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(54) Title: DECODERS FOR DECODING A CODEWORD OF A TUNSTALL CODE

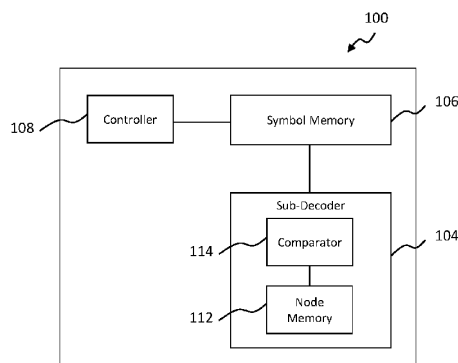


FIG. 1

(57) Abstract: A decoder for decoding a codeword of a Tunstall code is provided, including: a sub-decoder configured to receive an input codeword of the Tunstall code to the decoder and output a decoded symbol of the input codeword; a symbol memory configured to receive and store the decoded symbol of the input codeword from the sub-decoder; and a controller configured to control the symbol memory to output one or more decoded symbols stored in the symbol memory. The sub-decoder includes: a node memory configured to store, for a plurality of nodes of a Tunstall tree of the Tunstall code corresponding to a first level of the Tunstall tree, a plurality of codewords of the Tunstall code assigned to the plurality of nodes, respectively; and a comparator configured to compare the input codeword with the plurality of codewords assigned to the plurality of nodes corresponding to the first level of the Tunstall tree received from the node memory and produce the decoded symbol of the input codeword with respect to the first level of the Tunstall tree based on the comparison. Another decoder for decoding a codeword of a Tunstall code is also provided, including: a symbol memory comprising a plurality of memory entries, each memory entry having stored therein one or more decoded symbols of a codeword of the Tunstall code corresponding to the memory entry; and a controller configured to receive an input codeword of the Tunstall code to the decoder and control the symbol memory to output the one or more decoded symbols stored in one of the plurality of memory entries corresponding to the input codeword.

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