

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
27 February 2020 (27.02.2020)



(10) International Publication Number
WO 2020/039416 A3

(51) International Patent Classification:

F01K 3/00 (2006.01) *F03D 9/17* (2016.01)
F01K 3/18 (2006.01) *F03D 9/18* (2016.01)
F01K 25/10 (2006.01) *F01K 3/02* (2006.01)
F01K 7/34 (2006.01) *F01K 9/00* (2006.01)

(21) International Application Number:

PCT/IB2019/060896

(22) International Filing Date:

17 December 2019 (17.12.2019)

(25) Filing Language:

Italian

(26) Publication Language:

English

(30) Priority Data:

102019000002385 19 February 2019 (19.02.2019) IT

(71) Applicant: **ENERGY DOME S.R.L.** [IT/IT]; Viale
Abruzzi 94, 20131 Milano (IT).

(72) Inventor: **SPADACINI, Claudio**; Via Troubetzkoy, 58,
28925 Verbania Sona (VB) (IT).

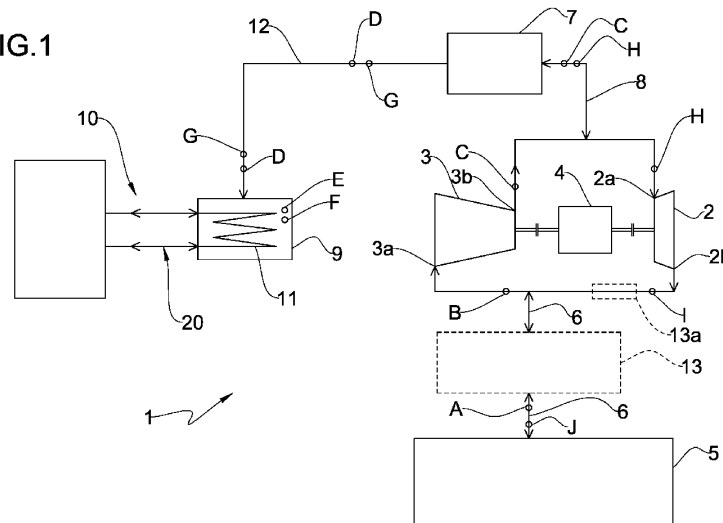
(74) Agent: **BRASCA, Marco**; c/o P.G.A. S.p.A., Via
Mascheroni, 31, 20145 Milano (IT).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,
KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,

(54) Title: ENERGY STORAGE PLANT AND PROCESS

FIG.1



(57) Abstract: An energy storage plant (1) comprises a casing (5) for the storage of a working fluid other than atmospheric air, in a gaseous phase and in equilibrium of pressure with the atmosphere; a tank (9) for the storage of said working fluid in a liquid or supercritical phase with a temperature close to the critical temperature; wherein said critical temperature is close to the ambient temperature. The plant (1) is configured to carry out a closed thermodynamic cyclic transformation (TTC), first in one direction in a charge configuration and then in the opposite direction in a discharge configuration, between said casing (5) and said tank (9); wherein in the charge configuration the plant (1) stores heat and pressure and in the discharge configuration generates energy.

[Continued on next page]

GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
- *upon request of the applicant, before the expiration of the time limit referred to in Article 21(2)(a)*

(88) Date of publication of the international search report:

14 May 2020 (14.05.2020)