

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
23 May 2002 (23.05.2002)

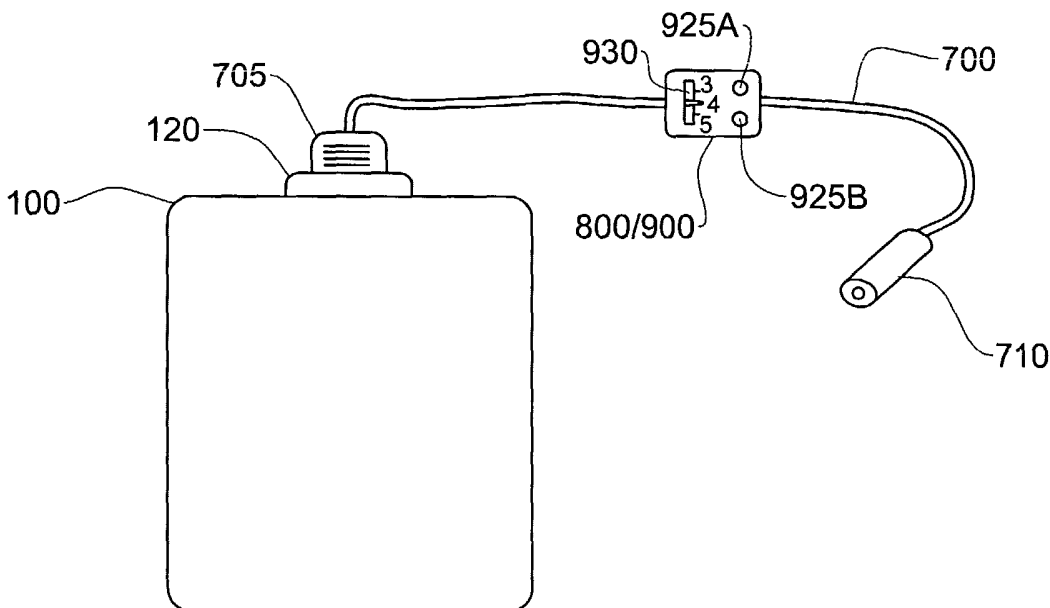
PCT

(10) International Publication Number
WO 02/041464 A3

- (51) International Patent Classification⁷: **H02J 7/00**, H01M 12/06
- (74) Agent: **REINHOLD COHN AND PARTNERS**; P.O. Box 4060, 61040 Tel-Aviv (IL).
- (21) International Application Number: PCT/IB01/02165
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, 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, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (22) International Filing Date:
19 November 2001 (19.11.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/252,053 20 November 2000 (20.11.2000) US
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, 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, GQ, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for all designated States except US*): **ELECTRIC FUEL (E.F.L.) LTD.** [IL/IL]; Western Industrial Park, P.O.Box 641, 99000 Bet Shemesh (IL).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **SHRIM, Yaron** [IL/IL]; 20/1 Mazel Shor Street, 90805 Jerusalem (IL). **GIVON, Menachem** [IL/IL]; DN Hanegev, 85320 Kibbutz Shoval (IL).
- Published:
— with international search report
- (88) Date of publication of the international search report:
20 March 2003

[Continued on next page]

(54) Title: HIGH CAPACITY COMPACT POWER SOURCE



(57) Abstract: A portable charger employs metal air battery cells and has enough charge and current capacity to permit simultaneous use and charging of an attached appliance with a secondary battery. This allows, for example, a cell phone user to use a cell phone for extended periods of time. Preferably, the primary charger may have an extension cord to allow the primary batteries to be located remotely from the appliance, for example attached to a belt.



WO 02/041464 A3



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.

INTERNATIONAL SEARCH REPORT

In **national Application No**
PCT/IB 01/02165

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H02J7/00 H01M12/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H02J H01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 206 576 A (JASINSKI) 27 April 1993 (1993-04-27)	1,4,8,9
Y	column 2, line 1 -column 3, line 46; figures 1-3B	11,14
X	US 5 536 590 A (CHEIKY) 16 July 1996 (1996-07-16)	1,3
A	column 3, line 60 -column 10, line 34; figures 1-10	2,4-8
A	US 5 849 426 A (THOMAS ET AL) 15 December 1998 (1998-12-15)	1-3,8
	column 2, line 15 -column 5, line 60; figures 1-5	
	-/--	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

27 September 2002

Date of mailing of the International search report

21. 10. 02

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Calarasanu, P

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 01/02165

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 297 01 231 U (REISCHL) 26 September 1997 (1997-09-26)	10
Y	page 1, line 1 -page 2, line 4; figures 1,2	11,13,14
A	<p style="text-align: center;">---</p> US 5 613 229 A (BARANOWSKI ET AL) 18 March 1997 (1997-03-18) column 2, line 1 -column 9, line 25; figures 1-6	10,14
Y	<p style="text-align: center;">---</p> US 5 793 187 A (DEBAUCHE) 11 August 1988 (1988-08-11) column 3, line 65 -column 7, line 25; figures 1-6B	13
A	<p style="text-align: center;">---</p> DE 29 37 787 A (WÖRNWR) 2 April 1981 (1981-04-02) the whole document <p style="text-align: center;">-----</p>	10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 01/02165

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-9

Claims 1 to 9 relate to a battery-charger with zinc-air cells and having a particular form due to the type of the cells.

2. Claims: 10-14

Claims 10 to 14 relate to a portable battery-charger with a primary battery pack and an adapter for supplying a portable appliance and for charging another battery connected to said appliance.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 01/02165

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5206576	A	27-04-1993	NONE
US 5536590	A	16-07-1996	NONE
US 5849426	A	15-12-1998	NONE
DE 29701231	U	15-05-1997	DE 29701231 U1 15-05-1997
US 5613229	A	18-03-1997	CA 2163498 A1 15-06-1996 DE 19545531 A1 27-06-1996 GB 2296113 A ,B 19-06-1996 JP 8237941 A 13-09-1996
US 5793187	A	11-08-1998	NONE
DE 2937787	A	02-04-1981	DE 2937787 A1 02-04-1981