

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
08 May 2025 (08.05.2025)



(10) International Publication Number
WO 2025/096289 A1

(51) International Patent Classification:

B08B 9/46 (2006.01) *G01N 1/08* (2006.01)
G01N 1/02 (2006.01)

(21) International Application Number:

PCT/US2024/052891

(22) International Filing Date:

25 October 2024 (25.10.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/546,314 30 October 2023 (30.10.2023) US
18/926,041 24 October 2024 (24.10.2024) US

(71) Applicant: **SWABBOT SOLUTIONS, LLC.** [US/US];
1008 Stradshire Drive, Raleigh, North Carolina 27614 (US).

(72) Inventors: **MINEO, Richard**; 1008 Stradshire Drive, Raleigh, North Carolina 27614 (US). **WALLACE, Donovan**; 1707 Kinburn Sideroad, Ottawa, Ontario K0A 2H0 (CA). **BAILEY, Matt**; 2675 Stuart Kettles Street, Ottawa, Ontario K2B 7R6 (CA). **WESTERMANN, Kevin**; 243 McGibbon Drive, Kanata, Ontario K2L 3Y6 (CA). **AUGER, Steve**; 199D Shiny Ave., Stittsville, Ontario K2V 0E9 (CA).

(74) Agent: **O'CONNOR, Ryan**; PO Box 580, O'Connor & Company PLLC, Minnetrista, Minnesota 55364 (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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY,

(54) Title: EQUIPMENT-INSPECTION NAVIGATION DEVICE WITH POSITION LOCKING AND DROP PROTECTION, AND METHODS OF USING THE SAME

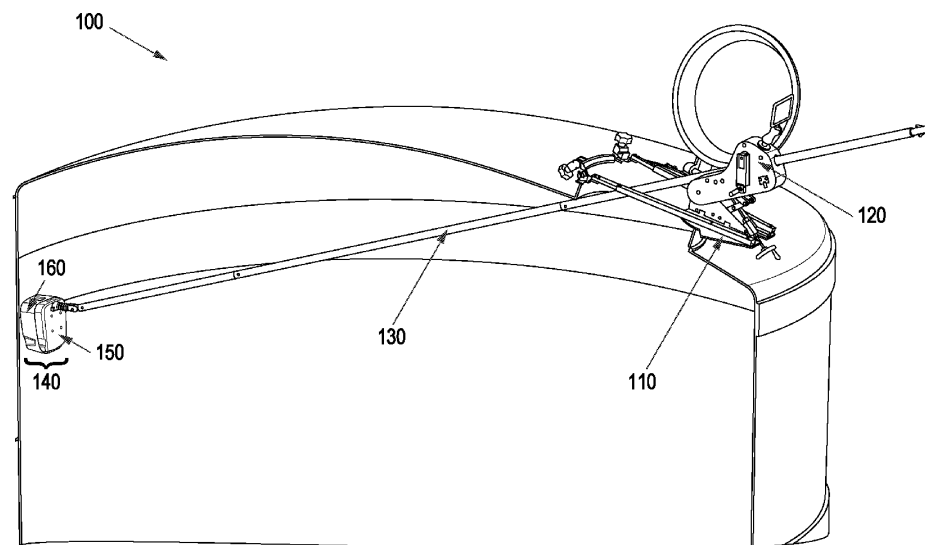


FIG. 1

(57) Abstract: The disclosed technology greatly improves the safety, accuracy, and efficiency of cleaning validation processes. Swabbing can be performed in a fully automated fashion. The cost and safety risk of confined-space entry is avoided. An equipment-inspection navigation device is disclosed, comprising an equipment mount base configured to attach to an equipment access port; an extension-pole control device connected to the equipment mount base; modular extension poles connected to the extension-pole control device; a test tool connected to the modular extension poles; a test-tool position-compensation sub-system connected to the modular extension poles; and a surface-contact-sensing sub-system connected to the test-tool position-compensation sub-system. The present invention solves a variety of problems heretofore encountered during swabbing processes, and is effective even for challenging surfaces, such as agitator

[Continued on next page]

WO 2025/096289 A1

MA, MD, MG, MK, MN, MU, 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, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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, ME, 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).

Declarations under Rule 4.17:

- *as to the identity of the inventor (Rule 4.17(i))*
- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*

shafts. Use cases include surface swabbing for cleaning validation and equipment monitoring; cleaning validation bacteria contact plate sampling; and measurement of surface thickness and surface roughness.