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(54) **CRYSTAL OSCILLATOR AND METHOD OF MAKING THE SAME**

(57) A crystal oscillator (100) includes a piezoelectric substrate (2) having a thinned portion (21) with opposite upper and lower surfaces (211, 212) respectively defining upper and lower surface work portions, and at least one side portion (22) having at least one recessed portion (221) with a bottom surface flush with the upper surface (211) of the thinned portion (21). A top electrode layer (3) has a top work portion (31) disposed on the upper surface work portion, and a top extension (32) extending from the top work portion (31) onto the bottom surface of the recessed portion (221). A bottom electrode layer (4) has a bottom work portion (41) disposed on the lower surface work portion, and a bottom extension (42) extending from the bottom work portion (41) toward the one end of the thinned portion (21) and then bending upward (422) and inward (423) onto the bottom surface of the recessed portion (221). A method of making the crystal oscillator (100) is also disclosed; the method uses a temporary handle substrate attached to the lower surface (212) and the bottom electrode layer (4) for thinning / etching the quartz to the upper surface (211) and forming the side (22) and recessed portion (221).

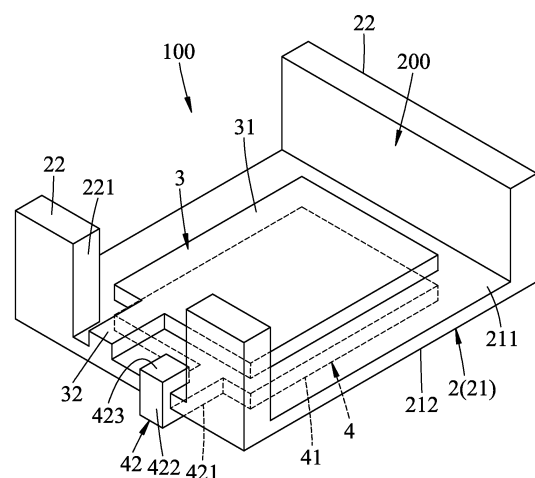


FIG.16