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

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
11 September 2025 (11.09.2025)

WIPO | PCT

(10) International Publication Number
WO 2025/188551 A8

(51) International Patent Classification:
F16K 51/02 (2006.01) *F16K 27/00* (2006.01)
F16K 31/06 (2006.01) *F16K 27/02* (2006.01)
F16K 7/12 (2006.01) *H01L 21/67* (2006.01)

(21) International Application Number:
PCT/US2025/017727

(22) International Filing Date:
27 February 2025 (27.02.2025)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/561,173 04 March 2024 (04.03.2024) US

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(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, 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, UY, 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,

(54) Title: ZERO DEAD-LEG ORIFICE BYPASS

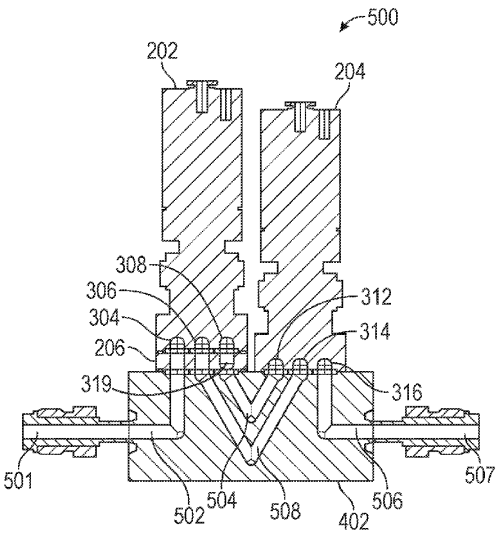


FIG. 5

(57) Abstract: A zero dead-leg orifice bypass apparatus includes a first multi-port valve, a second multi-port valve, and. a flow restrictor. The first multi-port valve includes a first plurality of valve legs with an inlet port. The second multi-port valve includes a second plurality of valve legs with an outlet port. The first plurality of valve legs and the second plurality of valve legs form at least one unrestricted path between the inlet port and the outlet port. The flow restrictor is pneumatically coupled to the first multi-port valve and the second multi-port, valve. The first plurality of valve legs and the second plurality of valve legs form at least one restricted path between the inlet port and the outlet port, with the at least one restricted path passing through a restricted port of the flow restrictor.

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SI, SK, SM, 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))*

(48) Date of publication of this corrected version:
02 October 2025 (02.10.2025)

(15) Information about Correction:
see Notice of 02 October 2025 (02.10.2025)