

Title (en)

SURFACE CLEANING HEAD INCLUDING OPENABLE AGITATOR CHAMBER AND REMOVABLE AGITATORS FOR USE THEREIN

Title (de)

FLÄCHENREINIGUNGSKOPF MIT EINER ÖFFNUNGSFÄHIGEN RÜHRERKAMMER UND ABNEHMBAREN RÜHRERN ZUR VERWENDUNG DARIN

Title (fr)

TÊTE DE NETTOYAGE DE SURFACE COMPRENANT UNE CHAMBRE D'AGITATEUR POUVANT ÊTRE OUVERTE ET DES AGITATEURS AMOVIBLES DESTINÉS À ÊTRE UTILISÉS À L'INTÉRIEUR DE CELLE-CI

Publication

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Application

EP 16744107 A 20160128

Priority

- US 201562110232 P 20150130
- US 201514739915 A 20150615
- US 201514744438 A 20150619
- US 201514801185 A 20150716
- US 201514812734 A 20150729
- US 201514867599 A 20150928
- US 2016015370 W 20160128

Abstract (en)

[origin: EP4008228A1] A removable rotatable agitator (130, 730) for use in a surface cleaning head (100, 700, 2400, 2500, 2600, 2700, 2800, 2900), the removable rotatable agitator comprising: the agitator, or an agitator body (131, 531, 631, 731) having a driven end (132, 732) and a non-driven end (134, 754); at least one agitator element (136, 536) located on at least a portion of the agitator body between the driven end and the non-driven end; a tab (796), or an end cap including a tab, the tab extending radially from at least one end of the agitator body and configured to be gripped by a user to facilitate removing and inserting the non-driven end into an agitator chamber (120, 720) in the surface cleaning head; and a splined driven member (780) located at the driven end of the agitator body, the splined driven member being configured to mate axially and engage with a splined drive member (770) on a drive mechanism (750) in the surface cleaning head.

IPC 8 full level

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Citation (examination)

- US 5960514 A 19991005 - MILLER DANIEL R [US], et al
- EP 2289381 A2 20110302 - TECHTRONIC FLOOR CARE TECH LTD [VG]

Citation (opposition)

- Opponent : Jiangsu Midea Cleaning Appliances Co., Ltd
- JP H01223919 A 19890907 - TOKYO ELECTRIC CO LTD
 - US 5960514 A 19991005 - MILLER DANIEL R [US], et al
 - CN 1953692 B 20100929 - DYSON TECHNOLOGY LTD
 - CN 102843944 A 20121226 - MITSUBISHI ELECTRIC CORP, et al
 - CN 1816301 B 20100512 - TOSHIBA TEC KK
 - US 6810559 B2 20041102 - MERTES RICHARD H [US], et al
 - CN 102240191 A 20111116 - SUZHOU HAAN TECHNOLOGY CO LTD, et al
 - CN 201719176 U 20110126 - WEIHONG MA
 - US 5309601 A 19940510 - HAMPTON LEONARD D [US], et al
 - US 4980945 A 19910101 - BEWLEY WILBUR C [US]
 - GB 2292673 A 19960306 - SHARP KK [JP]
 - JP H1014830 A 19980120 - HITACHI LTD
 - EP 2289381 A2 20110302 - TECHTRONIC FLOOR CARE TECH LTD [VG]
 - JP H10127542 A 19980519 - HITACHI LTD
 - JP H07322981 A 19951212 - MATSUSHITA ELECTRIC IND CO LTD
 - EP 0909547 A2 19990421 - ORECK HOLDINGS LLC [US]

Opponent : Operating LLC

- US 5960514 A 19991005 - MILLER DANIEL R [US], et al
- EP 2289381 A2 20110302 - TECHTRONIC FLOOR CARE TECH LTD [VG]
- US 3643276 A 19720222 - WORWAG EBERHARD
- US 5063634 A 19911112 - HAEFELE SIEGFRIED [DE], et al
- US 2010251497 A1 20101007 - ARNOLD PETER [DE]
- GB 2413942 A 20051116 - DYSON LTD [GB], et al

Cited by

CN115120151A; CN114682188A; US11503968B2

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ES 2911275 T3 20220518; ES 2943708 T3 20230615; JP 2018503473 A 20180208; JP 2021118911 A 20210812; JP 7248734 B2 20230329;
JP 7251919 B2 20230404; KR 102293191 B1 20210825; KR 20170125832 A 20171115

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EP 22153318 A 20160128; AU 2016211450 A 20160128; CA 2975385 A 20160128; CN 201680020710 A 20160128;
CN 202210050729 A 20160128; DE 202016009173 U 20160128; EP 16744107 A 20160128; EP 23159789 A 20160128;
ES 16744107 T 20160128; ES 22153318 T 20160128; JP 2017540638 A 20160128; JP 2021078012 A 20210430; KR 20177024440 A 20160128