PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : G05B 19/416, 19/19, G11B 21/08, 5/55 — A2

(11) International Publication Number: WO 00/63753

(43) International Publication Date: 26 October 2000 (26.10.00)

(21) International Application Number: PCT/US00/10559

(22) International Filing Date: 19 April 2000 (19.04.00)

(30) Priority Data:
60/130,311 21 April 1999 (21.04.99) US

(71) Applicant: SEAGATE TECHNOLOGY LLC [US/US]; 920 Disc Drive, Scotts Valley, CA 95067 (US).

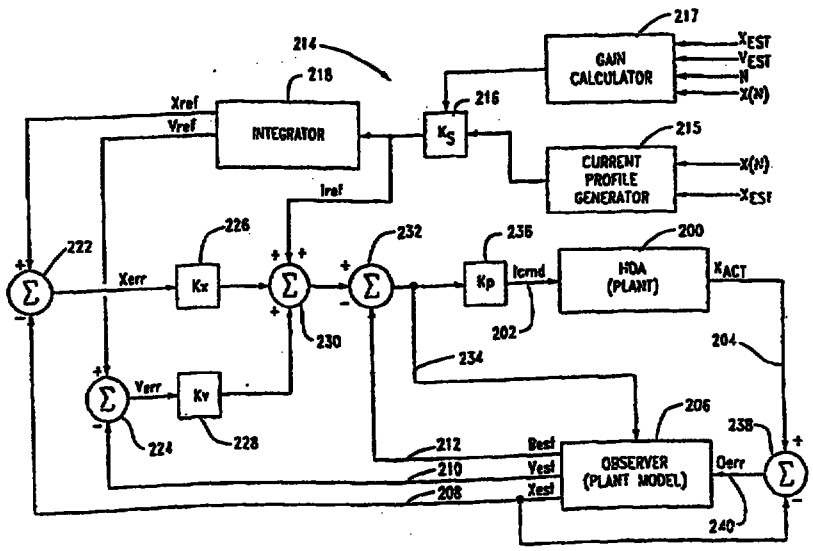
(72) Inventor: BURTON, Matthew, C.; 1800 W. Gebron, Edmond, OK 73003 (US).

(74) Agents: DEMPSTER, Shawn, B.; Seagate Technology, Inc., Intellectual Property Dept.–SHK2LG, 1280 Disc Drive, Shakopee, MN 55379–1863 (US) et al.

(81) Designated States: CN, DE, GB, JP, KR, SG.

Published
Without international search report and to be republished upon receipt of that report.

(54) Title: SELF TUNING MODEL REFERENCE CONTROLLER IN A DISC DRIVE



(57) Abstract

Method and apparatus for moving a head (118) of a disc drive (100) from an initial position to a destination position on a recording surface of a rotatable disc (108) by generating and applying a model reference current (380, 392) to an actuator motor (124). A servo circuit (140) includes a current profile generator (215) which generates a baseline reference current profile (270). A gain calculator (217) calculates first and second gain factors in relation to an initial velocity of the head. A gain block (216) generates the model reference current by applying the first gain factor to a first portion of the baseline reference current profile used to accelerate the head and subsequently applying the second gain factor to a second portion of the baseline reference current profile used to decelerate the head, wherein the first and second gain factors have different respective magnitudes to compensate for a nonzero initial velocity of the head.