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Benjamin et al.

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(54) **CIRCUIT AND METHOD FOR EQUALIZATION OF SIGNALS RECEIVED OVER A COMMUNICATION SYSTEM TRANSMISSION LINE**

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Related U.S. Application Data

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(51) Int. Cl.⁷ **H03H 11/06; H03G 5/16**

(52) U.S. Cl. **333/18; 333/28 R; 375/230; 330/304**

(58) Field of Search **33/28 R, 18; 375/229, 375/230; 330/304, 124 R**

(56) **References Cited**

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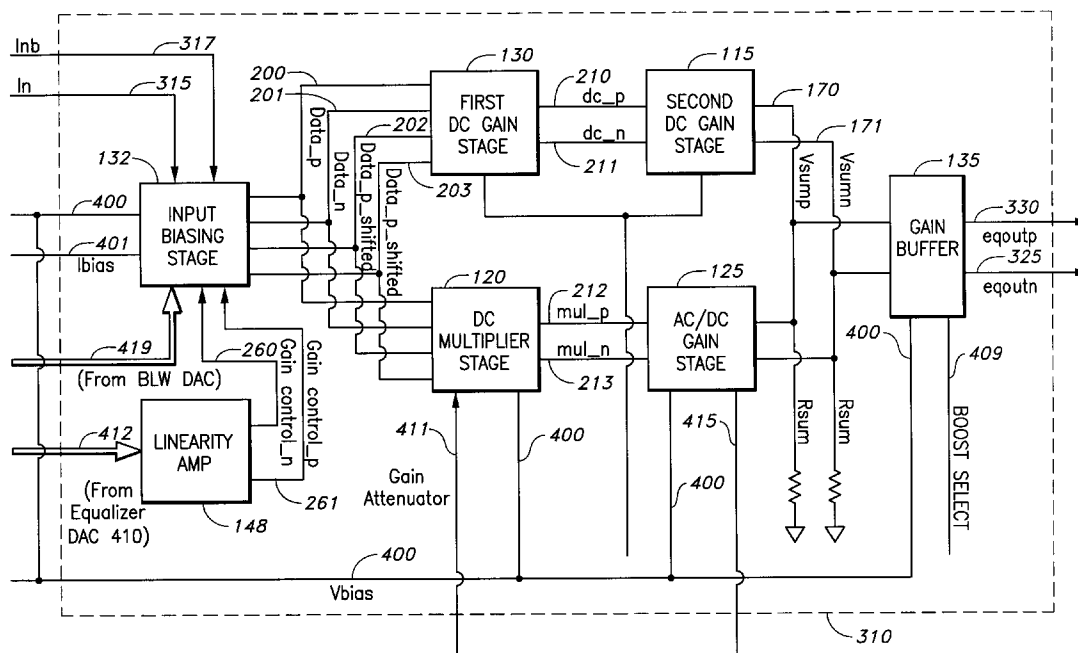
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(57) **ABSTRACT**

A circuit and method for equalization of a communication signal received over a communication system transmission line using switched filter characteristics. Equalization for frequency-independent and frequency-dependent attenuation of the communication signal is accomplished with a linear equalization channel which includes an input biasing circuit which provides a common input signal to two parallel amplifier paths. One path includes a wideband, fixed-gain, frequency-independent amplifier stage. The other path is a wideband multiplier amplifier stage in series with a wideband, frequency-dependent amplifier stage having a switchable high-pass characteristic. The outputs of the fixed-gain wideband frequency-independent amplifier stage and wideband, frequency-dependent amplifier stage having a switchable high-pass characteristic are both tied in common to the input of a wideband gain buffer amplifier stage, which has a switchable high-frequency boost frequency response characteristic. Filter characteristic for the frequency-dependent amplifier stages are selected to accommodate predetermined ranges of cable lengths. The amplifier stages are formed as simple n-MOS transconductance differential amplifiers with resistive loads and with switchable filter components connected between the legs of the differential amplifiers.

20 Claims, 20 Drawing Sheets



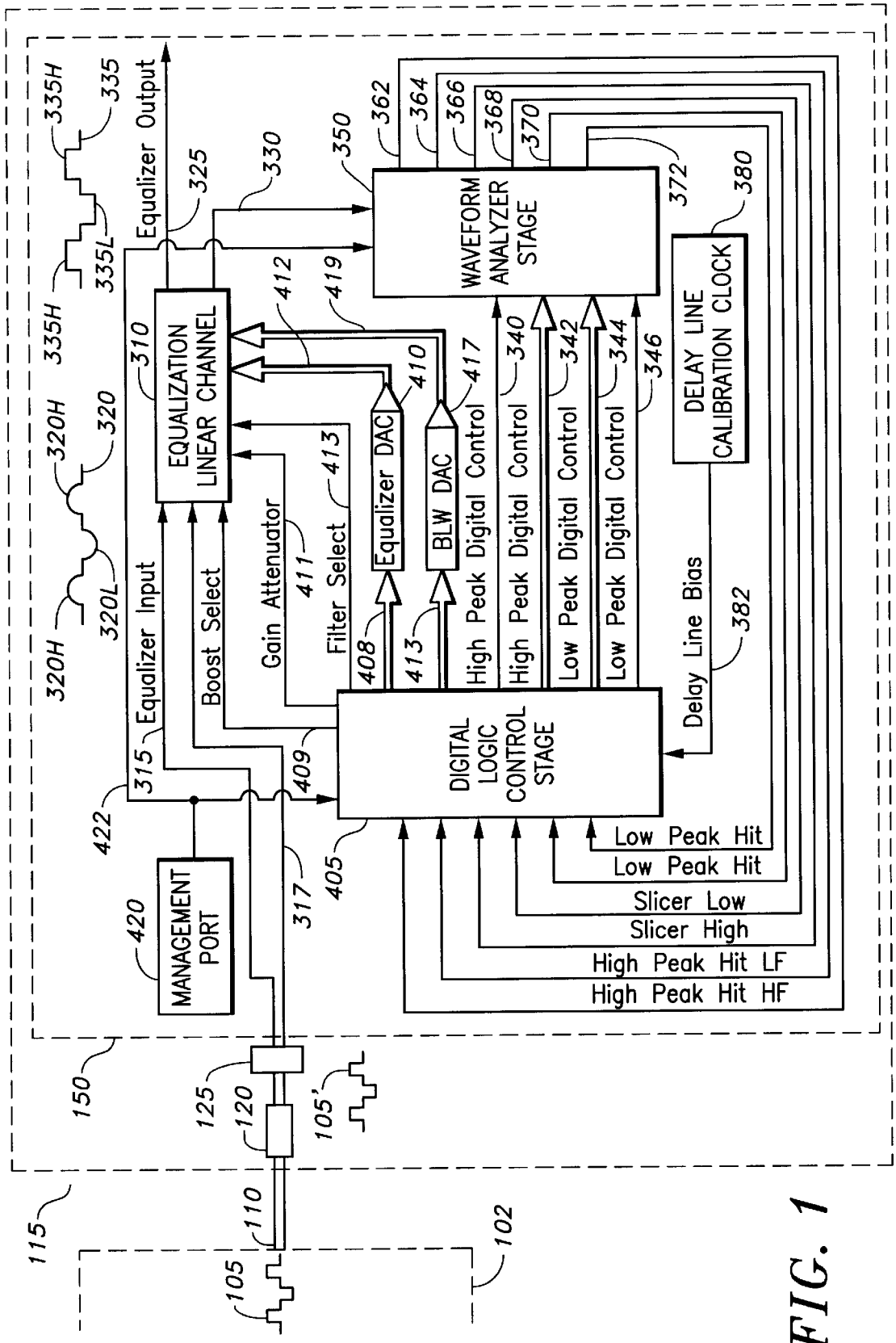


FIG. 1

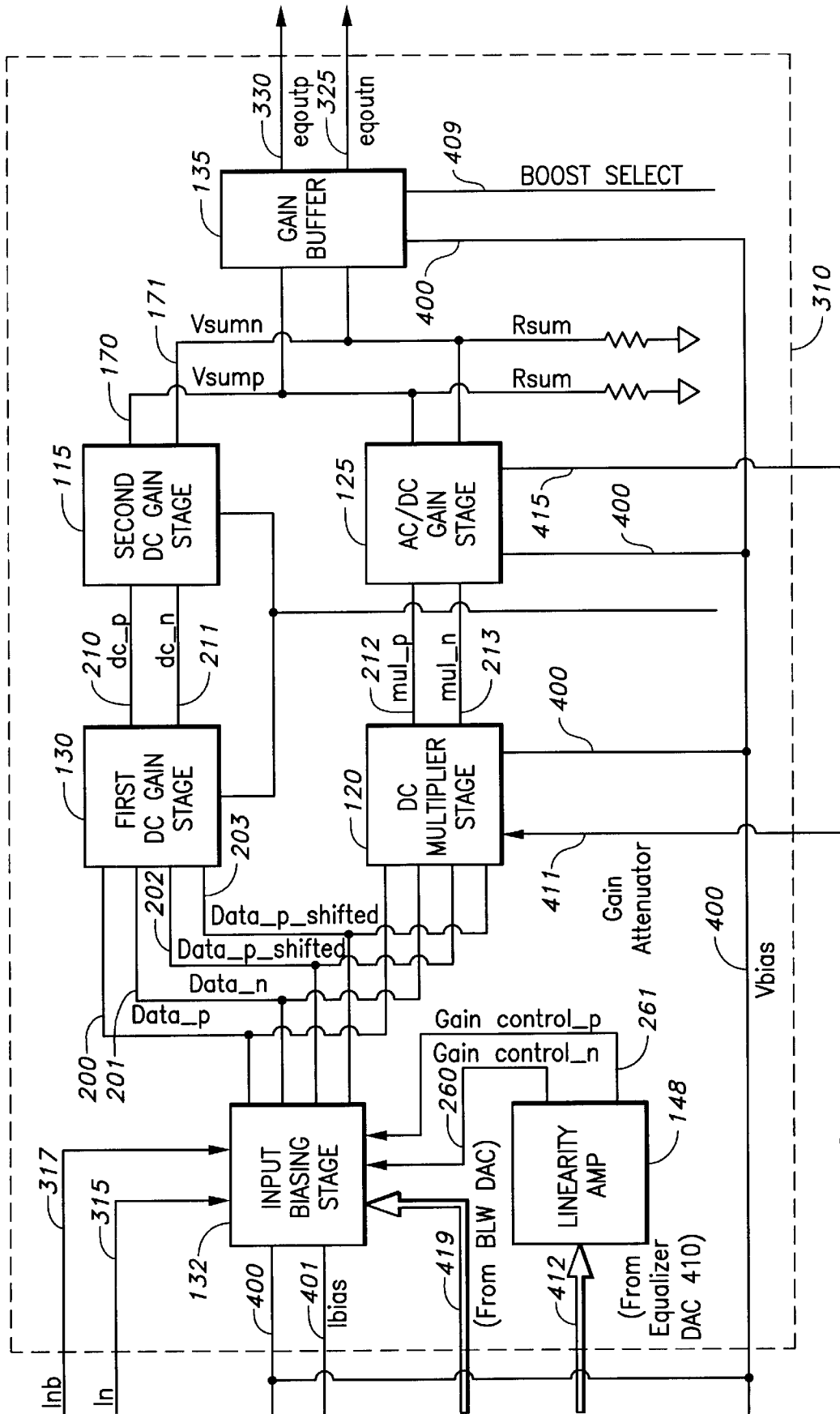


FIG. 2

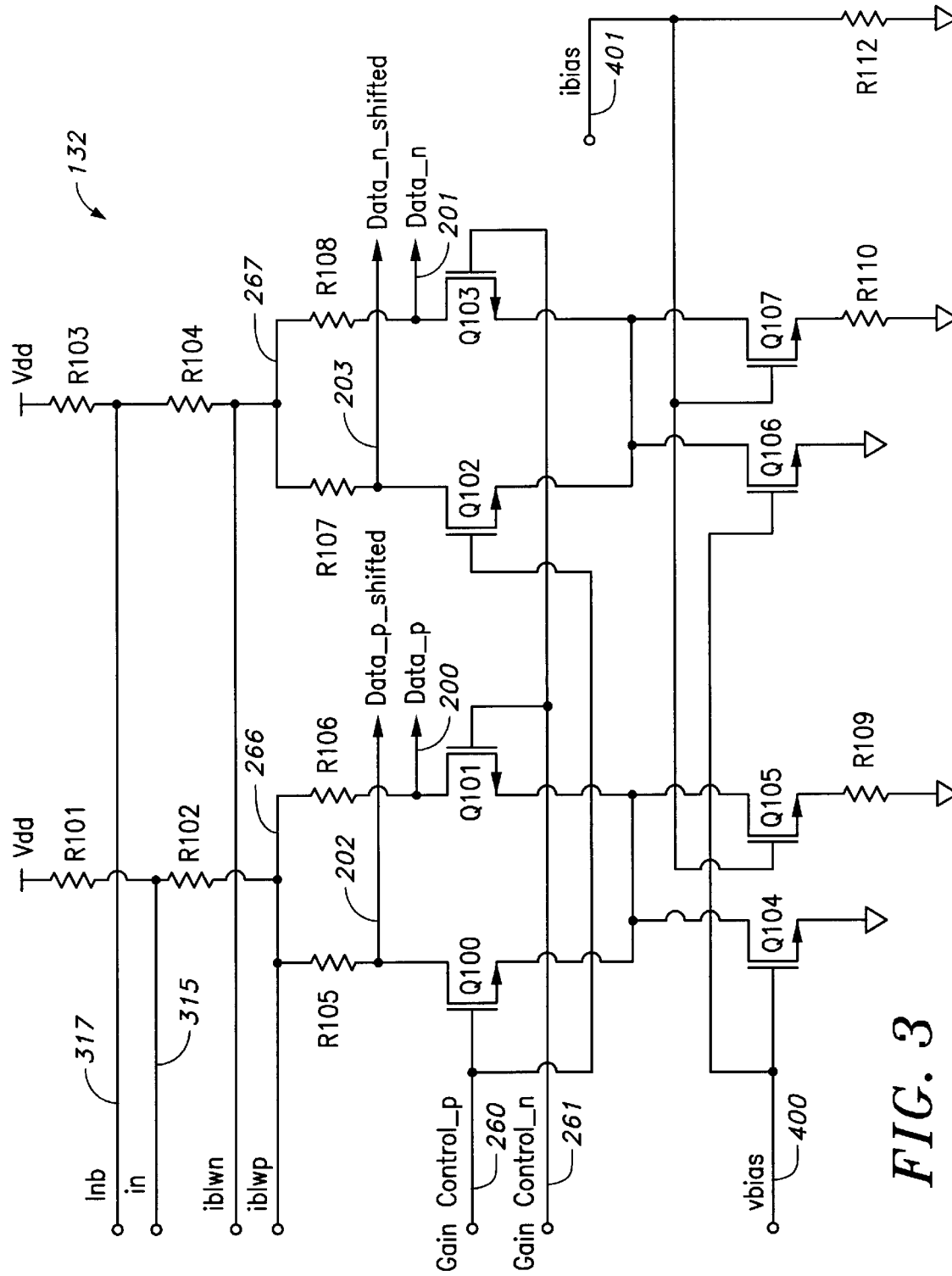
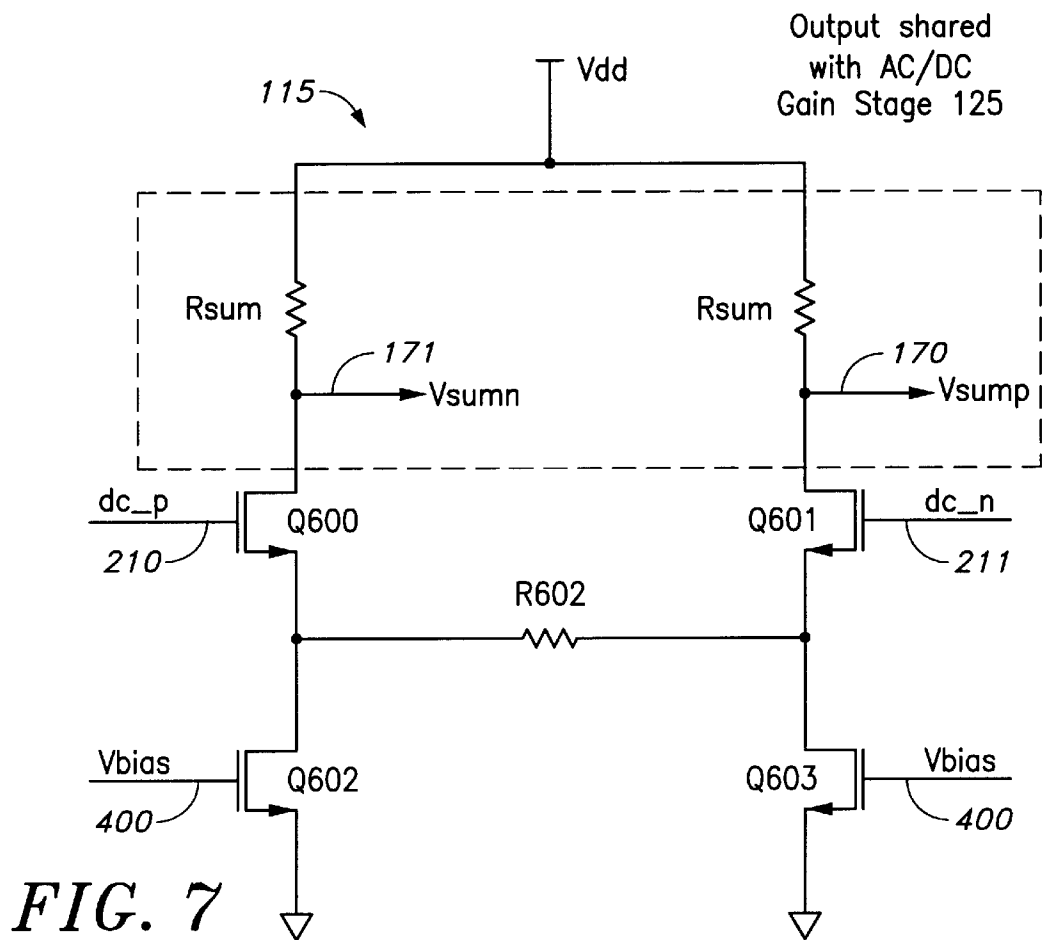
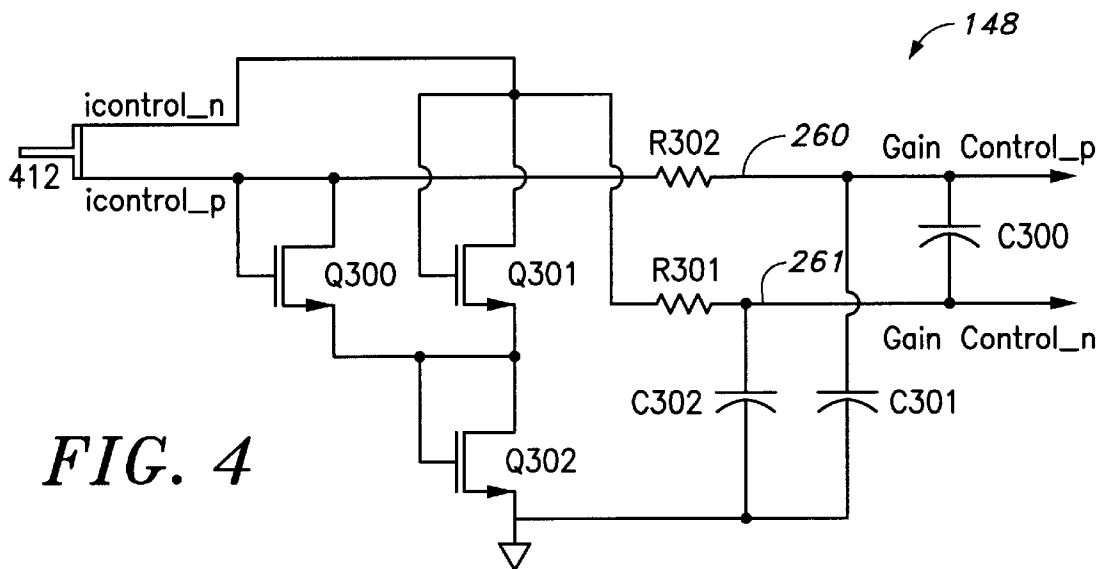


FIG. 3



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