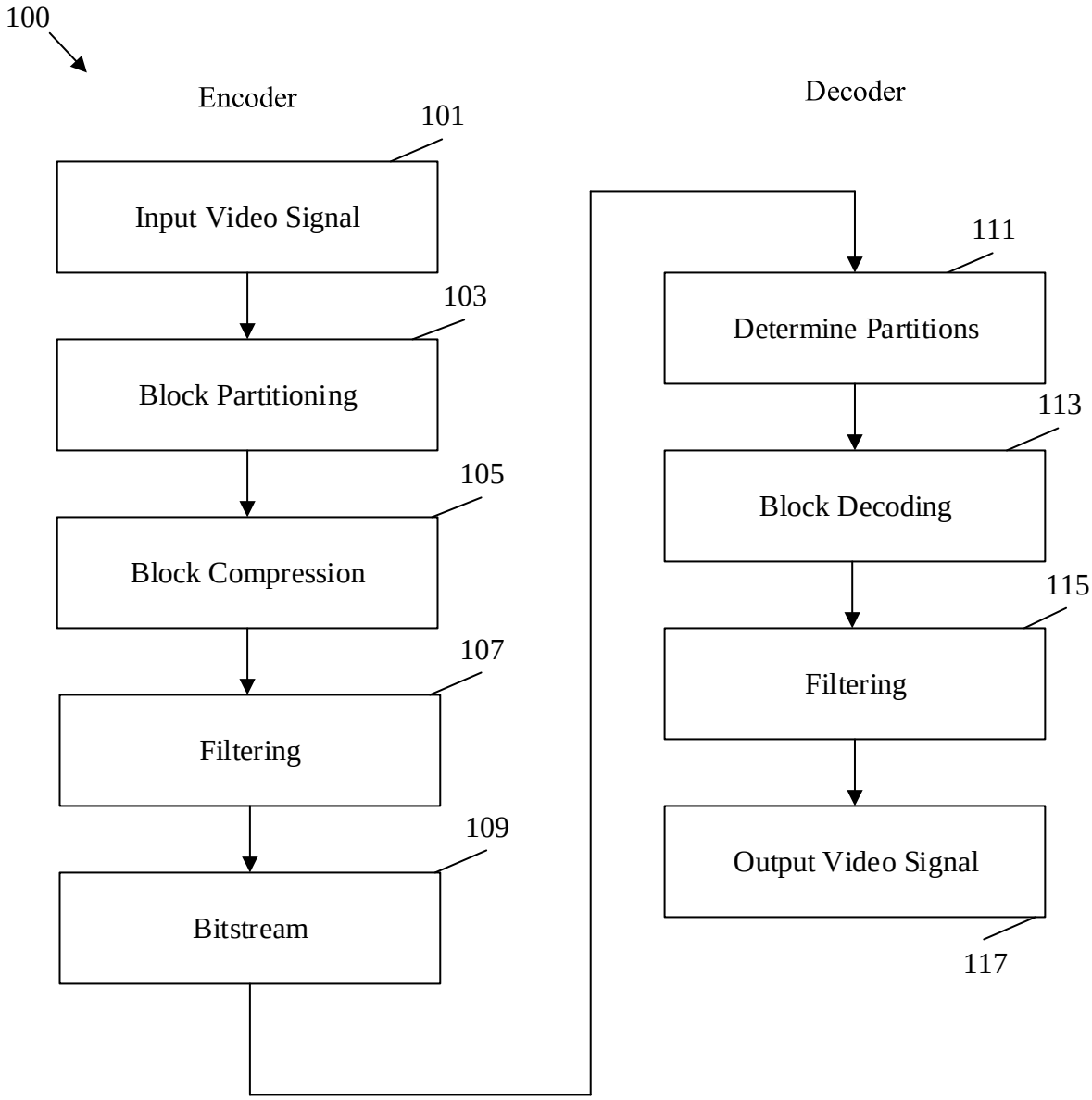

100
Encoder
Decoder
101
Input Video Signal
103
Block Partitioning
105
Block Compression
107
Filtering
109
Bitstream
111
Determine Partitions
113
Block Decoding
115
Filtering
Output Video Signal
117

FIG. 1

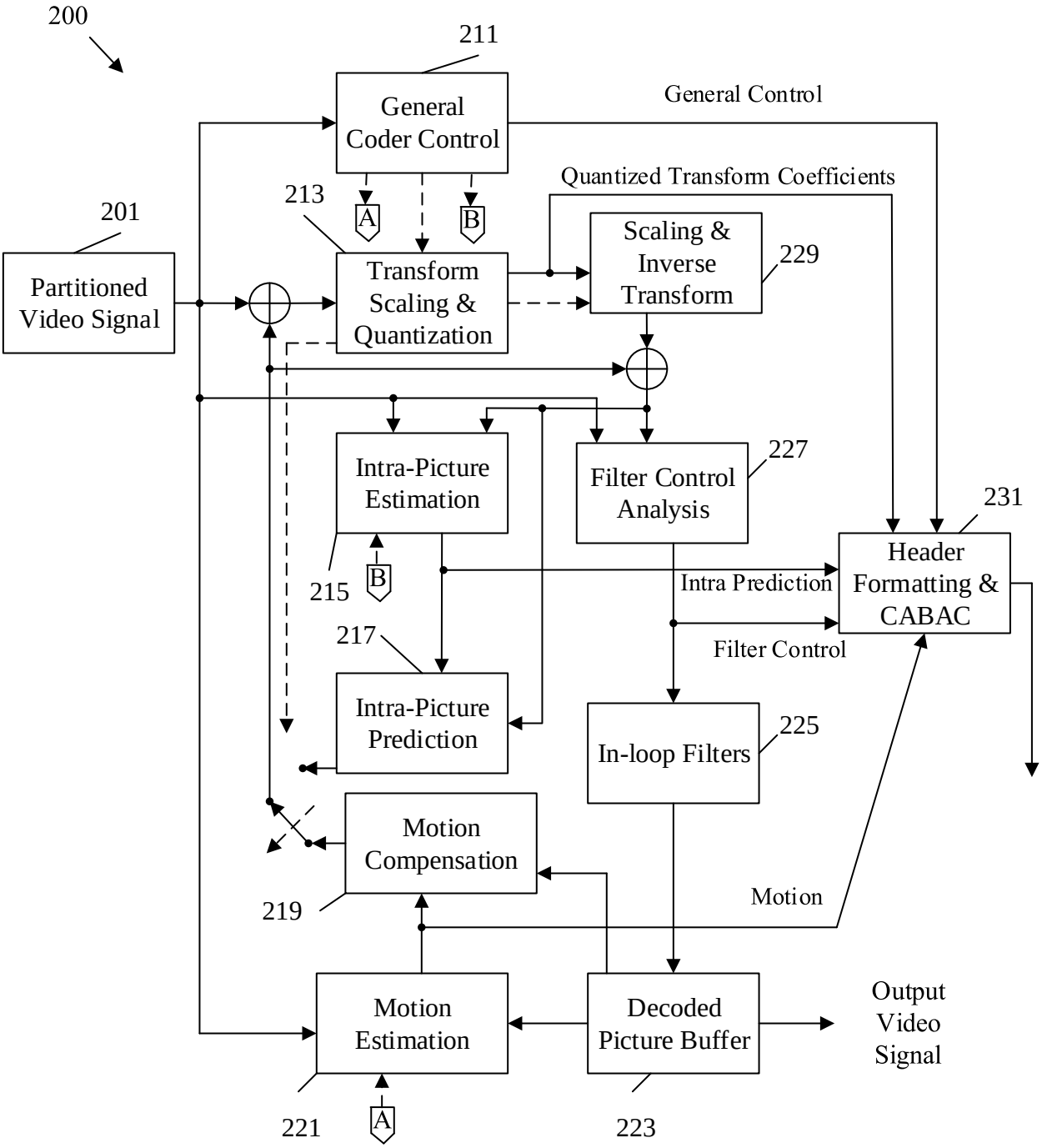

200
211
General Coder Control
General Control
Quantized Transform Coefficients
213
201
A
B
Partitioned Video Signal
Transform Scaling & Quantization
Scaling & Inverse Transform
229
Intra-Picture Estimation
Filter Control Analysis
227
231
215
B
Intra Prediction
Header Formatting & CABAC
217
Filter Control
Intra-Picture Prediction
In-loop Filters
225
Motion Compensation
219
Motion
Motion Estimation
Decoded Picture Buffer
Output Video Signal
221
A
223

FIG. 2

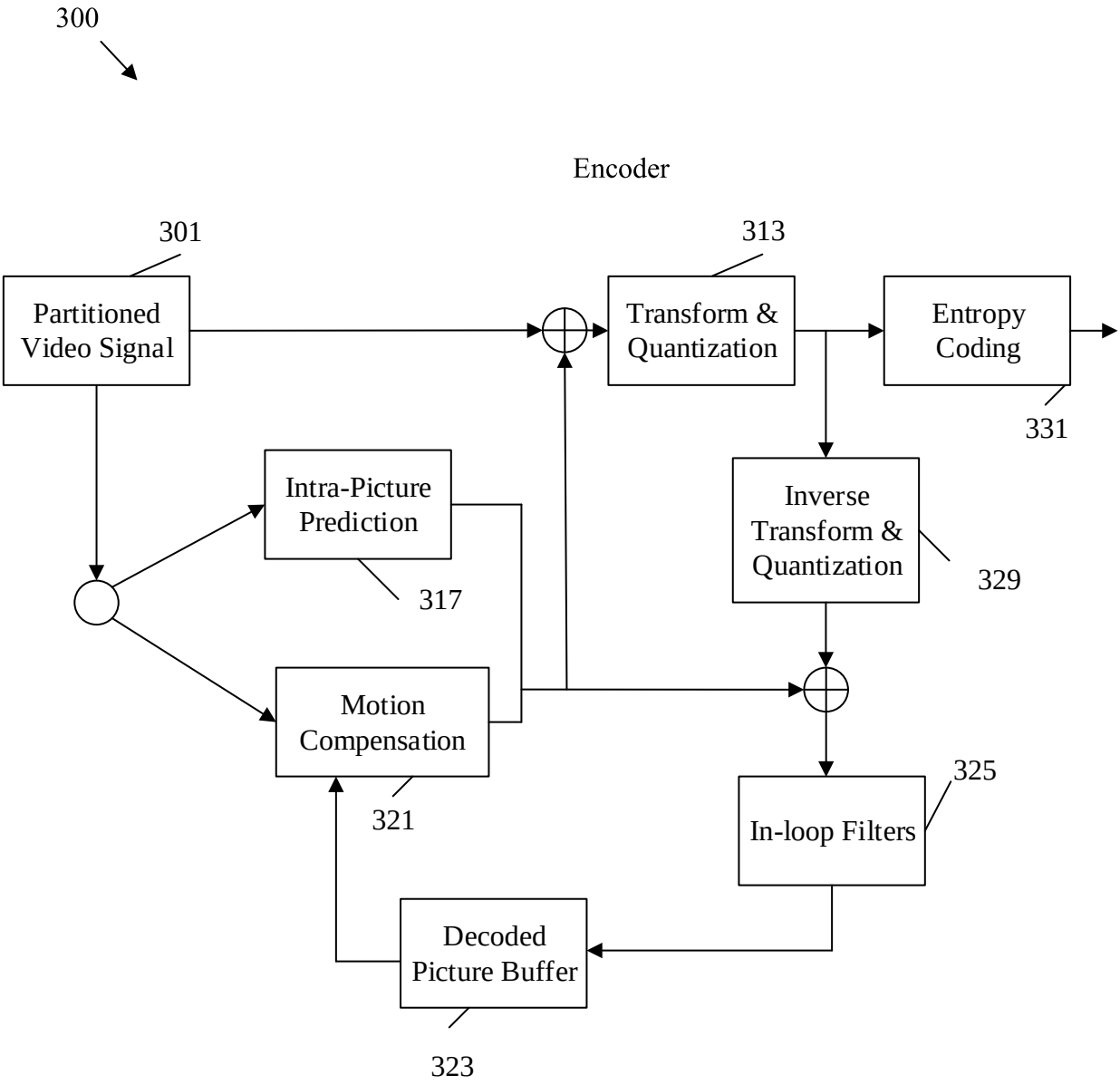

300
Encoder
301
Partitioned Video Signal
313
Transform & Quantization
Entropy Coding
331
Intra-Picture Prediction
317
Inverse Transform & Quantization
329
Motion Compensation
321
325
In-loop Filters
Decoded Picture Buffer
323

FIG. 3

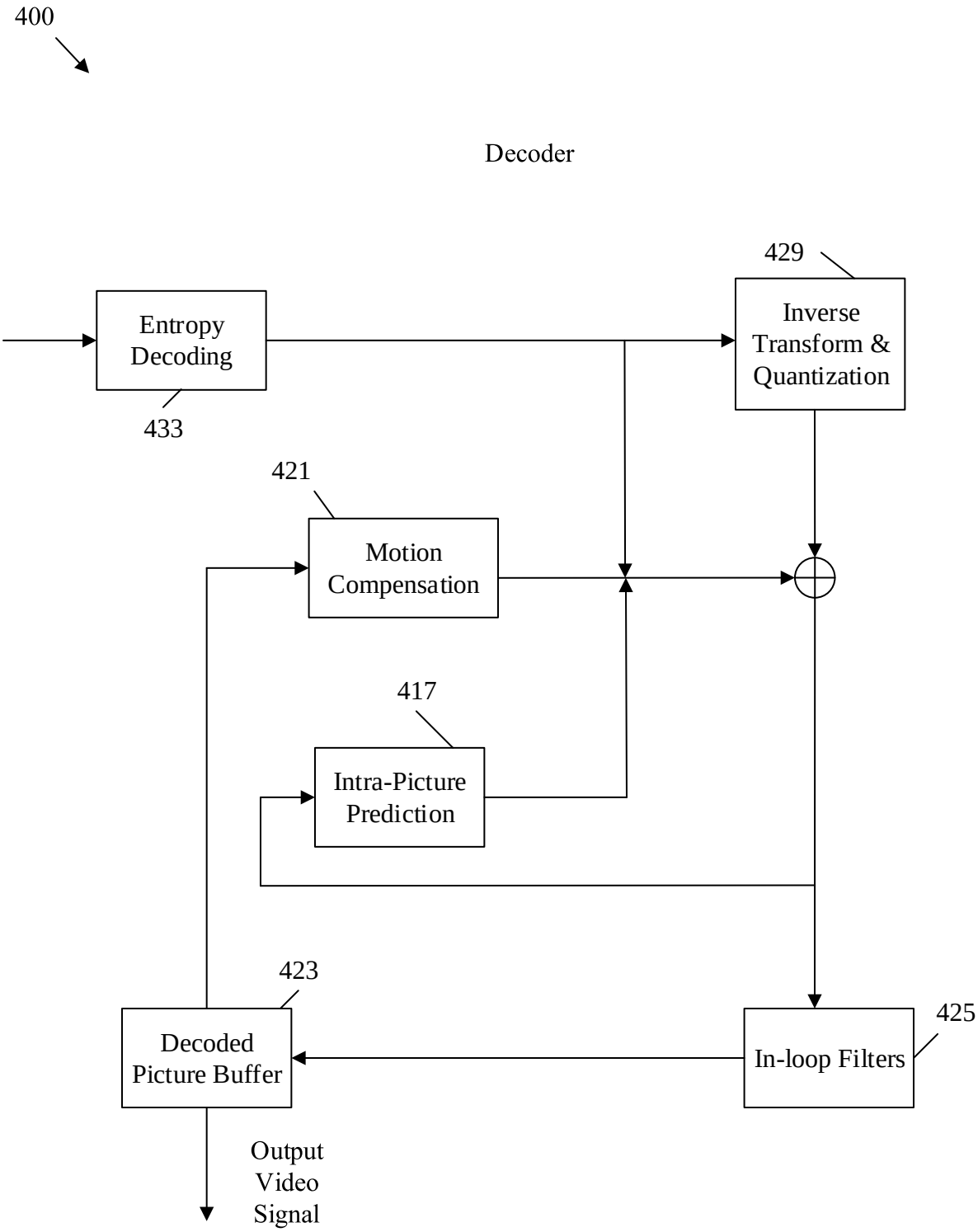

400
Decoder
429
Entropy Decoding
433
Inverse Transform & Quantization
421
Motion Compensation
417
Intra-Picture Prediction
423
Decoded Picture Buffer
425
In-loop Filters
Output Video Signal

FIG. 4

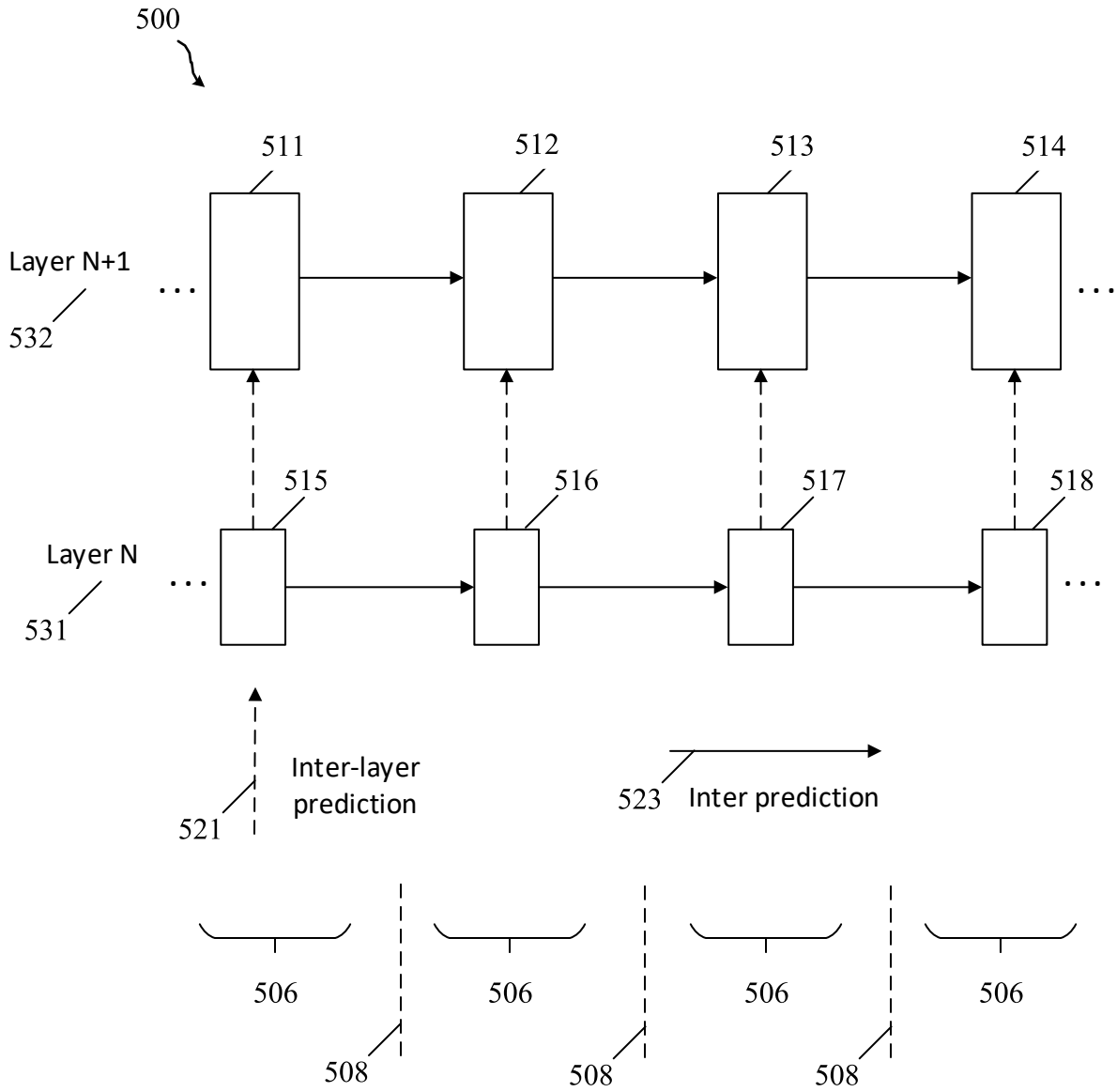

500
511
512
513
514
Layer N+1
532
515
516
517
518
Layer N
531
Inter-layer prediction
521
523
Inter prediction
506
506
506
506
508
508
508

FIG. 5

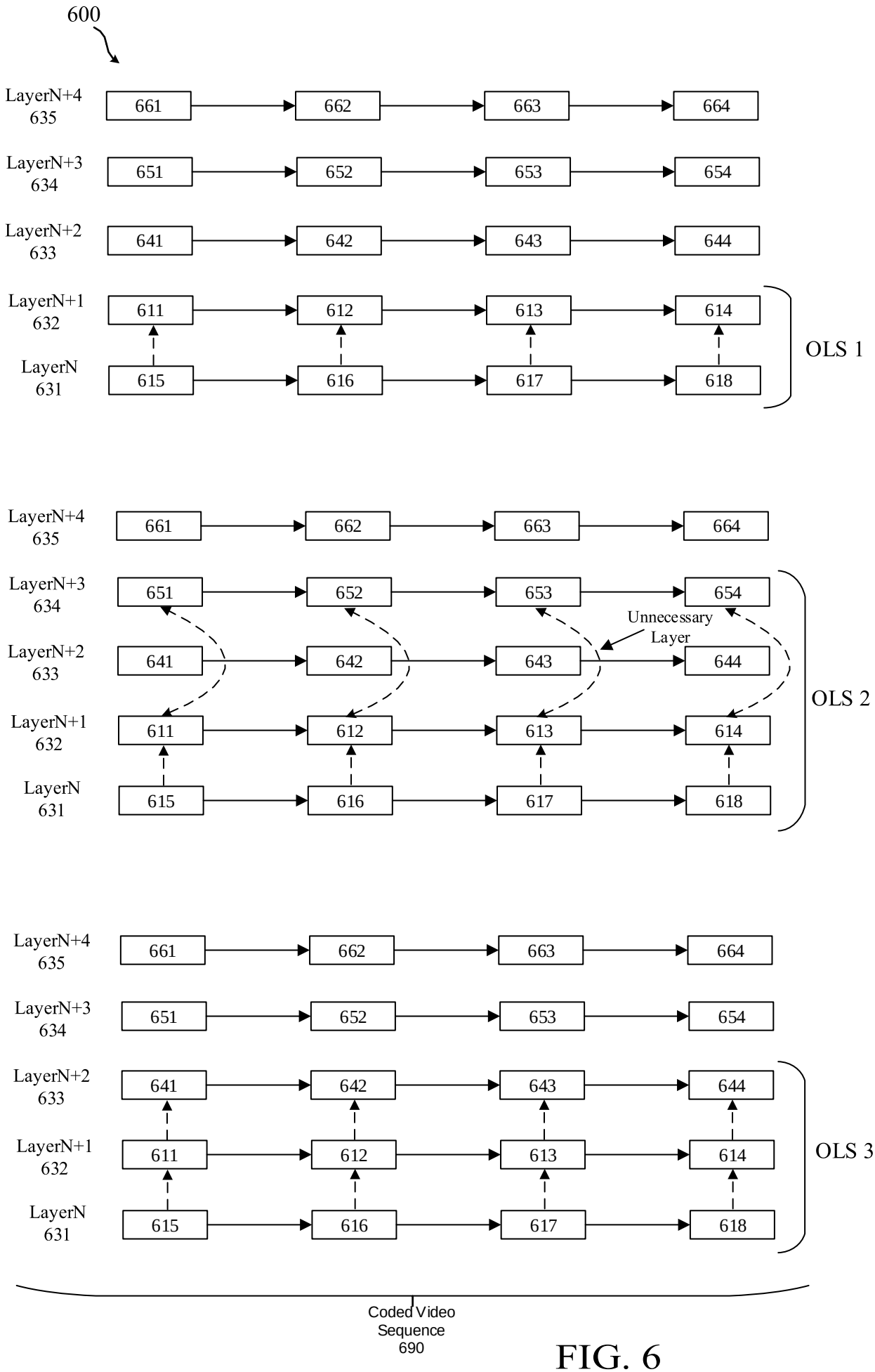

600
LayerN+4
635
661
662
663
664
LayerN+3
634
651
652
653
654
LayerN+2
633
641
642
643
644
LayerN+1
632
611
612
613
614
LayerN
631
615
616
617
618
OLS 1
LayerN+4
635
661
662
663
664
LayerN+3
634
651
652
653
654
Unnecessary
Layer
LayerN+2
633
641
642
643
644
LayerN+1
632
611
612
613
614
LayerN
631
615
616
617
618
OLS 2
LayerN+4
635
661
662
663
664
LayerN+3
634
651
652
653
654
LayerN+2
633
641
642
643
644
LayerN+1
632
611
612
613
614
LayerN
631
615
616
617
618
OLS 3
Coded Video
Sequence
690

FIG. 6

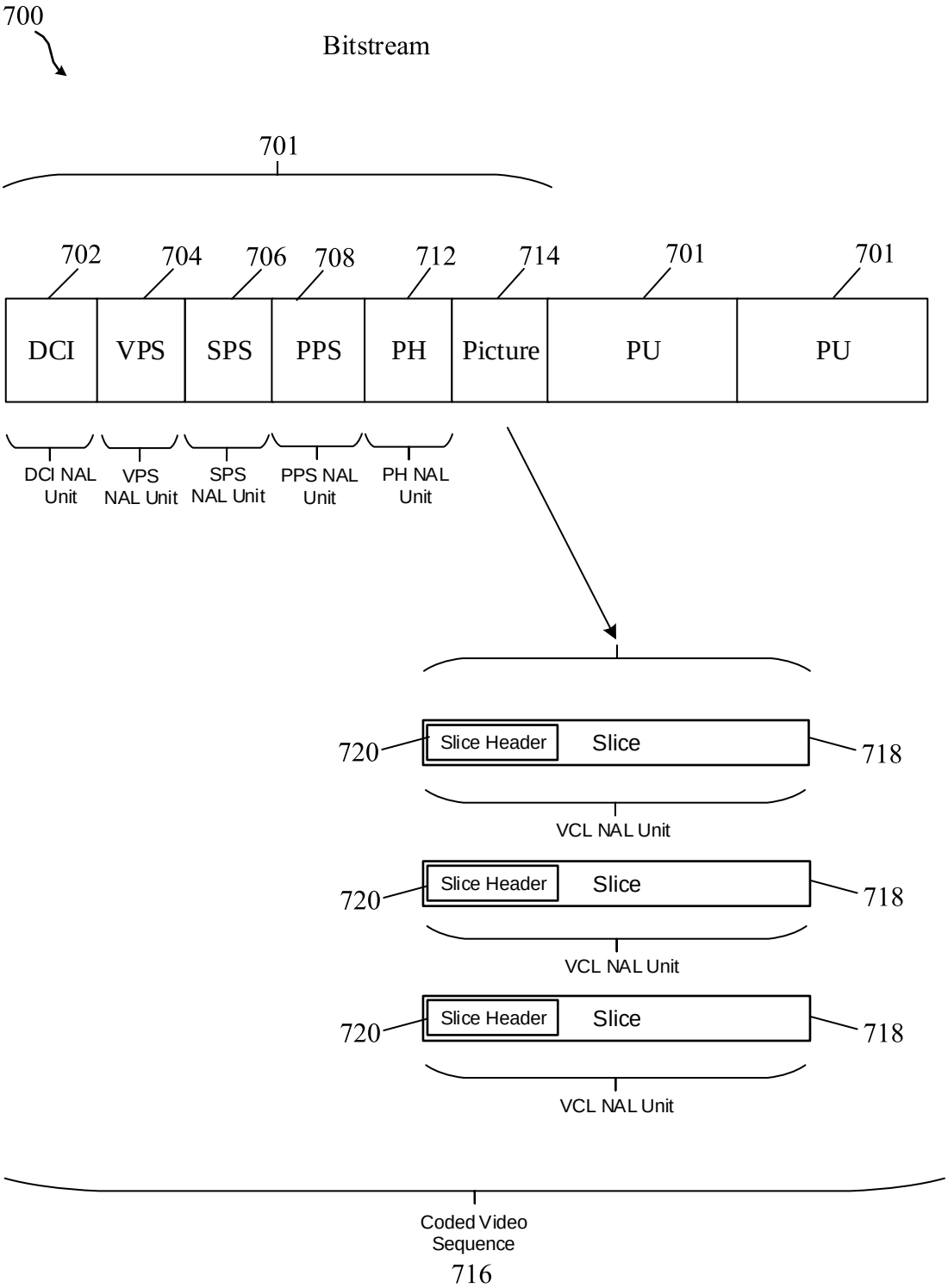

700
Bitstream
701
702
704
706
708
712
714
701
701
DCI
VPS
SPS
PPS
PH
Picture
PU
PU
DCI NAL Unit
VPS NAL Unit
SPS NAL Unit
PPS NAL Unit
PH NAL Unit
720
Slice Header
Slice
718
VCL NAL Unit
720
Slice Header
Slice
718
VCL NAL Unit
720
Slice Header
Slice
718
VCL NAL Unit
Coded Video Sequence
716

FIG. 7

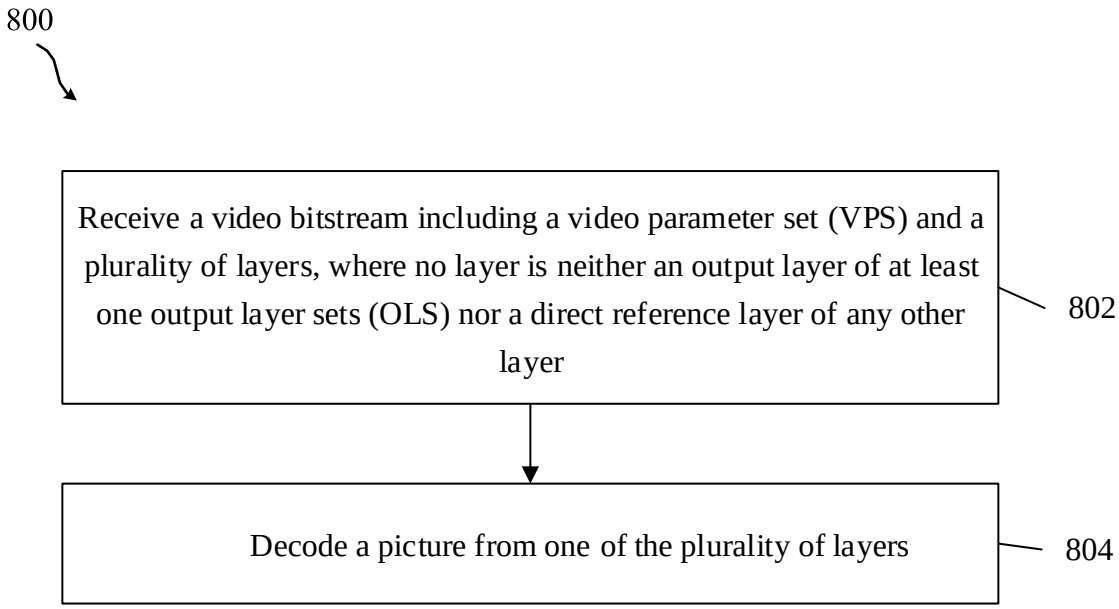

800
Receive a video bitstream including a video parameter set (VPS) and a plurality of layers, where no layer is neither an output layer of at least one output layer sets (OLS) nor a direct reference layer of any other layer
802
Decode a picture from one of the plurality of layers
804

FIG. 8

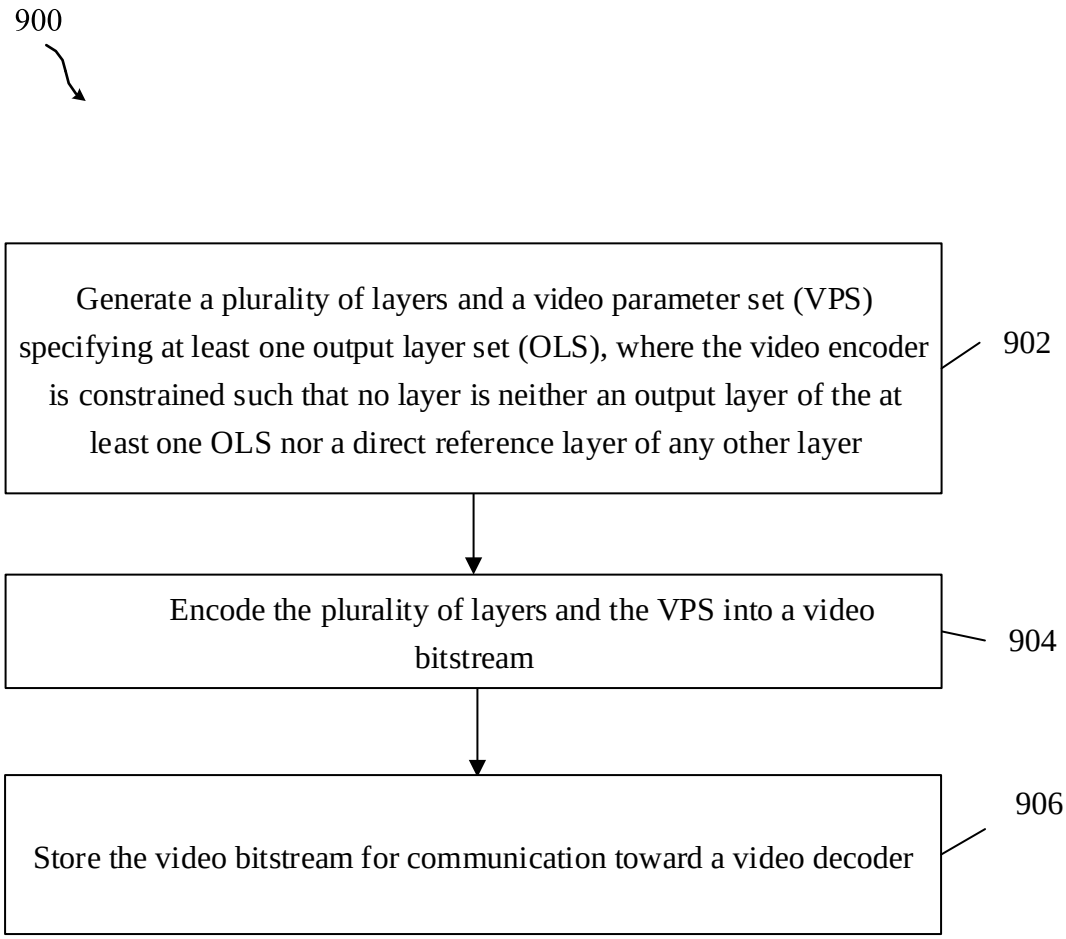

900
Generate a plurality of layers and a video parameter set (VPS) specifying at least one output layer set (OLS), where the video encoder is constrained such that no layer is neither an output layer of the at least one OLS nor a direct reference layer of any other layer
902
Encode the plurality of layers and the VPS into a video bitstream
904
Store the video bitstream for communication toward a video decoder
906

FIG. 9

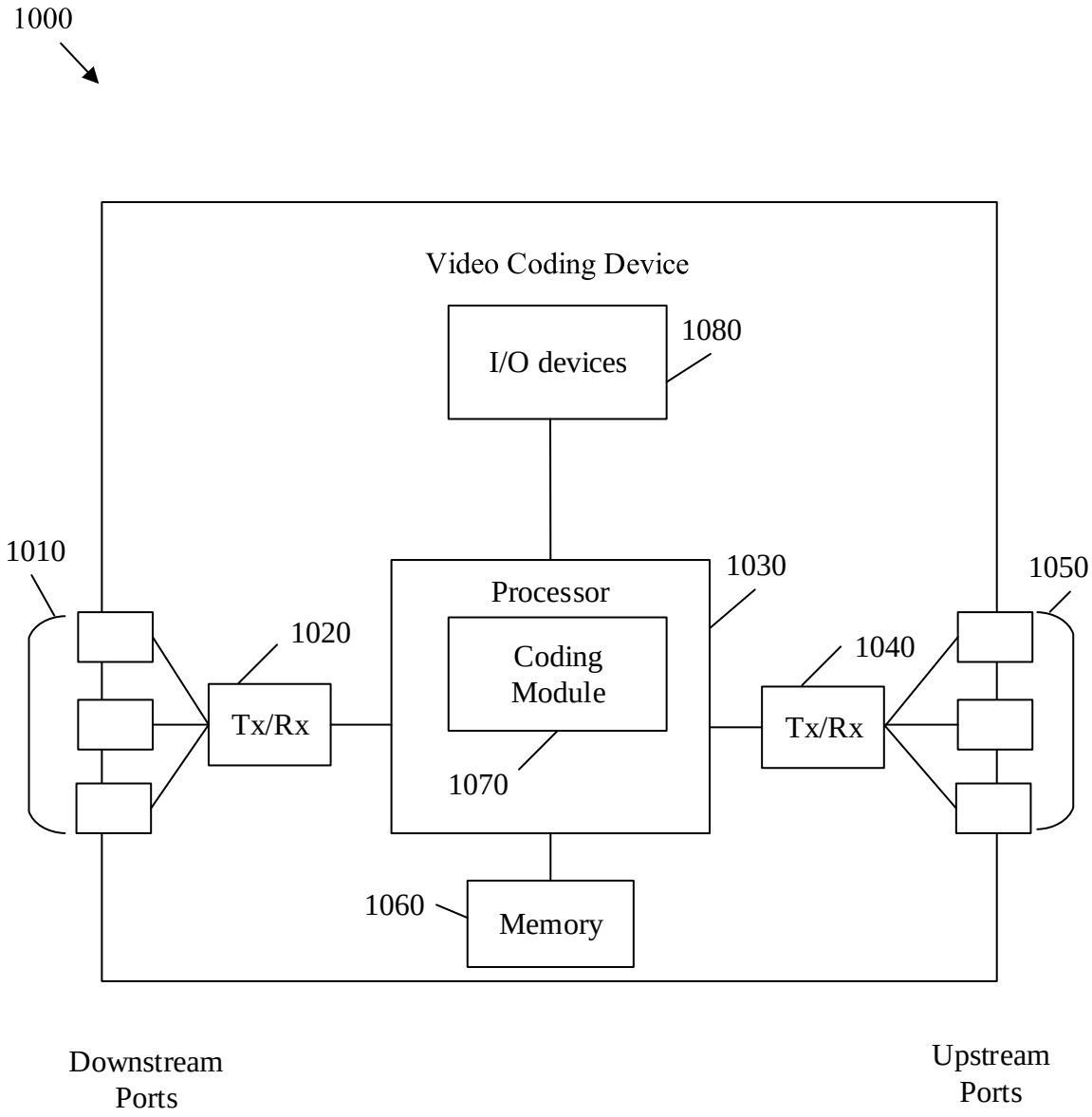

1000
Video Coding Device
I/O devices
1080
1010
1020
Tx/Rx
Processor
Coding Module
1030
1070
1040
Tx/Rx
1050
1060
Memory
Downstream Ports
Upstream Ports

FIG. 10

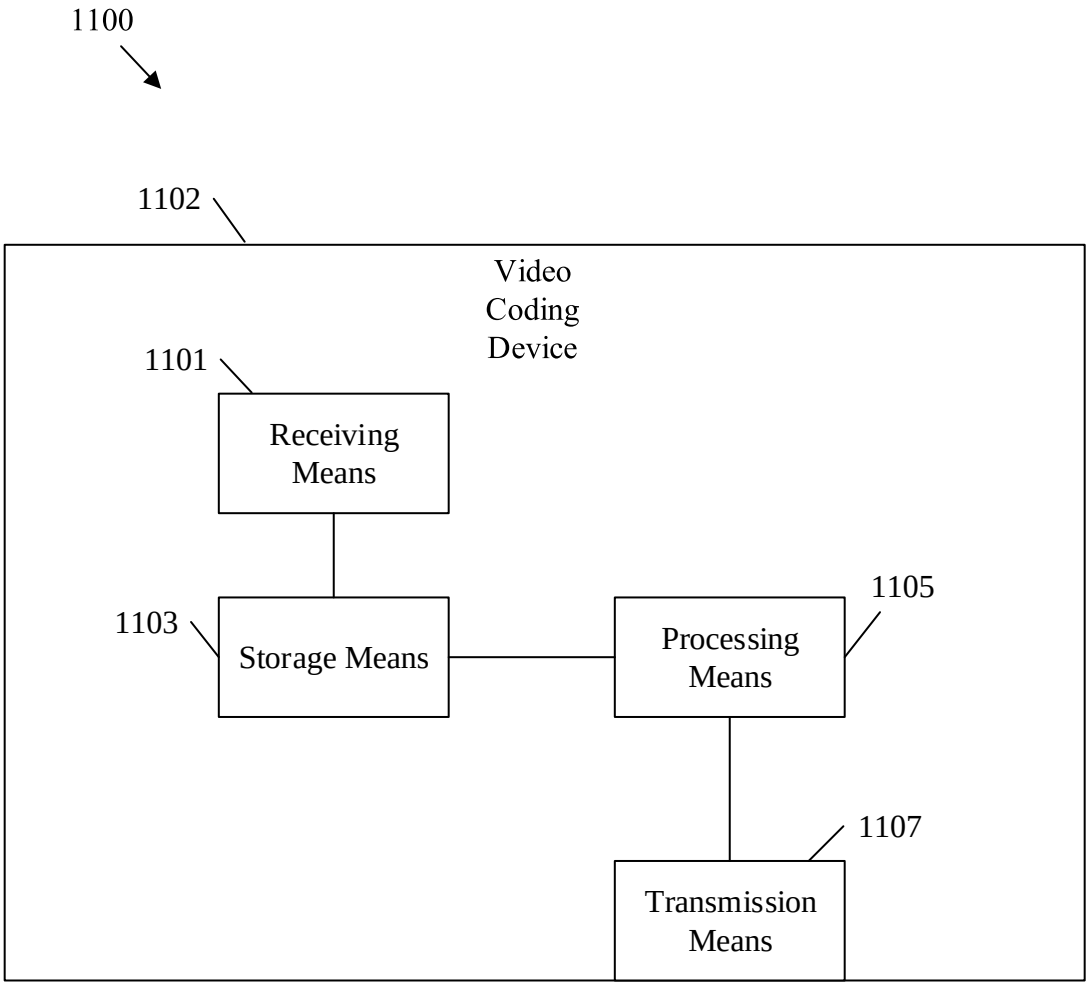

1100
1102
Video
Coding
Device
1101
Receiving
Means
1103
Storage Means
1105
Processing
Means
1107
Transmission
Means

FIG. 11