



(51) International Patent Classification:

C02F 11/18 (2006.01) *C02F 11/04* (2006.01)
B01J 3/00 (2006.01) *C02F 11/12* (2006.01)

(21) International Application Number:

PCT/NO2014/000023

(22) International Filing Date:

4 March 2014 (04.03.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

20130339 6 March 2013 (06.03.2013) NO

(71) Applicant: CAMBI TECHNOLOGY AS [NO/NO];
Postboks 78, N-1371 Asker (NO).

(72) Inventors: SOLHEIM, Odd, Egil; Skustadgate 45, N-1395 Hvalstad (NO). NILSEN, Pål, Jahre; Bjørneroa 5, N-3472 Bødalen (NO).

(74) Agent: PROTECTOR IP CONSULTANTS AS;
Oscarsgate 20, N-0352 Oslo (NO).(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, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, 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,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, 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).

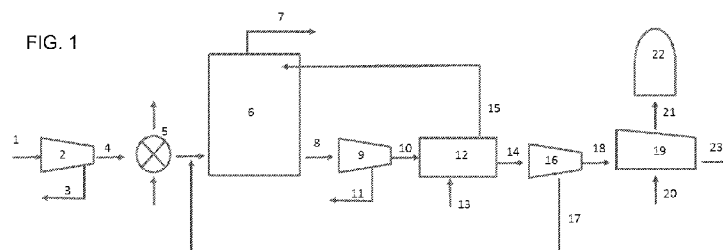
Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))

Published:

— with international search report (Art. 21(3))

(54) Title: METHOD AND DEVICE FOR THERMAL BIOLOGICAL BREAKDOWN AND DEWATERING OF BIOMASS



(57) Abstract: A method is described for thermal biological breakdown and dewatering of biomass, which is characterised in that it comprises the following steps: - lead the biological residue material (8) from a digesting tank (6) to a dewatering device (9) and dewater the material to typically 15-25% dry matter, - lead the dewatered material (10) to a device (12) and carry out a thermal hydrolysis at typically 145-170 °C for typically 10-40 minutes, - subject the hydrolysed biomass (14) to a quick pressure reduction that results in a steam explosion in the biomass, - dewater the thermally hydrolysed and steam exploded hot biomass (14), at typically 85-105 °C in a closed dewatering unit (16), typically a centrifuge, to typically 35-60% dry matter, - cool the dewatered biomass (18) in a cooler (19), preferably an air-cooler and dewater the biomass further by evaporation to typically 40- 75% dry matter, - lead the liquid phase (17) from the dewatering unit (16), which contains considerable amounts of hydrolysed organic matter and heat upstream of the digesting tank (6) for increased production of biogas. Also described is a device to carry out the method.