atop a subsea wellhead could employ a wetmateable connection such that upon engagement of the two components of the signal path, any fluid (e.g. seawater or ambient air) surrounding the connector immediately prior to forming the connection is prevented from interfering with the made-up hydraulic connection. Thus, hydraulic wetmateable connections would prevent surrounding water or air from interfering with the hydraulic fluid of a hydraulic signal path. Similarly, fiber-optic, mechanical, or electrical, wetmateable connections would prevent a surrounding fluid from interfering with the connection or performance of their corresponding optical, mechanical, or electrical signal pathways passing through adjacent subsea wellhead designs.

**[0006]** SUMMARY OF THE CLAIMED SUBJECT MATTER

**[0007]** In one aspect, the present disclosure relates to a method to communicate between a first subsea device and a second subsea device including disposing a first component of a signal pathway upon a distal end of the first subsea device, disposing a second component of the signal pathway upon a proximal end of the second subsea device, engaging the first subsea device with the second subsea device, and engaging the first component of the signal pathway with the second component of the signal pathway, wherein the engaging comprises rotating a slider-crank mechanism attached to the first component of the signal pathway.

**[0008]** In another aspect, the present disclosure relates to a communication link between a first subsea device and a second subsea device including a first component positioned upon a distal end of the first subsea device and a second component positioned upon a proximal end of the second subsea device, wherein one of the first and second components comprises an engaged position and a disengaged position, and wherein the one of the first and second components is configured to be displaced from the disengaged position to the engaged position by a slider-crank mechanism after the first and second subsea devices are engaged.

**[0009]** In another aspect, the present disclosure relates to a method to extend a signal pathway across an adjacent pair of oilfield devices including landing a first oilfield device comprising a first component of the signal pathway to a second oilfield device comprising a second component of the signal pathway, coupling first oilfield device to the second oilfield device, selectively engaging the first component of the signal pathway

with the second component of the signal pathway by a slider-crank mechanism, and testing the integrity of the signal pathway extending across the first oilfield device and the second oilfield device.

## BRIEF DESCRIPTION OF DRAWINGS

**[0010]** Features of the present disclosure will become more apparent from the following description in conjunction with the accompanying drawings.

**[0011]** Figure 1 is a schematic example of a subsea wellhead device stack in accordance with the prior art.

**[0012]** Figure 2A is view of a vertical tree assembly in accordance with embodiment disclosed herein.

**[0013]** Figure 2B is a sectioned side-view drawing of the vertical tree assembly of Figure 2A from the perspective of section line A-A.

**[0014]** Figure 2C is a sectioned side-view drawing of the vertical tree assembly of Figure 2A from the perspective of section line B-B.

**[0015]** Figure 2D is a sectioned side-view drawing of the vertical tree assembly of Figure 2A from the perspective of section line C-C.

**[0016]** Figure 2E is a magnified view of a slider crank mechanism of the vertical tree assembly of Figure 2A-D identified as Detail D in Figure 2C.

**[0017]** Figure 3 is a side view drawing of a slider crank mechanism depicted in stages A-D in accordance with embodiments disclosed herein.

## DETAILED DESCRIPTION

**[0018]** The various embodiments of the present disclosure may include methods and apparatuses to communicate between subsea devices including disposing a first component of a signal pathway to a first subsea device and a second component of the signal pathway to a second subsea device. With the first and second subsea devices installed at their desired location (e.g., atop a subsea wellhead), the first and second subsea devices are able to be engaged together (e.g., secured together with bolting

## CLAIMS

What Is Claimed Is:

1. A method to communicate between a first subsea device and a second subsea device, the method comprising:

disposing a first component of a signal pathway upon a distal end of the first subsea device;

disposing a second component of the signal pathway upon a proximal end of the second subsea device;

engaging the first subsea device with the second subsea device; and

engaging the first component of the signal pathway with the second component of the signal pathway, wherein the engaging comprises rotating a slider-crank mechanism attached to the first component of the signal pathway.

2. The method of claim 1, further comprising engaging the first and second components of the signal pathway after engaging the first and the second subsea devices.

3. The method of claim 1, further comprising testing the integrity of the signal pathway following engagement of the first component and second components.

4. The method of claim 3, further comprising:

disengaging the first and second components of the signal pathway while maintaining the engagement of the first and second subsea devices;

re-engaging the first and second components of the signal pathway; and

re-testing the integrity of the signal pathway following re-engagement of the first and second components.

5. The method of claim 1, wherein the engaging of the first component with the second component comprises displacing at least one of the first component and the second component toward the other of the first component and the second component after the first subsea device is engaged with the second subsea device.

6. The method of claim 1, wherein one of the first and second components of the signal pathway comprises a male connection.

7. The method of claim 6, wherein the other of the first and the second components of the signal pathway comprises a female connection corresponding to the male connection.

8. The method of claim 1, wherein at least one of the first and second components of the signal pathway is wetmateable.

9. The method of claim 1, wherein the first subsea device comprises a vertical tree assembly.

10. The method of claim 1, wherein the second subsea device comprises at least one of a tubing hanger, a wellhead, and a tubing head.

11. The method of claim 1, further comprising permitting communication between the first and second subsea devices through the engaged first and second components of the signal pathway.

12. A communication link between a first subsea device and a second subsea device, the communication link comprising:

a first component positioned upon a distal end of the first subsea device; and

a second component positioned upon a proximal end of the second subsea device;

wherein one of the first and second components comprises an engaged position and a disengaged position; and

wherein the one of the first and second components is configured to be displaced from the disengaged position to the engaged position by a slider-crank mechanism after the first and second subsea devices are engaged.

13. The communication link of claim 12, wherein:

the other of the first and second components comprises an engaged position and a disengaged position; and

the other of the first and second components is configured to be displaced from the disengaged position to the engaged position after the first and second subsea devices are engaged.

14. The communication link of claim 13, wherein both of the first and second components are configured to be displaced from the disengaged position to the engaged position simultaneously.

15. The communications link of claim 12, wherein the one of the first and second components is configured to be displaced from the engaged position to the disengaged position while the first and second subsea devices remain engaged.

16. The communications link of claim 12, further comprising an electrical signal pathway extending across the first and second components when the one of the first and second components is in the engaged position.

17. The communications link of claim 12, further comprising a fiber-optic signal pathway extending across the first and second components when the one of the first and second components is in the engaged position.

18. The communications link of claim 12, further comprising a hydraulic signal pathway extending across the first and second components when the one of the first and second components is in the engaged position.

19. A method to extend a signal pathway across an adjacent pair of oilfield devices, the method comprising:

landing a first oilfield device comprising a first component of the signal pathway to a second oilfield device comprising a second component of the signal pathway;

coupling first oilfield device to the second oilfield device;

selectively engaging the first component of the signal pathway with the second component of the signal pathway by a slider-crank mechanism; and

testing the integrity of the signal pathway extending across the first oilfield device and the second oilfield device.