Claims

1. An apparatus for actuating a valve, the apparatus comprising:

a cylindrical housing having a valve end, a cap end, and a sidewall defining an inner diameter (“ID”) of the housing;

a cap connected to the cap end of the housing, the cap having an orifice therethrough;

an inlet through one of the cap and the cylindrical housing;

a plate positioned within the housing, the plate moving between an extended position and a retracted position in response to pressure media from the inlet, the plate being nearer the valve end in the extended position than in the retracted position;

a coupling connected to the plate;

an indicator stem having a shaft, the indicator stem being detachably connected to the coupling and protruding through the orifice, wherein the indicator stem can be detached from the coupling while the coupling is connected to the plate;

a seal assembly connected to the cap, the seal assembly sealingly engaging the shaft; and

a down stop in contact with the plate, the down stop being urged toward the valve end of the housing when the plate moves toward the extended position, and the down stop being operable to be connected to a valve stem for actuating a valve.

2. The apparatus according to claim 1, wherein the coupling comprises a body and the shaft is detachably connected to the body.

3. The apparatus according to claim 2, wherein the body is a cylindrical body and a base of the stem comprises a cylindrical recess, the cylindrical recess concentrically engaging the cylindrical body.

4. The apparatus according to claim 3, wherein the cylindrical body comprises an annular groove on an outer diameter surface and the indicator stem is detachably connected to the coupling via the annular groove.

5. The apparatus according to claim 4, wherein the cylindrical recess comprises an annular groove on an inner diameter surface, the apparatus further comprising a lock ring partially positioned in each of the annular grooves.

6. The apparatus according to claim 1, wherein the indicator stem rotates about its axis relative to the coupling.

7. The apparatus according to claim 1, wherein rotational force is not communicated between the indicator stem and the coupling.

8. The apparatus according to claim 1, further comprising a diaphragm covering the plate and extending to the cap end, wherein the coupling further comprises a flange, the flange being operable to engage an inner diameter orifice of the diaphragm.

9. An apparatus for actuating a valve, the apparatus comprising:

a housing having a housing body and a cap;

a connector positioned within the housing and operable to receive an actuator stem from a valve;

a plate in contact with the connector, the plate moving between an extended position and a retracted position in response to pressure media, the refracted position being nearer the cap than the extended position;

a coupling connected to the plate; and

an indicator stem detachably connected to the coupling, the indicator stem having a shaft protruding through an orifice of the cap, wherein the indicator stem can be detached from the coupling while the coupling is connected to the plate.

10. The apparatus according to claim 9, wherein the coupling further comprises a coupling body and the indicator stem is detachably connected to the coupling body.

11. The apparatus according to claim 10, wherein the coupling body is a cylindrical body and a base of the indicator stem comprises a cylindrical recess, the cylindrical recess concentrically engaging the cylindrical body.

12. The apparatus according to claim 11, wherein the cylindrical body comprises an annular groove on an outer diameter surface and the indicator stem is detachably connected to the coupling via the annular groove.

13. The apparatus according to claim 12, wherein the cylindrical recess comprises an annular groove on an inner diameter surface, the apparatus further comprising a lock ring partially positioned in each of the annular grooves.

14. The apparatus according to claim 9, wherein rotational force is not communicated between the indicator stem and the coupling.

15. The apparatus according to claim 9, further comprising a diaphragm covering the plate and extending to the cap end, wherein the coupling further comprises a flange, the flange being operable to sealingly engage an inner diameter orifice of the diaphragm.

16. A valve assembly, the valve assembly comprising:

a gate valve operable to selectively obstruct a bore;

an actuator stem connected to the gate valve; and

an actuator comprising:

a housing having a body and a cap;

a connector positioned within the housing and connected to the actuator stem;

a plate in contact with the connector, the plate moving between an extended position and a retracted position in response to pressure media, the retracted position being nearer the cap than the extended position;

a coupling connected to the plate; and

an indicator stem detachably connected to the coupling, the indicator stem having a shaft protruding through an orifice of the cap, wherein the in indicator stem can be detached from the coupling while the coupling is connected to the plate.

17. The apparatus according to claim 16, wherein rotational force is not communicated between the indicator stem and the coupling.