



- (51) **International Patent Classification:**
E04H 7/02 (2006.01) *E02B 3/10* (2006.01)
B65D 88/52 (2006.01)
- (21) **International Application Number:**
PCT/US2012/026190
- (22) **International Filing Date:**
22 February 2012 (22.02.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**

61/445,653	23 February 2011 (23.02.2011)	US
	PCT/US2011/050834	
	8 September 2011 (08.09.2011)	US
61/569,070	9 December 2011 (09.12.2011)	US
61/600,640	18 February 2012 (18.02.2012)	US
- (71) **Applicant (for all designated States except US):** **Quick Pits LLC** [US/US]; 2189 River Road, Grand Junction, Colorado 81505 (US).
- (72) **Inventor; and**
- (75) **Inventor/Applicant (for US only):** **STEIN, Allen** [US/US]; 3366 F Road, Clifton, Colorado 81520 (US).
- (74) **Agent:** **WYLES, Terrence;** Leyendecker & Lemire, LLC, 9137 E. Mineral Cir., Suite 280, Centennial, Colorado 80112 (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, QA, RO, RS, RU, RW, 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, RW, 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).

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))
- of inventorship (Rule 4.17(iv))

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))

[Continued on next page]

(54) **Title:** MODULAR, DYNAMICALLY SIZED AND SHAPED, INDUSTRIAL-LIQUID CONTAINMENT SYSTEM AND METHODS OF USE

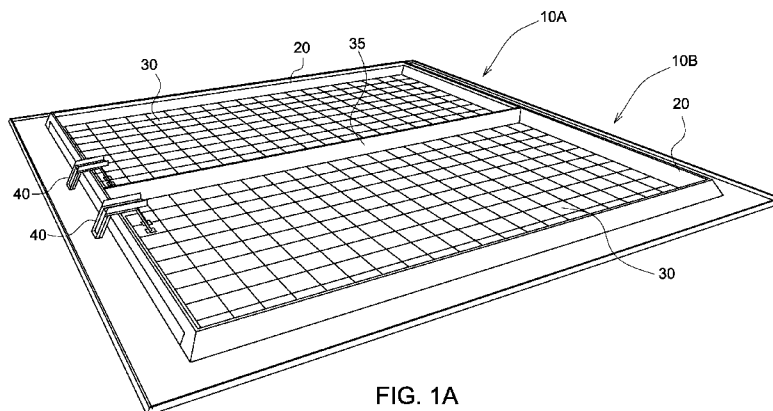


FIG. 1A

(57) **Abstract:** What is disclosed is a portable, modular, and dynamically sized and shaped, above-ground, industrial liquid-containment system. Typically, the system has an outer-containment perimeter and an inner-containment perimeter (a reservoir), thus providing two barriers for environmental protection. A reservoir is comprised of a plurality of substantially A-framed segments that are hinged at the top and allows for folding together when the center and bottom braces are removed. A key feature for the A-frame segments is in their lack of steel cladding on the water side of most A-frames segments. Instead, fabric and/or cargo netting is used because it reduces weight and grips the A-frame purlins as the weight of contained liquids exert stabilizing downward force on A-frames. In addition, a steel grid system can run along the reservoir floor to compensate for expansion forces due to both temperature and water-weight.



(88) Date of publication of the international search report:
1 November 2012

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/026190**A. CLASSIFICATION OF SUBJECT MATTER*****E04H 7/02(2006.01)i, B65D 88/52(2006.01)i, E02B 3/10(2006.01)i***

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)

E04H 7/02; A01G 1/00; E02B 7/02; B65D 25/00; E01C 11/22; E02B 7/20; E02B 3/10; F16N 31/00

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

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: liquid, containment,A-frame, sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 04921373 A (COFFEY; ROBERT C.) 01 May 1990 See column 4 line 31 - column 5 line 65, column 7 lines 5-9 and figures 1,3-4.	1-6,8-10,14-19 ,21-23,27-32,34-36 ,133,152
Y	US 2009-0041543 A1 (KROGER DAVID G.) 12 February 2009 See paragraphs 0022,0024,0026,0031,0035,0037,0039,0043,0047 and figures 1-3.	1-6,8-10,14-19 ,21-23,27-32,34-36 ,133,152
A	US 04976063 A (YOUNG; WILLIAM J.) 11 December 1990 See column 2 lines 25-58 and figure 1.	1-154
A	US 2007-0278224 A1 (EDWARD W. VAN ROMER) 06 December 2007 See paragraphs 0027,0030-0031 and figures 1,3B.	1-154
A	US 05547312 A (SCHMITZ, JR.; JOHN W.) 20 August 1996 See column 4 lines 9-31 and figure 1.	1-154

 Further documents are listed in the continuation of Box C. See patent family 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 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 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

05 SEPTEMBER 2012 (05.09.2012)

Date of mailing of the international search report

07 SEPTEMBER 2012 (07.09.2012)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Kim, Loebae

Telephone No. 82-42-481-5977



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/026190

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 04921373 A	01.05.1990	None	
US 2009-0041543 A1	12.02.2009	US 7614825 B2	10.11.2009
US 04976063 A	11.12.1990	None	
US 2007-0278224 A1	06.12.2007	US 2007-0278225 A1	06.12.2007
US 05547312 A	20.08.1996	US 05816743 A	06.10.1998