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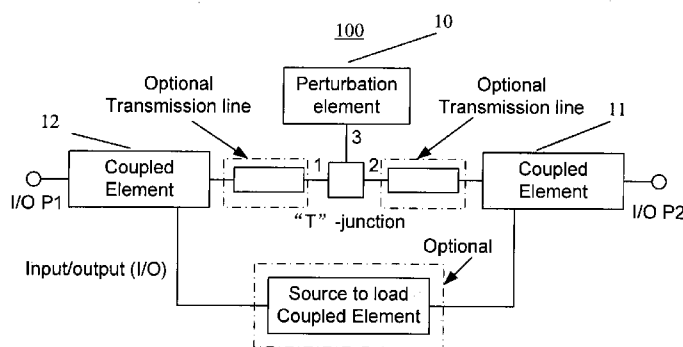
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(54) **Title:** MULTIPLE-MODE FILTER FOR RADIO FREQUENCY INTEGRATED CIRCUITS



General Topology of the multimode Filter Unit Cell

**FIG. 1**

(57) **Abstract:** A fully integrated silicon-based bandpass filter which lends itself to applications in the gigahertz region is disclosed. The bandpass filter is fabricated on an integrated circuit and operates as a microwave/millimeter-wave filtering circuit. In accordance with one aspect, the bandpass filter includes a first set and a second set of filter coupled elements, a three-port "T" transmission line junction and a perturbing element. The three-port "T" transmission line junction has a first port coupled to a first end of a first one of the first set of filter coupled elements and a second port coupled to a first end of a first one of the second set of filter coupled elements. The perturbing element is coupled to a third port of the three-port "T" transmission line junction. A second one of the first set of filter coupled elements includes an input transmission line and has a first end thereof coupled to an input port and an opposite end thereof having an open end. A second one of the second set of filter coupled elements includes an output transmission line and has a first end thereof coupled to an output port and an opposite end thereof having an open end.



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