over the wellhead), installing equipment to the lift frame when the lift frame is in the working position to provide, for example, well access to the installed equipment, removing equipment from the lift frame when an operation is complete, and subsequently storing the lift frame. It would be desirable to reduce the amount of time spent in installing and equipping a lift frame for operations, de-equipping the lift frame, and removing the lift frame for storage.

SUMMARY OF INVENTION

[0004a] According to a first aspect of the present invention, there is provided a device, including: a member arm comprising a releasable locking feature configured to couple the member arm to a lift frame of an offshore vessel; and a base configured to be coupled to a drill floor of the offshore vessel, wherein the base comprises a joint configured to allow for rotation of the member arm and the lift frame between a storage position having a first angle between the member arm and the drill floor and a deployment position having a second angle between the member arm and the drill floor, wherein the releasable locking feature is configured to disengage to decouple the lift frame from the member arm once the member arm and the lift frame are in the deployment position, wherein the releasable locking feature is configured to engage to couple the lift frame to the member arm into the deployment position from a raised position of the lift frame.

[0004b] According to a second aspect of the present invention, there is provided a system, including: a storage rack configured to be coupled to a lift frame of an offshore vessel; a winch configured to be coupled to a bottom portion of the lift frame; and a mechanical actuator configured to cause the storage rack and the lift frame to move between a vertical storage position having a first angle between the storage rack and a drill floor of the offshore vessel and a deployment position having a second angle between the storage rack and the drill floor.

[0004c] According to a third aspect of the present invention, there is provided a non-transitory computer-readable medium having computer executable code stored thereon, the code including instructions to cause a processor to generate control signals to: rotate a storage rack coupled to a lift frame of an offshore vessel from a vertical storage position having a first angle between the storage rack and a drill floor of the offshore vessel to a non-vertical deployment

position having a second angle between the storage rack and the drill floor, wherein the second angle comprises a different angle than the first angle; and actuate a locking mechanism to decouple the lift frame from the storage rack while the storage rack is in the non-vertical deployment position.

BRIEF DESCRIPTION OF DRAWINGS

[0005] FIG. 1 illustrates an example of an offshore platform having a riser coupled to a wellhead;

[0006] FIG. 2 illustrates a front view of a lift frame and associated equipment for use with the offshore platform of FIG. 1;

[0007] FIG. 3 illustrates a perspective view of the lift frame of FIG. 2 in a storage position in a storage rack in the derrick of the offshore platform of FIG. 1;

[0008] FIG. 4 illustrates a perspective view of the lift frame of FIG. 2 in an extended position in the storage rack of the derrick of the offshore platform of FIG. 1;

[0009] FIG. 5 illustrates a perspective view of the lift frame of FIG. 2 in a lifted position in the storage rack of the derrick of the offshore platform of FIG. 1;

[0010] FIG. 6 illustrates a perspective view of the lift frame of FIG. 2 in an operational position in the storage rack of the derrick of the offshore platform of FIG. 1; and

[0011] FIG. 7 illustrates a block diagram of a computing system used in conjunction with the storage rack of FIGS. 2-6.

DETAILED DESCRIPTION

[0012] One or more specific embodiments will be described below. In an effort to provide a concise description of these embodiments, all features of an actual implementation may not be described in the specification. It should be appreciated that in the development of any such actual implementation, as in any engineering or design project, numerous

CLAIMS

1. A device, comprising:

a member arm comprising a releasable locking feature configured to couple the member arm to a lift frame of an offshore vessel; and

a base configured to be coupled to a drill floor of the offshore vessel, wherein the base comprises a joint configured to allow for rotation of the member arm and the lift frame between a storage position having a first angle between the member arm and the drill floor and a deployment position having a second angle between the member arm and the drill floor, wherein the releasable locking feature is configured to disengage to decouple the lift frame from the member arm once the member arm and the lift frame are in the deployment position, wherein the releasable locking feature is configured to engage to couple the lift frame to the member arm into the deployment position from a raised position of the lift frame.

2. The device of claim 1, wherein the member arm is configured to support the lift frame at an angle of approximately 90° with respect to the drill floor as the first angle.

3. The device of claim 1, wherein the member arm is configured to support the lift frame at an angle of approximately 80° with respect to the drill floor as the second angle.

4. The device of claim 1, comprising a second member arm comprising a second releasable locking feature configured to couple the second member arm to the lift frame.

5. The device of claim 1, wherein the member arm extends along a partial length of the lift frame.

6. The device of claim 1, comprising a mechanical actuator configured to apply a pressure to the member arm in the storage position.

7. The device of claim 1, comprising a mechanical actuator configured to apply a pressure to the member arm in the deployment position.

8. The device of claim 7, wherein the mechanical actuator is configured to apply a second pressure to the member arm in the storage position.

9. The device of claim 1, comprising a stopper configured to apply a pressure to the member arm when the member arm is disposed in the deployment position.

10. The device of claim 1, wherein the member arm and the base are sized to be enclosed within a derrick of the offshore vessel concurrently.

11. A system, comprising:

a storage rack configured to be coupled to a lift frame of an offshore vessel;

a winch configured to be coupled to a bottom portion of the lift frame; and

a mechanical actuator configured to cause the storage rack and the lift frame to move between a vertical storage position having a first angle between the storage rack and a drill floor of the offshore vessel and a deployment position having a second angle between the storage rack and the drill floor.

12. The system of claim 11, wherein the winch is configured to provide a resistance force to the lift frame when the lift frame is decoupled from the storage rack.

13. The system of claim 11, wherein the winch is configured to provide a retraction force to move the bottom portion of the lift frame from a first vertical position over the drill floor to the deployment position.

14. The system of claim 11, comprising a computing system configured to control operation of the winch.

15. The system of claim 14, wherein the computing system is configured to control operation of the mechanical actuator.

16. The system of claim 14, wherein the storage rack and the lift frame are sized to be enclosed within a derrick of the offshore vessel concurrently.

17. A non-transitory computer-readable medium having computer executable code stored thereon, the code comprising instructions to cause a processor to generate control signals to:

rotate a storage rack coupled to a lift frame of an offshore vessel from a vertical storage position having a first angle between the storage rack and a drill floor of the offshore vessel to a non-vertical deployment position having a second angle between the storage rack and the drill floor, wherein the second angle comprises a different angle than the first angle; and

actuate a locking mechanism to decouple the lift frame from the storage rack while the storage rack is in the non-vertical deployment position.

18. The non-transitory computer-readable medium of claim 17, comprising instructions to cause the processor to generate control signals to actuate a mechanical actuator to facilitate the rotation of the storage rack from the vertical storage position to the deployment position.

19. The non-transitory computer-readable medium of claim 17, comprising instructions to cause the processor to generate control signals to actuate the locking mechanism to couple the lift frame from the storage rack at a time subsequent to decoupling of the lift frame from the storage rack.

20. The non-transitory computer-readable medium of claim 17, comprising instructions to cause the processor to generate control signals to rotate the storage rack coupled to the lift frame from the deployment position to the vertical storage position.