CLAIMS

1. A ball mechanism comprising:

a ball valve member having inlet and outlet flow passageways, the ball valve member comprising at least one pivot pin and a mount for a control arm, wherein the ball valve member controls flow through the passageways upon selective rotation between open passageway and closed passageway positions; and

at least one control arm comprising a slot configured to accept at least one of a control arm bushing, the at least one pivot pin, and combinations thereof, wherein the at least one control arm is mounted to the ball valve member.

2. The ball mechanism of claim 1, wherein upon application of an axial load on the at least one control arm to rotate the ball valve member, the axial load on the at least one control arm is transferred to at least one of a control arm bushing, the at least one pivot pin on the ball valve member, and combinations thereof.

3. The ball mechanism of claim 1, further comprising a valve body having inlet and outlet flow passageways connected by a valve chamber, wherein the ball valve member is mounted in the valve chamber.

4. The ball mechanism of claim 3, further comprising at least one control arm bushing, mounted on said at least one pivot pin.

5. The ball mechanism of claim 4, wherein the at least one control arm bushing is a square or rectangular bushing machined to slide in the at least one slot of the at least one control arm.

6. The ball mechanism of claim 1, further comprising a second control arm with at least one slot, a second pivot pin, and a second mount on the ball valve member for the second control arm.

7. The ball mechanism of claim 6, wherein the second control arm and second pivot pin are located on the opposite side of the ball valve member from the at least one pivot pin and at least one control arm.

8. The ball mechanism of claim 1, wherein the at least one slot is milled into the at least one control arm.

9. The ball mechanism of claim 1, wherein the at least one pivot pin is circular in shape.

10. The ball mechanism of claim 1, wherein the valve has increased initial rotation of the ball valve member for the same axial travel of the control arm compared to a ball valve where the pivot pin is on the control arm, the slot is on the ball valve member, and the pivot pin slides in the slot of the ball valve member.

11. The ball mechanism of claim 1, wherein the mount for the at least one control arm on the ball valve member comprises at least one mounting pivot pin around which the at least one control arm pivots.

12. The ball mechanism of claim 11, wherein the at least one control arm comprises a second slot for receiving the at least one mounting pivot pin of the ball valve member.

13. A method of opening or closing a ball valve, the method comprising:

applying an axial load on the control arm of a ball valve comprising:

a valve body having inlet and outlet flow passageways connected by a valve chamber;

a ball valve member mounted in said valve chamber for selective rotation between valve open and valve closed positions to control flow through the valve, the ball valve member comprising at least one pivot pin and at least one mount for at least one control arm; and

at least one control arm comprising at least one slot configured to accept at least one of a control arm bushing, the at least one pivot pin, and combinations thereof, wherein the at least one control arm is mounted to the ball valve member.

14. The method of claim 13, wherein upon application of an axial load on the at least one control arm to open or close the ball valve, the axial load on the at least one control arm is transferred to at least one of at least one control arm bushing, the at least one pivot pin on the ball valve member, and combinations thereof.

15. The method of claim 13, further comprising at least one control arm bushing, mounted on said at least one pivot pin, or further comprising a second control arm with at least one slot, a second pivot pin, and a second mount on the ball valve member for the second control arm, or wherein the mount for the at least one control arm on the ball valve member comprises at least one mounting pivot pin around which the at least one control arm pivots.