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Yamazaki et al.

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[54] **EVAPORATIVE FUEL-ADSORBING DEVICE AND EVAPORATIVE EMISSION CONTROL SYSTEM INCLUDING SAME**

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[21] Appl. No.: **329,831**

[22] Filed: **Oct. 27, 1994**

[30] **Foreign Application Priority Data**

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Dec. 27, 1993 [JP] Japan 5-348572

[51] Int. Cl.⁶ **F02M 25/08**

[52] U.S. Cl. **123/519; 123/520**

[58] Field of Search 123/516, 518, 123/519, 520

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,308,840	1/1982	Hiramatsu	123/519
4,894,072	1/1990	Turner et al.	123/519
4,919,103	4/1990	Ishiquro et al.	123/519
4,951,643	8/1990	Sato et al.	123/519
5,056,494	10/1991	Kayanuma	123/519
5,111,795	5/1992	Thompson	123/519
5,143,041	9/1992	Franzke	123/516

5,170,765 12/1992 Hoshino et al. 123/519

FOREIGN PATENT DOCUMENTS

1-159455 6/1989 Japan .

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[57] **ABSTRACT**

An evaporative fuel-adsorbing device adsorbs evaporative fuel generated from a fuel tank of an internal combustion engine. A partition divides the interior of a casing at least into a first adsorbent chamber and a second adsorbent chamber. Adsorbents are charged in the first adsorbent chamber and the second adsorbent chamber, respectively, for adsorbing the evaporative fuel. The evaporative fuel from the fuel tank is permitted to flow into the first adsorbent chamber via a charging port provided therein. The evaporative fuel desorbed from the adsorbents in the adsorbent chambers are permitted to flow out of the first adsorbent chamber via a purging port provided therein. The second adsorbent chamber is communicated with the atmosphere via an air-inlet port. The maximum flow rate of the evaporative fuel through a communication passage connecting between the first and second adsorbent chambers is changed in dependence on at least one of an amount of the evaporative fuel flowing into the evaporative fuel-adsorbing device and an amount of the evaporative fuel flowing out of same. An evaporative emission control system incorporating the evaporative fuel-adsorbing device is also provided.

18 Claims, 6 Drawing Sheets

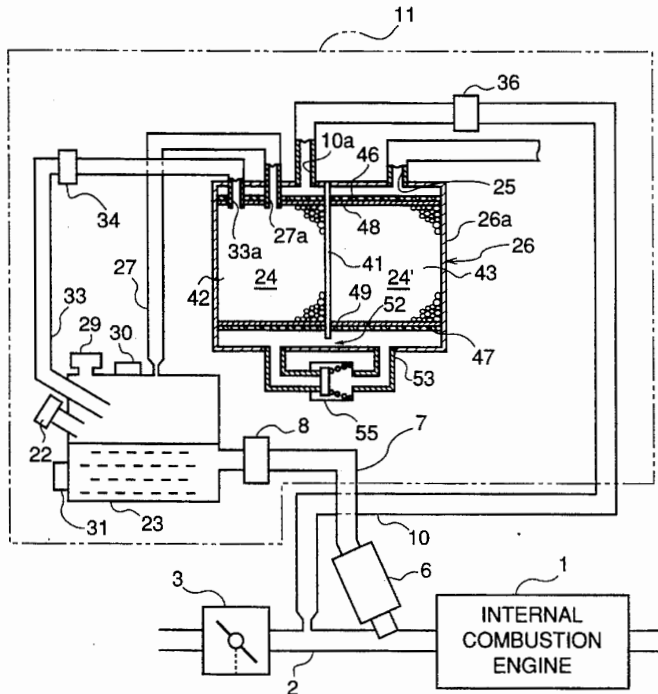


FIG. 1

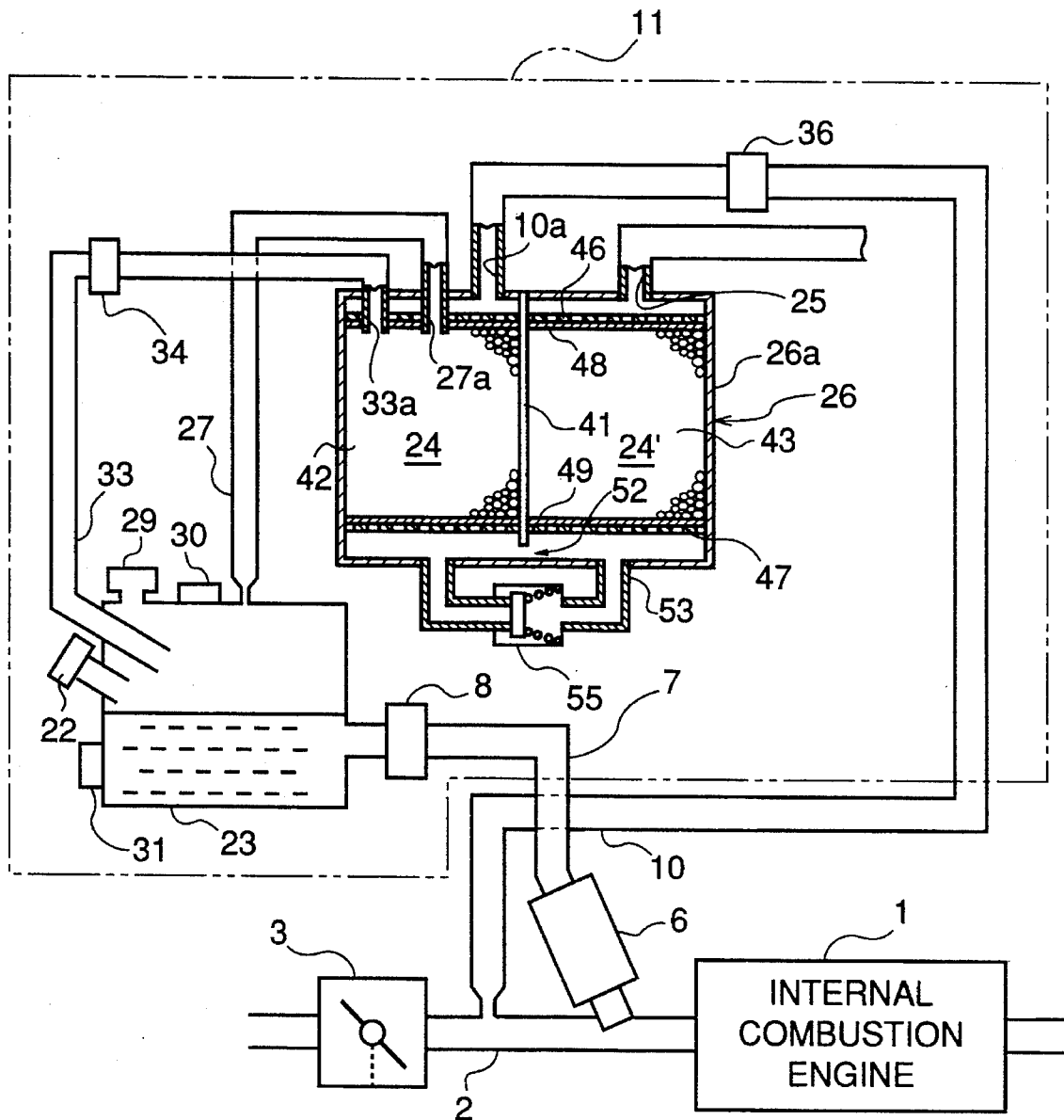


FIG. 2

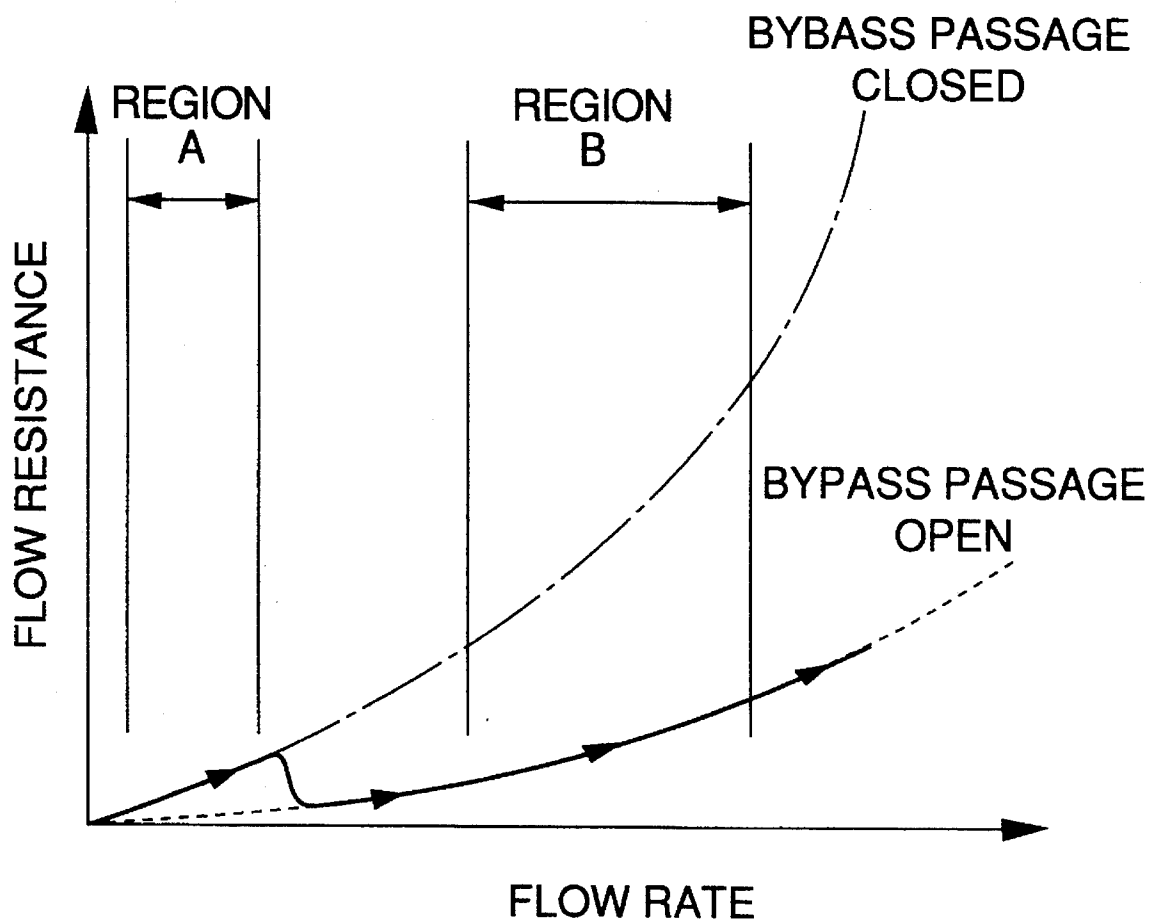


FIG.3

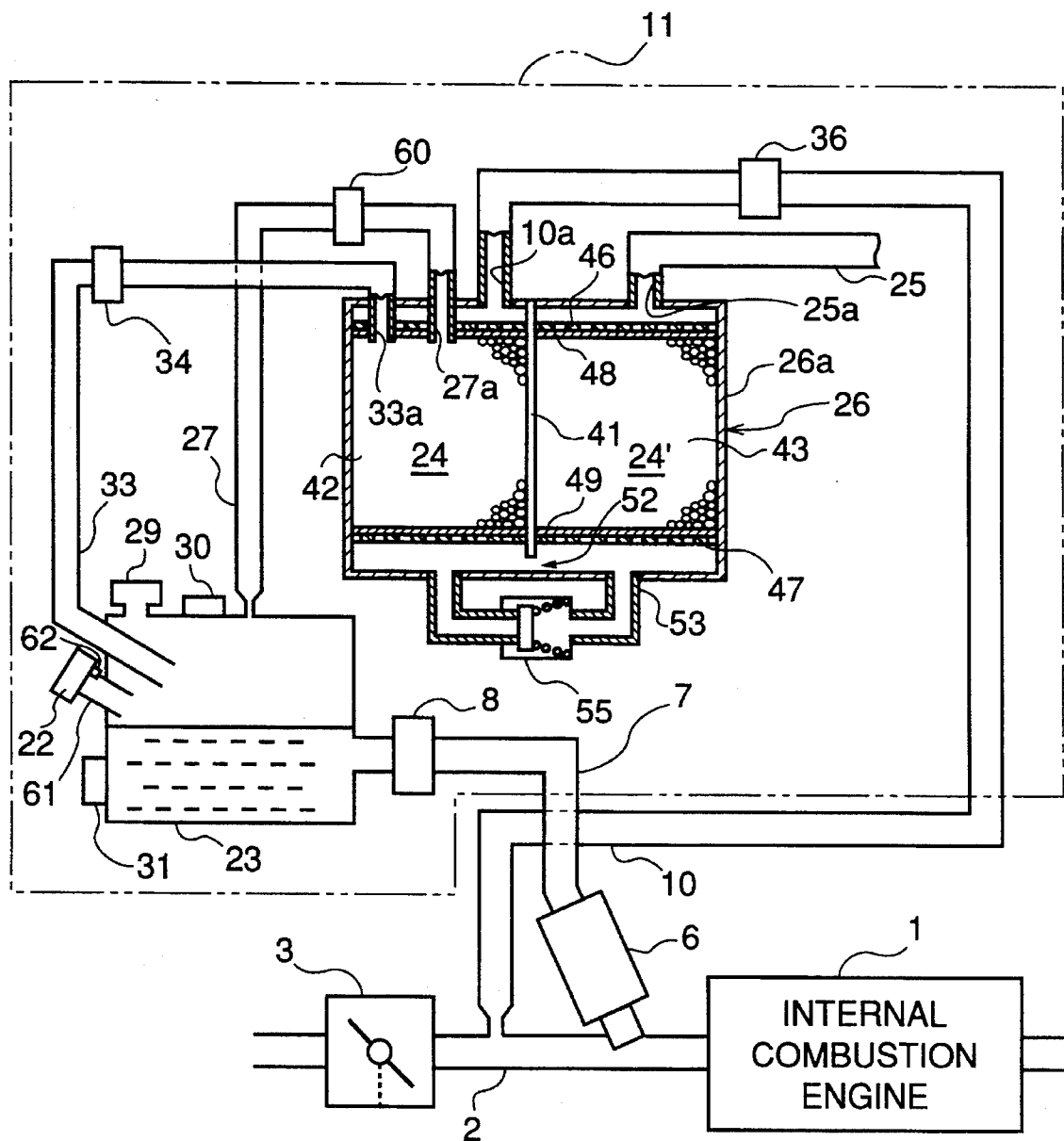
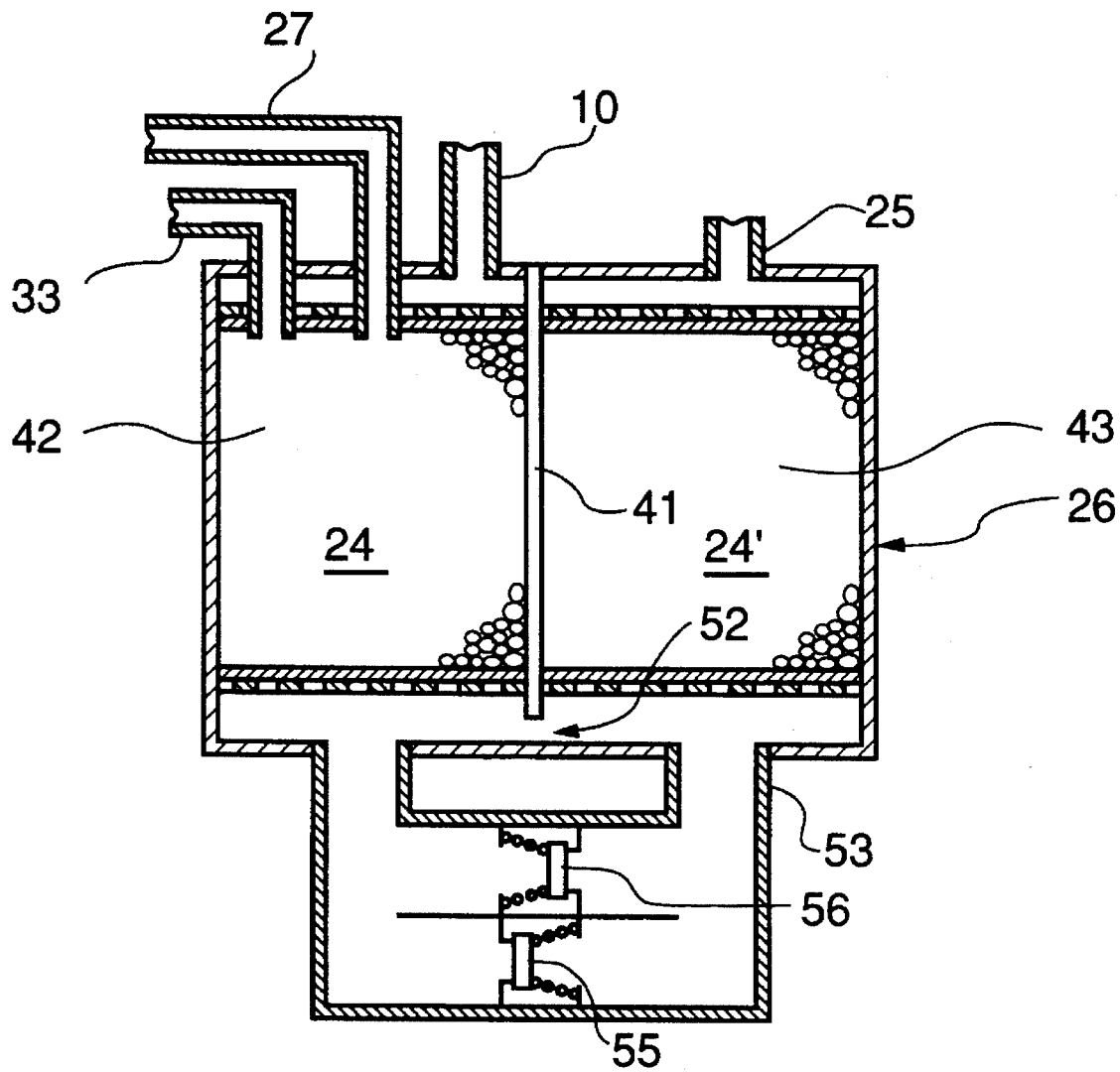


FIG. 4



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