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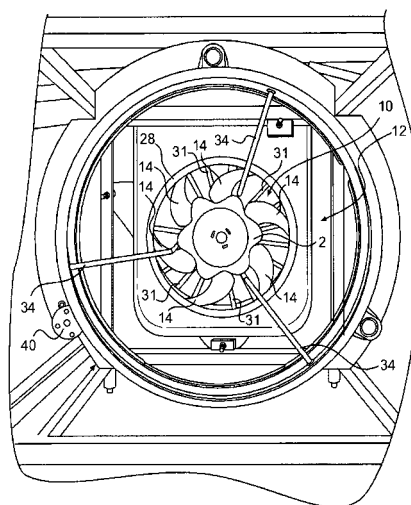
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(54) **Method and apparatus for controlling tonal noise from subsonic axial fans**

(57) An apparatus for reducing a selected tonal noise generated by an axial flow fan (12) operating in a non-uniform flow by locating at least one obstruction (2) in the non-uniform flow such that the at least one obstruction (2) generates a noise that is out of phase with the selected tonal noise. The noise generated by the at least one obstruction (2) interferes with the selected tonal noise, thus reducing the selected tonal noise. It is also contemplated to use additional obstructions to reduce other tonal noises generated by the axial flow fan (12).



**FIG. 7**



## EUROPEAN SEARCH REPORT

Application Number  
EP 07 01 2624

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 0 237 976 A2 (STANDARD ELEKTRIK LORENZ AG [DE]) 23 September 1987 (1987-09-23) * column 1, line 47 - column 2, line 4 * * column 2, line 39 - line 53; figure 2 * -----	1	INV. F04D29/66 F04D29/52 G10K11/178
A	WANG J ET AL: "A study of active tonal noise control for a small axial flow fan" THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, AMERICAN INSTITUTE OF PHYSICS FOR THE ACOUSTICAL SOCIETY OF AMERICA, NEW YORK, NY, US LNKD- DOI:10.1121/1.1848072, vol. 117, no. 2, 1 February 2005 (2005-02-01), pages 734-743, XP012072775 ISSN: 0001-4966 * paragraph [001c] * * paragraph [111c] * * paragraph [01Vc] * -----	1	
A	US 2003/190241 A1 (SONG SUNG-BAE [KR] ET AL) 9 October 2003 (2003-10-09) * paragraph [0014] - paragraph [0016] * * paragraph [0029] - paragraph [0037]; figure 5 * -----	1	TECHNICAL FIELDS SEARCHED (IPC)  F04D F24F G10K
The present search report has been drawn up for all claims			
Place of search <b>Munich</b>		Date of completion of the search <b>20 July 2010</b>	Examiner <b>Di Giorgio, F</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 01 2624

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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20-07-2010

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