

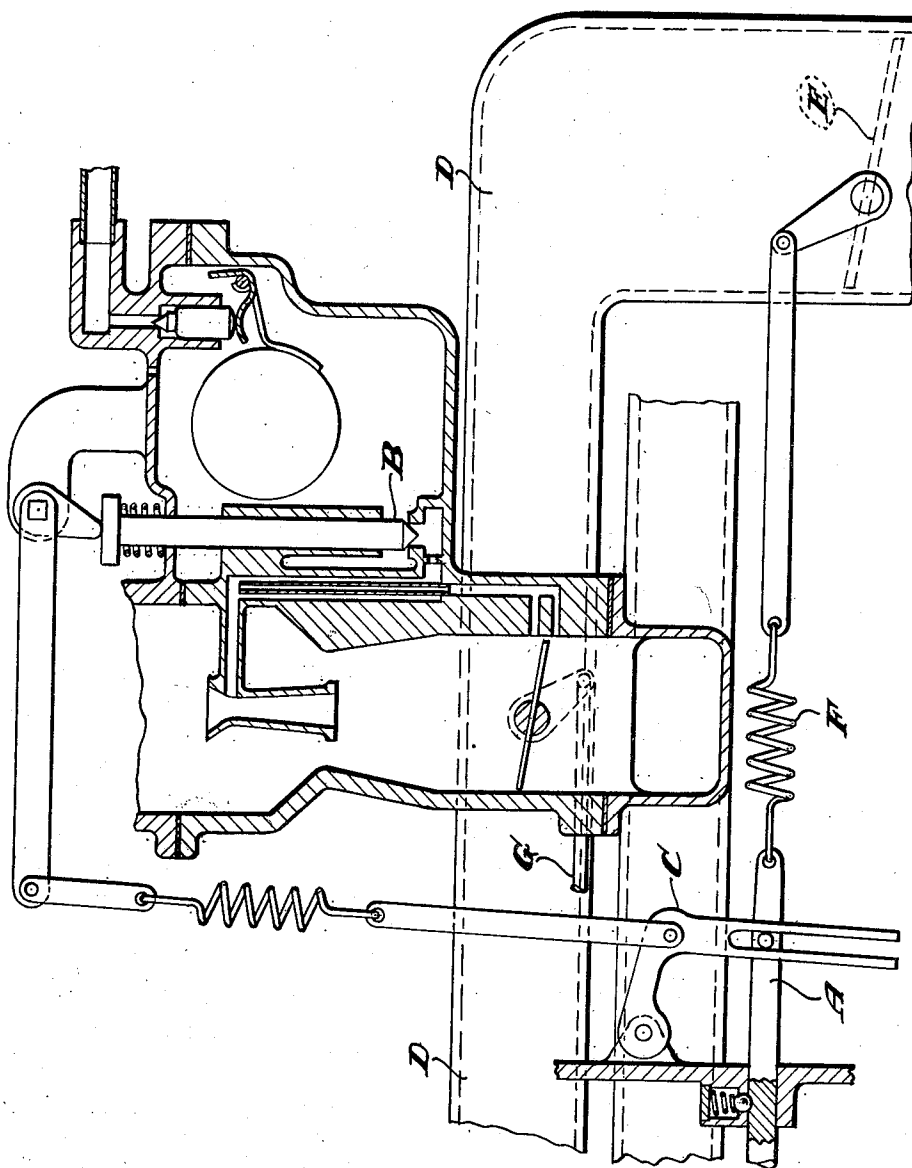
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ENGINE AS A BRAKE

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2,767,697

ENGINE AS A BRAKE

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1 Claim. (Cl. 123—97)

The object of this invention is to reduce the wear on the brake drums and linings and also the fuel consumption, and to keep the engine warm when descending a long, steep hill with no heat of combustion.

Briefly, if a definite back pressure is established in the exhaust manifold and the fuel is shut off, fuel will be saved and the engine will be kept warm by acting as an air pump which will convert the work of the air pump into heat. This work relieves the brakes from being over-heated.

The figure shows diagrammatically the preferred form of my invention.

In the figures:

A is the dash control rod which may be held in place by a ball check.

B is the fuel shut off valve.

C is the lever which transmits motion from the dash control rod A to the fuel shut off valve B.

D is the exhaust manifold and outlet.

E is the eccentric exhaust throttle valve in D which creates the back pressure on the exhaust manifold.

F is the spring which regulates this back pressure by imposing a closing torque on the valve E to oppose the flow of exhaust gas.

G is the ordinary throttle control rod and is usually controlled by a foot accelerator.

Operation

Normally the rod A is pushed to the right away from position shown. On descending a long hill the dash

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control A is first pulled all the way to the left and the fuel valve B is thus closed and exhaust valve E is also moved into its closed position as shown. The engine immediately builds up back pressure in the exhaust manifold D as determined by the spring F and the eccentric exhaust valve E. In order to increase the brake effect, the throttle rod G is moved to the left so as to open the throttle and to admit more air to the inlet and exhaust manifolds to build up more pressure. The driver thus uses the foot accelerator before he applies the foot operated brake. The brake drums and, what is more important, the non-metallic brake linings are thus not burned out even on steepest, longest hills and the engine remains warm. Meanwhile, the valve B cuts off all the fuel and thus there is a saving in both the expense of brake linings and of the fuel.

What I claim is:

A manually operated, dash controlled exhaust valve for the exhaust manifold of an internal combustion engine adapted to be controlled by the driver of an automotive vehicle including an exhaust outlet, a manually operated dash control, a spring connected thereto, an unbalanced exhaust valve located in said exhaust outlet, the unbalance causing the exhaust pressure to open the valve, a lever therefor connected to said spring so that there is established a substantially constant back pressure in said exhaust outlet when said dash control is put into its operative position, and in which there is a fuel cut-off valve means interconnecting said fuel cut-off valve and said exhaust pressure regulating valve, so as to save fuel when the engine acts as a brake, and in which there is an air entrance to said engine, a throttle therefor, means for opening said throttle to render the means set forth above more effective as an engine brake.

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