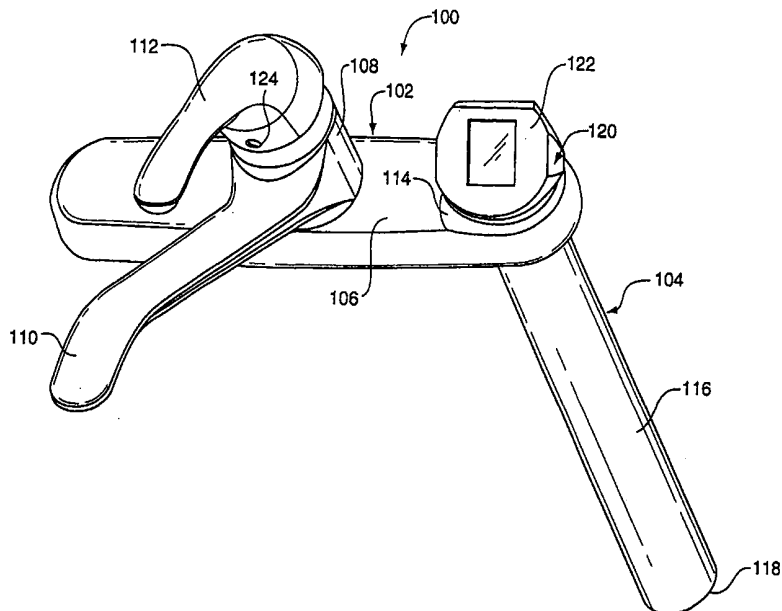




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification⁶ : B01D 35/04, E03C 1/02, F16K 11/078, E03B 7/07, B01D 35/143</p>	<p>A3</p>	<p>(11) International Publication Number: WO 99/44713</p> <p>(43) International Publication Date: 10 September 1999 (10.09.99)</p>
<p>(21) International Application Number: PCT/US99/04834</p> <p>(22) International Filing Date: 4 March 1999 (04.03.99)</p> <p>(30) Priority Data: 09/034,377 4 March 1998 (04.03.98) US 09/210,189 11 December 1998 (11.12.98) US</p> <p>(71) Applicant: AMERICAN STANDARD, INC. [US/US]; P.O. Box 6820, Piscataway, NJ 08855-6820 (US).</p> <p>(72) Inventors: ALDRED, Jeffrey, K.; 708 17th Street, Boulder, CO 80302 (US). HUNTER, Brian, D.; 1895 County Road 68, Nederland, CO 80466 (US). SCHNEIDER, Hermann; Röntgenstrasse 9, D-54516 Wittlich (DE). NIKOLAY-CZIK, Hans; Röntgenstrasse 9, D-54516 Wittlich (DE). MAGYAR, Robert; One Centennial Avenue, P.O. Box 6820, Piscataway, NJ 08855-6820 (US).</p> <p>(74) Agents: CLEVELAND, Dan et al.; Duft, Graziano & Forest, P.C., Suite 140, 1790-30th Street, Boulder, CO 80301-1018 (US).</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 25 November 1999 (25.11.99)</p>

(54) Title: ESCUTCHEON-MOUNTED FILTER WITH ABOVE COUNTER ACCESS FOR CARTRIDGE RENEWAL



(57) Abstract

A filtration cartridge faucet assembly (100, 1300) contains a filtration body (104, 3002) that is concealed beneath a sink deck (1206) through the use of an escutcheon mount (114, 1312; 3008). The escutcheon mount permits access to a renewable filtration core from above the sink deck while concealing and protecting the filtration body.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 99/04834

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B01D35/04 E03C1/02 F16K11/078 E03B7/07 B01D35/143

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
IPC 6 B01D E03C F16K E03B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 510 031 A (KNAUF JR EDMUND R ET AL) 23 April 1996 (1996-04-23)	1,2,4,5, 7,8,10, 11,17-19
Y	the whole document ---	6,12-16
Y	US 4 915 831 A (TAYLOR BRUCE) 10 April 1990 (1990-04-10) figure 1 ---	6
Y	US 5 545 322 A (CHENG TING K) 13 August 1996 (1996-08-13) figures 1,2 ---	16
A	US 5 273 650 A (VERMES SHELDON A ET AL) 28 December 1993 (1993-12-28) column 2, line 32 - line 38; figure 2 --- -/--	4

Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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Date of the actual completion of the international search: 29 September 1999
Date of mailing of the international search report: 11. 10. 99

Name and mailing address of the ISA: European Patent Office, P.B. 5818 Patentlaan 2, NL - 2280 HV Rijswijk, Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016
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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/04834

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 082 568 A (HOLLER THOMAS D) 21 January 1992 (1992-01-21) abstract ---	4,5
A	EP 0 792 673 A (KX IND L P) 3 September 1997 (1997-09-03) figure 8 ---	1
X	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 31 August 1995 (1995-08-31) -& JP 07 098068 A (MITSUBISHI RAYON CO LTD;OTHERS: 01), 11 April 1995 (1995-04-11)	20-22
Y	abstract & DATABASE WPI Section Ch, Week 9523 Derwent Publications Ltd., London, GB; Class D15, AN 95-175711 & JP 07 098068 A (MITSUBISCHI RAYON CO LTD), 11 April 1995 (1995-04-11) abstract ---	12
Y	US 5 128 034 A (KOOL DENNIS J) 7 July 1992 (1992-07-07) abstract; figure 3 column 6, line 35 - line 55; figures 5,6 ---	13,14
Y	US 4 885 081 A (OLIVER BRUCE J) 5 December 1989 (1989-12-05) abstract column 8, line 41 -column 9, line 9; figure 8 ---	13,15
A	US 5 458 766 A (EHARA KATUO ET AL) 17 October 1995 (1995-10-17) abstract; figure 1 column 6, line 52 -column 7, line 20 -----	14

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/04834

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 99/04834

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-10,16-19

"A water filtration cartridge assembly using means to conceal the filter cartridge and method for replacing the cartridge"

INDEPENDENT CLAIM 1
DEPENDENT CLAIMS: 2-10
INDEPENDENT CLAIM 19

Problem to be solved:

To conceal the filter cartridge assembly below the counter-top and to provide easy access to the cartridge for its replacement

Solution:

To use of means to conceal the assembly and allowing the access to the cartridge.

2. Claims: 1,11-12,19

"A water filtration cartridge assembly including a five way valve in the water dispensing means"

INDEPENDENT CLAIM 1 (Assembly as referred to dependent claims 11,12)
DEPENDENT CLAIMS: 11,12
INDEPENDENT CLAIM 19 (Method as referred to dependent claims 11,12)

Problem to be solved:

To provide a valve to divert the water flows in the directions as needed.

Solution:

To use of a multiple way (five) valve.

3. Claims: 1,13-15,19

"A water filtration cartridge assembly including an indicator of the end of life of the filter"

INDEPENDENT CLAIM 1 (Assembly as referred to dependent claims 13-15)
DEPENDENT CLAIMS: 13-15
INDEPENDENT CLAIM 19 (Method as referred to dependent claims 13-15)

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 99 /04834

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Problem to be solved:
To have an indication of the flife end of the filter
Solution:
To use of battery powered indicator

4. Claims: 20-22

" A five way valve"

INDEPENDENT CLAIM 20
DEPENDENT CLAIMS: 21-22

Problem to be solved:
To have a valve to divert the water flows of a water
dispensing means in the directions as needed by the
application
Solution:
To use of a multiple way (five) valve.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/04834

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
US 5510031	A	23-04-1996	NONE	
US 4915831	A	10-04-1990	NONE	
US 5545322	A	13-08-1996	NONE	
US 5273650	A	28-12-1993	NONE	
US 5082568	A	21-01-1992	US 5024764 A CA 2011657 A EP 0388158 A JP 3065289 A	18-06-1991 17-09-1990 19-09-1990 20-03-1991
EP 0792673	A	03-09-1997	US 5685981 A CA 2191400 A	11-11-1997 29-08-1997
JP 07098068	A	11-04-1995	NONE	
US 5128034	A	07-07-1992	NONE	
US 4885081	A	05-12-1989	US 4623451 A	18-11-1986
US 5458766	A	17-10-1995	JP 6134453 A	17-05-1994