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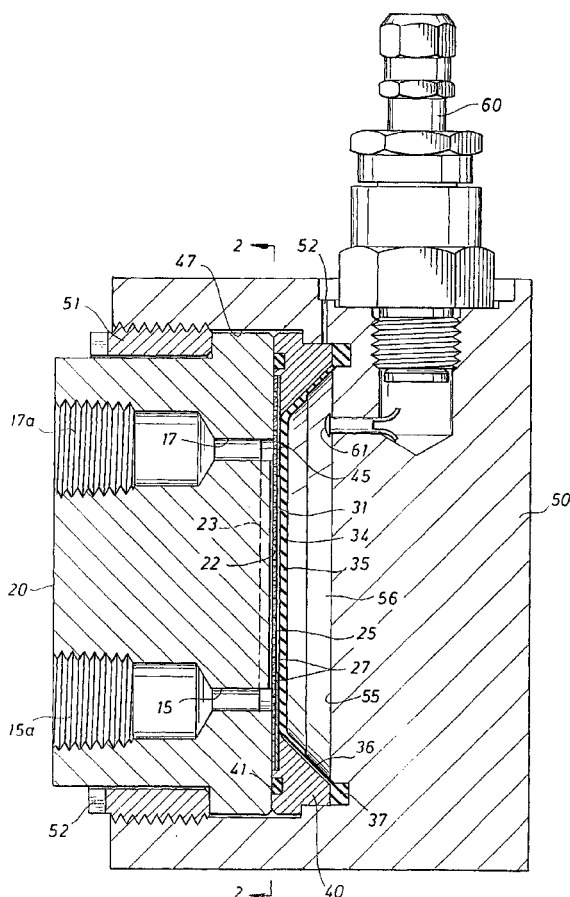
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(54) Title: PULSATION DAMPING ASSEMBLY AND METHOD



(57) Abstract: A flexible diaphragm (33) is disposed in a housing (10) between a working fluid and a gas-charged chamber (56) to damp pulsations in the working fluid. The diaphragm (33) has a flat base that, when fully distended by pressure in the gas chamber, lies against a flat, perforated circular metal sheet (25). The perforated metal sheet (25) is closely spaced from a planar backing surface (22) that prevents the sheet from permanently deforming under the force extended by the pressurized diaphragm. An annular channel (23) formed in the backing surface places the working fluid in contact with the perforated metal sheet. Pressure in the working fluid displaces the diaphragm (33) away from the perforated metal sheet (25). A flat retaining wall (55) in the gas chamber limits the travel of the diaphragm away from the metal sheet. Pressure pulsations in the working fluid move the diaphragm (33) back and forth between the retaining walls. Back and forth flow of the pulsing fluid through the perforations (27) and the compression of the gas in the gas chamber dissipates the energy of the pulses to achieve the damping effect. Multiple pulsation dampers operating at different charge pressures may be used to increase the range of high damping ratios for wider working fluid pressure ranges.

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