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[Continued on next page]

(54) Title: IMPROVEMENTS IN OR RELATING TO REFRIGERATED DISPLAY APPLIANCES

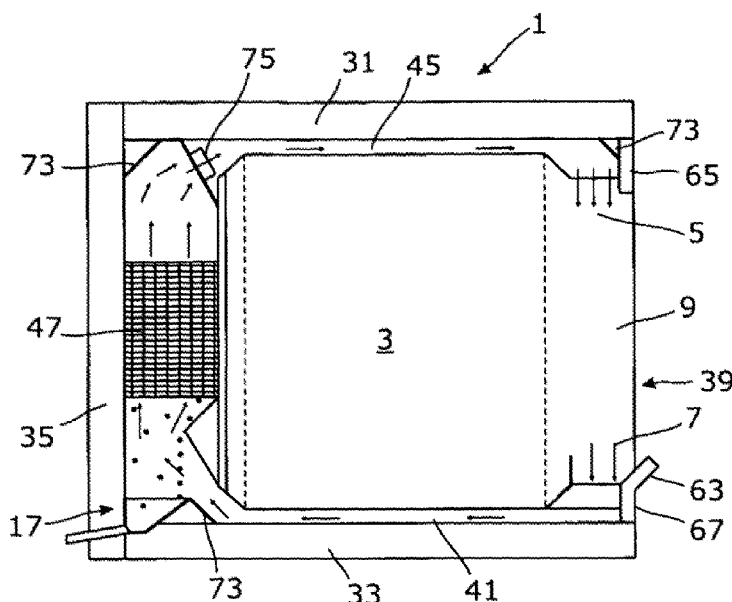


Figure 1

(57) Abstract: A refrigerated display unit (1), having an open-fronted cabinet providing a product display space (3) accessible through an access opening (39) provided by the open front. Cooling means (27) produces cold air to refrigerate items in the product display space (3). A cold air curtain is provided across the access opening (39) using a forwardly-positioned discharge outlet (5) communicating with a supply duct (45) and a forwardly-positioned return inlet (7) in communication with a return duct (41) receiving air from the air curtain (9). The air curtain (9) is substantially unsupported by any supplementary cooling airflow supplied into the product display space (3) separately from the air curtain (9).

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- *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))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2011/000474

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47F3/04
ADD.
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)
A47F
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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2006/059934 A1 (HOWINGTON LARRY C [US] ET AL) 23 March 2006 (2006-03-23) the whole document -----	1-3,11, 52-54,56 12-41
X A	WO 02/05689 A1 (VORMEDAL SVEIN HENRIK [NO]) 24 January 2002 (2002-01-24) the whole document -----	1,4-11, 52-56 12-41
X A	FR 2 690 825 A1 (MC INTERNATIONAL [FR]) 12 November 1993 (1993-11-12) the whole document -----	1,4,6-8, 10,11, 42-44, 52-56 12-41
X	EP 0 589 783 A1 (MC INTERNATIONAL [FR]) 30 March 1994 (1994-03-30) the whole document -----	57-61
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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	"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
"E" earlier document but published on or after the international filing date	"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
"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)	"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.
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 19 January 2012	Date of mailing of the international search report 31/01/2012
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Alff, Robert
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INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2011/000474

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/024446 A1 (ROHRER CLAY A [US] ET	57
A	AL) 4 February 2010 (2010-02-04)	61
	the whole document	

X	US 3 063 256 A (GILBERT LAMB FRANK)	57,59-61
	13 November 1962 (1962-11-13)	
	figures 1,7,10	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2011/000474

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:

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 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.:

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-56

A refrigerated display unit, wherein an air curtain is substantially unsupported by any supplementary cooling airflow supplied into the product display space separately from the air curtain.

2. claims: 57-60

A refrigerated display unit comprising a plurality of shelves, wherein each shelf has at least one forwardly-positioned discharge outlet, and at least one forwardly-positioned return inlet.

3. claim: 61

A refrigerated display unit, comprising at least one shelf, wherein the or each shelf has airflow supply and return channels connectable to supply and return ducts through ports spaced on the upright wall, and at least one upright partition divides the cold-storage volume into two or more columns within which shelves can be moved vertically between selected positions.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2011/000474

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006059934	A1	23-03-2006	CA 2488038 A1
			US 2006059934 A1
WO 0205689	A1	24-01-2002	AU 8268901 A
			EP 1294256 A1
			NO 20012296 A
			US 2003172670 A1
			WO 0205689 A1
FR 2690825	A1	12-11-1993	NONE
EP 0589783	A1	30-03-1994	EP 0589783 A1
			FR 2695814 A1
US 2010024446	A1	04-02-2010	NONE
US 3063256	A	13-11-1962	NONE