

Title (en)

Self propelled submersible suction cleaner and cleaning method.

Title (de)

Unterwasserabsaugvorrichtung mit eigenem Antrieb und Reinigungsverfahren.

Title (fr)

Aspirateur sous-marin auto-propulsé et méthode de nettoyage.

Publication

EP 0558337 A1 19930901

Application

EP 93301462 A 19930226

Priority

- US 97823792 A 19921118
- ZA 921500 A 19920228
- ZA 921501 A 19920228
- ZA 921502 A 19920228
- ZA 921503 A 19920228
- ZA 921504 A 19920228
- ZA 921505 A 19920228
- ZA 921506 A 19920228
- ZA 921507 A 19920228

Abstract (en)

A self-propelled submersible suction cleaner (10) as used to clean the surfaces of a swimming pool transfers a vibratory movement of an oscillator (20) located within the flow path of a suction chamber (14) for propulsion over the submerged surface of the pool. This vibratory movement of the oscillator is also converted to a unidirectional rotational motion used in conjunction with a gear train to cause the cleaner to rotate through at least a 90 angle allowing the cleaner to improve on the random path taken by the cleaner and to maneuver away from obstacles such as pool steps potentially stopping the cleaner movement. The cleaner includes a elevation limiter (100) that keeps the suction chamber submerged as the cleaner climbs a vertical wall and attempts to rise above the water level in the pool. A pressure relief valve (300) eliminates the concern over debris blocking the suction and causing potential damage to the pool pump and motor. Additional features including a shoe (32) dimensioned to improve the forward movement resulting from the vibratory motion, shoe skirts in combination with a shoe flap to control suction, and bellows configurations to aid in better execution of sharp turns up a vertical wall as well as a smoother movement of the cleaner are disclosed. <IMAGE>

IPC 1-7

E04H 4/16

IPC 8 full level

E04H 4/16 (2006.01)

CPC (source: EP)

E04H 4/1654 (2013.01)

Citation (applicant)

- US 4536908 A 19850827 - RAUBENHEIMER JOHANN N [ZA]
- EP 0476413 A2 19920325 - RIEF DIETER J [US]
- US 5099535 A 19920331 - CHAUVIER DANIEL J V D [US], et al
- US 4208752 A 19800624 - HOFMANN HELMUT J [ZA]
- US 4807318 A 19890228 - KALLENBACH DIETER H F [ZA]

Citation (search report)

- [XP] EP 0476413 A2 19920325 - RIEF DIETER J [US]
- [A] DE 2620119 A1 19771124 - CHAUVIER FERNAND L O J
- [A] US 4351077 A 19820928 - HOFMANN HELMUT J
- [A] FR 2520422 A1 19830729 - TUBSUD AUTOMATION SA [FR]
- [A] US 4133068 A 19790109 - HOFMANN HELMUT J

Cited by

CN110271654A; EP1379743A4; CN112461748A; EP0750083A1; FR2735437A1; US5771987A; CN117451965A; WO2004011743A1

Designated contracting state (EPC)

DE ES FR GB PT

DOCDB simple family (publication)

EP 0558337 A1 19930901; EP 0558337 B1 19970115; BR 9300705 A 19930831; DE 69307358 D1 19970227; DE 69307358 T2 19970612; ES 2096201 T3 19970301; NZ 245991 A 19950726

DOCDB simple family (application)

EP 93301462 A 19930226; BR 9300705 A 19930301; DE 69307358 T 19930226; ES 93301462 T 19930226; NZ 24599193 A 19930224