



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**30.11.2022 Bulletin 2022/48**

(51) International Patent Classification (IPC):  
**H05B 1/02** (2006.01) **H05B 3/48** (2006.01)  
**F24H 1/10** (2022.01) **F24H 9/20** (2022.01)

(43) Date of publication A2:  
**14.09.2022 Bulletin 2022/37**

(52) Cooperative Patent Classification (CPC):  
**H05B 1/0244; F24H 1/103; F24H 9/2028;**  
**H05B 3/48**

(21) Application number: **22161467.0**

(22) Date of filing: **10.03.2022**

(84) Designated Contracting States:  
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB**  
**GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO**  
**PL PT RO RS SE SI SK SM TR**  
Designated Extension States:  
**BA ME**  
Designated Validation States:  
**KH MA MD TN**

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(30) Priority: **10.03.2021 US 202117197333**

(54) **HEATER BUNDLES FOR THERMAL GRADIENT COMPENSATION**

(57) A heater bundle (12) includes a plurality of heater assemblies (18), at least one of the heater assemblies (18) including a plurality of heater units, at least one of the heater units defining at least one independently controlled heating zone. A thermal provision is configured to modify a thermal conductance along a length of the at least one heater assembly (18) to compensate for

non-uniform temperatures within at least one heater unit. The heater bundle (12) includes a power supply device (14) including a controller (15) configured to modulate power to the independently controlled heating zone through the power conductors based on the determined temperature to provide a desired power output along a length of at least one heater assembly (18).

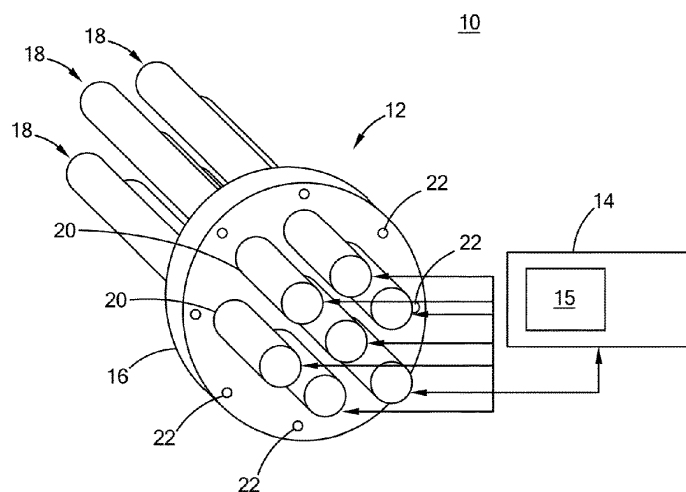


FIG. 1



## PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.  
This report shall be considered, for the purposes of  
subsequent proceedings, as the European search report

EP 22 16 1467

## 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,D	US 10 247 445 B2 (WATLOW ELECTRIC MFG [US]) 2 April 2019 (2019-04-02) * column 2, line 50 - column 3, line 43; figures 1-5 *	1, 4-16, 20	INV. H05B1/02 H05B3/48 F24H1/10 F24H9/20
X	US 2017/254565 A1 (EVERLY MARK D [US] ET AL) 7 September 2017 (2017-09-07) * paragraph [0021] - paragraph [0025]; figures 1-4 *	1, 4-16, 20	
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			TECHNICAL FIELDS SEARCHED (IPC)
			H05B F24H

## INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

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Place of search	Date of completion of the search	Examiner
Munich	25 October 2022	Gea Haupt, Martin
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		

EPO FORM 1503 03/82 (P04E07)

**INCOMPLETE SEARCH  
SHEET C**

Application Number

**EP 22 16 1467****Claim(s) completely searchable:****1****Claim(s) searched incompletely:****4-16, 20****Claim(s) not searched:****2, 3, 17-19****Reason for the limitation of the search:**

The search has been restricted to the subject-matter indicated by the applicant in his letter of 06.09.2022 filed in reply to the invitation pursuant to Rule 62a(1) EPC, i.e. claim 1 and claims 4 to 16 and 20 as dependent on claim 1 have been searched.

# **ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European 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.

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