

### US005934395A

## United States Patent [19]

### Koide et al.

[52]

[58]

5,934,395 **Patent Number:** [11]

**Date of Patent:** Aug. 10, 1999 [45]

[54]	TWO MO	VEHICLE DRIVE SYSTEM HAVING DTOR/GENERATOR UNITS AND STARTING MEANS		
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[22]	Filed:	Oct. 15, 1996		
[30] Foreign Application Priority Data				
Oct. 18, 1995 Sep. 5, 1996				
[51]	Int. Cl. <sup>6</sup>	B60K 6/04		

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**Field of Search** ...... 180/65.2, 65.3,

180/65.4, 65.6; 123/3

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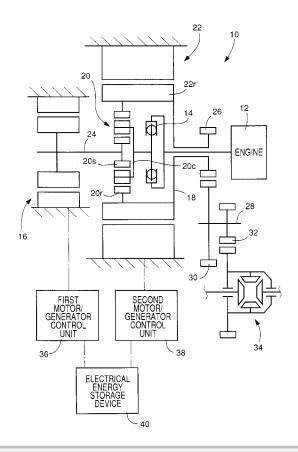
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Primary Examiner—J. J. Swann Assistant Examiner—Frank Vanaman Attorney, Agent, or Firm-Oliff & Berridge, PLC

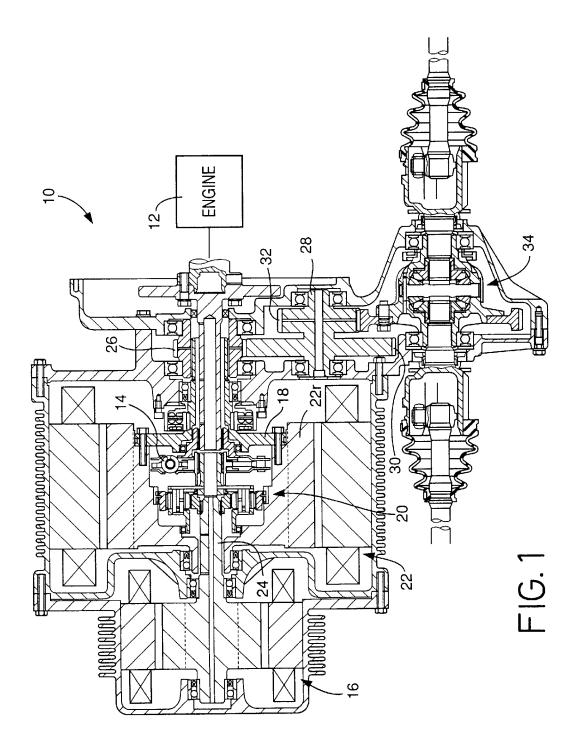
#### [57] **ABSTRACT**

A hybrid drive system for a motor vehicle, including an engine operated by combustion of a fuel, a first motor/ generator, a distributing mechanism for mechanically distributing an output of the engine to the first motor/generator and an output member, a second motor/generator whose rotary force is transferred to a power transmitting path between the output member and a drive wheel of the motor vehicle, and wherein an engine starting device is provided for operating the first motor/generator to crank the engine through the distributing mechanism, for thereby starting the engine.

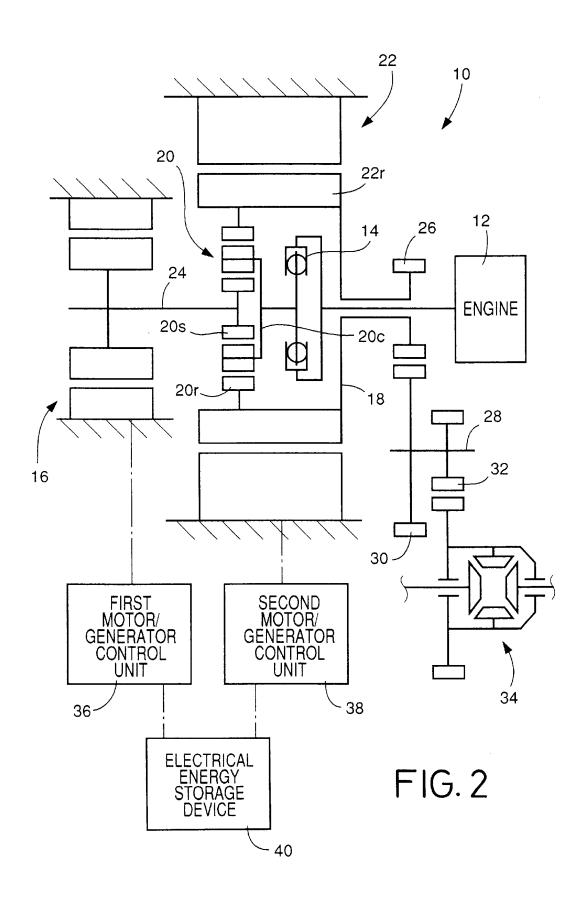
### 7 Claims, 16 Drawing Sheets











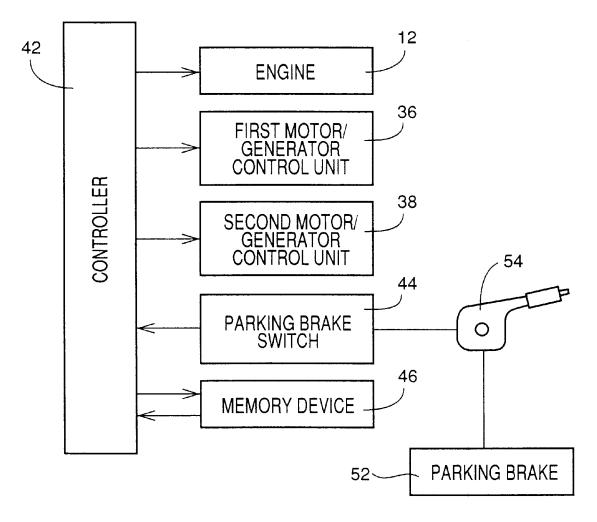
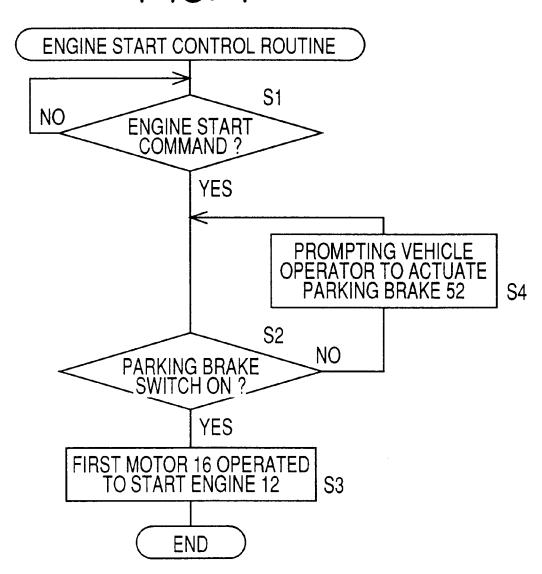


FIG. 3

FIG. 4





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