CLAIMS

1. A weight set hanger system comprising:

a hanger comprising a hanger shoulder;

a spool body;

a rotationally fixed packoff body resting on the hanger shoulder, the rotationally fixed packoff body comprising a first load shoulder, a second load shoulder, and a plurality of seals;

a first locking ring positioned on the first load shoulder and projecting inward;

a second locking ring positioned on the second load shoulder and projecting outward; and

an actuating ring located above the packoff body and first and second locking rings and comprising a first angled face, and a second angled face;

wherein the actuating ring further comprises a plurality of spring-loaded locking pin assemblies, and in that, in use, the actuating is configured to transmit a pressure to the rotationally fixed packoff body, wherein, in use, the first load shoulder and the first angled face are configured to force the first locking ring away from the actuating ring in a respective groove of the hanger, wherein, in use, the second load shoulder and the second angled face are configured to force the second locking ring away from the actuating ring in a respective groove of the spool body, wherein, in use the plurality of spring-loaded locking pin assemblies are configured to spring towards the hanger, and wherein the plurality of seals seal against the hanger.

2. The weight set hanger system of claim 1, wherein the rotationally fixed packoff body further comprises a plurality of slots.

3. The weight set hanger system of claim 2, wherein the actuator ring further comprises a plurality of alignment screws corresponding with the plurality of slots.

4. The weight set hanger system of claim 1, wherein the spool body concentrically surrounds the hanger and rotationally fixed packoff body.

5. The weight set hanger system of claim 4, wherein the spool body comprises a first groove along the inner diameter thereof.

6. The weight set hanger system of claim 5, wherein the second locking ring is forced into the first groove.

7. The weight set hanger system of claim 5, wherein the hanger further comprises a second groove and a third groove along the outer diameter thereof.

8. The weight set hanger system of claim 7, wherein the first locking ring is forced into the second groove, and wherein the plurality of spring-loaded locking pin assemblies lock into the third groove.

9. The weight set hanger system of claim 4, wherein the plurality of seals additionally seal against the spool body.

10. A method of securing a weight set hanger comprising the steps of:

assembling a pack-off assembly comprising an actuating ring, a packoff body, a plurality of locking rings, a plurality of seals, a plurality of shear pins, and a plurality of spring-loaded locking pin assemblies;

installing a weight set hanger having an outer diameter within the bore of a spool body having an inner diameter, wherein a first groove is located on the inner diameter of the spool body, and wherein a second and a third groove are located on the outer diameter of the weight set hanger;

using a running tool aligned with the spring-loaded locking pin assemblies to install the pack-off assembly into a gap between the outer diameter of the hanger and the inner diameter of the spool body;

stabbing down with the running tool to apply downward pressure to the pack-off assembly and compress the actuating ring against the packoff body, thereby severing the plurality of shear pins, and locking the first locking ring into the first groove, the second locking ring into the second groove, and locking the spring-loaded locking pin assemblies into the third groove; and

rotating the running tool independent of the pack-off assembly to release the plurality of spring-loaded locking pin assemblies and leave the pack-off assembly in place.

11. The method of claim 10, wherein the step of stabbing down with the running tool further comprises forcing the plurality of locking rings away from the pack-off assembly by compressing them between a plurality of shoulders of the packoff body and a plurality of angled faces of the actuating ring.

12. The method of claim 10, wherein the step of stabbing down with the running tool further comprises depressing the plurality of spring-loaded locking pin assemblies into alignment with a plurality of third grooves in the weight set hanger.

13. The method of claim 10, further comprising the steps of:

re-aligning the running tool with the plurality of spring-loaded locking pin assemblies; and

applying an overpull force sufficient to shear the plurality of spring-loaded locking pin assemblies, thereby releasing the actuating ring from the packoff body.