

Title (en)  
SONIC OR ULTRASONIC TRANSDUCER.

Title (de)  
SCHALL- ODER ULTRASCHALLWANDLER.

Title (fr)  
TRANSDUCTEUR SONORE OU ULTRASONORE.

Publication  
**EP 0615471 B1 19950816 (DE)**

Application  
**EP 93920823 A 19930924**

Priority  
• DE 4233256 A 19921002  
• EP 9302605 W 19930924

Abstract (en)  
[origin: DE4233256C1] The sonic or ultrasonic transducer described includes a piezoceramic disc (10), which can be excited to oscillate in the radial directions and a metal ring (16) which surrounds the piezoceramic disc (10) with which it physically and frictionally interlocks so that it oscillates radially with the disc. The sonic or ultrasonic transducer thus formed has a surface area represented by the total surface area of the piezoceramic disc plus metal ring and a resonant frequency for radial oscillation which is lower than that of the piezoceramic disc alone.

IPC 1-7  
**B06B 1/06**; **H04R 17/00**

IPC 8 full level  
**B06B 1/06** (2006.01); **H04R 17/00** (2006.01)

CPC (source: EP US)  
**B06B 1/0655** (2013.01 - EP US); **H04R 17/00** (2013.01 - EP US)

Cited by  
US5940468A; US7411335B2

Designated contracting state (EPC)  
CH DK ES FR GB IT LI NL SE

DOCDB simple family (publication)  
**DE 4233256 C1 19931202**; AU 4819393 A 19940426; AU 664645 B2 19951123; CA 2124952 A1 19940414; CA 2124952 C 19980428; DK 0615471 T3 19950925; EP 0615471 A1 19940921; EP 0615471 B1 19950816; ES 2075778 T3 19951001; JP 2798501 B2 19980917; JP H06511131 A 19941208; US 5583293 A 19961210; WO 9407615 A1 19940414; ZA 937293 B 19940425

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**DE 4233256 A 19921002**; AU 4819393 A 19930924; CA 2124952 A 19930924; DK 93920823 T 19930924; EP 9302605 W 19930924; EP 93920823 A 19930924; ES 93920823 T 19930924; JP 50867594 A 19930924; US 24459594 A 19940601; ZA 937293 A 19931001