WHAT IS CLAIMED IS:

1. A wellbore ball valve, comprising:

a ball having a flow bore therethrough;

a first ball clamping assembly defining a first seat surface in contact with an exterior of the ball;

a second ball clamping assembly defining a second, sealing seat surface in contact with and adapted to seal with the exterior of the ball, the second ball clamping assembly coupled to the first ball clamping assembly to clamp the ball between the first and second seat surfaces, the second ball clamping assembly comprising:

a seat ring holder;

a seat ring carried by the seat ring holder and comprising the second, sealing seat surface; and

a springing member between the seat ring and the seat ring holder springingly biasing the seat ring toward the ball, the seat ring holder having a shoulder that supports the seat ring against fully compressing the springing member.

2. The ball valve of claim 1, wherein the first ball clamping assembly is adjustably coupled to the second ball clamping assembly to allow the distance between the first seat surface and the shoulder to be adjusted.

3. The ball valve of claim 2, wherein, if the ball were not present, the first and second ball clamping assemblies can be adjusted so that a greatest distance between the first seat surface and the second seat surface, when the seat ring is resting on the shoulder, is less than a diameter of the ball.

4. The ball valve of claim 1, wherein the first and second ball clamping assemblies are coupled by mating threads on the ball clamping assemblies and more threads are provided than are needed to clamp the ball between the first and second seat surfaces with the seat ring abutting the shoulder.

5. The ball valve of claim 1, wherein the first and second ball clamping assemblies are generally cylindrical and in coupling together, one is received over the other.

6. The ball valve of claim 1, wherein the first seat surface is on a first seat ring of the first ball clamping assembly.

7. The ball valve of claim 1, wherein the first and second seat surfaces can contact the ball with the seat ring residing out of contact from the shoulder of the seat ring holder.

8. The ball valve of claim 1, wherein the springing member has an over stress compression at which the springing member plastically deforms and wherein the shoulder supports the seat ring against compressing the springing member to the over stress compression.

9. The ball valve of claim 1, wherein the seat ring holder defines a springing member receiving pocket having a depth that is less than a free height of the springing member and wherein the shoulder of the seat ring holder is adjacent the pocket.

10. The ball valve of claim 1, wherein the springing member comprises an annular metallic spring.

11. A wellbore ball valve, comprising:

a ball having a flow bore therethrough;

a first ball clamping assembly defining a generally cylindrical shape and having a first seat surface in contact with an exterior of the ball; and

a second ball clamping assembly defining a generally cylindrical shape and having a second seat surface in contact with and substantially sealing with the exterior of the ball, the second ball clamping assembly adjustably coupled to the first ball clamping assembly to clamp the ball between the first and second seat surfaces

and, if the ball were not present, to allow a greatest distance between the first and second seat surfaces to be adjusted to be smaller than a diameter of the ball.

12. The ball valve of claim 11, wherein the first and second ball clamping assemblies are coupled by mating threads on the ball clamping assemblies and more threads are provided than are needed to clamp the ball between the first and second seat surfaces.

13. The wellbore ball valve of claim 11, wherein the second ball clamping assembly comprises:

a seat ring holder;

a seat ring carried by the seat ring holder and comprising the second seat surface; and

a springing member between the seat ring and the seat ring holder springingly biasing the seat ring toward the ball, the seat ring holder having a shoulder that supports the seat ring against fully compressing the springing member.

14. The ball valve of claim 13, wherein the springing member has an over stress compression at which the springing member plastically deforms and wherein the shoulder supports the seat ring against compressing the springing member to the over stress compression.

15. The ball valve of claim 14, wherein the springing member comprises an annular metallic compression spring.

16. The ball valve of claim 13, wherein the seat ring holder defines a springing member receiving pocket having a depth that is less than a free height of the springing member and wherein the shoulder of the seat ring holder is adjacent the pocket.

17. A method, comprising:

adjusting a first portion of a well tool ball valve and a second portion of the valve relatively toward one another to contact a seat surface of the first portion and a seat surface on a seat ring of the second portion to a ball of the valve, and to compress a resilient member supporting the seat ring until the seat ring contacts a shoulder; and

adjusting the first portion of the valve and the second portion of the valve relatively away from one another until the resilient member supports the seat ring out of contact with the shoulder.

18. The method of claim 17, wherein the resilient member has an over stress compression at which the resilient member plastically deforms and wherein compressing the resilient member until the seat ring contacts the shoulder comprises compressing the resilient member less than it's over stress compression.

19. The method of claim 17, comprising sealing against fluid flow between the ball valve and the seat surface of the second portion.

20. The method of claim 19, where adjusting the first portion and the second portion relatively toward one another comprises engaging threads of the first portion with threads of the second portion and screwing threads into deeper engagement.

CLAIMS

1. A wellbore ball valve, comprising:

a ball having a flow bore therethrough;

a first ball clamping assembly defining a first seat surface in contact with an exterior of the ball;

a second ball clamping assembly defining a second, sealing seat surface in contact with and adapted to seal with the exterior of the ball, the second ball clamping assembly coupled to the first ball clamping assembly to clamp the ball between the first and second seat surfaces, the first ball clamping assembly adjustably coupled to the second ball clamping assembly, the second ball clamping assembly comprising:

a seat ring holder;

a seat ring carried by the seat ring holder and comprising the second, sealing seat surface; and

a springing member between the seat ring and the seat ring holder springingly biasing the seat ring toward the ball, the seat ring holder having a shoulder that supports the seat ring against fully compressing the springing member, and a compression of the springing member is adjustable based on the adjustable coupling of the first ball clamping assembly to the second ball clamping assembly.

2. The ball valve of claim 1, wherein a distance between the first seat surface and the shoulder is adjustable based on the adjustable coupling of the first ball clamping assembly to the second ball clamping assembly.

3. The ball valve of claim 2, wherein, if the ball were not present, the first and second ball clamping assemblies can be adjusted so that a greatest distance between the first seat surface and the second seat surface, when the seat ring is resting on the shoulder, is less than a diameter of the ball.

4. The ball valve of claim 1, wherein the first and second ball clamping assemblies are coupled by mating threads on the ball clamping assemblies and more threads are provided than are needed to clamp the ball between the first and second seat surfaces with the seat ring abutting the shoulder.

5. The ball valve of claim 1, wherein the first and second ball clamping assemblies are generally cylindrical and in coupling together, one is received over the other.

6. The ball valve of claim 1, wherein the first seat surface is on a first seat ring of the first ball clamping assembly.

7. The ball valve of claim 1, wherein the first and second seat surfaces contact the ball with the seat ring residing out of contact from the shoulder of the seat ring holder.

8. The ball valve of claim 1, wherein the springing member has an over stress compression at which the springing member plastically deforms and wherein the shoulder supports the seat ring against compressing the springing member to the over stress compression.

9. The ball valve of claim 1, wherein the seat ring holder defines a springing member receiving pocket having a depth that is less than a free height of the springing member and wherein the shoulder of the seat ring holder is adjacent the pocket.

10. The ball valve of claim 1, wherein the springing member comprises an annular metallic spring.

11. A wellbore ball valve, comprising:

a ball having a flow bore therethrough;

a first ball clamping assembly defining a generally cylindrical shape and having a first seat surface in contact with an exterior of the ball;

a second ball clamping assembly defining a generally cylindrical shape and having a second seat surface in contact with and substantially sealing with the exterior of the ball, the second ball clamping assembly adjustably coupled to the first ball clamping assembly to clamp the ball between the first and second seat surfaces and, if the ball were not present, to allow a greatest distance between the first and second seat surfaces to be adjusted to be smaller than a diameter of the ball; and

a springing member springingly biasing the first and second seat surfaces against the exterior of the ball such that a compression of the springing member is adjustable based on the adjustable coupling of the first ball clamping assembly to the second ball clamping assembly.

12. The ball valve of claim 11, wherein the first and second ball clamping assemblies are coupled by mating threads on the ball clamping assemblies and more threads are provided than are needed to clamp the ball between the first and second seat surfaces.

13. The wellbore ball valve of claim 11, wherein the second ball clamping assembly comprises:

a seat ring holder;

a seat ring carried by the seat ring holder and comprising the second seat surface, wherein

the springing member is positioned between the seat ring and the seat ring holder and springingly biases the seat ring toward the ball, the seat ring holder having a shoulder that supports the seat ring against fully compressing the springing member.

14. The ball valve of claim 13, wherein the springing member has an over stress compression at which the springing member plastically deforms and wherein the shoulder supports the seat ring against compressing the springing member to the over stress compression.

15. The ball valve of claim 14, wherein the springing member comprises an annular metallic compression spring.

16. The ball valve of claim 13, wherein the seat ring holder defines a springing member receiving pocket having a depth that is less than a free height of the springing member and wherein the shoulder of the seat ring holder is adjacent the pocket.

17. A method, comprising:

adjusting a first portion of a well tool ball valve and a second portion of the well tool ball valve relatively toward one another, an adjustable distance, to contact a seat surface of the first portion and a seat surface on a seat ring of the second portion to a ball of the valve;

compressing a resilient member that supports the seat ring the adjustable distance that is less than a compressive length of the resilient member until the seat ring contacts a shoulder; and

adjusting the first portion of the valve and the second portion of the valve relatively away from one another until the resilient member supports the seat ring out of contact with the shoulder.

18. The method of claim 17, wherein the resilient member has an over stress compression at which the resilient member plastically deforms and wherein compressing the resilient member until the seat ring contacts the shoulder comprises compressing the resilient member less than the over stress compression of the resilient member.

19. The method of claim 17, comprising sealing against fluid flow between the ball valve and the seat surface of the second portion.

20. The method of claim 19, where adjusting the first portion and the second portion relatively toward one another comprises engaging threads of the first portion with threads of the second portion and screwing threads into deeper engagement.