# United States Patent [19]



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### Lateur et al.

### [54] HYBRID PARALLEL ELECTRIC VEHICLE

- [75] Inventors: Michel J. Lateur, Redwood City; Daniel P. Pliskin, Palo Alto, both of Calif.
- [73] Assignee: Nevcor, Inc., Stanford, Calif.
- [21] Appl. No.: **372,173**
- [22] Filed: Jan. 12, 1995
- [51] Int. Cl.<sup>6</sup> ..... B60K 1/00
- [52] U.S. Cl. ..... 180/65.2; 180/65.4; 180/165

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# [11] **Patent Number:** 5,823,280

### [45] **Date of Patent:** Oct. 20, 1998

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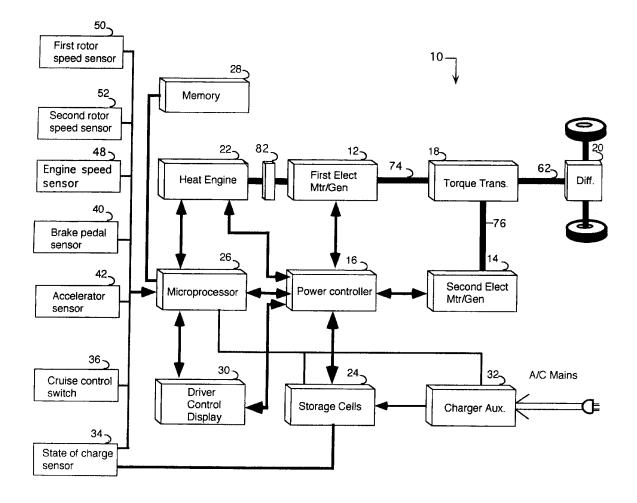
Primary Examiner-Richard M. Camby

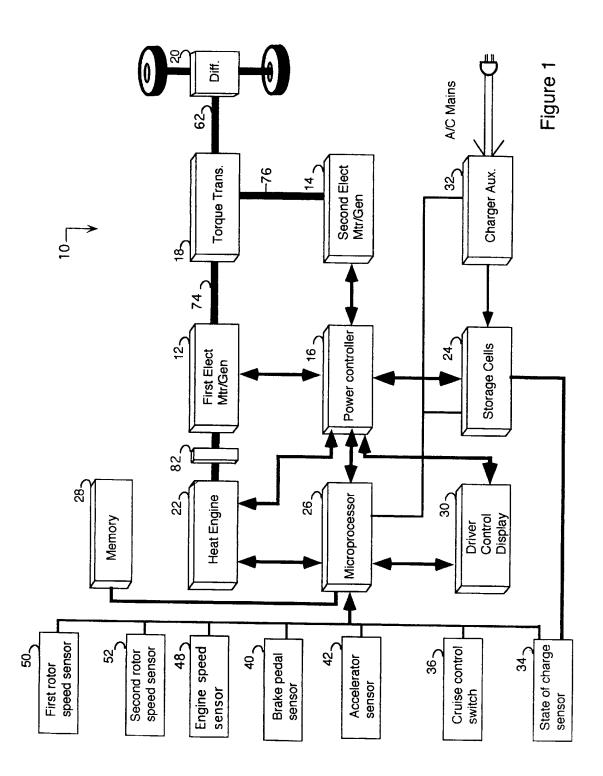
Attorney, Agent, or Firm—Flehr Hohbach Test Albritton & Herbert LLP

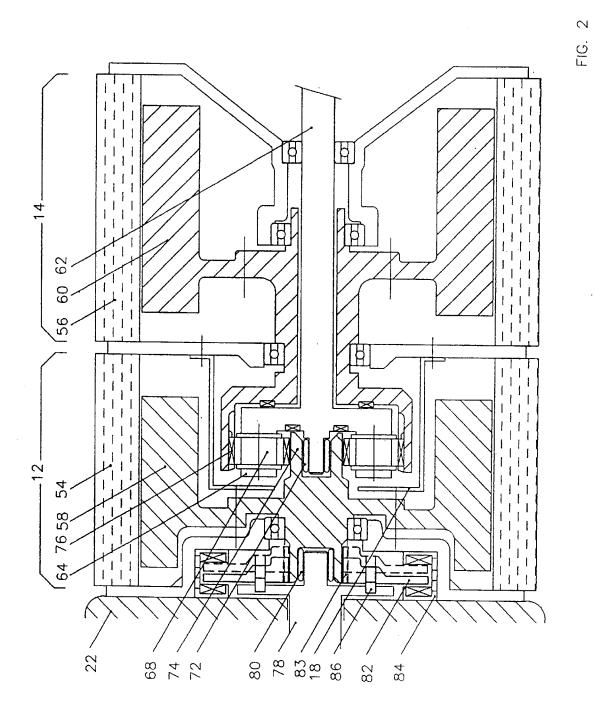
### [57] ABSTRACT

A hybrid electric drive system is described that includes a heat engine having a drive shaft, and two electric motor/generators having rotors that are coaxially connected to the drive shaft. A control arrangement for these elements is also described that provides a relatively simple combined operation for driving a vehicle.

### 19 Claims, 9 Drawing Sheets







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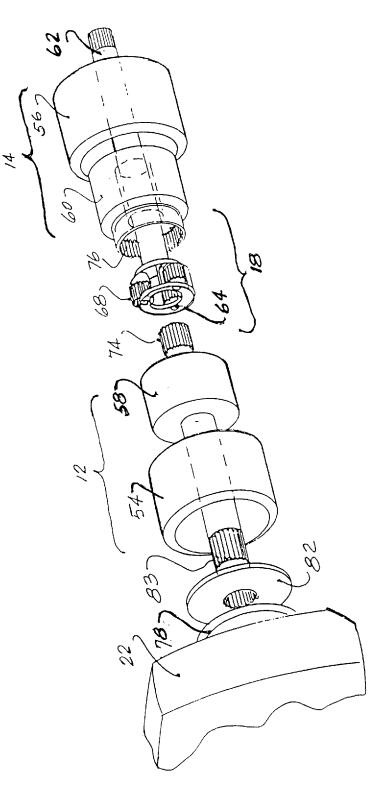
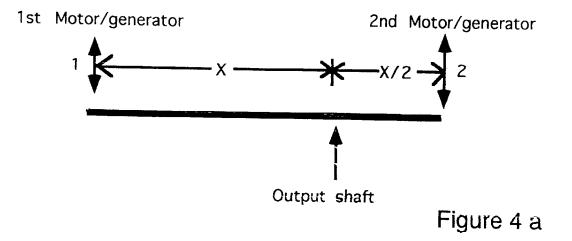


Figure 3

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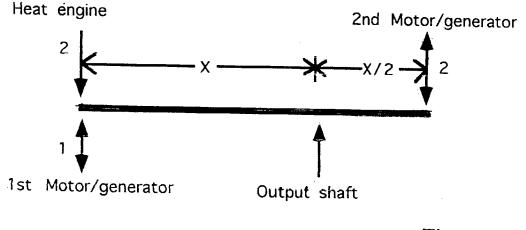


Figure 4 b

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