

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

(19) World Intellectual Property  
Organization  
International Bureau

(43) International Publication Date  
19 May 2023 (19.05.2023)



(10) International Publication Number  
**WO 2023/086275 A1**

(51) International Patent Classification:

**B01D 35/30** (2006.01) **C02F 103/34** (2006.01)  
**B01D 35/147** (2006.01)

(21) International Application Number:

PCT/US2022/049021

(22) International Filing Date:

04 November 2022 (04.11.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/279,298 15 November 2021 (15.11.2021) US

(71) Applicant: **ENTEGRIS, INC.** [US/US]; 129 Concord Road, Billerica, Massachusetts 01821 (US).

(72) Inventors: **MCKENZIE, Jeffrey, J.**; 11746 Hwy 25 S.W., Watertown, Minnesota 55388 (US). **GREGERSON, Barry, L.**; 19550 Excelsior Blvd., Deephaven, Minnesota 55331 (US). **LINDER, James, C.**; 8545 Kelzer Pond Drive, Victoria, Minnesota 55386 (US). **LINCICOME, Hayden**; 71 South Street, Unit 1, Waltham, Massachusetts 02453 (US).

(74) Agent: **HARAN, John, T.**; Entegris, Inc., 129 Concord Road, Billerica, Massachusetts 01821 (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, MA, MD, 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, CV, 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, 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).

(54) Title: FILTER CARTRIDGE, AND METHOD OF RETROFITTING FILTER HOUSING

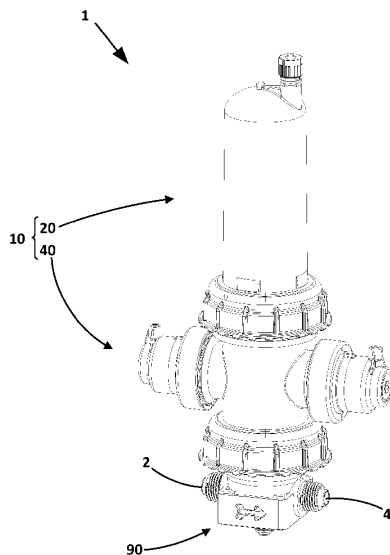


Figure 1

(57) Abstract: A removable filter cartridge includes a filter housing containing a filter for filtering liquid and a sealing valve assembly coupled to the filter housing and for removably coupling the filter cartridge to a filter head. The sealing valve assembly include an inlet passageway and an outlet passageway. The sealing valve also including an inlet sealing valve that blocks the inlet passageway and an outlet sealing valve that blocks the outlet passageway while the filter cartridge is uncoupled from the filter head. A method of retrofitting a filter housing includes removing the filter housing from a filter head, coupling a sealing valve assembly to the removable filter to form a removable filter cartridge, and coupling the removable filter cartridge to the filter head.

WO 2023/086275 A1

[Continued on next page]

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

**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))*