



SEARCH REPORT

Application Number

LH 34
LT 2022520

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2003/205673 A1 (WILLIAMS KEVIN G [US]) 6 November 2003 (2003-11-06)	1, 3-5, 7	INV. G01N21/3504
Y	* paragraphs [0001], [0023], [0029], [0038] * * figure 1 *	2, 6	G01N33/00
	-----		ADD. G01N21/31
X	US 5 747 809 A (ECKSTROM DONALD J [US]) 5 May 1998 (1998-05-05)	1-5	
Y	* figure 1 * * column 3, line 24 - line 50 * * column 4, line 59 - column 5, line 4 * * column 6, line 6 - column 7, line 2 * * column 8, line 3 - line 12 * * column 10, line 53 - column 11, line 10 * -----	2, 6	
A	US 5 650 624 A (WONG JACOB Y [US]) 22 July 1997 (1997-07-22) * figure 7 * * column 6, lines 7-13 *	3, 5	
A	US 5 721 430 A (WONG JACOB Y [US]) 24 February 1998 (1998-02-24) * figure 7 *	3, 5	TECHNICAL FIELDS SEARCHED (IPC)
	-----		G01N
X	KR 101 835 556 B1 (UNIV KWANGWOON IND ACAD COLLAB [KR]) 7 March 2018 (2018-03-07)	1, 3	
Y	* figures 1, 3 * * paragraphs [0001], [0020], [0052] - [0063] *	2	

X	US 2010/188232 A1 (LAMBERT DAVID K [US] ET AL) 29 July 2010 (2010-07-29)	1, 3	
Y	* paragraphs [0002], [0004] * * figure 2 *	2	

The present search report has been drawn up for all claims			
2		Date of completion of the search	Examiner
	Munich	24 November 2022	Brauer, Jan
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

**ANNEX TO THE SEARCH REPORT
ON LITHUANIAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned search report. The members are as contained in the European Patent Office EDP file on. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

24-11-2022

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2003205673	A1	06-11-2003		AT 462122 T EP 1332346 A1 US 2003205673 A1 WO 0233368 A1		15-04-2010 06-08-2003 06-11-2003 25-04-2002
US 5747809	A	05-05-1998		AT 214802 T CA 2256729 A1 EP 0904529 A1 JP 2000512757 A US 5747809 A WO 9747957 A1		15-04-2002 18-12-1997 31-03-1999 26-09-2000 05-05-1998 18-12-1997
US 5650624	A	22-07-1997		NONE		
US 5721430	A	24-02-1998		AU 1431497 A BR 9612406 A CA 2242293 A1 CN 1216108 A EP 0888532 A1 JP 2000503122 A KR 19990077161 A US 5721430 A WO 9725613 A1		01-08-1997 28-12-1999 17-07-1997 05-05-1999 07-01-1999 14-03-2000 25-10-1999 24-02-1998 17-07-1997
KR 101835556	B1	07-03-2018		NONE		
US 2010188232	A1	29-07-2010		EP 2214012 A1 US 2010188232 A1		04-08-2010 29-07-2010



WRITTEN OPINION

File No. LH34	Filing date (day/month/year) 13.05.2022	Priority date (day/month/year)	Application No. LT2022520
International Patent Classification (IPC) INV. G01N21/3504 G01N33/00 ADD. G01N21/31			
Applicant Valstybinis mokslin tyri institutas Fizin ir technologijos moks centras			

This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of the opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the application
- Box No. VIII Certain observations on the application

	Examiner Brauer, Jan
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WRITTEN OPINION

Application number
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Box No. I Basis of this opinion

1. This opinion has been established on the basis of the latest set of claims filed before the start of the search.
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the application, this opinion has been established on the basis of:
 - a. type of material:
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material:
 - on paper
 - in electronic form
 - c. time of filing/furnishing:
 - contained in the application as filed.
 - filed together with the application in electronic form.
 - furnished subsequently for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2-6
	No: Claims	1, 7

Inventive step (IS)	Yes: Claims	
	No: Claims	1-7

Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

2. Citations and explanations

see separate sheet

WRITTEN OPINION

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Box No. VII Certain defects in the application

see separate sheet

Box No. VIII Certain observations on the application

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1 US 2003/205673 A1 (WILLIAMS KEVIN G [US]) 6 November 2003 (2003-11-06)

D2 US 5 747 809 A (ECKSTROM DONALD J [US]) 5 May 1998 (1998-05-05)

D3 US 5 650 624 A (WONG JACOB Y [US]) 22 July 1997 (1997-07-22)

D4 US 5 721 430 A (WONG JACOB Y [US]) 24 February 1998 (1998-02-24)

D5 KR 101 835 556 B1 (UNIV KWANGWOON IND ACAD COLLAB [KR]) 7 March 2018 (2018-03-07)

D6 US 2010/188232 A1 (LAMBERT DAVID K [US] ET AL) 29 July 2010 (2010-07-29)

1 The present application does not meet the criteria of patentability, because the subject-matter of **claim 1** is not new.

1.1 D1 discloses:

1.2 Optical CO₂ concentration meter based on gas absorption (Fig. 1; par. 0001,0038), comprising a casing having a working chamber (Fig. 1(17)), wherein at one end of the working chamber a light source is located and at other end (Fig. 1(11)), in front of the light source, a detector unit is installed (Fig. 1(49)), which includes three detectors (Fig. 1(55,57,59,61)) and an analyzer (at least implicitly disclosed: the detectors require a read-out circuitry), wherein between the light source and the detector unit is located a lens (Fig. 1(13)), for directing the light to the surfaces of the detectors (Fig. 1), the casing has at least one inlet aperture for introducing the CO₂ gas into the chamber and at least one

outlet aperture for releasing gas from the chamber (Fig. 1(19, 21)), characterized in that the first detector, the second detector and the third detector of the detector unit each of which is covered with individually designed corresponding different filter (par. 0029).

Hence the subject-matter of claim 1 is not new in view of D1.

- 1.3 The subject-matter of claim 1 is also not new in view of D5 or D6 (see passages cited in the search report).
- 1.4 the subject-matter of claim 1 is not considered inventive in view of D2 (see passages cited in the search report). The differentiating feature between the device of claim 1 and the device according to D2 is that D2 does not explicitly disclose three sensors each equipped with a specific filter. However D2 discloses embodiments with a plurality of detectors and four different filters. The use of detectors each associated filter is an obvious alternative to the shutter mechanism shown in Fig. 1.
- 2 **Dependent claims 2-7** do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of novelty and/or inventive step.
 - 2.1 Claim 2: not inventive in view of D2 alone or in view of D1, D5 or D6 in combination with D2 (col. 10, I. 53-64, the resolution of higher than 100 nm is implied by the given decimals).
 - 2.2 Claim 3: not inventive in view of D1 (the use of preamplifiers is obvious for the processing of detector signals, see for example D3 (Fig. 7)).
 - 2.3 Claim 4: not inventive in view of D1 (par. 0023, the source emits light in the wavelength bands encompassing the bands associated to the multiple filters, a broad band source would be a straightforward implementation) D2 (Fig. 1(12); col. 6, I. 7-13).
 - 2.4 Claim 5: not inventive in view of D1 (photodiodes are obvious alternatives see for example D3 (col. 7, I. 6-10)) or D2 (col. 6, I. 49-51).
 - 2.5 Claim 6: not inventive in view of D1 in combination with D2 (Fig. 1).
 - 2.6 Claim 7: not new in view of D1 (Fig. 1) and not inventive in view of D2.

Re Item VII

Certain defects in the application

The relevant background art disclosed in D1-D6 is not mentioned in the description, nor are these documents identified therein.

Re Item VIII

Certain observations on the application

- 1 Claim 2 tries to define the subject-matter in terms of a result to be achieved, which leads to a lack of clarity regarding the implied technical features. This objection refers to stated concentration ranges.
- 2 Claim 3 defines that the meter comprises preamplifier for transmitting signals to differential amplifiers. According to the wording the differential amplifiers are no claimed technical features and hence the differential amplifiers and the associated functional features are not limiting the scope of the claim.