

Title (en)  
ADSORPTION-ENHANCED COMPRESSED AIR ENERGY STORAGE

Title (de)  
ADSORPTIONSVERSTÄRKTER DRUCKLUFTENERGIESPEICHER

Title (fr)  
STOCKAGE D'ÉNERGIE À AIR COMPRIMÉ À ADSORPTION AMÉLIORÉE

Publication  
**EP 2435679 A4 20140514 (EN)**

Application  
**EP 10781188 A 20100527**

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- US 18149209 P 20090527

Abstract (en)  
[origin: WO2010138677A2] In an embodiment of the present disclosure, an energy storage device is presented. The energy storage device includes a porous material that adsorbs air and a compressor. The compressor converts mechanical energy into pressurized air and heat, and the pressurized air is cooled and adsorbed by the porous material. The temperature of the porous material is controlled so that the pressure over it remains essentially constant during the storage and discharge processes. The cooling of the porous material during the storage process, and the heating of the porous material during the discharge process, is assisted by a heat pump which may be either a vapor- compression heat pump, an absorption heat pump, or an adsorption heat pump. The energy storage device also includes a tank used to store the pressurized and adsorbed air and a motor. The motor is driven to recover the energy stored as compressed and adsorbed air by allowing the air to desorb and expand while driving the motor.

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Citation (search report)  

- [XP] WO 2009114205 A2 20090917 - ENERGY COMPRESSION LLC [US], et al
- [E] WO 2010138677 A2 20101202 - ENERGY COMPRESSION LLC [US], et al
- [X] US 4027993 A 19770607 - WOLFF OTTO E
- [X] US 4767938 A 19880830 - BERVIG DALE R [US]
- See references of WO 2010138677A2

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**US 2010036334 W 20100527**; AU 2010254067 A 20100527; CA 2763642 A 20100527; CN 201080033558 A 20100527; EP 10781188 A 20100527; IL 21654611 A 20111123