

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
19 August 2004 (19.08.2004)

PCT

(10) International Publication Number
WO 2004/069410 A2

(51) International Patent Classification⁷:

B01L

(74) Agent: **JOHNSON, Kenneth, H.**; P.O. Box 630708,
Houston, TX 77263 (US).

(21) International Application Number:

PCT/US2004/000609

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(22) International Filing Date: 8 January 2004 (08.01.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10/357,123

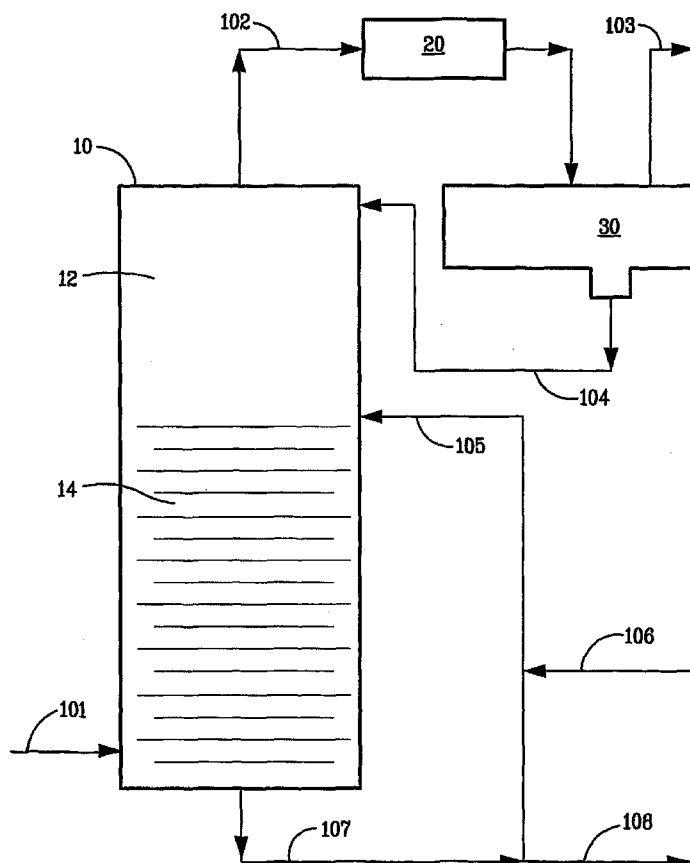
3 February 2003 (03.02.2003) US

(71) Applicant: **CATALYTIC DISTILLATION TECH-
NOLOGIES** [/US]; 10100 Bay Area Boulevard, Pasadena,
TX 77507 (US).

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,
GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,

[Continued on next page]

(54) Title: LIQUID-CONTINUOUS COLUMN DISTILLATION



(57) Abstract: Bubble columns fractionate with vapor-liquid mass transfer efficiencies approaching that of distillation towers when vapor velocities in excess of 50% of jet flood are used. If the vapor velocities are pushed above about 70% of jet flood then the distillation performance of a given column packing becomes similar for both liquid continuous operation (bubble column mode) and vapor continuous operation (ordinary distillation tower mode).

WO 2004/069410 A2



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

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *without international search report and to be republished upon receipt of that report*