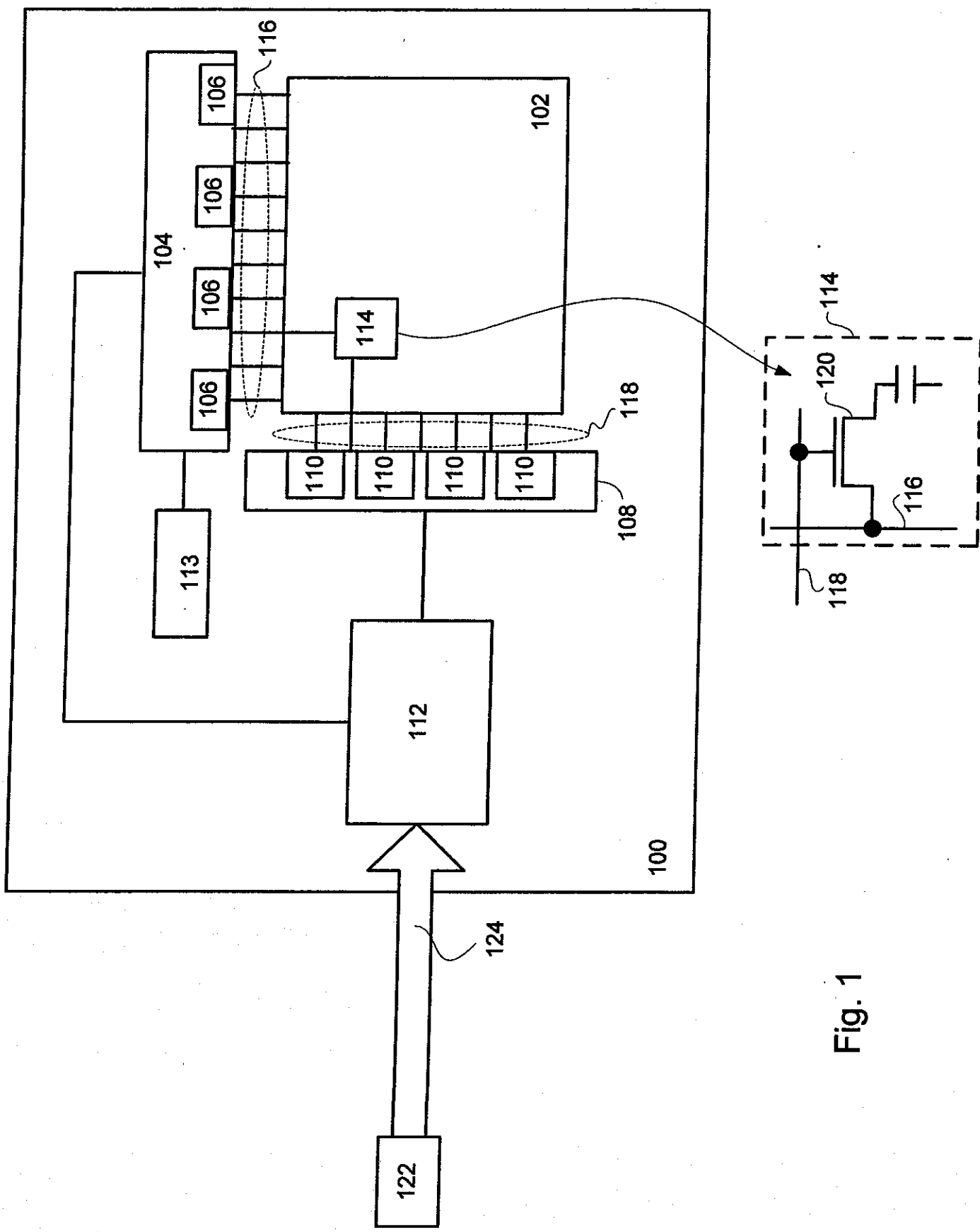

100
102
104
106
106
106
106
108
110
110
110
110
112
113
114
116
118
120
122
124
114
120
116
118

Fig. 1

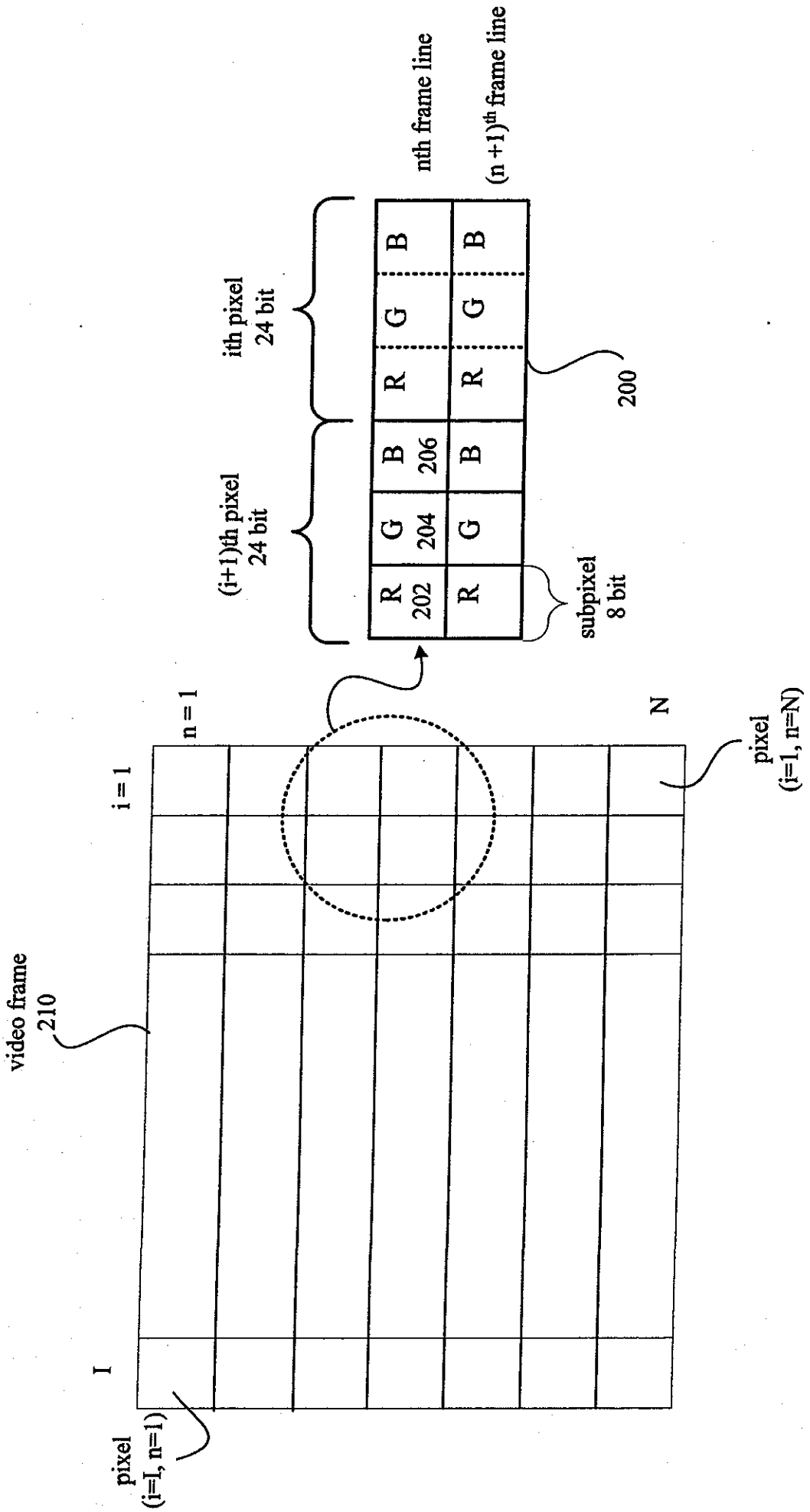

video frame
210
I
i = 1
n = 1
N
pixel
(i=I, n=1)
pixel
(i=1, n=N)
(i+1)th pixel
24 bit
ith pixel
24 bit
nth frame line
(n +1)th frame line
R
202
G
204
B
206
200
subpixel
8 bit

FIG. 2

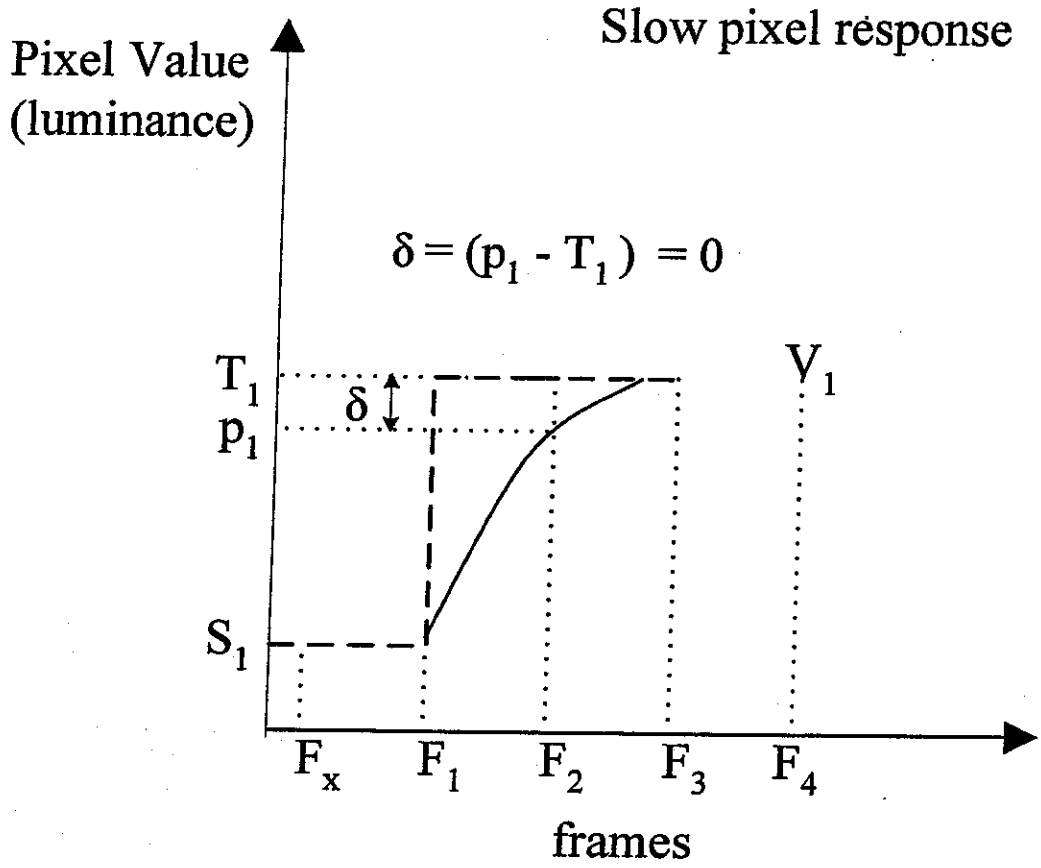

Slow pixel response
Pixel Value
(luminance)
$\delta = (p_1 - T_1) = 0$
$T_1$
$p_1$
$\delta$
$V_1$
$S_1$
$F_x$
$F_1$
$F_2$
$F_3$
$F_4$
frames

Fig. 3A

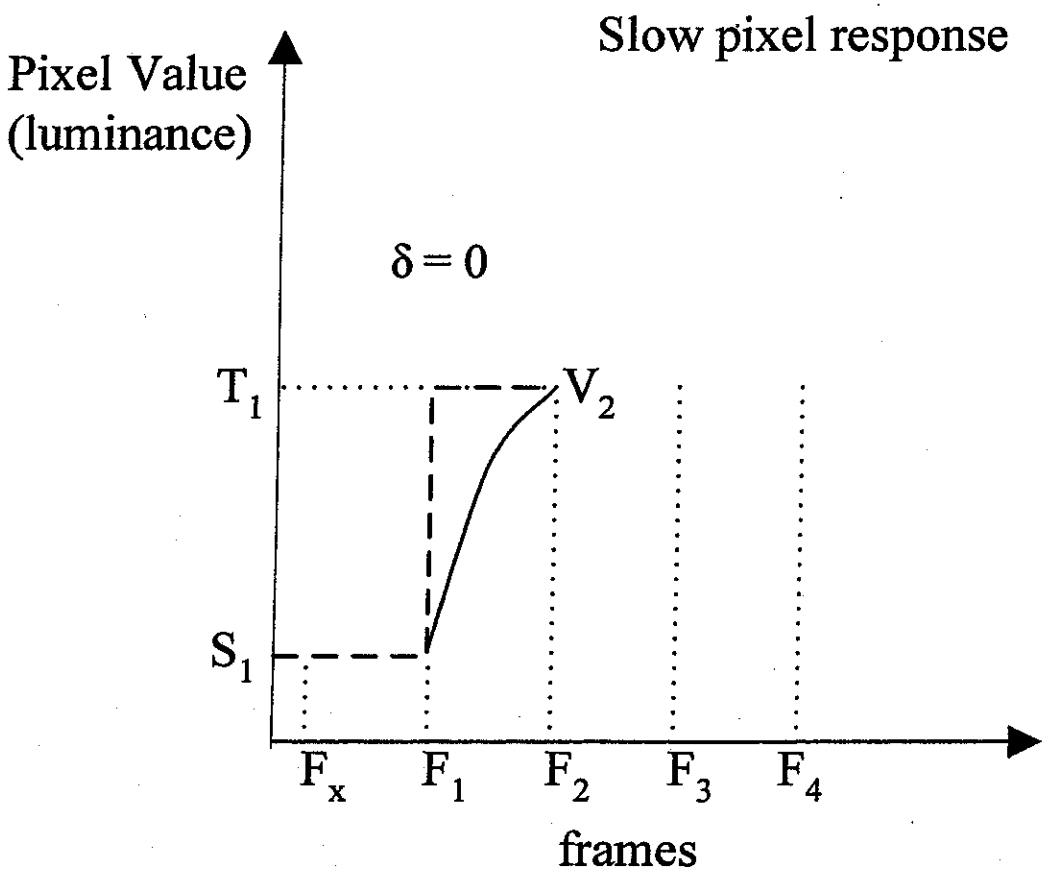

Slow pixel response
Pixel Value
(luminance)
δ = 0
T1
V2
S1
Fx
F1
F2
F3
F4
frames

Fig. 3B

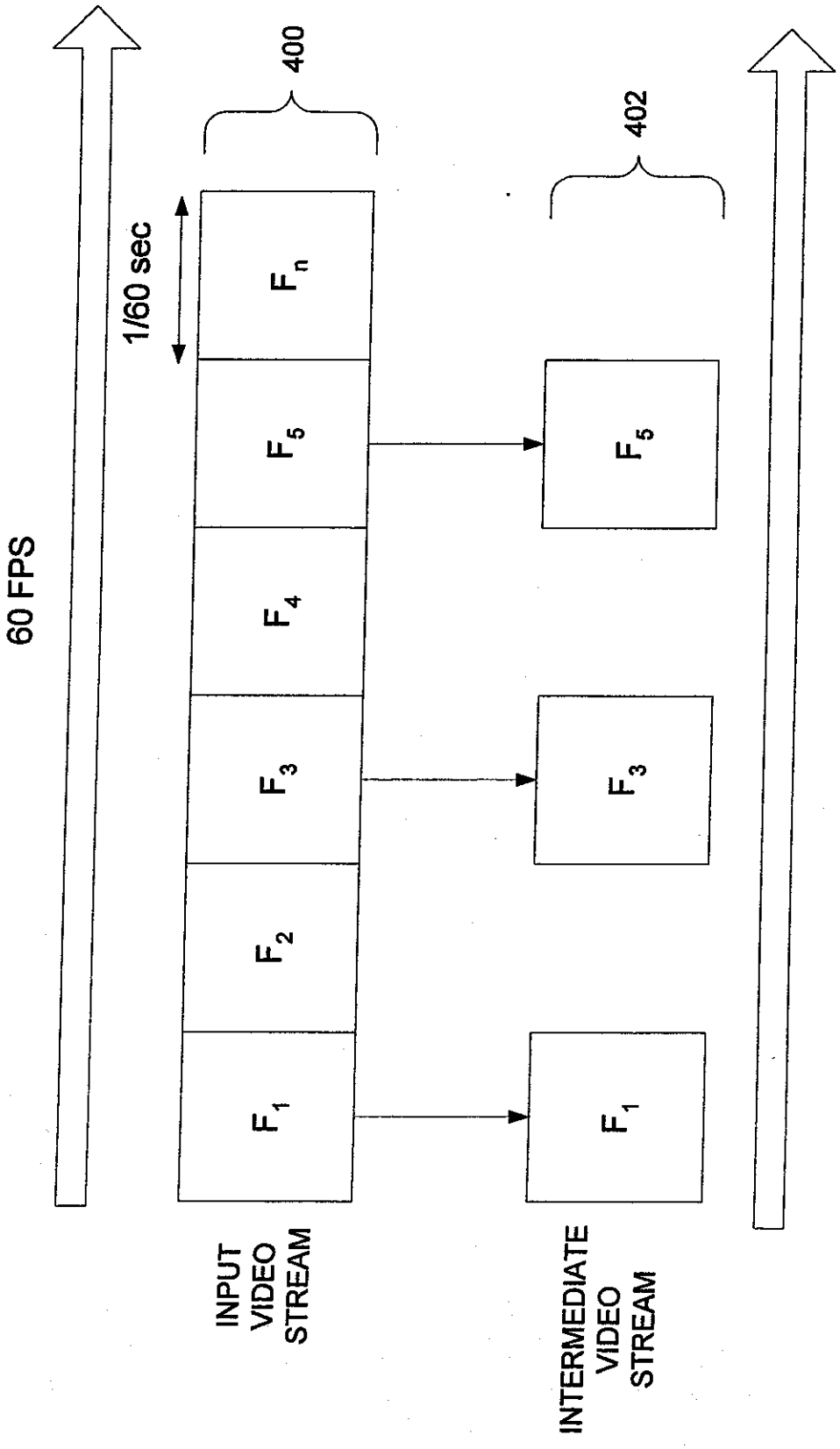

60 FPS
1/60 sec
400
402
$F_n$
$F_5$
$F_4$
$F_3$
$F_2$
$F_1$
$F_5$
$F_3$
$F_1$
30 FPS
INPUT VIDEO STREAM
INTERMEDIATE VIDEO STREAM

Fig. 4A

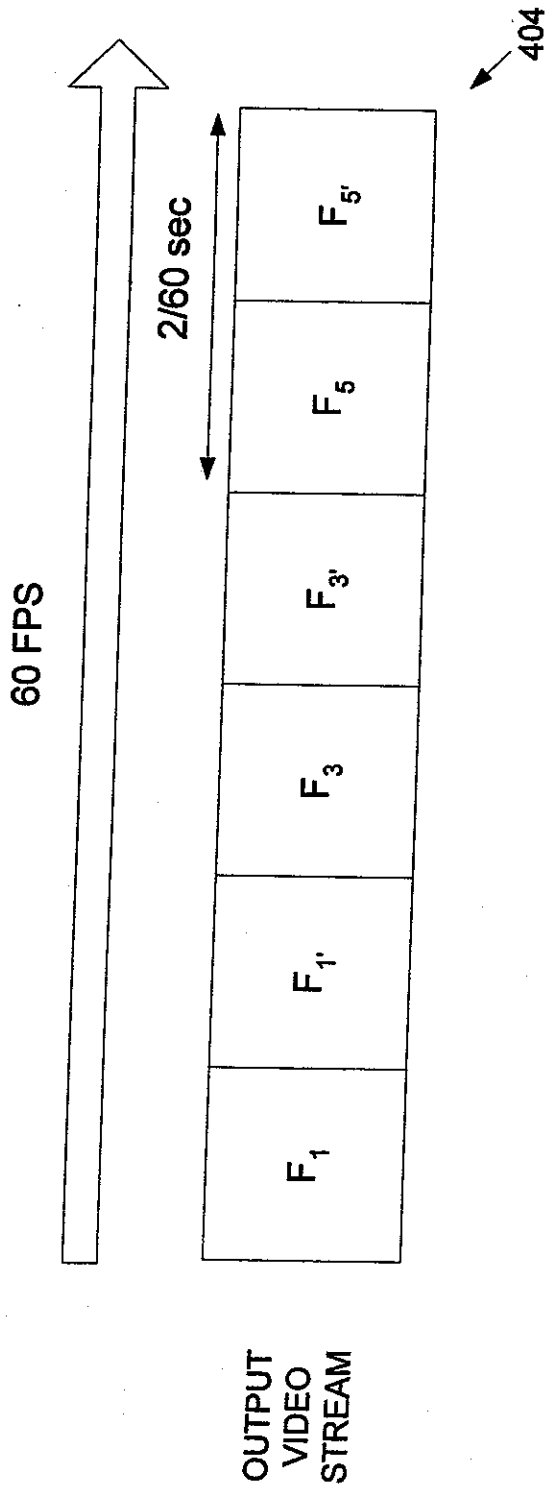



FIG. 4B

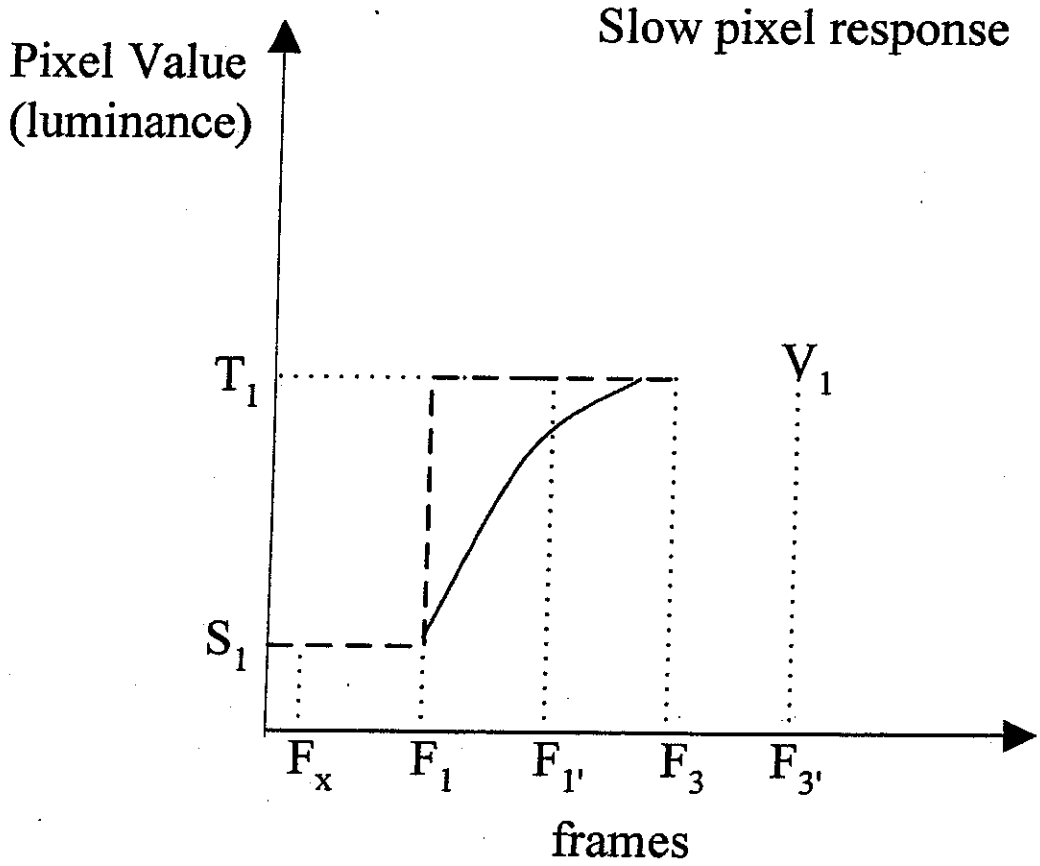

Slow pixel response
Pixel Value
(luminance)
T1
V1
S1
Fx
F1
F1'
F3
F3'
frames

Fig. 5

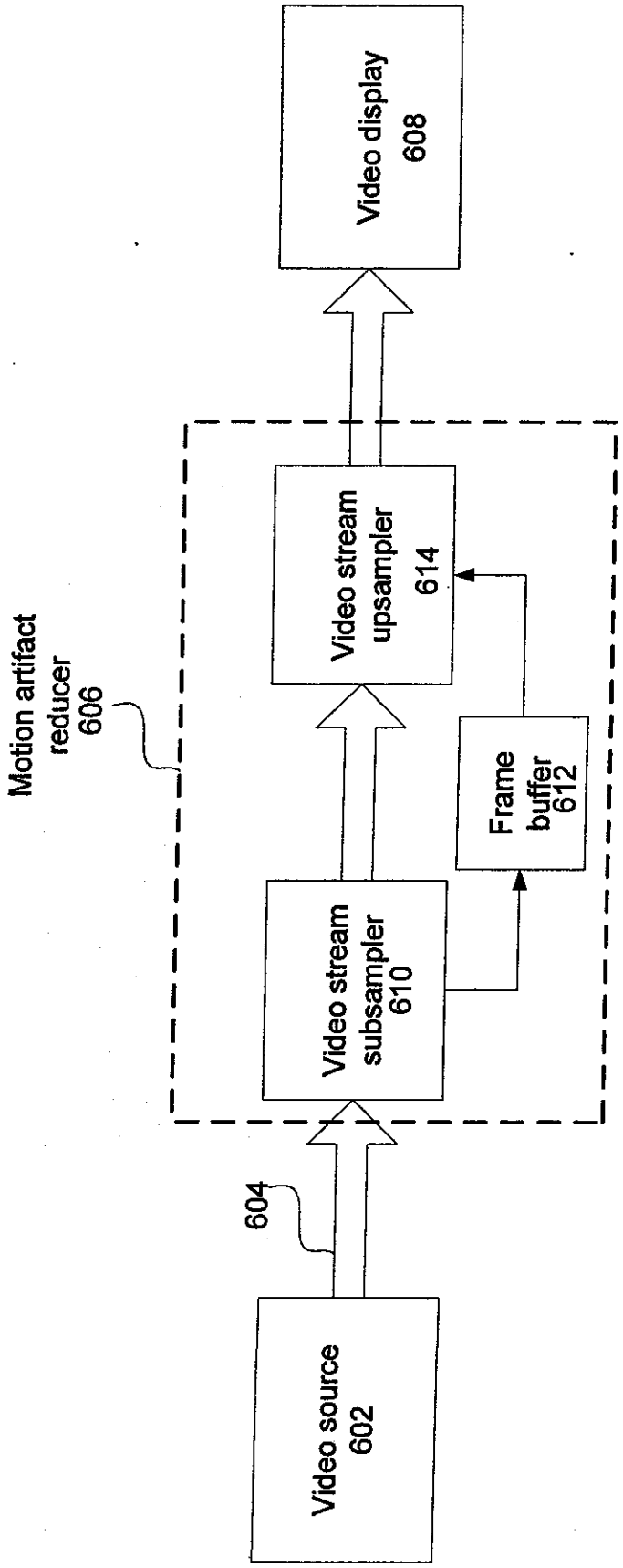

Video display
608
Video stream
upsampler
614
Motion artifact
reducer
606
Frame
buffer
612
Video stream
subsampler
610
604
Video source
602

FIG. 6

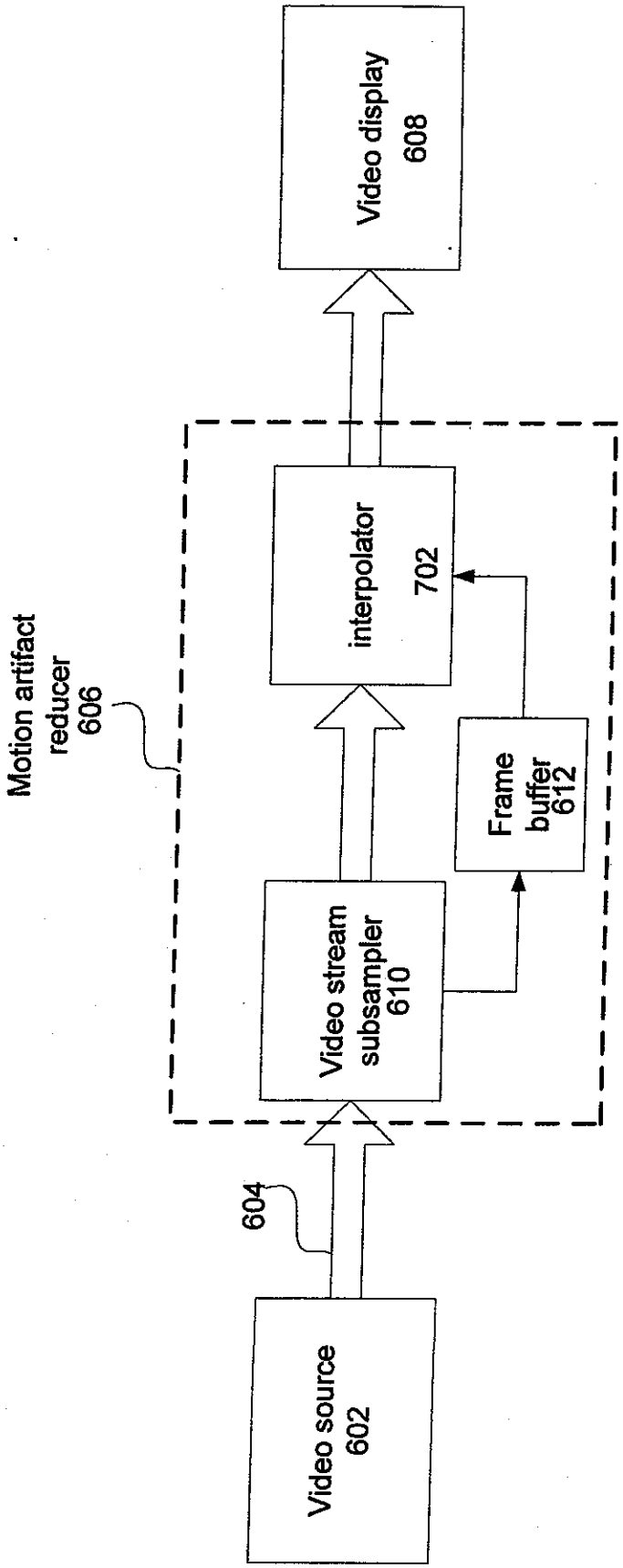

Video display
608
interpolator
702
Motion artifact
reducer
606
Frame
buffer
612
Video stream
subsampler
610
604
Video source
602

FIG. 7

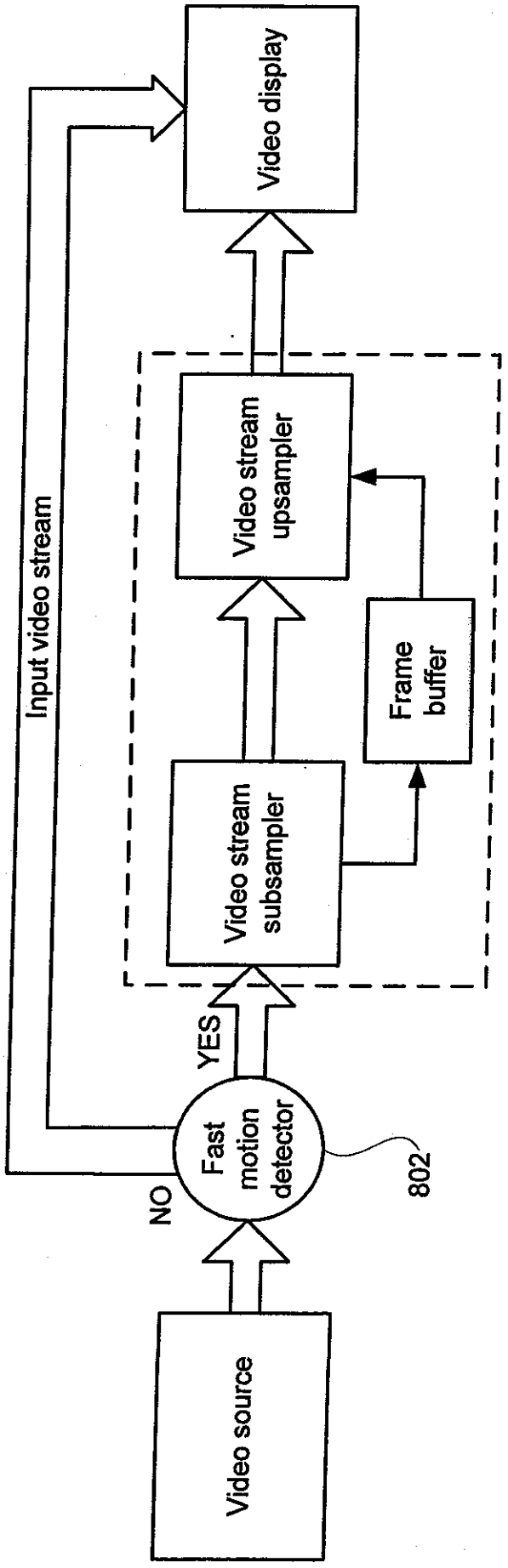

Video display
Video stream upsampler
Frame buffer
Video stream subsampler
Input video stream
YES
Fast motion detector
802
NO
Video source

FIG. 8

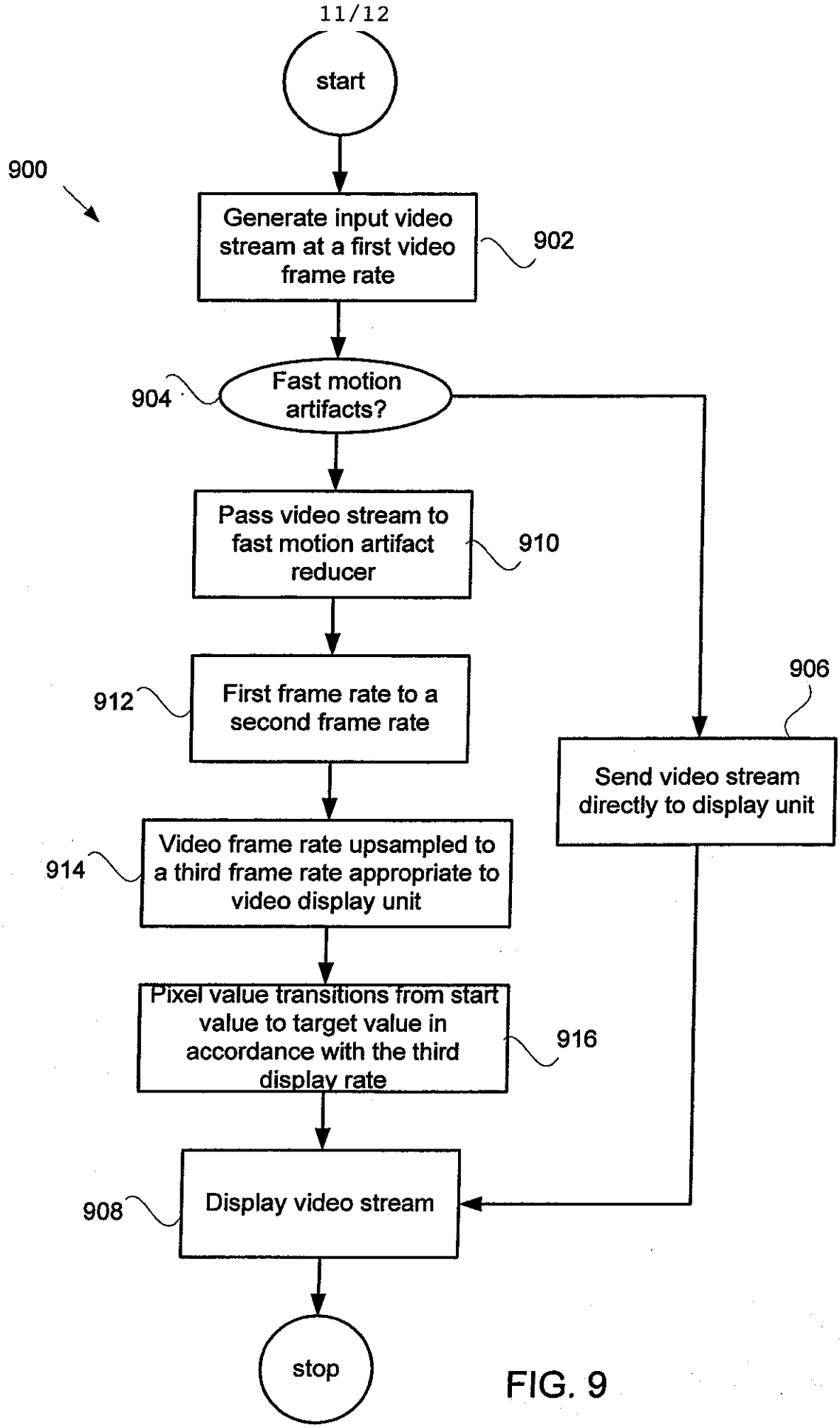

start
900
Generate input video stream at a first video frame rate
902
Fast motion artifacts?
904
Pass video stream to fast motion artifact reducer
910
First frame rate to a second frame rate
912
Send video stream directly to display unit
906
Video frame rate upsampled to a third frame rate appropriate to video display unit
914
Pixel value transitions from start value to target value in accordance with the third display rate
916
Display video stream
908
stop

FIG. 9

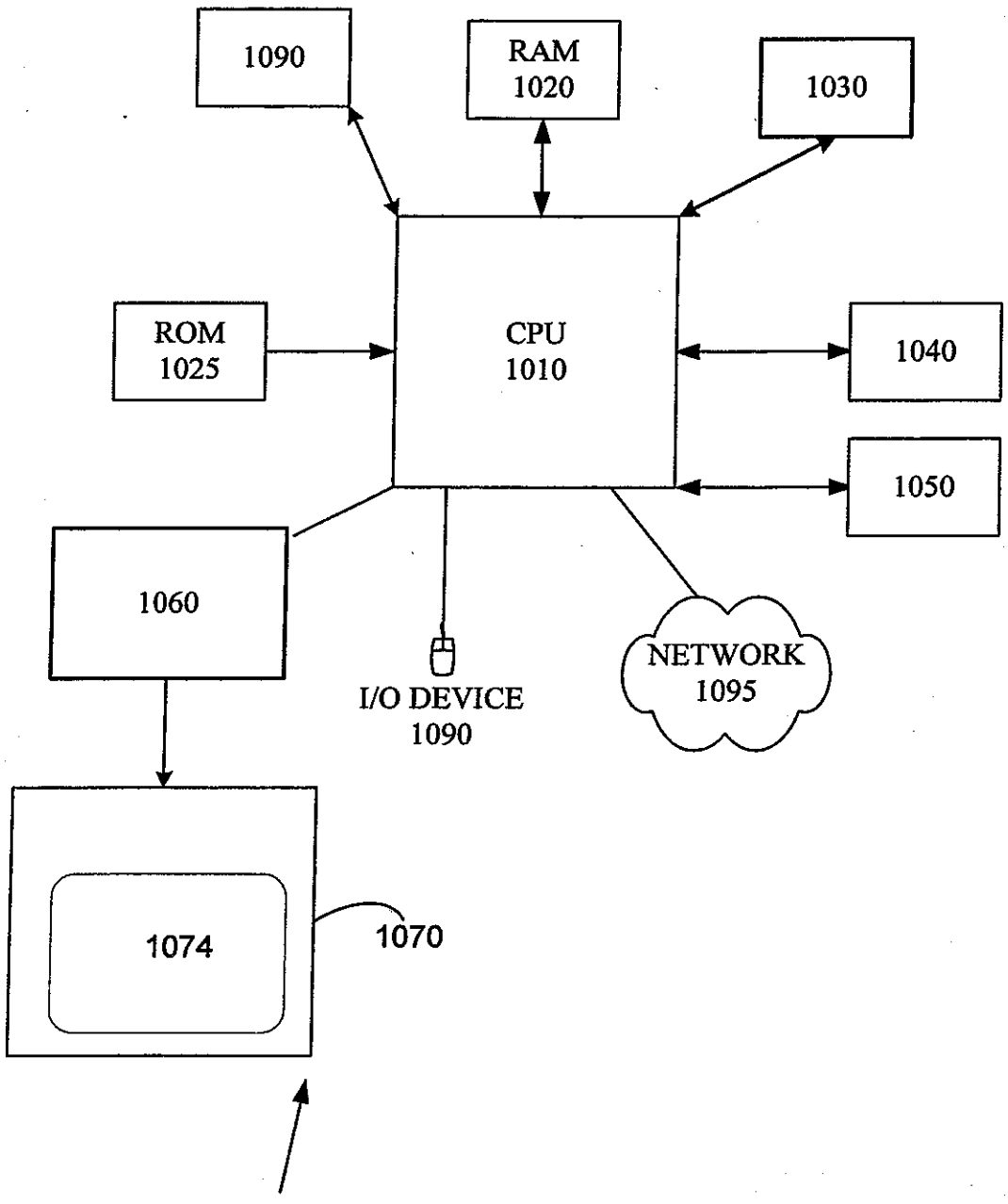

1090
RAM
1020
1030
ROM
1025
CPU
1010
1040
1050
1060
I/O DEVICE
1090
NETWORK
1095
1074
1070
1000

Fig. 10