

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 December 2007 (27.12.2007)

PCT

(10) International Publication Number
WO 2007/149177 A3

(51) International Patent Classification:
B28B 19/00 (2006.01)

(21) International Application Number:
PCT/US2007/012299

(22) International Filing Date: 24 May 2007 (24.05.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/454,339 16 June 2006 (16.06.2006) US

(71) Applicant (for all designated States except US): **UNIS-
ERT MULTIWALL SYSTEMS, INC.** [US/US]; 13295
Rocky Road, Conroe, Texas 77306 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **TIERLING, Kenneth**
[US/US]; 13321 Rocky Road, Conroe, Texas 77306 (US).

(74) Agent: **HAMEDER, Brian, W.**; Ladas & Parry LLP, 224
S. Michigan Avenue, Chicago, Illinois 60604 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, 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, PG, PH, PL, PT, RO,
RS, RU, SC, SD, SE, SG, SK, SL, SM, 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, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report
— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
28 August 2008

(54) Title: METHOD FOR MAXIMIZING THE SHARING OF TENSILE LOAD FOR CEMENT-SHEATHED MULTI-WALL
PIPE

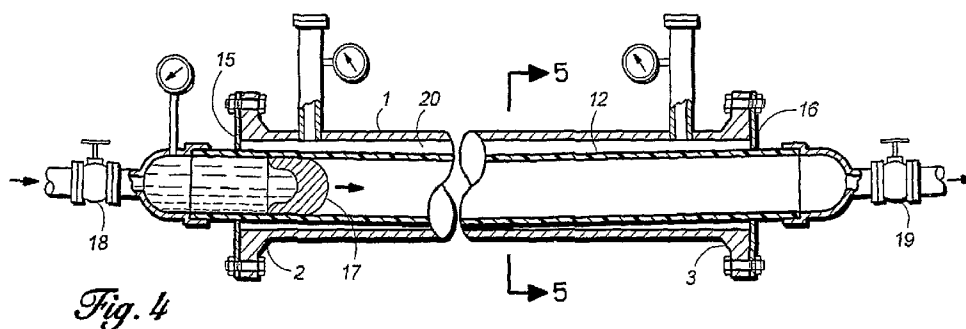


Fig. 4

(57) Abstract: A method for installing a fiberglass or stainless steel liner into a steel casing which results in a reduction of strain on the casing. Conventional means are used to place the liner into the casing and to fill the annular space with cement. Thereafter, maximum design operating pressure on the liner is maintained while the pressure on the annular space is reduced; maintenance of those pressures keep the liner in an expanded state while the grout cures. As a result, the liner shares the load with the casing; pressure from the fluids contained in the system during operation is not transferred to the casing through the grout until the liner's preset internal pressure is reached. The use of the method greatly reduces the possibility of flowline failure.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/12299

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **B28B 19/00**(2006.01)

USPC: 264/35,262,269,333

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)

U.S. : 264/35,262,269,333

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)

EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3662045 (TIERLING) 24 April 1970 (24.04.1970), see entire document.	1
---		-----
Y		2-8

☐

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 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

17 June 2008 (17.06.2008)

Date of mailing of the international search report

03 JUL 2008

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

EDMUND H. LEE

Telephone No. 571.272.1700