VERTICAL LIFT ROTARY TABLE

BACKGROUND

[0002] This section is intended to introduce the reader to various aspects of art that may be related to various aspects of the present disclosure, 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 disclosure. Accordingly, it should be understood that these statements are to be read in this light, and not as admissions of prior art.

[0003] Advances in the petroleum industry have allowed access to oil and gas drilling locations and reservoirs that were previously inaccessible due to technological limitations. For example, technological advances have allowed drilling of offshore wells at increasing water depths and in increasingly harsh environments, permitting oil and gas resource owners to successfully drill for otherwise inaccessible energy resources. Likewise, drilling advances have allowed for increased access to land based reservoirs.

[0004] Much of the time spent in drilling to reach these reservoirs is wasted "non-productive time" (NPT) that is spent in doing activities which do not increase well depth, yet may account for a significant portion of costs. For example, when drill pipe is pulled out of or lowered into a previously drilled section of well it is generally referred to as "tripping." Accordingly, tripping-in may include lowering drill pipe into a well (e.g., running in the hole or RIH) while tripping-out may include pulling a drill pipe out of the well (pulling out of the hole or POOH). Tripping operations may be performed to, for example, installing new casing, changing a drill bit as it wears out, cleaning and/or treating the drill pipe and/or the wellbore to allow more efficient drilling, running in various tools that perform specific jobs required at certain times in the oil well construction plan, etc. Additionally, tripping operations may require a large number of threaded pipe joints to be disconnected (broken-out) or connected (made-up). This process may involve halting of the pipe joints at a fixed position to allow for the tripping operation to be undertaken, which can greatly extend the time required to complete a tripping operation.

[0004a] According to a first aspect, there is provided a system, including: a movable platform slidingly coupled to one or more supports and configured to be selectively moved towards a drill floor and away from the drill floor; a roughneck disposed on the movable

platform and configured to make up or break out a threaded joint between a first tubular segment and a second tubular segment; and a support member disposed on the movable platform and configured to support one of the first tubular segment or the second tubular segment as the movable platform is selectively moved towards the drill floor or away from the drill floor, wherein the support member comprises a receptacle having a base configured to provide support to the first tubular segment in a first direction away from the drill floor when a first bottommost portion of the first tubular segment is disposed into the receptacle or to provide support to the second tubular segment in the first direction away from the drill floor when a second bottommost portion of the second tubular segment is disposed into the receptacle.

[0004b] According to a second aspect, there is provided a method, including: grasping a first tubular segment via slips of a movable platform; moving the movable platform along one or more supports towards a drill floor; supporting a second tubular segment via a support member of the movable platform as the movable platform moves towards the drill floor, wherein supporting the second tubular segment comprises disposing a bottommost portion of the second tubular segment into a receptacle to directly contact a base of the receptacle to support to the second tubular segment in a first direction away from the drill floor; utilizing the support member to align the second tubular segment with the first tubular segment while the movable platform is moving towards the drill floor; and making-up the first tubular segment and the second tubular segment to directly couple the first tubular segment and the second tubular segment while the movable platform is moving towards the drill floor.

[0004c] According to a third aspect, there is provided an apparatus, including: a movable platform comprising a first portion sized to store a tripping apparatus thereon and a second portion housing slips; a support member configured to support a tubular segment utilized by the tripping apparatus in a tripping operation as the movable platform is selectively moved towards a drill floor or away from the drill floor, wherein the movable platform comprises a third portion sized to store the support member, wherein the support member comprises a receptacle having a base configured to provide support to the tubular segment in a first direction away from the drill floor when a first bottommost portion of the tubular segment is disposed into the receptacle; and a guide member disposed linearly above the support member in the first direction and configured to restrict lateral movement of the tubular segment when the tubular segment is supported by the support member.

CLAIMS

1. A system, comprising:

a movable platform slidingly coupled to one or more supports and configured to be selectively moved towards a drill floor and away from the drill floor;

a roughneck disposed on the movable platform and configured to make up or break out a threaded joint between a first tubular segment and a second tubular segment; and

a support member disposed on the movable platform and configured to support one of the first tubular segment or the second tubular segment as the movable platform is selectively moved towards the drill floor or away from the drill floor, wherein the support member comprises a receptacle having a base configured to provide support to the first tubular segment in a first direction away from the drill floor when a first bottommost portion of the first tubular segment is disposed into the receptacle or to provide support to the second tubular segment in the first direction away from the drill floor when a second bottommost portion of the second tubular segment is disposed into the receptacle.

2. The system of claim 1, wherein the support member is configured to move the first tubular segment or the second tubular segment across the movable platform as the movable platform is selectively moved towards the drill floor or away from the drill floor.

3. The system of claim 1, wherein the support member is configured to move the second tubular segment from a storage position at an edge of an upper face of the movable platform to a deployment position at a central region of the upper face of the movable platform as the movable platform moves towards the drill floor to provide the second tubular segment for the make up of the threaded joint between the first tubular segment and the second tubular segment.

4. The system of claim 1, wherein the support member is configured to move the second tubular segment from a deployment position at an central region of an upper face of the movable platform to a storage position at an edge of the upper face of the movable platform as the movable platform moves away from the drill floor to withdraw the second tubular segment from

the break out of the threaded joint between the first tubular segment and the second tubular segment.

5. The system of claim 1, wherein the base of the receptacle directly contacts the first bottommost portion of the first tubular segment when the first tubular segment is disposed into the receptacle and directly contacts the second bottommost portion of the second tubular segment when the second tubular segment is disposed into the receptacle.

6. The system of claim 5, wherein the receptacle comprises one or more support walls that provide support to the first tubular segment or the second tubular segment in a second direction perpendicular to the first direction.

7. The system of claim 6, wherein the one or more support walls circumferentially surround or partially circumferentially surround the base of the receptacle.

8. The system of claim 5, wherein the support member comprises a movable support configured to move towards and away from the movable platform.

9. The system of claim 8, wherein the movable support comprises a constriction element configured to grasp the first tubular segment or the second tubular segment when disposed in the movable support.

10. The system of claim 9, wherein the support member is configured be coupled to a guide or track, wherein the support member is configured to move along the guide or track between a storage position at an edge of an upper face of the movable platform and a deployment position at a central region of the upper face of the movable platform.

11. The system of claim 5, wherein the support member comprises an arm comprising the receptacle, wherein the arm is configured to rotate between a storage position at an edge of an upper face of the movable platform and a deployment position at a central region of the upper face of the movable platform.

12. A method, comprising:

grasping a first tubular segment via slips of a movable platform;

moving the movable platform along one or more supports towards a drill floor;

supporting a second tubular segment via a support member of the movable platform as the movable platform moves towards the drill floor;

utilizing the support member to align the second tubular segment with the first tubular segment while the movable platform is moving towards the drill floor, wherein supporting the second tubular segment comprises disposing a bottommost portion of the second tubular segment into a receptacle to directly contact a base of the receptacle to support to the second tubular segment in a first direction away from the drill floor; and

making-up the first tubular segment and the second tubular segment to directly couple the first tubular segment and the second tubular segment while the movable platform is moving towards the drill floor.

13. The method of claim 12, wherein utilizing the support member comprises moving the support member across the movable platform as the movable platform is moved towards the drill floor or away from the drill floor.

14. The method of claim 13, wherein moving the support member comprises rotating an arm of the support member across an upper face of the movable platform from a storage position at an edge of the upper face of the movable platform to a deployment position at a central region of the upper face of the movable platform.

15. The method of claim 12, wherein utilizing the support member comprises grasping the second tubular segment and removing the second tubular segment from a receptacle of the support member in a direction away from the drill floor.

16. The method of claim 15, wherein utilizing the support member comprises moving the support member along an upper face of the movable platform from a storage position at an edge of the upper face of the movable platform to a deployment position at a central region of the upper face of the movable platform.

17. An apparatus, comprising:

a movable platform comprising a first portion sized to store a tripping apparatus thereon and a second portion housing slips;

a support member configured to support a tubular segment utilized by the tripping apparatus in a tripping operation as the movable platform is selectively moved towards a drill floor or away from the drill floor, wherein the movable platform comprises a third portion sized to store the support member, wherein the support member comprises a receptacle having a base configured to provide support to the tubular segment in a first direction away from the drill floor when a first bottommost portion of the tubular segment is disposed into the receptacle; and

a guide member disposed linearly above the support member in the first direction and configured to restrict lateral movement of the tubular segment when the tubular segment is supported by the support member.

18. The apparatus of claim 17, wherein the support member is configured to move the tubular segment across the movable platform as the movable platform is selectively moved towards the drill floor or away from the drill floor.

19. The apparatus of claim 18, wherein the guide member is configured to move in conjunction with the tubular segment across the movable platform.

20. The apparatus of claim 17, comprising an actuating system coupled to the guide member and configured to selectively move the guide member towards the drill floor and away from the drill floor.