

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
16 December 2021 (16.12.2021)



(10) International Publication Number
WO 2021/252552 A1

(51) International Patent Classification:

A61B 5/00 (2006.01) A61B 5/1486 (2006.01)
A61B 5/01 (2006.01) A61B 5/1495 (2006.01)
A61B 5/145 (2006.01)

43204 (US). **WELLS, Timmothy, N.** [US/US]; 82 Jacques-
line Drive, Manchester, CT 06040 (US).

(74) Agent: **KERN, Benjamin, E.**; Kern Kendrick, LLC, P.O.
Box 159, Frazeysburg, OH 43822 (US).

(21) International Application Number:

PCT/US2021/036501

(22) International Filing Date:

08 June 2021 (08.06.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/036,412	08 June 2020 (08.06.2020)	US
63/049,524	08 July 2020 (08.07.2020)	US
63/049,541	08 July 2020 (08.07.2020)	US
63/049,919	09 July 2020 (09.07.2020)	US
63/081,459	22 September 2020 (22.09.2020)	US
63/126,734	17 December 2020 (17.12.2020)	US
63/157,368	05 March 2021 (05.03.2021)	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, IT, 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, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(71) Applicants: **RADER, Richard, S.** [US/US]; 10 Fuller
Road, Wayland, MD 01778 (US). **HEATER, Kenneth, J.**
[US/US]; 7440 Bridlespur Lane, Delaware, OH 43015 (US).
DESABATO, Raymond [US/US]; 88 Fisher Road, South-
borough, MA 01772 (US). **LORCH, Daniel, P.** [US/US];
1820 Itawamba Trail, London, OH 43140 (US). **LEWIS,
Adriane, L.** [US/US]; 668 Wiltshire Road, Columbus, OH

(54) Title: SYSTEMS, METHODS, AND APPARATUSES FOR DISINFECTION AND DECONTAMINATION

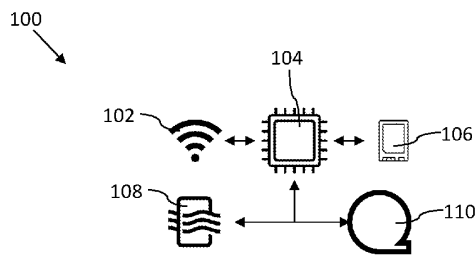


FIG. 1A

(57) Abstract: In one aspect, a system for generating and mon-
itoring an antimicrobial is provided, the system including: a mi-
croprocessor and/or a microcontroller; an external communica-
tions device; a computational system; an antimicrobial sensor
and/or an environmental sensor; and an antimicrobial generator,
wherein the external communications device, the computational
system, the antimicrobial generator, and the antimicrobial sensor
and/or the environmental sensor are operatively connected to the
microprocessor and/or the microcontroller. The system may fur-
ther include a separate sensor sub-system comprising: a sensor
sub-system microprocessor and/or a sensor sub-system micro-
controller; a sensor sub-system external communications device;
a sensor sub-system antimicrobial sensor and/or a sensor sub-
system environmental sensor; and a sensor sub-system compu-
tational system. The system may further include a separate gen-
eration sub-system comprising: a generation sub-system micro-
processor and/or a generation sub-system microcontroller; a gen-
eration sub-system external communications device; and a gen-
eration sub-system antimicrobial generator.

[Continued on next page]

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))*