



(51) International Patent Classification:

C10B 53/02 (2006.01)

C10B 49/04 (2006.01)

C10B 7/10 (2006.01)

C10L 5/44 (2006.01)

C10B 47/44 (2006.01)

(21) International Application Number:

PCT/FI2020/050226

(22) International Filing Date:

07 April 2020 (07.04.2020)

(25) Filing Language:

Finnish

(26) Publication Language:

English

(30) Priority Data:

20195284

08 April 2019 (08.04.2019)

FI

(71) Applicant: CARBOFEX OY [FI/FI]; Näsiniementie 9, 02740 Espoo (FI).

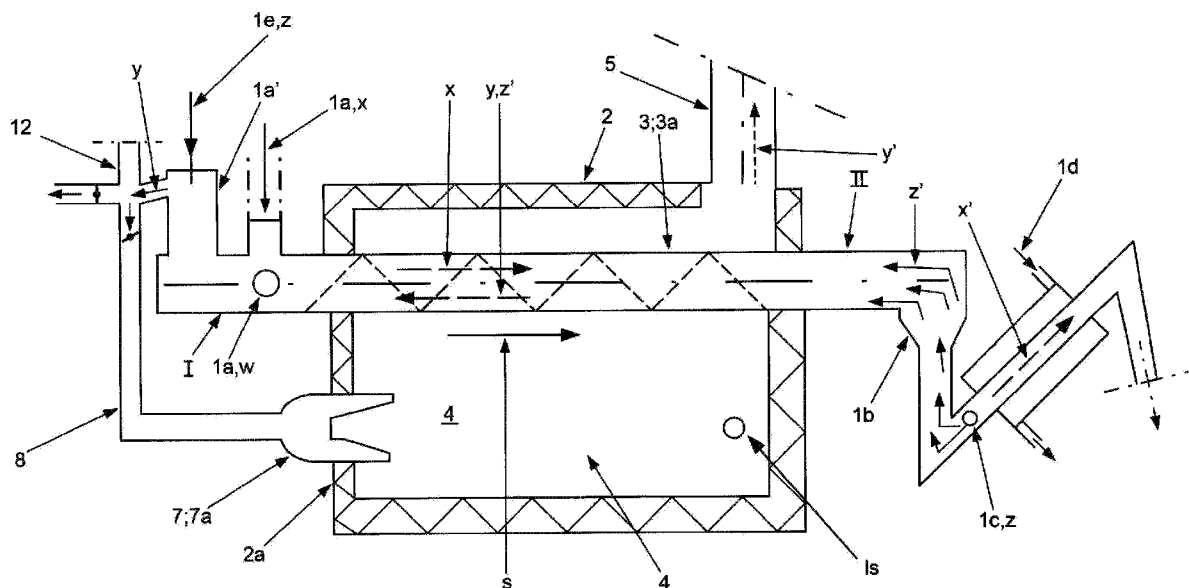
(72) Inventor: TUKIAINEN, Sampo; Naurissuontie 48, 33480 Ylöjärvi (FI).

(74) Agent: KANGASMÄKI, Reijo; Finnish Patent Consulting FPC, PO box 25, 33401 Tampere (FI).

(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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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, 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).

(54) Title: METHOD AND APPARATUS FOR THE MANUFACTURING OF NON-ENERGENT BIOCOAL WITH THERMAL TREATMENT



(57) Abstract: The invention relates to a method and an apparatus for manufacturing, with thermal treatment, non-energent biocoal. Feedstock (x) is conveyed in a process space (2) with the conveyor arrangement (3), whereby a pyrolysis gas (y) is generated from the feedstock (x) present inside the conveyor arrangement (3) as a result of heat transfer from a combustion chamber (4). The amount of polycyclic aromatic hydrocarbons (PAHs) compounds contained in the non-energent biocoal (x') is reduced/eliminated by means of water vapour (z') by delivering water (z) into the interior of the conveyor arrangement (3).

Published:

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