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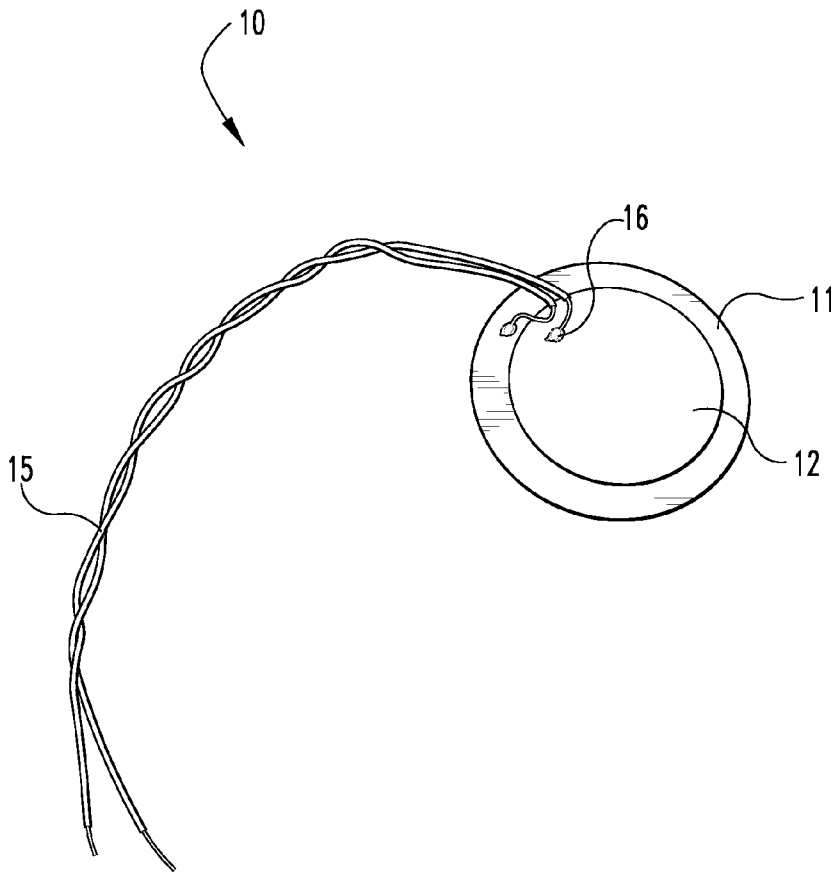
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(54) Title: HIGH TEMPERATURE PIEZO BUZZER



(57) Abstract: A piezo-electric buzzer includes a vibrating layer capable of withstanding temperatures in excess of 260 °C for at least five minutes while still maintaining its ability to vibrate and produce a buzzing sound at a level of at least 80dB, and a high temperature piezoelectric material having a Curie temperature in excess of 260 °C and one or more of the following properties: a planar coupling coefficient (k_p) of at least about 0.5; a longitudinal coupling coefficient (k_{33}) of at least about 1500; and a mechanical quality factor (Q_m) of at least about 2000. The piezo material may have a combination of these properties such that the product $(k_p^2)(k_{33})(Q_m)$ is at least about 1.5×10^6 . The piezo-electric material may have a base formula of

$Pb_xSr_{(1-x)}(Mn_{1/3}Sb_{2/3})_{(1-y)}(Zr_zTi_{1-z})_yO_3$ with x ranging from 0.95 to 0.99, y ranging from 0.92 to 0.97, and z ranging from 0.45 to 0.55, and may further include dopants in the amounts of about 0.4% CeO₂, about 1% CuO, and about 4% Nb₂O₅.

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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US PN 5,317,305 (Campman) 31 May 1994, col. 1 lines 6-10	1-12
Y	JP 08119733 (Yukifumi) May 1996, paragraph 0005	1-12
Y	US PN 5,850,119 (Ebara) 15 December 1998, Figures 2-3	1-12
Y	PG Pub 20050178997 (Liufu) 18 August 2005, paragraph 0009	3
Y	PG Pub 20040156737 (Radowski) 12 August 2004, paragraph 0009	8-9
Y	US PN 6,765,335 (Wischnewskiy) 20 July 2004, col. 20 lines 31-38	10
Y	US PN 6,645,586 (Ohira) 11 November 2003, col. 12 lines 6-10	11
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