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(12) **United States Patent**
Reddy

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(54) **EVAPORATIVE EMISSION CONTROL
CANISTER SYSTEM FOR REDUCING
BREAKTHROUGH EMISSIONS**

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(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(57) **ABSTRACT**

The effectiveness against vapor breakthrough of an adsorbent material (e.g., activated carbon granules) containing canister in an evaporative fuel emission control system is greatly increased by employing a relatively small secondary volume of adsorbent downstream of the vapor vent of the primary adsorbent volume and heating the secondary volume just prior to commencing the flow of purge air back through the two adsorbent volumes to remove adsorbed fuel and carry the purged fuel to the induction system of an associated engine. The secondary volume is heated to a temperature enabling complete purging of hydrocarbons from it and, thus, to greatly increase the capacity of that volume to prevent fuel vapor breakthrough during the subsequent engine-off fuel vapor storage cycle. The secondary volume may be contained in a common canister with the primary volume or in a secondary canister.

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(51) **Int. Cl.**⁷ **F02M 33/04; F02G 5/00**

(52) **U.S. Cl.** **123/520; 123/557; 123/519**

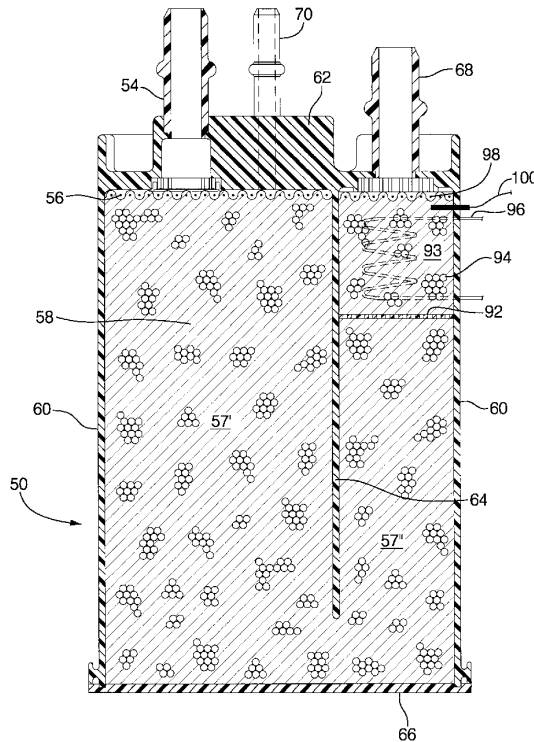
(58) **Field of Search** **123/516, 518,**
123/519, 520, 549, 557

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14 Claims, 6 Drawing Sheets



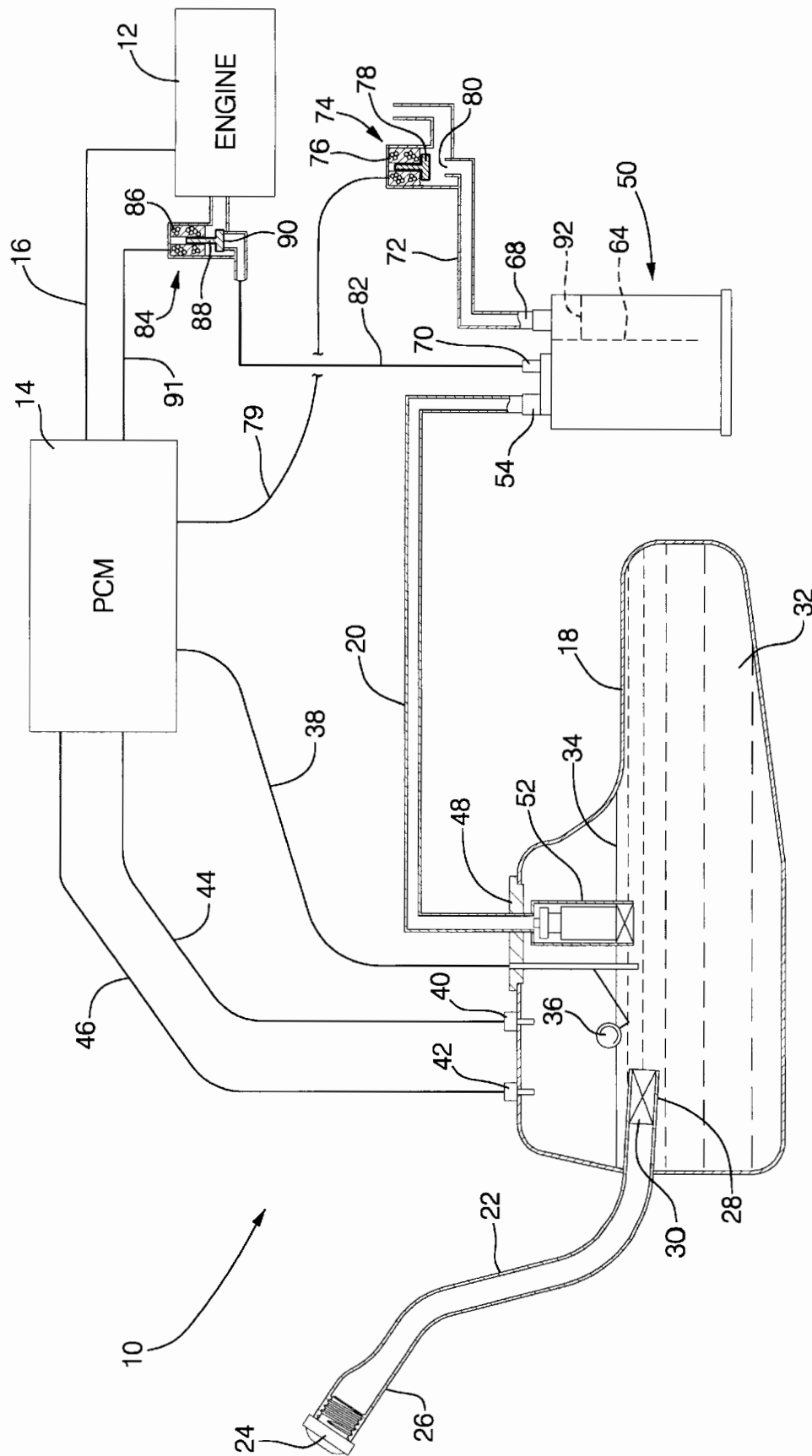


FIG. 1

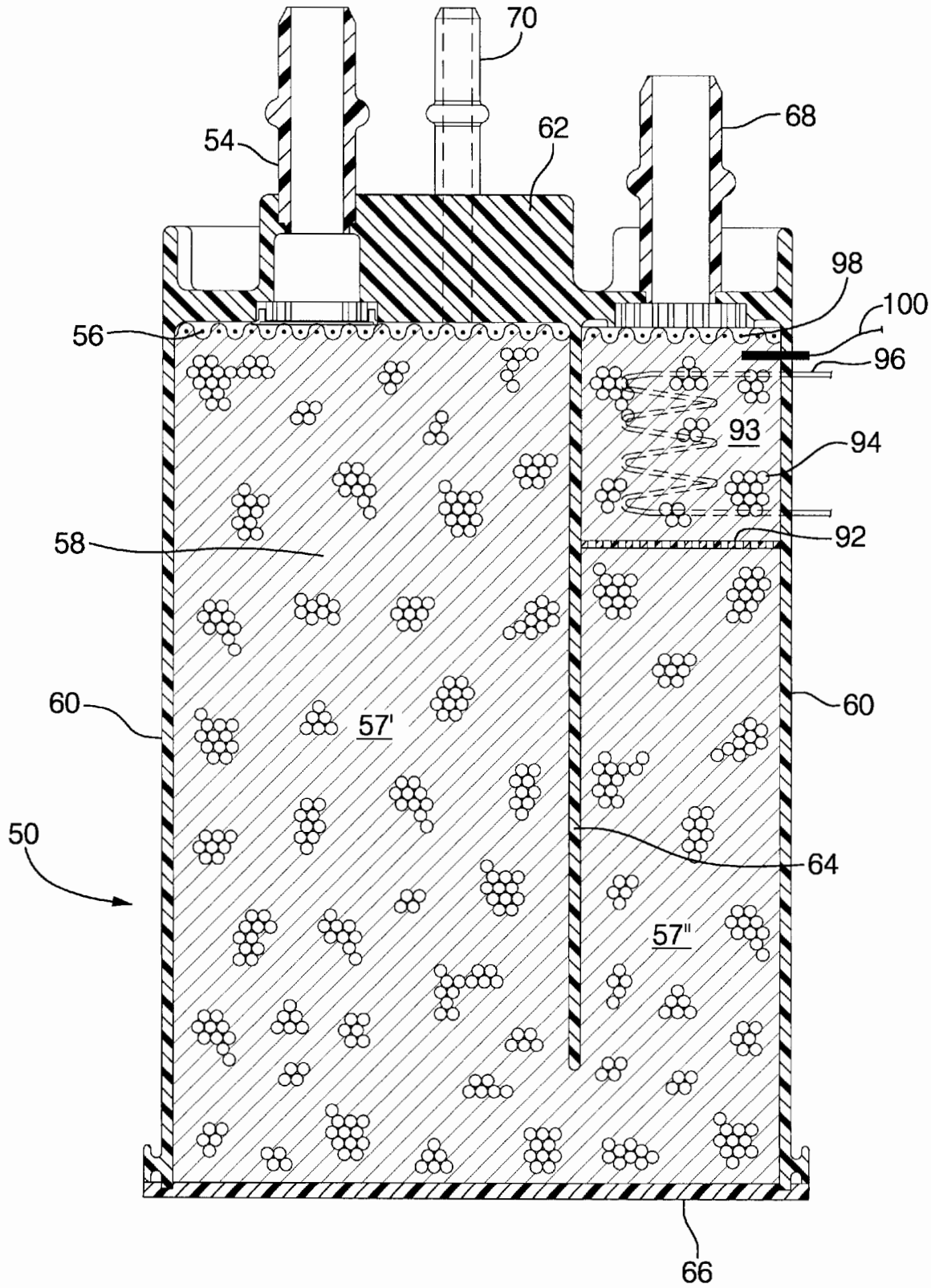


FIG. 2

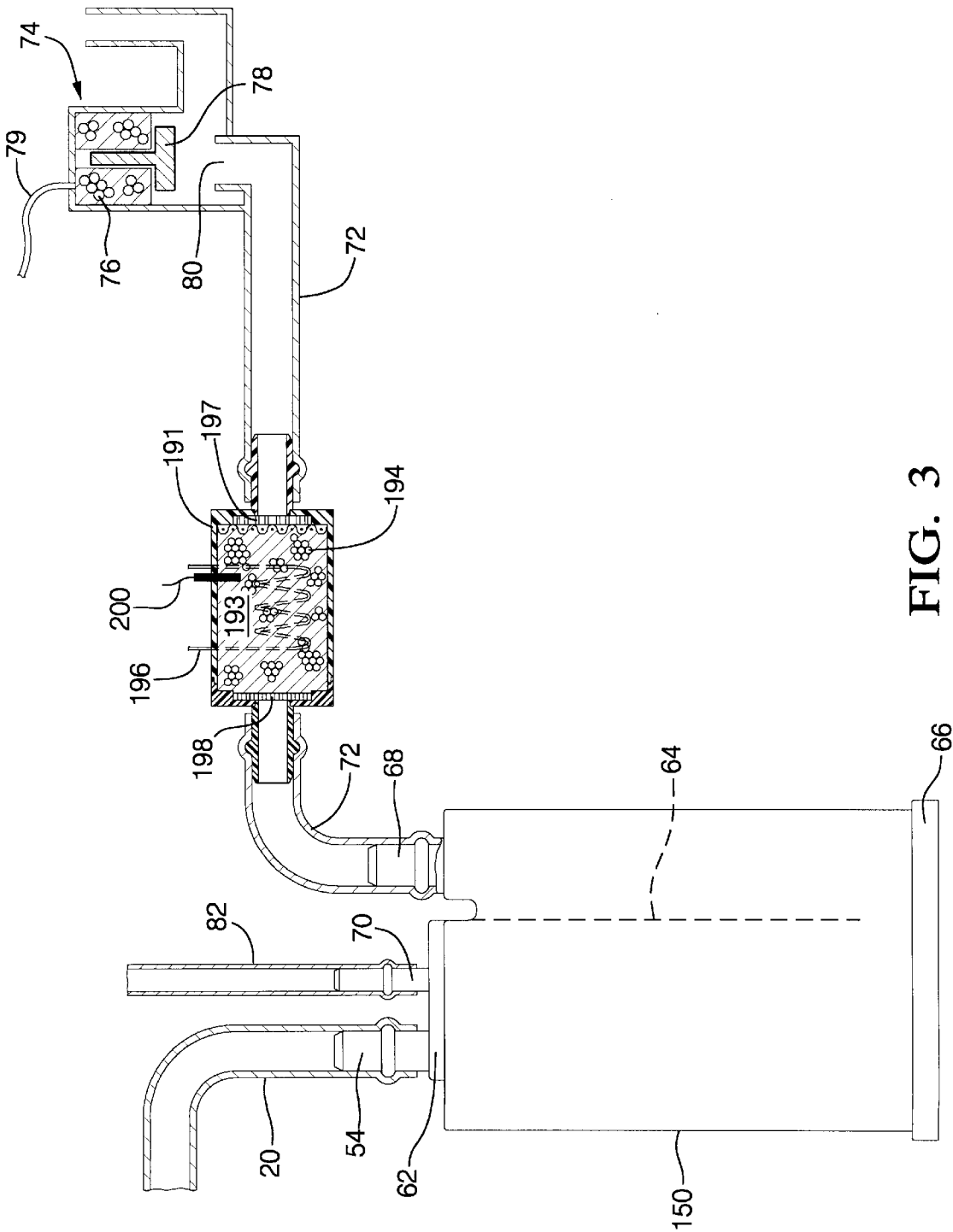


FIG. 3

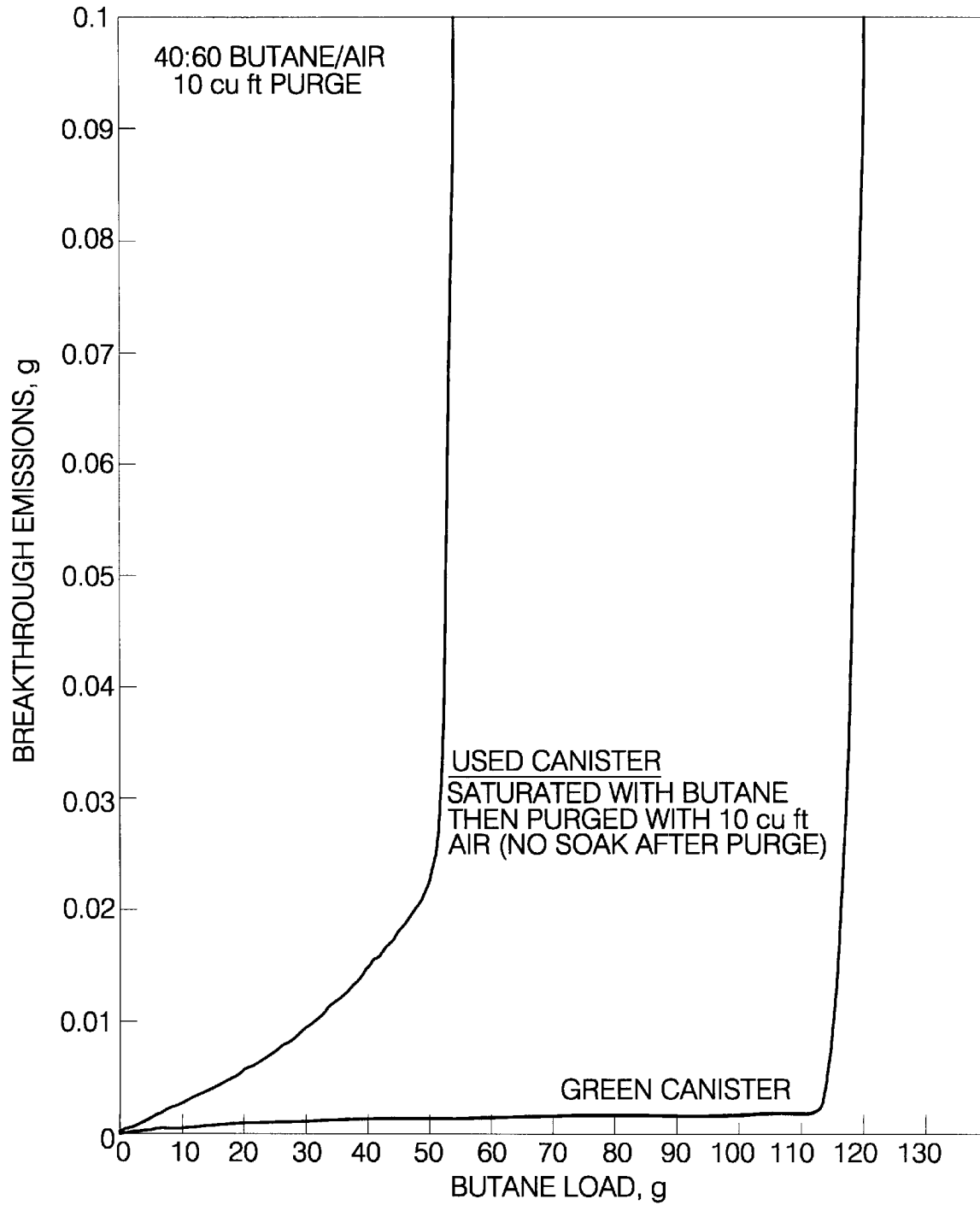


FIG. 4

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