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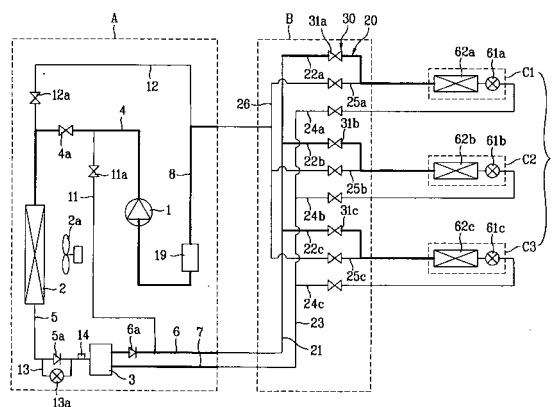
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(54) Multi-unit air conditioner and method for controlling operation of outdoor unit fan thereof

(57) The invention provides a multi-unit air conditioner for independent cooling/heating of rooms, including a system in which, depending on operation conditions, gas refrigerant discharged from a compressor 1 in an outdoor unit A is introduced into a distributor B through a first bypass pipe 11 directly, or via an outdoor unit heat exchanger 2 and a gas-liquid separator 3 with the refrigerant separated into gas and liquid refrigerant indirectly, wherefrom the liquid refrigerant is introduced into the compressor 1 after passed through an electric expansion valve 61a,61b,61c for an indoor unit C which cools the room, an indoor unit heat exchanger 62a,62b,62c, and a distributor B, and the gas refrigerant is introduced into the compressor 1 through a second bypass pipe 12 after passed through an indoor unit heat exchanger 62a,62b,62c and an electric expansion valve 61a,61b,61c for the indoor unit C which heats the room, the distributor B, the gas-liquid separator 3, the outdoor unit electric expansion valve 13a, and the outdoor unit heat exchanger 2. Further, the invention provides a method for controlling operation of an outdoor unit fan 2a in a multi-unit air conditioner including the steps of measuring a temperature of gas-liquid mixture refrigerant discharged from an outdoor unit heat exchanger 2, comparing a measured refrigerant temperature to a preset refrigerant temperature, to detect a gas-liquid mixture ratio, and varying a rotational speed of the outdoor

unit fan 2a so that a detected gas-liquid mixture ratio becomes identical to a preset mixture ratio required for an intended operation condition.

FIG. 1





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EUROPEAN SEARCH REPORT

Application Number
EP 03 00 9017

DOCUMENTS CONSIDERED TO BE RELEVANT			
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 6 October 2003	Examiner Ritter, C
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:

1-27



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LACK OF UNITY OF INVENTION
SHEET B

Application Number

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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: 1-27

Multi-unit air conditioner

2. claim: 28

Method for controlling the operation of an outdoor unit fan.

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

EP 03 00 9017

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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