



(51) International Patent Classification:

F24F 13/08 (2006.01) B01D 25/00 (2006.01)

(21) International Application Number:

PCT/US2024/025111

(22) International Filing Date:

18 April 2024 (18.04.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

18/330,817 07 June 2023 (07.06.2023) US  
18/330,837 07 June 2023 (07.06.2023) US  
18/455,853 25 August 2023 (25.08.2023) 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, 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).

Published:

— with international search report (Art. 21(3))

(88) Date of publication of the international search report:

27 February 2025 (27.02.2025)

(54) Title: TOOLLESS INSTALLATION AND CLEANING OF VENT ASSEMBLY

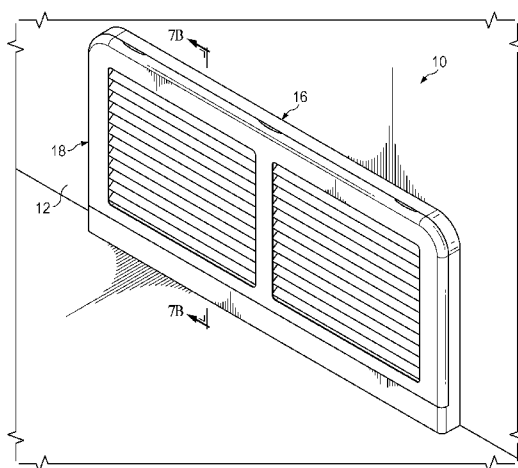


FIG. 1

(57) Abstract: A filtered air vent apparatus has a vent housing body comprising a first sidewall and a second sidewall defining a portion of an air passageway that extends between at least a first open end and a second open end. There is a grill hingedly attachable to the vent housing body and securable to the vent housing body. A connector provides a snap-in configuration that permits or effectuates toolless installation of the filtered air vent apparatus. A filter is selectively and removably positioned behind the grill and in the air passageway. The grill may be removably connected to the vent housing body to allow the grill to be cleaned a number of different manners.



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 24/25111

## A. CLASSIFICATION OF SUBJECT MATTER

IPC - INV. F24F 13/08 (2024.01)

ADD. B01D 25/00 (2024.01)

CPC - INV. F24F 13/084

ADD. B01D 2265/024, F24F 13/085, B01D 46/0004

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)

See Search History document

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

See Search History document

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

See Search History document

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y --- A	~ AU 2014256416 A1 (Air Diffusion Agencies Pty Ltd) 21 May 2015 (21.05.2015), entire document, especially Fig. 1-4, 15-17, para [0064], [0080], [0082], [0083]	1-4, 8-11, 13 ----- 18-19, 21-23, 25-27, 32-37 ----- 5-7, 12, 14-17, 20, 24, 28-31, 38-39
Y --- A	US 2013/0067875 A1 (Hartmann et al.) 21 March 2013 (21.03.2013), entire document, especially Fig. 1-4, para [0021], [0022], [0023]	18-19, 21-23, 25-27, 32-37 ----- 20, 24, 28-31, 38-39
A	~ EP 2354698 A2 (Max Blank GmbH) 10 August 2011 (10.08.2011), entire document	1-39
A	US 2021/0140674 A1 (McCrea) 13 May 2021 (13.05.2021), entire document	1-39
A	US 2006/0201120 A1 (Wu et al.) 14 September 2006 (14.09.2006), entire document	1-39

 Further documents are listed in the continuation of Box C. See patent family annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"D" document cited by the applicant in the international application

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

23 August 2024 (23.08.2024)

Date of mailing of the international search report

SEP 19 2024

Name and mailing address of the ISA/US

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P.O. Box 1450, Alexandria, Virginia 22313-1450  
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 24/25111

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:  
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I: Claims 1-20 directed to an air vent apparatus comprising at least one clip connector.

Group II: Claims 21-39 directed to a method comprising hingedly connecting a grill to a vent housing body and a filter.

Group III: Claims 40-59 directed to a method comprising cleaning a grill and reattaching a grill.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

-\*- See Extra 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 additional fees, this Authority did not invite payment of additional fees.
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.:  
1-39
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 and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

-\*- Box No. III - Observations where unity of invention is lacking -\*-

#### SPECIAL TECHNICAL FEATURES

The invention of Group I includes the special technical feature of an air vent apparatus comprising at least one clip connector, not required by the claims of Groups II-III.

The invention of Group II includes the special technical feature of a method comprising hingedly connecting a grill to a vent housing body and a filter, not required by the claims of Groups I and III.

The invention of Group III includes the special technical feature of a method comprising cleaning a grill and reattaching a grill, not required by the claims of Groups I-II.

#### COMMON TECHNICAL FEATURES

Groups I-III share the common technical features of an air vent apparatus comprising a vent housing body.

However, this shared technical feature does not represent a contribution over prior art as being anticipated by US 2021/0140674 A1 (McCrea), which discloses an air vent apparatus (Fig. 1, floor vent 10, para [0016]) comprising a vent housing body (Fig. 1, vent body 12, para [0017]).

As the common technical features were known in the art at the time of the invention, these cannot be considered special technical feature that would otherwise unify the groups.

Therefore, Groups I-III lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.