

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
23 July 2020 (23.07.2020)



(10) International Publication Number
WO 2020/148238 A1

(51) International Patent Classification:
G09B 23/32 (2006.01) *G16H 10/40* (2018.01)

(21) International Application Number:
PCT/EP2020/050725

(22) International Filing Date:
13 January 2020 (13.01.2020)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
19151940.4 15 January 2019 (15.01.2019) EP

(71) Applicant: **PHILIP MORRIS PRODUCTS S.A.**
[CH/CH]; Quai Jeanrenaud 3, 2000 Neuchâtel (CH).

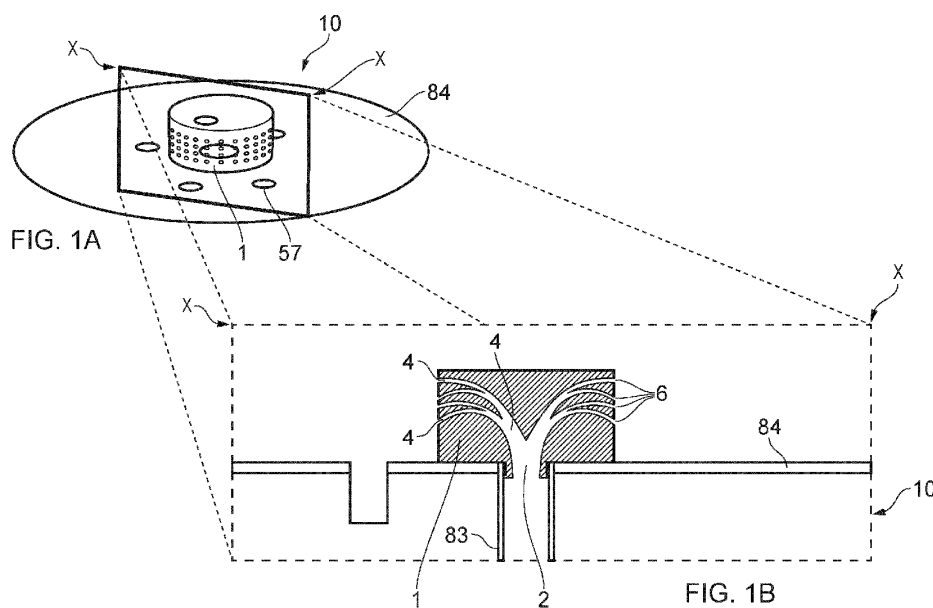
(72) Inventors: **HERVE, Pierre**; Quai Jeanrenaud 3, 2000 Neuchâtel (CH). **MAJEED, Shoaib**; Quai Jeanrenaud 3, 2000 Neuchâtel (CH). **SANDOZ, Antonin**; Quai Jeanrenaud 3, 2000 Neuchâtel (CH). **STEINER, Sandro**; Quai Jeanrenaud 3, 2000 Neuchâtel (CH).

(74) Agent: **SCRIPT IP LIMITED** et al.; Turnpike House 18 Bridge Street, FROME Somerset BA11 1BB (GB).

(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, 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,

(54) Title: PERFORATED STRUCTURE



(57) Abstract: There is described herein a perforated structure for use in a simulated respiratory tract, the structure comprising a perforated envelope housing one or more branched channels, wherein each perforation is an open terminal of a branch. Also described is a pump for displacing a volume of gas that includes one or more branched channels, such as the perforated structure described herein. Use of the pump in a system for determining the interaction between a test atmosphere and a simulated respiratory tract is also described, together with methods and uses of such a system.

[Continued on next page]

WO 2020/148238 A1

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))*