



- (51) International Patent Classification:
F27B 1/16 (2006.01) *H05H 1/26* (2006.01)
- (21) International Application Number:
PCT/CA2013/050292
- (22) International Filing Date:
16 April 2013 (16.04.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/625,398 17 April 2012 (17.04.2012) US
13/860,662 11 April 2013 (11.04.2013) US
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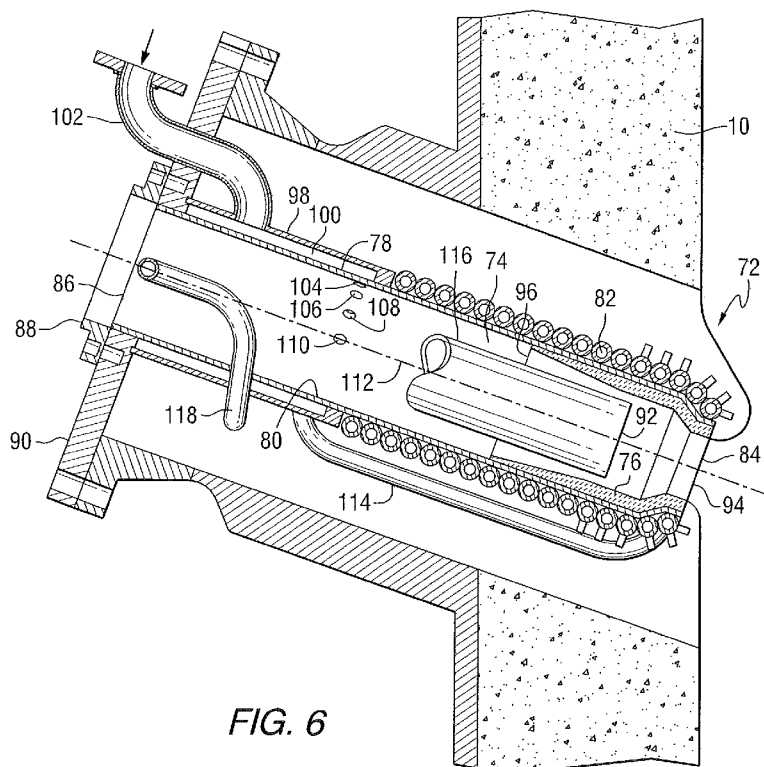
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, 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, 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,

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(54) Title: START-UP TORCH



(57) Abstract: An apparatus includes a tuyere, a plasma torch positioned to inject hot gas into the tuyere, and a plurality of nozzles configured to inject a combustible material into the tuyere for combustion of the combustible material within the tuyere. The apparatus can be used to practice a method including: injecting a combustible material into a plurality of tuyeres in a wall of a reactor vessel, using a plasma torch to inject hot gas into the tuyeres to ignite the combustible material, and directing heat from combustion of the combustible material into the reactor vessel to preheat the reactor vessel.

WO 2013/155625 A1



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, **Published:**
ML, MR, NE, SN, TD, TG).

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