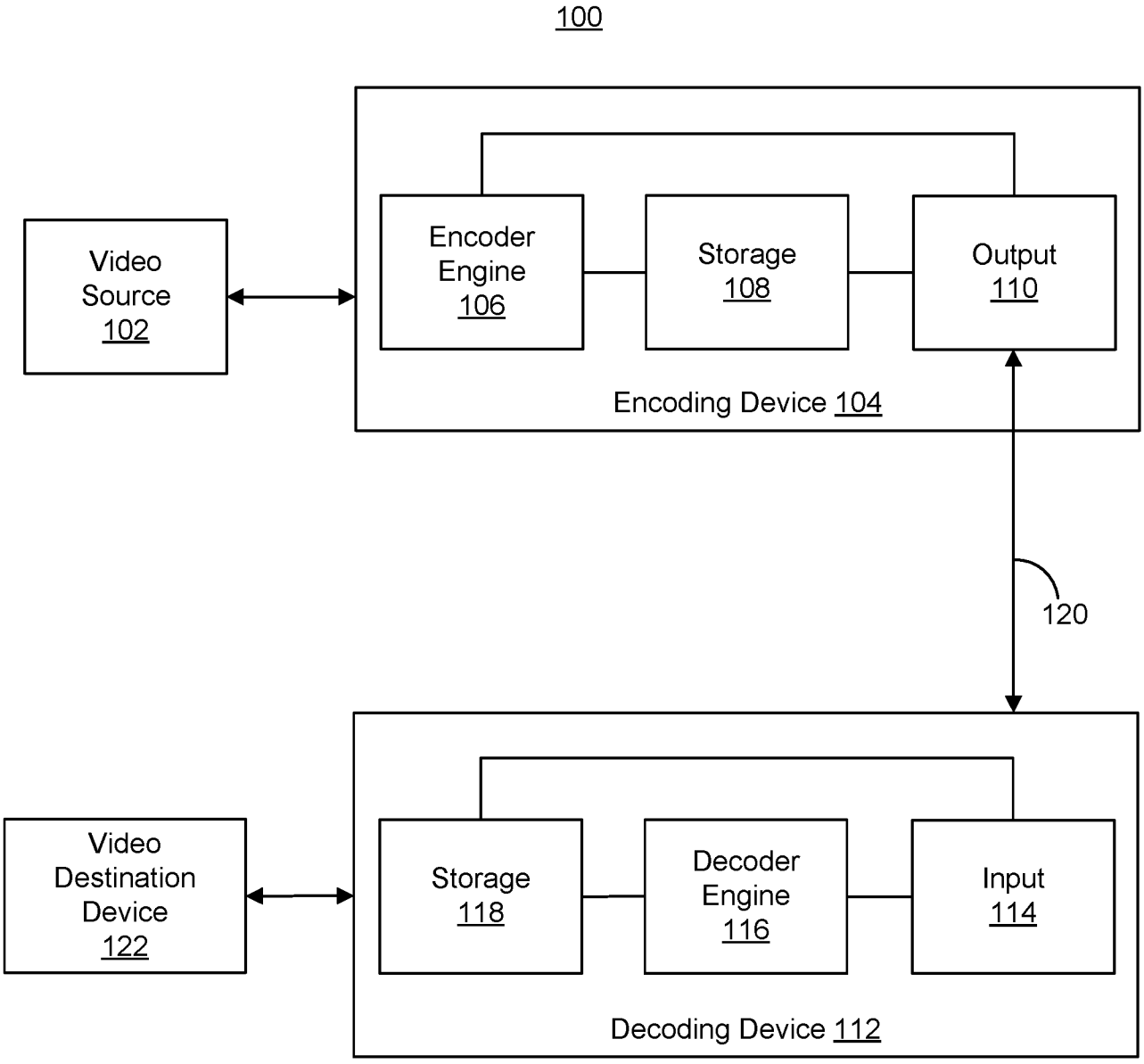

100
Video Source 102
Encoder Engine 106
Storage 108
Output 110
Encoding Device 104
120
Video Destination Device 122
Storage 118
Decoder Engine 116
Input 114
Decoding Device 112

FIG. 1

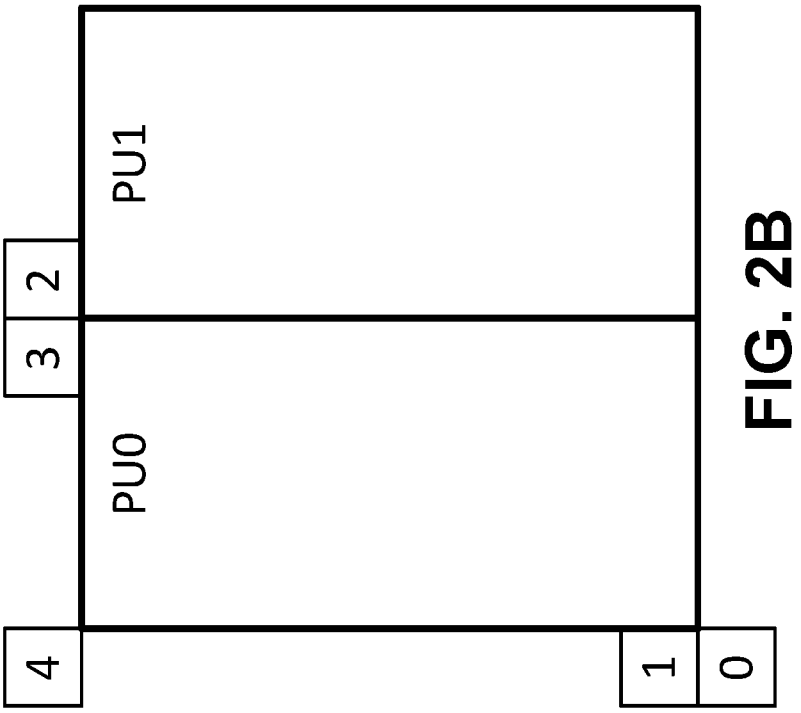



FIG. 2B

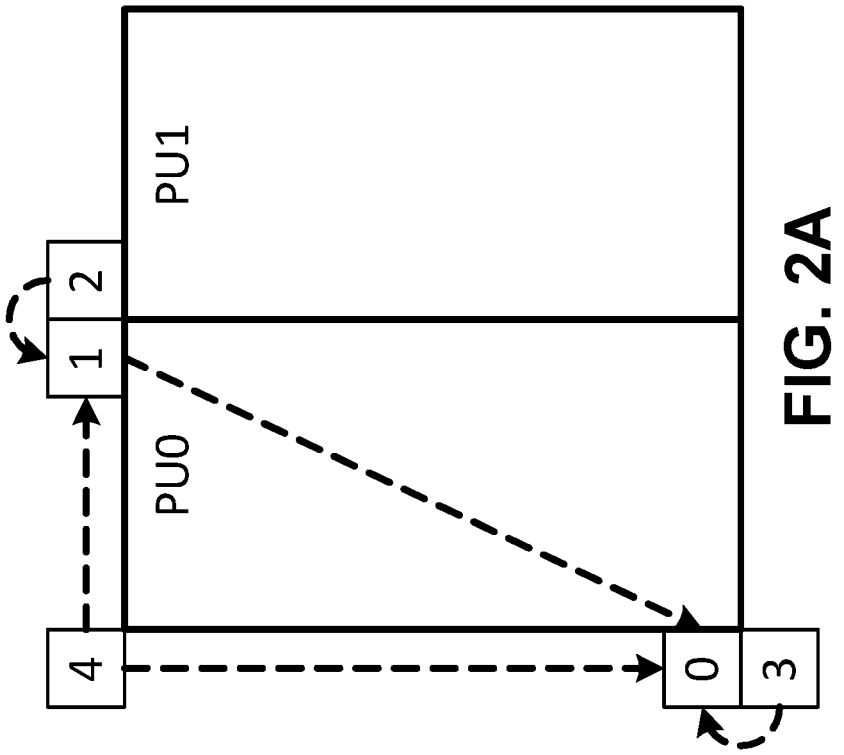



FIG. 2A

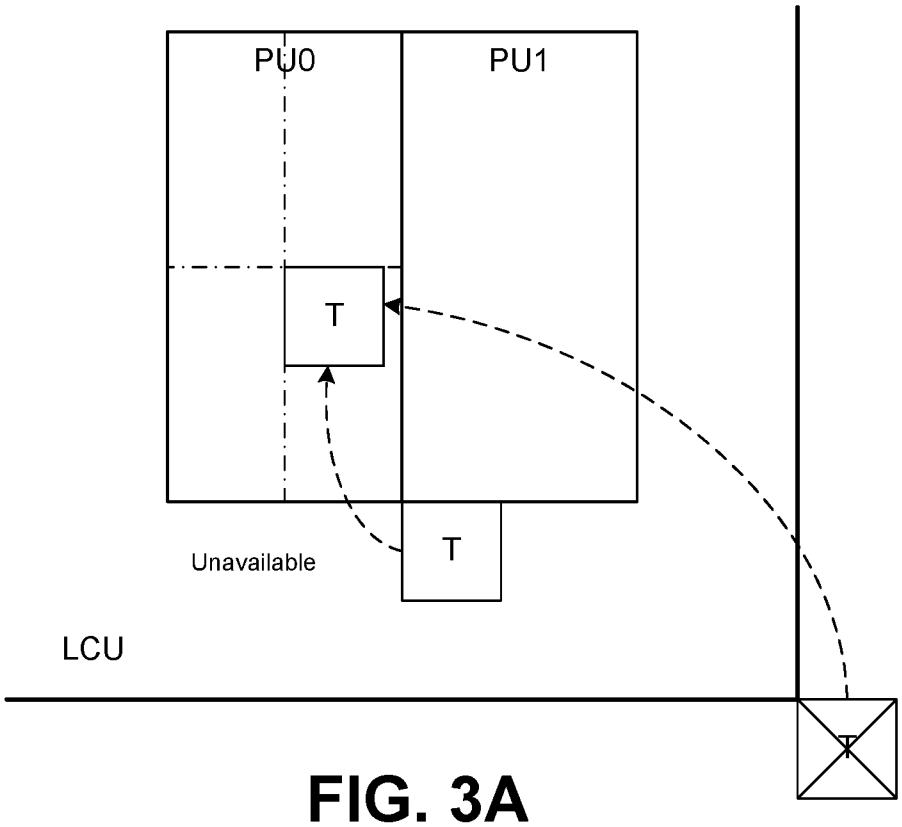

PU0
PU1
T
T
Unavailable
LCU
T

FIG. 3A

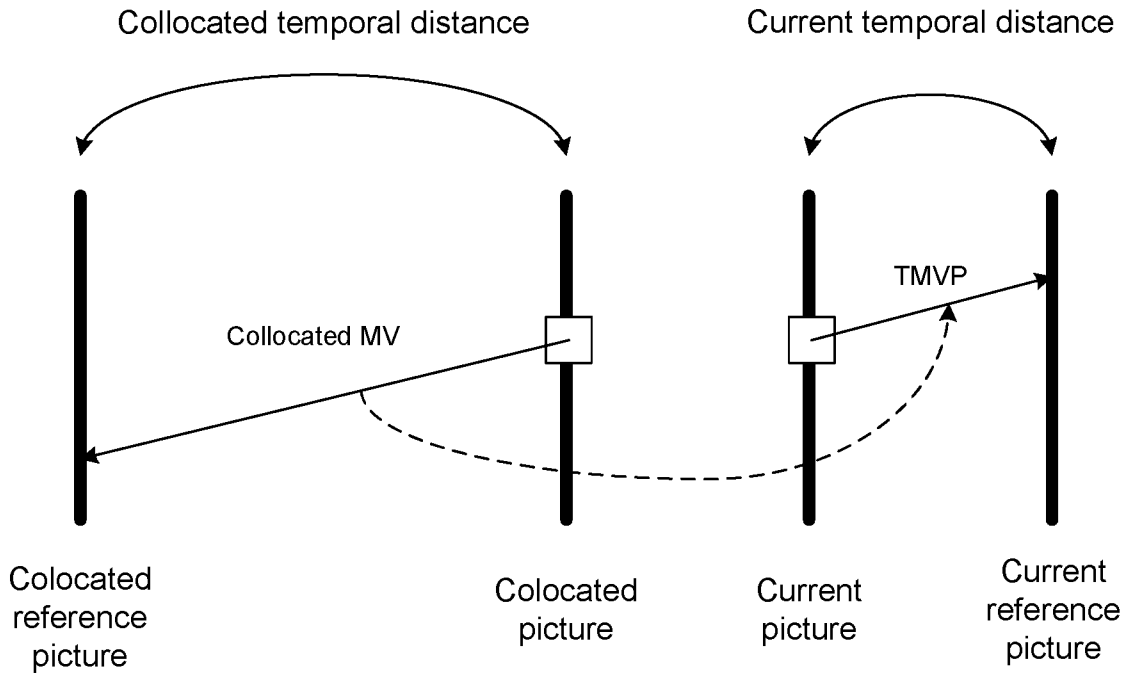

Collocated temporal distance
Current temporal distance
TMVP
Collocated MV
Colocated reference picture
Colocated picture
Current picture
Current reference picture

FIG. 3B

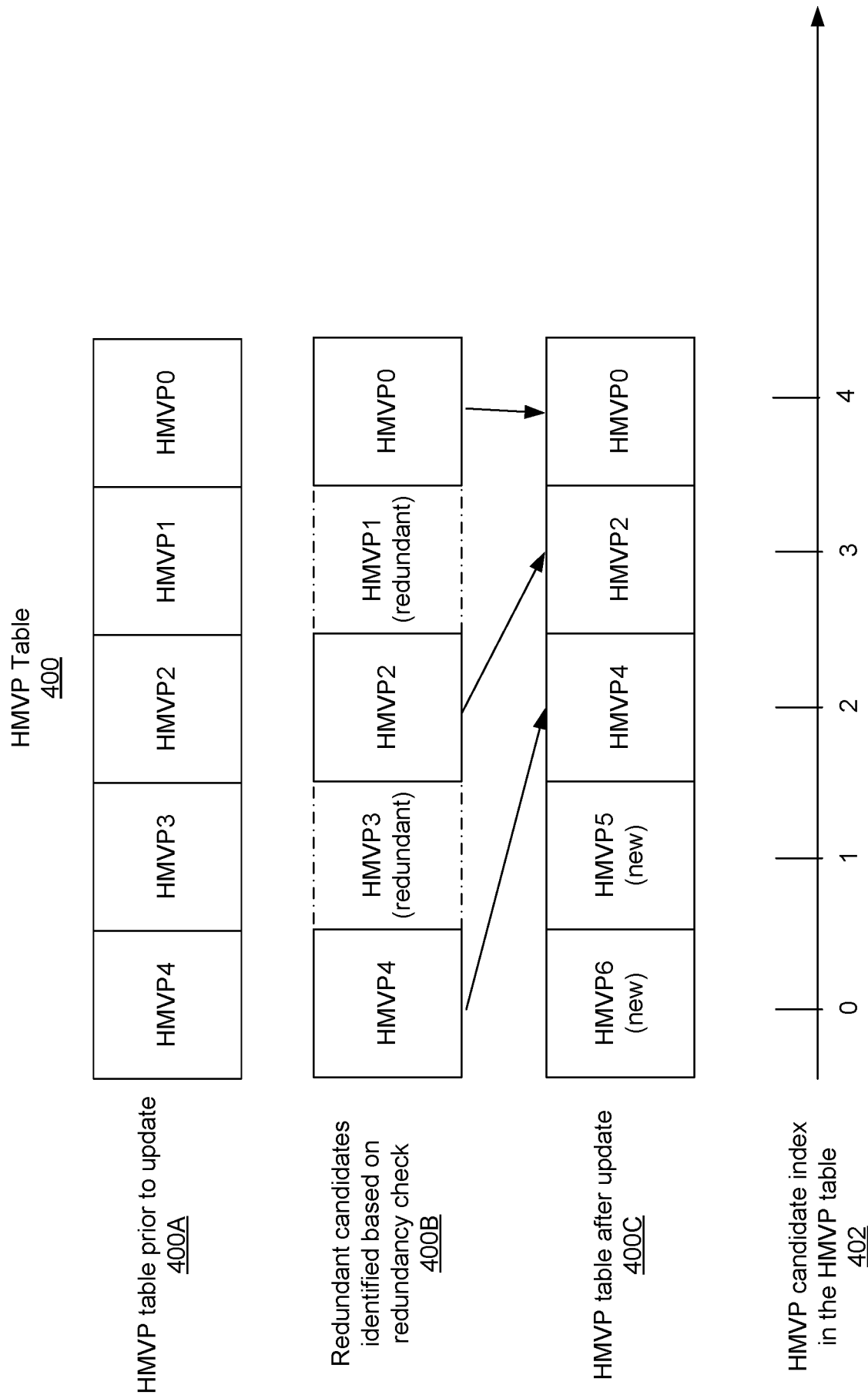

HMVP Table
400
HMVP4
HMVP3
HMVP2
HMVP1
HMVP0
HMVP table prior to update
400A
HMVP4
HMVP3
(redundant)
HMVP2
HMVP1
(redundant)
HMVP0
Redundant candidates
identified based on
redundancy check
400B
HMVP6
(new)
HMVP5
(new)
HMVP4
HMVP2
HMVP0
HMVP table after update
400C
0
1
2
3
4
HMVP candidate index
in the HMVP table
402

FIG. 4

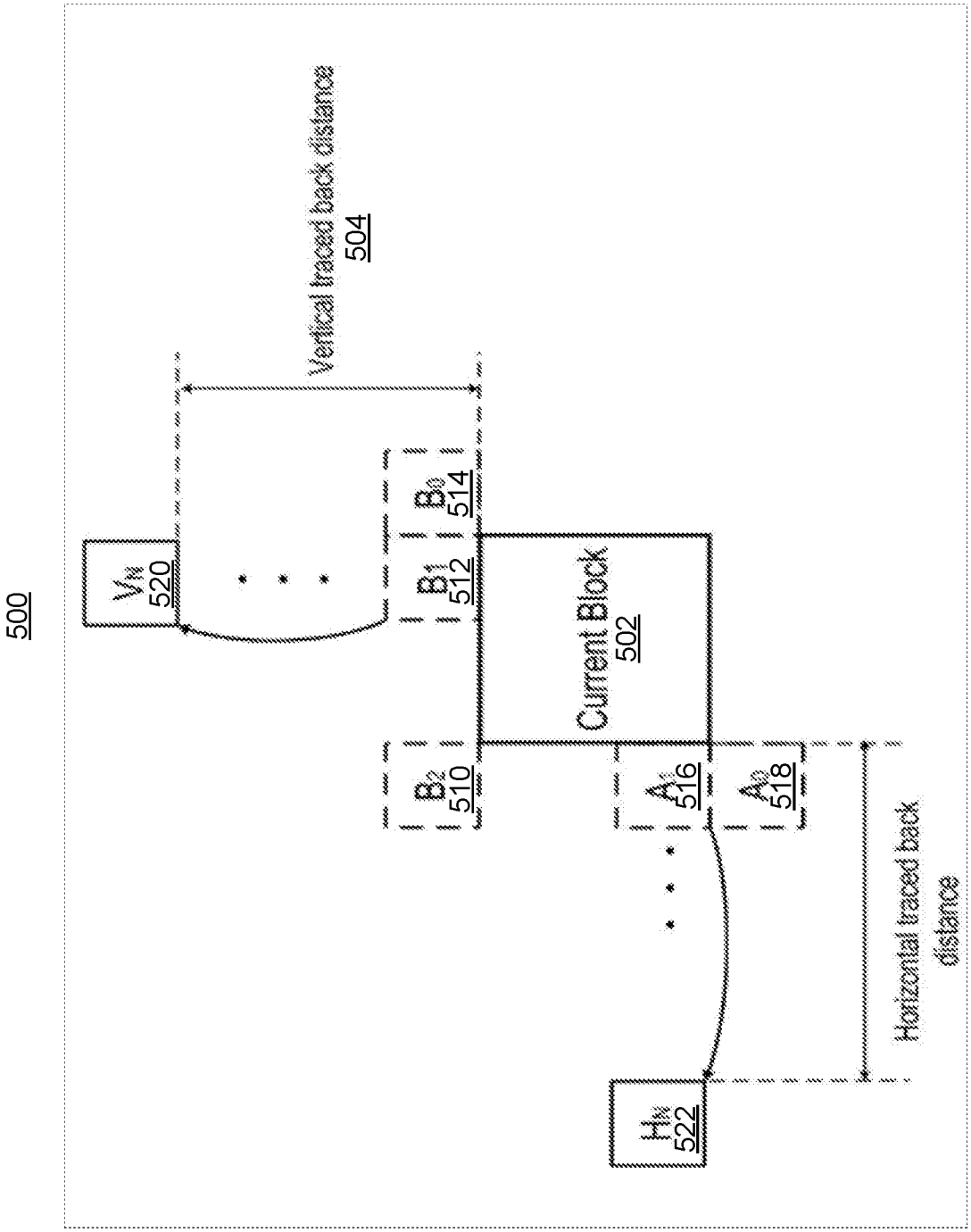

500
Vertical traced back distance
504
$V_N$
520
$B_0$
514
$B_1$
512
$B_2$
510
Current Block
502
$A_0$
518
$A_1$
516
$H_N$
522
Horizontal traced back distance
506

FIG. 5

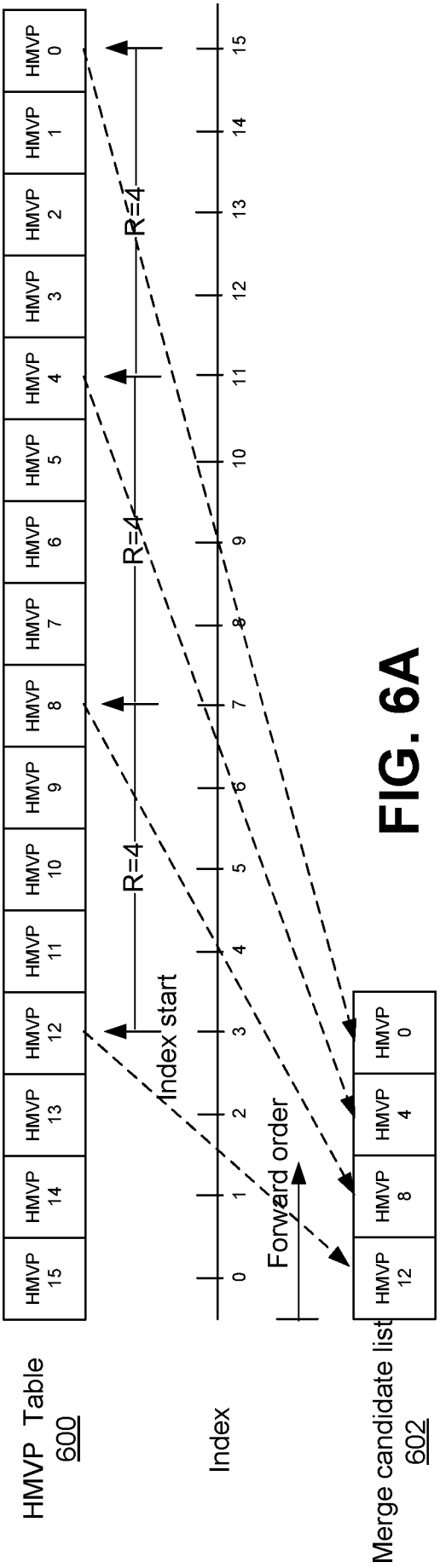

HMVP Table
600
HMVP 15
HMVP 14
HMVP 13
HMVP 12
HMVP 11
HMVP 10
HMVP 9
HMVP 8
HMVP 7
HMVP 6
HMVP 5
HMVP 4
HMVP 3
HMVP 2
HMVP 1
HMVP 0
Index
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
R=4
R=4
R=4
Index start
Forward order
Merge candidate list
602
HMVP 12
HMVP 8
HMVP 4
HMVP 0

FIG. 6A

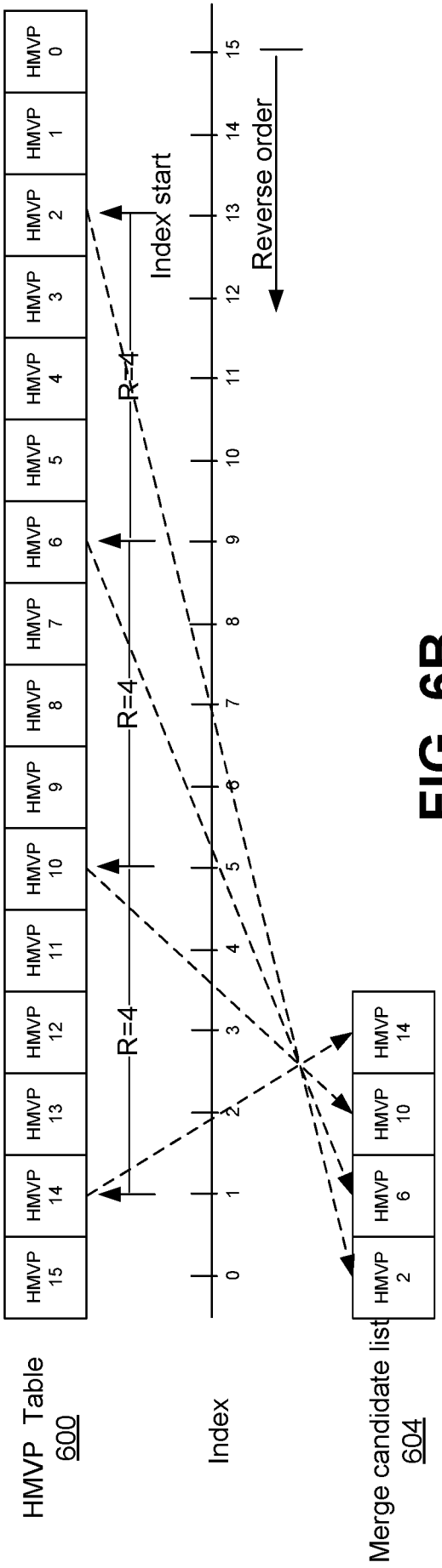

HMVP Table
600
HMVP 15
HMVP 14
HMVP 13
HMVP 12
HMVP 11
HMVP 10
HMVP 9
HMVP 8
HMVP 7
HMVP 6
HMVP 5
HMVP 4
HMVP 3
HMVP 2
HMVP 1
HMVP 0
Index
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
R=4
R=4
R=4
Index start
Reverse order
Merge candidate list
604
HMVP 2
HMVP 6
HMVP 10
HMVP 14

FIG. 6B

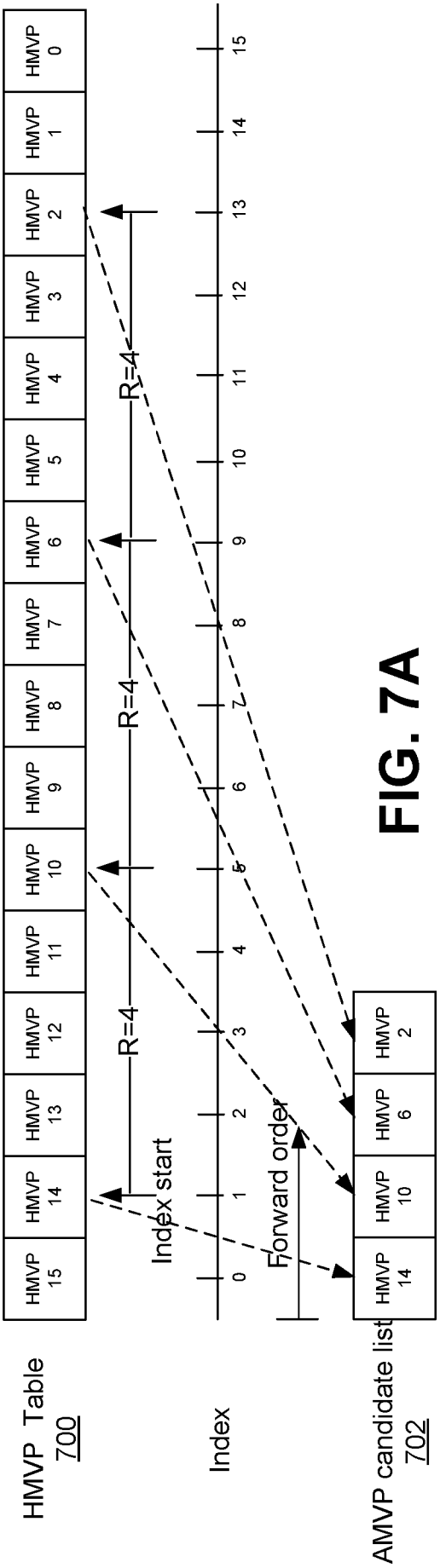

HMVP Table
700
HMVP 15
HMVP 14
HMVP 13
HMVP 12
HMVP 11
HMVP 10
HMVP 9
HMVP 8
HMVP 7
HMVP 6
HMVP 5
HMVP 4
HMVP 3
HMVP 2
HMVP 1
HMVP 0
Index
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
R=4
R=4
R=4
Index start
Forward order
AMVP candidate list
702
HMVP 14
HMVP 10
HMVP 6
HMVP 2

FIG. 7A

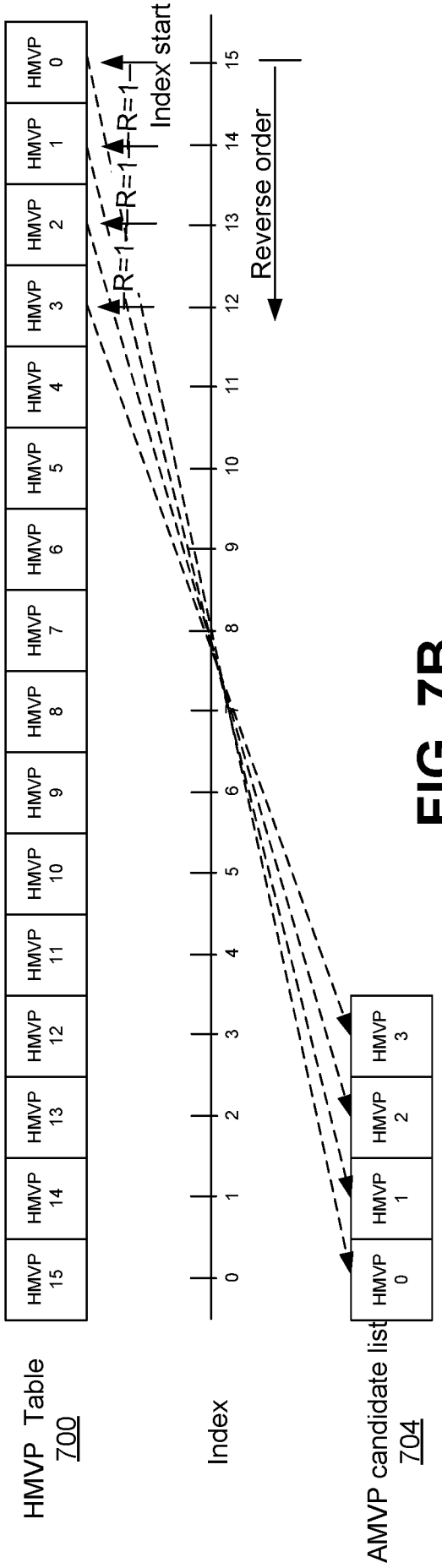

HMVP Table
700
HMVP 15
HMVP 14
HMVP 13
HMVP 12
HMVP 11
HMVP 10
HMVP 9
HMVP 8
HMVP 7
HMVP 6
HMVP 5
HMVP 4
HMVP 3
HMVP 2
HMVP 1
HMVP 0
Index
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
R=1
R=1
R=1
Index start
Reverse order
AMVP candidate list
704
HMVP 0
HMVP 1
HMVP 2
HMVP 3

FIG. 7B

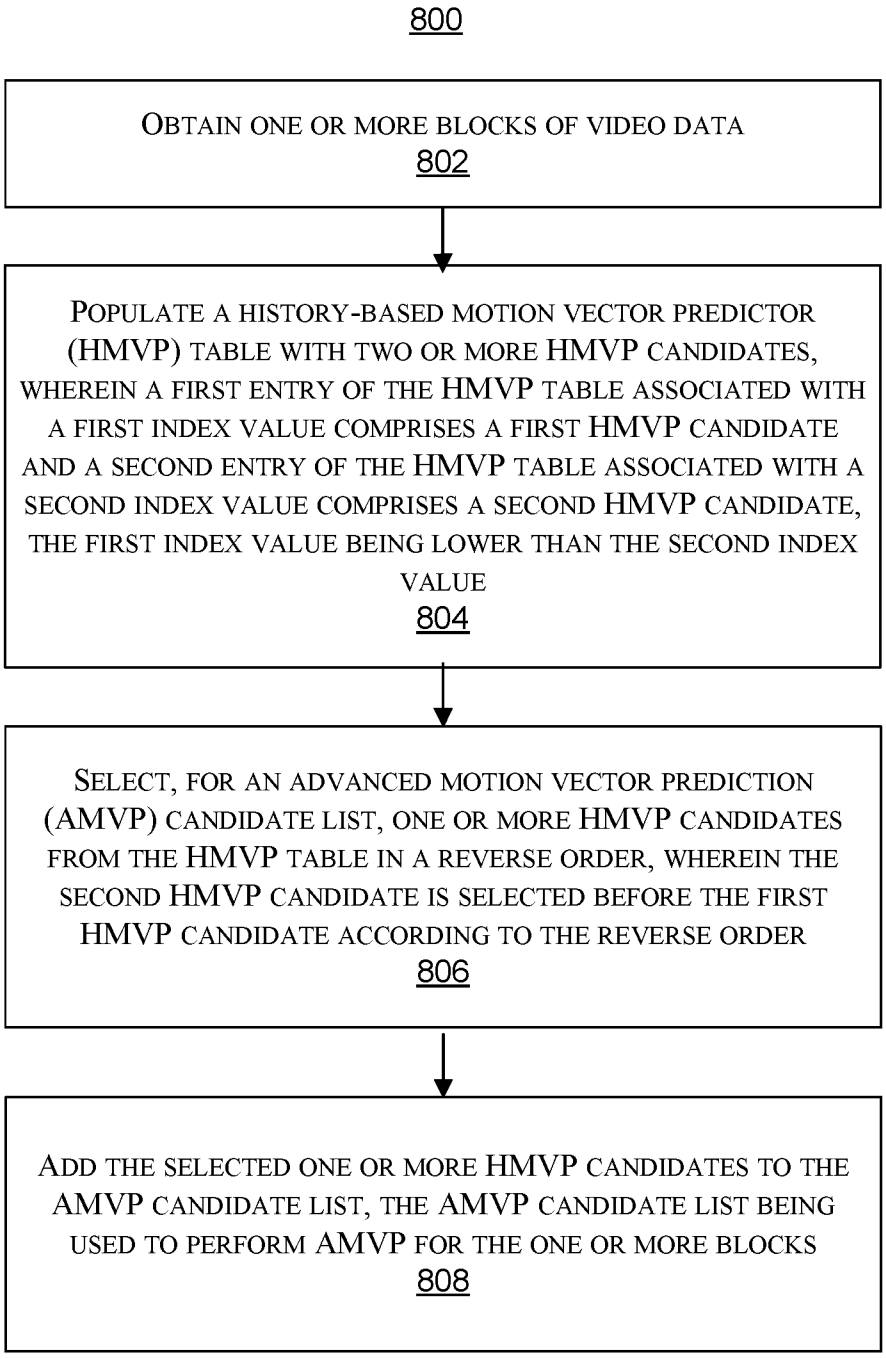

800
OBTAIN ONE OR MORE BLOCKS OF VIDEO DATA
802
POPULATE A HISTORY-BASED MOTION VECTOR PREDICTOR (HMVP) TABLE WITH TWO OR MORE HMVP CANDIDATES, WHEREIN A FIRST ENTRY OF THE HMVP TABLE ASSOCIATED WITH A FIRST INDEX VALUE COMPRISES A FIRST HMVP CANDIDATE AND A SECOND ENTRY OF THE HMVP TABLE ASSOCIATED WITH A SECOND INDEX VALUE COMPRISES A SECOND HMVP CANDIDATE, THE FIRST INDEX VALUE BEING LOWER THAN THE SECOND INDEX VALUE
804
SELECT, FOR AN ADVANCED MOTION VECTOR PREDICTION (AMVP) CANDIDATE LIST, ONE OR MORE HMVP CANDIDATES FROM THE HMVP TABLE IN A REVERSE ORDER, WHEREIN THE SECOND HMVP CANDIDATE IS SELECTED BEFORE THE FIRST HMVP CANDIDATE ACCORDING TO THE REVERSE ORDER
806
ADD THE SELECTED ONE OR MORE HMVP CANDIDATES TO THE AMVP CANDIDATE LIST, THE AMVP CANDIDATE LIST BEING USED TO PERFORM AMVP FOR THE ONE OR MORE BLOCKS
808

FIG. 8

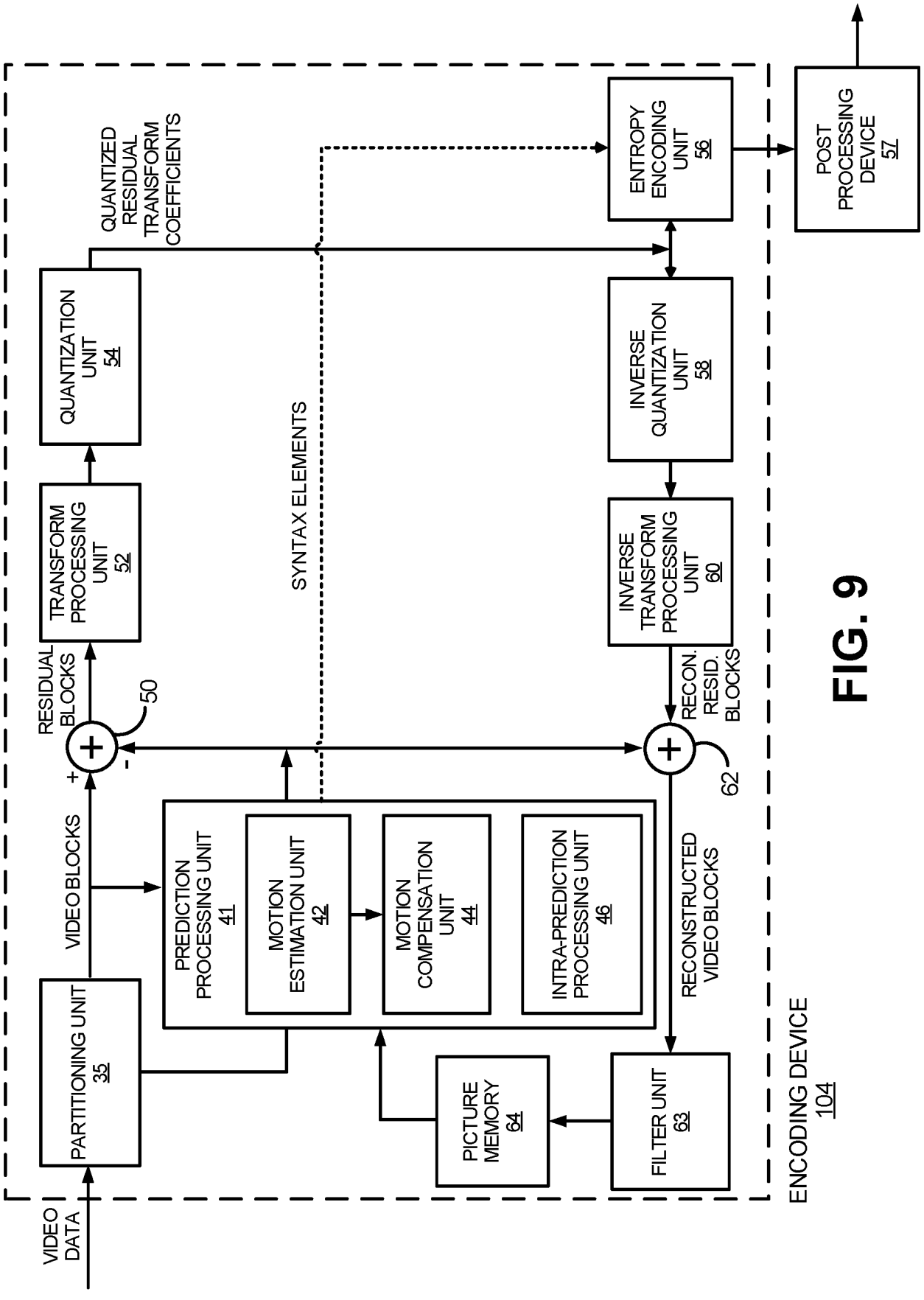

VIDEO DATA
ENCODING DEVICE 104
PARTITIONING UNIT 35
PREDICTION PROCESSING UNIT 41
MOTION ESTIMATION UNIT 42
MOTION COMPENSATION UNIT 44
INTRA-PREDICTION PROCESSING UNIT 46
PICTURE MEMORY 64
FILTER UNIT 63
VIDEO BLOCKS
RESIDUAL BLOCKS
50
TRANSFORM PROCESSING UNIT 52
QUANTIZATION UNIT 54
QUANTIZED RESIDUAL TRANSFORM COEFFICIENTS
SYNTAX ELEMENTS
ENTROPY ENCODING UNIT 56
POST PROCESSING DEVICE 57
INVERSE QUANTIZATION UNIT 58
INVERSE TRANSFORM PROCESSING UNIT 60
RECON. RESID. BLOCKS
62
RECONSTRUCTED VIDEO BLOCKS

FIG. 9

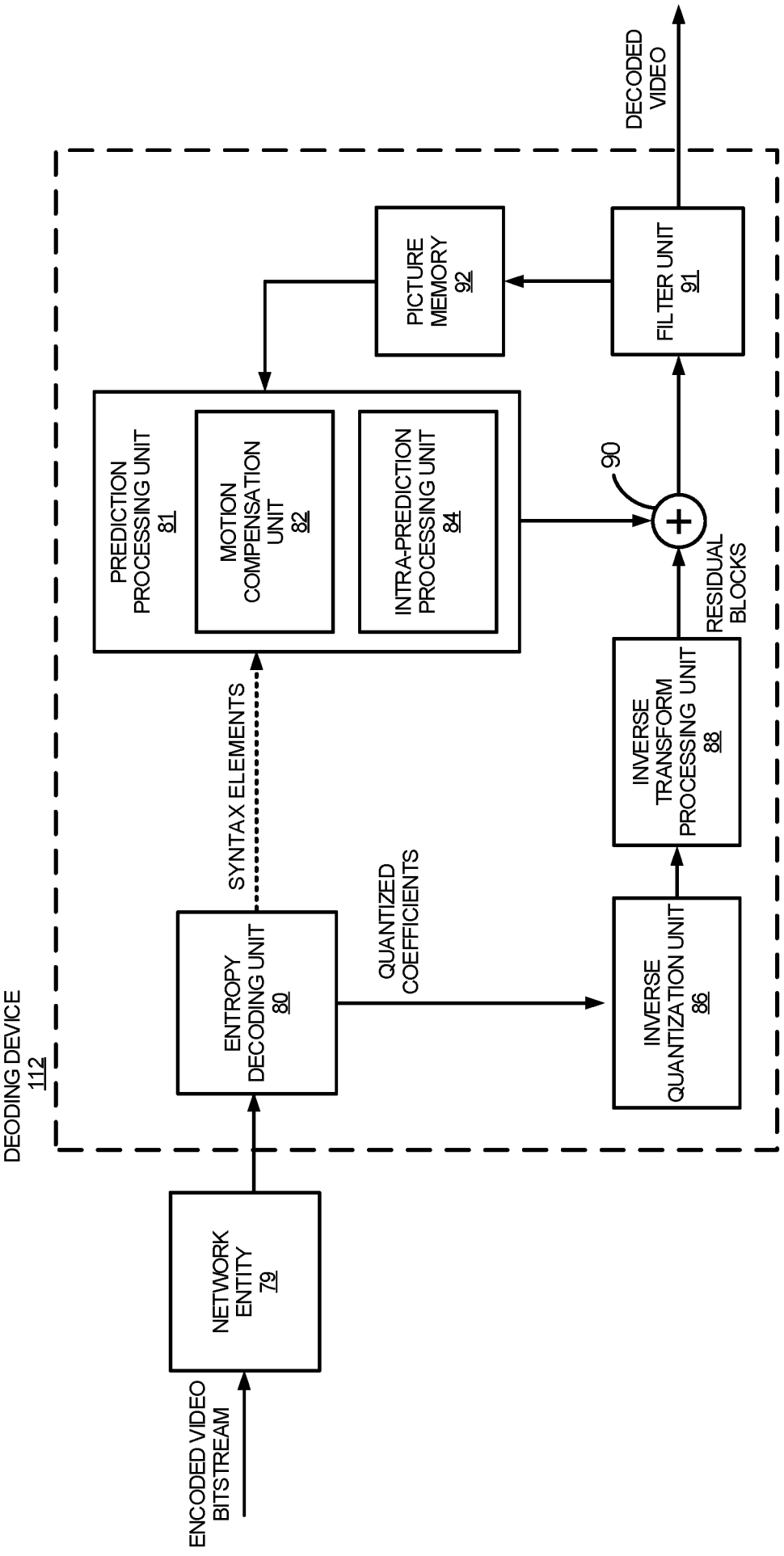

ENCODED VIDEO BITSTREAM
NETWORK ENTITY 79
DEODING DEVICE 112
ENTROPY DECODING UNIT 80
SYNTAX ELEMENTS
QUANTIZED COEFFICIENTS
INVERSE QUANTIZATION UNIT 86
INVERSE TRANSFORM PROCESSING UNIT 88
RESIDUAL BLOCKS
90
PREDICTION PROCESSING UNIT 81
MOTION COMPENSATION UNIT 82
INTRA-PREDICTION PROCESSING UNIT 84
PICTURE MEMORY 92
FILTER UNIT 91
DECODED VIDEO

FIG. 10