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— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

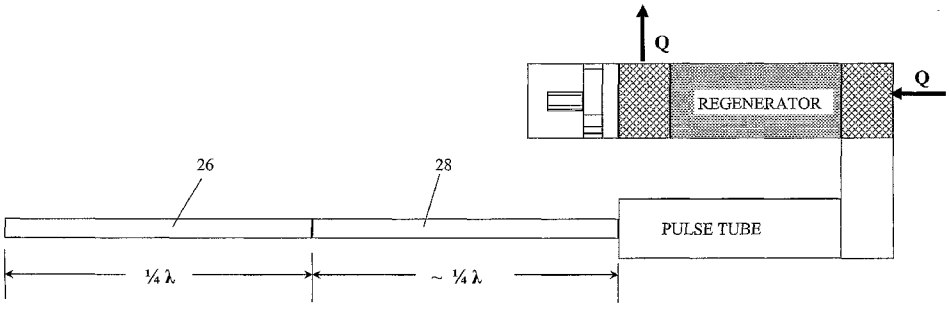
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(54) Title: PULSE TUBE COOLER HAVING 1/4 WAVELENGTH RESONATOR TUBE INSTEAD OF RESERVOIR



(57) Abstract: An improved pulse tube cooler having a resonator tube connected in place of a compliance volume or reservoir. The resonator tube has a length substantially equal to an integer multiple of 1A wavelength of an acoustic wave in the working gas within the resonator tube at its operating frequency, temperature and pressure. Preferably, the resonator tube is formed integrally with the inertance tube as a single, integral tube with a length approximately 1A of that wavelength. Also preferably, the integral tube is spaced outwardly from and coiled around the connection of the regenerator to the pulse tube at a cold region of the cooler and the turns of the coil are thermally bonded together to improve heat conduction through the coil.

WO 2007/024314 A3