CLAIMS

That which is claimed is:

1. An indexing apparatus comprising:

a tubular body comprising:

a first end and a second end;

a plurality of body detents on the second end of the tubular body, each body detent of the plurality of body detents having a first length and being helically cut; and

a recess in a surface of the tubular body, the recess having a second length that is greater than the first length of each body detent;

a mandrel comprising a plurality of mandrel detents on a surface of the mandrel, each mandrel detent of the plurality of mandrel detents being sized and shaped to engage with a body detent of the plurality of body detents on the second end of the tubular body, and each mandrel detent of the plurality of mandrel detents being helically cut;

a cam sized to be received in the recess of the surface of the tubular body; and

a spring coupled to the first end of the tubular body.

2. The indexing apparatus of claim 1, further comprising a piston positioned at an end of the mandrel for applying a force to the end of the mandrel.

3. The indexing apparatus of claim 1, wherein the cam is fixed to a housing of a tubing string in which the indexing apparatus is positioned.

4. The indexing apparatus of claim 1, wherein the indexing apparatus has a length that is between approximately 1 foot and approximately 4 feet.

5. The indexing apparatus of claim 1, wherein the mandrel is movable axially towards the tubular body in response to a force being applied on an end of the mandrel.

6. The indexing apparatus of claim 5, wherein the tubular body is movable axially away from an end of the cam to disengage the cam from the recess in the surface of the tubular body in response to the force being applied on the end of the mandrel.

7. The indexing apparatus of claim 1, wherein the cam is positioned within a groove in the surface of the mandrel.

8. A tubing assembly, comprising:

a tubing string comprising a housing defining an inner region of the tubing string;

a valve positioned in the inner region of the tubing string; and

an indexing apparatus positioned within the inner region of the tubing string and coupled to the valve, the indexing apparatus further comprising:

a tubular body having a first end and a second end, the tubular body having a plurality of body detents on the second end of the tubular body, each body detent of the plurality of body detents having a first length, the tubular body also having a recess in a surface of the tubular body, wherein the recess has a second length that is greater than the first length of each body detent of the plurality of body detents,

a mandrel comprising a plurality of mandrel detents on a surface of the mandrel, the mandrel detents being sized and shaped to engage with the body detents on the tubular body,

a cam sized to be received in the recess of the surface of the tubular body, and

a spring coupled to the first end of the tubular body.

9. The tubing assembly of claim 8, further comprising a piston at an end of the mandrel for applying a force to the end of the mandrel.

10. The tubing assembly of claim 8, wherein the cam is a separate element from the housing of the tubing string.

11. The tubing assembly of claim 10, wherein the cam is coupled to the housing of the tubing string.

12. The tubing assembly of claim 8, wherein the cam is positioned within a groove in a surface of the mandrel.

13. The tubing assembly of claim 9, wherein the piston is a hydraulic piston that activates in response to a pressure being applied from a surface of a wellbore within which the tubing assembly is positioned.

14. The tubing assembly of claim 8, wherein the tubing assembly has a length that is between approximately 1 foot and approximately 4 feet.

15. The tubing assembly of claim 8, wherein the tubing string is a flow control device.

16. An indexing assembly comprising:

a first tubular body having a plurality of detents on a first end wherein each detent of the plurality of detents is helically cut and has a first length, a surface of the first tubular body defining an inner region of the first tubular body; and

a second tubular body having a plurality of detents on a surface of the second tubular body wherein each detent is helically cut, the plurality of detents being sized to receive the plurality of detents on the first end of the first tubular body, a first end of the second tubular body being sized to be received in the inner region of the first tubular body,

a spring configured to apply a force to a second end of the first tubular body, wherein the force applied by the spring opposes a force applied to a second end of the second tubular body,

a cam sized to be received within a recess in the surface of the first tubular body, the recess having a second length that is greater than the first length,

wherein the first tubular body is rotatable with respect to the second tubular body and may move axially along a longitudinal axis, and

wherein the second tubular body is movable axially along the longitudinal axis.

17. The indexing assembly of claim 16, wherein the cam is fixed in place relative to the first tubular body and the second tubular body.

18. The indexing assembly of claim 16, wherein the second tubular body moves the first tubular body to axially away from an end of the cam to disengage the cam from the recess in the surface of the first tubular body.