

Title (en)

Ultrasonic vibration device and beauty appliance

Title (de)

Ultraschallvibriergerät und Vorrichtung zur Schönheitsbehandlung

Title (fr)

Appareil de vibration ultrasonique et dispositif de soin esthétique

Publication

**EP 2078519 A1 20090715 (EN)**

Application

**EP 08021457 A 20081210**

Priority

JP 2008003509 A 20080110

Abstract (en)

An ultrasonic vibration device of the invention has an ultrasonic vibrator (15) and a horn (10). The horn has front and rear surfaces and is configured to emit ultrasonic energy from the front surface. The horn integrally may have up to four solids. The first solid (11) has said front surface, and is shaped to become narrower from the rear end to the front end of the first solid. The thickness of the first solid is equal to or thicker than that of the second solid (12). Every width of the second solid is different from any width of the first solid, exclusive of the rear end of the first solid. The diameter of the third solid (13) is different from any diameter of the first and second solids. The fourth solid (14) has a smaller diameter than those of the second and third solids.

IPC 8 full level

**A61H 23/02** (2006.01); **B06B 1/02** (2006.01)

CPC (source: EP)

**A61H 7/005** (2013.01); **A61H 23/0245** (2013.01); **G10K 11/025** (2013.01)

Citation (applicant)

WO 2005030407 A1 20050407 - MATSUSHITA ELECTRIC WORKS LTD [JP], et al

Citation (search report)

- [DXY] JP 2007260366 A 20071011 - BESUTEKKU KK
- [X] JP 2004228862 A 20040812 - TAMURA SEISAKUSHO KK
- [X] JP 2007090139 A 20070412 - MATSUSHITA ELECTRIC WORKS LTD
- [XY] WO 2005030407 A1 20050407 - MATSUSHITA ELECTRIC WORKS LTD [JP], et al

Citation (examination)

EP 2042149 A1 20090401 - PANASONIC ELEC WORKS CO LTD [JP]

Cited by

AT15678U1; WO2013068569A3

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA MK RS

DOCDB simple family (publication)

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DOCDB simple family (application)

**EP 08021457 A 20081210**; CN 200910003057 A 20090109; HK 09112392 A 20091231; JP 2008003509 A 20080110; RU 2008152480 A 20081229