

Title (en)
REFRIGERATION DEVICE

Title (de)
KÜHLVORRICHTUNG

Title (fr)
DISPOSITIF DE RÉFRIGÉRATION

Publication
EP 4177539 A1 20230510 (EN)

Application
EP 21838192 A 20210706

Priority
• JP 2020116676 A 20200706
• JP 2021025511 W 20210706

Abstract (en)
An object is to provide a novel multi-stage refrigeration apparatus. The object is achieved by a refrigeration apparatus comprising a user-side heat transfer cycle that includes a user-side compressor, a user-side heat exchanger, a user-side pressure-reducing device, and a user-side cascade heat exchanger, and that circulates a user-side refrigerant; a heat-source-side heat transfer cycle that includes a heat-source-side compressor, a heat-source-side heat exchanger, a heat-source-side pressure-reducing device, and a heat-source-side cascade heat exchanger, and that circulates a heat-source-side refrigerant; a cascade heat exchanger configured to exchange heat between the user-side refrigerant of a user-side condenser and the heat-source-side refrigerant of a heat-source-side evaporator; and a control device, the user-side refrigerant having a boiling point of -30°C or more and 25°C or less, and the heat-source-side refrigerant having a boiling point of -55°C or more and less than -30°C.

IPC 8 full level
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CPC (source: EP US)
F25B 7/00 (2013.01 - EP); **F25B 9/002** (2013.01 - US); **F25B 9/10** (2013.01 - US); **F25B 49/022** (2013.01 - EP); **F25B 25/005** (2013.01 - EP); **F25B 2400/12** (2013.01 - US); **F25B 2400/121** (2013.01 - EP); **F25B 2600/0253** (2013.01 - EP); **F25B 2700/1933** (2013.01 - EP); **F25B 2700/21152** (2013.01 - EP); **F25B 2700/21163** (2013.01 - EP)

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