

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2019/010454

A. CLASSIFICATION OF SUBJECT MATTER

G01N 17/00(2006.01)i, G01N 21/43(2006.01)i, G01N 21/47(2006.01)i, G01N 33/38(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)

G01N 17/00; E01F 15/00; G01B 11/16; G01N 21/41; G01N 21/59; G01N 21/85; G01N 21/43; G01N 21/47; G01N 33/38

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: IPC as above
 Japanese utility models and applications for utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 eKOMPASS (KIPO internal) & Keywords: concrete structure, steel member, corrosion, corrosion monitoring device, optic fiber

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-1926982 B1 (RESEARCH & BUSINESS FOUNDATION SUNGKYUNKWAN UNIVERSITY et al.) 11 December 2018 See paragraphs [0038]-[0081] and figures 1, 4.	1,6
Y		2-5,7-10
Y	KR 10-1615043 B1 (KOREA PHOTONICS TECHNOLOGY INSTITUTE) 29 April 2016 See paragraph [0057], claim 1 and figures 2, 4.	2-5,7-10
A	JP 2016-180740 A (TAIHEIYO CEMENT CORP.) 13 October 2016 See paragraphs [0026]-[0053] and figures 1-2.	1-10
A	US 2006-0077379 A1 (FROT et al.) 13 April 2006 See paragraphs [0024]-[0043] and figures 1-2.	1-10
A	JP 2016-188858 A (TAIHEIYO CEMENT CORP.) 04 November 2016 See paragraphs [0025]-[0043] and figures 1-2.	1-10

 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

29 JANUARY 2020 (29.01.2020)

Date of mailing of the international search report

30 JANUARY 2020 (30.01.2020)

Name and mailing address of the ISA/KR

 Korean Intellectual Property Office
 Government Complex Daejeon Building 4, 189, Cheongsa-ro, Seo-gu,
 Daejeon, 35208, Republic of Korea

Facsimile No. +82-42-481-8578

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2019/010454

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-1926982 B1	11/12/2018	None	
KR 10-1615043 B1	29/04/2016	None	
JP 2016-180740 A	13/10/2016	JP 6574331 B2	11/09/2019
US 2006-0077379 A1	13/04/2006	AT 499597 T	15/03/2011
		AU 2003-298417 A1	13/08/2004
		CN 1729392 A	01/02/2006
		EP 1579199 A1	28/09/2005
		EP 1579199 B1	23/02/2011
		FR 2849194 A1	25/06/2004
		FR 2849194 B1	28/01/2005
		JP 2006-511812 A	06/04/2006
		KR 10-2005-0088467 A	06/09/2005
		NO 20052990 L	21/09/2005
		NO 336735 B1	26/10/2015
		US 7129471 B2	31/10/2006
		WO 2004-065942 A1	05/08/2004
JP 2016-188858 A	04/11/2016	JP 2016-186482 A	27/10/2016
		JP 2016-186483 A	27/10/2016
		JP 2016-188848 A	04/11/2016
		JP 2016-188849 A	04/11/2016
		JP 2016-188850 A	04/11/2016
		JP 6621611 B2	18/12/2019
		JP 6626285 B2	25/12/2019