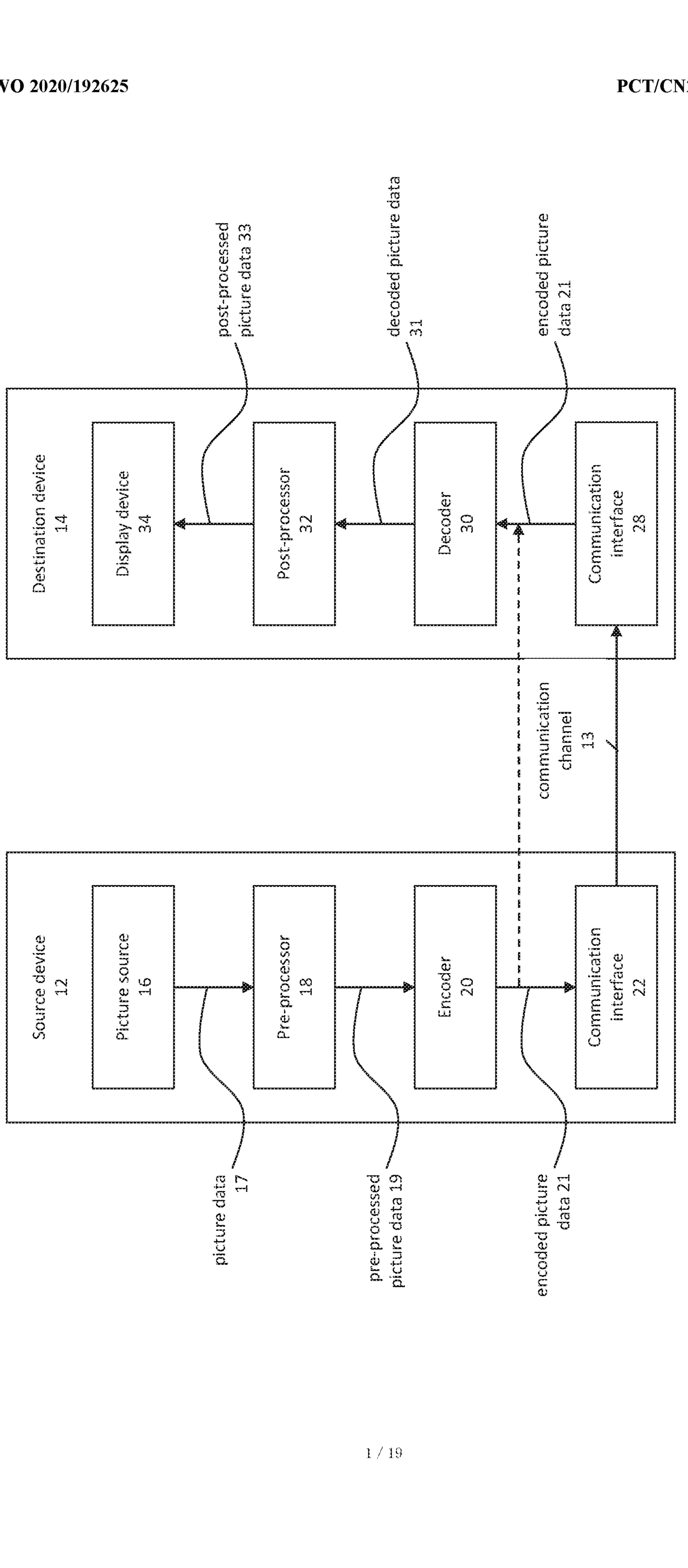
Source device
12
Picture source
16
Pre-processor
18
Encoder
20
Communication interface
22
picture data
17
pre-processed picture data 19
encoded picture data 21
communication channel
13
Destination device
14
Display device
34
Post-processor
32
Decoder
30
Communication interface
28
post-processed picture data 33
decoded picture data 31
encoded picture data 21
10

Fig. 1A

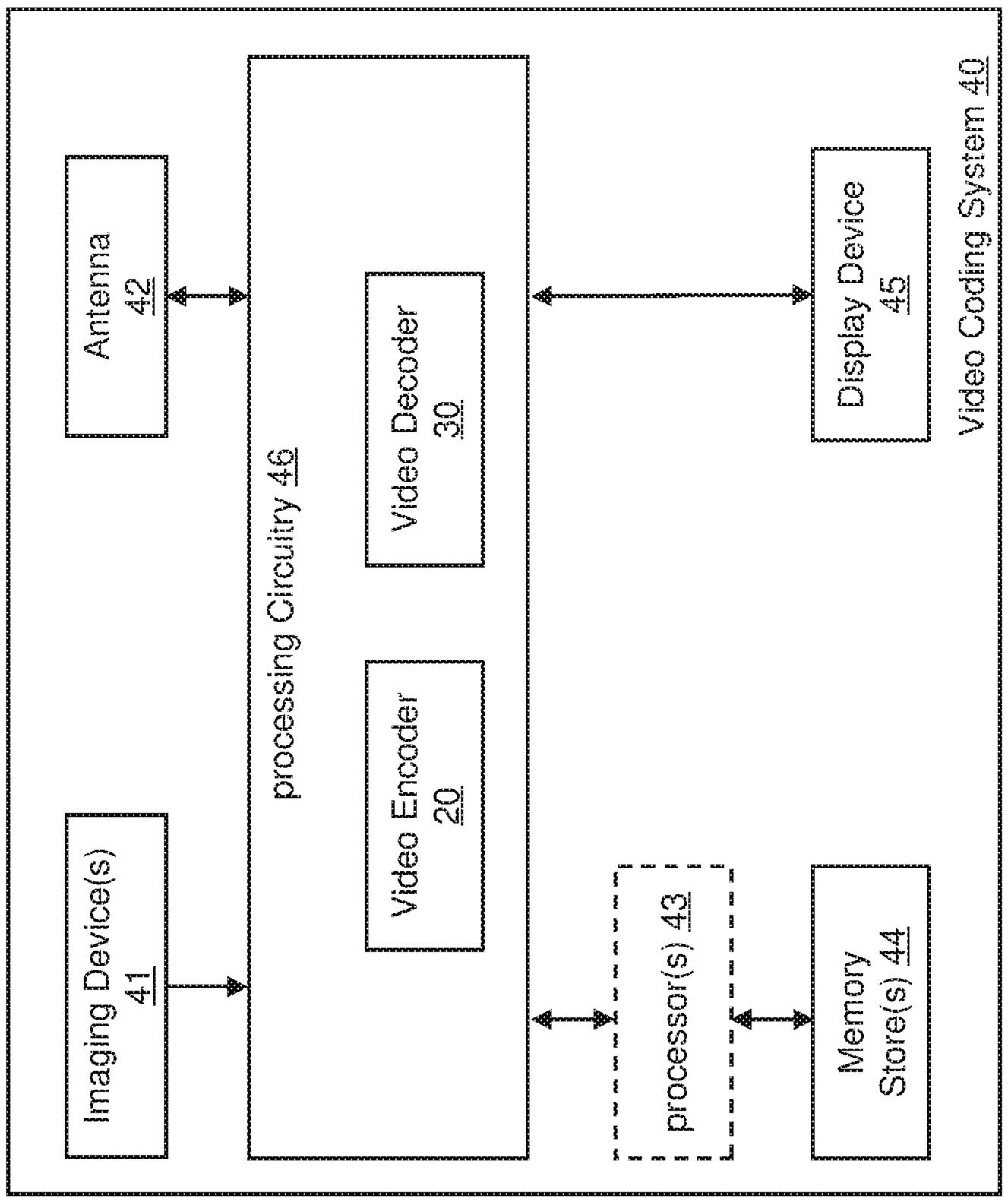
Video Coding System 40
Antenna 42
Imaging Device(s) 41
processing Circuitry 46
Video Encoder 20
Video Decoder 30
processor(s) 43
Memory Store(s) 44
Display Device 45

Fig. 1B

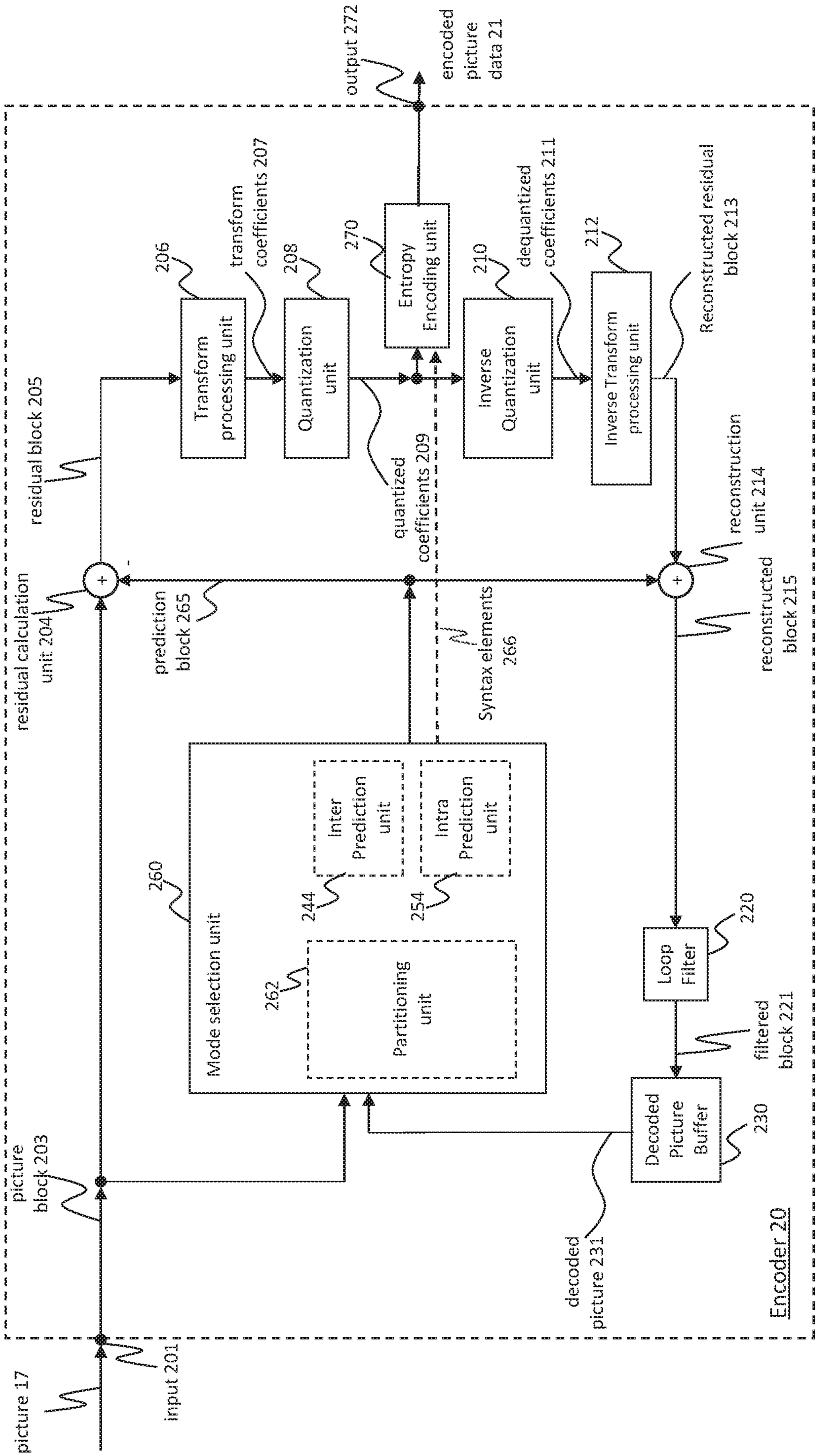
picture 17
input 201
picture block 203
residual calculation unit 204
residual block 205
Transform processing unit
206
transform coefficients 207
Quantization unit
208
quantized coefficients 209
Inverse Quantization unit
210
dequantized coefficients 211
Inverse Transform processing unit
212
Reconstructed residual block 213
reconstruction unit 214
reconstructed block 215
Loop Filter
220
filtered block 221
Decoded Picture Buffer
230
decoded picture 231
prediction block 265
Syntax elements 266
Mode selection unit
260
Partitioning unit
262
Inter Prediction unit
244
Intra Prediction unit
254
Entropy Encoding unit
270
output 272
encoded picture data 21
Encoder 20

Fig. 2

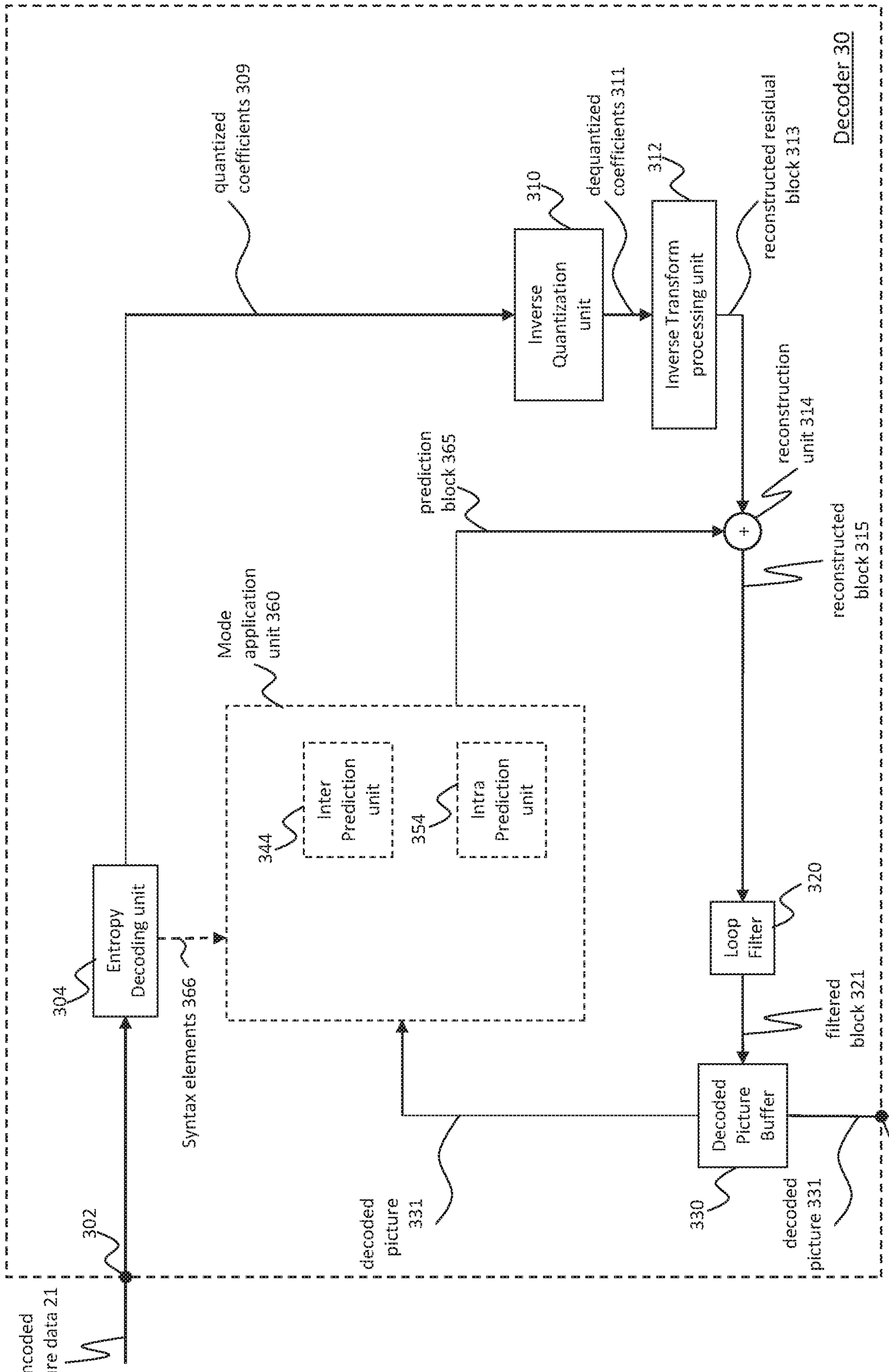
Decoder 30
encoded picture data 21
302
Entropy Decoding unit
304
Syntax elements 366
quantized coefficients 309
Inverse Quantization unit
310
dequantized coefficients 311
Inverse Transform processing unit
312
reconstructed residual block 313
prediction block 365
Mode application unit 360
Inter Prediction unit
344
Intra Prediction unit
354
reconstruction unit 314
reconstructed block 315
Loop Filter
320
filtered block 321
Decoded Picture Buffer
330
decoded picture 331
decoded picture 331
output 332

Fig. 3

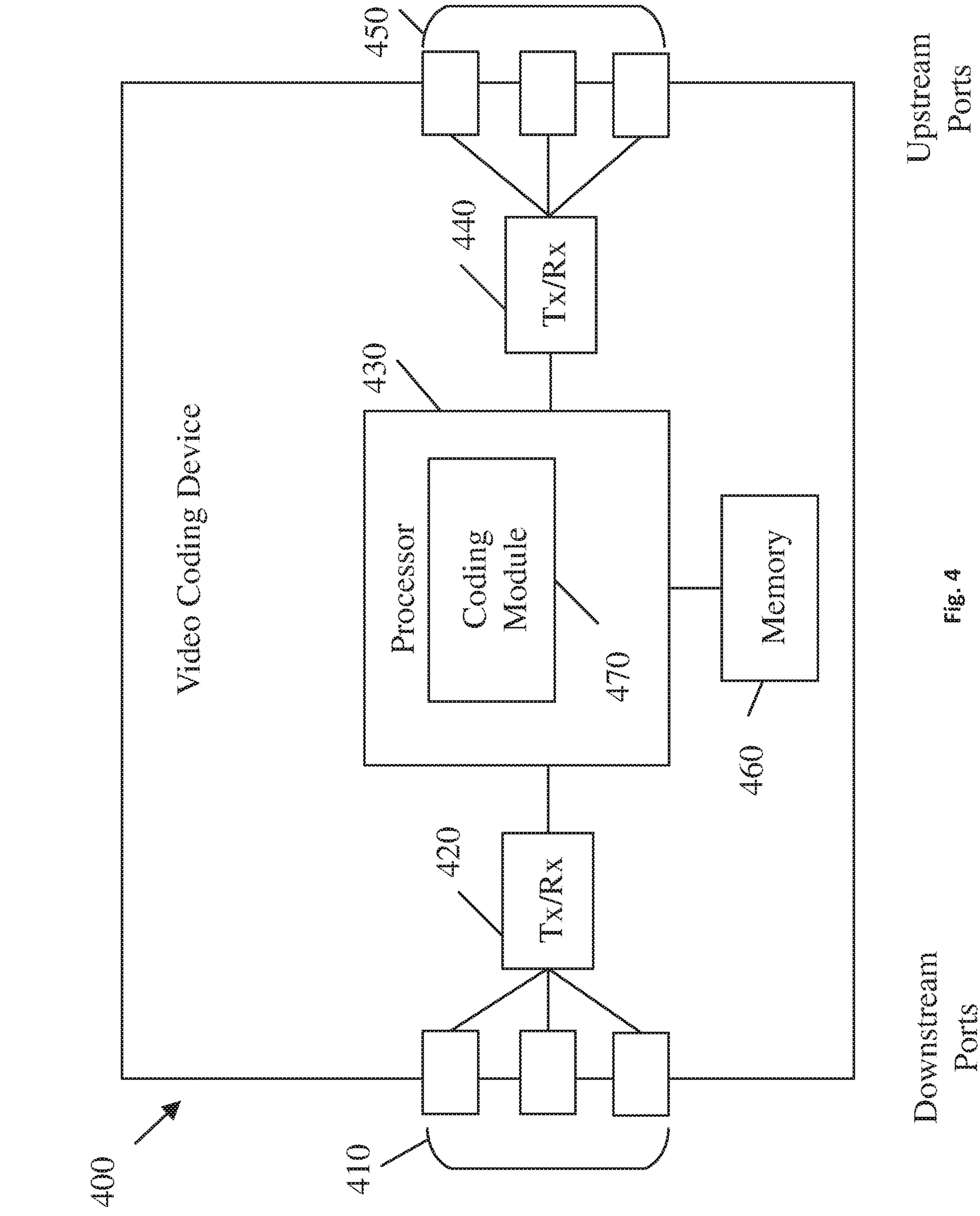
400
Video Coding Device
410
Downstream Ports
420
Tx/Rx
430
Processor
Coding Module
440
Tx/Rx
450
Upstream Ports
460
Memory
470

Fig. 4

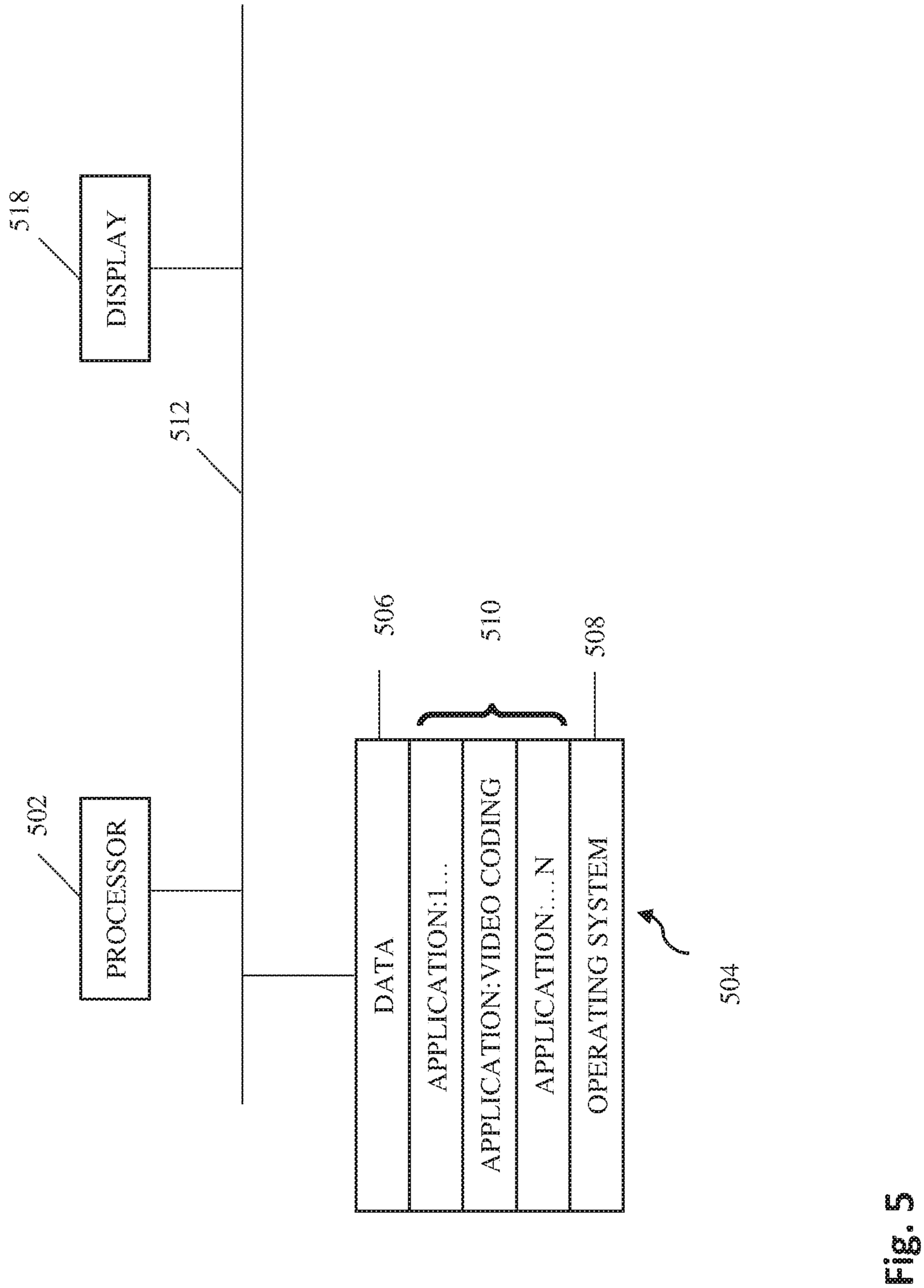
500
502
PROCESSOR
504
DATA
APPLICATION:1...
APPLICATION:VIDEO CODING
APPLICATION:...N
OPERATING SYSTEM
506
508
510
512
DISPLAY
518

Fig. 5

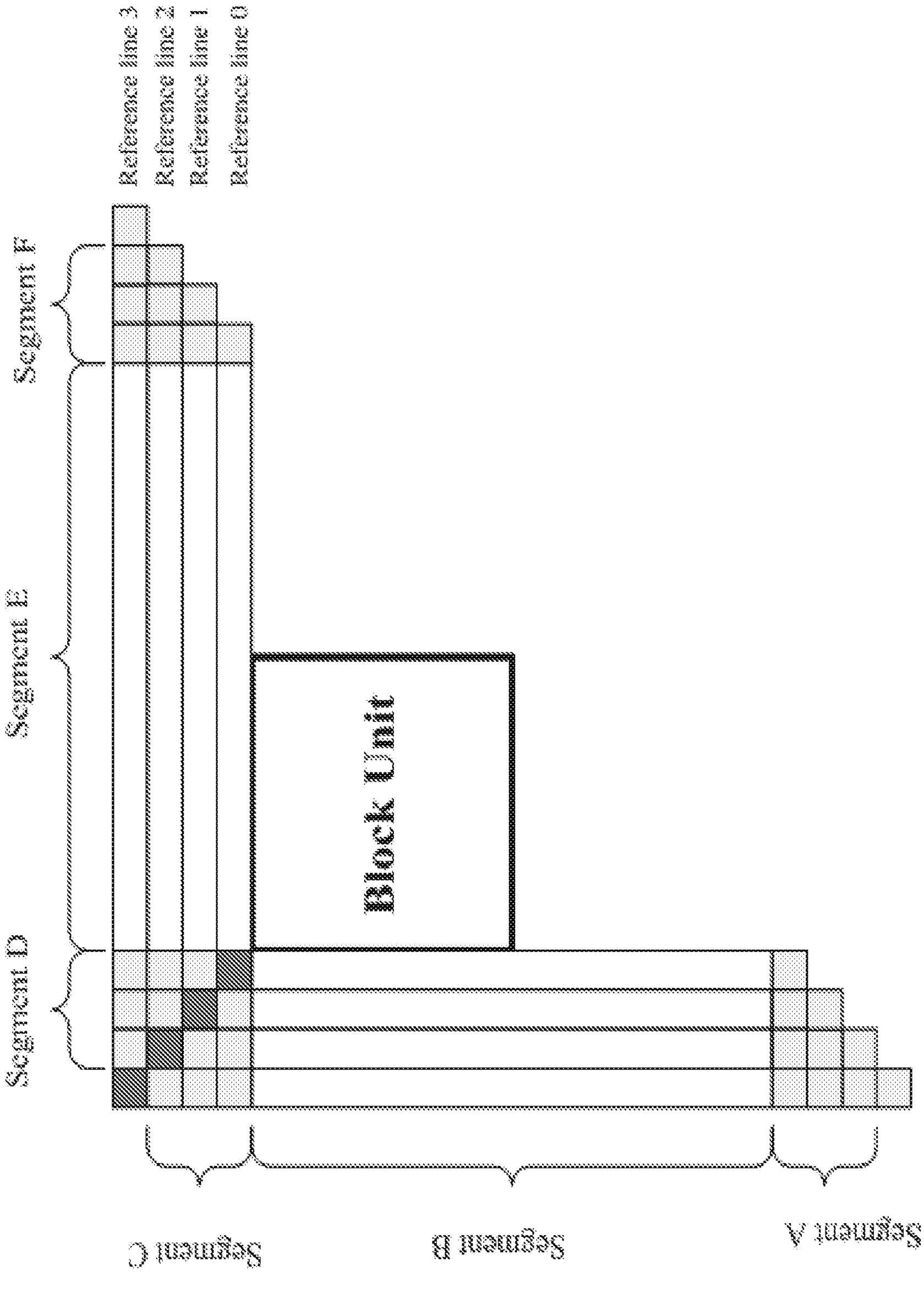

Fig. 6, Multiple reference line coding tool, indication of neighboring reference line to current block is used.

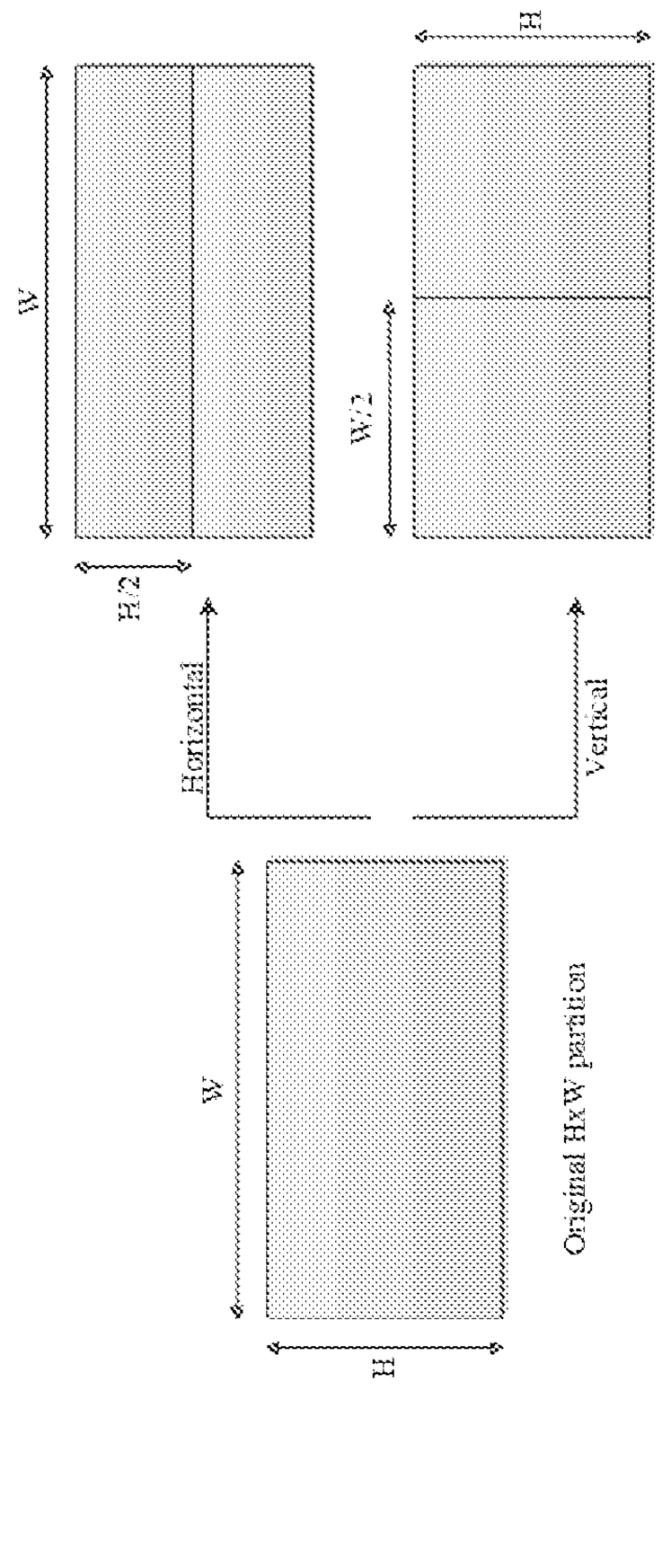

Fig. 7: Example of division of 4 × 8 and 8 × 4 blocks

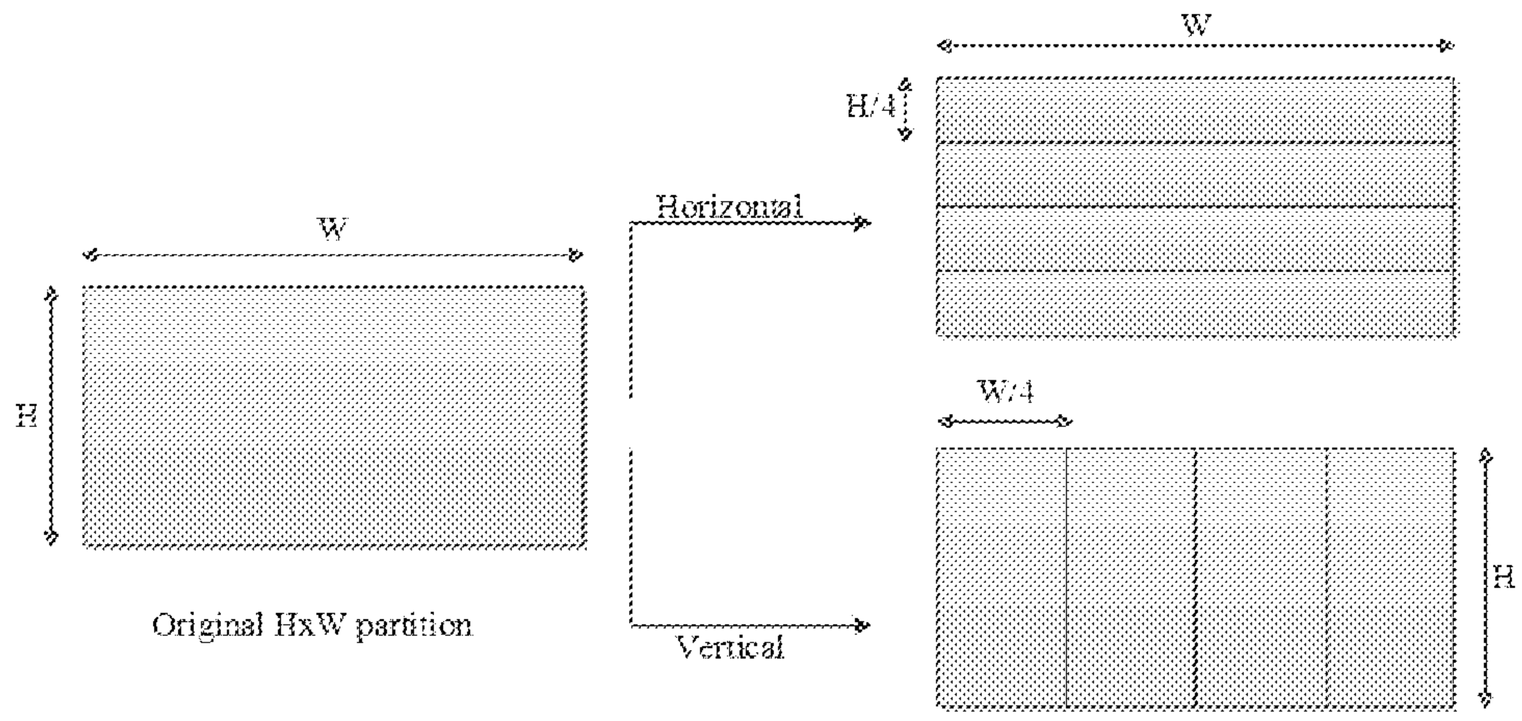

Fig. 8: Example of division of all blocks except 4×8, 8×4 and 4×4

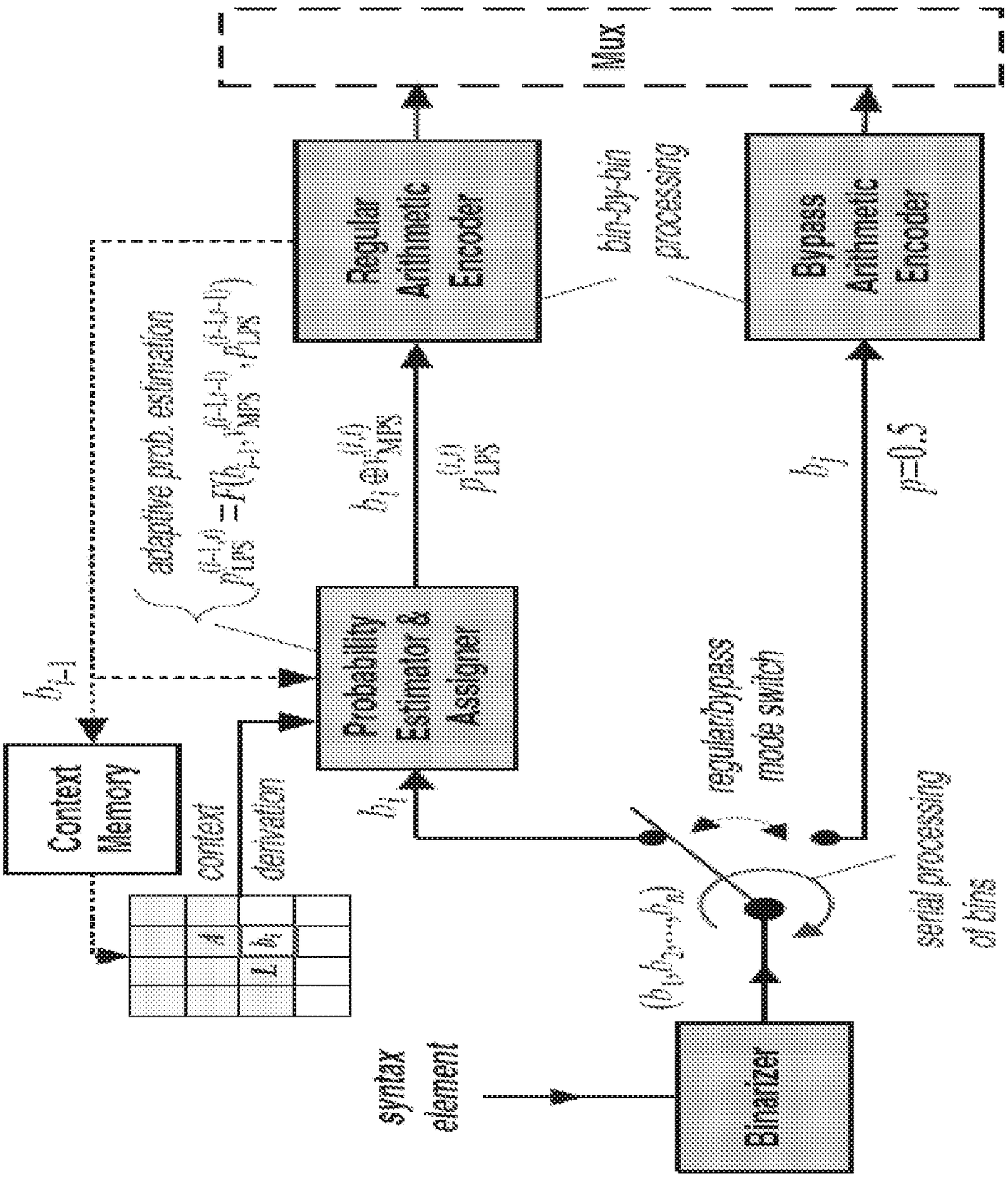
Mux
Regular Arithmetic Encoder
bin-by-bin processing
Bypass Arithmetic Encoder
adaptive prob. estimation
Probability Estimator & Assigner
Context Memory
context derivation
regular/bypass mode switch
serial processing of bins
Binarizer
syntax element

Fig. 9

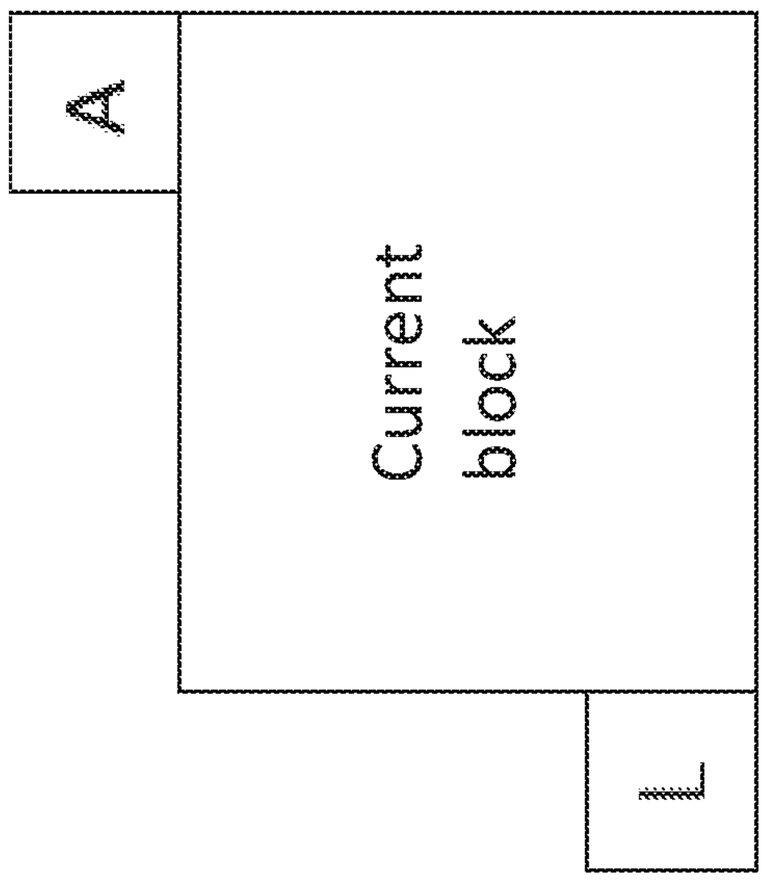

Fig. 10

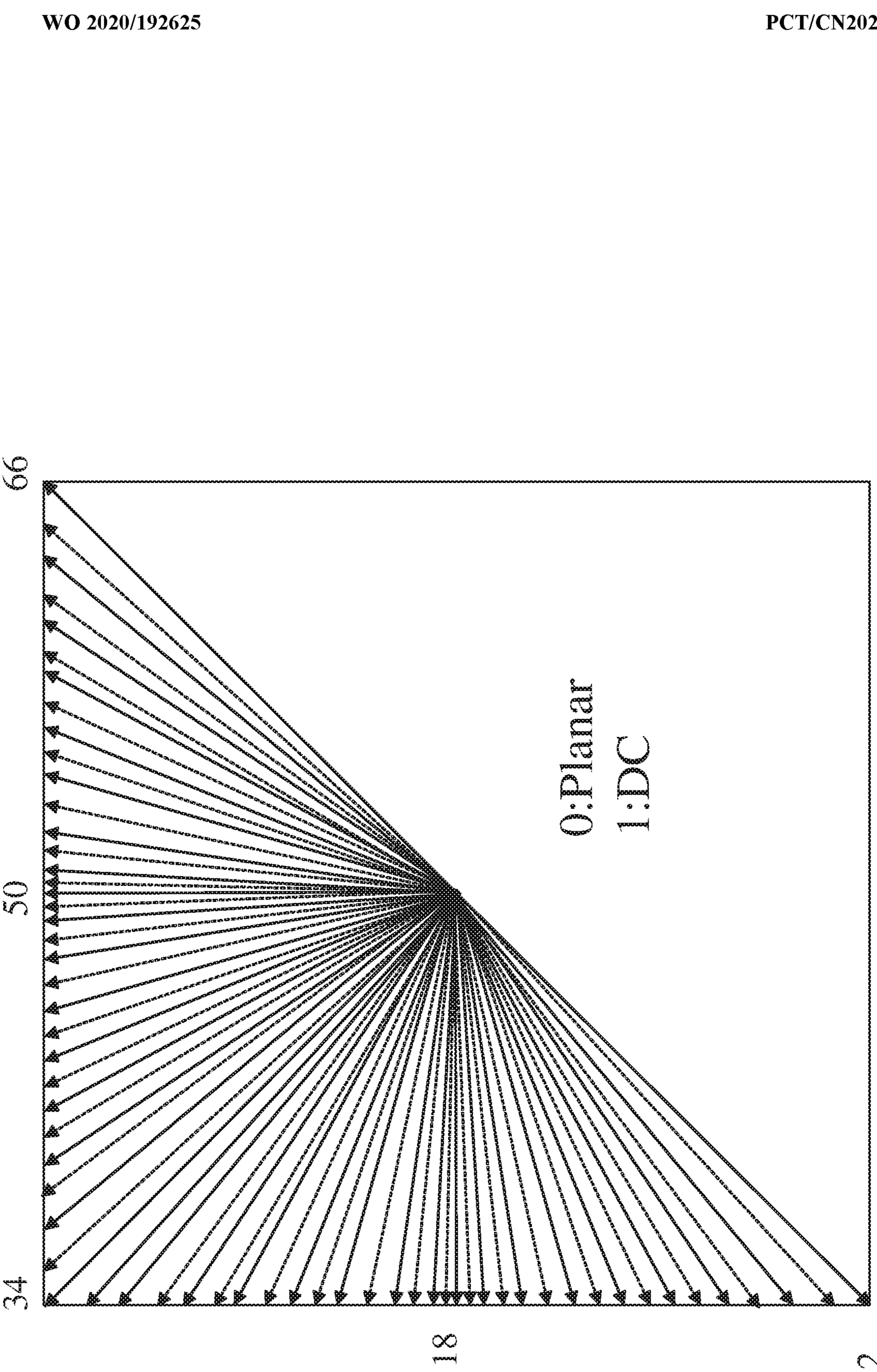

Fig. 11

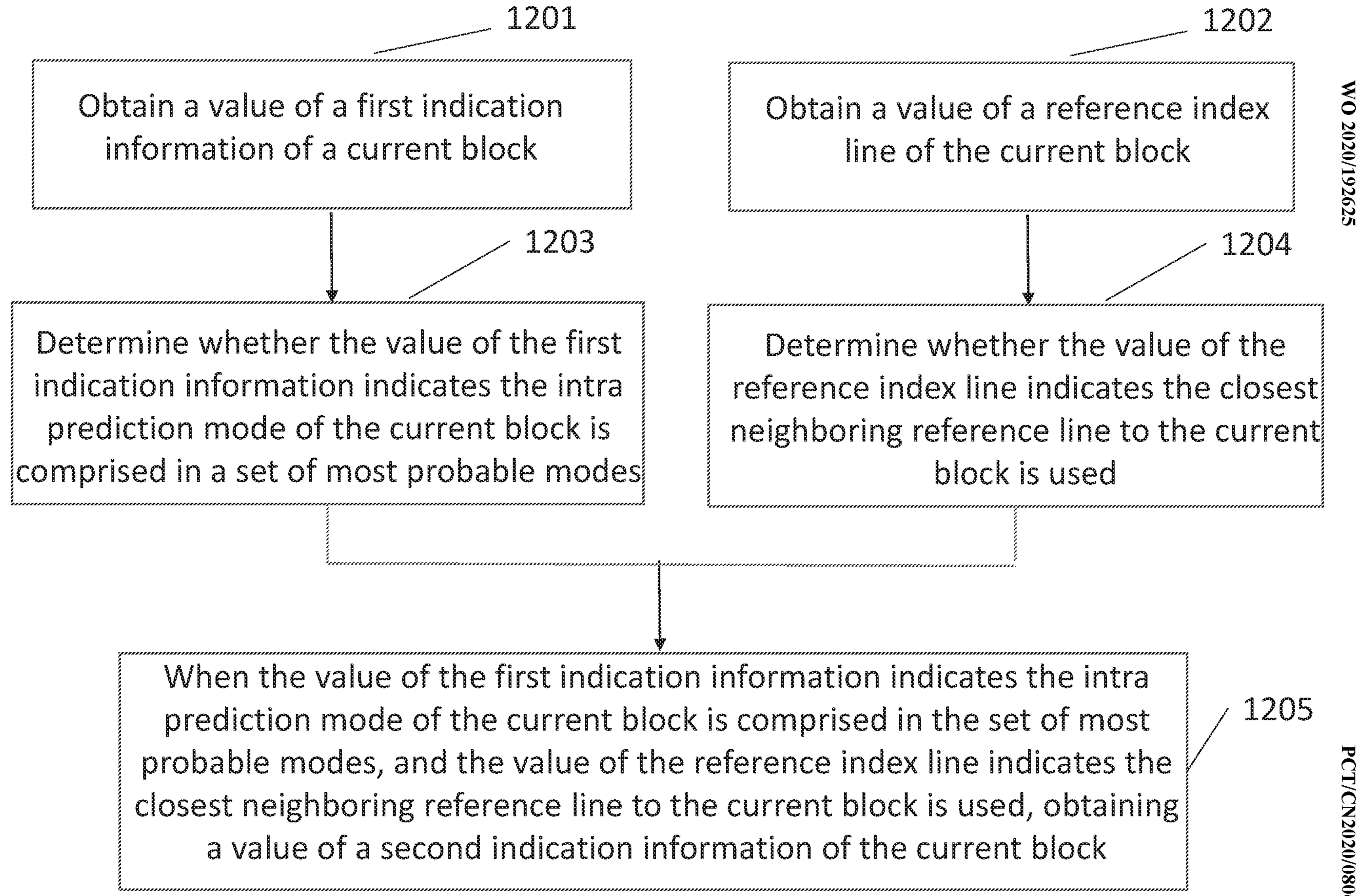
1201
Obtain a value of a first indication information of a current block
1202
Obtain a value of a reference index line of the current block
1203
Determine whether the value of the first indication information indicates the intra prediction mode of the current block is comprised in a set of most probable modes
1204
Determine whether the value of the reference index line indicates the closest neighboring reference line to the current block is used
When the value of the first indication information indicates the intra prediction mode of the current block is comprised in the set of most probable modes, and the value of the reference index line indicates the closest neighboring reference line to the current block is used, obtaining a value of a second indication information of the current block
1205

Fig. 12A

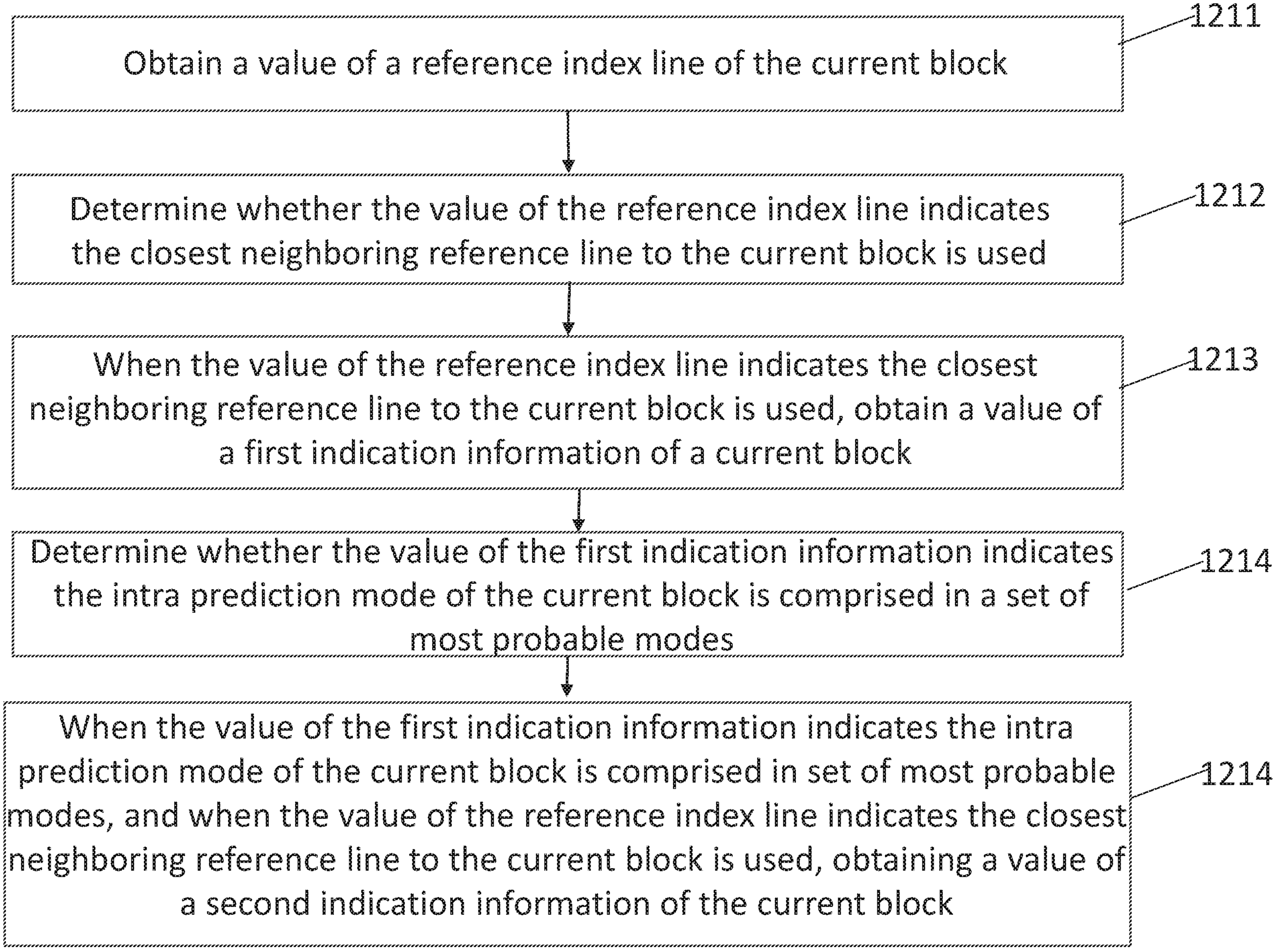
Obtain a value of a reference index line of the current block
1211
Determine whether the value of the reference index line indicates the closest neighboring reference line to the current block is used
1212
When the value of the reference index line indicates the closest neighboring reference line to the current block is used, obtain a value of a first indication information of a current block
1213
Determine whether the value of the first indication information indicates the intra prediction mode of the current block is comprised in a set of most probable modes
1214
When the value of the first indication information indicates the intra prediction mode of the current block is comprised in set of most probable modes, and when the value of the reference index line indicates the closest neighboring reference line to the current block is used, obtaining a value of a second indication information of the current block
1214

Fig. 12B

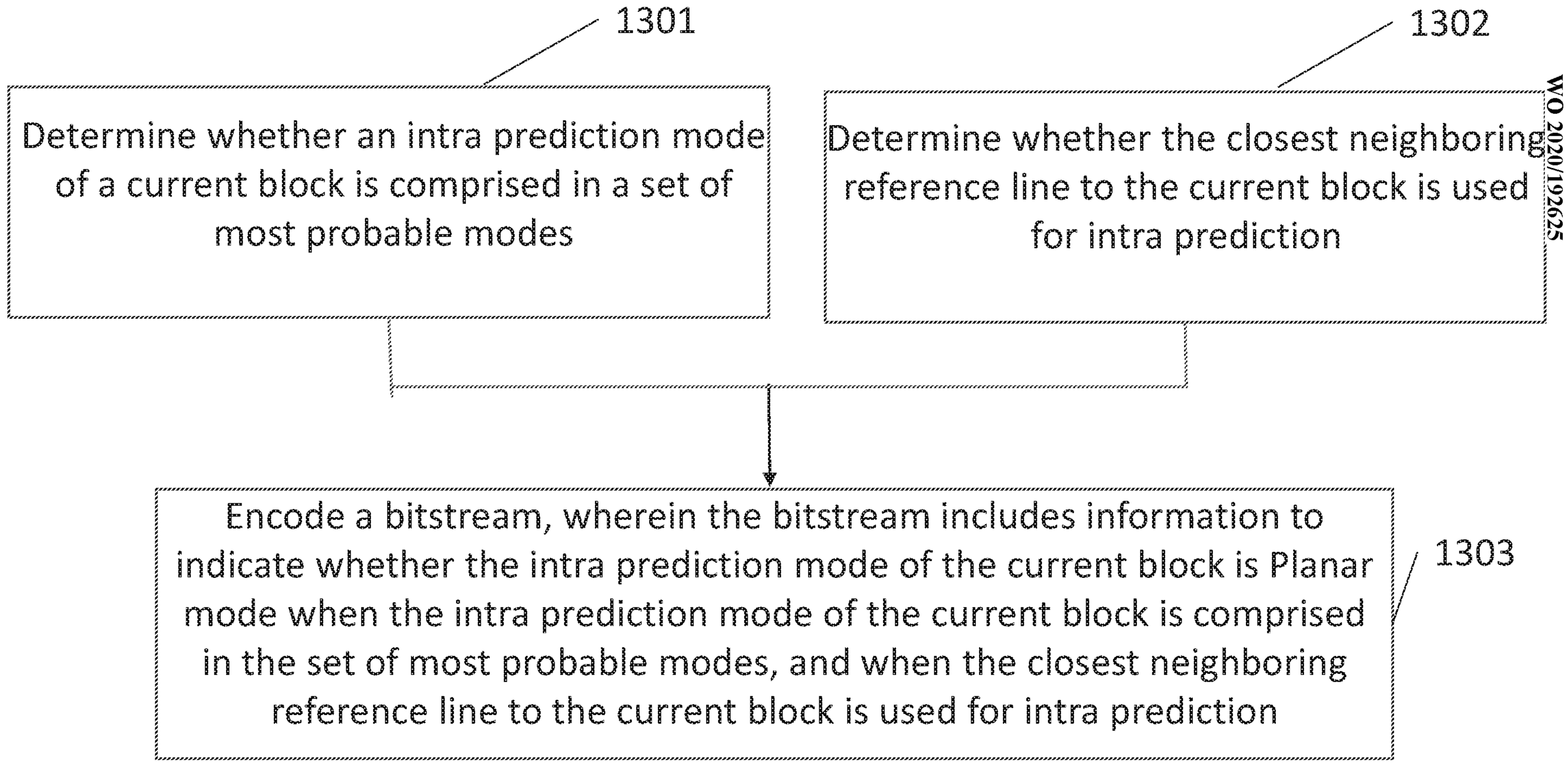
1301
Determine whether an intra prediction mode of a current block is comprised in a set of most probable modes
1302
Determine whether the closest neighboring reference line to the current block is used for intra prediction
Encode a bitstream, wherein the bitstream includes information to indicate whether the intra prediction mode of the current block is Planar mode when the intra prediction mode of the current block is comprised in the set of most probable modes, and when the closest neighboring reference line to the current block is used for intra prediction
1303

Fig. 13

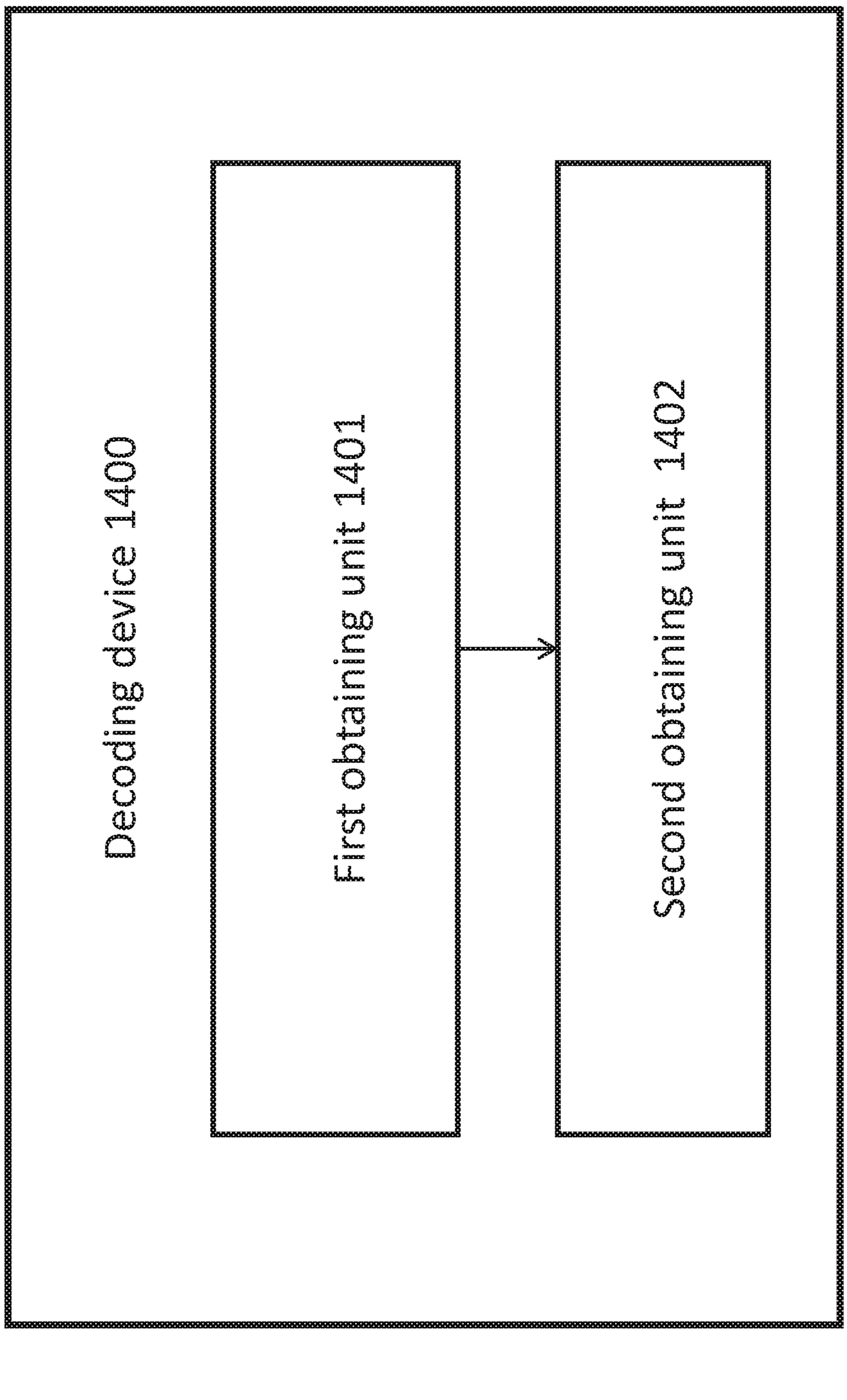
Decoding device 1400
First obtaining unit 1401
Second obtaining unit 1402

Fig. 14

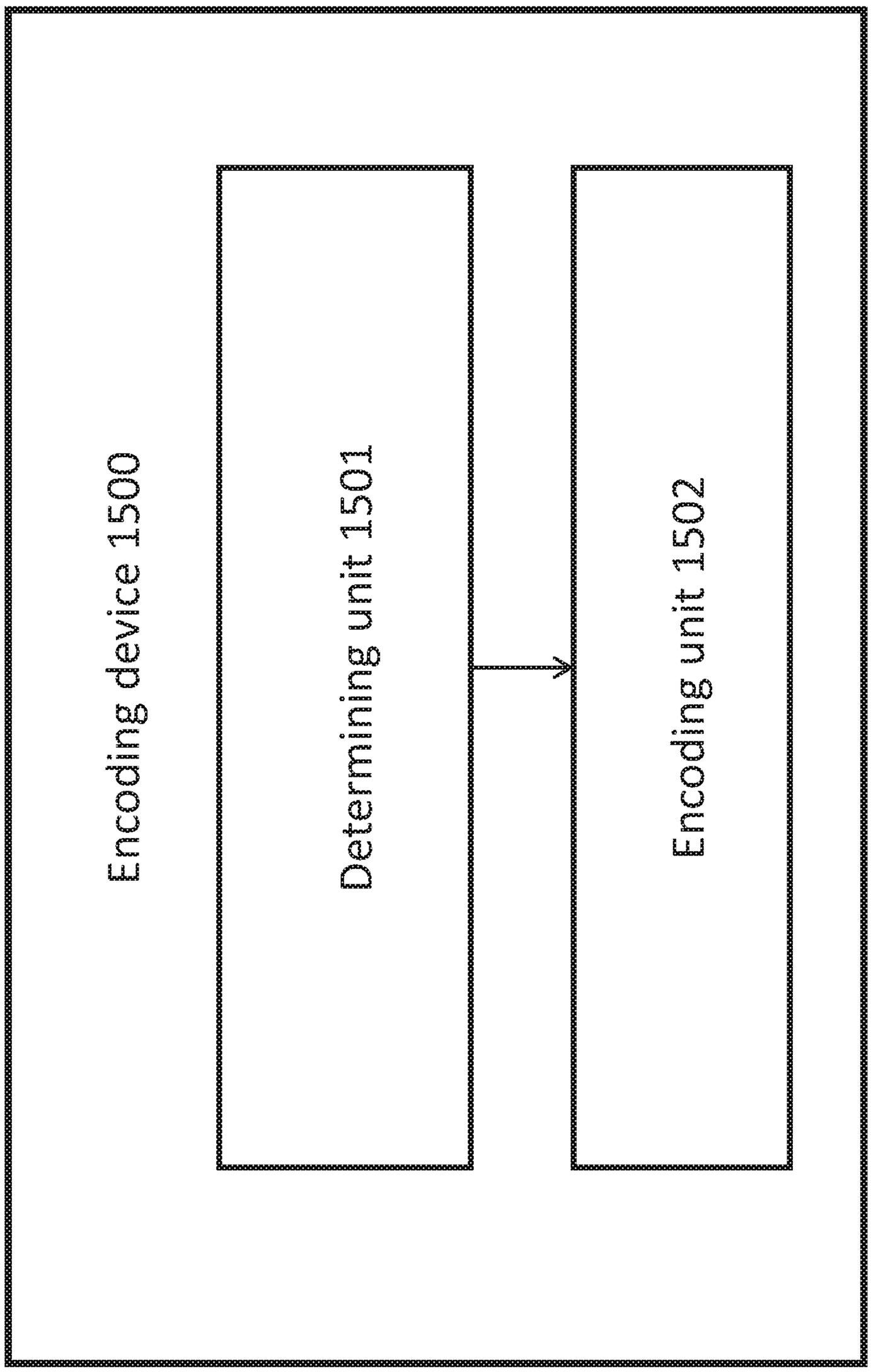
Encoding device 1500
Determining unit 1501
Encoding unit 1502

Fig. 15

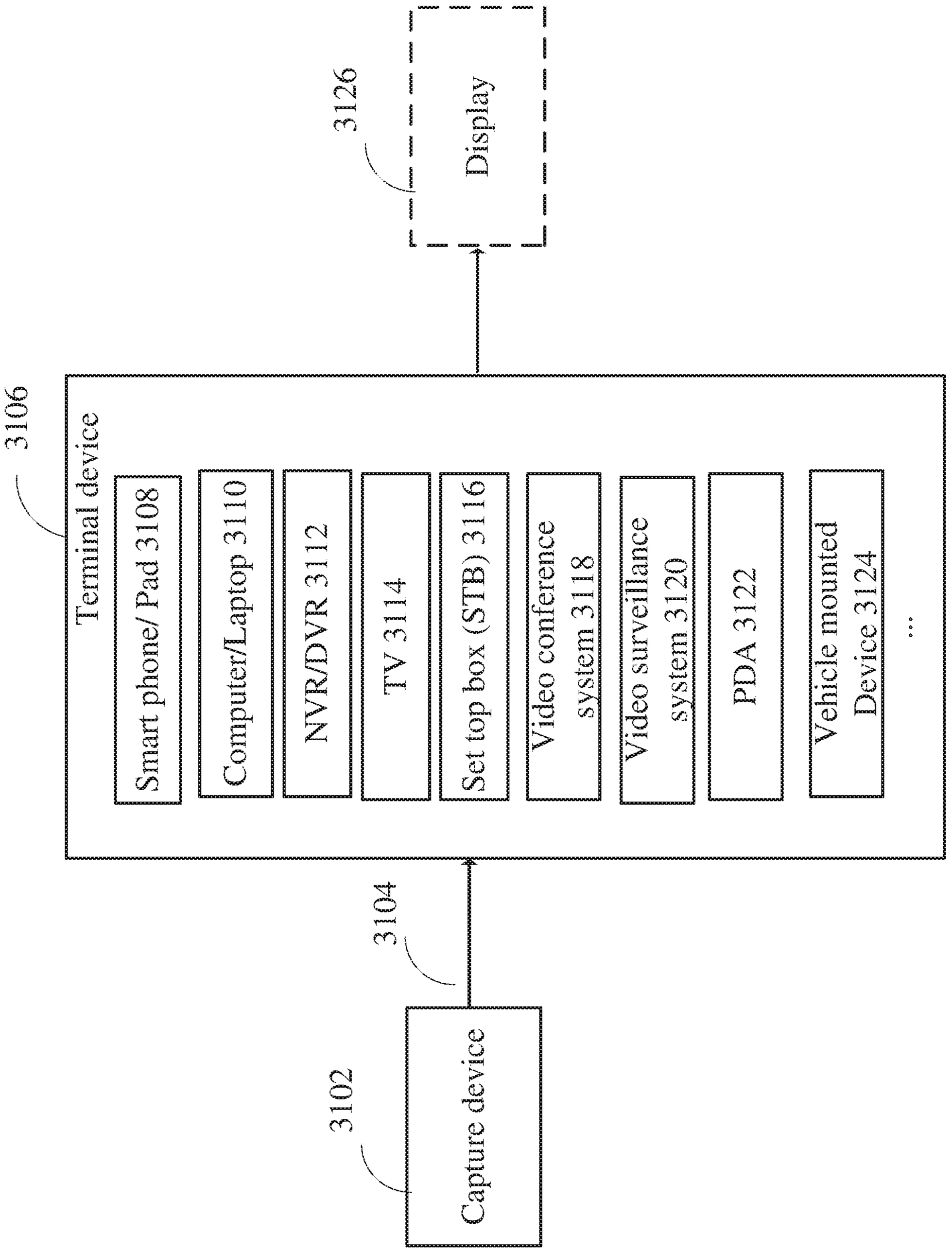
3126
Display
3106
Terminal device
Smart phone/ Pad 3108
Computer/Laptop 3110
NVR/DVR 3112
TV 3114
Set top box (STB) 3116
Video conference system 3118
Video surveillance system 3120
PDA 3122
Vehicle mounted Device 3124
...
3104
3102
Capture device

Fig. 16

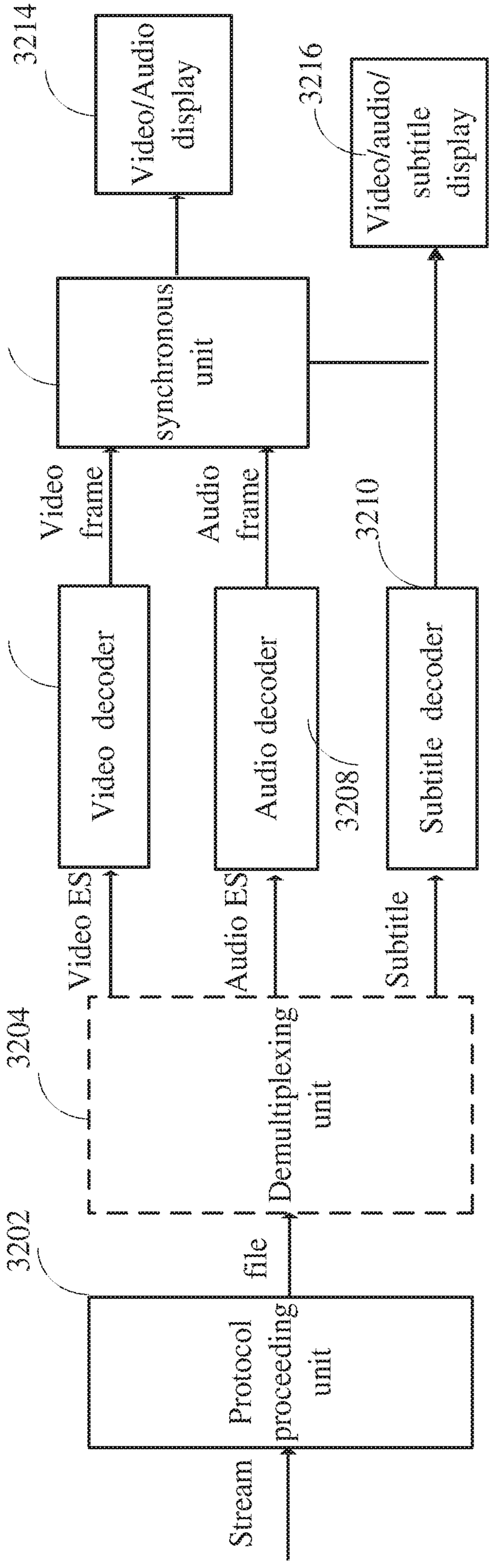
3214
Video/Audio display
3216
Video/audio/ subtitle display
3212
synchronous unit
Video frame
Audio frame
3206
Video decoder
3210
3208
Audio decoder
Subtitle decoder
Video ES
Audio ES
Subtitle
3204
Demultiplexing unit
3202
Protocol proceeding unit
Stream file

Fig. 17