



- (51) **International Patent Classification:**
C10G 9/16 (2006.01) C10G 75/00 (2006.01)
- (21) **International Application Number:**
PCT/US2013/050013
- (22) **International Filing Date:**
11 July 2013 (11.07.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
13/554,460 20 July 2012 (20.07.2012) US
- (71) **Applicant:** LUMMUS TECHNOLOGY INC. [US/US];
1515 Broad Street, Bloomfield, NJ 07003-3096 (US).
- (72) **Inventors:** DE HAAN, Stephen; 41 Mountainside Dr.,
Wayne, NJ 07470 (US). TAM, Peter, Kin-Lee; 7 Ever-
green Row, Armonk, NY 10504 (US).
- (74) **Agents:** GRIFFITH, Aron, T. et al.; Osha Liang LLP,
909 Fannin Street, Suite 3500, Houston, TX 77010 (US).
- (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, 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,
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))

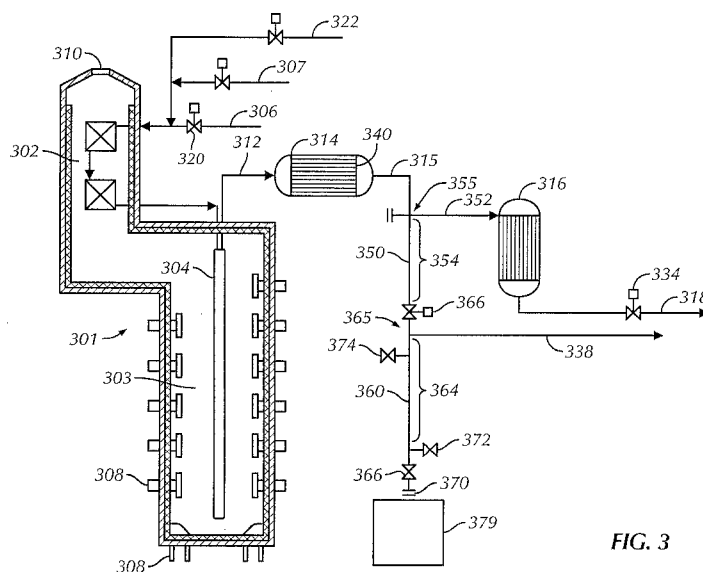
(54) **Title:** COKE CATCHER

FIG. 3

- (57) **Abstract:** The present disclosure provides for processes including a coke catcher that may be emptied during normal operation or steam standby, thereby overcoming the deficiencies in the prior design as discussed above, the coke catchers and process flows disclosed herein protecting the secondary transfer line exchanger from foulant while not limiting the time between heater cold shut-downs. The designs consider the impact of decoking options, such as when decoking to a firebox as opposed to a decoking drum. Further, flow and cost considerations are addressed in various embodiments; for example, decoke valves are fairly expensive, and process flows disclosed herein may provide for relocation of the decoke valve to facilitate coke catcher operations while not adding an expensive valve to the overall operating flow scheme.