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# United States Patent [19]

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Mezzatesta, Jr. et al.

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## [54] CONTROL SYSTEM FOR REGULATING MOTOR SPEED

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[73] Assignee: **The Walt Disney Company**, Burbank, Calif.

[21] Appl. No.: **54,541**

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### Related U.S. Application Data

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[51] Int. Cl.<sup>5</sup> ..... **H02P 5/00; H02H 7/08; G01P 3/48**

[52] U.S. Cl. .... **318/268; 318/434; 318/464; 388/903; 388/909**

[58] Field of Search ..... **318/565, 652, 653, 640, 318/647, 463, 254, 590, 602, 618, 135, 138, 139, 268, 271, 272, 434, 439, 464, 490, 494, 495, 496; 388/809, 814, 816, 820, 903, 907.5, 909**

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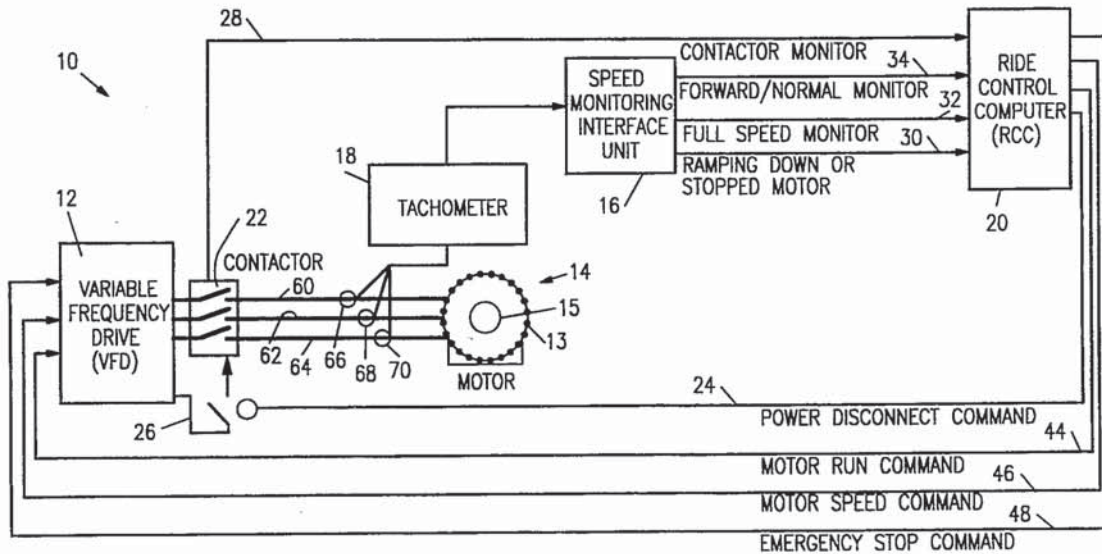
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### [57] ABSTRACT

A motor control system accurately and reliably controls the speed of a motor so that the motor operates in accordance with a predetermined motor speed profile, and therefore does not exceed a predetermined safe speed, decelerates at a controlled rate, maintains a safe minimum speed, and does not turn in reverse. If the motor operates out of these limits, a malfunction is indicated and the control system halts operation of the motor. The motor speed is determined using an electronic tachometer that analyzes the current in at least two phases of the motor to provide extremely precise and reliable velocity information for the motor.

20 Claims, 4 Drawing Sheets





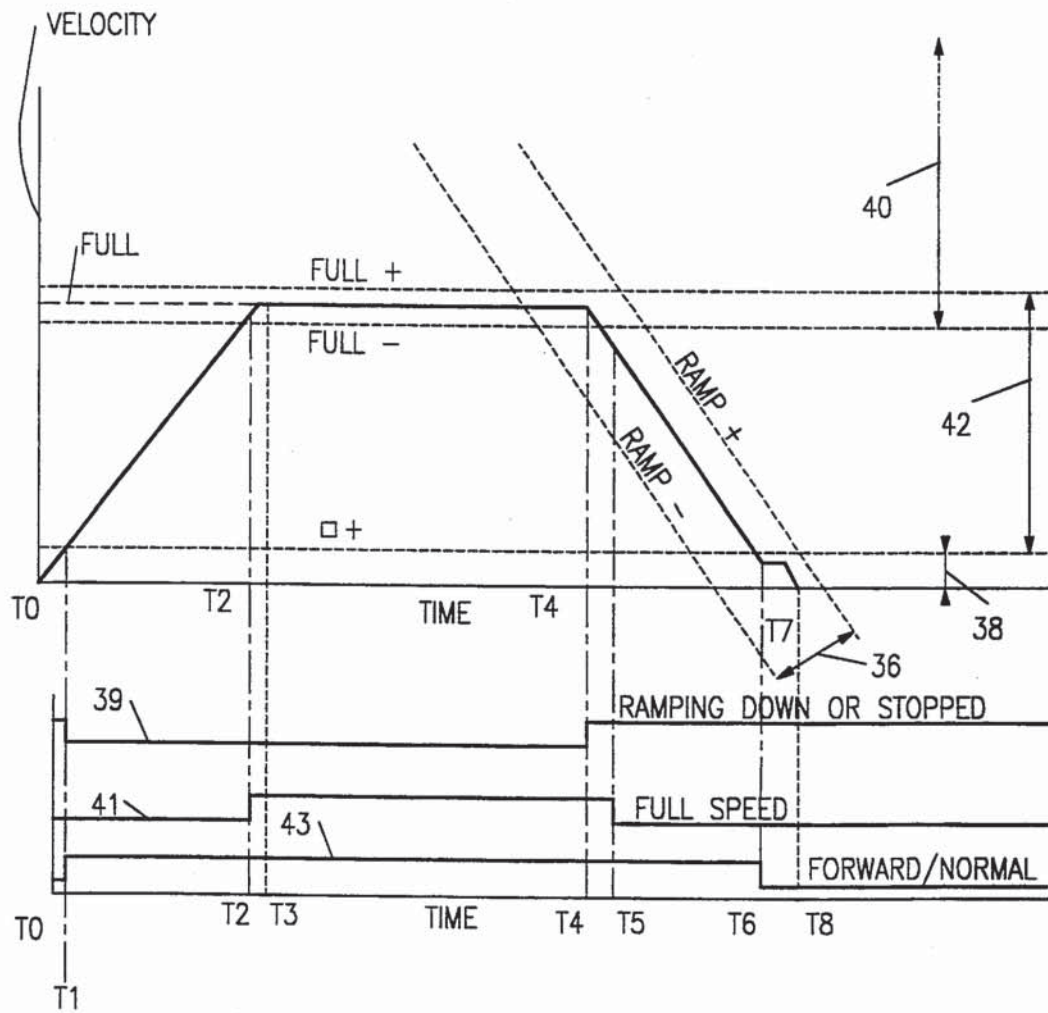


FIG. 2

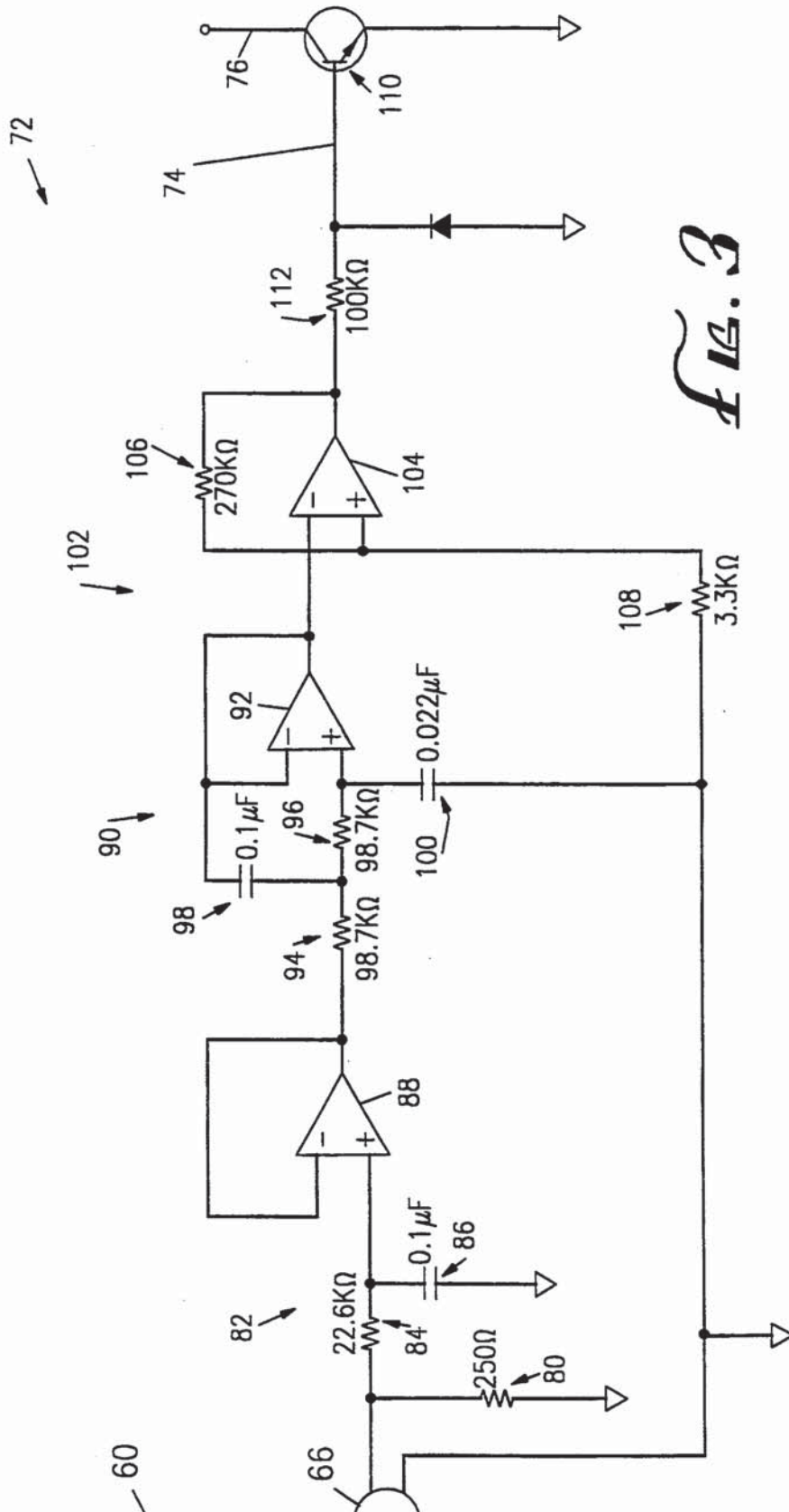


FIG. 3





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