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Schlemmer et al.

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(54) **SEALING ASSEMBLY FOR A FLUID KINETIC MACHINE, METHOD FOR PRODUCING A SEALING ASSEMBLY AS WELL AS FLUID KINETIC MACHINE**

(71) Applicants: **MTU Aero Engines AG**, Munich (DE); **ALMECON TECHNOLOGIE GMBH**, Arnsberg (DE)

(72) Inventors: **Markus Schlemmer**, Mainburg/Sandelzhausen (DE); **Klaus Pirker**, Klagenfurt (AT); **Ralph Kropp**, Wartenberg (DE); **Lorenz Vinke**, Arnsberg (DE); **Waldemar Wiebe**, Arnsberg (DE)

(73) Assignees: **MTU Aero Engines AG**, Munich (DE); **Almecon Technologie GmbH**, Arnsberg (DE)

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,963,307 A * 12/1960 Bobo F16J 15/444
277/414
4,521,159 A * 6/1985 Pask F01D 25/246
277/412

(Continued)

FOREIGN PATENT DOCUMENTS

DE 459090 C 4/1928
DE 3911571 A1 10/1990

(Continued)

OTHER PUBLICATIONS

Mowitz, D. Key Rules on Welding Angle, Direction, and Speed. Successful Farming, Jul. 13, 2015. Accessed from https://www.agriculture.com/machinery/tools/welding-key-rules-on-welding-gle-direction_245-ar49501 (Year: 2015).*

Primary Examiner — Michael Lebentritt

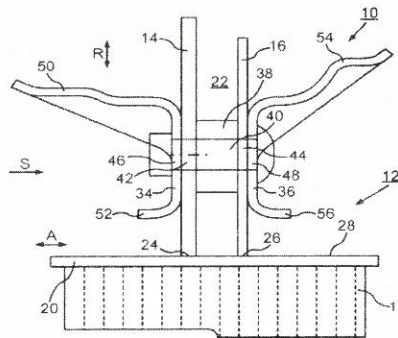
Assistant Examiner — Topaz L. Elliott

(74) *Attorney, Agent, or Firm* — Barlow, Josephs & Holmes, Ltd.

(57) **ABSTRACT**

The invention relates to a sealing assembly for a fluid kinetic machine, in particular for an aircraft engine, for sealing a radial gap between a rotor and a stator, including at least one sealing support for retaining and/or fixing at least one sealing element, wherein the sealing support includes a first and a second radial web extending in a radial extension direction as well as an axial web extending in an axial extension direction, firmly bonded to the radial webs, and the radial webs form a receptacle for receiving an element of the stator. Therein, the radial webs are formed as sheet elements formed elongated in radial direction, wherein a radially interior end of the radial webs is respectively firmly bonded, in particular welded, to a radially exterior surface of the axial web.

15 Claims, 3 Drawing Sheets



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