



(51) International Patent Classification:			61/158,252	6 March 2009 (06.03.2009)	US	
	<i>C01B 3/00</i> (2006.01)	<i>C01B 3/02</i> (2006.01)	61/160,145	13 March 2009 (13.03.2009)	US	
(21) International Application Number:			61/164,151	27 March 2009 (27.03.2009)	US	
	PCT/US2009/052072		61/166,495	3 April 2009 (03.04.2009)	US	
(22) International Filing Date:			61/170,418	17 April 2009 (17.04.2009)	US	
	29 July 2009 (29.07.2009)		61/174,346	30 April 2009 (30.04.2009)	US	
(25) Filing Language:	English		61/176,675	8 May 2009 (08.05.2009)	US	
			61/178,796	15 May 2009 (15.05.2009)	US	
(26) Publication Language:	English		61/180,456	22 May 2009 (22.05.2009)	US	
			61/182,468	29 May 2009 (29.05.2009)	US	
(30) Priority Data:			61/186,660	12 June 2009 (12.06.2009)	US	
	61/084,923	30 July 2008 (30.07.2008)	US	61/218,771	19 June 2009 (19.06.2009)	US
	61/086,316	5 August 2008 (05.08.2008)	US	61/220,911	26 June 2009 (26.06.2009)	US
	61/088,492	13 August 2008 (13.08.2008)	US	61/222,721	2 July 2009 (02.07.2009)	US
	61/094,513	5 September 2008 (05.09.2008)	US	61/226,541	17 July 2009 (17.07.2009)	US
	61/098,514	19 September 2008 (19.09.2008)	US	(71) Applicant (for all designated States except US):	BLACKLIGHT POWER, INC. [US/US]; 493 Old Trenton Road, Cranbury, NJ 08512 (US).	
	61/102,465	3 October 2008 (03.10.2008)	US			
	61/104,534	10 October 2008 (10.10.2008)	US	(72) Inventor; and	(75) Inventor/Applicant (for US only): MILLS, Randall, L. [US/US]; 27 Rosedale Road, Princeton, NJ 08540 (US).	
	61/105,660	15 October 2008 (15.10.2008)	US			
	61/106,932	20 October 2008 (20.10.2008)	US	(74) Agent: SWEET, Mark, D. ; Finnegan, Henderson, Farabow, Garrett, & Dunner L.L.p., 901 New York Avenue, N.w., Washington, DC 20001 (US).	(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, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,	
	61/109,088	28 October 2008 (28.10.2008)	US			
	61/110,253	31 October 2008 (31.10.2008)	US			
	61/112,491	7 November 2008 (07.11.2008)	US			
	61/114,735	14 November 2008 (14.11.2008)	US			
	61/193,543	5 December 2008 (05.12.2008)	US			
	61/139,293	19 December 2008 (19.12.2008)	US			
	61/145,022	15 January 2009 (15.01.2009)	US			
	61/146,962	23 January 2009 (23.01.2009)	US			
	61/150,571	6 February 2009 (06.02.2009)	US			
	61/152,500	13 February 2009 (13.02.2009)	US			
	61/156,328	27 February 2009 (27.02.2009)	US			

[Continued on next page]

(54) Title: HETEROGENEOUS HYDROGEN-CATALYST REACTOR

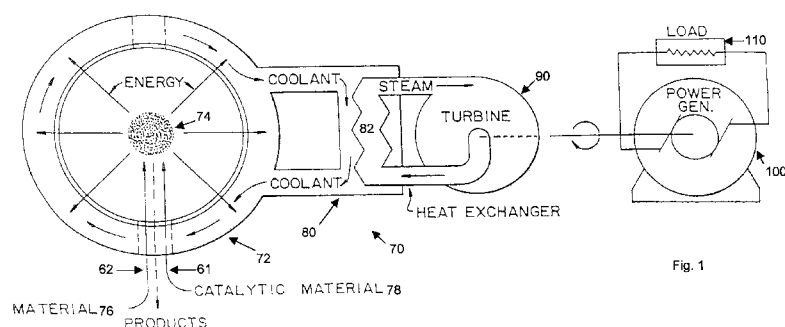


Fig. 1

(57) Abstract: A power source and hydride reactor is provided comprising a reaction cell for the catalysis of atomic hydrogen to form hydrinos, a source of atomic hydrogen, a source of a hydrogen catalyst comprising a solid, liquid, or heterogeneous catalyst reaction mixture. The catalysis reaction is activated or initiated and propagated by one or more chemical other reactions. These reactions maintained on a electrically conductive support can be of several classes such as (i) exothermic reactions which provide the activation energy for the hydrino catalysis reaction, (ii) coupled reactions that provide for at least one of a source of catalyst or atomic hydrogen to support the hydrino catalyst reaction, (iii) free radical reactions that serve as an acceptor of electrons from the catalyst during the hydrino catalysis reaction, (iv) oxidation-reduction reactions that, in an embodiment, serve as an acceptor of electrons from the catalyst during the hydrino catalysis reaction, (v) exchange reactions such as anion exchange that facilitate the action of the catalyst to become ionized as it accepts energy from atomic hydrogen to form hydrinos, and (vi) getter, support, or matrix-assisted hydrino reaction that may provide at least one of a chemical environment for the hydrino reaction, act to transfer electrons to facilitate the H catalyst function, undergoes a reversible phase or other physical change or change in its electronic state, and binds a lower-energy hydrogen product to increase at least one of the extent or rate of the hydrino reaction. Power and chemical plants that can be operated continuously using electrolysis or thermal regeneration reactions maintained in synchrony with at least one of power and lower-energy-hydrogen chemical production.



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, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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

2 December 2010