

Title (en)

## ULTRASONIC TRANSDUCER

Publication

**EP 0178346 B1 19930113 (DE)**

Application

**EP 84112594 A 19841018**

Priority

- JP 2434684 U 19840221
- JP 2648784 U 19840224
- JP 5034784 U 19840406

Abstract (en)

[origin: EP0178346A1] The invention relates to an ultrasonic transducer with a vibration casing (11) consisting of a cylindrical side plate (11b) and a top plate (11a) fitted on one face of the side plate (11b) and transmitting and receiving waves, a piezoelectric element (12) which is connected to the inside of the top plate (11a) to form an integral component and ensure that it vibrates with the plate, and electrodes (12a, b) arranged on the piezoelectric element (12) so that soundwaves can be generated from the top plate (11a) if an electric field is applied to the electrodes (12a,b), and/or an electric output is supplied from the electrodes if the top plate (11a) receives ultrasonic waves. The improvement covers the vibration casing, at least the top plate (11a) of which is moulded from porous plastics material. <IMAGE>

IPC 1-7

**G10K 11/00; H04R 17/10**

IPC 8 full level

**B06B 1/06** (2006.01); **G10K 11/00** (2006.01); **G10K 11/02** (2006.01); **H01J 61/32** (2006.01)

CPC (source: EP US)

**B06B 1/067** (2013.01 - EP US); **G10K 11/002** (2013.01 - EP US); **G10K 11/02** (2013.01 - EP US); **H01J 61/327** (2013.01 - EP US)

Cited by

US4914959A; DE19512417A1; GB2509681A; US6104121A; US4945276A; EP0361757A3; GB2225426B; WO9507529A1; WO9726646A1; WO9804361A1; WO2013062962A1; WO2017005686A1

Designated contracting state (EPC)

DE FR

DOCDB simple family (publication)

**EP 0178346 A1 19860423; EP 0178346 B1 19930113**; DE 3505872 A1 19851121; DE 3505872 C2 19940707; DK 168317 B1 19940307; DK 76485 A 19850822; DK 76485 D0 19850219; FR 2559985 A1 19850823; FR 2559985 B1 19890630; US 4556814 A 19851203

DOCDB simple family (application)

**EP 84112594 A 19841018**; DE 3505872 A 19850220; DK 76485 A 19850219; FR 8502441 A 19850220; US 65928184 A 19841010