PULLING TOOL FOR USE WITH REELED TUBING AND METHOD FOR REMOVING OPERATING TOOLS FROM WELLBORES

Background of the Invention

This invention relates to a pulling tool and method for removing tools from an oil or gas wellbore, and, more particularly, to such a tool and method which can be used with reeled tubing.

Downhole well operating tools are often used in completed wellbores for performing several functions. Typically, these tools are lowered by a wire line into a downhole location, which can be defined by a landing nipple or the like, and are releasably anchored at their downhole location by a locking mandrel. When it is desired to pull the operating tool out of the wellbore, a pulling tool is used which has a latching assembly for latching to a fishing neck on the locking mandrel to enable the operating tool to be pulled from the wellbore.

However, these types of pulling tools are often ineffective in removing operating tools from wellbores, especially when the tool is jammed in the wellbore and/or

when the wellbore is "deviated", i.e., at least a portion of the wellbore extends in a horizontal, or substantially horizontal, position.

Other limitations in pulling tools are in connection with coiled, or reeled, tubing which replaces the wire line and enables fluids such as water, nitrogen, diesel fuel, corrosion inhibitor, foam acid, etc. to be introduced into the wellbore, as disclosed, for example, in U.S. Patent No. 4,793,417. In these situations two separate procedures are required, one involving connecting a separate nozzle, or the like, to the reeled tubing, inserting same in the wellbore to introduce the fluid into the wellbore and then removing the nozzle from the wellbore. Then the pulling tool is connected to the reeled tubing and inserted into the wellbore to remove the operating tool. The expenditure of time and effort to complete these steps is compounded in cases where the fluid is used to clean sand, or the like, from around the operating tool prior to its removal since, after the initial cleaning, the sand tends to settle back into the operating area during the time it takes to remove the nozzle from the wellbore and insert the pulling tool.

According to one aspect of the invention there is provided a method of pulling a fishing neck attached to

a well operating tool from a downhole location in a wellbore, said method comprising the steps of: connecting a pulling tool to an end of a string of reeled tubing for inserting said pulling tool into said wellbore and towards said fishing neck; introducing fluid into said reeled tubing for passing through said pulling tool; discharging said fluid through said pulling tool to clean said fishing neck and the walls of said wellbore; and latching said pulling tool to said fishing neck as said pulling tool is advanced downhole into engagement with said fishing neck to enable said fishing neck and said operating tool to be pulled from said wellbore the pulling tool being releasable from said fishing neck and being then locked in its released state.

It is possible to arrange that the pulling tool is releasable from said fishing neck in the event said operating tool cannot be pulled from said wellbore by applying either a fluid pressure or a mechanical force to the pulling tool.

The step of latching may comprise urging a latching member in a first direction toward said fishing neck: permitting slidable movement of said latching

member in a direction opposite said first direction as said housing assembly advances within said fishing neck; pivoting said latching member so that said latching member clears said fishing neck; urging said latching member in said first direction; and pivoting said latching member back to its first position to latch to said fishing neck.

According to another aspect of the invention there is provided a pulling tool for pulling a fishing neck attached to a well operating tool from a downhole location in a wellbore, said pulling tool comprising: an elongated tubular housing assembly defining longitudinal bore; means for connecting said housing assembly to an end of a string of reeled tubing for passing said housing assembly through said wellbore and into contact with said fishing neck and for introducing fluid into said longitudinal bore; means disposed on said housing assembly for automatically latching to said fishing neck upon said housing assembly engaging said fishing neck; means for releasing said latching means from said fishing neck to permit said latching and/or pulling tool to be removed from said wellbore; and means operable in said release of the latching means to lock said latching means in the released state.

In one embodiment an elongated tubular housing assembly is connectable to a section of reeled tubing and defines a longitudinal bore through which fluid from the reeled tubing passes. A passage extends through the housing assembly and communicates with its bore for discharging the fluid against the wall of the wellbore and the operating tool to clean same. A latching assembly is disposed on the housing assembly for latching to the fishing neck of the operating tool as the housing assembly is inserted into the fishing neck to enable the fishing neck and the operating tool to be pulled from the wellbore. In the event the operating tool cannot be pulled from the wellbore, the flow of fluid through the passage of the housing assembly can be blocked to enable the fluid pressure to build up in the bore of the housing assembly. The housing assembly operates in response to the build up of this fluid pressure to release the fishing neck and enable the pulling tool to be removed from the wellbore.

Advantageously, the pulling tool is arranged to be utilizable with reeled tubing in a horizontal, or deviated, wellbore.

A specific preferred but nonetheless illustrative embodiment of the present invention is now described by way of example, with reference to the accompanying drawings, wherein:

Figs. 1A and 1B are longitudinal sectional views of the pulling tool of the present invention, with Fig. 1A being an upward continuation of Fig. 1B;

FIGS. 2 and 3 are traverse sectional views taken along the lines 2-2, and 3-3 of FIG. 1B;

FIGS. 4A-4F are elevational views depicting a series of associated components connected between the end of a section of reeled tubing and the pulling tool of FIGS. 1-3, with FIG. 4B being a downward continuation of FIG. 4A, FIG. 4C being a downward continuation of FIG. 4B, FIG. 4D being a downward continuation of FIG. 4C, FIG. 4E being a downward continuation of FIG. 4D and FIG. 4F being a downward continuation of FIG. 4E.

FIG. 5 is a partial view of the latching portion of the tool of FIGS. 1-3 showing the latching operation; and

FIG. 6 is a view similar to FIG. 5 but showing the latching portion of the tool
after the latching operation is completed.

Description of the Preferred Embodiment

Referring specifically to FIGS. 1A and 1B of the drawings, the reference numeral 10 refers, in general, to the pulling tool of the present invention which includes a housing assembly formed by an inner mandrel 12 having a reduced diameter portion 12a defining an outer shoulder 12b, and a counterbore 12c which defines an inner shoulder 12d. As also shown in FIG. 2, six axially extending slots 12e, angularly spaced at 60° degree intervals, are spaced around the outer surface of the mandrel portion 12a.

Also, six radially extending through passages 12f (only one of which is shown in Fig. 1B), also spaced at 60° intervals, are provided through the mandrel portion 12a for reasons to be described.

The housing assembly also includes a tubular crossover 14 extending over the end portion of the mandrel portion 12a in a telescoping coaxial relationship thereto with their respective bores in registry. Threads 16 are formed on the outer surface of the mandrel portion 12a and the inner bore of the crossover 14 to enable the mandrel to be inserted into the end of the crossover in a telescoping, coaxial relationship and secured thereto.

An inner shoulder 14a is formed on the inner surface of the crossover against which the corresponding end of the mandrel 12 abutts. The free end portion 14b (FIG. 1A) of the crossover 14 has an enlarged bore for receiving an appropriately configured end portion of a reeled tubing (not shown), or a component such as a hydraulic jar or the like, as will be described, so that the pulling tool 10 can be inserted into and pulled from a wellbore.

A set screw 18 extends through the corresponding opening formed in the crossover 14 and engages in the corresponding notch formed in the outer surface of the mandrel portion 12a. An O-ring 20 extends in a groove formed in the outer surface of the mandrel portion 12a and

engages an inner surface portion of the crossover 14 to provide a fluid seal. A snap ring 22 extends in a groove formed in the outer surface of the crossover 14 for reasons that will be described.

The housing assembly also includes a tubular core 24 which has a reduced diameter portion 24a extending within the corresponding end portion of the inner mandrel 12. The reduced diameter portion 24a of the core 24 defines a shoulder 24b against which the corresponding end of the mandrel 12 abutts.

Threads 26 are formed on the inner surface of the counterbore 12c of the mandrel 12 and the corresponding outer surface of the reduced diameter portion 24a of the core 24 to enable the core to be inserted into the end of the mandrel in a telescoping coaxial relationship and secured thereto. The bore of the core 24 is in registery with the bore of the mandrel 12 so that a continuous longitudinal bore is formed through the entire housing assembly formed by the registering bores of the crossover 14, the mandrel 12, and the core 24. It is noted that the diameter of the bore of the core 24 is less than that of the mandrel 12 so that a portion of the core projects radially inwardly from the mandrel for reasons to be described. The other end portion of the core 24 has a reduced diameter portion 24c and four flanges 24d (FIG. 3)

which define a shoulder 24e for reasons that will be described. This end portion of the core is closed as shown by the reference 24f.

As also shown in FIG. 3, four fluid passages 28 are provided through the core 24 and are angularly spaced at 90° intervals. Each passage 28 registers with the bore of the core 24 and extends from the inner diameter of the core to the end of the core and at an angle to the longitudinal axis of the core. The ends of the passages 28 at the end of the core 24 are of a reduced diameter to create a jet nozzle effect when fluid is passed therethrough, as will be described.

An outer mandrel, or tubular piston, 30 extends around the intermediate portion of the inner mandrel 12 and has internal bore portions of varying diameters which define two spaced internal shoulders 30a and 30b. In the normal position of the piston 30, the shoulders 30a and 30b are in a spaced relation to the corresponding end surfaces of the crossover 14 and the shoulder 12b of the mandrel 12 respectively.

A pair of diametrically opposed shear pins 32 (one of which is shown in FIG. 1B) extend through a pair of through openings in the piston 30 and into corresponding openings in the mandrel 12 for reasons to be described. The upper end portion of the piston 30 overlaps a

corresponding end portion of the crossover 14 and a continuous groove 30c is formed in the overlapping inner surface of the piston 30. The groove 30c is sized so as to receive the snap ring 22 under conditions that will be described. An O-ring 34 extends in a groove formed in the inner surface of the piston 30 and engages an outer surface of the mandrel portion 12a, and an O-ring 36 extends in a groove formed in the outer surface of the mandrel 12 and engages an inner surface of the piston for providing fluid sealing.

Four retaining dogs 40 are angularly spaced at 90° intervals around the outer surface of the core 24 including the reduced diameter portion 24c. Each dog 40 has an enlarged end portion 40a which normally engages the shoulder 24e of the core 24, with a portion of the end portion 40a projecting radially outwardly from the flange 24d of the core 24. Each dog 40 also has a ramp portion 40b adjacent its other end, along with an external shoulder 40c and an internal shoulder 40d.

A retaining ring 44 extends around the outer surface of the lower end portion of the inner mandrel 12. Although not clear from FIG. 1A, it is understood that the retaining ring 44 has four windows angularly spaced at 90° intervals which extend over the corresponding end portion of the dogs 40. An internal shoulder 44a is formed on the

retaining ring 44 which is normally engaged by the internal shoulder 40d of each dog 40. A compression spring 46 extends over the mandrel 12 and between the corresponding ends of the piston 30 and the retaining ring 44, and normally urges the ring in a downwardly direction as viewed in FIG. 1B.

A tubular housing 50 extends around an end portion of the piston 30, the spring 46, the retaining ring 44 and the corresponding end portions of the dogs 40 in a coaxial relationship thereto. Threads 51 are provided on the inner surface of the housing 50 and the corresponding overlapped outer surface of the piston 30 to secure the housing to the piston in a telescoping coaxial relationship. The housing 50 has two angularly spaced windows 50a formed therethrough which exposes the retaining ring 44. An inwardly-directed flange 50b is provided on the end of the housing 50 which normally extends adjacent the external shoulder 40c of each dog 40.

The tool 10 is attached to the end of one or more of a series or string of associated components depicted in FIGS. 4A-4F. More particularly, the lower end portion of a section of the reeled tubing shown by the reference numeral 54 in FIG. 4A is to connected to one end of a centralizer 56 by a connector 58. The centralizer 56 has an enlarged portion 56a which closely corresponds to the

inner diameter of the wellbore and thus functions to limit the tilting and bending of the reeled tubing 54 in the well bore, and thus protect the other components below the centralizer.

One end of a knuckle-joint 60 (FIGS. 4A and 4B) is connected to the other end of the centralizer 56 in order to enable that portion of the assembly shown in FIGS. 4A-4F extending below the knuckle-joint 60 to bend relatively to that portion extending above the knuckle-joint. Thus the assembly can more easily traverse horizontal or deviated wells.

As shown in FIGS. 4B and 4C, the upper end of an accelerator 62 is connected to the lower end of the knuckle-joint 60 and functions to create spring forces to accelerate the pulling tool 10 to create high impact loading in an upwardly direction as will be described. Since the accelerator 62 functions in a conventional manner it will not be described in any further detail.

A weighted stem 64 (FIGS. 4C and 4D) connects the lower end of accelerator 62 to the upper end of a hydraulic jar 66. The stem 64 provides the increased weight and mass necessary to create the high impact loading discussed herein. The hydraulic jar 66 is depicted in FIGS. 4D and 4E and functions in cooperation with the accelerator 62 to provide high impact loading in

an upwardly direction such as in the manner disclosed in U.S. patent application serial number 269,996 filed November 11, 1988 and assigned to the same assignee as the present invention. The lower end of the hydraulic jar 66 is connected to the upper end portion 14b of the tubular cross-over 14 of the pulling tool 10 as shownin FIG. 1A and as described above.

It is understood that each of the components shown in FIGS. 4A-4F, and discussed above, have a through bore for the flow of fluid therethrough so that fluid introduced into the reeled tubing 54 above ground flows through the tubing, the components of FIGS. 4A-4F, and to the pulling tool 10. It is also understood that all of the above described connections between the various components of FIGS. 4A-4F can be conventional and, as such, would normally consist of a male and female portions tubular portions in threaded engagement. Since these connections are conventional they will not be described in any further detail.

The operation of the pulling tool 10 of the present invention will be described assuming that it is desired to retrieve an operating tool (not shown) from a wellbore. As shown in FIG. 1B, an inside fishing neck 70 is attached to the operating tool, either directly or through a locking mandrel, and is of a conventional design and, as

such, is provided with an enlarged end portion 70a defining an inner ramp 70b.

The reeled tubing, along with the tool 10 and the associated components depicted in FIGS. 4A-4F are inserted into the wellbore in any conventional manner such as that disclosed in U.S. Patent No. 4,793,417. During this insertion, the pulling tool 10 is set in the position shown in FIG. 1, i.e. with the dogs 40 extend parallel to the axis of the tool. It is noted that, even if the wellbore is deviated, the structural integrity of the reeled tubing enables the tool 10 to traverse the wellbore.

Fluid is introduced, via the reeled tubing, into the crossover 14 and passes through the continuous longitudinal bore of the housing assembly defined by the crossover 14, the mandrel 12 and the core 24. As the tool 10 traverses the wellbore, the fluid discharges at relative high pressure and velocity through the discharge orifices at the ends of the passages 28 and against the wall of the wellbore to clean same of sand, debris and the like until the tool reaches the proximity of the fishing neck 70.

As the tool 10 approaches the fishing neck 70, the ramp 70b of the fishing neck will engage the projecting enlarged end portions 40a of the dogs 40 and force the

dogs, and therefore the retaining ring 44 upwardly to compress the spring 46. This movement continues until the enlarged end portions 40a of the dogs 40 extend over the reduced diameter portion 24c of the core 24 and the ramp 40b of each dog engages the corresponding end of the mandrel 12. Further movement causes the dogs 40 to pivot about the shoulder 44a of the retaining ring 44 to the position shown in FIG. 5. In this position, the enlarged end portions 40a of the dogs 40 rest on the reduced diameter portion 24c of the core 24 and thus clear the enlarged end portion 70a of the fishing neck 70 as the tool 10 continues its downward movement relative to the fishing neck 70. As this occurs, the compressed spring 46, acting on the retaining ring 44, forces the dogs 40 downwardly, causing them to pivot back to the latching position shown in FIG. 6. Further movement of the tool 10 downwardly results in the end portion 70a of the fishing neck 70 engaging the flange 50b of the housing 50 as shown by the dashed lines in FIG. 6, thus preventing further downward movement of the tool 10 and signaling the operator that the enlarged end 40a of the dogs 40 are resting within, or below, the enlarged end portion 70a of the fishing neck 70 to complete the latching operation.

The tool 10 can then be pulled upwardly by pulling on the reeled tubing connected to the crossover 14, causing

the enlarged end portions 40a of the dogs to engage the enlarged end portion 70a of the fishing neck 70 as shown in FIG. 6. This transmits the upwardly directed forces to the operating tool connected to the fishing neck 70 to pull the operating tool out of the wellbore. It is noted that, when pulling upwardly, the force from the crossover 14 is transmitted to the inner mandrel 12, to the core shoulder 24e, to the ramp portion 40b of the dogs 40a, and to the fishing neck 70. Thus, the housing 50, the pin 32, and the piston 30 remain unloaded during the pulling operation. It is also noted that, during this entire operation, fluid can be continuously introduced, via the reeled tubing, into the longitudinal bore defined by the respective bores of the crossover 14, mandrel 12 and the core 24. The fluid discharges through the passages 28 to clean the fishing neck 70, the operating tool, and the wall of the wellbore surrounding the latter tool.

In the event the operating tool connected to the fishing neck 70 cannot be removed from the wellbore by pulling the tool 10 or by providing high impact loading via the accelerator 62 and the jar 64 due to the fact that the wellbore is deviated, or due to severe jamming, or the like, the tool 10 can be actuated to disengage from the fishing neck 70. To this end, the tool 10 is allowed to move downwardly relative to the operating tool and the

fishing neck 70 to create some slack in the reeled tubing. One or more small steel balls 72 (FIG. 1) are then dropped into the reeled tubing and fall, by gravity and by the pressure of the fluid flowing through the tool 10, on the upper end of the core 24 that projects from the corresponding end of the inner mandrel 12. This seals off further flow of fluid through the bore of the core 24 and out the passages 28.

The fluid pressure in the bore of the mandrel 12 thus builds up and is forced through the passages 12f and into the space between the shoulder 12b of the mandrel 12 and the shoulder 30b of the piston 30. This fluid pressure acts on the shoulders 12b and 30b and on the O-rings 34 and 36 to force the piston 30, and therefore the housing 50, the dogs 40, the ring 44 and the spring 46, upwardly until the pins 32 are sheared. This movement of the piston 30 and the housing 50 causes the flange 50b of the housing to engage the external shoulders 40c of the dogs 40 and move the dogs upwardly. The ramps 40b of the dogs 40 thus engage the corresponding end of the mandrel 12 and pivot the enlarged end portions 40a of the dogs inwardly against the reduced diameter portion 24c of the core 24 and out of releasing engagement with the fishing neck 70.

This upward movement continues until the shoulder 30a of the piston 30 engages the corresponding end of the

crossover 14 at which time a portion of the snap ring 22 snaps into the groove 30c of the piston 30. The piston 30, and therefore the housing 50, the ring 44, the spring 46 and the dogs 40 are thus secured to the mandrel 12. In this position, the O-ring 34 extends over the slots 12e of the mandrel 12 thus permitting the fluid to escape from the slots and relieve the fluid pressure. The operator is thus signaled that the dogs 40 have moved cleared of the fishing neck 70 so that the tool 10 can be pulled from the fishing neck and from the wellbore. The slots 12e also allow fluid to drain from the reeled tubing as the tubing is pulled from the wellbore after the shear release.

The windows 50a are provided in the housing 50 to enable the retaining rings 44 to be manually engaged when the tool is out of the wellbore and on the ground surface to release the tool from the fishing neck 70.

It is thus seen that the pulling tool and method as just described permits several advantages. For example, the tool quickly and precisely latches onto an operating tool to remove the latter tool from a downhole location in a wellbore. Also, the pulling tool can be used to remove an operating tool from a deviated wellbore or a jammed operating tool from any type of wellbore. In addition, the tool of the present invention can be used with the string of reeled tubing 54 and thus receive fluid

for discharging through the passages 28. Further, in the event a operating tool cannot be removed from the wellbore, the pulling tool as described can be pressure released from the fishing neck to enable it to be retrieved from the wellbore.

It is understood that pulling tools of the present invention are not limited to use with inside fishing necks such as the fishing neck 70, but can be modified to retrieve tools associated with outside fishing necks as disclosed in by U.S. Patent No. 4,553,395.

CLAIMS

1. A tool for latching to and/or pulling a well operating tool having a fishing neck from a downhole location in pipe in a wellbore, said tool comprising:

an elongated tubular housing assembly defining a longitudinal bore;

means connecting said housing assembly to an end of a string of reeled tubing for passing said housing assembly through said wellbore and into contact with said fishing neck and for introducing fluid into said longitudinal bore;

means disposed on said housing assembly for automatically latching to said fishing neck upon said housing assembly engaging said fishing neck;

means for releasing said latching means from said fishing neck to permit said latching and/or pulling tool to be removed from said wellbore; and

means operable in said release of the latching means to lock said latching means in the released state.

2. The tool of claim 1 wherein said means for releasing the latching means comprises means for generating a predetermined fluid condition in said bore.

3. The tool of claim 1 or claim 2 further comprising at least one passage extending through said housing assembly and communicating with said longitudinal

bore for discharging said fluid into said wellbore and said fishing neck.

4. The tool of claim 2 together with claim 3 wherein said releasing means comprises:

means for preventing the flow of fluid through said bore and said passage to enable the fluid pressure to build up in said bore; and

means responsive to the build-up of a predetermined fluid pressure in said bore for releasing said latching means from said fishing neck.

5. The tool of claim 4 wherein said releasing means further comprises piston means mounted on said housing assembly and adapted for slidable movement relative thereto in response to said predetermined build-up of fluid pressure, and means connecting said piston means to said latching means to cause releasing movement of said latching means.

6. The tool of claim 5 wherein said releasing means further comprises a plurality of shear pins connecting said piston means to said housing assembly and adapted to shear in response to said predetermined build-up of fluid pressure for permitting said slidable movement of said piston means.

7. The tool of claim 5 or claim 6 further

comprising means responsive to a predetermined movement of said piston means for relieving said fluid pressure to signal that said latching means has been released.

8. The tool of any one of claims 5 to 7 wherein said means for locking the latching means in its released position comprise means responsive to a predetermined movement of said piston means to connect said piston means to said housing.

9. The tool of any one of claims 3 to 8 wherein said housing assembly comprises a mandrel, a tubular core having a portion extending in one end of said mandrel in a telescoping coaxial relationship thereto and means for securing said core to said mandrel.

10. The tool of claim 9 wherein the bore of said core registers with the bore of said mandrel to form a portion of said longitudinal bore, and wherein said passage extends from the inner surface of said core to the outer surface thereof at an angle to the axis thereof.

11. The tool of any one of claims 1 to 4 wherein said housing assembly comprises a mandrel, a tubular core having a portion extending in one end of said mandrel in a telescoping coaxial relationship thereto and means for securing said core to said mandrel, piston means extending over said mandrel in a coaxial telescoping relationship,

shear means connecting said piston means to said mandrel, and means connecting said latching means to said piston means for movement therewith.

12. The tool of claim 11 when dependent to any one of claims 2 to 4 wherein said mentioned releasing means comprises a gap being provided between said piston means and said mandrel into which said fluid enters from said longitudinal bore in response to its pressure obtaining a predetermined value, thereby to shear said shear means for moving said piston means and said latching means to release the latching means.

13. The tool of claim 11 or claim 12 further comprising means responsive to a predetermined amount of said movement of said piston means to reconnect said piston means to said housing assembly for locking said latching means in its released position.

14. The pulling tool of any one of claims 11 to 13 when dependent to any one of claims 2 to 4 further comprising means responsive to a predetermined amount of said movement of said piston means for relieving said fluid pressure to signal that said latching means has been released.

15. The tool of any one of claims 1 to 4 wherein said latching means are releasable from the fishing neck

by the application of a mechanical force.

16. The tool of claim 15 wherein said releasing means comprises piston means disposed on said housing assembly and adapted for sliding movement thereon in response to the application of a predetermined longitudinal force between said piston means and the housing assembly, said piston means having an end face opposed to an end face of the fishing neck and said housing assembly being displaceable to bring said end faces into abutment for putting the piston means in said slidably movable condition to shift the latching means to a released position.

17. The tool of any one of the preceding claims wherein said latching means comprises at least one elongated latching member normally extending over said housing assembly in a parallel relation to said bore, said latching member having an enlarged end portion sized to engage a corresponding enlarged end portion of said fishing neck.

18. The tool of claim 17 further comprising resilient means normally urging said latching member in a first direction towards said fishing neck and adapted to permit movement of said latching member relative to said core in a direction opposite said first direction as said housing assembly advances within said fishing neck, and

means responsive to a predetermined amount of said movement of said latching member in said opposite direction for pivoting said latching member so that said enlarged end portion of said latching member clears said enlarged end portion of said fishing neck, said resilient means then urging said latching member in said first direction and said pivoting means pivoting said latching member back to said parallel position to latch to said fishing neck.

19. The tool of claim 18 wherein, during said movement of said latching member in said opposite direction, said pivoting means pivots said latching member out of engagement with said fishing neck to release said latching member.

20. A method of pulling a fishing neck attached to a well operating tool from a downhole location in a wellbore, said method comprising the steps of: connecting a pulling tool to an end of a string of reeled tubing for inserting said pulling tool into said wellbore and towards said fishing neck; introducing fluid into said reeled tubing for passing through said pulling tool; discharging said fluid through said pulling tool to clean said fishing neck and the walls of said wellbore; and latching said pulling tool to said fishing neck as said pulling tool is advanced downhole into engagement with said fishing neck to enable said fishing neck and said operating tool to be

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pulled from said wellbore, the pulling tool being releasable from said fishing neck and being then locked in its released state.

21. The method of claim 20 wherein the pulling and/or latching tool is released by applying fluid pressure.

22. The method of claim 20 or claim 21 wherein the pulling and/or latching tool is released by applying a mechanical force.

23. A method according to claim 20 wherein said step of releasing comprises the steps of: preventing the flow of fluid through said pulling tool to enable the fluid pressure to build-up in said pulling tool; and releasing said pulling tool from said fishing neck in response to the build-up of a predetermined amount of said fluid pressure.

24. A pulling tool for pulling a fishing neck attached to a well operating tool from a downhole location in a wellbore, arranged and adapted to operate substantially as herein described with reference to and as shown in the accompanying drawings.

25. A method of pulling a fishing neck attached to a well operating tool from a downhole location in a wellbore

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substantially as herein described with reference to the accompanying drawings.

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