

Title (en)

METHOD AND SYSTEM FOR STORING AND RECOVERING ENERGY

Title (de)

VERFAHREN UND ANLAGE ZUM SPEICHERN UND RÜCKGEWINNEN VON ENERGIE

Title (fr)

PROCÉDÉ ET INSTALLATION DE STOCKAGE ET DE RÉCUPÉRATION D'ÉNERGIE

Publication

EP 3129609 A1 20170215 (DE)

Application

EP 15715164 A 20150402

Priority

- DE 102014005334 A 20140411
- EP 14001926 A 20140603
- EP 2015000716 W 20150402

Abstract (en)

[origin: WO2015154862A1] The invention relates to a method for storing and recovering energy, according to which a condensed air product (LAIR) is formed in an energy storage period, and in an energy recovery period, a pressure flow is formed and is expanded to produce energy using at least part of the condensed air product (LAIR) without a supply of heat from an external heat source. The method comprises inter alia, for the formation of the condensed air product (LAIR): the compression of air (AIR) in an air conditioning unit (10), at least by means of an adiabatically operated compressor device (12); the formation of a first and a second sub-flow downstream of the adiabatically driven compressor device (12), said flows being formed from the air (AIR) that has been compressed in said device and the guiding of the first and second sub-flows in parallel through a first thermal store (131) and through a second thermal store (132), in which stores heat produced during the compression of the air (AIR) is at least partially stored. For the formation of the pressure flow, a vaporized product (HPAIR) is produced inter alia from at least one part of the condensed air product (LAIR). During the energy-producing expansion process, the pressure flow is guided through a first expansion device (61) and a second expansion device (62) and is thus expanded in each device. Heat stored in the first heat store device (131) is transferred to the pressure flow upstream of the first expansion device (61) and heat stored in the second heat store device (132) is transferred to the pressure flow upstream of the second expansion device (62). The invention also relates to an installation (100).

IPC 8 full level

F01K 3/12 (2006.01); **F01K 13/00** (2006.01); **F17C 7/02** (2006.01); **F25J 1/00** (2006.01)

CPC (source: CN EP US)

F01K 3/12 (2013.01 - CN EP US); **F01K 13/00** (2013.01 - CN EP US); **F25J 1/0012** (2013.01 - CN EP US); **F25J 1/0037** (2013.01 - CN EP US); **F25J 1/004** (2013.01 - CN EP US); **F25J 1/0042** (2013.01 - CN EP US); **F25J 1/0045** (2013.01 - CN EP US); **F25J 1/0201** (2013.01 - CN EP US); **F25J 1/0228** (2013.01 - CN EP US); **F25J 1/0242** (2013.01 - CN EP US); **F25J 1/0251** (2013.01 - CN EP US); **F25J 2205/24** (2013.01 - CN EP US); **F25J 2205/60** (2013.01 - CN EP US); **F25J 2205/66** (2013.01 - CN EP US); **F25J 2210/06** (2013.01 - CN EP US); **F25J 2230/30** (2013.01 - CN EP US); **F25J 2240/10** (2013.01 - CN EP US); **F25J 2240/90** (2013.01 - CN EP US); **F25J 2270/06** (2013.01 - CN EP US)

Citation (search report)

See references of WO 2015154862A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2930318 A1 20151014; CN 106414914 A 20170215; EP 3129609 A1 20170215; US 2017175585 A1 20170622; WO 2015154862 A1 20151015

DOCDB simple family (application)

EP 14001926 A 20140603; CN 201580028433 A 20150402; EP 15715164 A 20150402; EP 2015000716 W 20150402; US 201515301861 A 20150402