

06 SEP 2002

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

162162

(43) International Publication Date
13 September 2001 (13.09.2001)

PCT

(10) International Publication Number
WO 01/66225 A3(51) International Patent Classification⁷: **B01D 45/12,**
45/16

(21) International Application Number: PCT/EP01/02626

(22) International Filing Date: 8 March 2001 (08.03.2001)

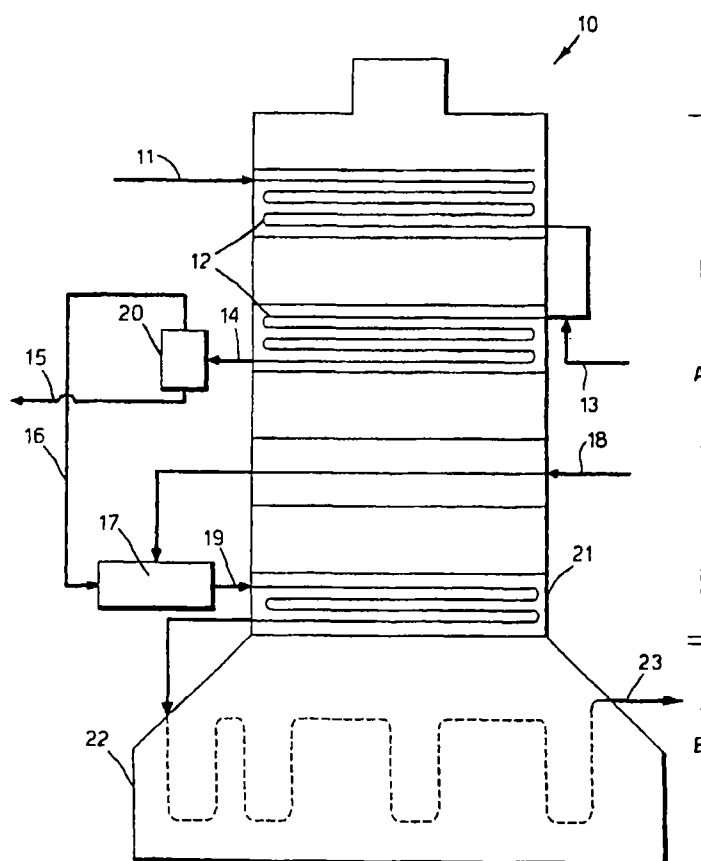
(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/520,493 8 March 2000 (08.03.2000) US(71) Applicant: **SHELL INTERNATIONALE RESEARCH**
MAATSCHAPPIJ B.V. [NL/NL]; Carel van Bylandtlaan
30, NL-2596 HR The Hague (NL).(72) Inventors: **GARCIA, Raul, Jasso, Sr.**; 6422 Horsepen
Bayou Drive, Houston, TX 77084 (US). **GRIESHOP,**
Vance, Jordan; 141 Villere Drive, Destrehan, LA 70047(US). **NGAN, Danny, Yuk-Kwan**; 539 Three Corners,
Houston, TX 77024 (US). **SANBORN, Richard, Addi-**
son; 12418 Mossycup Drive, Houston, TX 77024 (US).
STEIN, Louis, Edward; 5818 Autumn Forest, Houston,
TX 77092 (US).(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
DE, DK, DM, DZ, EE, 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,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: A VAPOUR/LIQUID SEPARATOR



(57) Abstract: A vapour/liquid separator comprising: a vessel having an inlet for receiving a vapour/liquid mixture; a hub located within the vessel at a position below the inlet wherein the hub supports a plurality of vane elements at its near end for centrifuging the mixture as the mixture proceeds through the vessel; a vapour outlet located at the distant end of the hub for withdrawing the vapour phase of the mixture from the vessel; and an outlet located below the vapour outlet for withdrawing the liquid phase of the mixture from the vessel. The invention further relates to a method for separating the vapour and liquid phases of a mixture of hydrocarbon and steam comprising the steps of: flowing the mixture through the inlet of a vessel; centrifuging the mixture by means of a centrifuge located at the head end of the vessel; controlling the recirculation and splashing of the mixture as the mixture falls on the centrifuge; flowing the liquid phase down the walls of the vessel; directing the vapour phase toward an outlet pipe for the vapours; directing the vapour phase from the vessel and to means for further processing; and directing the liquid phase from the vessel and to means for further processing.

WO 01/66225 A3



ACTION

Published:

— with international search report

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.

(88) Date of publication of the international search report:

18 April 2002