

(43) International Publication Date
19 November 2009 (19.11.2009)(10) International Publication Number
WO 2009/139974 A3

(51) International Patent Classification:

F16L 9/02 (2006.01) *F16L 9/08* (2006.01)
F16L 58/06 (2006.01) *B28B 11/00* (2006.01)

(21) International Application Number:

PCT/US2009/039091

(22) International Filing Date:

1 April 2009 (01.04.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/061,263 2 April 2008 (02.04.2008) US

(71) Applicant (for all designated States except US):
AMERON INTERNATIONAL [US/US]; 245 South
 Los Robles Avenue, Pasadena, CA 91101 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FRIEDRICH, Ralph, S.** [US/US]; 205 31st Street, Hermosa Beach, CA 90254 (US). **SHENG, Qizhong** [US/US]; 13848 Ashworth Street, Cerritos, CA 90703 (US). **KUBAT, Paul** [US/US]; 14736 Roma Drive, La Mirada, CA 90638 (US).

(74) Agent: **LANGTON, Grant, T.**; Connolly Bove Lodge Hutz, LLP, P.O. Box 2207, Wilmington, DE 19899 (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, 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, 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, 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:

11 February 2010

(54) Title: PRESSURE CAST CONCRETE OR MORTAR LINED STEEL PIPES AND METHODS OF MAKING THE SAME

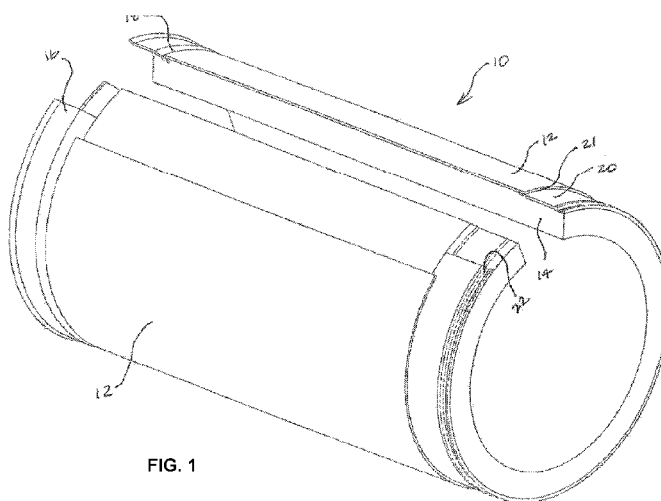


FIG. 1

(57) Abstract: Pressure cast lined steel pipes comprise an annular concrete or mortar liner (14) along an inside diameter, and a metal shell (12) surrounding the liner, wherein the liner (14) is in direct contact with the metal shell (12). The wall thickness of the liner can be from 10 to 50 times the thickness of the metal shell. The pipe may be coated with a dielectric material. A mold assembly used to form the pipe includes an annular concrete or mortar composition chamber formed between the metal shell and an inner mold member. Pressurized water is used in the mold assembly to pressurize the concrete or mortar composition and exert a desired pressure force onto the metal shell while the composition cures in the mold. Once a desired degree of cure is achieved, the pressure is removed causing the metal shell to exert a desired compression force onto the cured liner.