

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P-1611-PCT		<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US 19/65070	International filing date ( <i>day/month/year</i> ) 06 December 2019 (06.12.2019)	(Earliest) Priority Date ( <i>day/month/year</i> ) 07 December 2018 (07.12.2018)	
Applicant SMITH, KEVIN S.			

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

the international application in the language in which it was filed.

a translation of the international application into \_\_\_\_\_ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b.  This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2.  **Certain claims were found unsearchable** (see Box No. II).

3.  **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b.  none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 19/65070

## A. CLASSIFICATION OF SUBJECT MATTER

IPC - F16K 37/00 (2020.01)

CPC - F16K 37/0008

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)  
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
See Search History document

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,079,441 A (MILLER et al.) 27 June 2000 (27.06.2000), entire document, especially Fig 1-3, 5, 6A-6B, 8C, 8F; col 2, ln 58-65; col 3, ln 3-5, 33-37, 65-67; col 4, ln 1-33, 58-59; col 5, ln 3-9, 18-21, 27-29, 34-38	17-18 ----- 1-5, 7-9, 11-12, 14-16
X --- Y	GB 429,686 A (JENNINGS) 05 June 1935 (05.06.1935), entire document, especially Fig 1-3; pg 1, ln 89-92; pg 2, ln 1-8, 21-22, 30-58, 74-80, 102-105	1-2, 6, 10, 13 ----- 3-5, 7-9, 11-12, 14-16
Y	GB 172,084 A (THE NEWMAN CLOCK COMPANY) 24 November 1921 (24.11.1921), entire document, especially Fig 1-2, 4-5; pg 2, ln 29-78, 85-92; pg 3, ln 31-64	1-2, 4-5
Y	US 2,028,696 A (BECKWITH) 21 January 1936 (21.01.1936), entire document, especially Fig 1, 5; pg 2, col 1, ln 9-29; pg 2, col 2, ln 26-29	7-8
Y	WO 01/20263 A1 (HUNTLEIGH TECHNOLOGY PLC) 22 March 2001 (22.03.2001), entire document, especially Fig 1; pg 3, ln 26-31	9
Y	US 2017/0097106 A1 (MUELLER INTERNATIONAL, LLC) 06 April 2017 (06.04.2017), entire document, especially Fig 3, 12; para [0033], [0059]	12, 14
A	US 6,471,182 B1 (MCINTOSH) 29 October 2002 (29.10.2002), entire document	1-18
A	US 6,237,626 B1 (WILKINS) 29 May 2001 (29.05.2001), entire document	1-18
A	US 3,239,616 A (ROSENSTON) 08 March 1966 (08.03.1966), entire document	1-18

Further documents are listed in the continuation of Box C.  See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"D" document cited by the applicant in the international application	"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
"E" earlier application or patent but published on or after the international filing date	"&" document member of the same patent family
"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	

Date of the actual completion of the international search

22 January 2020

Date of mailing of the international search report

25 FEB 2020

Name and mailing address of the ISA/US

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 19/65070

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,002,529 A (BOWMAN) 03 October 1961 (03.10.1961), entire document	1-18
A	GB 446,582 A (TEFFT-JACKSON, INCORPORATED) 01 May 1936 (01.05.1936), entire document	1-18