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(71) Applicants:
 • **Szymanski, Piotr**
03-430 Warszawa (PL)
 • **Staszowski, Mariusz**
35-614 Rzeszow (PL)

(72) Inventors:
 • **Szymanski, Piotr**
03-430 Warszawa (PL)
 • **Staszowski, Mariusz**
35-614 Rzeszow (PL)

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(54) **COMPRESSOR SEALING RING**

(57) The "Compressor Performance Ring" is intended for use in flow compressors, in particular axial, radial and radial-axial compressors. This solution allows the clearance between rotor and housing of a flow compressor to be reduced with the use of simple technologies with low mass production costs, improving compressor performance.

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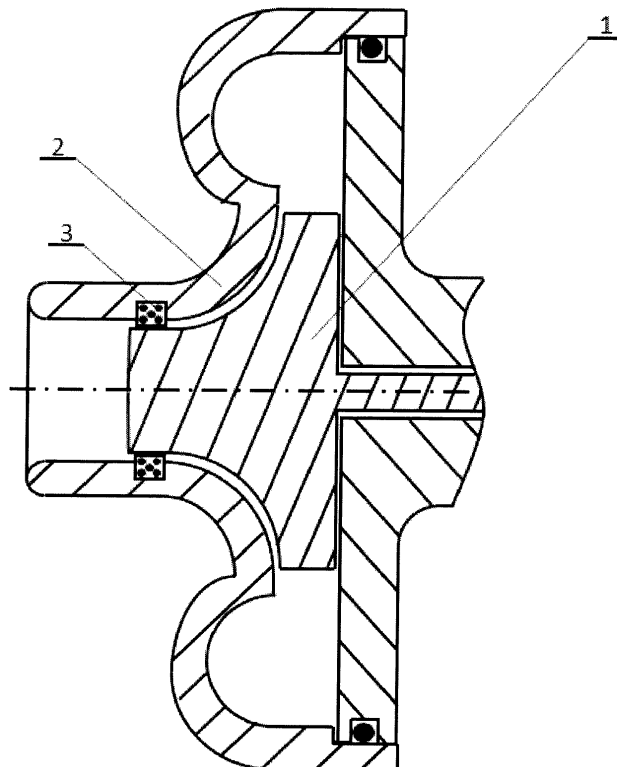


Fig. 3

Description**Claims****Description of the Invention**

[0001] The invention involves a "Compressor Performance Ring" for use in flow compressors.

[0002] The several types of flow compressors include: radial compressors, axial compressors and radial-axial compressors. These compressors are composed of rotors and rotor housings (stators). Rotational speed of the rotor causes the compression and flow of the medium. These compressors are used in such equipment as aircraft turbine engines, gas turbines, power generators, turbochargers used in internal combustion engines, electric compressors, industrial fans and many other applications.

[0003] Due to the manufacturing tolerances, bearing slackness and phenomena such as the centrifugal force, these compressors have a clearance between the rotor and the housing. This negatively affects the performance of the flow compressor. An invention which reduces the clearance between the rotor and the housing in radial compressors has been proposed and applied in mass production according to patents DE2642631A1 and JP01060701A. These solutions are technologically difficult and expensive in mass production.

[0004] The "Compressor Performance Ring," a ring made of lower hardness material with lower strength properties than the rotor, is a solution to reduce the clearance between rotor and housing with the use of simple and reliable technologies with low serial production costs. The "Compressor Performance Ring" may be glued into the rotor housing (stator) or installed in a special groove in the rotor housing.

[0005] An example embodiment of the invention is presented on the drawing, where Figure 1 presents the schematic design of an axial compressor with a "Compressor Performance Ring" installed in the groove. Such a compressor consists of an axial rotor (1), a static rotor housing (stator) (2) and a "Compressor Performance Ring" (3) installed in the rotor housing (2). The ring (3) is installed in such a way as to reduce the clearance between the ring (3) and the rotor (1) to zero or a near-zero value. As a result, during the operation of the compressor (rotation of the rotor), the rotor wears off the ring (3) and adjusts its shape to the rotor (1), ensuring the minimum necessary clearance between the rotor (1) and the ring (3), thus improving the performance of the flow compressor. An example embodiment of the subject of the invention is presented on the drawing, where Figure 1 presents the "Compressor Performance Ring" installed in the groove of the axial compressor housing. Figure 2 presents the "Compressor Performance Ring" glued into the axial compressor housing. Figure 3 presents the "Compressor Performance Ring" installed in the groove of the radial compressor housing. Figure 4 presents the "Compressor Performance Ring" glued into the radial compressor housing.

1. "Compressor Performance Ring" installed in a flow compressor housing which reduces the clearance between rotor and housing, **characterised in that** the ring (3) is installed in a groove in the rotor housing (2).
2. "Compressor Performance Ring" according to claim 1, **characterised in that** the ring (3) is glued into the rotor housing (2).
3. "Compressor Performance Ring" according to claims 1 and 2, **characterised in that** it is covered with a special coating.
4. "Compressor Performance Ring" according to claims 1 and 2, **characterised in that** it is made of a composite material.
5. "Compressor Performance Ring" according to claims 1 and 2, **characterised in that** the ring (3) has a cross-cut.
6. "Compressor Performance Ring" according to claims 1 and 2, **characterised in that** the ring (3) does not have a cross-cut.
7. "Compressor Performance Ring" according to claims 1 and 2, **characterised in that** the surface mating with the rotor (1) is profiled.
8. "Compressor Performance Ring" according to claims 1 and 2, **characterised in that** the ring also overlaps the axial part of the rotor (1).

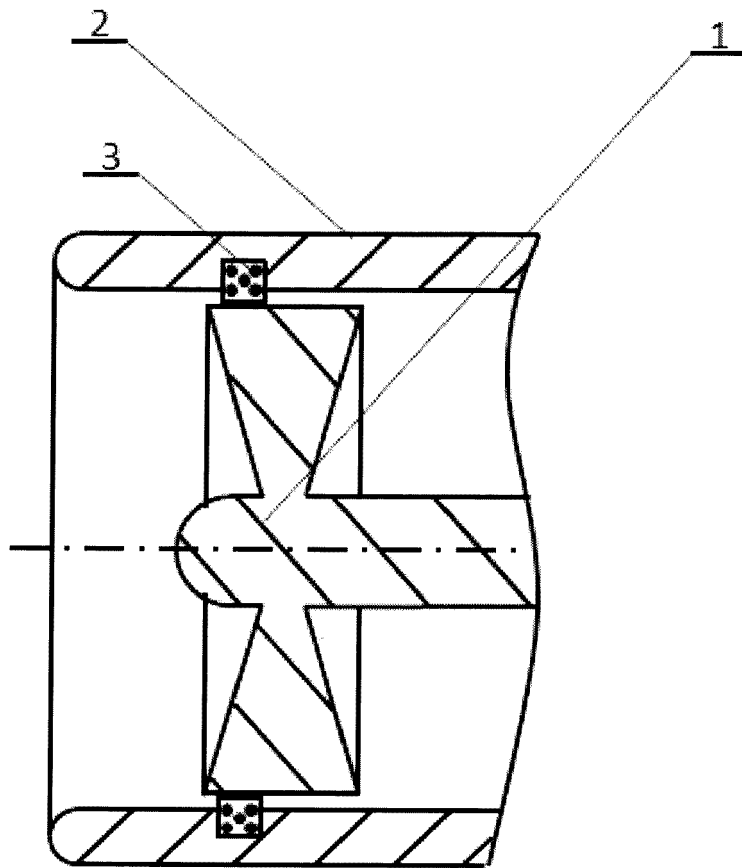


Fig. 1

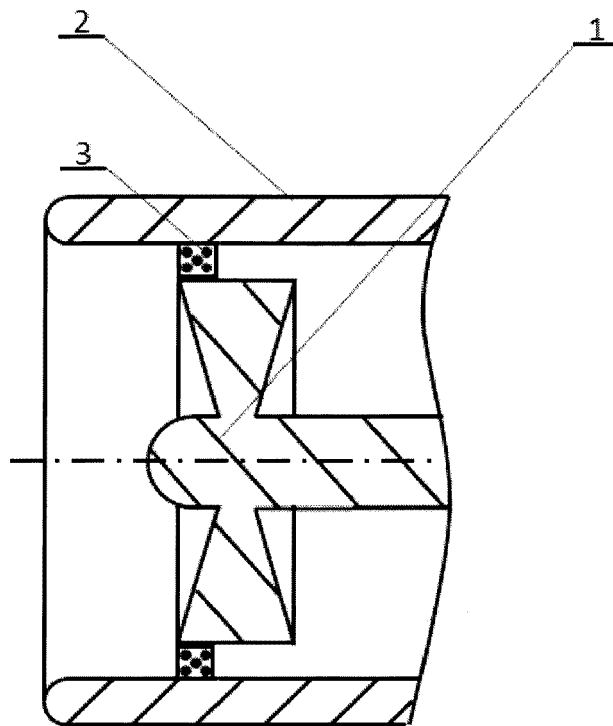


Fig. 2

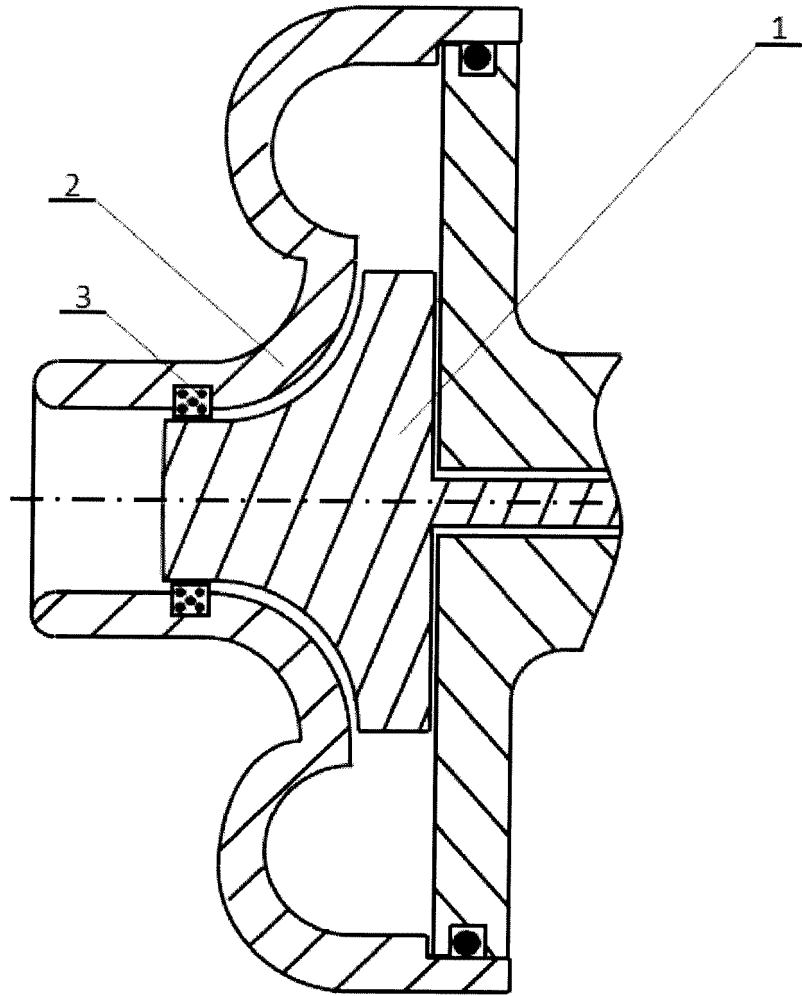


Fig. 3

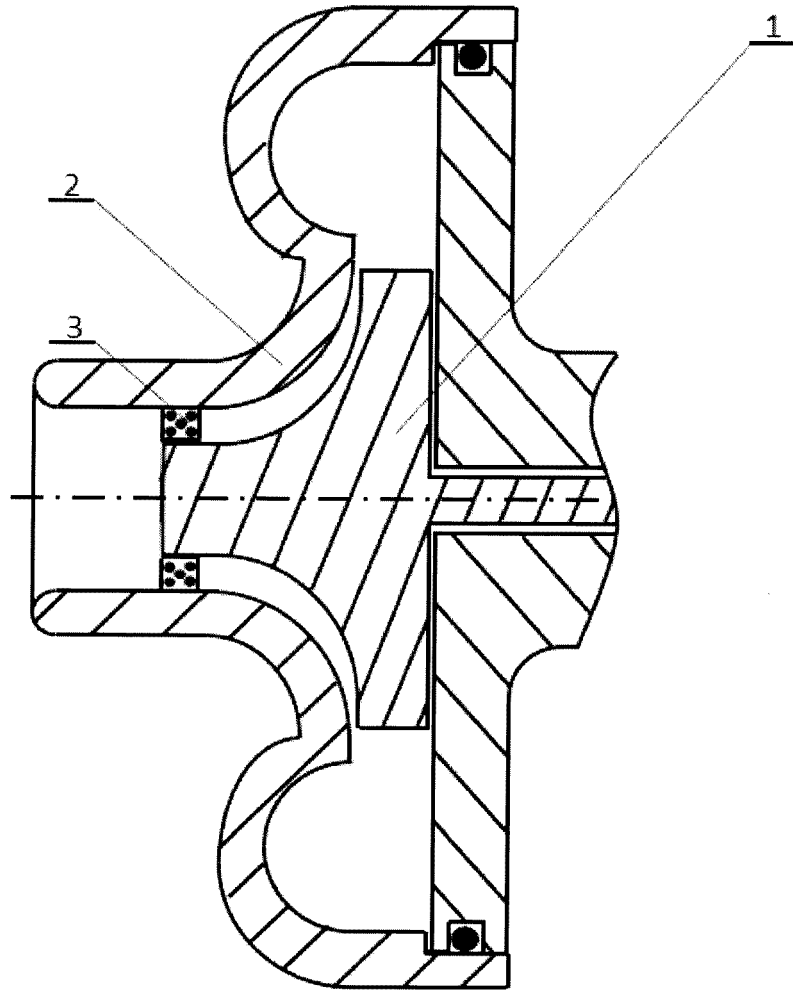


Fig. 4



EUROPEAN SEARCH REPORT

Application Number
EP 17 46 0055

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 17 May 2018	Examiner Ingelbrecht, Peter
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	

EPO FORM 1503 03/02 (P04C01)

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

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