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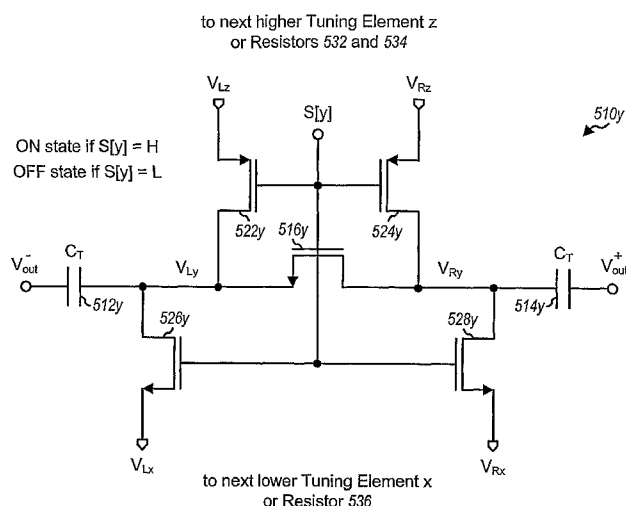
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— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,

[Continued on next page]

(54) Title: PROGRAMMABLE CAPACITOR BANK FOR A VOLTAGE CONTROLLED OSCILLATOR



(57) Abstract: A programmable capacitor bank includes multiple tuning elements (510y). Each tuning element includes two tuning capacitors (513y, 514y) and a pass transistor (516y) that electrically connects or disconnects the capacitors to/from common nodes. (V_{Lz}, V_{Rz}, V_{Ly}, V_{Ry}) For a thermometer decoded capacitor bank, the tuning capacitors for all tuning elements have equal capacitance. (C_T) Each tuning element further includes at least one pull-up transistor (522y, 524y) that provides high bias voltage for the pass transistor and at least one pull-down transistor (526y, 528y) that provides low bias voltage for the pass transistor. The multiple tuning elements may be arranged in a ladder topology such that (1) the tuning elements are turned on in sequential order starting from one end of the ladder and going toward the other end of the ladder and (2) each tuning element receives biasing from a preceding tuning element and provides biasing to a succeeding tuning element. The capacitor bank may be used for VCOs and other circuits.

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