

LANDING SYSTEM

BACKGROUND

[0001] This section is intended to introduce the reader to various aspects of art that may be related to various aspects of the present invention, which are described and/or claimed below. This discussion is believed to be helpful in providing the reader with background information to facilitate a better understanding of the various aspects of the present invention. Accordingly, it should be understood that these statements are to be read in this light, and not as admissions of prior art.

[0002] In some drilling and production systems, hangers, such as a tubing hanger, may be used to suspend strings of tubing for various flows in and out of a well. Such hangers may be disposed within a wellhead that supports both the hanger and the string. For example, a tubing hanger may be lowered into a wellhead and supported therein. To facilitate the running or lowering process, the tubing hanger may couple to a tubing hanger running tool (THRT). Once the tubing hanger has been lowered into a landed position within the wellhead by the THRT, the tubing hanger may then be locked into position. The THRT may then be disconnected from the tubing hanger and extracted from the wellhead. Unfortunately, wellheads components (e.g., spools) with preformed ledges or landings reduce the size of the bore, which requires either smaller drilling equipment or larger more expensive wellheads with larger bores.

SUMMARY

[0002A] According to a first aspect, there is provided a system, including: a landing system, including: a landing member configured to move between an extended position and a retracted position inside an axial bore of a mineral extraction system component; a shaft configured to drive the landing member in a first radial direction; an actuation system configured to move the shaft in the first radial direction within the axial bore to move the landing member into the

extended position; and a spring configured to drive the shaft in a second radial direction to retract the landing member.

[0002B] According to a second aspect, there is provided a system including: a mineral extraction system, including: a spool comprising an axial bore and a radial bore fluidly coupled to the axial bore; a landing system configured to support a component wherein, the landing system includes: a landing member configured to move between an extended position and a retracted position inside the axial bore of the spool; a shaft configured to drive the landing member in a first radial direction; an actuation system configured to drive the shaft in the first radial direction within the radial bore to move the landing member into the extended position; and a spring configured to drive the shaft in a second radial direction within the radial bore to retract the landing member.

[0002C] According to a third aspect, there is provided a method, including: driving a shaft in a first radial direction with respect to an axial bore of a mineral extraction system with an actuation system; and driving a landing member in the first radial direction into the axial bore with the shaft, wherein the landing member is configured to support a mineral extraction system component.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] Various features, aspects, and advantages of the present invention will become better understood when the following detailed description is read with reference to the accompanying figures in which like characters represent like parts throughout the figures, wherein:

[0004] FIG. 1 is a block diagram of an embodiment of a mineral extraction system with a landing system;