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**0 342 484  
A3**

## EUROPEAN PATENT APPLICATION

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Applicant: **RIELLO CONDIZIONATORI S.p.A.**  
44, Via Roma  
I-37040 Bevilacqua Verona(IT)

Inventor: **Riello, Valerio Giordano**  
Via Pio X  
I-37045 Legnago (Verona)(IT)

Representative: **Münzhuber, Robert,**  
Dipl.-Phys. et al  
Patentanwalt Rumfordstrasse 10  
D-8000 München 5(DE)

**Very noiseless motor driven centrifugal fan.**

The motor driven centrifugal fan (10) according to the present invention has the inner surface (18) of the volute (12) and possibly also the inner surfaces of the sidewalls (13) laterally defining the volute which are roughened.

The roughness can comprise projections or recesses of irregular shape, for example of orange-peel type, or of regular shape, for example regular polygons or circles which can be arranged along parallel lines which are or not offset from each other.

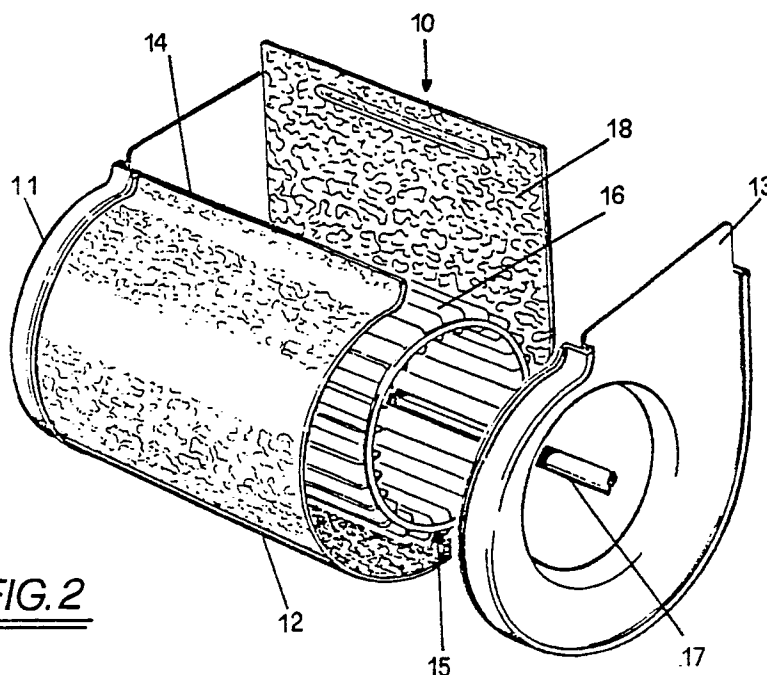


FIG. 2

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# EUROPEAN SEARCH REPORT

Application number

EP 89 10 8330

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. 4)
X	DE-A-2 203 450 (OTTO CHRIST) * Figures 1-5; page 2, lines 6-8; page 3, lines 6-10, 19-28; page 4, lines 15-20 *	1-3, 6, 7	F 04 D 29/66 F 24 F 13/24
Y	--	5	
Y	FR-A-2 596 108 (USUI KOKUSAI SANGYO K.K.) * Figure 1; page 4, line 33 - page 5, line 13 *	5	
A	FR-A-2 347 539 (ROLLS-ROYCE) * Figures 3a, 3b; page 1, lines 1-6; page 5, lines 20-25 *	4	
X	DE-C- 600 692 (SIEMENS) * Whole document *	7	TECHNICAL FIELDS SEARCHED (Int. Cl. 4)  F 04 D F 24 F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20-07-1990	Examiner TEERLING
<b>CATEGORY OF CITED DOCUMENTS</b> 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			



## CLAIMS INCURRING FEES

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

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees 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 claims:
- ☐ 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.

## X LACK OF UNITY OF INVENTION

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

namely:

1. Claims 1,2: Centrifugal fan comprising a volute with irregularly roughened inner surface.
2. Claims 3-6: Centrifugal fan comprising a volute with regularly roughened inner surface
3. Claim 7: Centrifugal fan comprising a volute and sidewalls with roughened inner surface

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ 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 has 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: