

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
03 July 2025 (03.07.2025)



(10) International Publication Number
WO 2025/140790 A1

- (51) **International Patent Classification:**
B01J 8/02 (2006.01) *B01J 8/06* (2006.01)
- (21) **International Application Number:**
PCT/EP2024/025356
- (22) **International Filing Date:**
23 December 2024 (23.12.2024)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
FR2315353 27 December 2023 (27.12.2023) FR
- (71) **Applicants:** **TECHNIP ENERGIES FRANCE** [FR/FR];
2126 Boulevard de la Défense, Immeuble Origine, CS
10266, 92741 Nanterre Cedex (FR). **COMMISSARIAT A
L'ENERGIE ATOMIQUE ET AUX ENERGIES AL-
TERNATIVES** [FR/FR]; 25 rue Leblanc Bat Le Ponant,
FR 75015 Paris (FR).
- (72) **Inventors:** **ALLIX, Jean-Luc**; c/o Technip Energies
France, 2126 Boulevard de la, Defense, CS 10266, Im-
meuble Origine, CS 10266, 92741 Nanterre Cedex (FR).
ROGER, Albane; c/o Technip Energies France, 2126
Boulevard de la, Defense, CS 10266, Immeuble Origine, CS
10266, 92741 Nanterre Cedex (FR). **CHAISE, Albin**; c/o
Commissariat a l'energie atomique et aux energies, alterna-

tives, 25 rue Leblance Bat Le Ponant, 75015 Paris (FR).
CIGNA, Julien; c/o Commissariat a l'energie atomique et
aux, energies alternatives, 25 rue Leblance Bat Le Ponant,
75015 Paris (FR). **MORO-LE GALL, Isabelle**; c/o Com-
missariat a l'energie atomique et aux, energies alternatives,
25 rue Leblance Bat Le Ponant, 75015 Paris (FR).

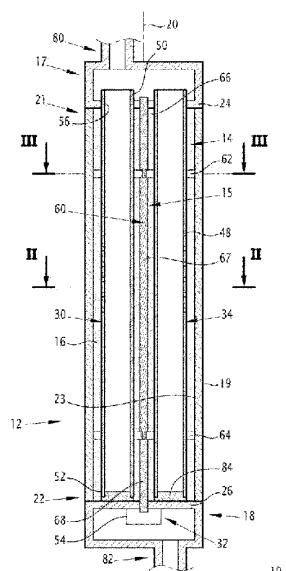
(74) **Agent:** **WITHERS & ROGERS LLP** et al.; 2 London
Bridge, London, SE1 9RA (GB).

(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, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG,
KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY,
MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA,
NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO,
RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

(84) **Designated States** (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, CV,
GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST,
SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ,
RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ,

(54) **Title:** TUBULAR REACTOR WITH FIXED BED

[Fig 1]



(57) **Abstract:** The invention relates to a tubular reactor (10) comprising: a casing (12), extending along a main axis (20); and an insert (14) placed in said casing, the casing (12) and the insert (14) delimiting an intermediate space (28), able to contain a bed (16) of catalytic powder. The insert (14) comprises a first (30, 34) and a second tubes, extending along a secondary axes; and the reactor also comprises a support (15) placed in the intermediate space (28) and fixed to each of the tubes, the support maintaining said tubes so that each secondary axis extends parallel to the main axis (20).

WO 2025/140790 A1

[Continued on next page]

DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT,
LU, LV, MC, ME, 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).

Published:

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