



- (51) International Patent Classification:
E21D 11/28 (2006.01) *E21D 11/30* (2006.01)
- (21) International Application Number:
PCT/IB2015/054022
- (22) International Filing Date:
28 May 2015 (28.05.2015)
- (25) Filing Language: Italian
- (26) Publication Language: English
- (30) Priority Data:
BO2014A000323 4 June 2014 (04.06.2014) IT
- (71) Applicant: **ELAS GEOTECNICA S.R.L.** [IT/IT]; Centro Commerciale San Felice - Lotto T.4 3/21, I-20090 Segrate (MI) (IT).
- (72) Inventors: **BONOMI, Cristiano**; Via dello Sport, 16, I-20068 Peschiera Borromeo (MI) (IT). **CULLACIATI, Alfredo**; Via Giambellino, 15, I-21100 Varese (VA) (IT).
- (74) Agent: **PROVVISIONATO, Paolo**; c/o Provvisionato & Co S.r.l., Piazza di Porta Mascarella, 7, I-40126 Bologna (IT).
- (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, BN, 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, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— 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))

(88) Date of publication of the international search report:

10 March 2016

(54) Title: RIB FOR SUPPORTING AND CONSOLIDATING AN EXCAVATION AND METHOD FOR INSTALLING A STRUCTURE TO SUPPORT AND CONSOLIDATE AN EXCAVATION

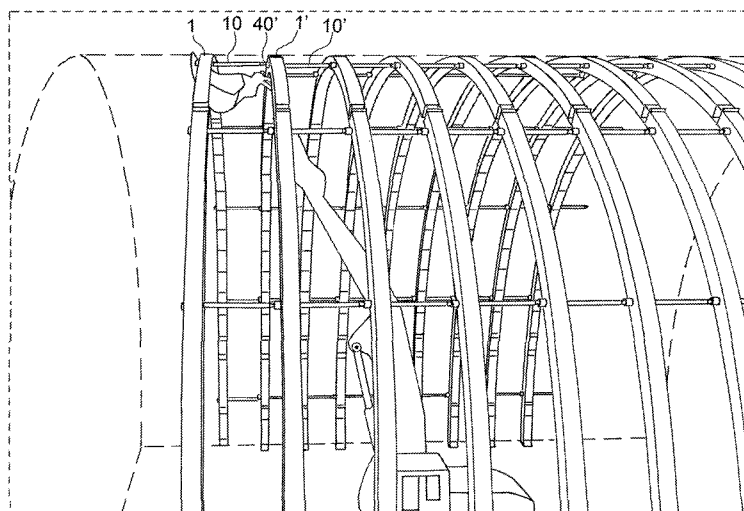


FIG.9

(57) Abstract: A rib for supporting and consolidating an excavation comprises at least a first structural element (5A) and at least one connection element (10) for connecting the said structural element (5A) of the said rib to a corresponding connection element (10') of an adjacent rib (1'), the said connection element (10) being capable of engaging through translatory motion with the said corresponding connection element (10') of the adjacent rib.



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2015/054022

A. CLASSIFICATION OF SUBJECT MATTER
INV. E21D11/28 E21D11/30
ADD.
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)
E21D
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)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 26 52 126 A1 (HIS HANDELS & IND) 18 May 1978 (1978-05-18)	1-3,5,7, 9-11, 13-15
Y A	claim 1; figures 1-3	12 4,6,8
X	----- GB 697 574 A (WILLIAM EDWARD SMITH) 23 September 1953 (1953-09-23) figures 1-4	1-3,7, 13-15
Y	----- GB 2 154 629 A (HOLYWELL ENG LTD) 11 September 1985 (1985-09-11) abstract; figure 1 -----	12

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 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 11 January 2016	Date of mailing of the international search report 22/01/2016
---	---

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Dantine, Patrick
--	---

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2015/054022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 2652126	A1	18-05-1978	NONE

GB 697574	A	23-09-1953	NONE

GB 2154629	A	11-09-1985	CA 1224634 A 28-07-1987
		GB 2154629 A	11-09-1985
