



[54] HYBRID PARALLEL ELECTRIC VEHICLE

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[21] Appl. No.: 372,173

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[51] Int. Cl.⁶ B60K 1/00

[57] ABSTRACT

[52] U.S. Cl. 180/65.2; 180/65.4; 180/165

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.

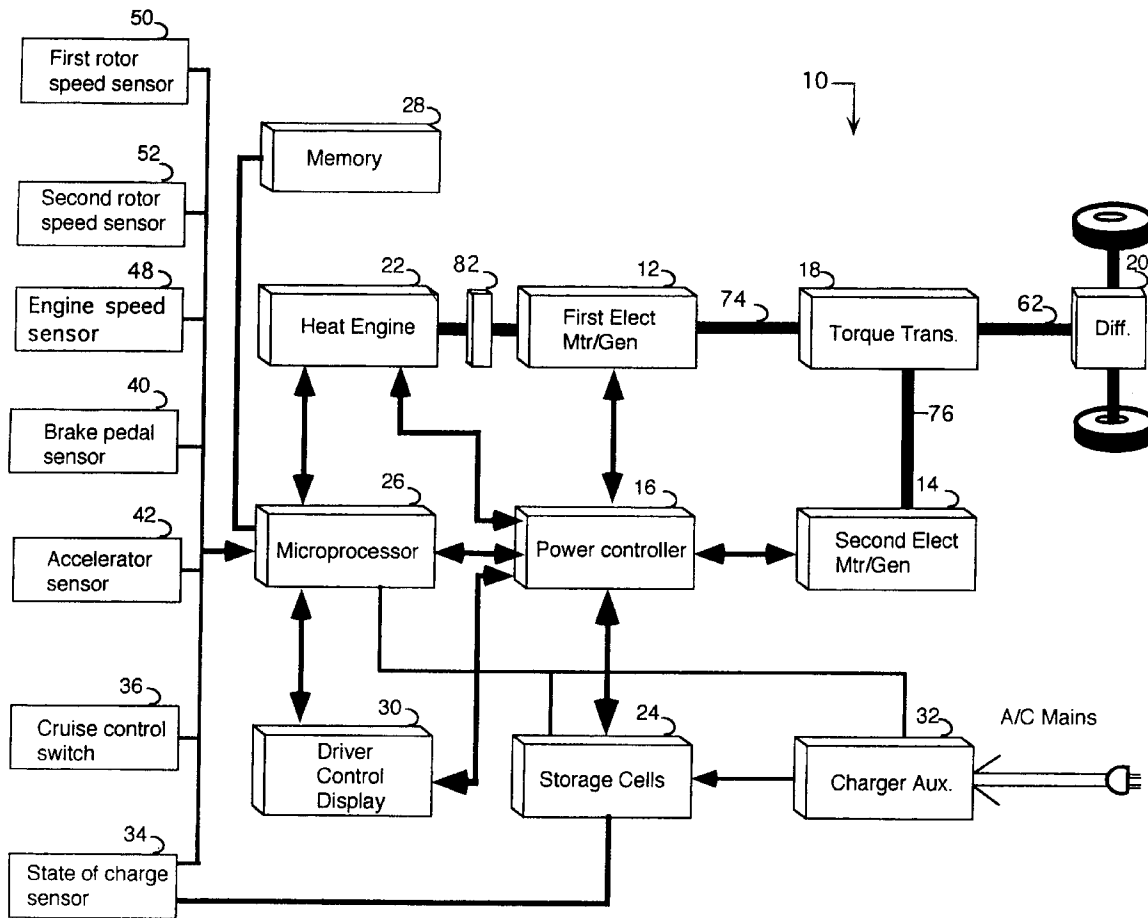
[58] Field of Search 60/716; 180/65.2, 180/65.1, 65.4, 65.3; 475/3, 5; 364/426.041; 318/141, 149, 34, 41, 46, 53, 59, 61

[56] References Cited

U.S. PATENT DOCUMENTS

3,122,696 2/1964 Graybeal et al. 322/20

19 Claims, 9 Drawing Sheets



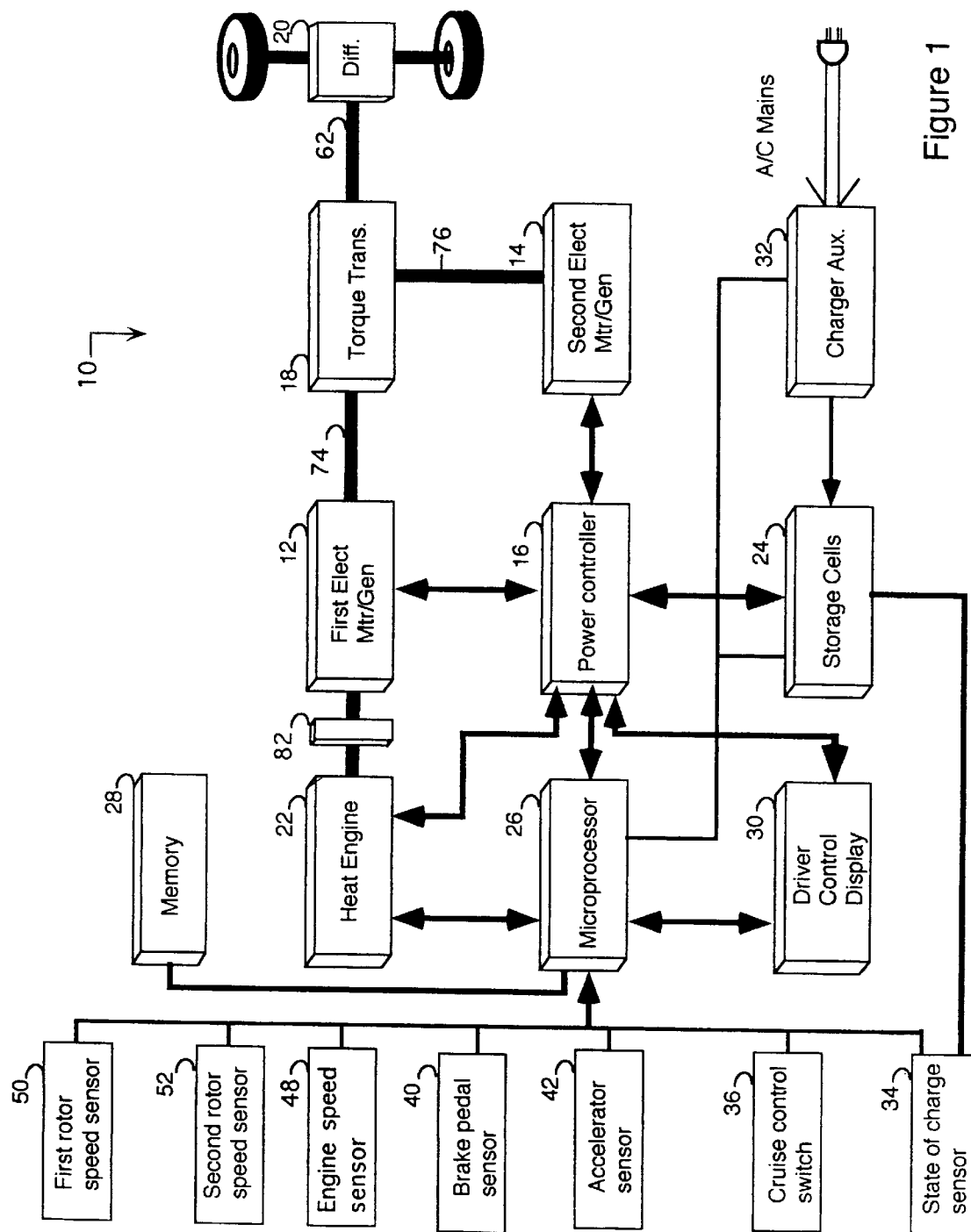


Figure 1

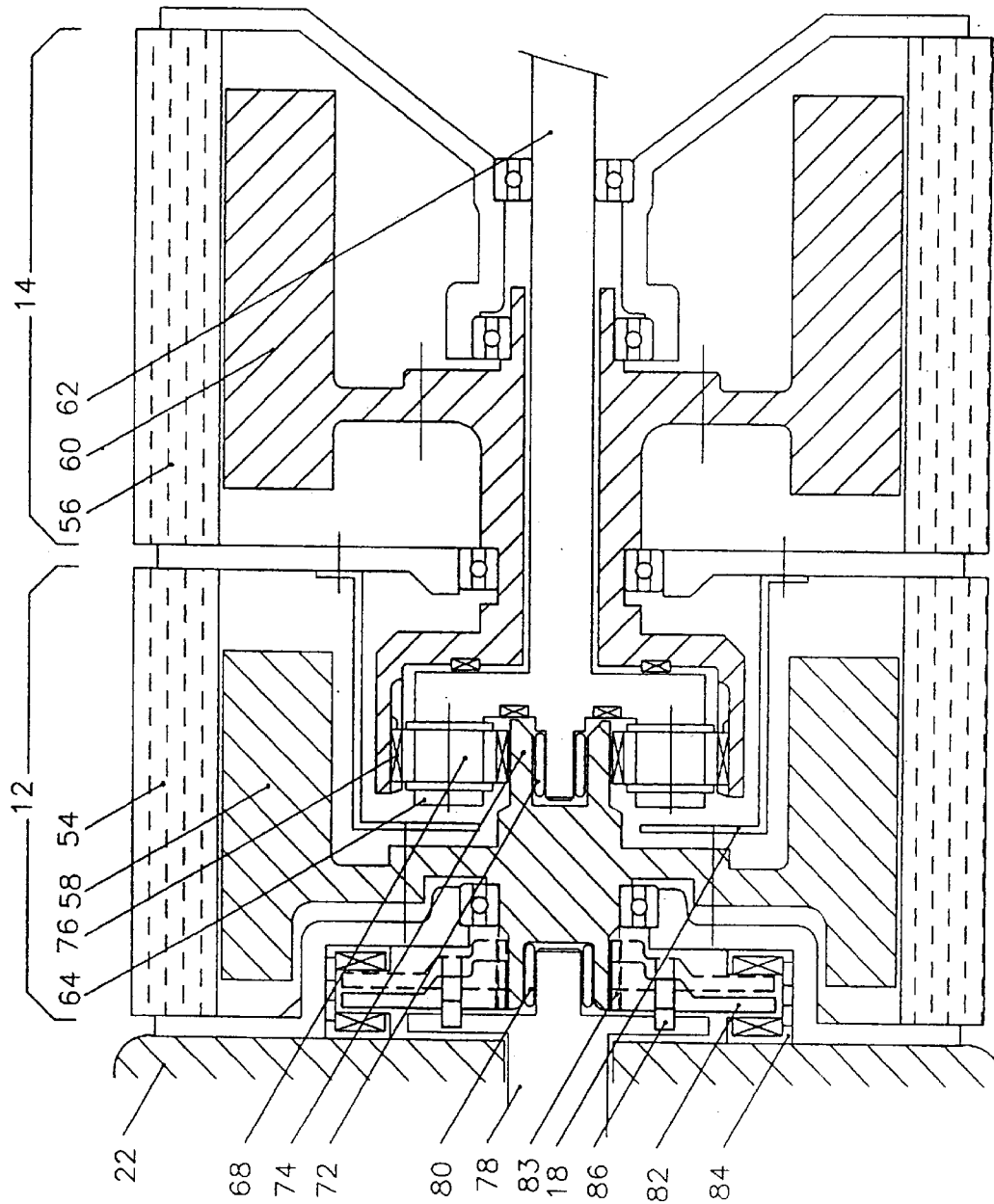


FIG. 2

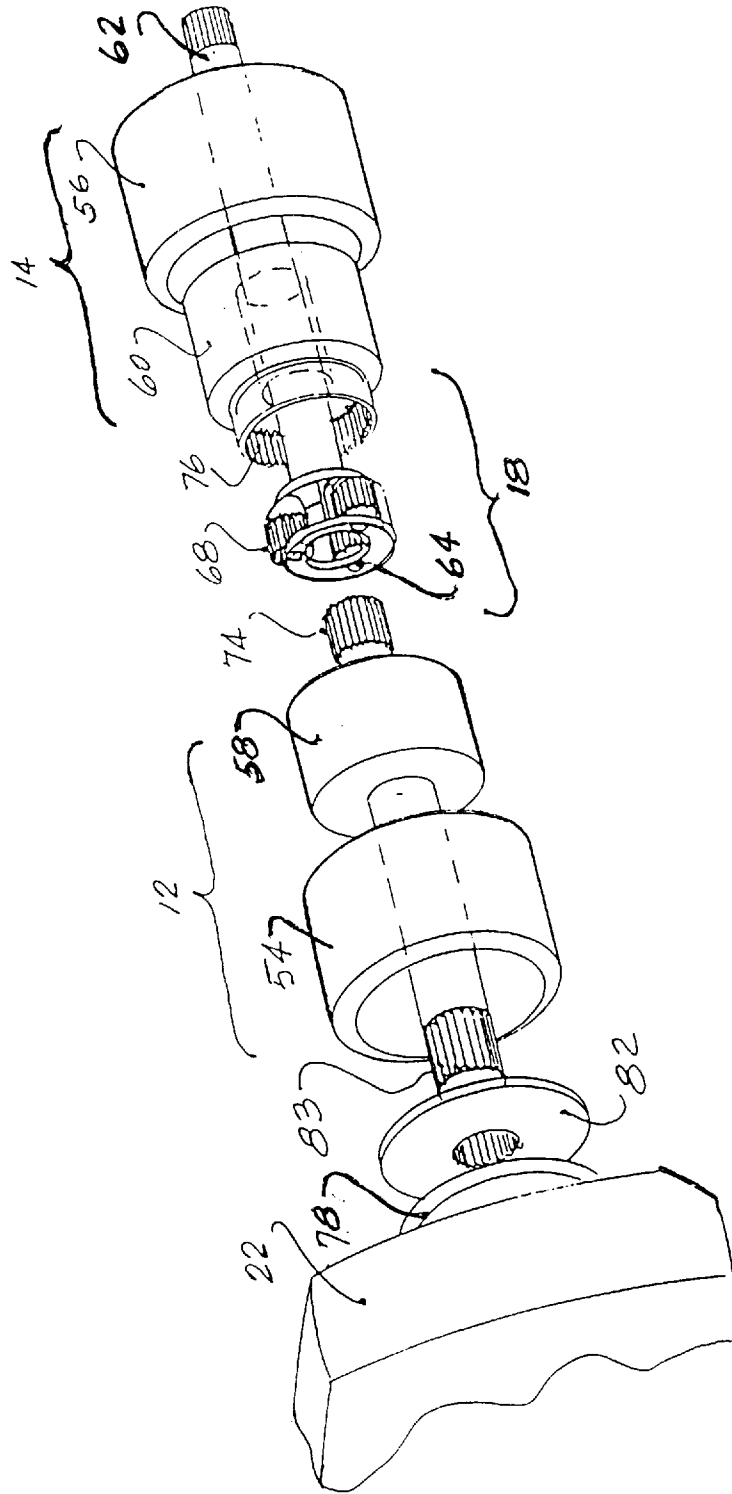


Figure 3

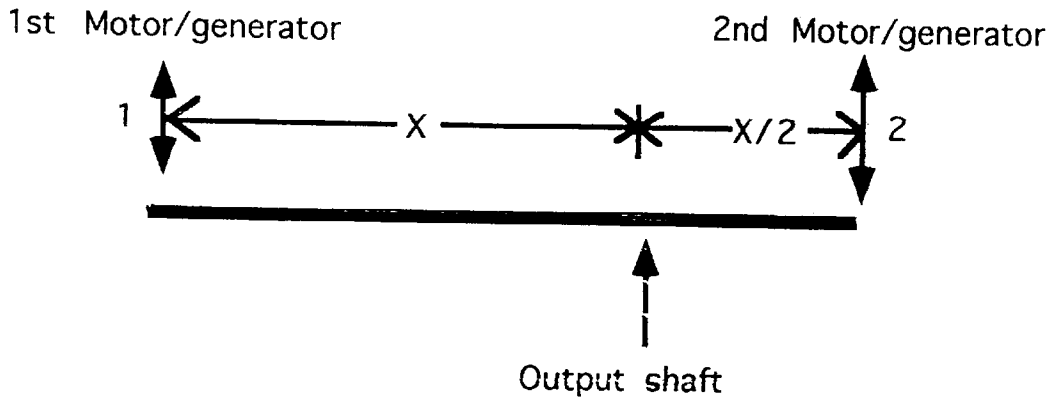


Figure 4 a

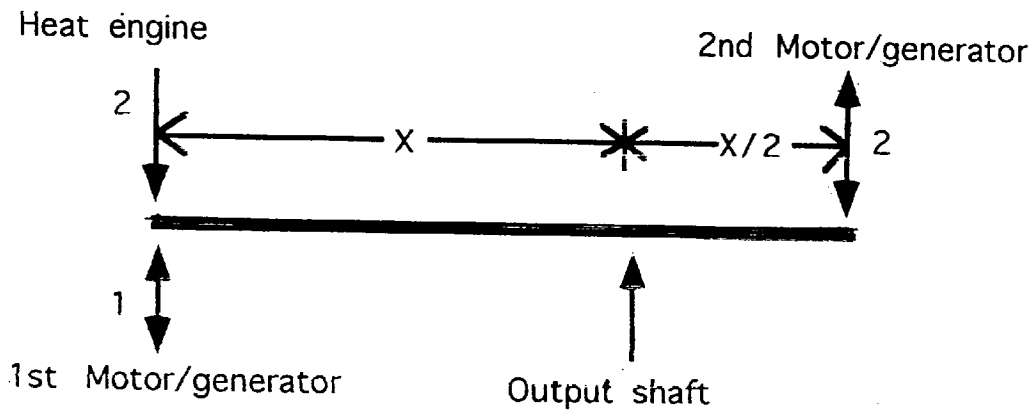


Figure 4 b

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