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XR 3,832,580

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[45] Aug. 27, 1974

[54] HIGH MOLECULAR WEIGHT, THIN FILM PIEZOELECTRIC TRANSDUCERS

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 793,943, Jan. 27, 1969, abandoned.

[52] **U.S. Cl.** ..... **310/9.5,** 310/9.6, 310/8.5, 310/8.6, 310/8.2, 310/8.3, 179/110 A, 179/100.41 P, 179/100.1 B, 252/62.9

[51] **Int. Cl.** **H04r 17/00**

[58] **Field of Search** ..... 310/8, 8.2, 8.3, 8.5, 8.6, 310/9.1, 9.4, 9.6, 8.1, 8.7; 340/10; 179/110 A, 100.41 P, 100.1 B; 317/144; 252/62.9

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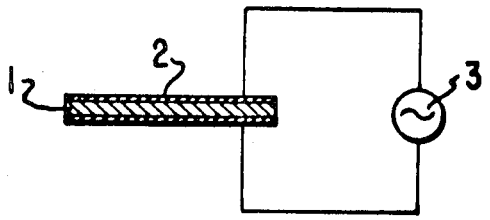
[57] **ABSTRACT**

A transducer for converting electrical energy into mechanical or acoustic energy or vice versa using a converting means made of a thin film of high molecular weight polymer piezo-electric organic compound having orientated molecules and having electrodes bonded or deposited onto both surfaces thereof. When an electric current is applied to the electrodes, the thin film is extended or contracted in a direction different from the direction of orientation of the molecules. when the angle between these two directions is 45°, the extent of the extension or contraction of the thin film is at a maximum and the best converting efficiency can be obtained.

8 Claims, 26 Drawing Figures