What is claimed is:

1. An apparatus for sealing between two tubular members, the apparatus comprising:

upper and lower seal rings joined together as an assembly, each having a seal surface on an inner diameter and an outer diameter;

an energizing ring that spreads the seal surfaces of the lower seal ring inner diameter and the lower seal ring outer diameter apart into sealing engagement with the two tubular members in response to downward movement; and

the upper seal ring seal surfaces being radially deformed into engagement with the tubular members.

2. An apparatus for sealing between two tubular members, the apparatus comprising:

a first and second inner annular sealing ring, each inner annular sealing ring having an inner sealing surface;

a first and second outer sealing ring, the outer sealing rings being located opposite the inner sealing rings, each outer annular sealing ring having an outer sealing surface;

an energizing ring having a first forcing cone and a second forcing cone, each forcing cone being an annular ring having an inner and an outer sloped surface, the inner and outer sloped surfaces diverging from each other from a tip of each forcing cone to a wide point of each forcing cone, the forcing cones protruding in opposite directions from a body of the energizing ring, the first forcing cone located radially between the first inner and outer sealing rings and the second forcing cone located radially between the second inner and outer sealing rings;

an axially moveable ring having end surfaces for transferring axial force to the first inner and first outer sealing rings;

a stationary ring having surfaces for transferring axial force to the second inner and second outer sealing rings; and

wherein moving the axially moveable ring from a first axial position to a second axial position causes

(a) the first inner and outer sealing rings to move from a first sealing ring position to a second sealing ring position relative to the first forcing cone, the sloped surfaces of the first forcing cone spreading the first inner and outer sealing rings radially apart as the first inner and outer sealing rings move to the second axial position;

(b) the energizing ring to move from a first energizing ring position to a second energizing ring position, thereby moving the second forcing cone axially from a first position to a second position relative to the second inner and outer sealing rings, the sloped surfaces of the second forcing cone spreading the second inner and outer sealing rings radially apart as the second forcing cone moves from the first position to the second position.

3. The apparatus according to claim 2, wherein the first and second forcing cones each have a bulbous point, the bulbous point having a wider cross section than the tip or a base of the forcing cones.

4. The apparatus according to claim 2, wherein the inner and outer annular sealing rings are metallic.

5. The apparatus according to claim 4, wherein the sealing surfaces comprise a plurality of ridges, each separated by one of a plurality of grooves.

6. The apparatus according to claim 5, further comprising an inlay located in at least one of the plurality of grooves, the inlay being a softer metal than the sealing rings.

7. The apparatus according to claim 2, wherein the second inner and second outer annular sealing rings do not move in an axial direction when energized by the energizing ring.

8. The apparatus according to claim 2, wherein the wellbore members comprise an outer tubular member and an inner tubular member concentrically located within the outer tubular member to define a housing annulus located there between, wherein the first and second inner annular sealing rings form a seal against an outer diameter of the inner tubular member when the energizing ring is in the second energizing ring position and wherein the first and second outer annular sealing rings form a seal against an inner diameter of the outer tubular member when the energizing ring is in the second energizing ring position.

9. The apparatus according to claim 8, wherein the stationary ring is seated against a shoulder on the inner tubular member.

10. The apparatus according to claim 2, wherein the first inner and outer sealing rings move an axial distance that is greater than an axial distance between the first axial position and the second axial position of the energizing ring.

11. An apparatus for forming a seal between inner and outer tubular members, the apparatus comprising:

a metal annular sealing ring comprising a body having:

an upper inner sealing lip and an upper outer sealing lip extending therefrom and separated by an annular gap, the upper inner sealing lip positioned to form a seal against an outer diameter of the inner tubular member and the upper outer sealing lip positioned to form a seal against an inner diameter of the outer tubular member, and an upper annular guide ring protruding from the gap;

a lower inner sealing lip and a lower outer sealing lip extending therefrom and separated by an annular gap, the lower inner sealing lip positioned to form a seal against an outer diameter of the inner tubular member and the lower outer sealing lip positioned to form a seal against an inner diameter of the outer tubular member, and a lower annular guide ring protruding from the gap;

an axially moveable ring having a moveable inner and a moveable outer energizing ring;

a stationary ring having a stationary inner and a stationary outer energizing ring;

wherein axial movement of the axially moveable ring, from a first position to a second position, axially moves the annular sealing ring a distance less than the axial distance traveled by the axially moveable ring between the first position to the second position, and wherein the moveable energizing rings spread apart the upper inner and outer sealing lips from each other and the stationary energizing rings spread apart the lower inner and outer sealing lips from each other.

12. The apparatus according to claim 11, wherein the moveable inner and outer energizing rings define a u-shaped channel and at least a portion of the upper annular guide ring is positioned in the u-shaped channel.

13. The apparatus according to claim 12, further comprising a barb located on the axially moveable guide ring and catch located on the annular guide ring, wherein the catch engages the barb in the first position.

14. The apparatus according to claim 11, wherein the sealing lips comprise a plurality of ridges, each separated by one of a plurality of grooves.

15. The apparatus according to claim 14, further comprising an inlay located in at least one of the plurality of grooves, the inlay being a softer metal than the sealing lips.

16. The apparatus according to claim 11, wherein the stationary ring is seated against a shoulder located on the inner tubular member.

17. The apparatus according to claim 11, wherein the outer tubular member and the inner tubular member are concentrically located and define a housing annulus located there between, wherein the metal annular sealing ring is located within the housing annulus.

18. An apparatus for sealing between inner and outer tubular members, the apparatus comprising:

a metal annular sealing ring comprising a body having an inner sealing lip and an outer sealing lip extending therefrom and separated by an annular gap, the inner sealing lip positioned to form a seal against an outer diameter of the inner tubular member and the outer sealing lip positioned to form a seal against an inner diameter of the outer tubular member;

an energizing ring having an annular forcing cone protruding therefrom, the forcing cone being an annular ring having an inner and an outer sloped surface, the inner and outer sloped surfaces diverging from each other from a tip to a wide point of the forcing cone, the forcing cone located radially between the sealing lips;

an elastomeric seal located in an annular groove on the energizing ring, the elastomeric seal positioned to form a seal against one of the tubular members; and

a vent passage through the forcing cone, the vent passage having a first opening located between the inner and outer sealing lips and a second opening located on an exterior surface of the energizing ring and spaced apart from the forcing cone.

19. The apparatus according to claim 18, wherein the sealing lips comprise a plurality of ridges, each separated by one of a plurality of grooves.

20. The apparatus according to claim 19, further comprising an inlay located in at least one of the plurality of grooves, the inlay being a softer metal than the sealing lips.

21. The apparatus according to claim 18, wherein a surface of the body is seated against a shoulder located on one of the inner tubular members.

CLAIMS

What is claimed is:

1. An apparatus for sealing between two tubular members, the apparatus comprising:

a first and second inner annular sealing ring, each inner annular sealing ring having an inner sealing surface;

a first and second outer sealing ring, the outer sealing rings being located opposite the inner sealing rings, each outer annular sealing ring having an outer sealing surface;

an energizing ring having a first forcing cone and a second forcing cone, each forcing cone being an annular ring having an inner and an outer sloped surface, the inner and outer sloped surfaces diverging from each other from a tip of each forcing cone to a wide point of each forcing cone, the forcing cones protruding in opposite directions from a body of the energizing ring, the first forcing cone located radially between the first inner and outer sealing rings and the second forcing cone located radially between the second inner and outer sealing rings;

an axially moveable ring having end surfaces for transferring axial force to the first inner and first outer sealing rings;

a stationary ring having surfaces for transferring axial force to the second inner and second outer sealing rings; and

wherein moving the axially moveable ring from a first axial position to a second axial position causes

(a) the first inner and outer sealing rings to move axially from a first sealing ring axial position to a second sealing ring axial position relative to the first forcing cone, the sloped surfaces of the first forcing cone spreading the first inner and outer sealing rings radially apart as the first inner and outer sealing rings move to the second sealing ring axial position;

(b) the energizing ring to move from a first energizing ring position to a second energizing ring position, thereby moving the second forcing cone axially from a first position to a second position relative to the second inner and outer sealing rings, the sloped surfaces of

the second forcing cone spreading the second inner and outer sealing rings radially apart as the second forcing cone moves from the first position to the second position.

2. The apparatus according to claim 1, wherein the first and second forcing cones each have a bulbous point, the bulbous point having a wider cross section than the tip or a base of the forcing cones.

3. The apparatus according to claim 1, wherein the inner and outer annular sealing rings are metallic.

4. The apparatus according to claim 3, wherein the sealing surfaces comprise a plurality of ridges, each separated by one of a plurality of grooves.

5. The apparatus according to claim 4, further comprising an inlay located in at least one of the plurality of grooves, the inlay being a softer metal than the sealing rings.

6. The apparatus according to claim 1, wherein the second inner and second outer annular sealing rings do not move in an axial direction when energized by the energizing ring.

7. The apparatus according to claim 1, wherein the wellbore members comprise an outer tubular member and an inner tubular member concentrically located within the outer tubular member to define a housing annulus located there between, wherein the first and second inner annular seating rings form a seal against an outer diameter of the inner tubular member when the energizing ring is in the second energizing ring position and wherein the first and second outer annular sealing rings form a seal against an inner diameter of the outer tubular member when the energizing ring is in the second energizing ring position.

8. The apparatus according to claim 7, wherein the stationary ring is seated against a shoulder on the inner tubular member.

9. The apparatus according to claim 1, wherein the first inner and outer sealing rings move an axial distance that is greater than an axial distance between the first axial position and the second axial position of the energizing ring.

10. An apparatus for forming a seal between inner and outer tubular members, the apparatus comprising:

a metal annular sealing ring comprising a body having:

an upper inner sealing lip and an upper outer sealing lip extending therefrom and separated by an annular gap, the upper inner sealing lip positioned to form a seal against an outer diameter of the inner tubular member and the upper outer sealing lip positioned to form a seal against an inner diameter of the outer tubular member, and an upper annular guide ring protruding from the gap;

a lower inner sealing lip and a lower outer sealing lip extending therefrom and separated by an annular gap, the lower inner sealing lip positioned to form a seal against an outer diameter of the inner tubular member and the lower outer sealing lip positioned to form a seal against an inner diameter of the outer tubular member, and a lower annular guide ring protruding from the gap;

an axially moveable ring having a moveable inner and a moveable outer energizing ring;

a stationary ring having a stationary inner and a stationary outer energizing ring;

wherein axial movement of the axially moveable ring, from a first position to a second position, axially moves the annular sealing ring a distance less than the axial distance traveled by the axially moveable ring between the first position to the second position, and wherein the moveable energizing rings spread apart the upper inner and outer sealing lips from each other and the stationary energizing rings spread apart the lower inner and outer sealing lips from each other.

11. The apparatus according to claim 10, wherein the moveable inner and outer energizing rings define a u-shaped channel and at least a portion of the upper annular guide ring is positioned in the u-shaped channel.

12. The apparatus according to claim 11, further comprising a barb located on the axially moveable guide ring and catch located on the annular guide ring, wherein the catch engages the barb in the first position.

13. The apparatus according to claim 10, wherein the sealing lips comprise a plurality of ridges, each separated by one of a plurality of grooves.

14. The apparatus according to claim 13, further comprising an inlay located in at least one of the plurality of grooves, the inlay being a softer metal than the sealing lips.

15. The apparatus according to claim 10, wherein the stationary ring is seated against a shoulder located on the inner tubular member.

16. The apparatus according to claim 10, wherein the outer tubular member and the inner tubular member are concentrically located and define a housing annulus located there between, wherein the metal annular sealing ring is located within the housing annulus.

17 . An apparatus for seating between inner and outer tubular members, the apparatus comprising:

a metal annular sealing ring comprising a body having an inner sealing lip and an outer sealing lip extending therefrom and separated by an annular gap, the inner seating lip positioned to form a seal against an outer diameter of the inner tubular member and the outer sealing lip positioned to form a seal against an inner diameter of the outer tubular member;

an energizing ring having an annular forcing cone protruding therefrom, the forcing cone being an annular ring having an inner and an outer sloped surface, the inner and outer sloped surfaces diverging from each other from a tip to a wide point of the forcing cone at a Morse taper, the forcing cone located radially between the sealing lips and the More taper locking the energizing ring in place when the annular sealing ring is in an energized state;

an elastomeric seal located in an annular groove on the energizing ring, the elastomeric seal positioned to form a seal against one of the tubular members; and

a vent passage through the forcing cone, the vent passage having a first opening located between the inner and outer sealing lips and a second opening located on an exterior surface of the energizing ring and spaced apart from the forcing cone.

18. The apparatus according to claim 17, wherein the sealing lips comprise a plurality of ridges, each separated by one of a plurality of grooves.

19. The apparatus according to claim 18, further comprising an inlay located in at least one of the plurality of grooves, the inlay being a softer metal than the sealing lips.

20. The apparatus according to claim 17, wherein a surface of the body is seated against a shoulder located on one of the inner tubular members.