



(51) International Patent Classification:

H01M 8/02 (2006.01) *H01M 8/18* (2006.01)
H01M 8/10 (2006.01) *H01M 8/20* (2006.01)
H01M 8/24 (2006.01)

(21) International Application Number:

PCT/IB2010/001651

(22) International Filing Date:

29 June 2010 (29.06.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(72) Inventors; and

(71) Applicants : **KAMPANATSANYAKORN, Krisada**
[TH/TH]; 113 MOO 4 Toong Song Hong, Don Muang
District, Bangkok 10010 (TH). **HOLASUT, Suradit**
[TH/TH]; 289 MOO 4 Nam Prae, Hang Dong District,
Chiangmai 50230 (TH).

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, KM, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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, SD, SL, SZ, TZ, UG,
ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

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

(54) Title: COMPACT FRAMELESS BIPOLAR STACK FOR A MULTICELL ELECTROCHEMICAL REACTOR WITH PLANAR BIPOLAR ELECTRICAL INTERCONNECTS AND INTERNAL DUCTING OF CIRCULATION OF ELECTROLYTE SOLUTIONS THROUGH ALL RESPECTIVE CELL COMPARTMENTS

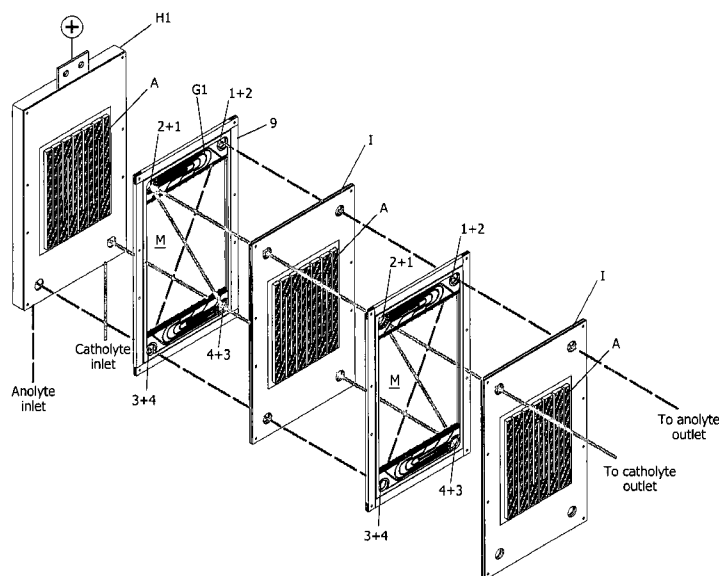


FIG. 2

(57) Abstract: A frameless bipolar cell stack architecture with either internal manifolds of circulation of electrolyte solutions "in parallel" through all respective cell compartments or internal ducting adapted to provide for "serial" flow paths of the electrolyte solutions in succession through all respective cell compartments of the stack, does not employ any plastic frame and employs substantially planar bipolar electrical interconnects (I) of substantially homogeneous electrical conductivity with a perimeter that superimposes to the perimeter of any other element of the stack. Whenever useful for the particular application, the planar interconnects may have a protruding "lug portion" that projects beyond the outer perimeter side of the other stacked elements, providing an externally contactable area sufficiently large for the power (current rating) of an electrical tap, at an intermediate voltage relative to the voltage difference between the end terminals of the stack, connectable to an external circuit.