

Title (en)

NITROGEN RECOVERY APPARATUS AND METHOD OF RECOVERING NITROGEN

Title (de)

STICKSTOFFWIEDERGEWINNUNGSVORRICHTUNG UND VERFAHREN ZUR WIEDERGEWINNUNG VON STICKSTOFF

Title (fr)

APPAREIL DE RÉCUPÉRATION D'AZOTE ET PROCÉDÉ DE RÉCUPÉRATION D'AZOTE

Publication

EP 3382307 A1 20181003 (EN)

Application

EP 17164256 A 20170331

Priority

EP 17164256 A 20170331

Abstract (en)

A nitrogen recovery apparatus (100) for recovering nitrogen from natural gas comprises a separator (110) having a liquid fraction port and a vapour fraction port in fluid communication with a split flow arrangement (112), the split flow arrangement (112) having a sub-cooled fluid path (118) and an expanded fluid path (120). A fractionating column (116) has a reflux inlet port (124) in fluid communication with the subcooled fluid path (118) above a middle feed port (130) thereof, the middle feed port (130) being in fluid communication with the expanded fluid path (120). A bottom feed port (114) of the fractionating column (116) is in fluid communication with the liquid fraction port of the separator (110). A side reboiler circuit (132) and a reboiler circuit (140) are operably coupled to the fractionating column (116) below the bottom feed port (114). A bottom hydrocarbon product stream path (160) is in fluid communication with a bottom hydrocarbon port (162) of the fractionating column (116).

IPC 8 full level

F25J 3/02 (2006.01)

CPC (source: EP US)

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Citation (applicant)

US 4157904 A 19790612 - CAMPBELL ROY E [US], et al

Citation (search report)

- [XY] DE 102013013883 A1 20150226 - LINDE AG [DE]
- [Y] DE 3822175 A1 19900104 - LINDE AG [DE]
- [Y] US 4504295 A 19850312 - DAVIS RUTH A [US], et al
- [Y] DE 102014010103 A1 20160114 - LINDE AG [DE]
- [Y] DE 102012017486 A1 20140306 - LINDE AG [DE]
- [Y] US 4662919 A 19870505 - DAVIS RUTH A [US]
- [Y] DANIEL J WEIDERT ET AL: "Integrated Systems ? The Key to Unlocking Gas Processing", GPA EUROPE CONFER., 1 September 2011 (2011-09-01), pages 1 - 10, XP007921113

Designated contracting state (EPC)

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Designated extension state (EPC)

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DOCDB simple family (application)

EP 17164256 A 20170331; AU 2018241598 A 20180323; EP 2018057464 W 20180323; MX 2019011302 A 20180323; RU 2019130587 A 20180323; US 201816498514 A 20180323