

Title (en)
Curved array of sequenced ultrasound transducers.

Title (de)
Bogenförmige Anordnung mehrerer Ultraschallwandler.

Title (fr)
Réseau courbe de transducteurs ultrasoniques.

Publication
EP 0031614 A1 19810708 (EN)

Application
EP 80201181 A 19801209

Priority
US 10451679 A 19791217

Abstract (en)
An array of ultrasound transducers for pulsed sector-scan operation includes a plurality of transducer elements disposed on an arc of a circle and oriented to emit and receive ultrasound radiation in the direction of the center of the arc. A group of adjacent transducers within the array is active for each ultrasound pulse. The position of the group in the array is incrementally shifted along the arc, one transducer at a time, to effect scanning. The inherent focussing affect of a curved group of transducers is compensated with time delays or a negative lens to provide a parallel, sector-scanned radiation beam. The array may be manufactured by cutting grooves (620) in a solid bar of piezoelectric ceramic (600), casting flexible matching windows (615) on the front surface of the grooved bar, bending the grooved bar around a mandrel (650) to separate individual transducer elements (630) from each other and casting a foam air cell (660) over the back of the elements to retain them in place.

IPC 1-7
G10K 11/34; **G10K 11/02**

IPC 8 full level
A61B 8/00 (2006.01); **G10K 11/02** (2006.01); **G10K 11/34** (2006.01); **H04R 17/00** (2006.01)

CPC (source: EP)
G10K 11/02 (2013.01); **G10K 11/345** (2013.01)

Citation (search report)
• GB 1553933 A 19791017 - TOKYO SHIBAURA ELECTRIC CO
• ULTRASONICS, Vol. 16, No. 5, September 1978 GUILDFORD (GB) Industrial News" "Transducers for Control Applications" pages 197-198 * the whole article *
• ULTRASONICS, Vol. 14, No. 1, January 1976 GUILDFORD (GB) WHITTINGHAM: "A hand-held electronically switched array for rapid ultrasonic scanning" pages 29-33 * page 29, right-hand column, chapter: "Probe design and construction" to page 30, right-hand column, paragraph 3; figures 1-3 *

Cited by
US2013079621A1; US6979937B2; EP0739656A3; FR2580286A1; CN105324184A; EP0128049A3; GB2565159A; GB2565159B; EP0119855A3; CN110646802A; EP3015177A1; DE102006010009A1; EP1829620A3; GB2310563A; US5864066A; GB2310563B; US10130828B2; US7611462B2; US9981148B2; US9852727B2; US9667889B2; WO2004103472A1; WO2014202332A1; US9224938B2; US9968966B2; US11800295B2; EP1526757A4; WO03012777A1; WO9314417A1

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