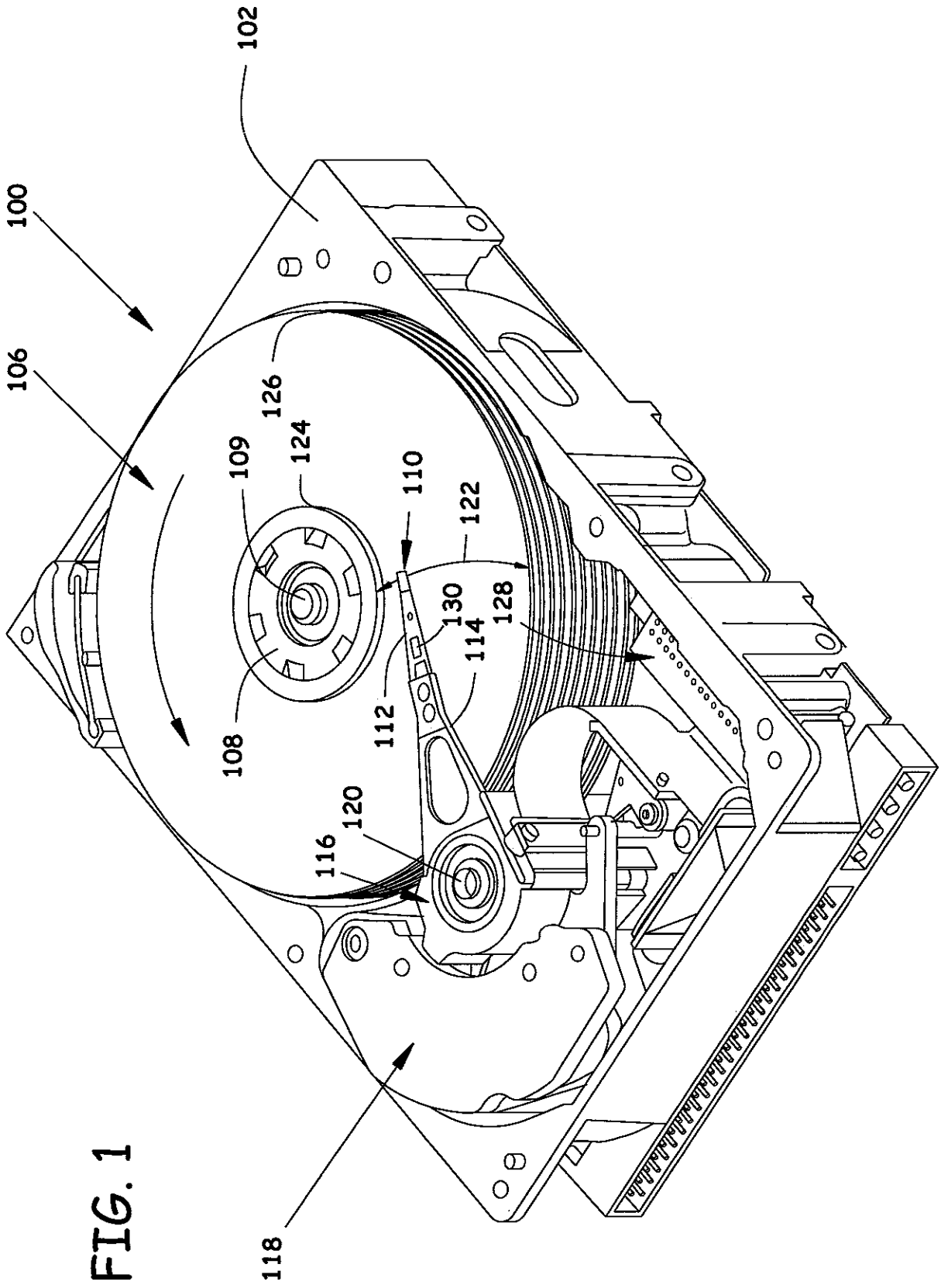

FIG. 1

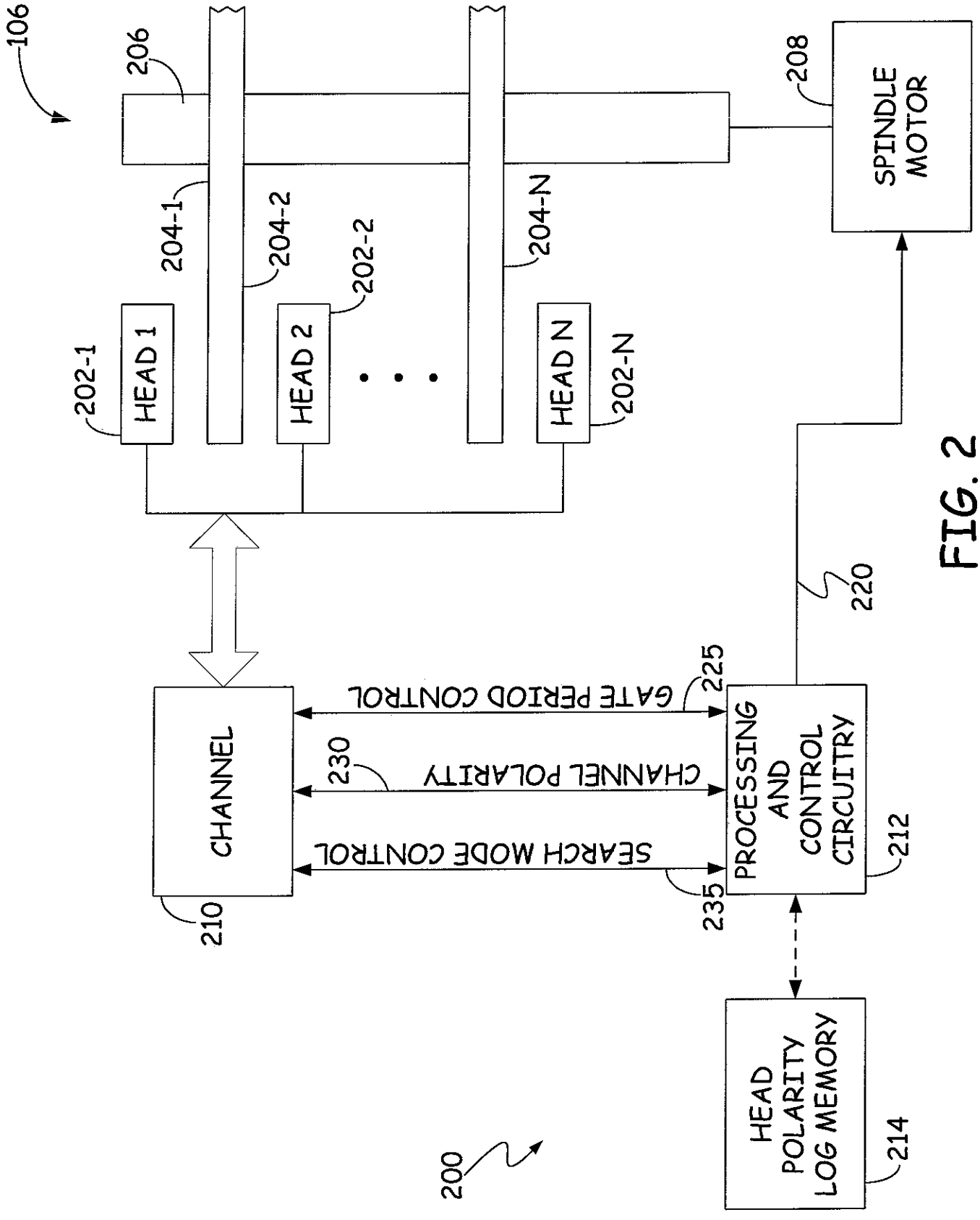
106
206
208
SPINDLE MOTOR
204-1
204-2
202-2
204-N
202-1
HEAD 1
HEAD 2
HEAD N
202-N
220
225
GATE PERIOD CONTROL
230
CHANNEL POLARITY
SEARCH MODE CONTROL
235
CHANNEL
210
PROCESSING AND CONTROL CIRCUITRY
212
HEAD POLARITY LOG MEMORY
214
200

FIG. 2

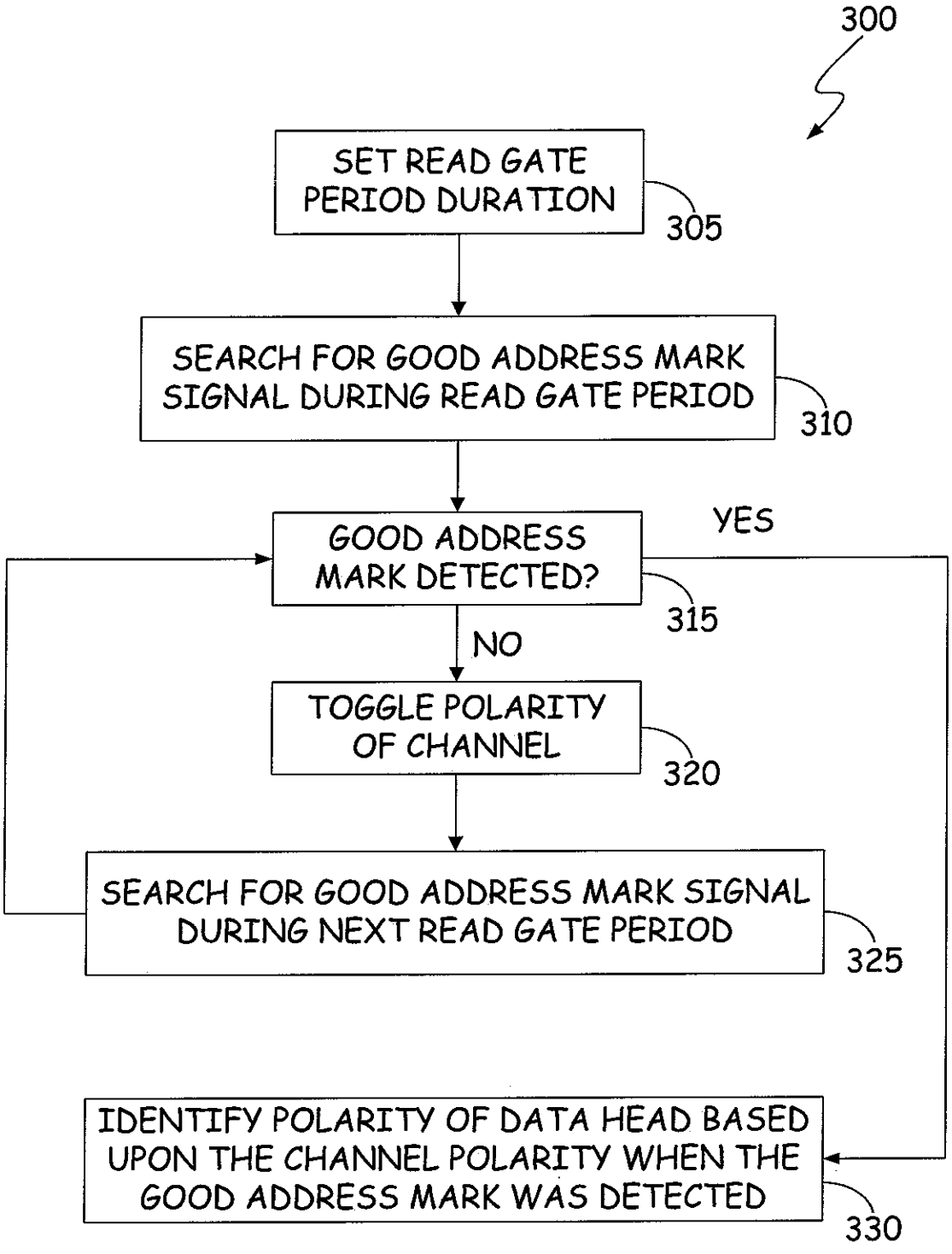
300
SET READ GATE PERIOD DURATION
305
SEARCH FOR GOOD ADDRESS MARK SIGNAL DURING READ GATE PERIOD
310
GOOD ADDRESS MARK DETECTED?
315
YES
NO
TOGGLE POLARITY OF CHANNEL
320
SEARCH FOR GOOD ADDRESS MARK SIGNAL DURING NEXT READ GATE PERIOD
325
IDENTIFY POLARITY OF DATA HEAD BASED UPON THE CHANNEL POLARITY WHEN THE GOOD ADDRESS MARK WAS DETECTED
330

FIG. 3

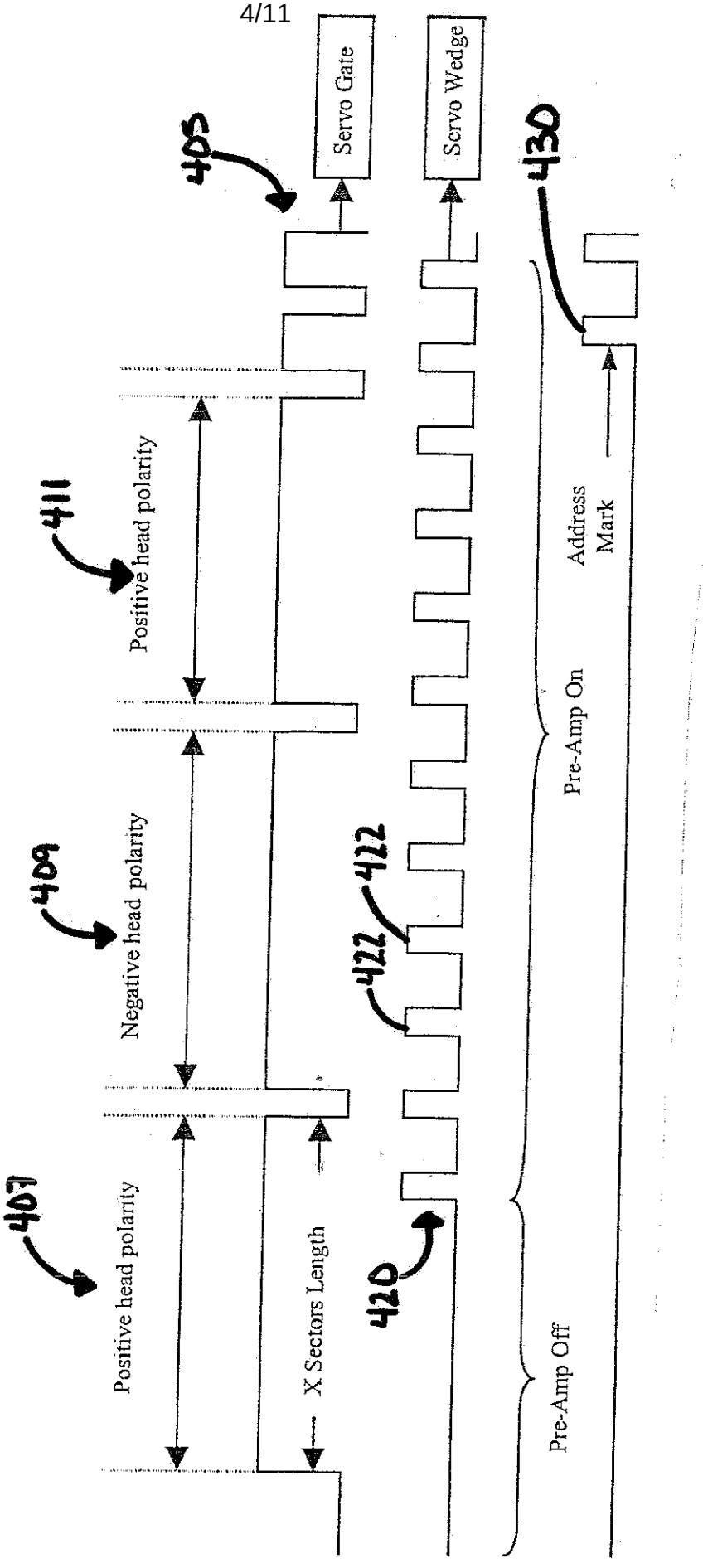
Servo Gate
Servo Wedge
405
430
411
Positive head polarity
409
Negative head polarity
422
422
407
Positive head polarity
X Sectors Length
420
Pre-Amp On
Address Mark
Pre-Amp Off

FIG. 4-1

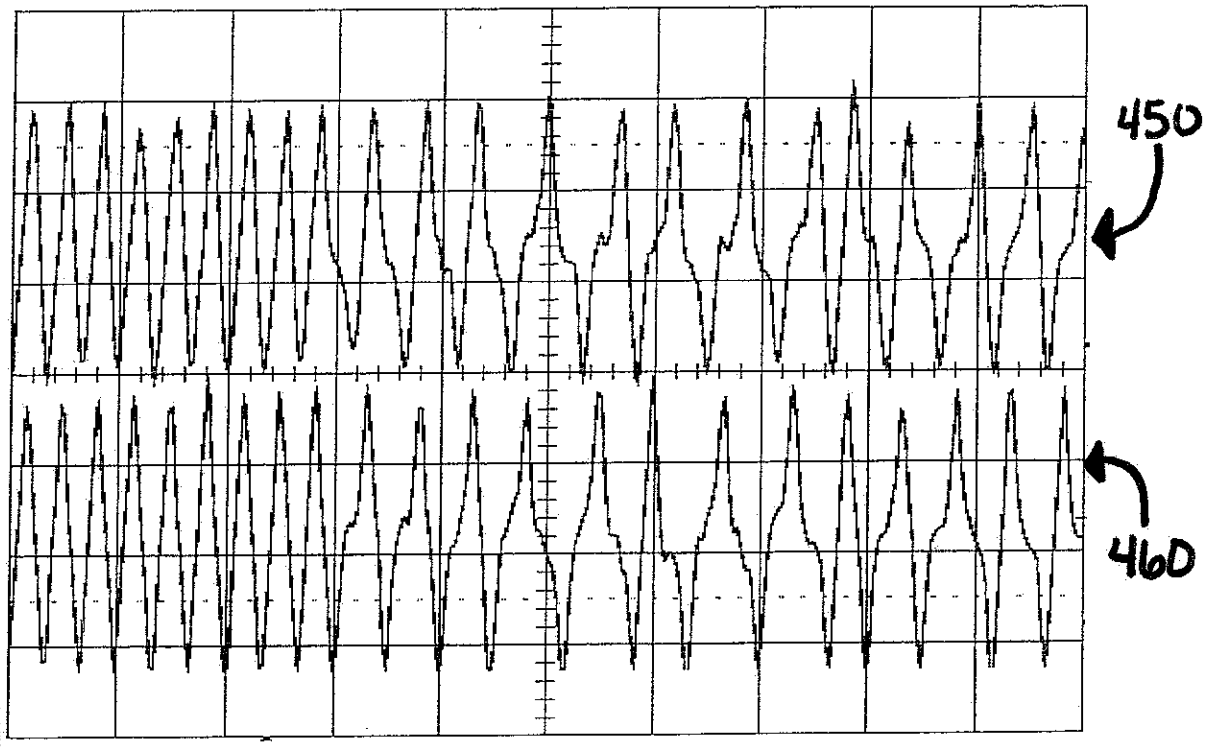

FIG. 4-2

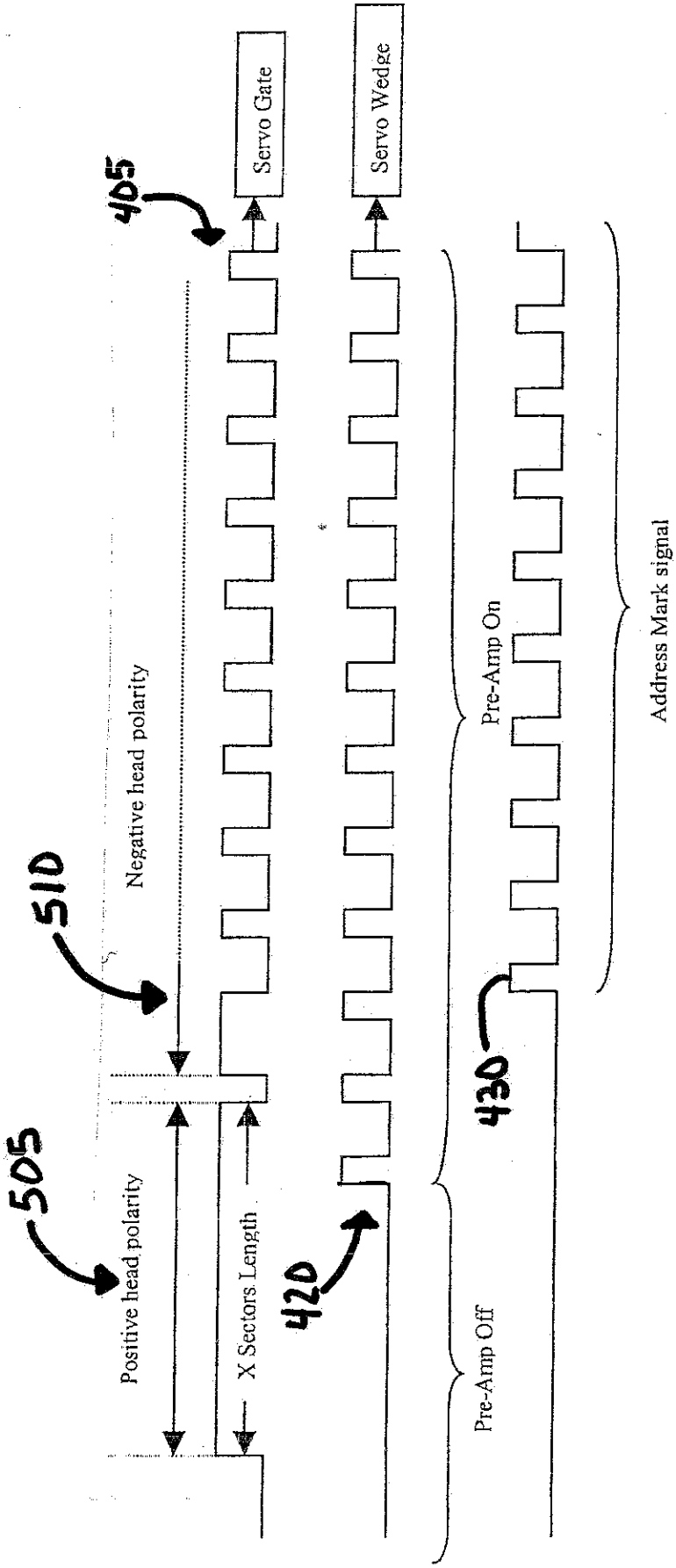
505
510
405
420
430
Positive head polarity
Negative head polarity
X Sectors Length
Servo Gate
Servo Wedge
Pre-Amp Off
Pre-Amp On
Address Mark signal

FIG 5

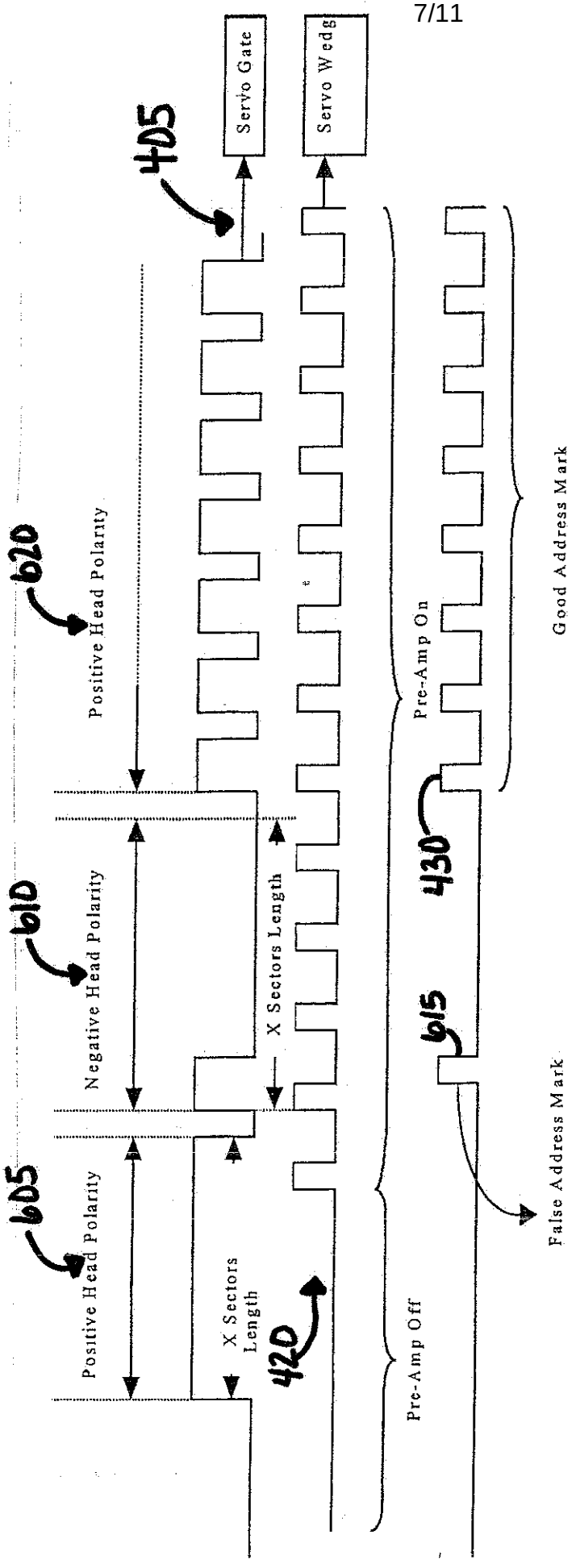
Servo Gate
Servo Wedg
405
620
Positive Head Polarity
610
Negative Head Polarity
X Sectors Length
605
Positive Head Polarity
X Sectors Length
420
Pre-Amp On
Pre-Amp Off
430
615
Good Address Mark
False Address Mark

FIG. 6

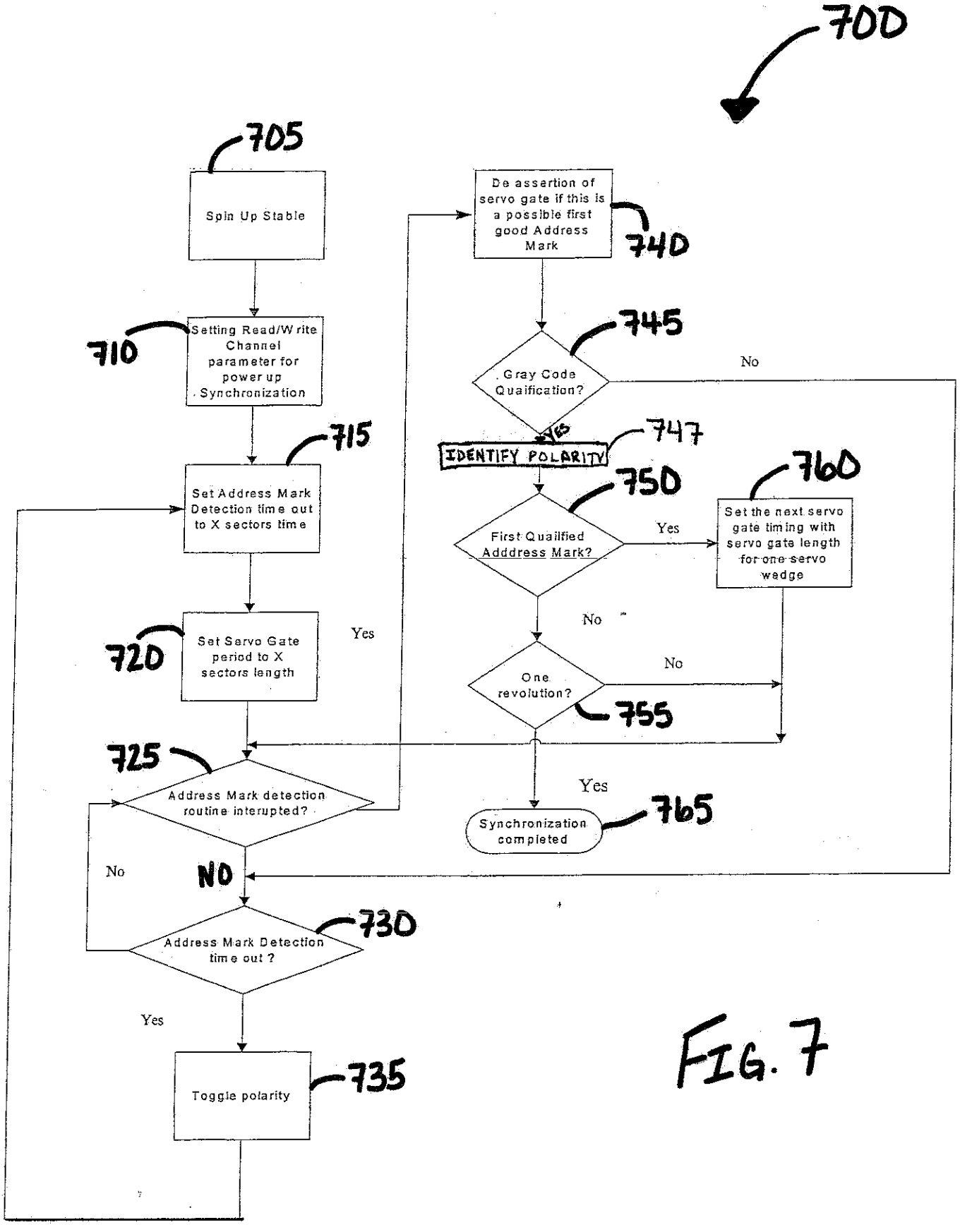
700
705
Spin Up Stable
710
Setting Read/Write Channel parameter for power up Synchronization
715
Set Address Mark Detection time out to X sectors time
720
Set Servo Gate period to X sectors length
725
Address Mark detection routine interupted?
Yes
No
NO
730
Address Mark Detection time out ?
Yes
735
Toggle polarity
740
De assertion of servo gate if this is a possible first good Address Mark
745
Gray Code Qualification?
No
Yes
747
IDENTIFY POLARITY
750
First Quailfied Adddress Mark?
Yes
760
Set the next servo gate timing with servo gate length for one servo wedge
No
755
One revolution?
No
Yes
765
Synchronization completed

FIG. 7

	Polarity	Number Of Flips
Head 0		
Head 1		
Head 2		
Head 3		

FIG. 8

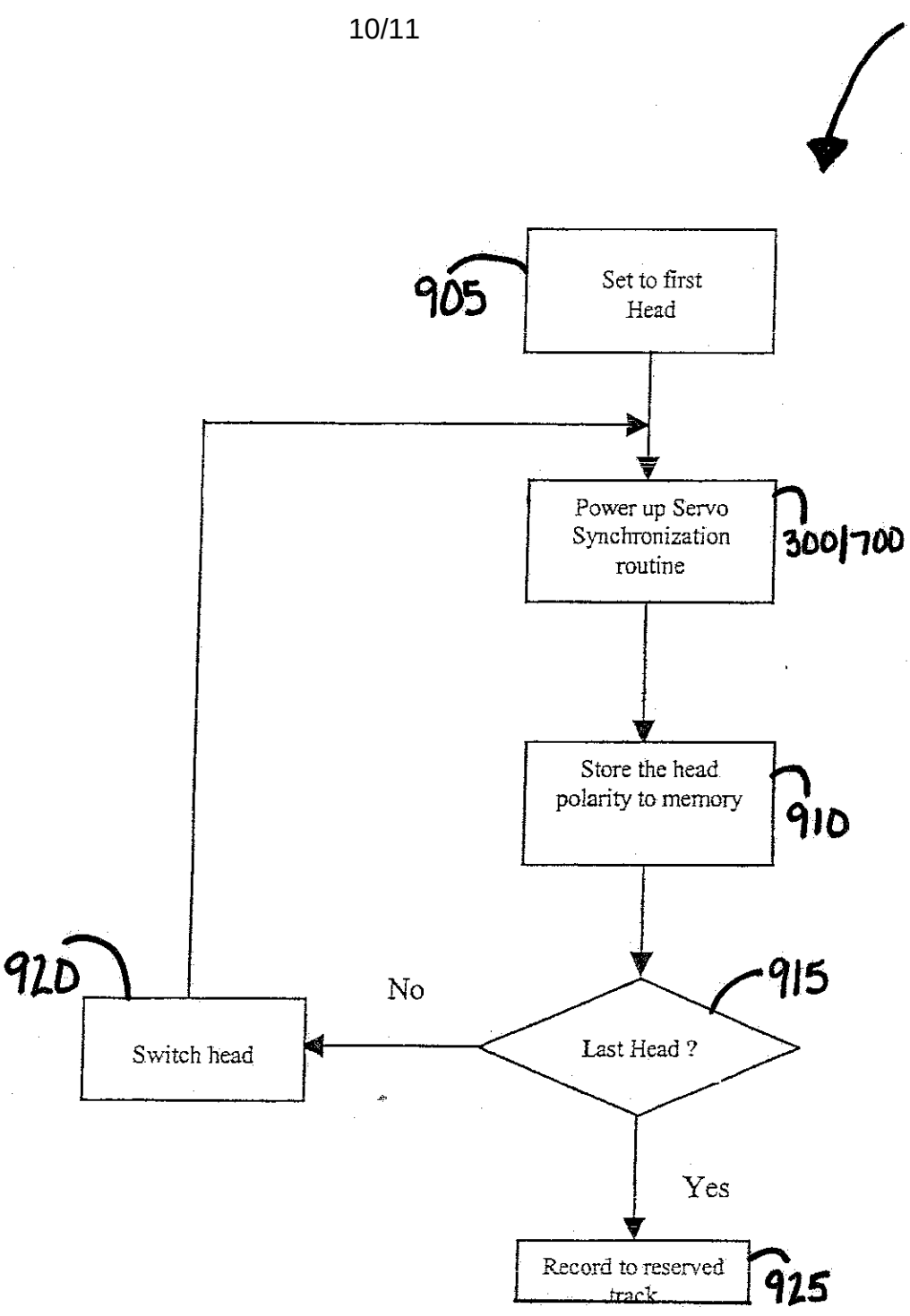
900
905
Set to first Head
Power up Servo Synchronization routine
300/700
Store the head polarity to memory
910
915
Last Head ?
No
920
Switch head
Yes
Record to reserved track
925

FIG. 9

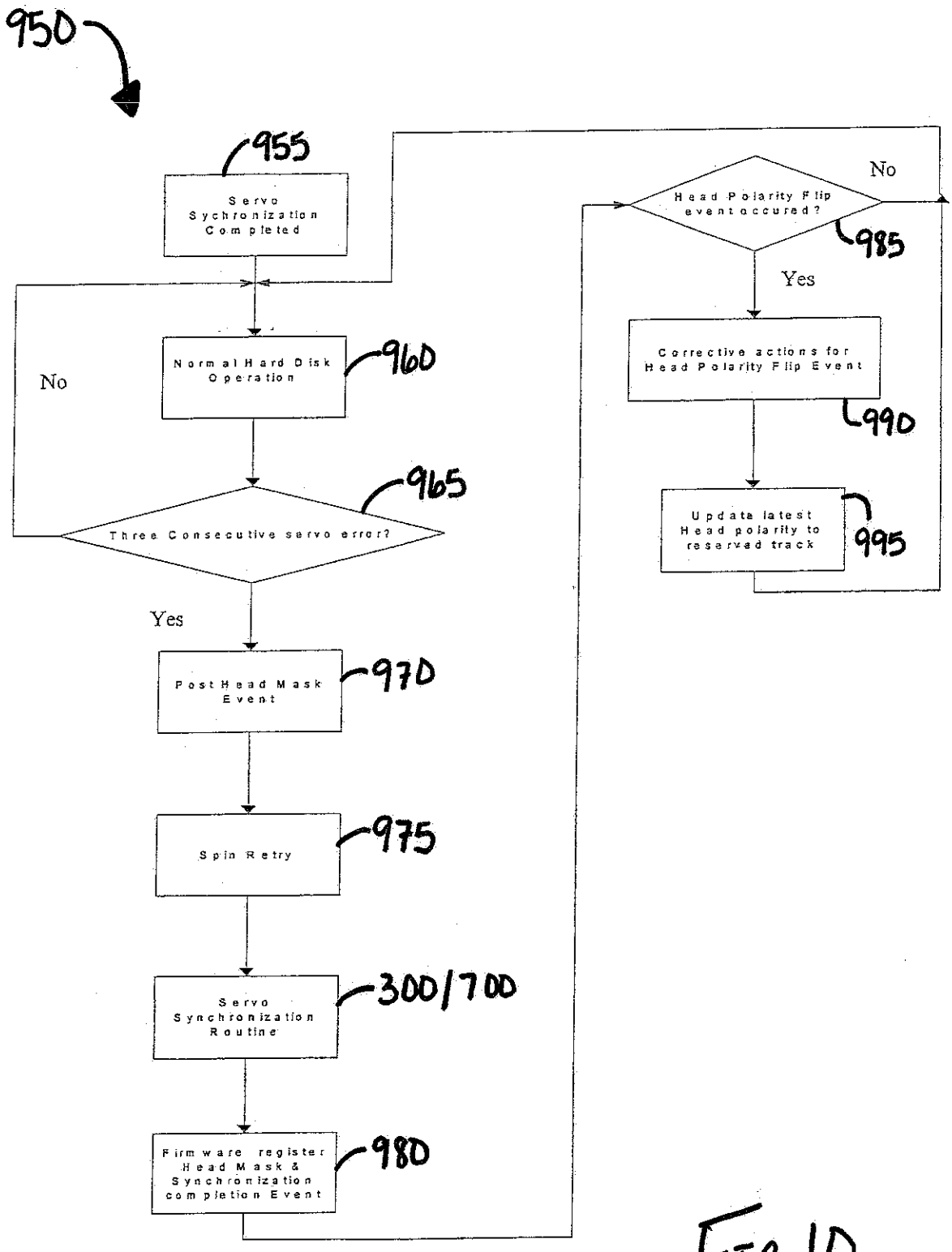
950
955
Servo Sychronization Completed
960
Normal Hard Disk Operation
No
965
Three Consecutive servo error?
Yes
970
Post Head Mask Event
975
Spin Retry
300/700
Servo Synchronization Routine
980
Firmware register Head Mask & Synchronization completion Event
985
Head Polarity Flip event occured?
No
Yes
990
Corrective actions for Head Polarity Flip Event
995
Update latest Head polarity to reserved track

FIG. 10