

Title (en)

Air-powered motor and a rotor therefor.

Title (de)

Luftgetriebener Motor und Rotor hierfür.

Title (fr)

Moteur à air et son rotor.

Publication

EP 0021435 A1 19810107 (EN)

Application

EP 80103626 A 19800626

Priority

US 5266979 A 19790627

Abstract (en)

The present invention is directed to an air-powered motor and a turbine rotor therefor which can be used to drive small power tools, such as a vacuum cleaner floor tool, a sander or a grinder, and in which the motor can be coupled to a household vacuum cleaner to provide a source of vacuum or forced air to drive the turbine rotor. The turbine rotor has a structure which substantially increases the efficiency of the motor as compared to prior art devices and, in particular, the motor comprises a housing having a turbine chamber, an air inlet and an air outlet. The turbine rotor is rotatably mounted in the chamber, the turbine rotor having a plurality of turbine blades extending from the outer surface of the rotor towards the interior thereof. A plurality of turbine buckets are formed in the rotor, the top and bottom of the buckets being formed by a semi-circular wall. The structural elements which form the buckets are positioned with respect to one another such that the bucket angle of the bucket $\beta \leq 60$ DEG, the bucket radius ratio $\langle \text{MATH} \rangle$ and the blade inlet angle $\alpha \leq 27$ DEG. Furthermore, the turbine rotor is balanced to further enhance the efficiency of the motor.

IPC 1-7

F04D 17/04; F04D 29/28; F01D 1/34; A47L 9/04

IPC 8 full level

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Citation (search report)

- DE 2203284 A1 19730802 - SUEDEDEUTSCHE KUEHLER BEHR
- DE 2746202 A1 19790419 - DEIERLING HEINRICH
- FR 1103927 A 19551108
- US 4014625 A 19770329 - YAMAMOTO TERUO
- US 2962748 A 19601206 - MAGARIAN GERALD M
- US 3044100 A 19620717 - ZAIDAN JOSEPH P

Cited by

GB2351533B; EP0233933A4; CN1061133C; GB2288856A; US5168599A; EP0430415A1

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