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(71) Applicant: **Mitsubishi Heavy Industries, Ltd.**
Tokyo (JP)

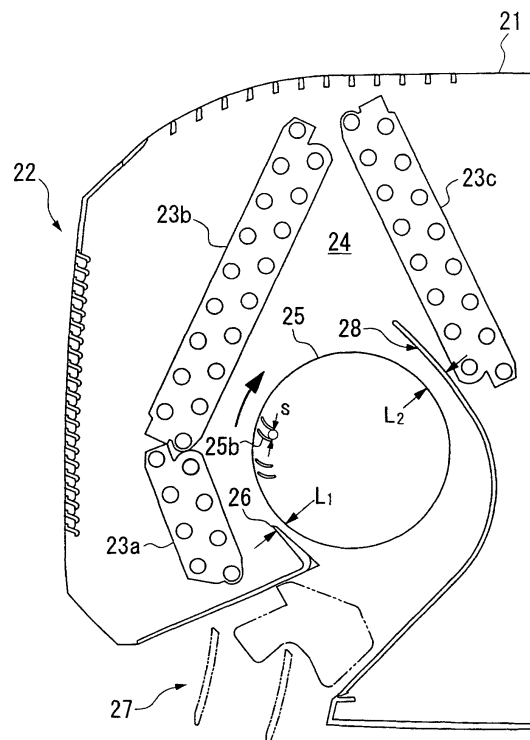
(72) Inventors:
• **Suzuki, Kazuhiro, c/o Mitsubishi Heavy Ind., Ltd.**
Nishi-Kasugai-gun, Aichi-ken (JP)
• **Izumi, Hajime, Mitsubishi Heavy Ind., Ltd.**
Takasago-shi, Hyogo-ken (JP)
• **Suenaga, Kiyoshi, c/o Mitsubishi Heavy Ind., Ltd.**
Takasago-shi, Hyogo-ken (JP)
• **Tominaga, Tetsuo,**
c/o Mitsubishi Heavy Ind., Ltd.
Takasago-shi, Hyogo-ken (JP)

(74) Representative: **Henkel, Feiler & Hänzel**
Möhlstrasse 37
81675 München (DE)

(54) **Air conditioner and indoor unit therefor**

(57) An air conditioner provides an indoor unit (20) whose internal parts are optimally designed in dimensions and arrangement to satisfy prescribed relationships in order to actualize a noticeable reduction in noise without unwanted enlargement of dimensions. With respect to the distances L_1 and L_2 ranging from the tangential fan (25) to the stabilizer (26) and casing (28) respectively, the indoor unit is designed to satisfy at least one of the three relationships $L_1 < L_2$, $1.0s \leq L_1 \leq 1.3s$, and $1.2s \leq L_2 \leq 2.0s$. With respect to the distance L between the tangential fan and its proximate indoor heat exchanger (23a), the relationship of $2.5d \leq L \leq 3.5d$ is established. With respect to the distances L_1 and L_2 ranging from the tangential fan to the adjoining indoor heat exchangers (23a, 23b) respectively, the relationship of $1.5L_1 \leq L_2 \leq 3.5L_1$ is established.

FIG. 2





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EUROPEAN SEARCH REPORT

Application Number
EP 02 00 6893

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 4 014 625 A (YAMAMOTO TERUO) 29 March 1977 (1977-03-29) * column 6, line 1; figure 1 * * column 10, line 35 - column 11, line 2 * * column 8, line 12 - column 8, line 30 * -----	1,5	F24F1/00 F24F13/24
A	US 4 494 908 A (HOPFENSBERGER REINHOLD) 22 January 1985 (1985-01-22) * abstract; claims 1,5-8; figure 1 * -----	1,5	
A	DE 12 77 505 B (FIRTH CLEVELAND LTD) 12 September 1968 (1968-09-12) * the whole document * -----	1,2,5	
A	DE 963 809 C (BRUNO ECK DR ING) 16 May 1957 (1957-05-16) * abstract; figure 1 * -----	1,5	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			F24F F04D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 17 February 2004	Examiner Valenza, D
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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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1 (a,b,c), 2, 5



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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 02 00 6893

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1(a,b,c),2,5

Invention 1 concerns an indoor unit for an air conditioner and the air conditioner itself, wherein the position of the tangential fan (25) with respect to the stabilizer (26) and to the casing (28) is determined by at least one of the relationship (a), (b) or (c). The problems this invention attempts to solve are the noise reduction and the aerodynamic performance of indoor unit by optimizing the positioning and the sizing of the fan (25) inside the indoor unit.

2. claims: 1(d),3,5

Invention 2 concerns an indoor unit for an air conditioner and the air conditioner itself, wherein the relationship (d) between the distance L of the heat exchanger (23a) from the fan (25) and the diameter of the heat exchanger's refrigerant pipes is established. The problem this invention attempts to solve is the noise reduction of the indoor unit by optimizing the distance L in function of the diameter d of the heat exchanger's refrigerant pipes.

3. claims: 1(e),4,5

Invention 3 concerns an indoor unit for an air conditioner and the air conditioner itself, wherein the relationship (e) between the distances L1' and l2' (thus the tilting and the height) and the fan (25) is established. The problem this invention attempts to solve is the noise reduction of the indoor unit by optimizing the tilting and the dimensioning of the heat exchanger (23a) with respect to the fan (25).

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

EP 02 00 6893

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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17-02-2004

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82