

Title (en)  
CENTRIFUGAL FAN AND AIR CONDITIONER USING THE SAME

Title (de)  
ZENTRIFUGALLÜFTER UND DIESEN EINSETZENDE KLIMAAANLAGE

Title (fr)  
VENTILATEUR CENTRIFUGE ET CLIMATISEUR ASSOCIÉ

Publication  
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Application  
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Abstract (en)  
[origin: EP1933039A1] The present invention provides a centrifugal fan by which air velocity distribution in the height direction of impellers at a fan blow-out port is made uniform and running noise is reduced, and an air conditioner whose running noise is reduced by applying the centrifugal fan thereto. The centrifugal fan is provided with a hub for fixing the rotary shaft of a motor, a main plate formed on the outer circumference of the hub, a shroud disposed to be opposed to the main plate, which forms an air passage, a plurality of impellers disposed between the main plate and the shroud, and a bellmouth disposed at the suction side of the shroud. Projections or recesses are formed on the surface of the shroud facing the bellmouth, which projections or recesses form air streams flowing from the center of the shroud toward the outer circumference thereof along the surface when running a fan. The air conditioner has a thus constructed centrifugal fan mounted therein.

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Citation (search report)  
• [XAY] JP H05332293 A 19931214 - NIPPON DENSO CO  
• [Y] US 2005191174 A1 20050901 - ZENG LING-ZHONG [US], et al  
• [XA] JP S5186666 U 19760712  
• See references of WO 2007040073A1

Cited by  
EP2363609A1; EP2218917A1; EP2517916A1; ITTO20110362A1; US9180772B2; US10533577B2; WO2022123484A1; WO2012062249A1;  
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