

[54] **SYSTEM FOR AND METHOD OF FREEZING BIOLOGICAL TISSUE**

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[57] **ABSTRACT**

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Blood cells, blood marrow, and other similar biological tissue is frozen while in a polyethylene bag placed in abutting relationship against opposed walls of a pair of heaters. The bag and tissue are cooled with refrigerating gas at a time programmed rate at least equal to the maximum cooling rate needed at any time during the freezing process. The temperature of the bag, and hence of the tissue, is compared with a time programmed desired value for the tissue temperature to derive an error indication. The heater is activated in response to the error indication so that the temperature of the tissue follows the desired value for the time programmed tissue temperature. The tissue is heated to compensate for excessive cooling of the tissue as a result of the cooling by the refrigerating gas. In response to the error signal, the heater is deactivated while the latent heat of fusion is being removed from the tissue while the tissue is changing phase from liquid to solid.

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[58] Field of Search ..... **165/2, 30; 236/78 B; 128/1 R; 62/78, 514 R; 195/1.8; 219/30 R, 328, 299**

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**15 Claims, 2 Drawing Figures**

