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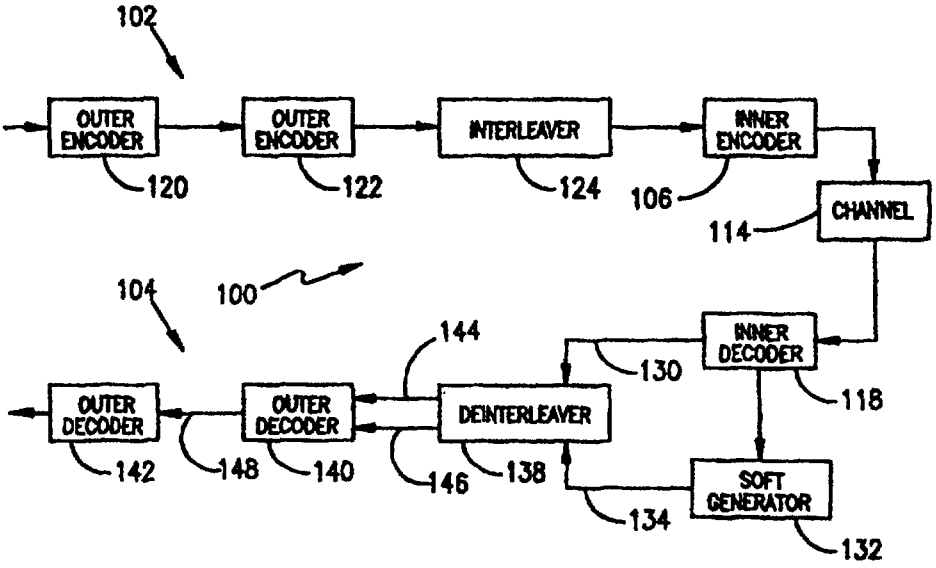
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(54) Title: DECODER UTILIZING SOFT INFORMATION OUTPUT TO MINIMIZE ERROR RATES



(57) Abstract

A coding system is disclosed wherein the receive side includes a decoder capable of producing, in addition to the hard information decoded output, either or both symbol and/or bit soft information values. For a certain information bit position, a value proportional to the joint probability that a received symbol and the set of all hypothesized transmitted codewords led to the estimated or detected hard information output is calculated. The calculated probabilities with respect to plural codewords having a zero in that certain information bit position are compared to the calculated probabilities with respect to the plural codewords having a one in that certain information bit position. The result of the comparison provides an indication of whether the hard information output in that same information bit position is more likely a one or a zero. The output soft information values are further processed in comparison to a preset threshold, with instances exceeding the threshold triggering block rejections and/or retransmissions.