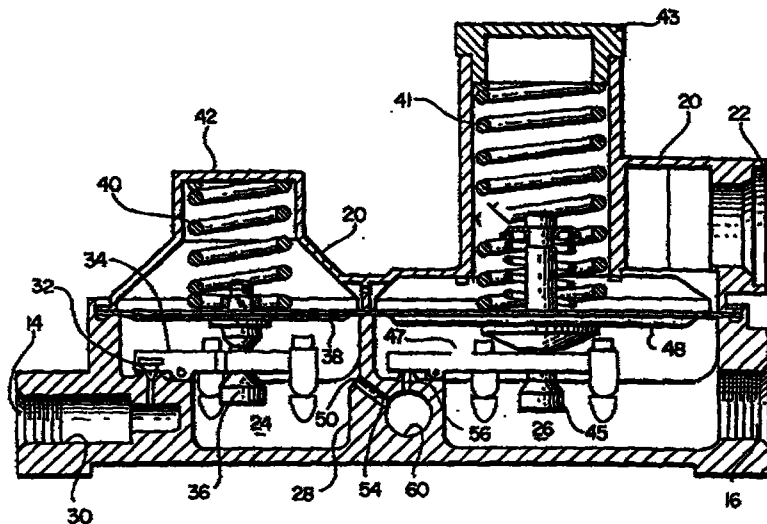




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(54) Title: GAS PRESSURE REGULATOR



(57) Abstract

A two stage gas pressure regulator (10) with a body housing (12) having a gas inlet (14) and a gas outlet (16), and a common interior wall (28) dividing the body housing (12) into two chambers (24, 26), forming two pressure reducing stages. Respective intersecting fluid passageways through the common interior wall (28) communicate the first stage to the second stage and provide a gauge pressure tap (18) on the body housing (12), the intersecting passageways meeting at an intersection point within the common interior wall (28). Respective diaphragms (38) are provided for each stage, and a cover has a vent venting the volume defined between the cover and the second stage diaphragm. A small passageway is provided in a common cover wall (20) between the two stages, the small passageway being sized to suitably vent both cover portions above the respective diaphragms through the vent while eliminating overpressurization of the second stage in the event of pressure regulating failure of the first stage. A diaphragm actuated lever arm (76) includes a slotted end (78) with the slot matching a stepped gas flow controlling disc (80). The disc (80) is stepped to match the lever end slot so as to trap the disc within the lever slotted end. The inlet orifice in one or both of the regulator stages can be formed by casting and without further machining or additional orifice components.