

Title (en)
NUTATING FLUID DELIVERY APPARATUS

Title (de)
TAUMELNDE AUSTRAGVORRICHTUNG FÜR FLUIDE

Title (fr)
DISPOSITIF OSCILLANT POUR LA DISTRIBUTION DE FLUIDE

Publication
EP 1104332 A2 20010606 (EN)

Application
EP 99934049 A 19990714

Priority

- US 9915985 W 19990714
- US 11536298 A 19980714
- US 15048098 A 19980909
- US 10862798 P 19981116
- US 11235798 P 19981215
- US 14151199 P 19990628

Abstract (en)

[origin: WO0003810A2] The present invention provides an apparatus comprising: a body having a fluid inlet; a wobble turbine disposed downstream of the fluid inlet, the wobble turbine being configured to rotate when struck by a stream emitted from the fluid inlet; and a fluid redirecting means, such as a moving or stationary shroud or a chamber, disposed downstream of the wobble turbine to redirect the stream. While the wobble turbine may be placed downstream of the fluid inlet in various ways, it is preferred that the wobble turbine is disposed in an axially spaced relationship to the fluid inlet, such as by coupling the wobble turbine to the body in a loose, post and sleeve relationship. The preferred wobble turbine includes a convex conical upper surface with angular momentum inducing members formed therein/thereon, wherein the angular momentum inducing members are selected from grooves, vanes, blades and combinations thereof. The apparatus may further comprise a wobble limiting member, such as a stator ring, engaging the wobble turbine.

[origin: WO0003810A2] The present invention provides an apparatus comprising: a body having a fluid inlet (550); a wobble turbine (554) disposed downstream of the fluid inlet, the wobble turbine being configured to rotate when struck by a stream emitted from the fluid inlet; and a fluid redirecting means (567), such as a moving or stationary shroud or a chamber, disposed downstream of the wobble turbine to redirect the stream. While the wobble turbine may be placed downstream of the fluid inlet in various ways, it is preferred that the wobble turbine is disposed in an axially spaced relationship to the fluid inlet, such as by coupling the wobble turbine to the body in a loose, post and sleeve relationship. The preferred wobble turbine includes a convex conical upper surface (558), with angular momentum inducing members formed therein/thereon, wherein the angular momentum inducing members are selected from grooves, vanes, blades (560) and combinations thereof. The apparatus may further comprise a wobble limiting member, such as a stator ring, engaging the wobble turbine.

IPC 1-7
B05B 1/00

IPC 8 full level
A47K 3/28 (2006.01); **B05B 1/00** (2006.01); **B05B 1/18** (2006.01); **B05B 3/04** (2006.01); **B05B 3/00** (2006.01)

CPC (source: EP)
B05B 3/008 (2013.01); **B05B 3/04** (2013.01); **B05B 3/0445** (2013.01); **B05B 3/0486** (2013.01); **B05B 1/185** (2013.01)

Citation (search report)
See references of WO 0003810A2

Cited by
EP1997408A4; DE102006034266A1; DE102006034266B4

Designated contracting state (EPC)
DE ES FR GB IT

DOCDB simple family (publication)
WO 0003810 A2 20000127; **WO 0003810 A3 20000330**; **WO 0003810 A9 20010705**; AU 4996899 A 20000207; BR 9912818 A 20010925; CA 2337336 A1 20000127; CA 2337336 C 20120124; CN 1089644 C 20020828; CN 1324272 A 20011128; DE 69929610 D1 20060413; DE 69929610 T2 20060803; EP 1104332 A2 20010606; EP 1104332 B1 20060125; ES 2257065 T3 20060716; JP 2002520156 A 20020709; MX PA01000451 A 20030714

DOCDB simple family (application)
US 9915985 W 19990714; AU 4996899 A 19990714; BR 9912818 A 19990714; CA 2337336 A 19990714; CN 99808579 A 19990714; DE 69929610 T 19990714; EP 99934049 A 19990714; ES 99934049 T 19990714; JP 2000559941 A 19990714; MX PA01000451 A 19990714