We claim:

1. A valve assembly comprising:

a valve body defining an interior cavity extending to a bonnet portion;

a valve stem including a valve element retained in the interior cavity of the valve body and an end portion extending beyond the bonnet portion, the valve stem being rotatable between a first limit position and a second limit position; and

a spring return handle arrangement including:

a user graspable valve handle;

a stem adapter having a first end portion secured to the valve stem and a second end portion secured to the valve handle; and

a return spring having a first end portion secured to the valve body, an intermediate spring loaded portion, and a second end portion secured to the stem adapter to apply a torsional load to the stem adapter for returning the valve stem to the first rotational limit position.

2. The valve assembly of claim 1, wherein the first end portion of the stem adapter includes a stem bore receiving the end portion of the valve stem.

3. The valve assembly of any of claims 1 and 2, wherein the second end portion of the stem adapter includes a stem extension assembled with the valve handle.

4. The valve assembly of any of claims 1-3, wherein the first end portion of the return spring comprises a first end collar secured to the bonnet portion of the valve body.

5. The valve assembly of claim 4, wherein the first end collar includes an internal threaded portion threadably assembled with the bonnet portion of the valve body.

6. The valve assembly of any of claims 4 and 5, wherein the first end collar comprises a split collar, wherein a fastener is assembled with the first end collar for clamping engagement of the split collar with the bonnet portion of the valve body.

7. The valve assembly of any of claims 4-6, wherein the first end collar is integrally formed with the intermediate spring loaded portion of the return spring.

8. The valve assembly of any of claims 1-7, wherein the second end portion of the return spring comprises a second end collar secured to an outer surface of the stem adapter.

9. The valve assembly of claim 8, wherein the second end collar is secured to the outer surface of the stem adapter by at least one set screw.

10. The valve assembly of any of claims 8 and 9, wherein the second end collar is integrally formed with the intermediate spring loaded portion of the return spring.

11. The valve assembly of claim 10, wherein the second end collar has an outer diameter that substantially matches an outer diameter of the intermediate spring loaded portion of the return spring.

12. The valve assembly of any of claims 1-11, wherein the first end portion of the stem adapter includes a protrusion that engages the bonnet to define the first and second limit positions of the valve stem.

13. A method of installing a spring return handle arrangement on a valve having a valve stem extending from a bonnet portion of a valve body, the method comprising:

securing a first end portion of a stem adapter to the end portion of the valve stem having first and second rotational limit positions, wherein a second end portion of the stem adapter is secured with a user graspable valve handle;

securing a first end portion of a return spring to the valve body; and

securing a second end portion of the return spring to the stem adapter, such that an intermediate spring loaded portion of the return spring applies a torsional load to the stem adapter for returning the valve stem to the first rotational limit position.

14. The method of claim 13, wherein securing the first end portion of the stem adapter to the end portion of the valve stem includes receiving the end portion of the valve stem in a stem bore in the first end portion of the stem adapter.

15. The method of any of claims 13 and 14, further comprising assembling the valve handle to a stem extension of the second end portion of the stem adapter.

16. The method of any of claims 13-15, wherein securing the first end portion of the return spring to the valve body comprises securing a first end collar of the first end portion of the return spring to the bonnet portion of the valve body.

17. The method of claim 16, wherein securing the first end collar to the bonnet portion includes threadably assembling an internal threaded portion of the first end collar with the bonnet portion.

18. The method of any of claims 16 and 17, wherein the first end collar comprises a split collar, and wherein securing the first end collar to the bonnet portion comprises tightening a fastener with the first end collar for clamping engagement of the split collar with the bonnet portion of the valve body.

19. The method of any of claims 16-18, wherein securing the second end portion of the return spring to the stem adapter comprises securing a second end collar of the second end portion of the return spring to an outer surface of the stem adapter.

20. The method of claim 19, wherein securing the second end collar to the outer surface of the stem adapter comprises tightening at least one set screw assembled with the first end collar against the outer surface of the stem adapter.

We claim:

1. A valve assembly comprising:

a valve body defining an interior cavity extending to a bonnet portion;

a valve stem including a valve element retained in the interior cavity of the valve body and an end portion extending beyond the bonnet portion, the valve stem being rotatable between a first limit position and a second limit position; and

a spring return handle arrangement including:

a user graspable valve handle;

a stem adapter having a first end portion secured to the valve stem and a second end portion secured to the valve handle; and

a return spring having a first end portion comprising a first end collar secured to the bonnet portion of the valve body, an intermediate spring loaded portion, and a second end portion secured to the stem adapter to apply a torsional load to the stem adapter for returning the valve stem to the first rotational limit position.

2. The valve assembly of claim 1, wherein the first end portion of the stem adapter includes a stem bore receiving the end portion of the valve stem.

3. The valve assembly of claim 1, wherein the second end portion of the stem adapter includes a stem extension assembled with the valve handle.

4. The valve assembly of claim 1, wherein the first end portion of the stem adapter includes a protrusion that engages the bonnet to define the first and second limit positions of the valve stem.

5. The valve assembly of claim 1, wherein the first end collar includes an internal threaded portion threadably assembled with the bonnet portion of the valve body.

6. The valve assembly of claim 1, wherein the first end collar comprises a split collar, wherein a fastener is assembled with the first end collar for clamping engagement of the split collar with the bonnet portion of the valve body.

7. The valve assembly of claim 1, wherein the first end collar is integrally formed with the intermediate spring loaded portion of the return spring.

8. A valve assembly comprising:

a valve body defining an interior cavity extending to a bonnet portion;

a valve stem including a valve element retained in the interior cavity of the valve body and an end portion extending beyond the bonnet portion, the valve stem being rotatable between a first limit position and a second limit position; and

a spring return handle arrangement including:

a user graspable valve handle;

a stem adapter having a first end portion secured to the valve stem and a second end portion secured to the valve handle; and

a return spring having a first end portion secured to the valve body, an intermediate spring loaded portion, and a second end portion secured to the stem adapter to apply a torsional load to the stem adapter for returning the valve stem to the first rotational limit position, wherein the second end portion of the return spring comprises a second end collar secured to an outer surface of the stem adapter.

9. The valve assembly of claim 8, wherein the second end collar is secured to the outer surface of the stem adapter by at least one set screw.

10. The valve assembly of claim 8, wherein the second end collar is integrally formed with the intermediate spring loaded portion of the return spring.

11. The valve assembly of claim 10, wherein the second end collar has an outer diameter that substantially matches an outer diameter of the intermediate spring loaded portion of the return spring.

12. The valve assembly of claim 8, wherein the first end portion of the return spring comprises a first end collar secured to the bonnet portion of the valve body.

13. A method of installing a spring return handle arrangement on a valve having a valve stem extending from a bonnet portion of a valve body, the method comprising:

securing a first end portion of a stem adapter to the end portion of the valve stem having first and second rotational limit positions, wherein a second end portion of the stem adapter is secured with a user graspable valve handle;

securing a first end portion of a return spring to the valve body; and

securing a second end portion of the return spring to the stem adapter, such that an intermediate spring loaded portion of the return spring applies a torsional load to the stem adapter for returning the valve stem to the first rotational limit position.

14. The method of claim 13, wherein securing the first end portion of the stem adapter to the end portion of the valve stem includes receiving the end portion of the valve stem in a stem bore in the first end portion of the stem adapter.

15. The method of claim 13, further comprising assembling the valve handle to a stem extension of the second end portion of the stem adapter.

16. The method of claim 13, wherein securing the first end portion of the return spring to the valve body comprises securing a first end collar of the first end portion of the return spring to the bonnet portion of the valve body.

17. The method of claim 16, wherein securing the first end collar to the bonnet portion includes threadably assembling an internal threaded portion of the first end collar with the bonnet portion.

18. The method of claim 16, wherein the first end collar comprises a split collar, and wherein securing the first end collar to the bonnet portion comprises tightening a fastener with the first end collar for clamping engagement of the split collar with the bonnet portion of the valve body.

19. The method of claim 16, wherein securing the second end portion of the return spring to the stem adapter comprises securing a second end collar of the second end portion of the return spring to an outer surface of the stem adapter.

20. The method of claim 19, wherein securing the second end collar to the outer surface of the stem adapter comprises tightening at least one set screw assembled with the first end collar against the outer surface of the stem adapter.