(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 4 December 2003 (04.12.2003)

PCT

(10) International Publication Number WO 2003/100324 A3

(51) International Patent Classification⁷: F24F 3/16, B01L 1/04

(21) International Application Number:

PCT/US2003/016422

(22) International Filing Date: 23 May 2003 (23.05.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

10/153,722 24 May 2002 (24.05.2002) US

(71) Applicant and

(72) Inventor: SPENGLER, Charles, W. [US/US]; 3024 W. Prospect Road, Fort Collins, CO 80526 (US).

(74) Agent: GREIGG, Ronald, E.; Greigg & Greigg P.L.L.C., 1423 Powhatan Street, Unit One, Alexandria, VA 22314 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

CZ, DE, DK, DM, DZ, EC, 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, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, VC, VN, YU, ZA, ZM, ZW.

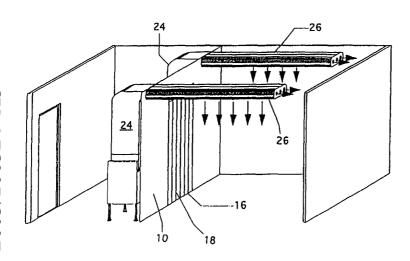
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 29 April 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A CLEAN ROOM WITH A BLOWER INCLUDING A HEPA FILTER AND DUCTS



(57) Abstract: A system which easily changes a positive pressure space to a negative pressure space or vice versa. The system includes a space divider which forms first and second closed spaces. A blower, and blower duct combination in the first space is connected with one end of an airflow duct in the second space to force air into the second space to create a positive pressure in the second space. For creating a negative pressure in the second space, the blower, blower duct is placed in the second space and an outlet end of the blower duct is connected to another end of the flow duct in the second space to force air from the second space to produce a negative pressure in the second space. The flow duct is provided with

apertures in a bottom surface through which air is forced into the second space when a positive pressure space is created. A rolled up flexible sheet is secured at one end of the flow duct to cover apertures in the bottom surface of the flow duct when the blower, and blower duct is connected to the flow duct to create a negative pressure in the second space.

INTERNATIONAL SEARCH REPORT

Internatio plication No PCT/US 03/16422

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 F24F3/16 B01L1/04

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

B. FIELDS SEARCHED

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)

EPO-Internal, WPI Data, PAJ

Citation of document, with indication, where appropriate, of the relevant passages US 5 645 480 A (SPENGLER CHARLES W)	Relevant to claim No.
	1 10
8 July 1997 (1997-07-08) cited in the application the whole document	1-12
US 3 824 909 A (HORNEFF J ET AL) 23 July 1974 (1974-07-23) cited in the application abstract; figure 1	1-12
US 3 601 031 A (ABEL KENNETH ET AL) 24 August 1971 (1971-08-24) abstract	1-12
US 4 608 066 A (CADWELL JR GEORGE H) 26 August 1986 (1986-08-26) abstract/	1-12
	US 3 824 909 A (HORNEFF J ET AL) 23 July 1974 (1974-07-23) cited in the application abstract; figure 1 US 3 601 031 A (ABEL KENNETH ET AL) 24 August 1971 (1971-08-24) abstract US 4 608 066 A (CADWELL JR GEORGE H) 26 August 1986 (1986-08-26) abstract

Further documents are listed in the continuation of box C.	Patent family members are listed in annex.		
Special categories of cited documents: A* document defining the general state of the art which is not considered to be of particular relevance E* earlier document but published on or after the international filling 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 filling 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. '&' document member of the same patent family 		
Date of the actual completion of the international search 15 March 2004	Date of mailing of the international search report 24/03/2004		
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	Valenza, D		

INTERNATIONAL SEARCH REPORT

Internati pplication No
PCT/US 03/16422

	tion) DOCUMENTS CONSIDERED TO BE RELEVANT	Relevant to claim No.
Category °	Citation of document, with indication, where appropriate, of the relevant passages	nelevant to claim No.
4	US 5 725 426 A (ALVAREZ HENRY) 10 March 1998 (1998-03-10) abstract	1-12
4	US 3 505 989 A (TRUHAN ANDREW) 14 April 1970 (1970-04-14) abstract	1-12

INTERNATIONAL SEARCH REPORT

information on patent ramily members

Internat oplication No
PCT/US 03/16422

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
 US 5645480	Α	08-07-1997	NONE		
US 3824909	Α	23-07-1974	NONE		
US 3601031	Α	24-08-1971	NONE		
US 4608066	Α	26-08-1986	NONE		
US 5725426	Α	10-03-1998	NONE		
US 3505989	Α	14-04-1970	NONE		