CLAIMS

1. A valve assembly having an inlet and an outlet, the valve assembly adapted to increase the accuracy of an upstream water meter, the valve assembly comprising:

a cylindrical valve housing nested within an upper housing and lower housing, the valve housing having a housing valve inlet and a housing valve outlet, a tapered valve seat positioned adjacent to the housing valve inlet, a plurality of adjustment bores, and a series of housing threads on an outside face of the valve housing;

a valve disc positioned within the valve housing, the disc being tapered along its length, wherein the taper of the valve seat matches the taper of the valve disc, the valve disc having a seated orientation wherein it is in contact with the valve seat and an unseated orientation wherein the valve disc is spaced from the valve seat;

a valve shaft having a forward end, a rearward end, and an intermediate extent therebetween, the valve shaft further comprising a retainer having a shoulder on the rearward end extending perpendicularly from a surface of the retainer and having an axial passage, the valve shaft slidably positioned within the axial passage;

a coil spring positioned about the intermediate extent of the valve shaft, the coil spring having a first end in contact with the shoulder of the retainer, a second end of the coil spring contacting the valve disc, whereby the spring tension is varied depending upon the position of the housing threads which may be raised or lowered using an adjustment tool, the adjustment tool comprising a grip having a proximal and a distal end wherein the distal end terminates in a curved prong having an

extension which protrudes from the curved prong;

whereby water flowing from the housing valve inlet to the housing valve outlet of the valve assembly contacts the valve disc and further wherein a pre-determined water pressure is sufficient to unseat the valve disc and thereby compress air into the upstream water source thereby increasing the density of the water.

2. The valve assembly of claim **1** wherein the valve assembly is used in connection with a water meter.

3. The valve assembly of claim **1** wherein the valve housing is constructed from a self-lubricating polymer.

4. The valve assembly of claim **1** wherein the valve disc is constructed from a self-lubricating polymer.

5. The valve assembly of claim **1** wherein the extension of the adjustment tool is cylindrical.

6. The valve assembly of claim **1** wherein the extension of the adjustment tool comprises a prismed shape.

7. A water metering system for accurately measuring the volume of water used by an individual water consumer over a pre-determined amount of time, the system comprising:

a water supply reservoir for storing a large volume of potable water to be distributed to a plurality of water consumers;

a distribution network interconnected to the water supply reservoir, the distribution network interconnecting the plurality of water consumers, the distribution network having upstream and downstream ends;

a water meter positioned upstream from the individual water consumer, the water meter operable to measure the volume of water used by the water consumer over a pre-determined period of time;

a valve assembly comprising:

a cylindrical valve housing nested within an upper housing and lower housing, the valve housing having a housing valve inlet and a housing valve outlet, a tapered valve seat positioned adjacent to the housing valve inlet, a plurality of adjustment bores, and a series of housing threads on an outside face of the valve housing;

a valve disc positioned within the valve housing, the disc being tapered along its length, wherein the taper of the valve seat matches the taper of the valve disc, the valve disc having a seated orientation wherein it is in contact with the valve seat and an unseated orientation wherein the valve disc is spaced from the valve seat;

a valve shaft having a forward end, a rearward end, and an intermediate extent therebetween, the valve shaft further comprising a retainer having a shoulder on the rearward end extending perpendicularly from a surface of the retainer and having an axial passage, the valve shaft slidably positioned within the axial passage;

a coil spring positioned about the intermediate extent of the valve shaft, the coil spring having a first end in contact with the shoulder of the retainer, a second end of the coil spring contacting the valve disc, whereby the spring tension is varied depending upon the position of the housing threads which may be raised or lowered using an adjustment tool, the adjustment tool comprising a grip having a proximal and a distal end wherein the distal end terminates in

a curved prong having an extension which protrudes from the curved prong;

whereby water flowing from the housing valve inlet to the housing valve outlet of the valve assembly contacts the valve disc and further wherein a pre-determined water pressure is sufficient to unseat the valve disc and thereby compress air into the upstream water source thereby increasing the density of the water.

8. A water metering system for accurately measuring the volume of water used by an individual water consumer over a pre-determined amount of time, the system comprising:

a water supply reservoir for storing a large volume of potable water to be distributed to a plurality of water consumers;

a distribution network interconnected to the water supply reservoir, the distribution network interconnecting the plurality of water consumers, the distribution network having upstream and downstream ends;

a water meter positioned upstream from the individual water consumer, the water meter operable to measure the volume of water used by the water consumer over a pre-determined period of time;

a valve assembly including an inner housing that is threadably positioned within an outer housing, the inner housing including a disc and a spring, the spring having a tension for biasing the disc into a closed positioned within the inner housing, a plurality of

adjustment bores positioned within the inner housing and being accessible through the outer housing, an adjustment tool for engaging one of the plurality of adjustment bores from outside of the outer housing, whereby the position of the inner housing with respect to the outer housing can be selectively adjusted to thereby change the tension of the spring.