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(54) Title: PRESSURE BALANCED PISTON FOR SUBSURFACE SAFETY VALVES

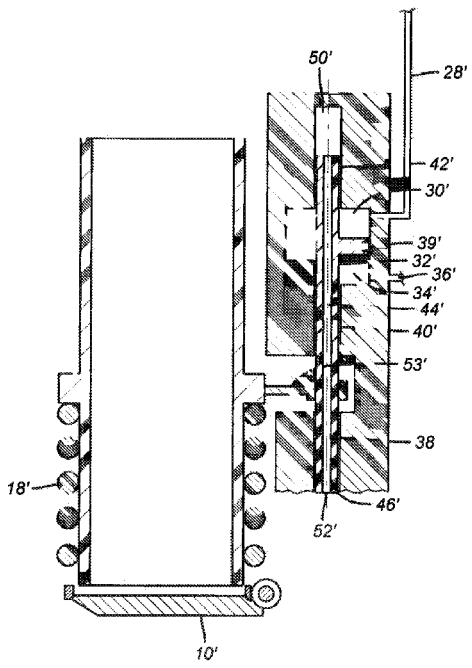


FIG. 2

(57) Abstract: A control system for a subsurface safety valve references the surrounding annulus to put the operating piston in pressure balance. Depending on the configuration and which seal in the system fails, the various embodiments can differ in their failure modes. With the lower end of the piston exposed to annulus pressure all failure modes close the flapper. With the lower end of the piston exposed to tubing pressure, failure of any of the seals except one will result in flapper closure.

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