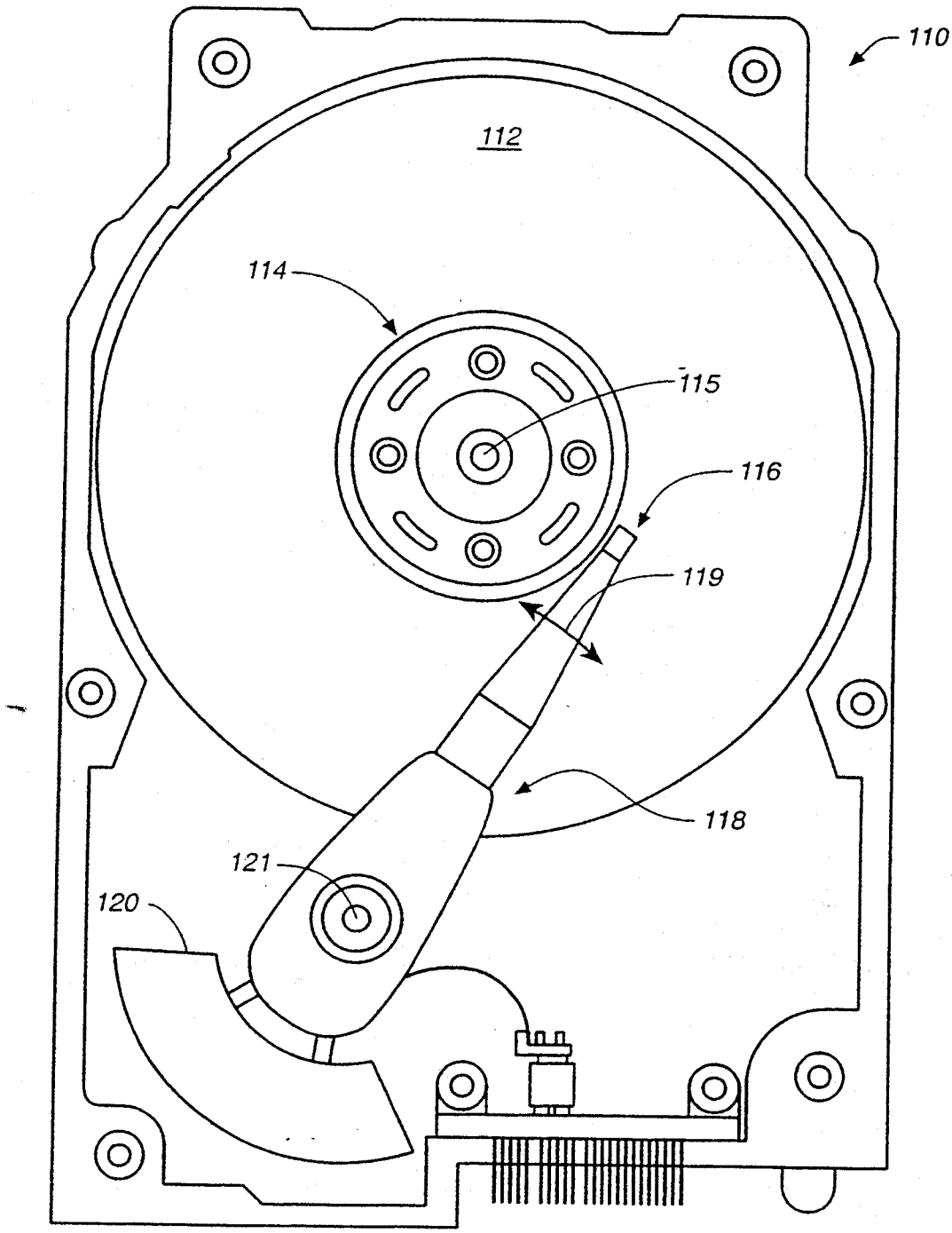



FIG._1

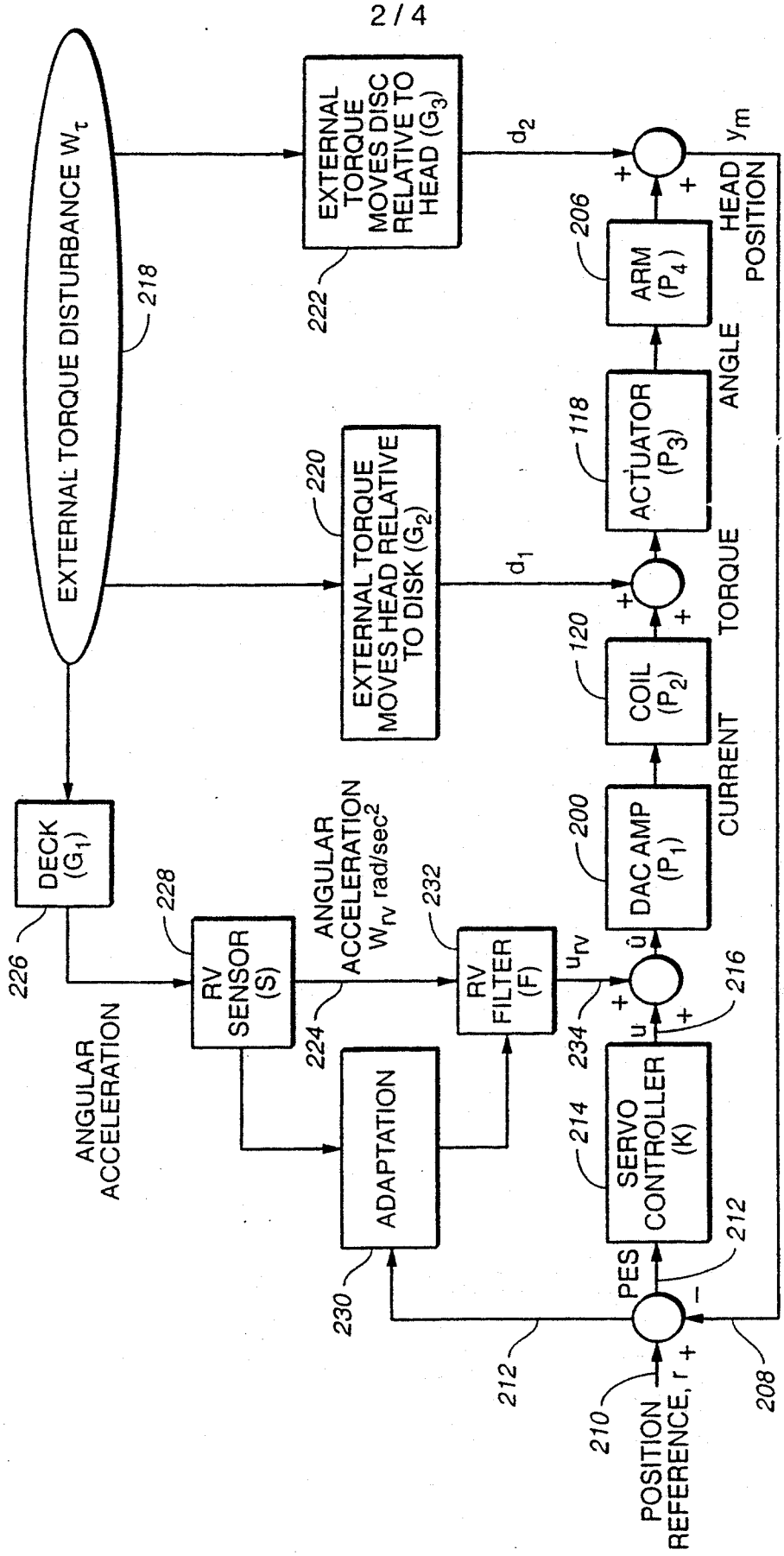

EXTERNAL TORQUE DISTURBANCE $W_\tau$
218
EXTERNAL TORQUE MOVES DISC RELATIVE TO HEAD ($G_3$)
222
$d_2$
$y_m$
HEAD POSITION
ARM ($P_4$)
206
EXTERNAL TORQUE MOVES HEAD RELATIVE TO DISK ($G_2$)
220
$d_1$
ACTUATOR ($P_3$)
118
ANGLE
COIL ($P_2$)
120
TORQUE
DECK ($G_1$)
226
RV SENSOR (S)
228
ANGULAR ACCELERATION $W_{rv}$ rad/sec$^2$
232
RV FILTER (F)
$u_{rv}$
DAC AMP ($P_1$)
200
CURRENT
ANGULAR ACCELERATION
224
234
$\hat{u}$
u
216
ADAPTATION
230
SERVO CONTROLLER (K)
214
212
PES
POSITION REFERENCE, r
210
208

FIG._2

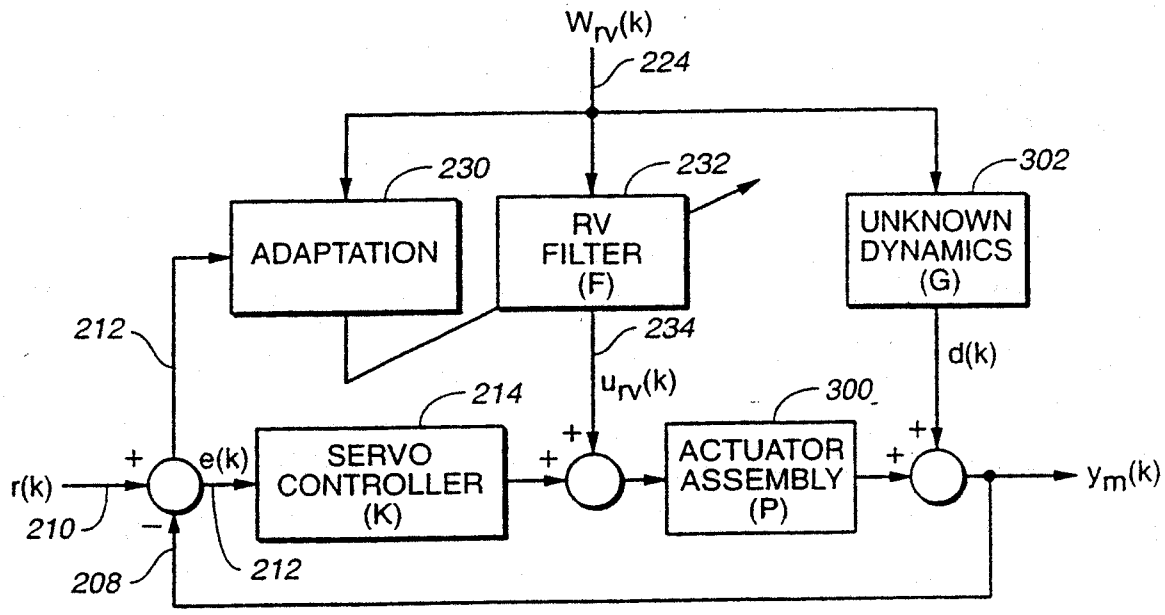

$W_{rv}(k)$
224
230
232
302
ADAPTATION
RV FILTER (F)
UNKNOWN DYNAMICS (G)
212
234
d(k)
$u_{rv}(k)$
214
300
r(k)
210
e(k)
SERVO CONTROLLER (K)
ACTUATOR ASSEMBLY (P)
$y_m(k)$
208
212

FIG._3

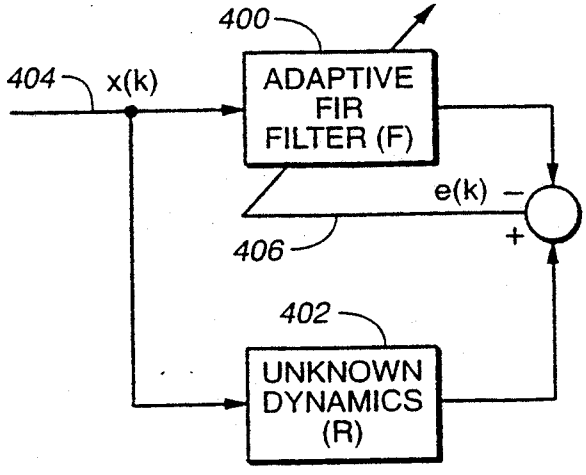

400
404
x(k)
ADAPTIVE FIR FILTER (F)
e(k)
406
402
UNKNOWN DYNAMICS (R)

FIG._4

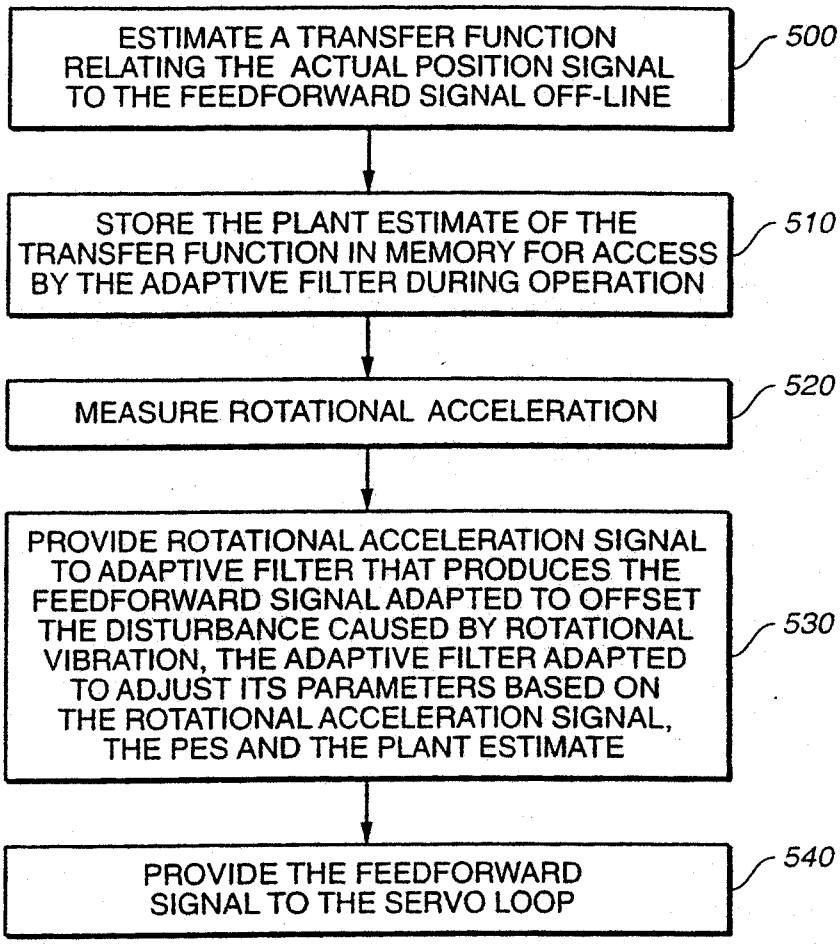

ESTIMATE A TRANSFER FUNCTION RELATING THE ACTUAL POSITION SIGNAL TO THE FEEDFORWARD SIGNAL OFF-LINE
500
STORE THE PLANT ESTIMATE OF THE TRANSFER FUNCTION IN MEMORY FOR ACCESS BY THE ADAPTIVE FILTER DURING OPERATION
510
MEASURE ROTATIONAL ACCELERATION
520
PROVIDE ROTATIONAL ACCELERATION SIGNAL TO ADAPTIVE FILTER THAT PRODUCES THE FEEDFORWARD SIGNAL ADAPTED TO OFFSET THE DISTURBANCE CAUSED BY ROTATIONAL VIBRATION, THE ADAPTIVE FILTER ADAPTED TO ADJUST ITS PARAMETERS BASED ON THE ROTATIONAL ACCELERATION SIGNAL, THE PES AND THE PLANT ESTIMATE
530
PROVIDE THE FEEDFORWARD SIGNAL TO THE SERVO LOOP
540

FIG._5