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*H05B 3/14* (2006.01)      *H05B 3/34* (2006.01)
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- (71) Applicant: **GENTHERM GMBH** [DE/DE]; Rudolf-Diesel-Straße 12, Odelzhausen 85235 (DE).
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- (74) Agent: **ALEKSYNAS, Daniel P.** et al.; The Dobrusin Law Firm, P.C., 29 W. Lawrence Street, Suite 210, Pontiac, MI 48342 (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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, 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,

(54) Title: FILM HEATER AND METHOD OF MAKING

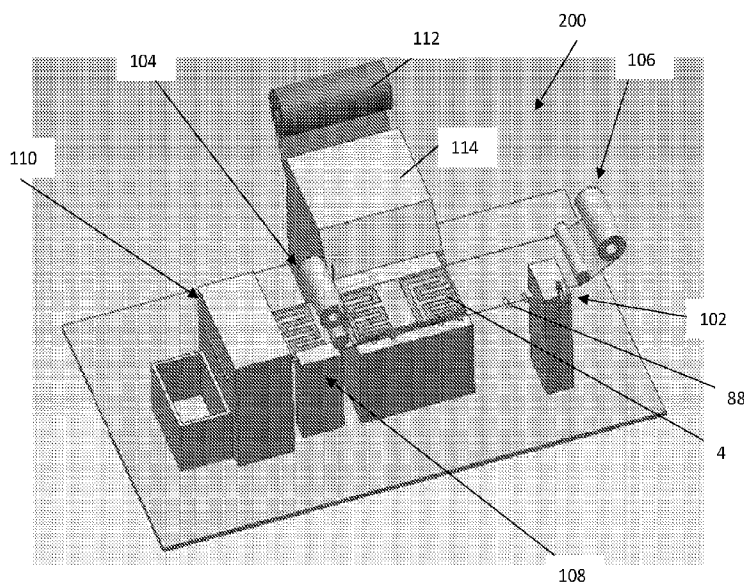


Figure 2A

(57) Abstract: A heater comprising: (a) a film; (b) one or more coverings that extends along one or more sides of the film; and (c) one or more power application portions that apply power to the film so that the film heats up; wherein the film is a graphite film.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
KM, 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:**

16 August 2018 (16.08.2018)

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2017/061931

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2017/061931

A. CLASSIFICATION OF SUBJECT MATTER  
INV. H05B3/14 H05B3/34  
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)  
H05B  
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

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2016/021705 A1 (BARFUSS JACK [CA] ET AL) 21 January 2016 (2016-01-21) paragraphs [0002], [0003], [0007], [0018], [2327], [0033], [0036], [0042], [0047], [0048], [0050] - [0054]; claim 4; figures 2-4,6 -----	1-5,7,9, 10,12,13
X	US 6 057 530 A (GUREVICH ARTHUR [US]) 2 May 2000 (2000-05-02) cited in the application	1,5-7,9, 11-13
Y	column 4, line 36 - column 5, line 56; figures 1-8 -----	14,15
X	WO 2006/110730 A2 (HYPERION INNOVATIONS INC [US]; AXINTE GRIGORE [US]; AXINTE DRAGOS [US]) 19 October 2006 (2006-10-19) paragraphs [0045], [0046]; figures 3A-3D ----- -/--	1,8

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	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"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 29 June 2018	Date of mailing of the international search report 16/07/2018
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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 Aubry, Sandrine
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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2017/061931

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 052 079 A1 (BATTELLE MEMORIAL INSTITUTE [CH]) 19 May 1982 (1982-05-19) page 4, line 11 - page 6, line 12 -----	14,15
Y	WO 01/43507 A1 (THERMION SYSTEMS INT [US]) 14 June 2001 (2001-06-14) page 9, lines 14-32 page 10, lines 18-21; figure 5 -----	14,15

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2017/061931
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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-13

relates to a heater comprising a graphite film and a method of manufacturing the same, solving the problem of providing a heater film free of precious metals.

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2. claims: 14, 15

relates to a method of creating a cutter to cut a heater, improving the cutting step in the manufacturing method of a heater

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