

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 February 2012 (02.02.2012)

PCT

(10) International Publication Number
WO 2012/016025 A3

(51) International Patent Classification:
B29C 31/02 (2006.01)

(21) International Application Number:
PCT/US2011/045699

(22) International Filing Date:
28 July 2011 (28.07.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/368,439 28 July 2010 (28.07.2010) US

(71) Applicant (for all designated States except US): PATCH MANAGEMENT, INC. [US/US]; 451 Tyburn Road, Fairless Hills, Pennsylvania 19030 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): KLEIGER, Scott P. [US/US]; 4341 Hoffinan Road, Harleysville, Pennsylvania 19438 (US).

(74) Agent: SHI, Linda; Volpe and Koenig, P.C., United Plaza, 30 S. 17th Street, Philadelphia, PA 19103 (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, 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, RS, 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))
- 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:
3 May 2012

(54) Title: MINI PATCHER FOR PATCHING POTHoles AND THE LIKE AND METHOD FOR PERFORMING SAME

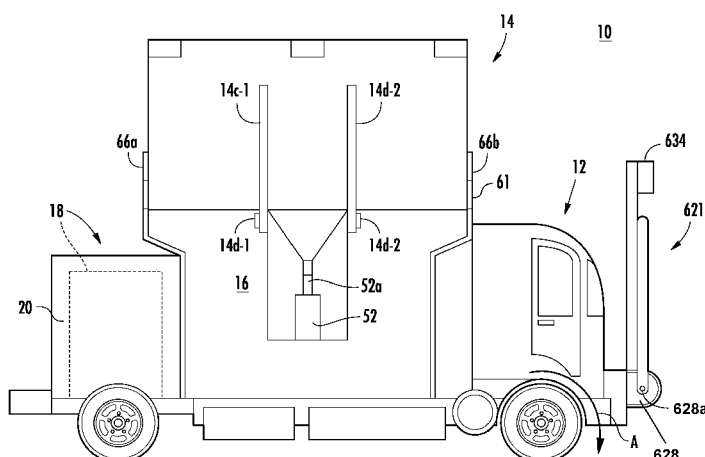


FIG. 1A

(57) Abstract: A patcher capable of performing patching operations even when operating in confined spaces and having a pressurized aggregate storage tank and driving devices for opening and air-tightly closing the tank lid and locking/unlocking the tank lid in proper sequence. Tandem linear accelerators control the flow of aggregate from the tank to a dispensing outlet. An articulated boom assembly is operated to position an aggregate dispenser over the repair location. The boom assembly is movable to a vertical position to prevent the assembly from extending beyond the right and left sides of the patcher to provide a safe condition when travelling during a non-patching operating mode. All of the electrically-operated devices on the patcher derive energy from a common battery pack which is charged by the patcher engine during a non-patching mode and alternatively during a patching mode when the stored energy in the battery pack drops below a given threshold.

WO 2012/016025 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/045699

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - E01C 23/06 (2012.01)

USPC - 404/83

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(8) - E01C 23/02, 23/06 (2012.01)

USPC - 180/60, 65.28, 65.285, 65.29; 366/22, 23, 24, 40; 404/83, 101, 107, 108, 111

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 practicable, search terms used)

PatBase, Google Patents, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,419,654 A (KLEIGER) 30 May 1995 (30.05.1995) entire document	1-6, 26-28
Y	US 3,874,472 A (DEANE) 01 April 1975 (01.04.1975) entire document	1-6, 26-28
Y	US 2004/0046394 A1 (LIM) 11 March 2004 (11.03.2004) entire document	4-5, 26-28
A	US 3,564,985 A (HELLER) 23 February 1971 (23.02.1971) entire document	1-6, 26-28
A	US 2008/0031688 A1 (GILCHRIST) 07 February 2008 (07.02.2008) entire document	1-6, 26-28
A	WO 2010/081674 A1 (STEFFEN) 22 July 2010 (22.07.2010) entire document	1-6, 26-28

Further documents are listed in the continuation of Box C.

* 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 application or patent 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

24 February 2012

Date of mailing of the international search report

14 MAR 2012

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents

P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/045699

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

See extra 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 additional fees, this Authority did not invite payment of additional fees.
- 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.:
1-6, 26-28

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/045699

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-6 and 26-28 are drawn to a self-propelled patching vehicle.

Group II, claims 7-20 are drawn to a storage tank assembly for holding and conveying aggregate.

Group III, claims 21-24 are drawn to an aggregate flow control assembly.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical features of Group I, a self-propelled vehicle having a battery pack, as claimed therein are not present in Groups II-III; the special technical features of Group II, a storage tank having a large inlet, a lid connected by first and second pivoting brackets and an actuator for opening and closing said lid, as claimed therein are not present in Groups I and III; and the special technical features of Group III, a flow control assembly for controlling the dispensing of an aggregate from an aggregate tank comprising a base member at a tapered bottom of said tank, and first and second actuators for sliding said plate using fine and coarse movements to regulate a flow of aggregate from said tank, as claimed therein are not present in Groups I-II.

Since none of the special technical features of the Groups I-III inventions is found in more than one of the inventions, unity is lacking.