CLAIMS

1. A system, comprising:

a hanger running tool, comprising

an inner sleeve having a first mating surface configured to engage a second mating surface of a hanger to couple the inner sleeve to the hanger; and

an outer sleeve disposed about the inner sleeve and configured to rotate about a common longitudinal axis with respect to the inner sleeve;

wherein the inner sleeve comprises a first mounting feature configured to selectively engage a second mounting feature of the outer sleeve such that rotation of the outer sleeve drives rotation of the inner sleeve when the first mounting feature is engaged with the second mounting feature.

2. The system of claim 1, wherein the first mating surface comprises first threads configured to interface with second threads of the second mating surface.

3. The system of claim 1, wherein the first and second mounting features are configured to selectively engage one another in a radial direction.

4. The system of claim 1, wherein the first mounting feature comprises one or more spring energized dogs disposed in an exterior surface of the inner sleeve and the second mounting feature comprises one or more spring energized dog pockets disposed on an interior surface of the outer sleeve, and the spring energized dogs are configured to interface with the spring energized

dog pockets when the spring-energized dogs and the spring-energized dog pockets are aligned circumferentially about the common longitudinal axis.

5. The system of claim 1, wherein the outer sleeve comprises a third mating surface disposed on a bottom edge of the outer sleeve, and the third mating surface is configured to mate with a mating surface disposed on a hanger energizing ring.

6. The system of claim 5, wherein the third mating surface comprises outer sleeve castellations configured to mate with energizing ring castellations of the hanger energizing ring.

7. The system of claim 1, wherein the outer sleeve is configured to move axially along the common longitudinal axis with respect to the inner sleeve.

8. The system of claim 7, wherein the outer sleeve comprises a bearing shoulder configured to abut a lower mating edge of the inner sleeve when the outer sleeve is in a maximum vertical position with respect to the inner sleeve.

9. The system of claim 3, wherein the outer sleeve is configured to move axially along the common longitudinal axis with respect to the inner sleeve, the outer sleeve comprises a bearing shoulder configured to abut a lower mating edge of the inner sleeve when the outer sleeve is in a maximum axial position with respect to the inner sleeve, and the first and second mounting features are at a common axial position when the bearing shoulder and lower mating edge abut.

10. A method for running a hanger running tool, comprising:
attaching an inner sleeve of a hanger running tool to a hanger;
lowering the hanger into a housing utilizing the hanger running tool;

locking the hanger to the housing via the hanger running tool by energizing an energizing ring via rotation of an outer sleeve of the running tool about a common longitudinal axis with respect to the inner sleeve of the hanger running tool;

detaching the hanger from the inner sleeve of the hanger running tool; and

retrieving the hanger running tool.

11. The method of claim 10, wherein attaching the inner sleeve to the hanger comprises comprises screwing a threaded mating surface of the hanger to a complimentary threaded mating surface of the hanger running tool; and wherein detaching the hanger from the inner sleeve comprises unscrewing the threaded mating surface of the hanger from the complimentary threaded mating surface of the hanger running tool.

12. The method of claim 10, wherein locking the hanger to the housing via the hanger running tool comprises:

engaging outer sleeve castellations disposed on the outer sleeve of the hanger running tool into castellations of the energizing ring; and

rotating the outer sleeve about the common longitudinal axis with respect to the inner sleeve to cause axial movement of the energizing ring in a first axial direction, wherein the axial movement of the energizing ring in the first axial direction causes a locking ring to expand radially outward and lock into position with respect to the housing.

13. The method of claim 12, wherein detaching the hanger from the inner sleeve of the hanger running tool comprises:

disengaging the outer sleeve castellations from the castellations of the energizing ring;

axially moving the outer sleeve in a second axial direction with respect to the inner sleeve until a first mounting feature of the inner sleeve is at a common axial position as a second mounting feature of the outer sleeve;

rotating the outer sleeve until the first mounting feature of the inner sleeve engages the second mounting feature of the outer sleeve, such that rotation of the outer sleeve causes rotation of the inner sleeve; and

detaching the hanger from the inner sleeve of the hanger running tool by rotating the outer sleeve and the inner sleeve.

14. The method of claim 10, comprising applying an axial force within the hanger subsequent to locking the hanger into the housing to ensure that the hanger is locked in place relative to the housing.

15. The method of claim 10, wherein lowering the hanger into the housing utilizing the hanger running tool comprises:

detecting when the hanger lands on a landing shoulder of the housing; and

halting the lowering of the hanger upon such detection.

16. A system, comprising:

a hanger running tool, comprising:

an inner sleeve having a first mating surface configured to engage a second mating surface of a hanger to couple the inner sleeve to the hanger; and

an outer sleeve disposed about the inner sleeve and configured to rotate about a common longitudinal axis with respect to the inner sleeve;

wherein the outer sleeve comprises a third mating surface disposed on a bottom edge of the outer sleeve, and the third mating surface is configured to mate with a mating surface disposed on a hanger energizing ring.

CLAIMS

1. A system, comprising:

a hanger running tool, comprising:

an inner sleeve having a first mating surface configured to engage a second mating surface of a hanger to couple the inner sleeve to the hanger; and

an outer sleeve disposed about the inner sleeve and configured to rotate about a common longitudinal axis with respect to the inner sleeve:

first and second mounting features, wherein the first and second mounting features are configured to selectively engage one another in a first radial direction between the inner and outer sleeves such that rotation of the outer sleeve drives rotation of the inner sleeve when the first mounting feature is engaged with the second mounting feature, wherein the first mounting feature comprises a radial structure and the second mounting feature comprises a radial recess.

2. The system of claim 1, wherein the first mating surface comprises first threads configured to interface with second threads of the second mating surface.

3. The system of claim 1, wherein the radial structure comprises a spring energized dog and the radial recess comprises a dog pocket.

4. The system of claim 1, wherein the radial structure of the first mounting feature comprises one or more spring energized dogs disposed in an exterior surface of the inner sleeve and the radial recess of the second mounting feature comprises one or more spring energized dog pockets disposed on an interior surface of the outer sleeve, and the spring energized dogs are configured to interface with the spring energized dog pockets when the spring energized dogs and the spring energized dog pockets are aligned circumferentially about the common longitudinal axis.

5. The system of claim 1, wherein the outer sleeve comprises a third mating surface disposed on a bottom edge of the outer sleeve, and the third mating surface is configured to mate with a mating surface disposed on a hanger energizing ring.

6. The system of claim 5, wherein the third mating surface comprises outer sleeve castellations configured to mate with energizing ring castellations of the hanger energizing ring.

7. The system of claim 1, wherein the outer sleeve is configured to move axially along the common longitudinal axis with respect to the inner sleeve.

8. The system of claim 7, wherein the outer sleeve comprises a bearing shoulder configured to abut a lower mating edge of the inner sleeve when the outer sleeve is in a maximum vertical position with respect to the inner sleeve.

9. The system of claim 1, wherein the outer sleeve is configured to move axially along the common longitudinal axis with respect to the inner sleeve, the outer sleeve comprises a bearing shoulder configured to abut a lower mating edge of the inner sleeve when the outer sleeve is in a maximum axial position with respect to the inner sleeve, and the first and second mounting features are at a common axial position when the bearing shoulder and lower mating edge abut.

10. The system of claim 1, wherein the hanger running tool is configured to enable axial translation between the inner and outer sleeves when the first mounting feature of the inner sleeve is selectively disengaged from the second mounting feature of the outer sleeve.

11. The system of claim 10, wherein the hanger running tool is configured to axially translate the outer sleeve relative to the inner sleeve until the outer sleeve rotationally couples to an energizing ring, and the hanger running tool is configured to rotate the outer sleeve to drive rotation and axial movement of the energizing ring to actuate a locking ring to lock the hanger to a housing.

12. A method for running a hanger running tool, comprising:

attaching an inner sleeve of a hanger running tool to a hanger;

lowering the hanger into a housing utilizing the hanger running tool;

selectively disengaging a first mounting feature from a second mounting feature in a first radial direction between the inner sleeve and an outer sleeve of the hanger running tool to change from blocking to enabling rotation between the inner and outer sleeves, wherein the first mounting feature comprises a radial structure and the second mounting feature comprises a radial recess;

locking the hanger to the housing via the hanger running tool by energizing an energizing ring via rotation of the outer sleeve of the hanger running tool about a common longitudinal axis with respect to the inner sleeve of the hanger running tool;

detaching the hanger from the inner sleeve of the hanger running tool; and

retrieving the hanger running tool.

13. The method of claim 12, wherein attaching the inner sleeve to the hanger comprises screwing a threaded mating surface of the hanger to a complimentary threaded mating surface of the hanger running tool; and wherein detaching the hanger from the inner sleeve comprises unscrewing the threaded mating surface of the hanger from the complimentary threaded mating surface of the hanger running tool.

14. The method of claim 12, wherein locking the hanger to the housing via the hanger running tool comprises:

engaging outer sleeve castellations disposed on the outer sleeve of the hanger running tool into castellations of the energizing ring; and

rotating the outer sleeve about the common longitudinal axis with respect to the inner sleeve to cause axial movement of the energizing ring in a first axial direction, wherein the axial movement of the energizing ring in the first axial direction causes a locking ring to expand radially outward and lock into position with respect to the housing.

15. The method of claim 14, wherein detaching the hanger from the inner sleeve of the hanger running tool comprises:

disengaging the outer sleeve castellations from the castellations of the energizing ring;

axially moving the outer sleeve in a second axial direction with respect to the inner sleeve until the first mounting feature of the inner sleeve is at a common axial position as the second mounting feature of the outer sleeve;

rotating the outer sleeve until the first mounting feature of the inner sleeve engages the second mounting feature of the outer sleeve, such that rotation of the outer sleeve causes rotation of the inner sleeve; and

detaching the hanger from the inner sleeve of the hanger running tool by rotating the outer sleeve and the inner sleeve.

16. The method of claim 12, comprising applying an axial force within the hanger subsequent to locking the hanger into the housing to ensure that the hanger is locked in place relative to the housing.

17. The method of claim 12, wherein lowering the hanger into the housing utilizing the hanger running tool comprises:

detecting when the hanger lands on a landing shoulder of the housing; and

halting the lowering of the hanger upon such detection.

18. The method of claim 12, wherein:

selectively engaging the first mounting feature with the second mounting feature in a second radial direction between the inner sleeve and the outer sleeve such that the inner and outer sleeves are rotationally coupled together when rotationally attaching the inner sleeve of the hanger running tool to the hanger; and

selectively engaging the first mounting feature with the second mounting feature in the second radial direction between the inner sleeve and the outer sleeve such that the inner and outer sleeves are rotationally coupled together when rotationally detaching the hanger from the inner sleeve of the hanger running tool.

19. The method of claim 12, comprising operating the hanger running tool to enable axial translation between the inner and outer sleeves.

20. The method of claim 19, comprising axially translating the outer sleeve relative to the inner sleeve until the outer sleeve rotationally couples to the energizing ring, and rotating the outer sleeve to drive rotation and axial movement of the energizing ring to actuate a locking ring to lock the hanger to the housing.

21. The method of claim 12, wherein the radial structure comprises a spring energized dog and the radial recess comprises a dog pocket.

22. A system, comprising:

a hanger running tool, comprising:

an inner sleeve having a first mating surface configured to engage a second mating surface of a hanger to couple the inner sleeve to the hanger; and

an outer sleeve disposed about the inner sleeve and configured to rotate about a common longitudinal axis with respect to the inner sleeve;

wherein the outer sleeve comprises a third mating surface disposed on a bottom edge of the outer sleeve, and the third mating surface is configured to mate with a mating surface disposed on a hanger energizing ring; and

first and second mounting features configured to selectively engage one another in a first radial direction to rotationally couple the inner and outer sleeves, wherein the first and second mounting features are configured to selectively disengage one another in a second radial direction to rotationally uncouple the inner and outer sleeves, and the first mounting feature comprises a radial structure and the second mounting feature comprises a radial recess.

23. A system, comprising:

a hanger running tool, comprising:

a first sleeve comprising a first mounting feature having a radial structure; and

a second sleeve comprising a second mounting feature having a radial recess, wherein the first and second sleeves are concentric with one another, the first and second mounting features are configured to selectively engage in a first radial direction into a locked position or selectively disengage in a second radial direction into an

unlocked position, the first and second sleeves are configured to rotate together while in the locked position, the first and second sleeves are configured to axially slide relative to one another along an axial path of travel between a first axial position and a second axial position while in the unlocked position, and the first and second sleeves are configured to rotate relative to one another at the second axial position while in the unlocked position.

24. The system of claim 23, wherein the first and second mounting features are configured to selectively engage in the first radial direction into the locked position or selectively disengage in the second radial direction into the unlocked position at the first axial position.

25. The system of claim 23, wherein the first and second sleeves are configured to rotate together while in the locked position to selectively engage a rotational coupling or selectively disengage the rotational coupling between the first sleeve and a hanger.

26. The system of claim 25, wherein the rotational coupling comprises threads.

27. The system of claim 23, wherein, at the second axial position while in the unlocked position, the second sleeve is configured to rotate relative to the first sleeve to selectively rotate an energizing ring along threads to actuate a locking ring in a radial direction to lock a hanger to a housing.