be disposed within a spool of a wellhead that supports both the hanger and the string. For example, a hanger may be lowered into a spool by a drilling string. During the running or lowering process, the hanger may be latched to a hanger running tool, such as a tubing hanger running tool (THRT), thereby coupling the hanger to the drilling string. Once the hanger has been lowered into a landed position within the spool, the hanger may be locked into position. The hanger running tool may then be unlatched from the hanger and extracted from the wellhead by the drilling string.

SUMMARY

[0004a] According to a first aspect, there is provided an oilfield tool comprising a hanger running tool for a hanger, the hanger running tool comprising: an outer sleeve configured to engage the hanger to couple the hanger running tool to the hanger; and an inner driving sleeve selectively axially movable within the outer sleeve and rotationally stationary with respect to the outer sleeve for engagement with the hanger to prevent relative rotation between the hanger running tool and the hanger, wherein the inner driving sleeve is located completely within the outer sleeve.

[0004b] According to a second aspect, there is provided a system to install a tubular string in a well, the system comprising: a hanger; and a hanger running tool, comprising: an outer sleeve configured to engage the hanger to couple the hanger running tool to the hanger; and an inner driving sleeve selectively axially movable within the outer sleeve and rotationally stationary with respect to the outer sleeve for engagement with the hanger to prevent relative rotation between the hanger running tool and the hanger.

[0004c] According to a third aspect, there is provided a hanger running tool for a hanger, the hanger running tool comprising: an outer sleeve configured to threadedly engage the hanger to couple the hanger running tool to the hanger; and an inner driving sleeve selectively axially movable within the outer sleeve and rotationally stationary with respect to the outer sleeve for engagement with the hanger to prevent threaded disengagement between the outer sleeve and the hanger, wherein the inner driving sleeve is located completely within the outer sleeve.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] For a detailed description of embodiments of the subject disclosure, reference will now be made to the accompanying drawings in which:

[0006] FIG. 1A shows a cross-sectional view of a hanger in accordance with one or more embodiments of the present disclosure;

[0007] FIG. IB shows a perspective view of the hanger in accordance with one or more embodiments of the present disclosure;

[0008] FIG. 2A shows a cross-sectional view of a hanger running tool and a hanger in an engaged position in accordance with one or more embodiments of the present disclosure;

[0009] FIG. 2B shows a cross-sectional view of the hanger running tool and the hanger in a disengaged position in accordance with one or more embodiments of the present disclosure;

[0010] FIG. 3 shows a cross-sectional view of a hanger running tool and a hanger in accordance with one or more embodiments of the present disclosure;

[0011] FIG. 4 shows a detailed view of a castellated surface of a hanger running tool and a castellated surface of a hanger in accordance with one or more embodiments of the present disclosure;

[0012] FIG. 5 shows a cross-sectional axial view of a hanger running tool in accordance with one or more embodiments of the present disclosure;

CLAIMS

What is claimed is:

1. An oilfield tool comprising a hanger running tool for a hanger, the hanger running tool comprising:

an outer sleeve configured to engage the hanger to couple the hanger running tool to the hanger; and

an inner driving sleeve selectively axially movable within the outer sleeve and rotationally stationary with respect to the outer sleeve for engagement with the hanger to prevent relative rotation between the hanger running tool and the hanger, wherein the inner driving sleeve is located completely within the outer sleeve.

2. The tool of claim 1, wherein the inner driving sleeve comprises an inner driving sleeve engagement surface comprising a castellated surface, and wherein the outer sleeve comprises an outer sleeve mating surface comprising a threaded surface.

3. The tool of claim 2, further comprising the hanger comprising:

a hanger mating surface comprising a threaded surface corresponding to the threaded surface of the outer sleeve mating surface; and

a hanger engagement surface comprising a castellated surface corresponding to the castellated surface of the inner driving sleeve engagement surface.

4. The tool of claim 3, wherein the hanger further comprises a second hanger mating surface configured to mate the hanger with a tubular string, wherein the first hanger mating surface comprises one of a right-hand thread form and a left-hand thread form, and wherein the second hanger mating surface comprises the other of the right-hand thread form and the left-hand thread form.

5. The tool of claim 3, wherein at least one of the castellated surface of the inner driving sleeve engagement surface and the castellated surface of the hanger engagement surface comprises a plurality of castellations, and wherein one side of the plurality of castellations comprises a tapered edge.

6. The tool of claim 3, wherein the inner driving sleeve is axially movable with respect to the outer sleeve between an engaged position and a disengaged position such that, in the engaged position, the inner driving sleeve engagement surface is configured to engage the hanger engagement surface of the hanger to rotate the hanger with the hanger running tool, and in the disengaged position, the inner driving sleeve engagement surface is configured to disengage from the hanger engagement surface of the hanger.

7. The tool of claim 1, wherein the inner driving sleeve is selectively axially movable within the outer sleeve between an engaged position and a disengaged position, the inner driving sleeve engageable with the hanger in the engaged position to prevent relative rotation

between the hanger running tool and the hanger.

8. The tool of claim 7, wherein the outer sleeve comprises a groove formed on an inner surface thereof, the inner sleeve being movable within the groove between the engaged position and the disengaged position.

9. The tool of claim 1, wherein the inner driving sleeve comprises a plurality of segments.

10. The tool of claim 9, further comprising a key engageable with and axially movable within a keyway between the outer sleeve and the inner driving sleeve to prevent relative rotation between the inner driving sleeve and the outer sleeve.

11. The tool of claim 1, further comprising a stud engageable with and axially movable within a slot between the outer sleeve and the inner driving sleeve to selectively enable axial movement of the inner driving sleeve with respect to outer sleeve.

12. The tool of claim 11, further comprising a securing mechanism to secure the stud within the slot to selectively enable axial movement of the inner driving sleeve with respect to outer sleeve.

13. The tool of claim 11, further comprising a seal positioned about the slot between the outer sleeve and the inner driving sleeve to prevent fluid from passing through the slot between the outer sleeve and the inner driving sleeve.

14. A system to install a tubular string in a well, the system comprising:

a hanger; and

a hanger running tool, comprising:

an outer sleeve configured to engage the hanger to couple the hanger running tool to the hanger; and

an inner driving sleeve selectively axially movable within the outer sleeve and rotationally stationary with respect to the outer sleeve for engagement with the hanger to prevent relative rotation between the hanger running tool and the hanger.

15. The system of claim 14, wherein:

the hanger comprises a hanger mating surface and a hanger engagement surface;

the outer sleeve comprises an outer sleeve mating surface configured to mate with the hanger mating surface; and

the inner driving sleeve comprises an inner driving sleeve engagement surface configured to engage with the hanger engagement surface.

16. The system of claim 15, wherein the hanger further comprises a second hanger mating surface configured to engage and couple the hanger with the tubular string.

17. The system of claim 16, wherein the first hanger mating surface comprises one of a right-

hand thread form and a left-hand thread form, and wherein the second hanger mating surface comprises the other of the right-hand thread form and the left-hand thread form.

18. The system of claim 16, wherein engagement of the hanger engagement surface with the inner driving sleeve engagement surface enables the hanger running tool to rotate the hanger such that the second hanger mating surface of the hanger mates with the tubular string without un-mating the first hanger mating surface with the outer sleeve mating surface.

19. The system of claim 14, wherein engagement of the hanger with the inner driving sleeve enables the hanger running tool to rotate the hanger in a first direction and disables the hanger running tool to rotate the hanger in a second direction.

20. The system of claim 19, wherein:

the hanger comprises a hanger engagement surface comprising a castellated surface;

the inner driving sleeve comprises an inner driving sleeve engagement surface comprising a castellated surface corresponding to the castellated surface of the hanger engagement surface; and

one of the castellated surfaces comprises a plurality of castellations with one side of the plurality of castellations comprising a tapered edge.

21. A hanger running tool for a hanger, the hanger running tool comprising:

an outer sleeve configured to threadedly engage the hanger to couple the hanger running tool to the hanger; and

an inner driving sleeve selectively axially movable within the outer sleeve and rotationally stationary with respect to the outer sleeve for engagement with the hanger to prevent threaded disengagement between the outer sleeve and the hanger, wherein the inner driving sleeve is located completely within the outer sleeve.

22. The tool of claim 21, wherein the inner driving sleeve is selectively axially movable with respect to the outer sleeve between an engaged position and a disengaged position such that, in the engaged position, an inner driving sleeve engagement surface of the inner driving sleeve is configured to engage a hanger engagement surface of the hanger to rotate the hanger with the hanger running tool, and in the disengaged position, the inner driving sleeve engagement surface is configured to disengage from the hanger engagement surface of the hanger.