower end 47 to upper mandrel 24. In the embodiment depicted, body 40 is attached by threading to upper mandrel 24. Upper mandrel 24 is a tubular structure coaxially aligned with body 40. Upper mandrel 24 has a central passage 48 extending therethrough. Central passage 48 is aligned with passage 42 of body 40.

[0047] Referring to FIGS. 1 and 9, upper mandrel 24 is attached at its lower end to connector 52. Connector 52 is connected to lower mandrel 26. Connection of connector 52 to upper mandrel 24 and lower mandrel 26 may be accomplished by threads carried by each. In the embodiment depicted central passage 48 terminates at connector 52. Accordingly, fluid flow may be provided from body 40 through lower mandrel 26 by way of central passages 42 and 48, but not through connector 52. Body 40, upper mandrel 24, connector 52 and lower mandrel 26 are aligned with central axis 100.

[0048] Referring back to FIGS. 1 and 2, each slip 28 has an exterior surface 60 for selectively engaging casing wall 58 or unfinished bore hole. Each slip 28 has an interior surface 62 aligned with exterior surface 60. Each slip 28 has an upper guide surface 64 and a lower guide surface 66.

[0049] Referring to FIGS. 1 and 8, each slip 28 is connected by a hinge pin 68 to a link 34 lower end 70. Each link 34 is also connected by a hinge pin 72 at a link upper end 74 to body 40. In embodiments where links 34 are associated with a link receiver 35, the link upper end 74 may be associated with a link slot 36 along which the link upper end 74 may translate when an associated slip 28 is moved.

[0050] Referring to FIG. 5 a partial cross-section of slips 28 is shown. In the embodiment depicted three (3) slips 28 are spaced in an angular or radial array at 120 degrees radial intervals. Each slip 28 comprises a unitary block with a defined link channel 76 for receiving a corresponding link 34. Links 34 are not depicted in FIG. 5. Still referring to FIG. 5, inner surface 62 is depicted. Inner surface 62 comprises an arc segment 78. Arc segment 78 is curved to conform with outer surface 80 of upper mandrel 24. Upper mandrel 24 is not depicted in FIG. 5. Inner surface 62 further comprises beveled edges 82 on each side of arc segment 78. Beveled edges 82 of each slip inner surface 62 are sized and positioned to abut a beveled edge 82 of an adjacent slip 28 when anchor 10 is in a slip-retracted orientation. In alternative embodiments, the inner surfaces 62 may comprise any other shape or profile configured to allow the slips 28 to compactly be centrally located and, in some cases, abut outer surface 80.

[0051] Referring to FIG. 4, a body guide surface 84 is provided in body 40. Body guide surface 84 is sized and positioned for sliding engagement with upper guide surface 64 of slip 28. Each of body guide surface 84 and upper guide surface 64 is inclined at an angle to axis 100. In the embodiment illustrated body guide surface 84 extends at a 45 degree angle to axis 100 and slip upper guide surface 64 extends at a 135 degree angle to axis 100 (in relation to the y axis of an x-y grid with the axis 100 corresponding to y). In some embodiments, body guide surface 84 may be a feature of the link receiver 35. Further, in alternative embodiments, the angles of incline may be different while still allowing actuation without unduly restrictive friction forces.

[0052] Referring to FIGS. 1, 2, 4, and 8, cylinder cap 38 and cylinder 32 comprise attached cylindrical structures each extending around upper mandrel 24.

[0053] Referring to FIGS. 6, 7, and 8, upper casing 110 comprises a hollow cylindrical structure surrounding cylinder cap 38. Channels 88 are provided in upper casing 110. Each channel 88 is sized and positioned to receive at least a portion of the lower segment of slip 28 when anchor 10 is in a slip-retracted orientation.

[0054] The exterior surface of the cylinder cap 38 comprises a guide surface 90. Each guide surface 90 is sized and positioned for sliding engagement with lower guide surface 66 of slip 28. Each of lower guide surface 66 and guide surface 90 are inclined at angle to axis 100. In the embodiment illustrated guide surface 90 extends at a 150 degree angle to axis 100 and slip lower guide surface extends at a 30 degree angle to axis 100 (in relation to the y axis of an x-y grid with the axis 100 corresponding to y), but the angle may be different in alternative embodiments.

[0055] Referring to FIGS. 1, 8 and 10, a piston 30 is depicted. Piston 30 has an interior surface 94 that slidingly engages exterior surface 80 of upper mandrel 24. Piston 30 comprises a piston head 96 and flange 98. Piston head 96 is fixedly attached to lower housing 102. In the embodiment depicted, such attachment is by threading. Lower housing 102 is a tubular structure surrounding at least a portion of upper mandrel 24 and surrounding at least a portion of lower mandrel 26. As piston 30 is slidable on and in relation to upper mandrel 24 and lower housing 102 is fixedly attached to piston head 96, lower housing 102 is also slidable in relation to upper mandrel 24. Lower housing 102 and upper mandrel 24 define an upper annular opening 104 therebetween.

[0056] A flow orifice 106 is provided in upper mandrel 24. Flow orifice 106 is sized and positioned to allow flow of fluid from passage 48 into annular opening 104. Connector 52 comprises connector flange 111. Connector flange 111 sealingly engages lower housing 102. Piston head 94 sealingly engages lower housing 102. Accordingly, fluid transmitted from passage 48 into annular opening 104 is retained intermediate connector flange 111 and piston head 94.

[0057] Anchor 10 components are sized and structured such that fluid flow into annular opening 104 first fills annular opening 104 with fluid (not shown), then biases piston head 94 upward toward body 40. As cylinder 32 and cylinder cap 38 are each slidable on upper mandrel 26, continued injection of fluid into annular opening 104 pushes all of piston 30, cylinder 32, and cylinder cap 38 upward toward body 40. Such force causes slips 28 to extend outwardly. Interaction of inclined slip upper guide surface 64 with body guide surface 84 facilitates outward movement of slip 28 at slip 28 upper end 70. Interaction of inclined slip lower guide surface 66 with each cylinder cap inclined surface 90 facilitates outward movement of each slip 28 at the slip lower end. In some embodiments, the outward extension of slips 28 occurs without rotating the slips 28 relative to the central axis 100.

[0058] When sufficient fluid is introduced into annular opening **104**, slips **28** will be extended until exterior surfaces **60** of slips **28** engage casing wall **58** or portions of an uncased bore, anchor **10** will be set in a fixed position in relation to casing wall **58** or an uncased bore.

[0059] Hinged link **34** retains slip **28** in its radially extended orientation at slip upper end **70**. Channels **88** provided in upper casing **110** retain the lower end of each slip **28** in its radial orientation at the slip lower end. Additionally, the links **34** and channels **88** provide rotational and/or angular stability to the slips **28** relative to the central axis **100**.

[0060] Referring to FIG. **10**, outer ratchet ring **114** is connected to housing **102**. Accordingly, when housing **102** is forced upward by fluid flow into annular opening **104**, ratchet ring **114** is drawn upward to engage inner ratchet ring **115**. Inner ratchet **115** is fixedly attached to lower mandrel **26**. Ratchet ring **114** and inner ratchet ring **115** accordingly lock housing **102** in a fixed position in relation to lower mandrel **26**, and consequently lock slips **28** in a fixed position.

[0061] To pull the anchor **10** from its locked position within the casing **58**, it is necessary to exert upward tension on mandrels **24** and **26** until shear pins **118** are severed from shear sleeve **122**. Upon such severance, housing **102** will be free to slide in relation to mandrel **26**, allowing piston **30** to drop along the upper mandrel **24** and to allow slips **28** and links **34** to retract back within the tool, and in some embodiments, radially inward beneath an outermost diameter of the body **40**.

[0062] Referring to FIGS. **1** through **6**, a plurality of apertures **130** are provided through slips **28**. Among other things, apertures **130** allow reduction in weight of anchor **10**.

[0063] Referring now to FIGS. **12-14**, oblique side views of an alternative embodiment of an anchor tool **10** are shown with slips **28** mostly retracted, slips **28** partially extended, and slips **28** sufficiently extended to engage a casing **58** wall, respectively. In operation, the anchor tool **10** may be deployed down hole, either inside a casing **58** or in an unfinished or open bore. Such deployment may take place while the slips **28** are in a mostly retracted or fully retracted state as shown in FIG. **12**.

[0064] In the mostly and/or fully retracted state, in some embodiments, the exterior surface **60** of slips **28** may either collectively form an outer diameter substantially similar to or less than an outer diameter of the body **40** and/or the remainder of subassembly **22**. In other words, in some embodiments, the slips **28** may be configured not to protrude radially outward more than a remainder of the subassembly **22** when the slips **28** are in a mostly and/or fully retracted state. As such, the slips **28** may be less likely to present surfaces and/or edges that may undesirably catch or hang on casing **58** features and/or debris within casing **58** and/or an uncased bore. Once the anchor tool **10** is at its desired depth and/or location within the casing **58** and/or bore, fluid pressure may be applied to the anchor tool **10**. FIGS. **12-14** also more clearly show that cylinder cap **38** may be connected to cylinder **32** using a cap bolt **50**.

[0065] As fluid pressure is increased and as the annular opening **104** is increasingly filled with fluid, the piston **30** may be forced to move along the length of the upper mandrel **24**. With sufficient movement of the piston **30** and its associated cylinder **32** and cylinder cap **38**, the inclined guide surface **90** of the cylinder cap **38** may contact the complementary inclined lower guide surfaces **66** of the slips **28**. With continued movement of the cylinder cap **38** toward the body **40**, the slips are increasingly forced radially outward away from the central axis **100**. Even when slips **28** are significantly extended radially outward away from the central axis **100**, and in some embodiments so far as to contact casing **58**, anchor tool **10** is configured to ensure that the slips **28** are robust and resistant to any angular rotation of the anchor tool **10** about the central axis **100**.

[0066] Referring now to FIG. **14**, the robust nature of the anchor tool **10** is more clearly seen. For example, even though the slips **28** are extended far enough to contact casing **58**, the links **34** and the slips **28** remain sufficiently angularly captured between robust adjacent components to prevent any significant angular displacement and/or damage to the links **34** and the slips **28**. It may be important to prevent such damage to the links **34** and the slips **28** so that they are maintained in a retractable condition that promotes the above-described selective retraction and subsequent removal of the anchor tool **10**. Specifically, even when substantially radially extended, the slips are angularly bounded by adjacent walls of both inclined channels **88** and body walls **89**. As such, during the course of extending the slips **28** from a retracted position to an extended position, any forces applied to the slips **28** that may promote an angular displacement of the slips **28** may be transferred to the body **40**, the cylinder **32**, and/or the cylinder cap **38**. Similarly, the links **34** are protected against significant angular deflection by link receiver walls **91** of link receiver **35**.

[0067] Referring now to FIG. **15**, a schematic of an alternative embodiment of an anchor tool **200** according to the disclosure is shown. Anchor tool **200** may be substantially similar to anchor tool **10** in the composition of its components and operation, but the actuation mechanism of the anchor tool **200** is different. Specifically, instead of the body **40** being longitudinally fixed relative to the upper mandrel **24** so that cylinder cap **38** can be moved along the upper mandrel **24** toward the body **40**, the cylinder cap **38** is fixed relative to the upper mandrel **24** and the body **40** is movable along the upper mandrel **24**. More specifically, in some embodiments, an actuation mechanism **202** may be provided and associated with the body **40** so that fluid pressures may selectively actuate the body **40** toward and/or away from the cylinder cap **38**. In some embodiments, controlling movement of the body **40** in both directions along the upper mandrel **24** may require multiple and/or selectable fluid paths and/or fluid cavities within actuation mechanism **202**. As such, anchor tool **200** may be operable in substantially the same manner as anchor tool **10** with the exception that it may be the body **40** and associated links **34** and slips **28** (only one shown) that are translated along the length of the upper mandrel **24** to accomplish extension and/or retraction of slips **28**.

[0068] Referring now to FIG. **16**, a partial oblique bottom view of alternative embodiment of a slip **28** is shown. In this embodiment, slip **28** comprises a retainer channel **67** formed along the lower guide surface **66**. Retainer channel **67** may comprise a so-called "T-channel" configured to receive a complementary rail that may be formed lengthwise along guide surface **90** of cylinder cap **38**. In some cases, such a retainer channel **67** may provide improved strength and/or positional stability to the slips **28** as they are retracted. Additionally, the retainer channel **67** and associated complementary rails may further promote the ability for the anchor tools **10**, **200** to selectively and/or partially retract the slips **28** in a controlled manner without fully removing the anchor tools **10**, **200**. Still further, in much the same way retainer channel

67 is provided on lower guide surface 66, retainer channels 67 may be provided on upper guide surfaces 64 of slips 28. In cases where retainer channels 67 are provided on upper guide surfaces 64, body guide surfaces 84 may be provided with the complementary rails for interaction with the retainer channels 67 of the upper guide surfaces 64.

[0069] At least one embodiment is disclosed and variations, combinations, and/or modifications of the embodiment(s) and/or features of the embodiment(s) made by a person having ordinary skill in the art are within the scope of the disclosure. Alternative embodiments that result from combining, integrating, and/or omitting features of the embodiment(s) are also within the scope of the disclosure. Where numerical ranges or limitations are expressly stated, such express ranges or limitations should be understood to comprise iterative ranges or limitations of like magnitude falling within the expressly stated ranges or limitations (e.g., from about 1 to about 10 comprises, 2, 3, 4, etc.; greater than 0.10 comprises 0.11, 0.12, 0.13, etc.). For example, whenever a numerical range with a lower limit, RI, and an upper limit, Ru, is disclosed, any number falling within the range is specifically disclosed. In particular, the following numbers within the range are specifically disclosed: R=RI+k*(Ru−RI), wherein k is a variable ranging from 1 percent to 100 percent with a 1 percent increment, i.e., k is 1 percent, 2 percent, 3 percent, 4 percent, 5 percent, . . . 50 percent, 51 percent, 52 percent, . . . 95 percent, 96 percent, 97 percent, 98 percent, 99 percent, or 100 percent. Moreover, any numerical range defined by two R numbers as defined in the above is also specifically disclosed. Use of the term "optionally" with respect to any element of a claim means that the element is required, or alternatively, the element is not required, both alternatives being within the scope of the claim. Use of broader terms such as comprises, comprises, and having should be understood to provide support for narrower terms such as consisting of, consisting essentially of, and comprised substantially of. Accordingly, the scope of protection is not limited by the description set out above but is defined by the claims that follow, that scope comprising all equivalents of the subject matter of the claims. Each and every claim is incorporated as further disclosure into the specification and the claims are embodiment(s) of the present invention. Further, while the claims herein are provided as comprising specific dependencies, it is contemplated that any claims may depend from any other claims and that to the extent that any alternative embodiments may result from combining, integrating, and/or omitting features of the various claims and/or changing dependencies of claims, any such alternative embodiments and their equivalents are also within the scope of the disclosure.

What is claimed is:

1. An anchor tool, comprising:
a body;
a plurality of slips coupled to said body;
each said slip hingedly coupled to a link at a first end;
each said slip slidably retained in a channel at a second end;
each said slip operably moveable from a retracted orientation to an expanded orientation.

2. The anchor tool of claim 1, wherein the link is coupled to and selectively received within a complementary link recess of the body.

3. The anchor tool of claim 1, wherein the slip is selectively at least partially received within a complementary slip recess of the body.

4. The anchor tool of claim 1, further comprising a mandrel coupled to the body and extending from the body, and a cap coaxially aligned with the mandrel and having an inclined surface to engage an inclined inner surface of each said slip.

5. The anchor tool of claim 4, wherein the cap is slidably received on the mandrel such that the inclined surface engages each said slip inclined surface between the retracted and expanded orientations.

6. The anchor tool of claim 5, wherein each said link hingedly couples each said slip to the body between the retracted and expanded orientations.

7. The anchor tool of claim 4, wherein the cap is movable in response to application of a fluid pressure to an exterior of the mandrel.

8. The anchor tool of claim 7, wherein in response to moving the cap toward the body, each said slip moves between the retracted orientation and the expanded orientation.

9. An anchor tool, comprising:
a body comprising an outer diameter, the body being substantially coaxially aligned with a central axis of the anchor tool;
a link coupled to the body, the link being both retractable relative to the body and rotatable relative to the body;
a cap comprising an inclined surface, the cap being coaxially aligned with the central axis; and
a slip, the slip being rotatably coupled to the link and the slip comprising an inclined surface configured for selective sliding engagement with the inclined surface of the cap.

10. The anchor tool of claim 9, wherein the link is selectively received within a complementary link recess of the body.

11. The anchor tool of claim 9, wherein the slip is selectively at least partially received within a complementary slip recess of the body.

12. The anchor tool of claim 9, further comprising a mandrel, the mandrel being rigidly coupled to the body and the mandrel being slidably received through the cap.

13. The anchor tool of claim 12, wherein the cap is movable in response to increasing a fluid pressure supplied to the anchor tool.

14. The anchor tool of claim 12, wherein the cap is movable in response to application of a fluid pressure to an exterior of the mandrel.

15. The anchor tool of claim 12, wherein in response to moving the cap, the slip is moved radially relative to the central axis.

16. The anchor tool of claim 15, wherein the slip is substantially prevented from rotating relative to the central axis.

17. The anchor tool of claim 12, wherein the mandrel comprises a central passage and an associated flow orifice for receiving fluid.

18. An anchor tool, comprising:
a body comprising an outer diameter and a recess;
a link pivotally coupled to the body in the recess and below the outer diameter;
a slip pivotally coupled to the link, the slip comprising an engagement surface; and
a cap moveably coupled to the body;
wherein the slip is captured between the body and the cap, the cap moveable to engage a cap engagement surface with the slip engagement surface.

19. The anchor tool of claim **18**, wherein the link is translatable relative to the body.

20. A method of operating an anchor tool, comprising:

locating the anchor tool in a well bore;

altering a fluid pressure supplied to the anchor tool;

moving a cap of the anchor tool toward a body of the anchor tool, wherein a slip of the anchor tool is connected to the body via a rotatable link and wherein the cap comprises an inclined surface; and

in response to moving the cap toward the body, radially moving the slip relative to the central axis while substantially preventing rotation of the slip relative to the central axis.

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