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[54] **MECHANICAL SUPPORT FOR A TWO PILL ADIABATIC DEMAGNETIZATION REFRIGERATOR**

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[58] Field of Search **62/3.1, 467, 6**

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[57] **ABSTRACT**

This invention provides a mechanical support for a two-pill Adiabatic Demagnetization Refrigerator (ADR). The support utilizes a suspension of the two pills from one side of the magnet bore only. In the two pill ADR, the thermal ground is at 4K, a guard pill positioned in the front of the bore cools to 1K and a base pill positioned in the back of the bore cools to 50-100 mk. A connector rod of the base pill traverses the guard pill, and connector rods to both the guard pill and base pill exit through the front aperture. A preferred embodiment of the two-pill support for the front loaded magnet bore utilizes planar support modules comprising three members connected by Kevlar strings. Each member is thermally connected either to one of the pills or to thermal ground. The ground member, the guard member and the base member of the support module are strung with Kevlar threads, such that the base member is suspended only from the guard member, and the guard member only from the ground member. These planar support modules can be aligned and assembled prior to use in an assembly jig. The final assembly of the two-pill support structure using planar support modules is easy and fast.

20 Claims, 7 Drawing Sheets

