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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**
- [22] Filed: **Apr. 27, 1993**

- 4,228,396 10/1980 Palombo et al. .
- 4,292,577 9/1981 Cesarz et al. .
- 4,305,025 12/1981 Arnold .
- 4,386,398 5/1983 Matsuoka et al. .
- 4,449,082 5/1984 Webster .
- 4,492,902 1/1985 Ficken et al. .
- 4,570,110 2/1986 Bloom et al. .
- 4,572,999 2/1986 Coulon, Jr. .
- 4,686,437 8/1987 Langley et al. .
- 4,712,050 12/1987 Nagasawa et al. .
- 4,942,344 7/1990 Devitt et al. .
- 5,015,927 5/1991 Reichard .
- 5,028,852 7/1991 Dunfield .
- 5,076,399 12/1991 Horbruegger et al. .

### Related U.S. Application Data

- [62] Division of Ser. No. 843,604, Feb. 28, 1992.
- [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**

*Primary Examiner*—Bentsu Ro  
*Attorney, Agent, or Firm*—Pretty, Schroeder, Brueggemann & Clark

### [57] ABSTRACT

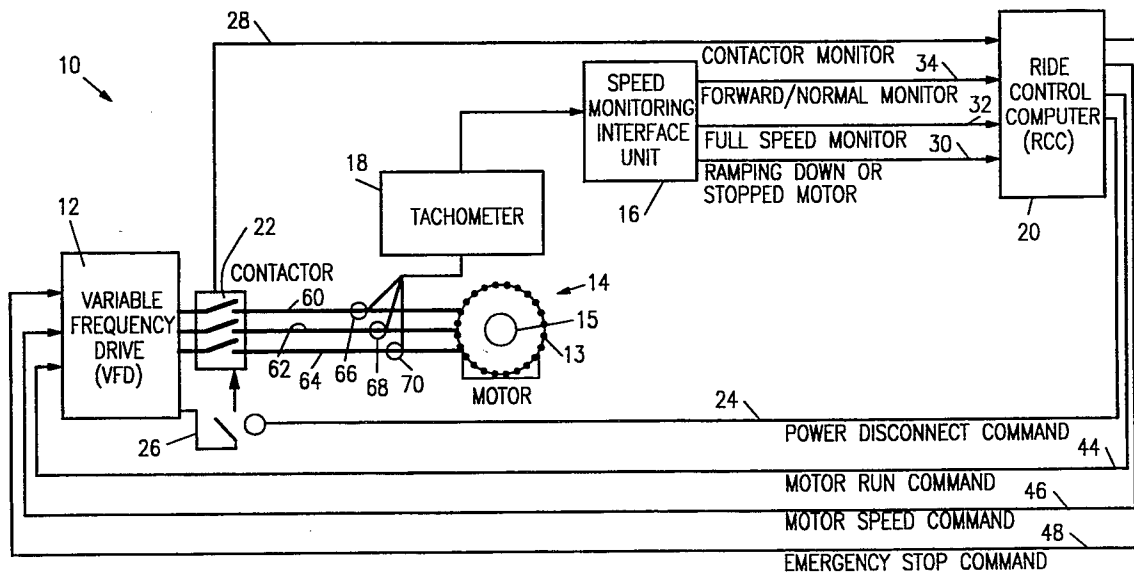
A motor control system accurately and reliably controls the speed of a motor so that the motor operates in accordance with a predetermined motor speed profile, and therefore does not exceed a predetermined safe speed, decelerates at a controlled rate, maintains a safe minimum speed, and does not turn 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.

### [56] References Cited

#### U.S. PATENT DOCUMENTS

- Re. 32,857 2/1989 Luneau .
- 1,438,616 12/1922 Staege .
- 3,757,183 9/1973 Nola .
- 3,916,272 10/1975 Grunleitner et al. .
- 3,969,659 7/1976 Thode .
- 4,078,189 3/1978 Nash et al. .
- 4,208,621 6/1980 Hipkins et al. .

**20 Claims, 4 Drawing Sheets**



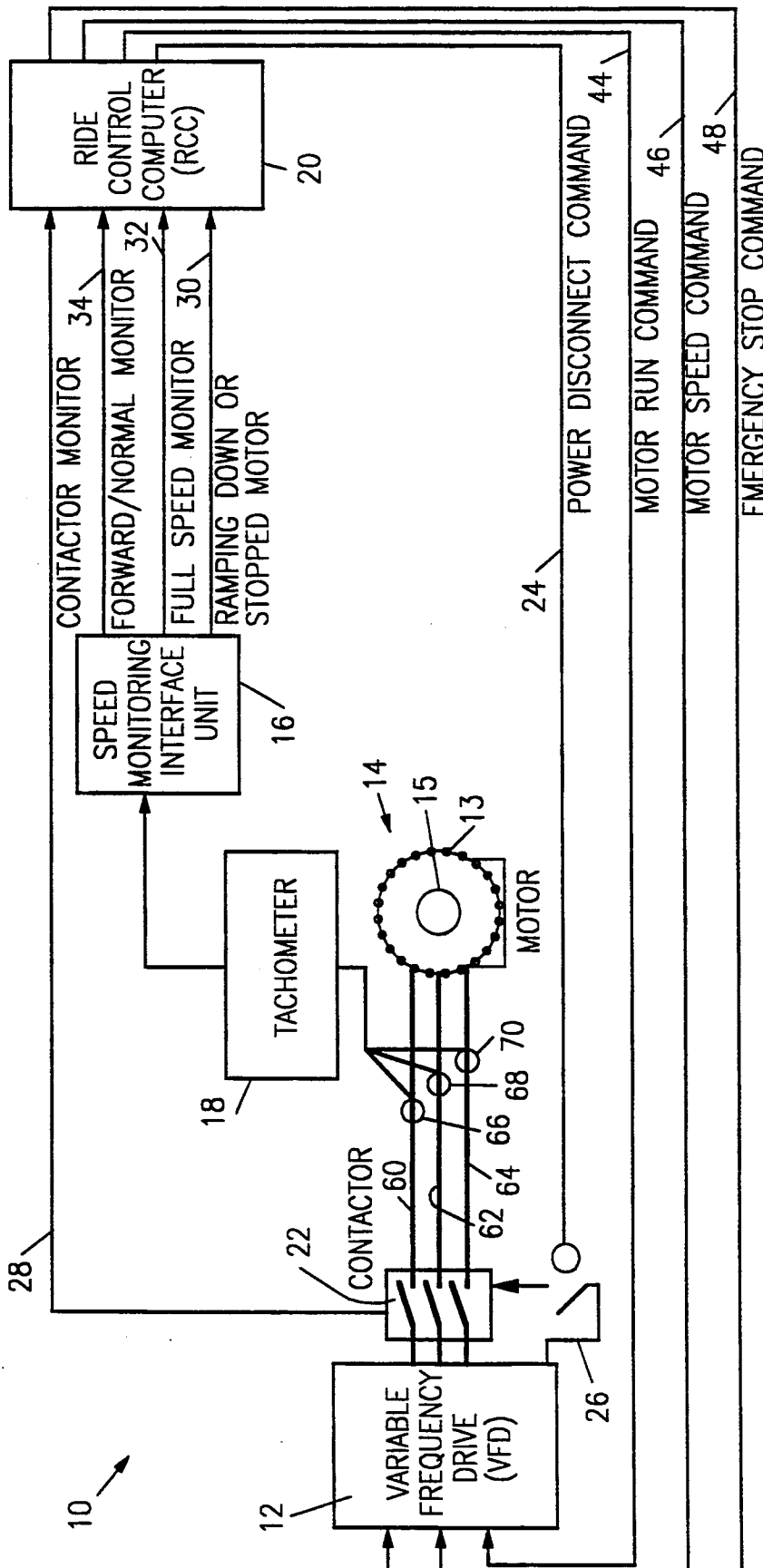


FIG. 1

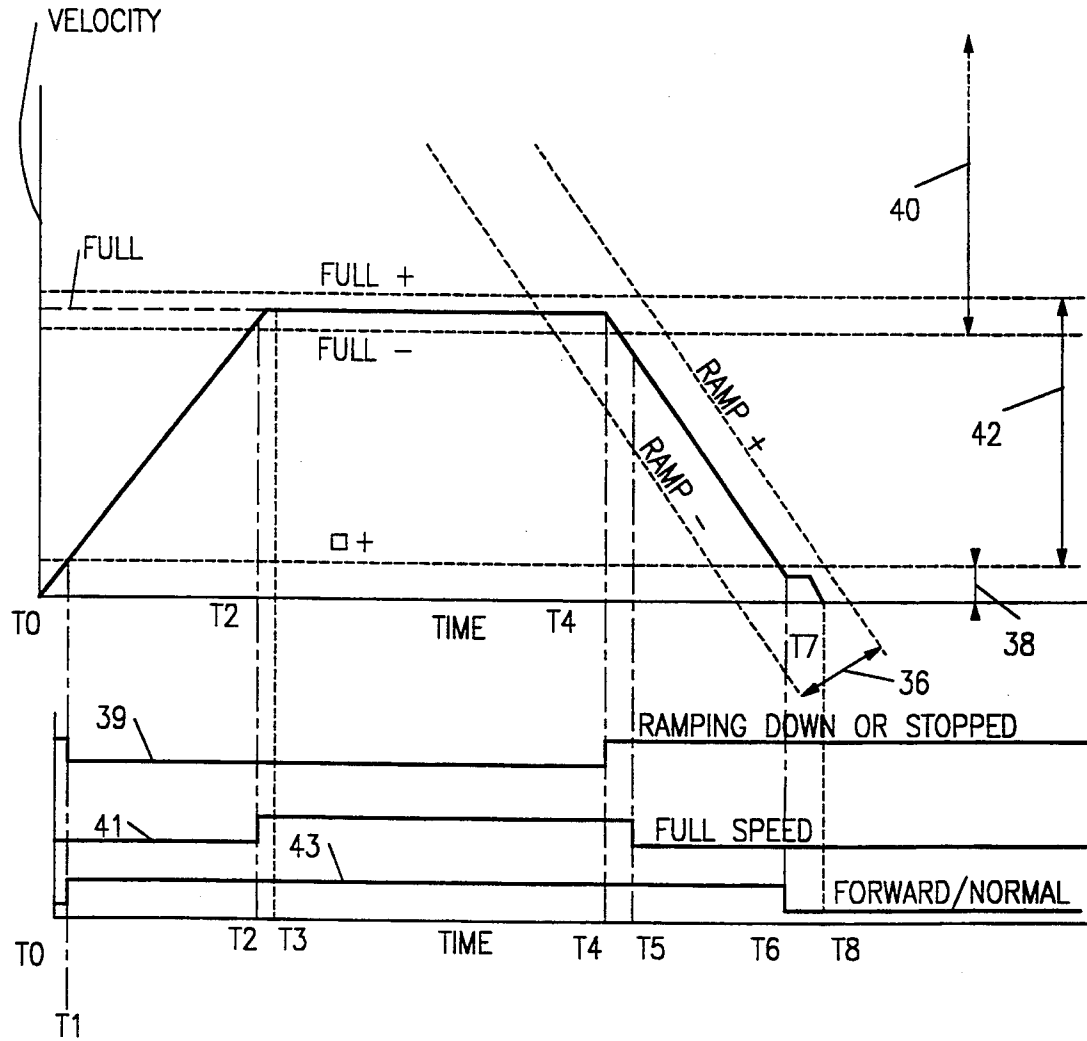


FIG. 2

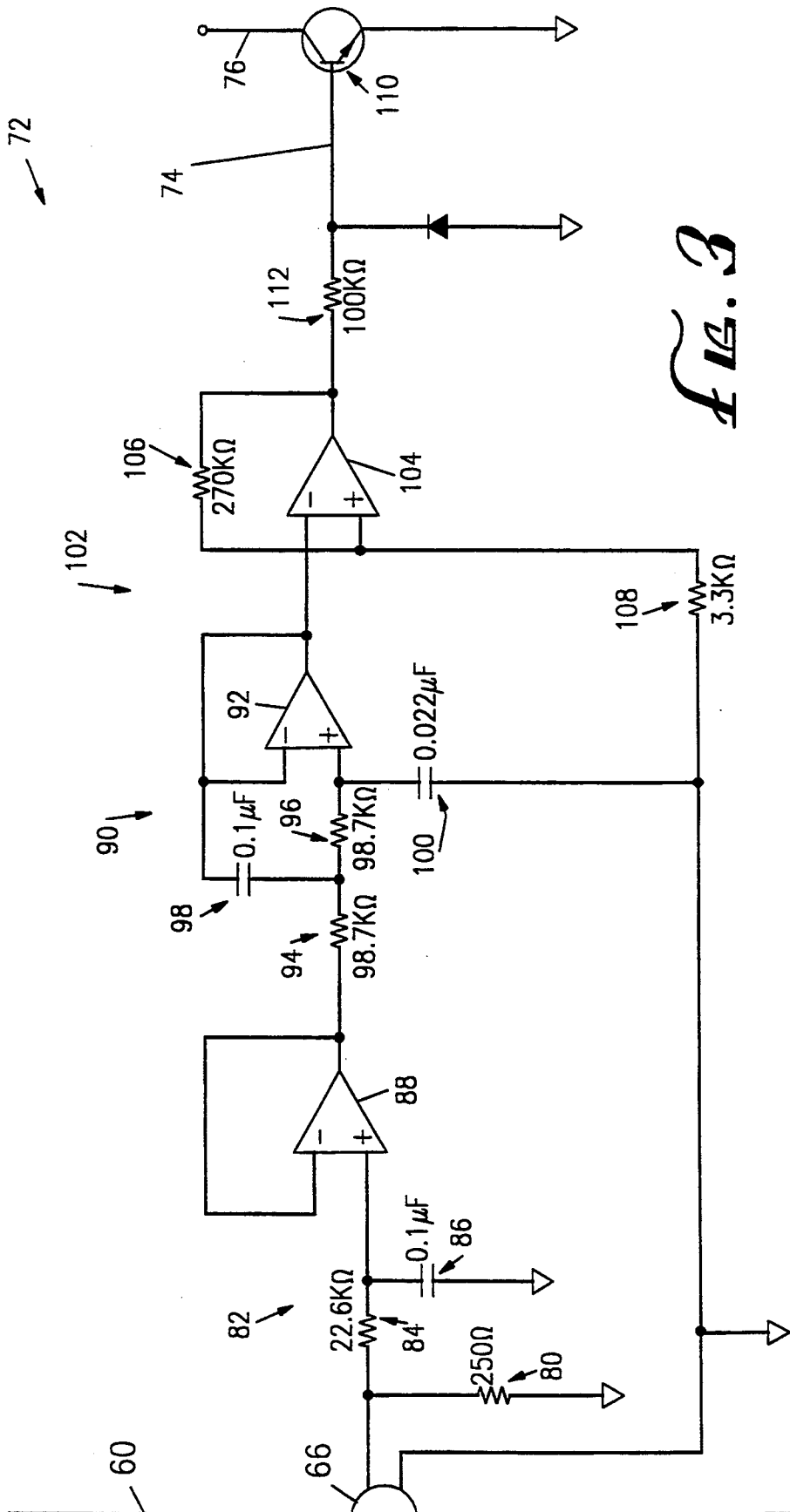


FIG. 3



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