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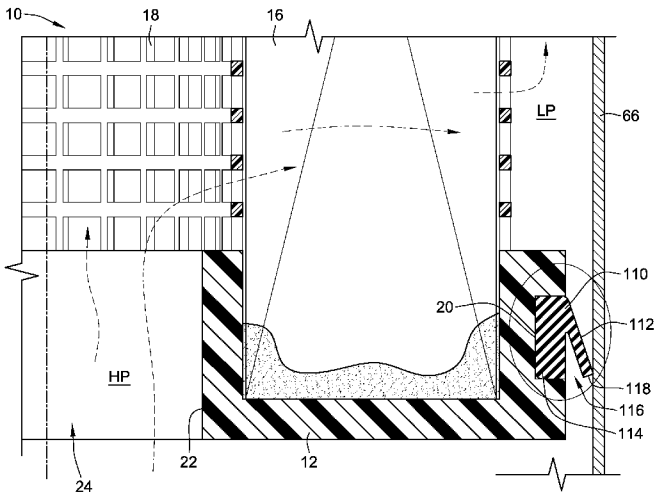


FIG. 8

(57) Abstract: A filter element having an end cap is provided with a seal that can better accommodate non-round holes. The seal may be a chevron type seal and/or other similar seal having a sealing flange for forming a radial seal. Methods of replacing a filter having an O-ring gasket to improve upon sealing are provided as well as filtration systems employing the filter element.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

B01D 35/14(2006.01)i, B01D 46/42(2006.01)i, F16L 23/00(2006.01)i

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)
B01D 35/14; B01D 29/15; B01D 23/24; B01D 27/06; B01D 29/19; B01D 46/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords: filter, end cap, gasket

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 7294163 B1 (LACROIX, P. E.) 13 November 2007 See claim 1, column 2 lines 49 - column 3 lines 65 and figures 1, 2, 5.	1-24
Y	US 2009-0107905 A1 (SCHMITT, C. A.) 30 April 2009 See claim 1, paragraph [0022] and figures 4, 5.	1-24
A	US 2008-0041026 A1 (ENGEL, D. F. et al.) 21 February 2008 See claim 1, paragraphs [0051], [0053], [0062], [0063] and figures 6, 7.	1-24
A	US 2010-0000934 A1 (BROWN, G. W.) 7 January 2010 see paragraphs [0102]-[0103] and figures 28, 30.	1-24
A	US 4552669 A (SEKELLICK, R. S.) 12 November 1985 See col. 8 lines 48-66, col. 9 lines 9-18 and figures 1, 2.	1-24

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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