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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- of inventorship (Rule 4.17(iv))

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(54) Title: CORROSION RESISTANT SUCKER ROD

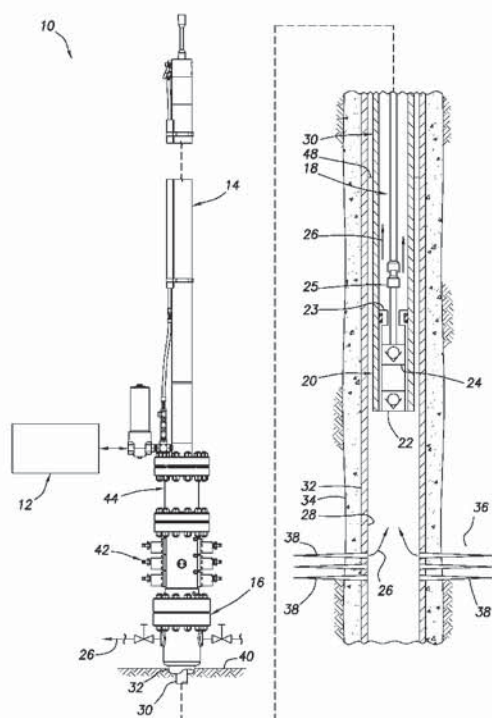


FIG. 1

(57) Abstract: A sucker rod for use in a subterranean well and a method of producing same, in which the method can include air quenching a martensitic stainless steel material of the sucker rod. An artificial lift system and a method of flowing a fluid from a well, in which the method can include connecting multiple air quenched and tempered sucker rods in a rod string connected to a downhole pump, and operating the downhole pump, thereby flowing the fluid from the well. A sucker rod can include a stainless steel sucker rod composition in which a carbon content is restricted to the range of 0.08% to 0.15%, and in which the sucker rod composition includes up to 0.20% vanadium content, up to 0.10% niobium content, up to 0.05% titanium content, up to 0.99% nickel content and/or up to 1.0% molybdenum content.

IN THE WIPO INTERNATIONAL BUREAU

In re International Application of:	WEATHERFORD TECHNOLOGY HOLDINGS, LLC
Application No.:	PCT/US2017/046597
International Filing Date:	11 August 2017
Entitled:	CORROSION RESISTANT SUCKER ROD

ARTICLE 19 AMENDMENT

International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

IN THE CLAIMS:

Amend Claims 1 and 11-28 as follows:

1. (amended) A method of producing a sucker rod for use in a subterranean well, the method comprising:

maintaining a temperature of a martensitic stainless steel material of the sucker rod at ~~approximately~~ an elevated temperature; and

then air quenching the material.

~~11~~ 13. (amended) A sucker rod for use in a subterranean well, the sucker rod comprising:

a stainless steel sucker rod composition in which a carbon content is restricted to the range of 0.08% to 0.15%, and in which the sucker rod composition comprises at least one of the group consisting of: up to 0.20% vanadium content, up

to 0.10% niobium content, up to 0.05% titanium content, up to 0.99% nickel content and up to 1.0% molybdenum content.

~~42~~ 14. (amended) The sucker rod of claim ~~44~~ 13, in which the sucker rod composition comprises about 0.05% vanadium content, about 0.5% nickel content, and about 0.20% molybdenum content.

~~43~~ 15. (amended) The sucker rod of claim ~~44~~ 13, in which the sucker rod composition comprises about 0.05% vanadium content, about 0.95% nickel content, and about 0.50% molybdenum content.

~~44~~ 16. (amended) The sucker rod of claim ~~44~~ 13, in which the sucker rod composition comprises about 0.04% niobium content, about 0.5% nickel content, and about 0.20% molybdenum content.

~~45~~ 17. (amended) The sucker rod of claim ~~44~~ 13, in which the sucker rod composition comprises about 0.015% titanium content, about 0.5% nickel content, and about 0.20% molybdenum content.

~~46~~ 18. (amended) The sucker rod of claim ~~44~~ 13, in which a chromium content of the sucker rod composition is 11.5 to 13.0%.

~~47~~ 19. (amended) A method of flowing a fluid from a subterranean well, the method comprising:

producing multiple sucker rods, the producing comprising maintaining a temperature of a martensitic stainless steel material of the sucker rods at approximately an elevated temperature, and then air quenching the material;

connecting the sucker rods in a rod string, the connecting including connecting the rod string to a downhole pump; and

operating the downhole pump, thereby flowing the fluid from the well.

~~18~~ 20. (amended) The method of claim ~~17~~ 19, in which the elevated temperature is approximately 982°C +/- 8°C.

~~19~~ 21. (amended) The method of claim ~~18~~ 20, in which the elevated temperature is maintained for approximately 30 minutes.

~~20~~ 22. (amended) The method of claim ~~17~~ 19, in which the producing further comprises tempering the material after the air quenching.

~~21~~ 23. (amended) The method of claim ~~20~~ 22, in which the tempering comprises maintaining the temperature of the material at a tempering temperature of approximately 649°C +/- 14°C.

~~22~~ 24. (amended) The method of claim ~~21~~ 23, in which the tempering further comprises maintaining the material at the tempering temperature for a duration of approximately 45 minutes to approximately one hour.

~~23~~ 25. (amended) The method of claim ~~17~~ 19, in which the producing further comprises forging the material.

~~24~~ 26. (amended) The method of claim ~~23~~ 25, in which the forging comprises elevating the temperature of the material to approximately 1288°C +/- 28°C prior to deforming the material.

~~25~~ 27. (amended) The method of claim ~~23~~ 25, in which the forging comprises configuring the sucker rod for forming on the material at least one of the group consisting of wrench flats and threads.

~~26~~ 28. (amended) The method of claim ~~47~~ 19, further comprising restricting a carbon content of the material to the range of 0.08% to 0.15%.

~~27~~ 29. (amended) The method of claim ~~26~~ 28, in which the material comprises at least one of the group consisting of: up to 0.20% vanadium content, up to 0.10% niobium content, up to 0.05% titanium content, up to 0.99% nickel content and up to 1.0% molybdenum content.

~~28~~ 30. (amended) An artificial lift system produced by the method of claim ~~47~~ 19.

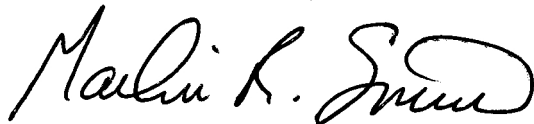
REMARKS

Claims 1-28 were originally presented for consideration in this application. No claims have been canceled or added. However, due to a claim numbering error identified in Box No. VII of the Written Opinion (PCT/ISA/237) and corrected above, the number of claims as originally filed is 30. Therefore, Claims 1-30 remain in the application.

Claims 11-30 been amended above to correct the claim numbering error, in which claim numbers 11 and 12 were duplicated. In addition, claims 1 and 19 have been amended to delete the extraneous word "approximately" (since a certain elevated temperature is not recited in claims 1 and 19). The amendment is effected in the form of replacement sheets 15 and 17-19 enclosed herewith. Also attached is a Letter as required by Section 205.

Respectfully submitted,

SMITH IP SERVICES, P.C.

A handwritten signature in black ink, appearing to read "Marlin R. Smith". The signature is fluid and cursive, with the first name "Marlin" being the most prominent part.

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