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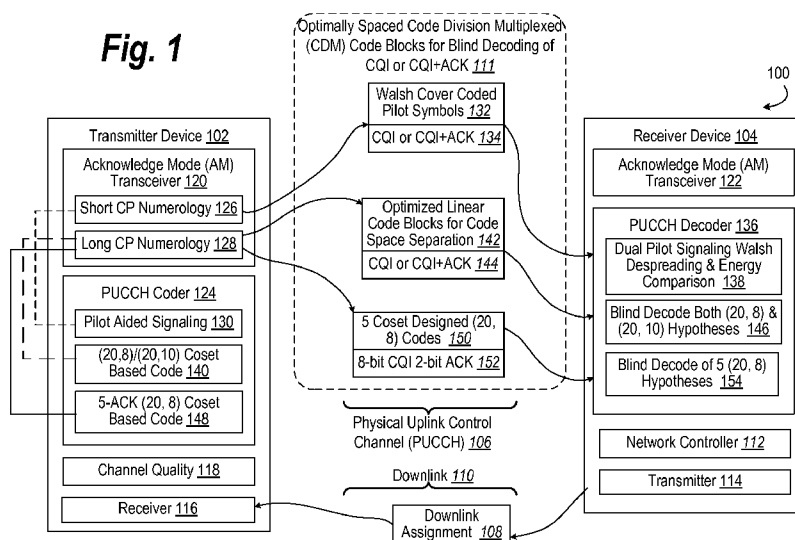
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR UPLINK CONTROL SIGNALING

Fig. 1



(57) **Abstract:** A transmitter in a wireless network transmits joint channel quality indicator (CQI) and data packet acknowledgement (Ack) or just CQI within the same subframe without uplink data transmission that can be readily detected at a receiver. When a short cyclic prefix (CP) is appropriate, a first approach utilizes a pilot aided signaling by using two different Walsh covers for the pilots to signal CQI vs. CQI+ACK. When a long CP is appropriate with one pilot, two different code designs are provided for CQI and CQI+ACK that only optimize the code book for each mode separately, but also maximize the distance between these two code spaces. Various coset based approaches are described to search for such linear block codes. Initial results showed good codes can be found based on the coset based approach to minimize the false alarm and misdetection.



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