Fig. 1

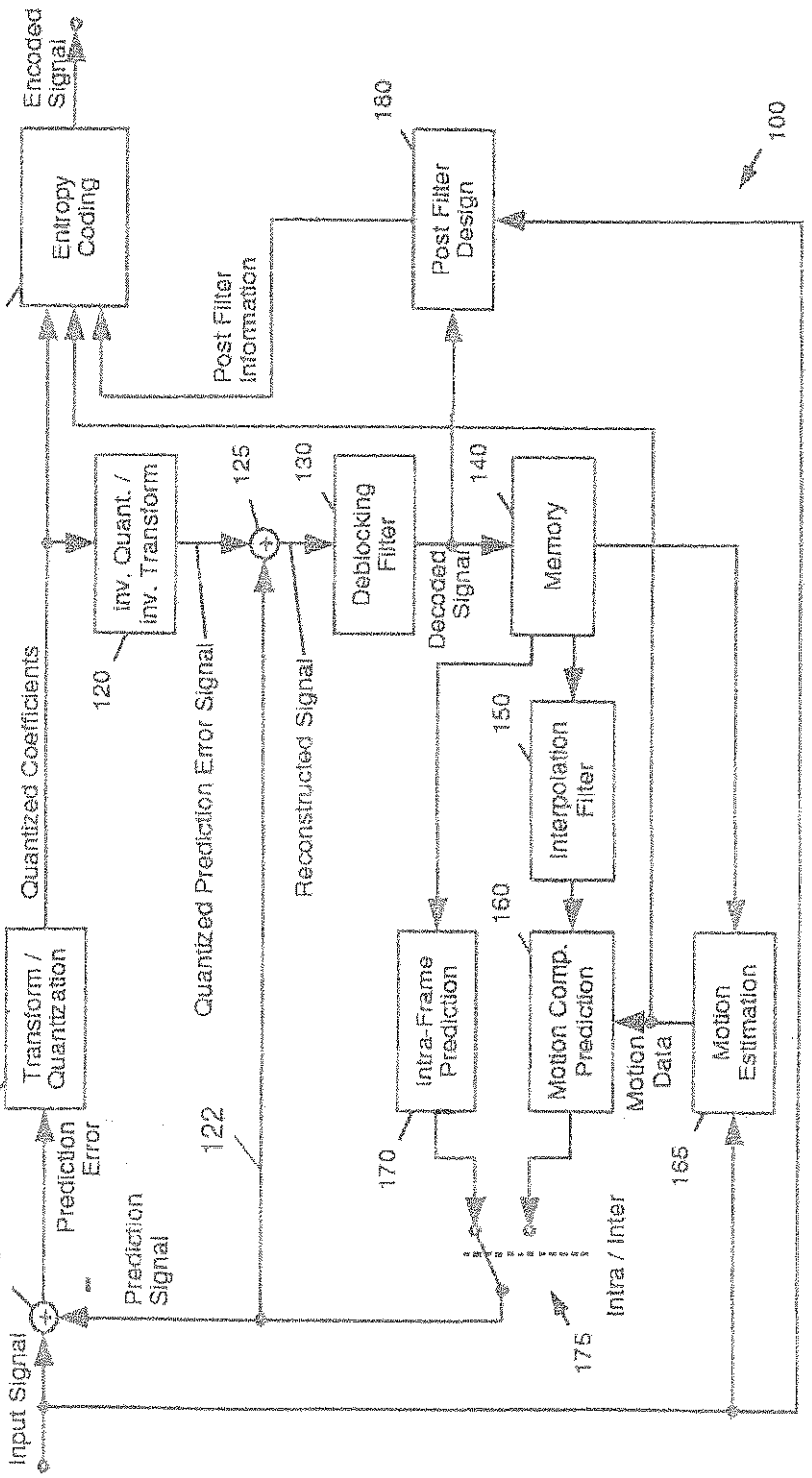

Input Signal
105
Prediction Error
Prediction Signal
110
Transform / Quantization
Quantized Coefficients
120
Inv. Quant. / Inv. Transform
122
Quantized Prediction Error Signal
125
Reconstructed Signal
130
Deblocking Filter
Decoded Signal
140
Memory
150
Interpolation Filter
160
Motion Comp. Prediction
Motion Data
165
Motion Estimation
170
Intra-Frame Prediction
175
Intra / Inter
180
Post Filter Design
Post Filter Information
190
Entropy Coding
Encoded Signal
100

Fig. 2

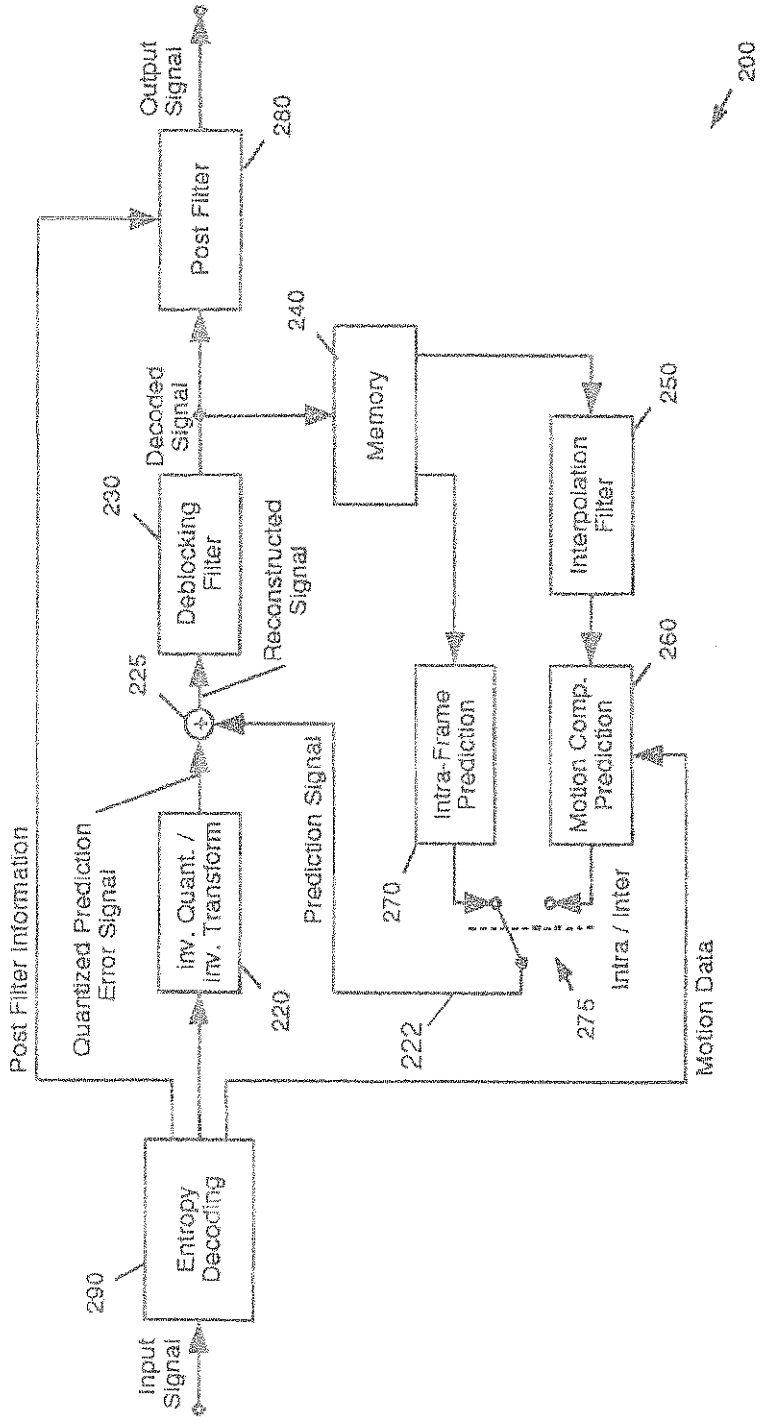
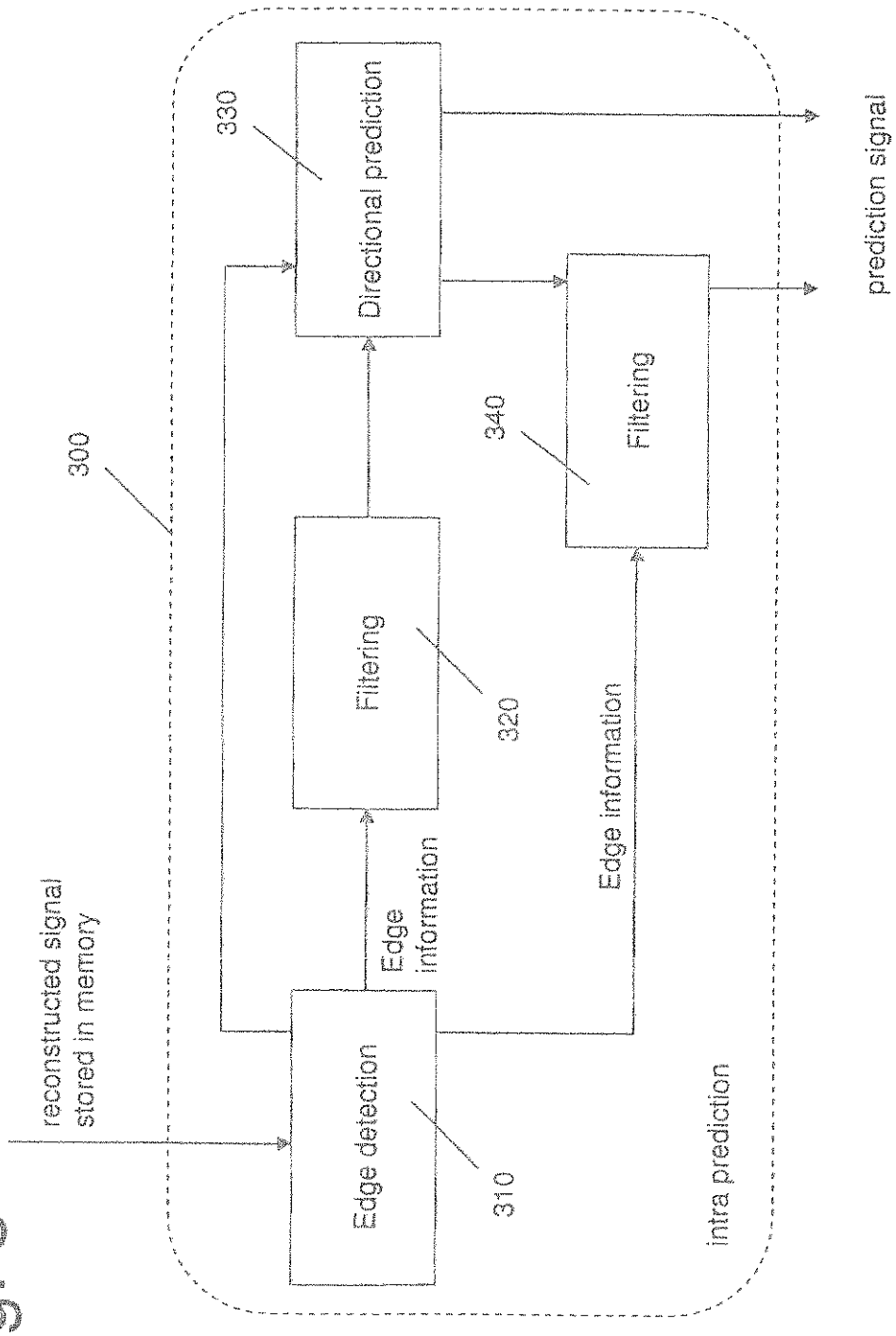

200
Input Signal
290
Entropy Decoding
Post Filter Information
Quantized Prediction Error Signal
inv. Quant. / inv. Transform
220
225
Prediction Signal
222
Reconstructed Signal
230
Deblocking Filter
Decoded Signal
Output Signal
280
Post Filter
240
Memory
270
Intra-Frame Prediction
275
Intra / Inter
Motion Data
Motion Comp. Prediction
260
Interpolation Filter
250

Fig. 3


reconstructed signal
stored in memory
300
Edge detection
310
Edge information
Filtering
320
Directional prediction
330
Edge information
Filtering
340
intra prediction
prediction signal

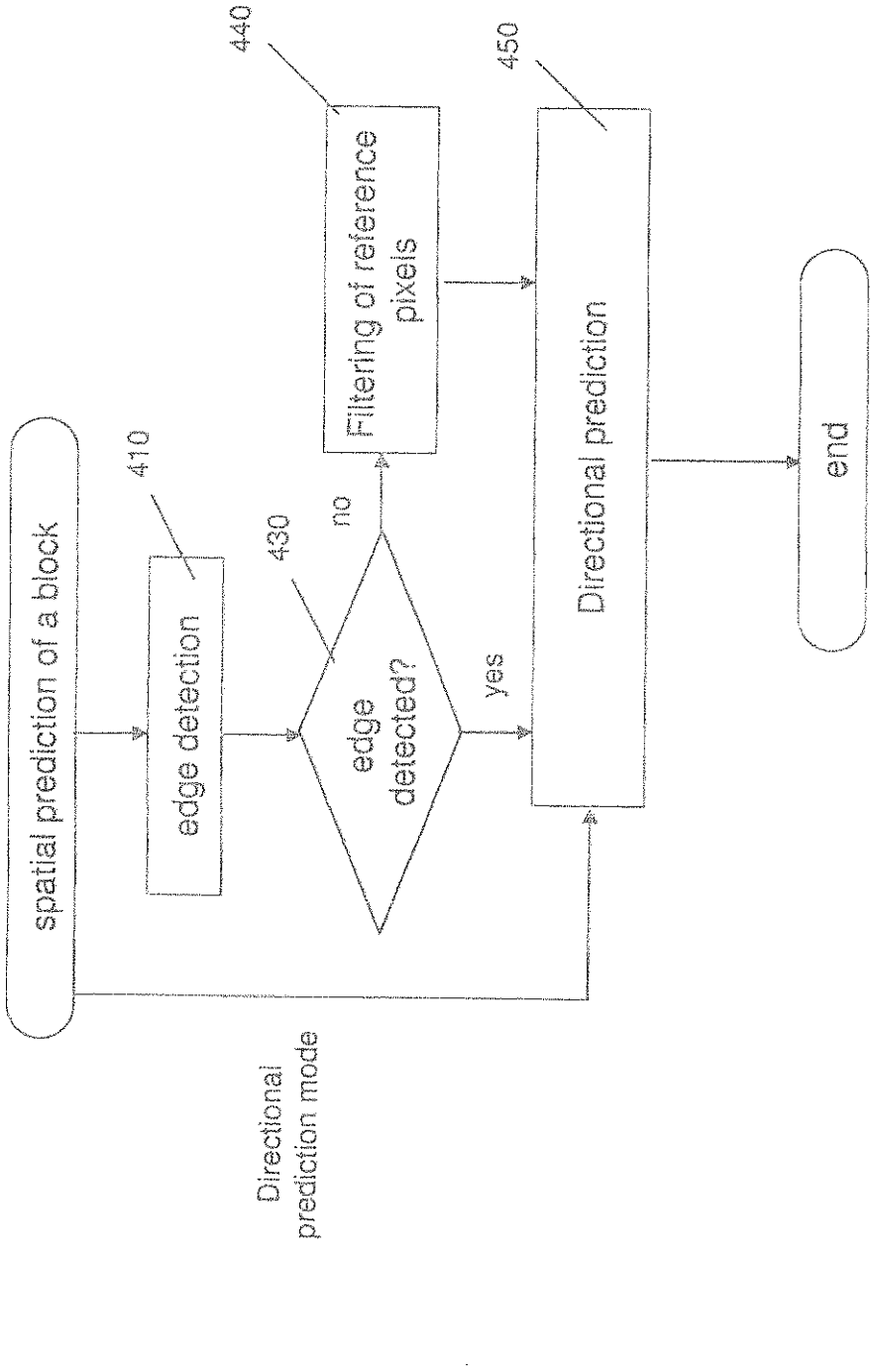

spatial prediction of a block
410
edge detection
430
edge detected?
no
yes
440
Filtering of reference pixels
450
Directional prediction
end
Directional prediction mode

Fig. 4

Fig. 5

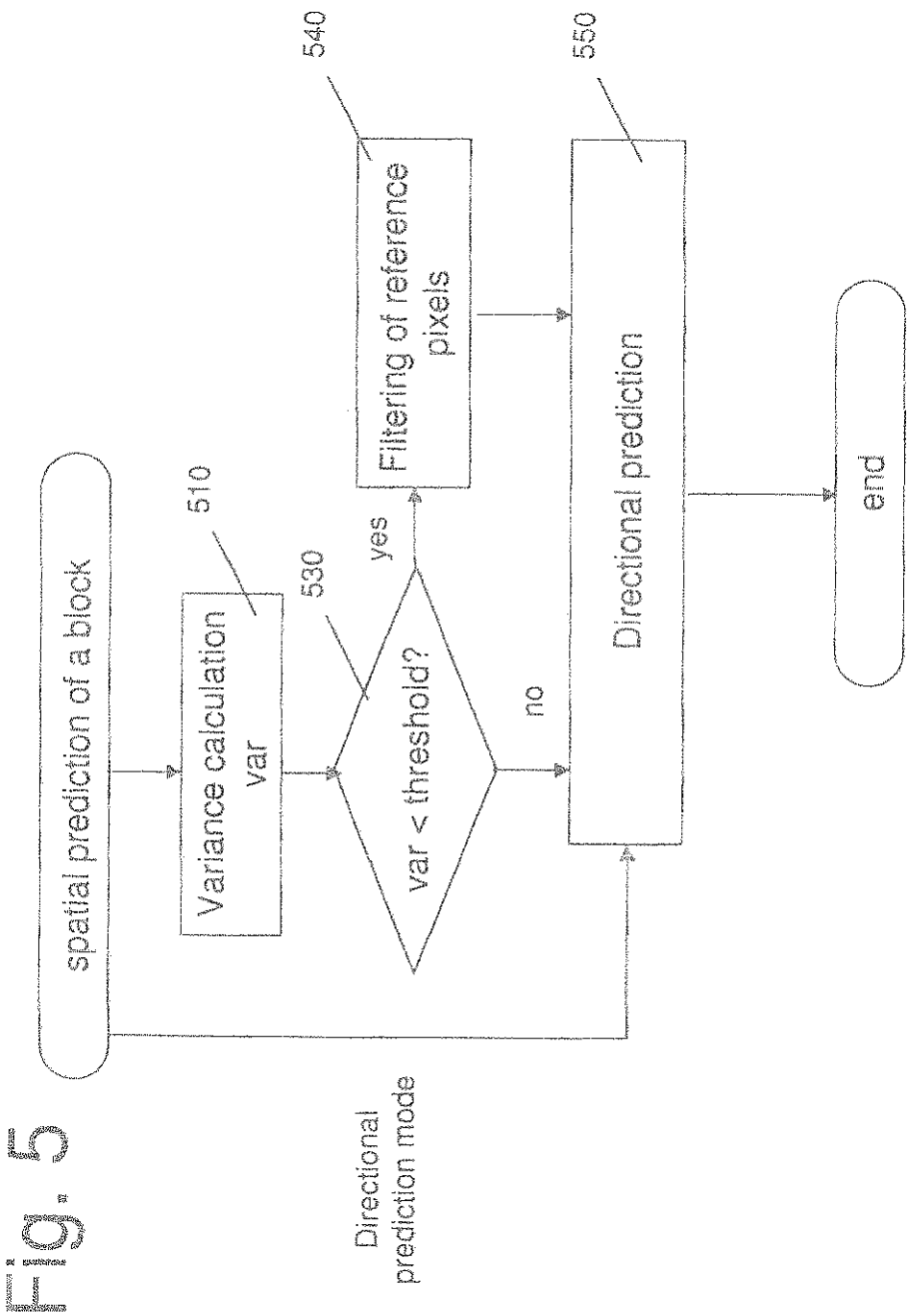
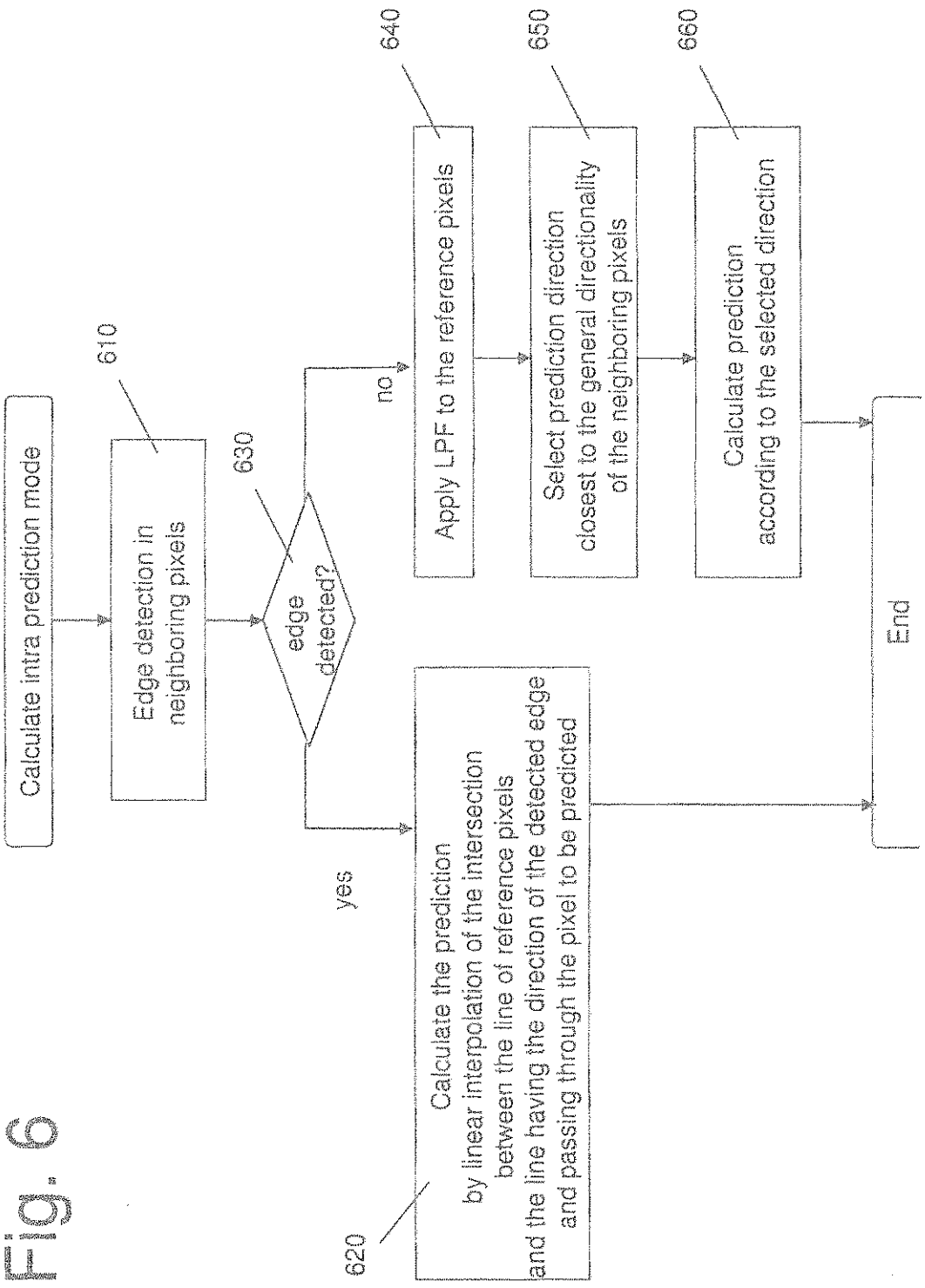

spatial prediction of a block
510
Variance calculation
var
530
var < threshold?
yes
no
540
Filtering of reference pixels
550
Directional prediction
end
Directional prediction mode

Fig. 6


Calculate intra prediction mode
610
Edge detection in neighboring pixels
630
edge detected?
no
640
Apply LPF to the reference pixels
650
Select prediction direction closest to the general directionality of the neighboring pixels
660
Calculate prediction according to the selected direction
yes
620
Calculate the prediction by linear interpolation of the intersection between the line of reference pixels and the line having the direction of the detected edge and passing through the pixel to be predicted
End

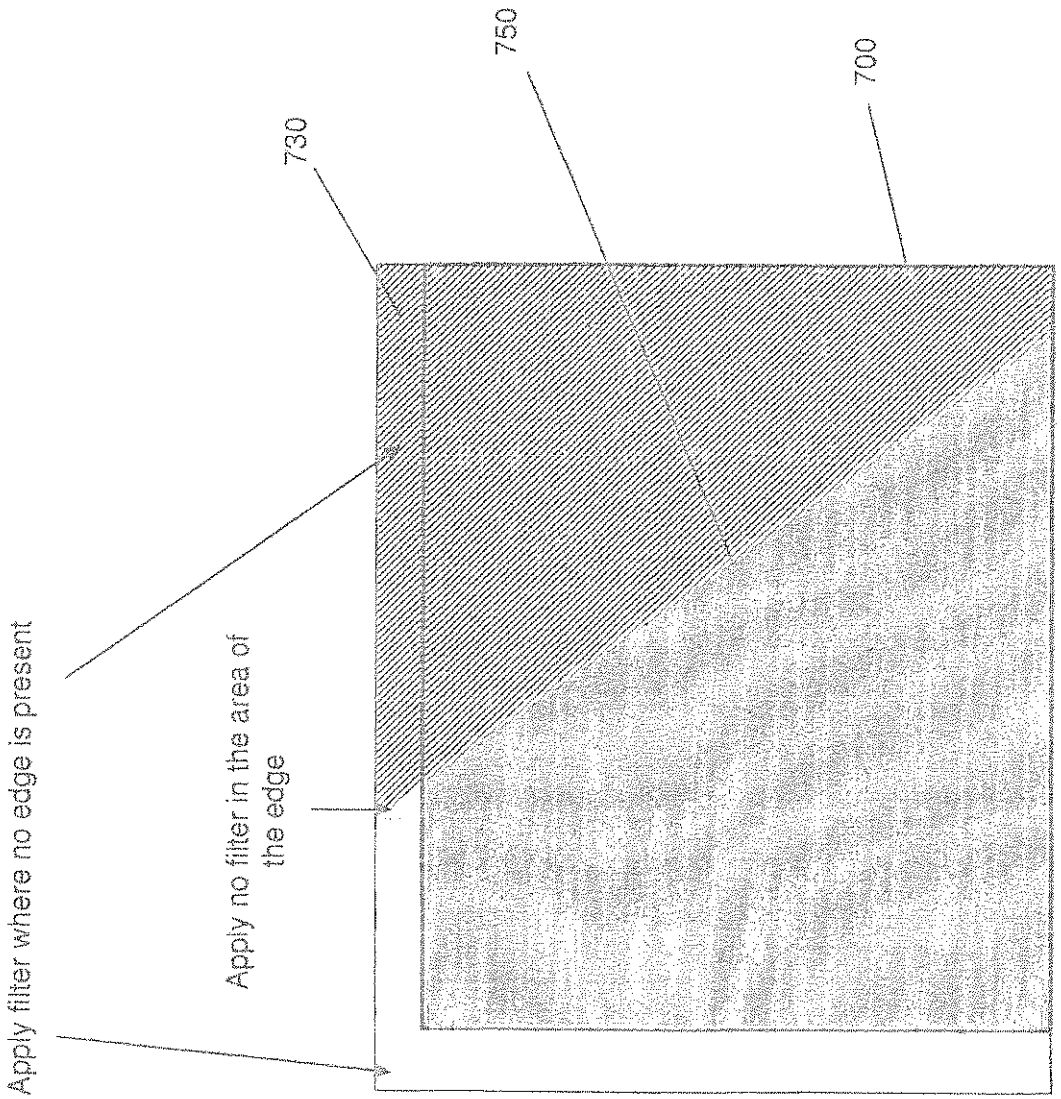

Apply filter where no edge is present
Apply no filter in the area of the edge
730
750
700

Fig. 7

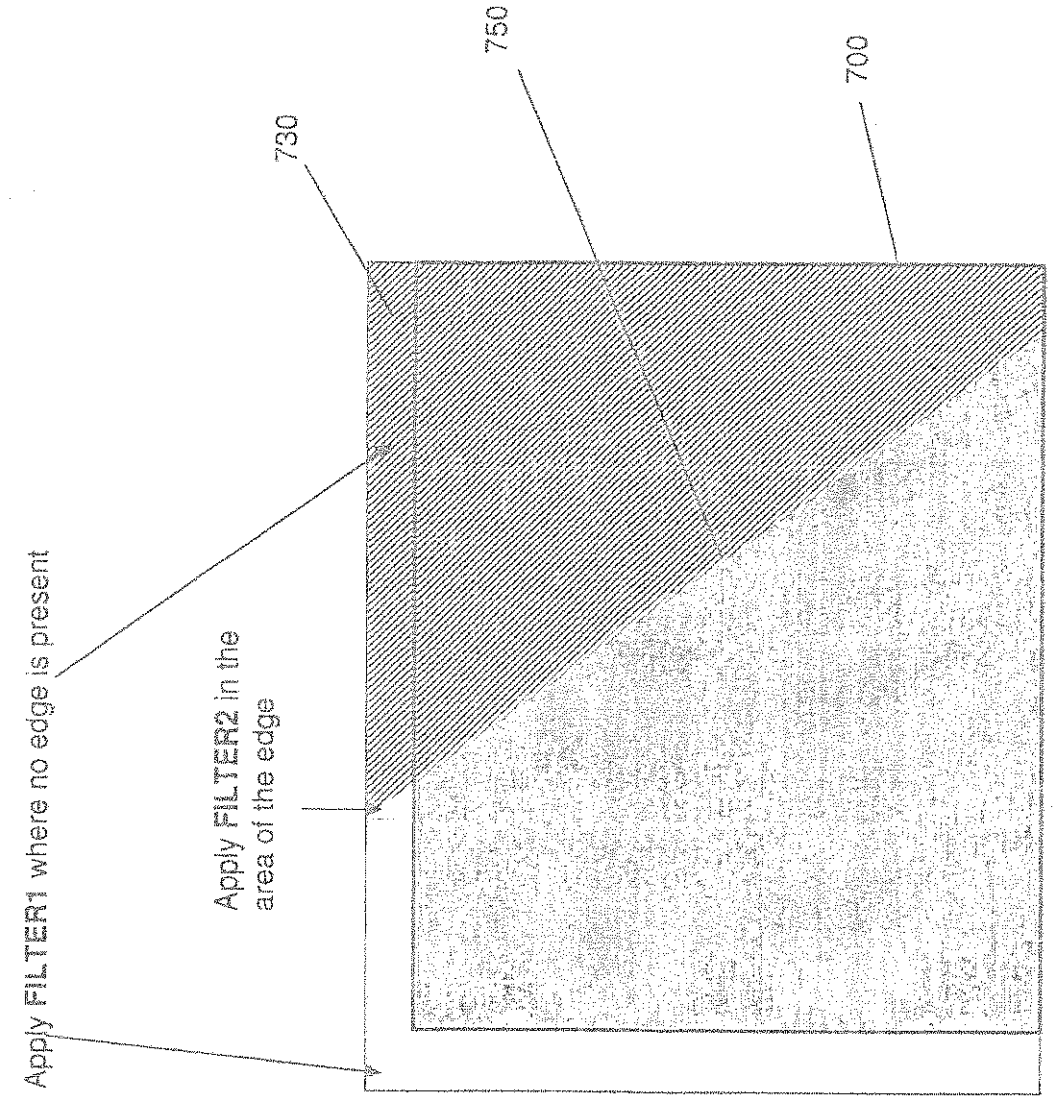

Apply FILTER1 where no edge is present
Apply FILTER2 in the area of the edge
730
750
700

FIG. 8

Fig. 9

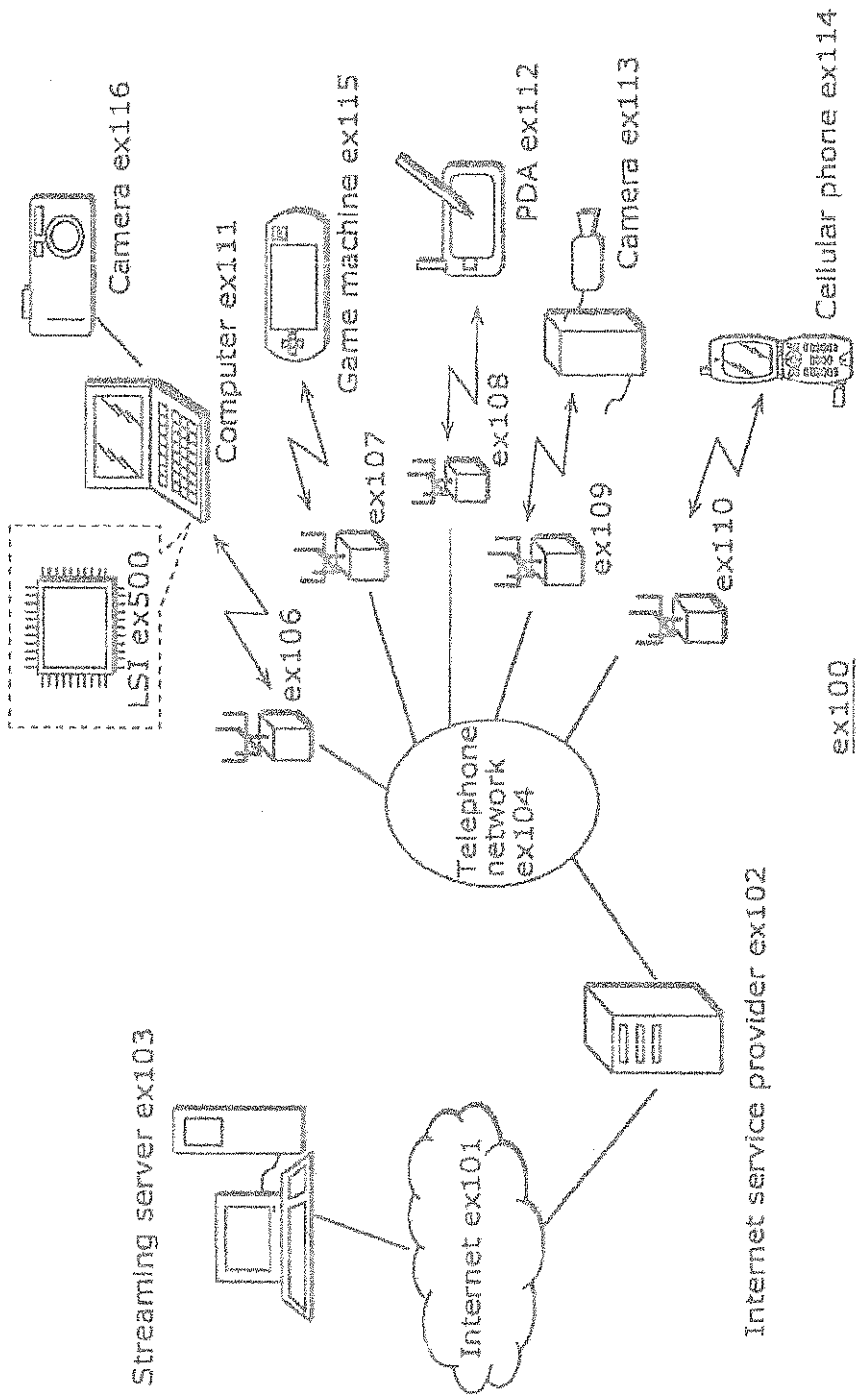

Camera ex116
Computer ex111
Game machine ex115
PDA ex112
Camera ex113
Cellular phone ex114
LSI ex500
ex106
ex107
ex108
ex109
ex110
Telephone network ex104
Streaming server ex103
Internet ex101
Internet service provider ex102
ex100

Fig. 10

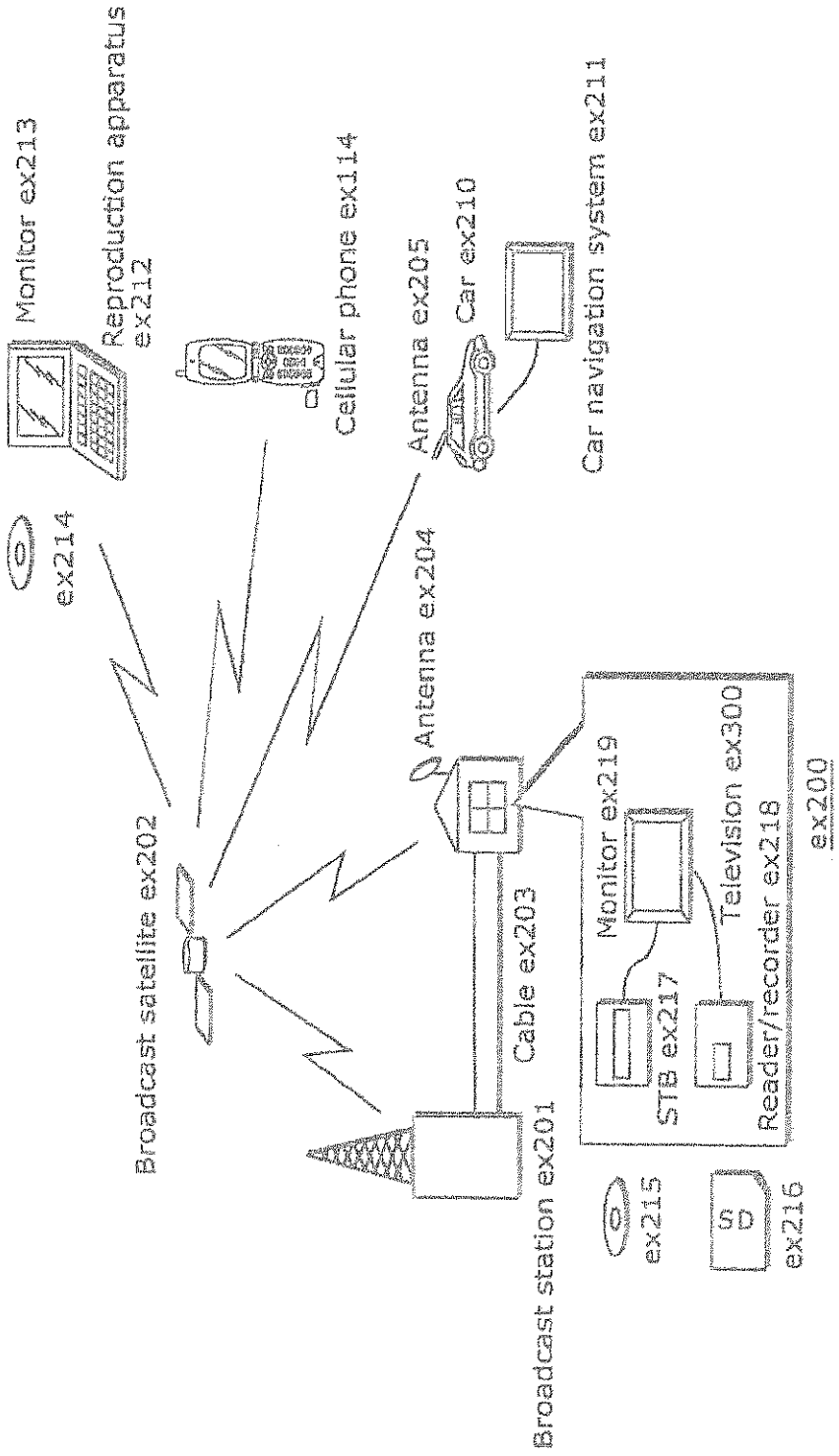

Monitor ex213
Reproduction apparatus ex212
Cellular phone ex114
Antenna ex205
Car ex210
Car navigation system ex211
ex214
Antenna ex204
Broadcast satellite ex202
Cable ex203
Monitor ex219
Television ex300
STB ex217
Reader/recorder ex218
ex200
Broadcast station ex201
ex215
SD
ex216

Fig. 11

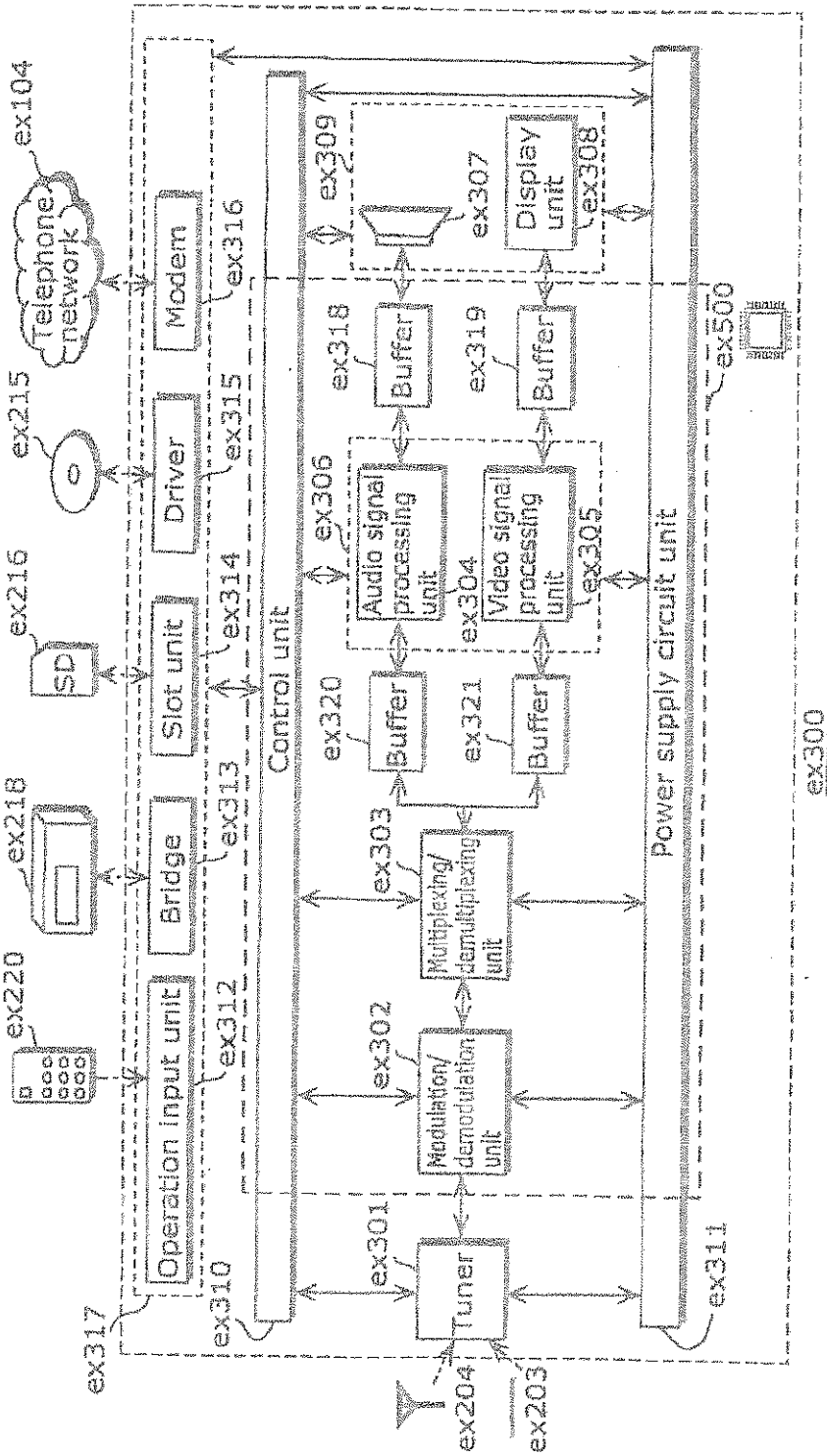
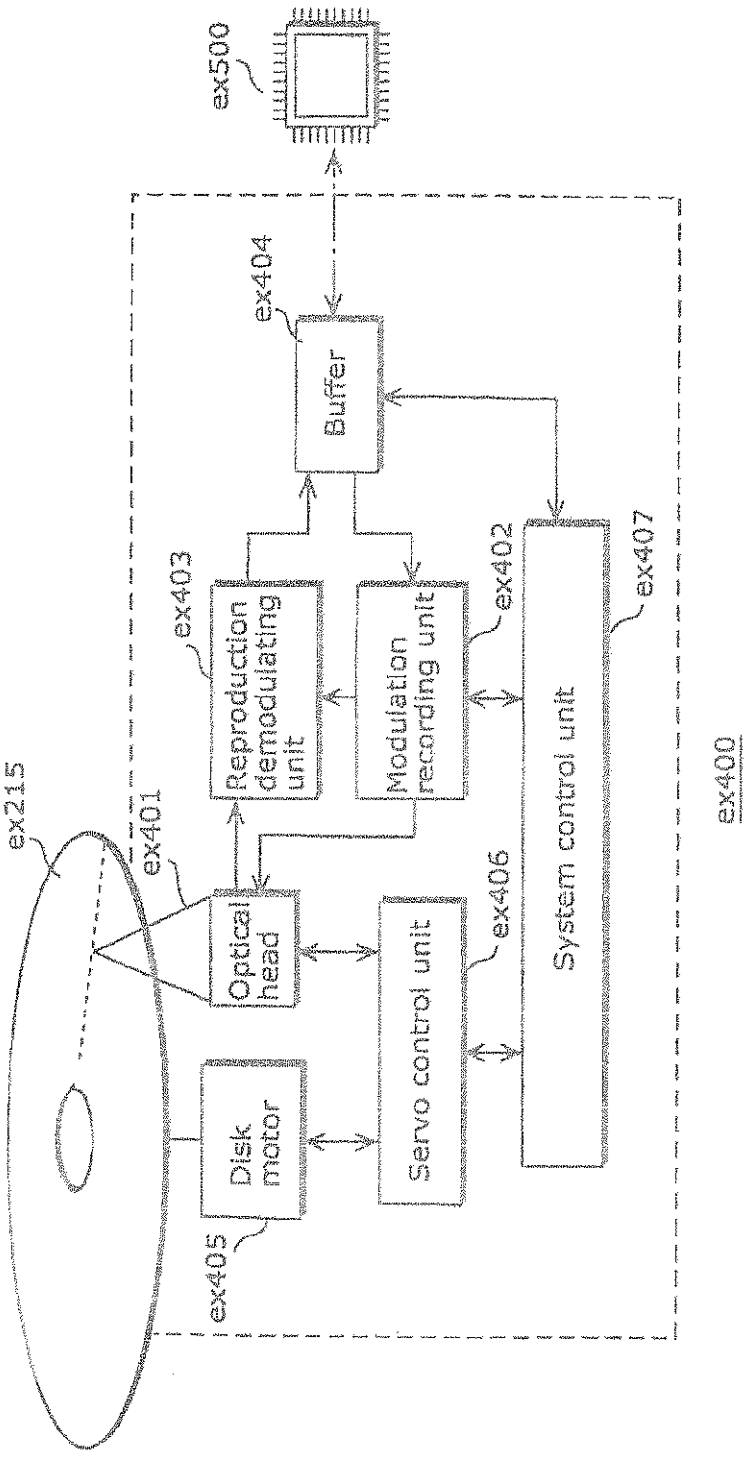

ex104
Telephone network
ex215
ex216
SD
ex218
ex220
ex317
ex310
ex312
ex313
ex314
ex315
ex316
Operation input unit
Bridge
Slot unit
Driver
Modem
Control unit
ex306
ex318
ex319
ex307
ex309
Display unit
ex308
Audio signal processing unit
ex304
Video signal processing unit
ex305
Buffer
Buffer
Buffer
Buffer
ex320
ex321
ex303
Multiplexing/ demultiplexing unit
ex302
Modulation/ demodulation unit
ex301
Tuner
ex204
ex203
Power supply circuit unit
ex311
ex500
ex300

Fig. 12


ex500
ex404
Buffer
ex403
Reproduction demodulating unit
Modulation recording unit
ex402
ex407
System control unit
ex400
ex215
ex401
Optical head
ex406
Servo control unit
Disk motor
ex405

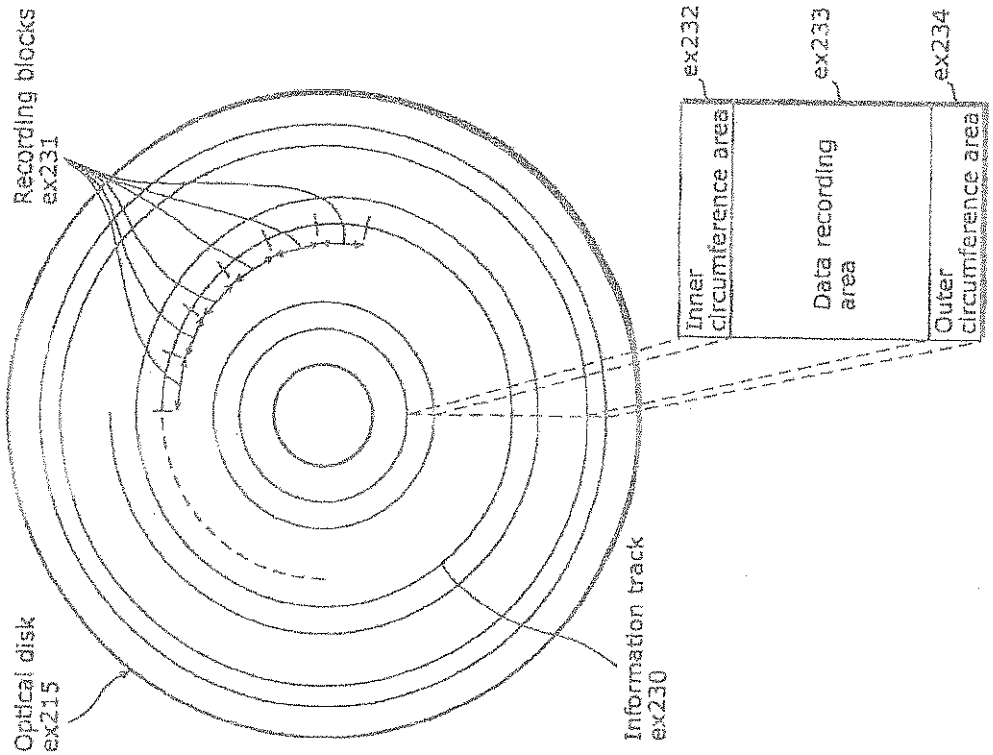

Recording blocks
ex231
Optical disk
ex215
Information track
ex230
ex232
ex233
ex234
Inner
circumference area
Data recording
area
Outer
circumference area

Fig. 13

Fig. 14A

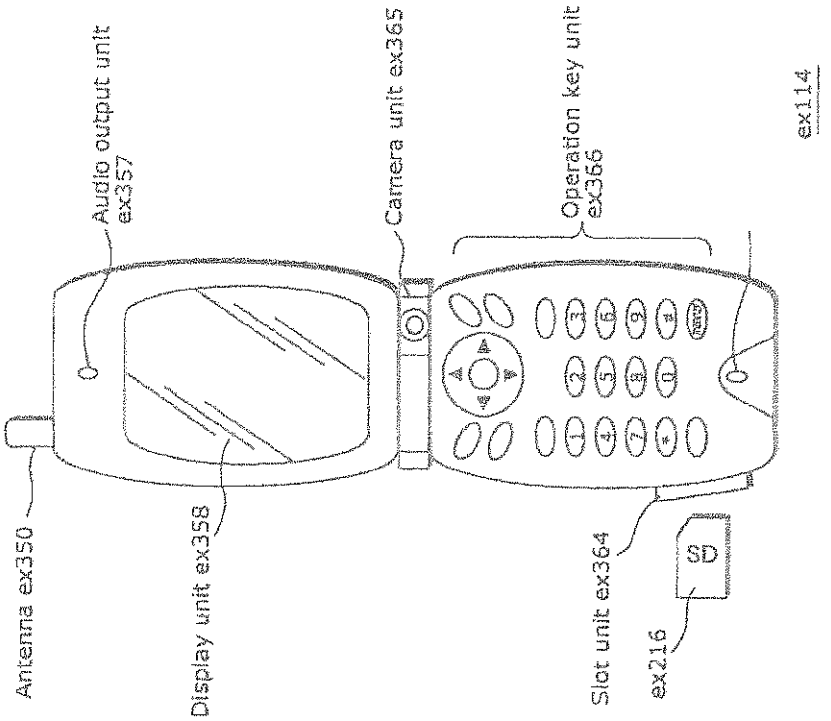

Audio output unit ex357
Carrera unit ex365
Operation key unit ex366
ex114
Antenna ex350
Display unit ex358
Slot unit ex364
SD
ex216

FIG. 4B

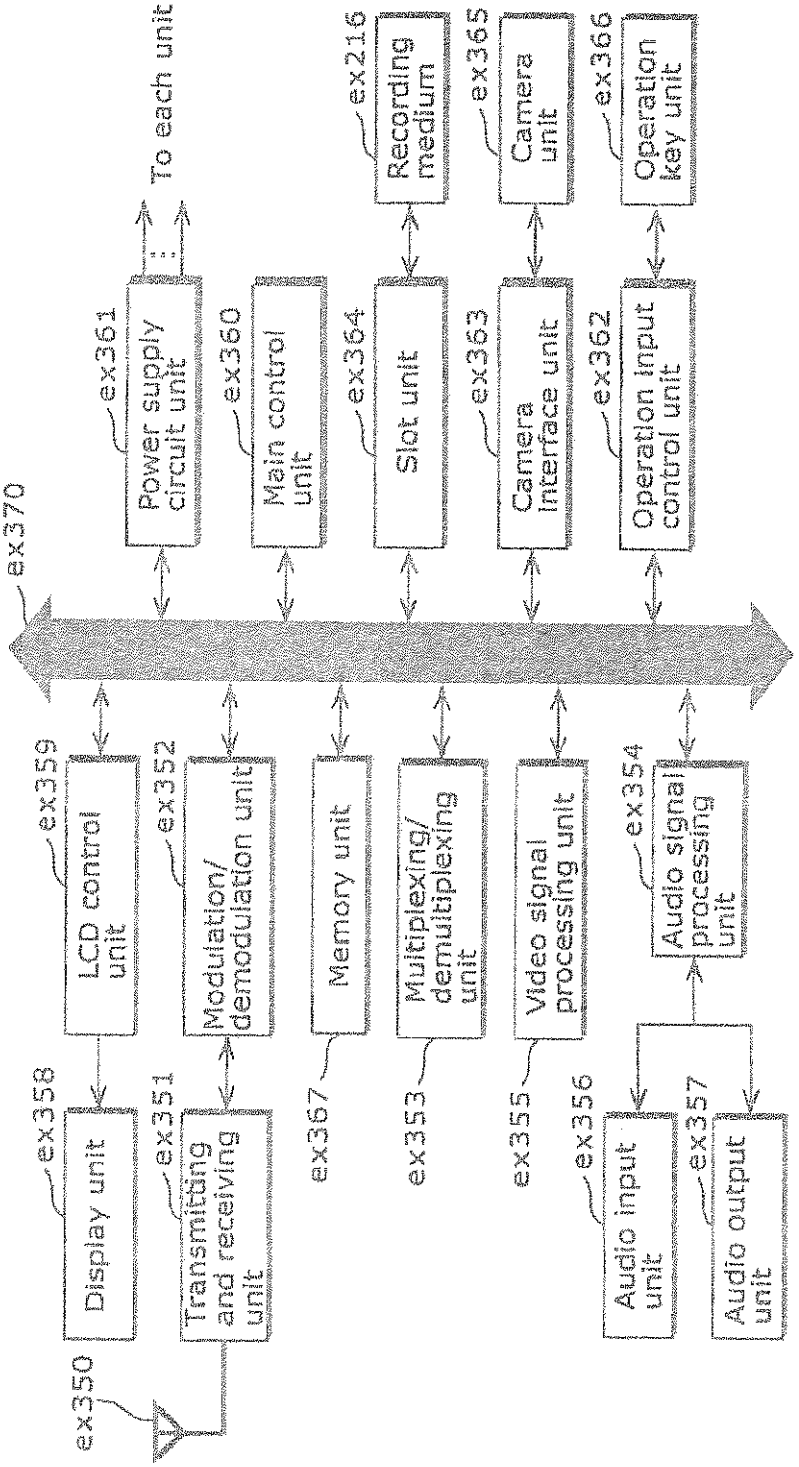

ex370
ex361
Power supply circuit unit
To each unit
ex360
Main control unit
ex364
Slot unit
ex216
Recording medium
ex363
Camera Interface unit
ex365
Camera unit
ex362
Operation input control unit
ex366
Operation key unit
ex359
LCD control unit
ex352
Modulation/ demodulation unit
Memory unit
ex367
Multiplexing/ demultiplexing unit
ex353
Video signal processing unit
ex355
ex354
Audio signal processing unit
ex358
Display unit
ex351
Transmitting and receiving unit
ex350
ex356
Audio input unit
ex357
Audio output unit

Fig. 15

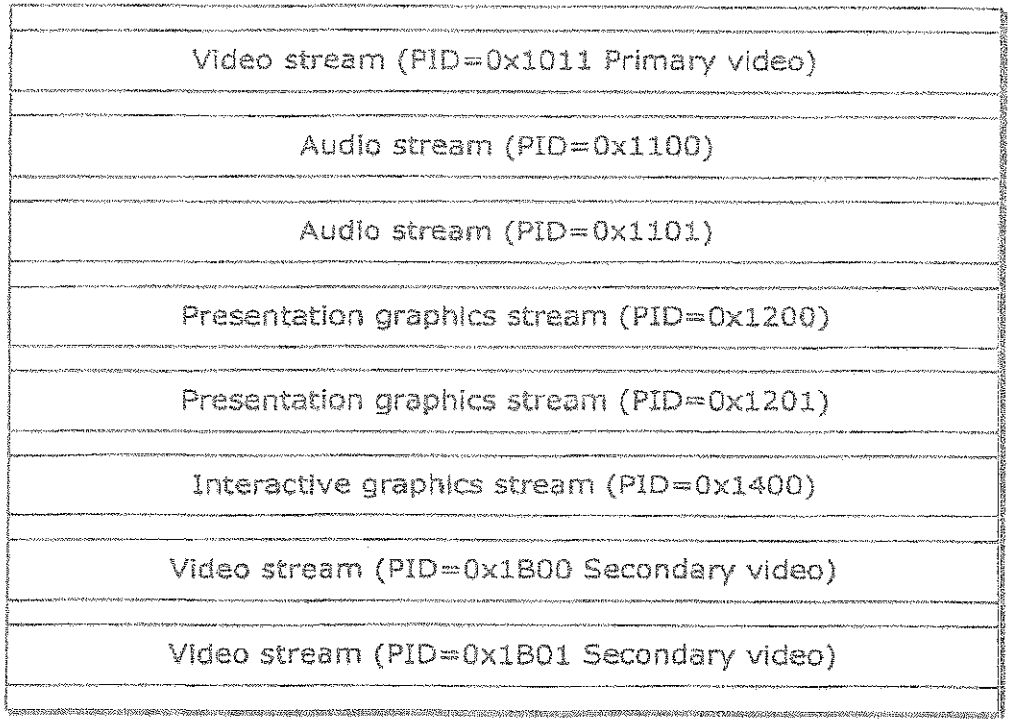

Video stream (PID=0x1011 Primary video)
Audio stream (PID=0x1100)
Audio stream (PID=0x1101)
Presentation graphics stream (PID=0x1200)
Presentation graphics stream (PID=0x1201)
Interactive graphics stream (PID=0x1400)
Video stream (PID=0x1B00 Secondary video)
Video stream (PID=0x1B01 Secondary video)

Fig. 16

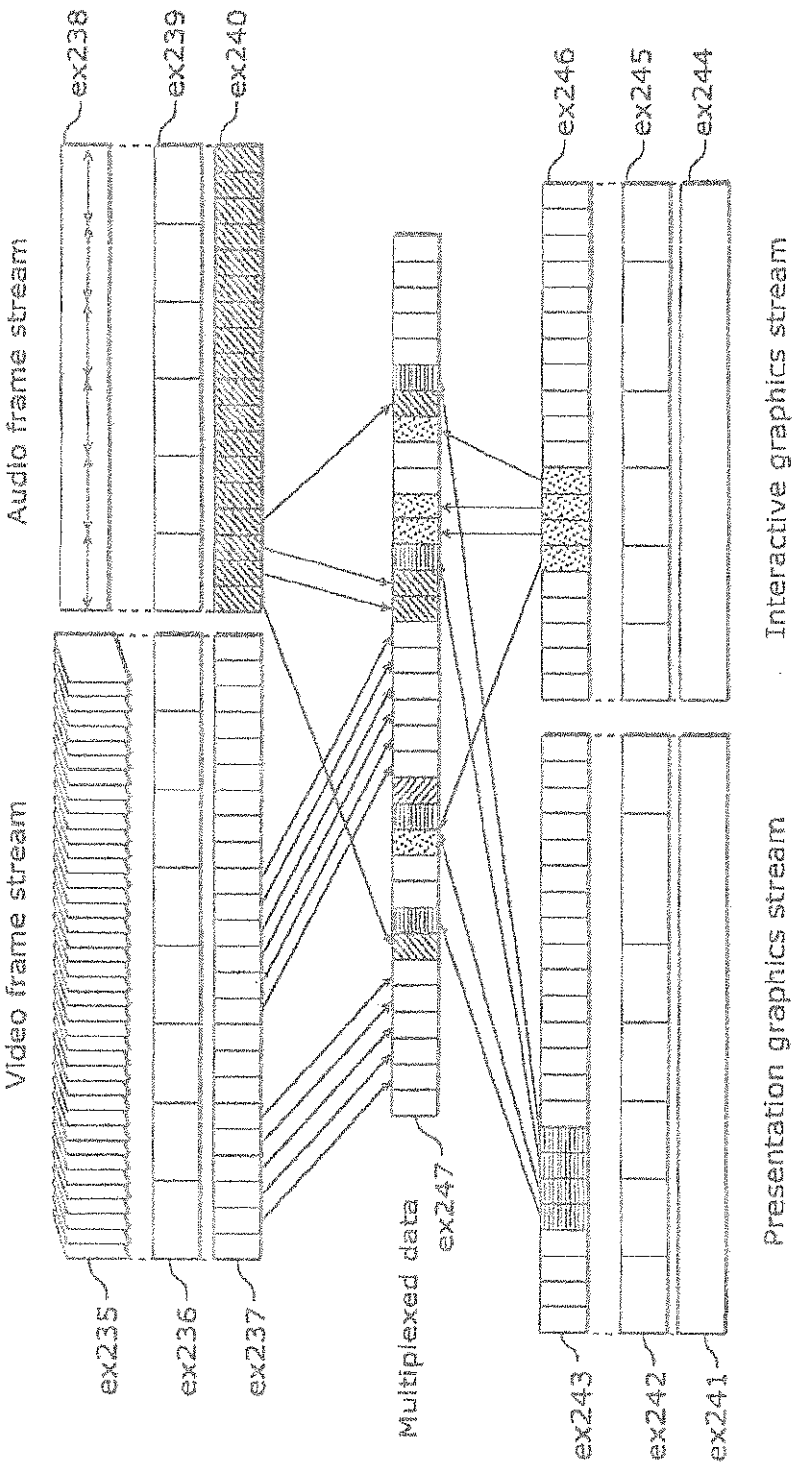

Video frame stream
Audio frame stream
Multiplexed data
Presentation graphics stream
Interactive graphics stream
ex235
ex236
ex237
ex238
ex239
ex240
ex241
ex242
ex243
ex244
ex245
ex246
ex247

Fig. 17

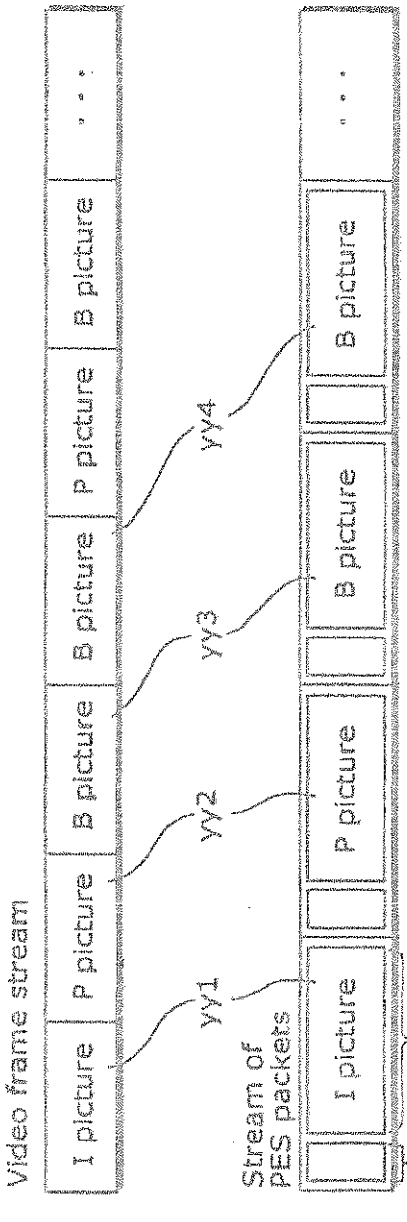

Video frame stream
I picture
P picture
B picture
B picture
P picture
B picture
YY1
YY2
YY3
YY4
Stream of PES packets
I picture
P picture
B picture
B picture
PES header
PES payload

Fig. 18

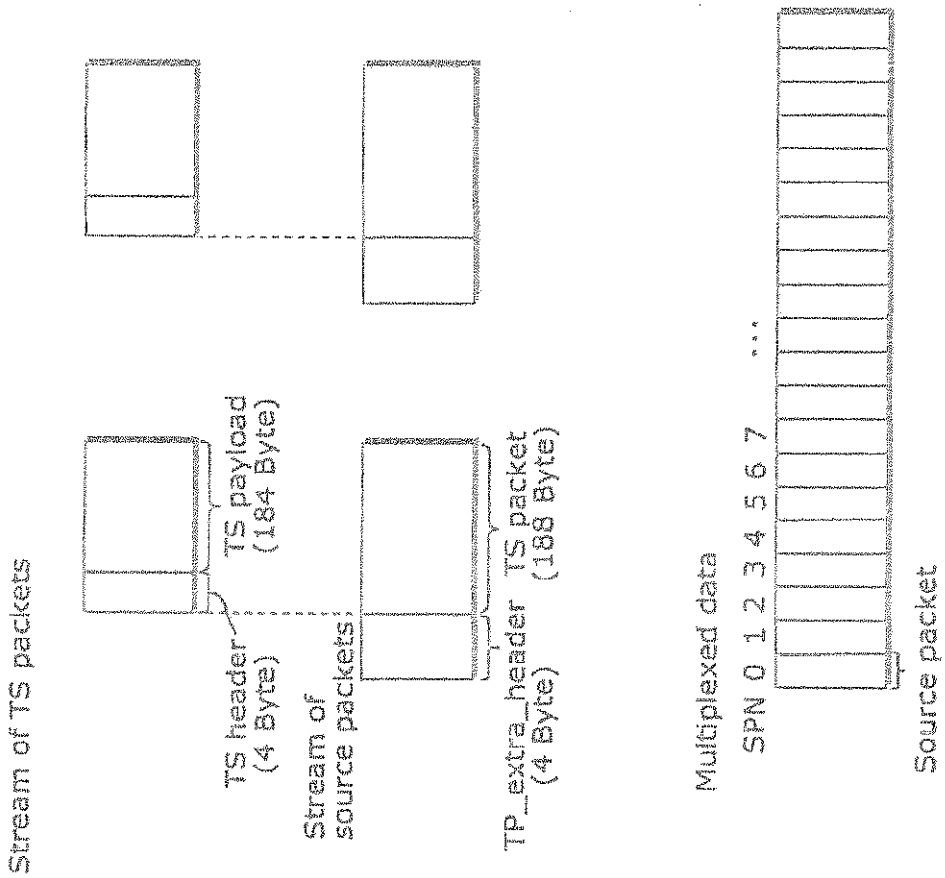

Stream of TS packets
TS header (4 Byte)
TS payload (184 Byte)
Stream of source packets
TP_extra_header (4 Byte)
TS packet (188 Byte)
Multiplexed data
SPN 0 1 2 3 4 5 6 7 ...
Source packet

Fig. 19

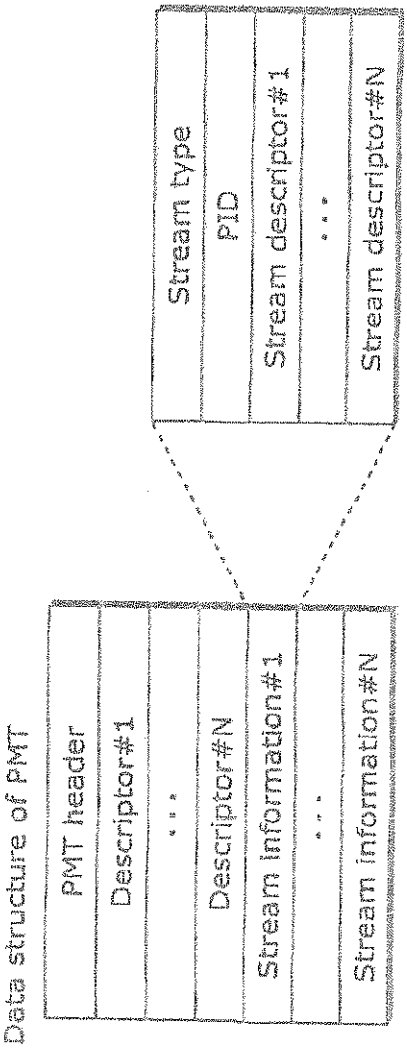

Data structure of PMT
PMT header
Descriptor#1
...
Descriptor#N
Stream information#1
...
Stream information#N
Stream type
PID
Stream descriptor#1
...
Stream descriptor#N

FIG. 20

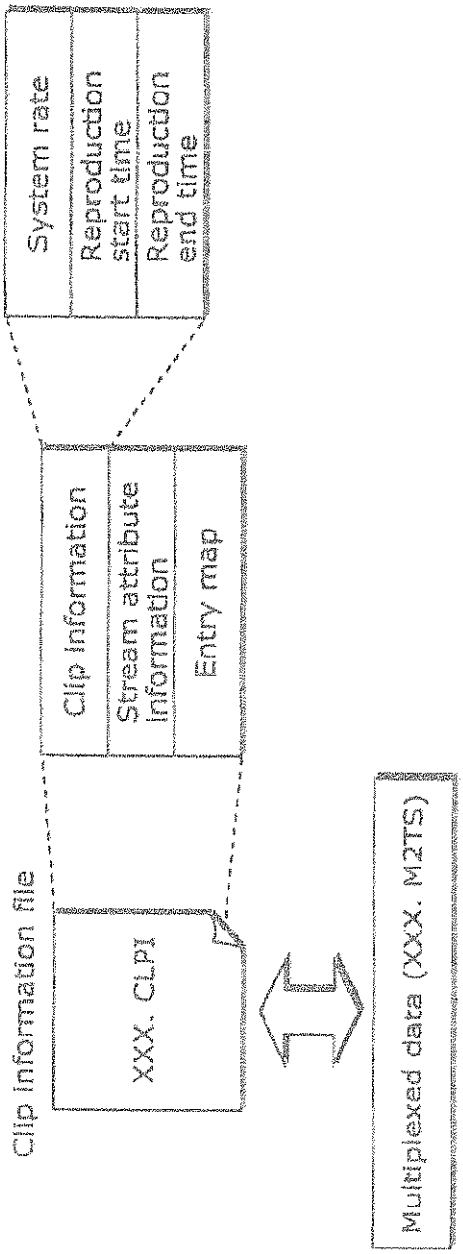

Clip Information file
XXX. CLPI
Clip Information
Stream attribute Information
Entry map
System rate
Reproduction start time
Reproduction end time
Multiplexed data (XXX. M2TS)

FIG. 21

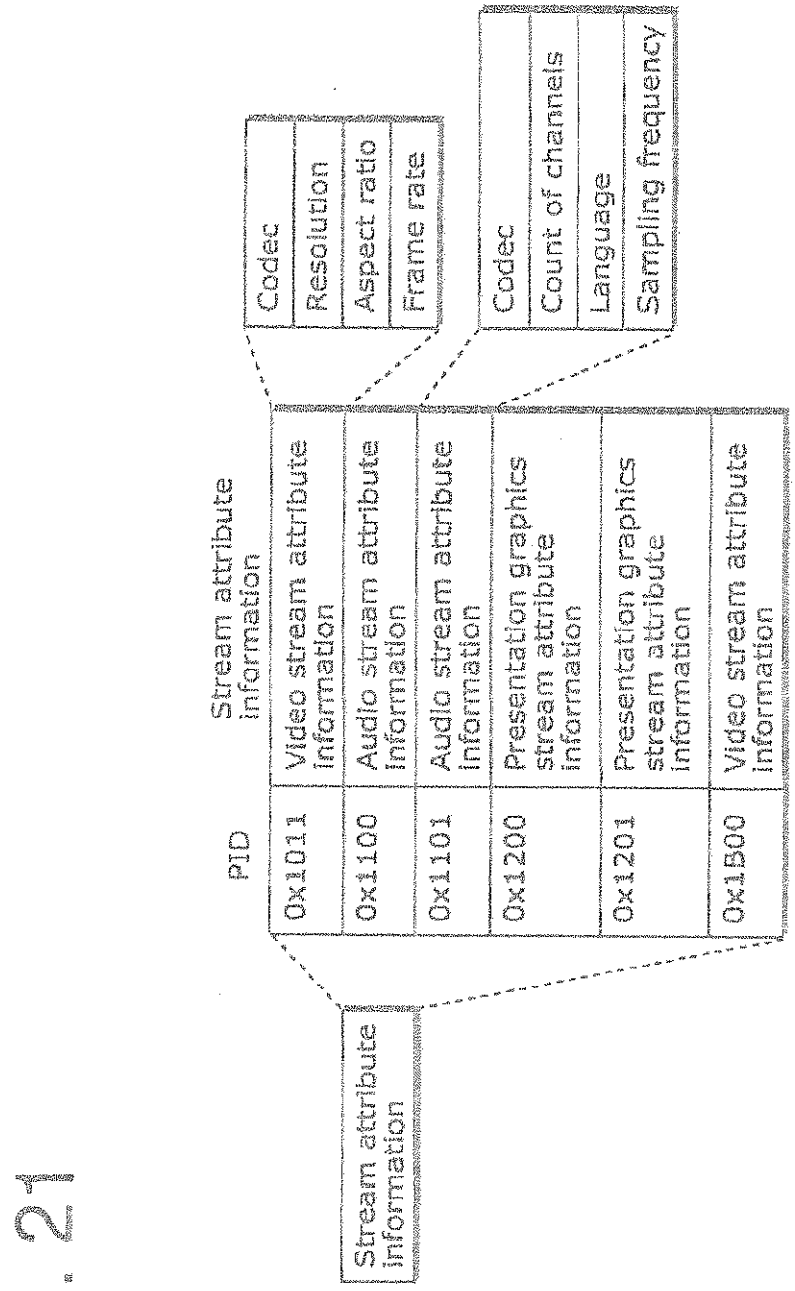

Stream attribute information
PID
Stream attribute information
0x1011
Video stream attribute information
0x1100
Audio stream attribute information
0x1101
Audio stream attribute information
0x1200
Presentation graphics stream attribute information
0x1201
Presentation graphics stream attribute information
0x1B00
Video stream attribute information
Codec
Resolution
Aspect ratio
Frame rate
Codec
Count of channels
Language
Sampling frequency

Fig. 22

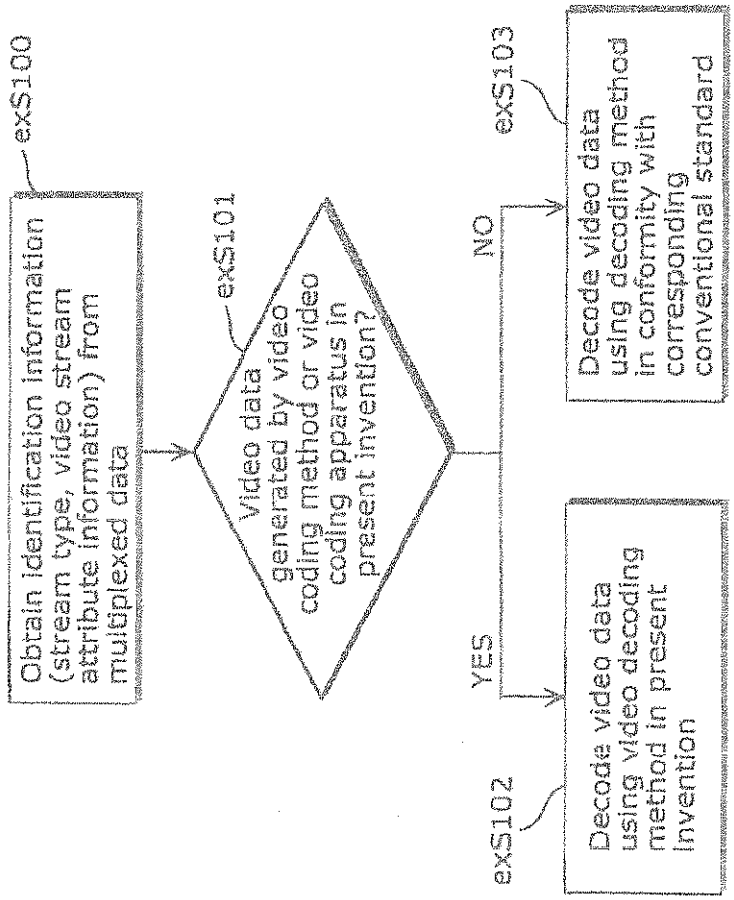

exS100
Obtain identification information (stream type, video stream attribute information) from multiplexed data
exS101
Video data generated by video coding method or video coding apparatus in present invention?
YES
NO
exS102
Decode video data using video decoding method in present invention
exS103
Decode video data using decoding method in conformity with corresponding conventional standard

FIG. 23

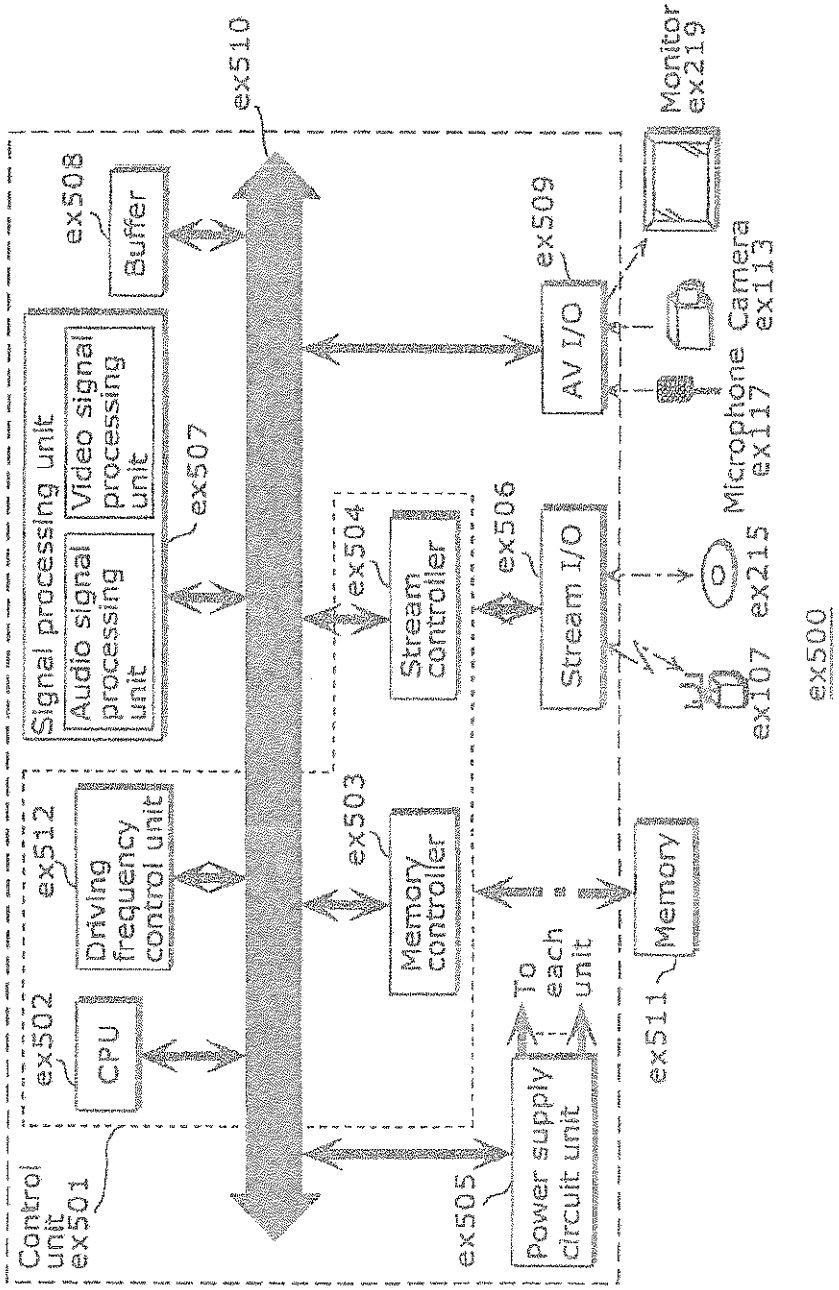

Control unit ex501
ex502
CPU
ex512
Driving frequency control unit
Signal processing unit
Audio signal processing unit
Video signal processing unit
ex507
ex508
Buffer
ex510
ex503
Memory controller
ex504
Stream controller
ex506
Stream I/O
ex509
AV I/O
ex505
Power supply circuit unit
To each unit
ex511
Memory
Monitor ex219
Microphone ex117
Camera ex113
ex215
ex107
ex500

Fig. 24

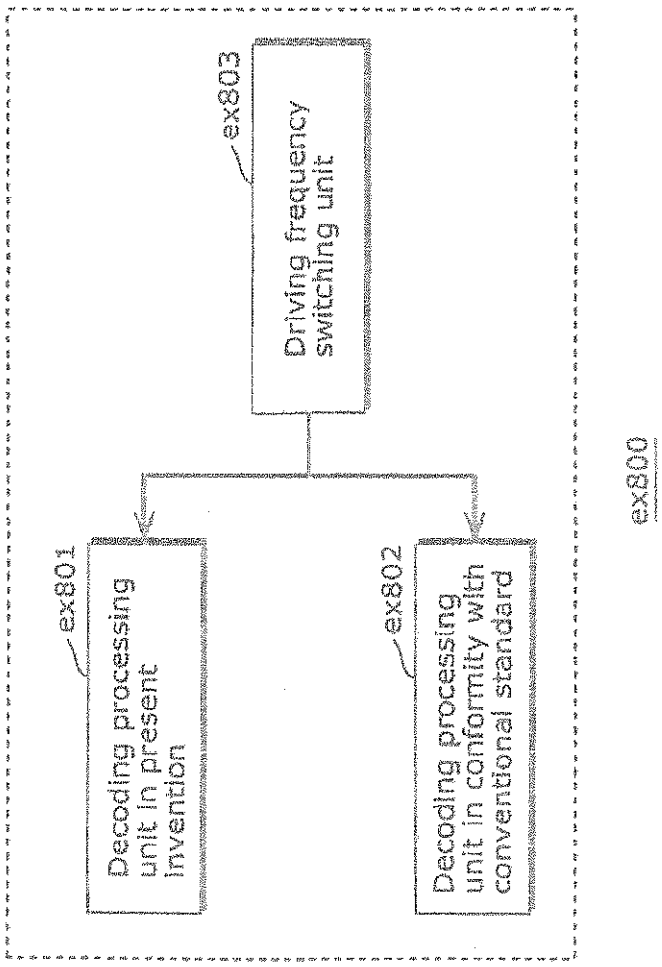

ex803
Driving frequency switching unit
ex801
Decoding processing unit in present invention
ex802
Decoding processing unit in conformity with conventional standard
ex800

Fig. 25

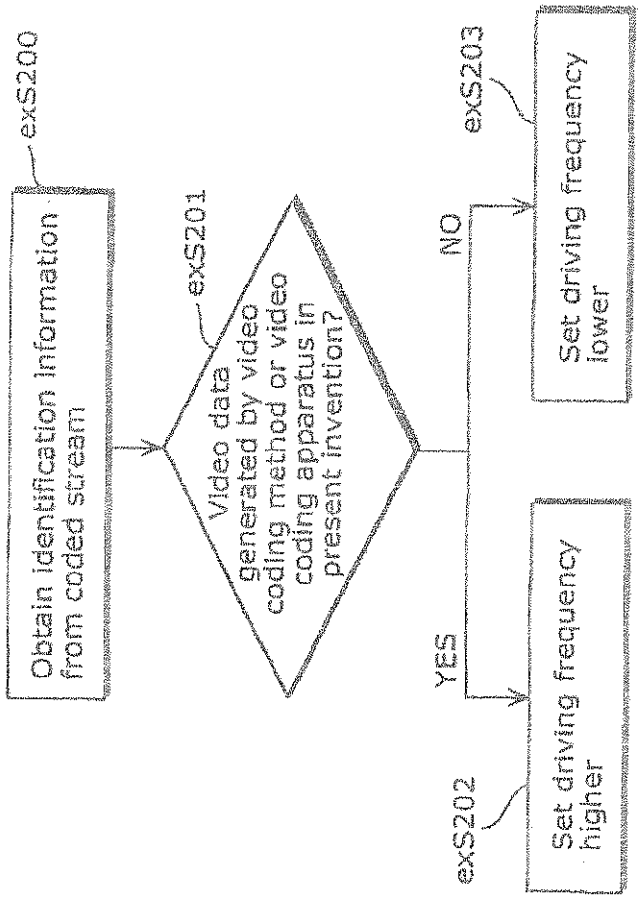

exS200
Obtain identification information from coded stream
exS201
Video data generated by video coding method or video coding apparatus in present invention?
YES
NO
exS202
Set driving frequency higher
exS203
Set driving frequency lower

FIG. 26

| Corresponding standard | Driving frequency |
|---|---|
| MPEG4. AVC | 500MHz |
| MPEG2 | 350MHz |
| ... | ... |

Fig. 27A

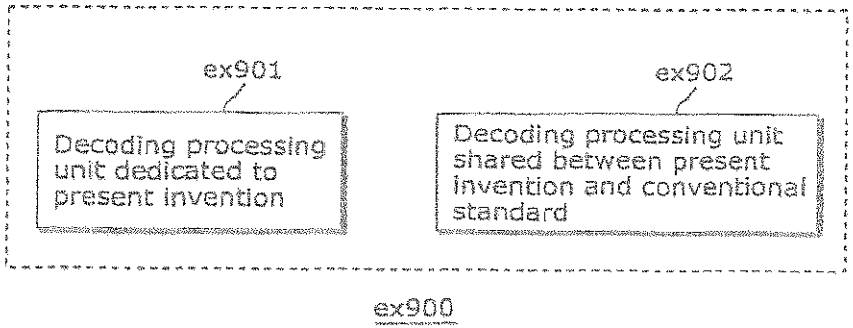



Fig. 27B

