

Title (en)  
ULTRASONIC TRANSDUCER USING PIEZOELECTRIC ELEMENTS

Publication  
**EP 0436809 A3 19920722 (DE)**

Application  
**EP 90122050 A 19901117**

Priority  
DE 4000362 A 19900109

Abstract (en)  
[origin: US5101133A] An ultrasonic transducer for lithotripsy has piezoelectric transducer elements fixed to a backing and connected on the front side to first electrodes and on the rear side to second electrodes which can be connected to an electrical pulse generator. In order to avoid the danger of tissue damage in the focal area, especially for focusing transducers, the electrodes are designed such that an homogeneous field is produced in the front-side part of the transducer elements and a non-homogeneous field is produced in the opposite, rear-side part of the transducer elements. The amplitude of the negative pulse occurring in addition to the positive pressure pulse is thus reduced, the negative pulse being responsible for the danger of this tissue damage. In one way of achieving this effect each transducer element is provided with a pot-shaped electrode which surrounds the rear-side part of the transducer element.

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**B06B 1/06**

IPC 8 full level  
**B06B 1/06** (2006.01); **G10K 11/00** (2006.01)

CPC (source: EP US)  
**B06B 1/0637** (2013.01 - EP US); **G10K 11/002** (2013.01 - EP US)

Citation (search report)  
• [A] EP 0326701 A2 19890809 - DORNIER MEDIZINTECHNIK [DE]  
• [E] EP 0421286 A2 19910410 - WOLF GMBH RICHARD [DE]

Cited by  
EP1452141A1; WO9716260A1

Designated contracting state (EPC)  
BE DE FR GB IT

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**EP 90122050 A 19901117**; DE 4000362 A 19900109; US 61935390 A 19901127