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(54) **MODULAR PULSED PRESSURE DEVICE FOR THE TRANSPORT OF LIQUID CRYOGEN TO A CRYOPROBE**

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(58) **Field of Classification Search**

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See application file for complete search history.

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(57) **ABSTRACT**

A cryogenic medical device for delivery of subcooled liquid cryogen to various configurations of cryoprobes is designed for the treatment of damaged, diseased, cancerous or other unwanted tissues. The device is a closed or semi-closed system in which the liquid cryogen is contained in both the supply and return stages. The device is capable of generating cryogen to a supercritical state and may be utilized in any rapid cooling systems. As designed, the device comprises a number of parts including a vacuum insulated outer dewar, submersible cryogen pump, baffled linear heat exchanger, multiple pressurization cartridges, a return chamber, and a series of valves to control the flow of the liquid cryogen. The cryogenic medical device promotes the subcooling to any external cryogenic instrument.

**20 Claims, 5 Drawing Sheets**

