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(54) **SYSTEM AND METHOD FOR TIP-IN KNOCK COMPENSATION**

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(51) **Int. Cl.**

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(58) **Field of Classification Search** ..... 123/519, 123/575, 300, 304, 1 A, 295, 299, 305, 478; 60/274, 276, 285, 286, 303

See application file for complete search history.

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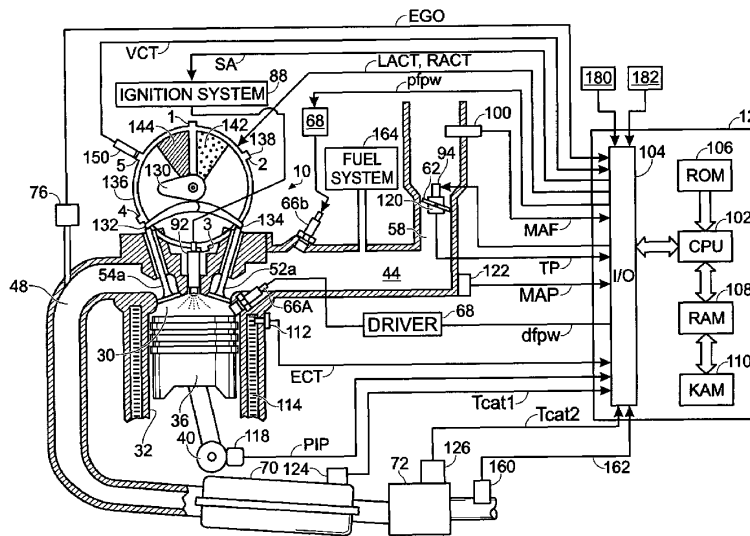
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(57) **ABSTRACT**

A system for an engine of a vehicle traveling on the road, the system comprising a cylinder of the engine; an emission control device coupled in an exhaust downstream of the cylinder; a first injector configured to directly inject into the cylinder and coupled in a cylinder of the engine; a second injector configured to inject into a port of the cylinder and coupled to a port of the cylinder; and a controller for, in response to a driver pedal tip-in condition, increasing an amount of injection from the first injector.

**12 Claims, 31 Drawing Sheets**



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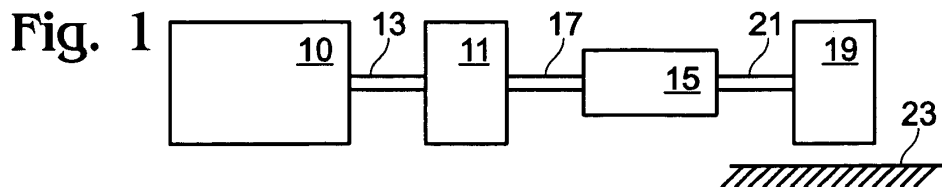
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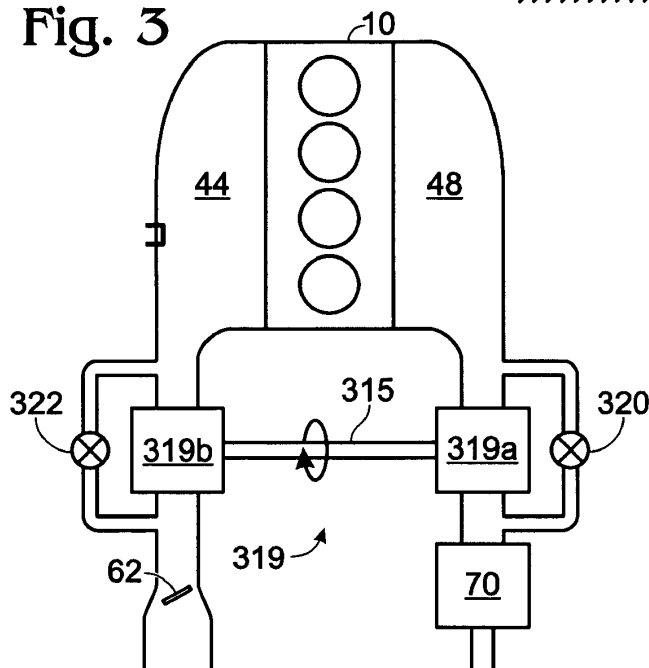
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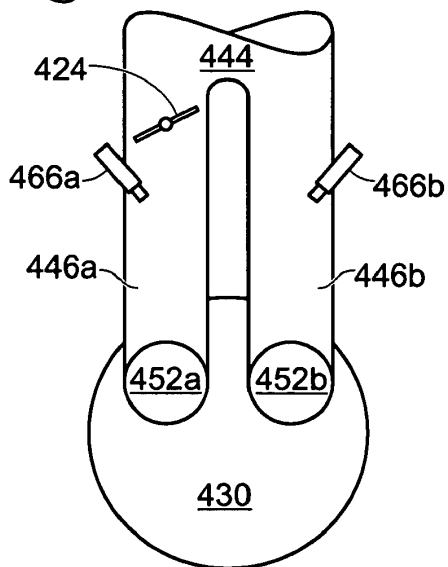
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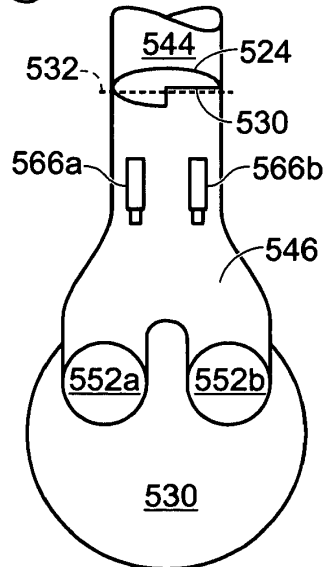
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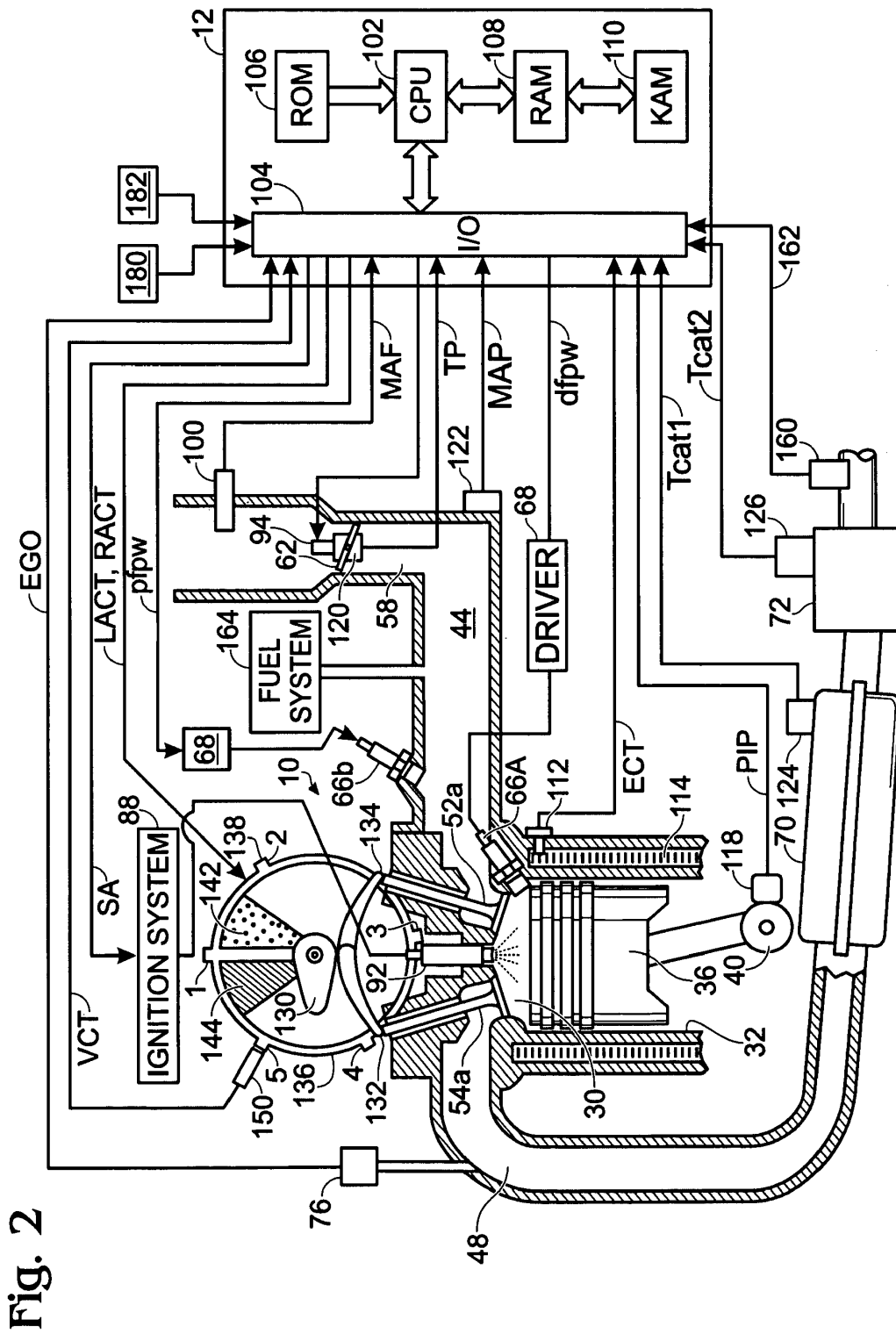


**Fig. 4**



**Fig. 5**





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