WHAT IS CLAIMED IS:

1. A wellhead assembly with an axis, characterized by:

an outer wellhead member (11) having a bore;

an inner wellhead member (13) located in the bore;

a metal seal (14) having inner and outer legs (15) with seal bands (17) that form opposing seal surfaces to sealingly engage the bore of the outer wellhead member (11) and an exterior portion of the inner wellhead member (13) when set;

an energizing ring (30) that when moved axially into a slot (19) formed by the seal legs (15) exerts radial forces on the seal legs (15) to seal against the inner and outer wellhead members (13, 11); and

an elastomeric bulk seal (32) in sealing engagement between the inner and outer wellhead members (13, 11) and in contact with the energizing ring (30), such that pressure applied to the bulk seal (32) causes the bulk seal (32) to move axially toward the metal seal (14), forcing the energizing ring (30) into the slot (19).

2. The assembly according to claim 1, wherein a base of the metal seal (14) is in contact with a shoulder (16) formed on the inner wellhead member (13), which reacts against axial movement of the bulk seal (32) and energizing ring (30).

3. The assembly according to claim 1, wherein the seal bands (17) on the legs (15) of the metal seal (14) are of a softer metal than a metal of the metal seal (14).

4. The assembly according to claim 1, wherein the slot (19) has tapered surfaces and the energizing ring (30) has tapered surfaces that mate with the tapered surfaces of the slot (19).

5. The assembly according to claim 1, further comprising a vent port (34) extending through the energizing ring (30) to vent trapped fluid in the slot (19) as the energizing ring (30) moves into the slot (19).

6. The assembly according to claim 1, wherein the legs (15) of the metal seal (14) form a U-shape.

7. The assembly according to claim 1, wherein the bulk seal (32) is joined to the energizing ring (30).

8. The assembly according to claim 1, wherein the movement of the legs (15) to the set position is elastic and does not exceed a yield strength of the metal of the metal seal (14).

9. The assembly according to claim 1, further comprising a compressible element (38) located within the slot (19) formed by the legs (15), the compressible element (38) decreasing in volume as the energizing ring (30) moves into the slot (19).

10. A method of installing a wellhead assembly, characterized by:

installing an outer wellhead member (11) having a bore;

installing an inner wellhead member (13) located in the bore;

sliding against the inner and outer wellhead members (13, 11), a metal seal (14) having inner and outer legs (15) with seal bands (17) that form opposing seal surfaces to sealingly engage the bore of the outer wellhead member (11) and an exterior portion of the inner wellhead member (13) when set;

installing an energizing ring (30) into a slot (19) formed by the seal legs (15);

installing an elastomeric bulk seal (32) in contact with the energizing ring (30) between the inner and outer wellhead members (13, 11); and

applying hydraulic pressure to the bulk seal (32) to push energizing ring (30) further into the slot (19) to thereby exert increased radial force through the seal bands (17).

11. The method according to claim 10, wherein the seal bands (17) have a soft metal inlay of a softer metal than a metal of the metal seal (14).

12. The method according to claim 10, further characterized by withdrawing the bulk seal (32) and energizing ring (30) to allow the legs (15) of the metal seal (14) to relax back to initial position to thereby allow retrieval of the metal seal (14).

13. The method according to claim 10, wherein a vent port (34) extends through the energizing ring (30) to vent trapped fluid in the slot (19) as the energizing ring (30) moves into the slot (19).

WHAT IS CLAIMED IS:

1. A wellhead assembly, comprising:
an outer wellhead member having an inner surface that defines a bore;

an inner wellhead member having an external surface located in the bore, defining a wellhead annulus within the bore;

an annular metal seal member located in the wellhead annulus having an inner annular seal leg and an outer annular seal leg, the seal legs defining an annular slot between them, the annular slot having side walls and a run-in radial width, the annular metal seal member having a base on its lower end adapted to abut a shoulder defined in the wellhead annulus;

an energizing ring located in the wellhead annulus above the annular metal seal member, the energizing ring having an annular wall portion having radial thickness larger than the run-in radial width of the annular slot, carried in a run-in position with a lower end engaging an upper end of the annular slot;

an elastomeric bulk seal located in the wellhead annulus above and in contact with the energizing ring, the elastomeric bulk seal in sealing engagement between the bore of the outer wellhead member and the external surface of the inner wellhead member, the elastomeric bulk seal forming a pressure barrier which defines a pressure chamber in the wellhead annulus above the elastomeric bulk seal such that increasing fluid pressure in the area of the wellhead annulus above the bulk seal causes the bulk seal to move axially toward the annular metal seal member, forcing the energizing ring into the annular slot formed by the seal legs, the energizing ring exerting radial forces on the seal legs to seal the seal legs against the inner and outer wellhead the members, defining a set position, and wherein friction between the energizing ring and the seal legs retains the seal legs in the set position; and

a compressible element located within the annular slot formed by the seal legs of the annular metal seal member, the compressible element substantially spaced from the energizing ring when the energizing ring is in the annular slot to maintain the seal legs in the set position.

2. The assembly according to claim **1**, wherein the seal assembly further comprises:
an outer seal band coupled to an outer radial surface of the outer annular seal leg of the annular metal seal member operable to form a sealing surface against the bore of the outer wellhead member when in the set position; and

an inner seal band coupled to an inner radial surface of the inner annular seal leg of the annular metal seal member operable to form a sealing surface against the external surface of the inner wellhead member when in the set position.

3. The assembly according to claim **2**, wherein the inner and outer seal bands coupled to the inner and outer annular seal legs of the annular metal seal member are of a softer metal than the metal of the annular metal seal member.

4. The assembly according to claim **1**, wherein the annular slot has tapered surfaces defined on the side walls of the annular slot, and the energizing ring has tapered surfaces defined on the annular wall portion of the energizing ring that mate with the tapered surfaces of the annular slot.

5. The assembly according to claim **1**, further comprising a vent port extending through the energizing ring to vent trapped fluid in the annular slot as the energizing ring moves into the annular slot.

6. The assembly according to claim **1**, wherein the seal legs of the annular metal seal member form a U-shape.

7. The assembly according to claim **1**, wherein the bulk seal is joined to the energizing ring.

8. The assembly according to claim **1**, wherein the movement of the inner and outer annular seal legs to the set position is elastic and does not exceed a yield strength of the metal of the metal seal member.

9. The assembly according to claim **1**, wherein the compressible element is elastomeric.

10. A seal assembly, comprising:
an annular metal seal member having an inner annular seal leg and an outer annular seal leg, the seal legs defining an annular slot between them, the annular slot having side walls and a run-in radial width;

an energizing ring carried in a run-in position with a lower end engaging an upper end of the annular slot, the energizing ring having an annular wall portion having radial thickness larger than the run-in radial width of the annular slot;

an elastomeric bulk seal mounted to the energizing ring for movement therewith, the elastomeric bulk seal having an inner diameter smaller than an inner diameter of the annular metal seal member and an outer diameter larger than an outer diameter of the annular metal seal member for forming a pressure barrier between inner and outer wellhead members above the energizing ring, such that increasing the pressure above the bulk seal causes the bulk seal to move axially toward the annular metal seal member, forcing the energizing ring into the annular slot so that the seal legs are deflected outward defining a set position and wherein friction between the energizing ring and seal legs retains the seal in the set position; and

a compressible element located within the annular slot formed by the seal legs of the annular metal seal member, the compressible element substantially spaced from the energizing ring when the energizing ring is in the annular slot to deflect the seal legs to the set position.

11. The assembly according to claim **10**, further comprising a vent port extending through the energizing ring to vent trapped fluid in the annular slot as the energizing ring moves into the annular slot.

12. The assembly according to claim **10**, wherein the movement of the inner and outer annular seal legs to the set position is elastic and does not exceed a yield strength of the metal of the metal seal assembly.

13. The assembly according to claim **10**, wherein the compressible element is elastomeric.

14. The assembly according to claim **10**, wherein the seal assembly further comprises:
an outer seal band coupled to an outer radial surface of the outer annular seal leg of the annular metal seal member operable to form a sealing surface against the bore of the outer wellhead member when in the set position; and

an inner seal band coupled to an inner radial surface of the inner annular seal leg of the annular metal seal member operable to form a sealing surface against the external surface of the inner wellhead member when in the set position;

wherein the inner and outer seal bands coupled to the seal legs of the annular metal seal member are of a softer metal than the metal of the metal seal member.

15. A method of installing a wellhead assembly, comprising:
installing an outer wellhead member having an inner surface that defines a bore;

installing an inner wellhead member having an external surface, the inner surface of the outer wellhead member and the external surface of the inner wellhead member defining a wellhead annulus within the bore;

installing a metal seal assembly, the metal seal assembly comprising:
an annular metal seal member having an inner annular seal leg and an outer annular seal leg, the seal legs defining an annular slot between them; and

an energizing ring at an upper end of the annular slot formed by the seal legs, the energizing ring having a radial thickness larger than a run-in radial width of the annular slot; and

a compressible element located within the annular slot formed by the seal legs of the annular metal seal member;

installing an elastomeric bulk seal into the wellhead annulus distal to the annular metal seal member in contact with the energizing ring, the elastomeric bulk seal in sealing engagement between the bore of the outer wellhead member and the external surface of the inner wellhead member, the elastomeric bulk seal forming a pressure barrier which defines a pressure chamber in the wellhead annulus above the elastomeric bulk seal; and

applying hydraulic pressure to the bulk seal, forcing the energizing ring into the annular slot and exerting radial forces on the seal legs to seal against the inner and outer wellhead members, defining a set position wherein the compressible element is substantially spaced from the energizing ring; then

relieving the pressure on the bulk seal so that friction between the surfaces of the energizing ring and the seal legs retains the seal in the set position.

16. The method according to claim **15**, wherein the metal seal assembly further comprises:
an outer seal band coupled to an outer radial surface of the outer annular seal leg of the annular metal seal member operable to form a sealing surface against the bore of the outer wellhead member when in the set position;

an inner seal band coupled to an inner radial surface of the inner annular seal leg of the annular metal seal member operable to form a sealing surface against the external surface of the inner wellhead member when in the set position; and

wherein the inner and outer seal bands are of a softer metal than the metal of the annular metal seal member.

17. The method according to claim **15**, further comprising withdrawing the bulk seal and energizing ring to allow the seal legs of the annular metal seal member to relax back to an initial position to thereby allow retrieval of the annular metal seal member.

18. The method according to claim **15**, wherein a vent port extends through the energizing ring to vent trapped fluid in the annular slot as the energizing ring moves into the annular slot.