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(21) International Application Number: PCT/US99/18561 (22) International Filing Date: 16 August 1999 (16.08.99) (30) Priority Data: 09/299,369 26 April 1999 (26.04.99) US (71) Applicant: 3M INNOVATIVE PROPERTIES COMPANY [US/US]; 3M Center, P.O. Box 33427, Saint Paul, MN 55133-3427 (US). (72) Inventor: SHERWOOD, Gregory, J.; P.O. Box 33427, Saint Paul, MN 55133-3427 (US). (74) Agents: FAGAN, Lisa, M. et al.; 3M Innovative Properties Company, Office of Intellectual Property Counsel, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).	(81) Designated States: AU, BR, JP, KR, MX, SG, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>	
(54) Title: MULTISTAGE RAPID PRODUCT REFRIGERATION APPARATUS AND METHOD (57) Abstract A multistage refrigeration system is disclosed, and particularly a system with a thermal storage reservoir (32) disposed in a secondary refrigeration loop (14) of the system. The reservoir (32) stores thermal reservoir material in heat exchange relation with the refrigerant in that secondary refrigeration loop (14). A primary refrigeration loop (12) transfers heat from the secondary refrigeration loop (14) to ambient. A third refrigeration loop (16) absorbs heat from a product to be cooled and transfers that heat to the secondary refrigeration loop (14). The thermal reservoir material may undergo a liquid/solid phase change, and preferably has a freezing point at about 20 °F (-7 °C). The multistage refrigeration system of the present invention is particularly adapted for use in stadium or arena settings, where rapid cooling of mass quantities of canned or bottled beverages for immediate consumption is desired.		