Sept. 2, 1941. O. C. BETRY 2,254,834

DUAL CARBURETOR CONTROL

Filed Sept. 27, 1940

Fig. 1

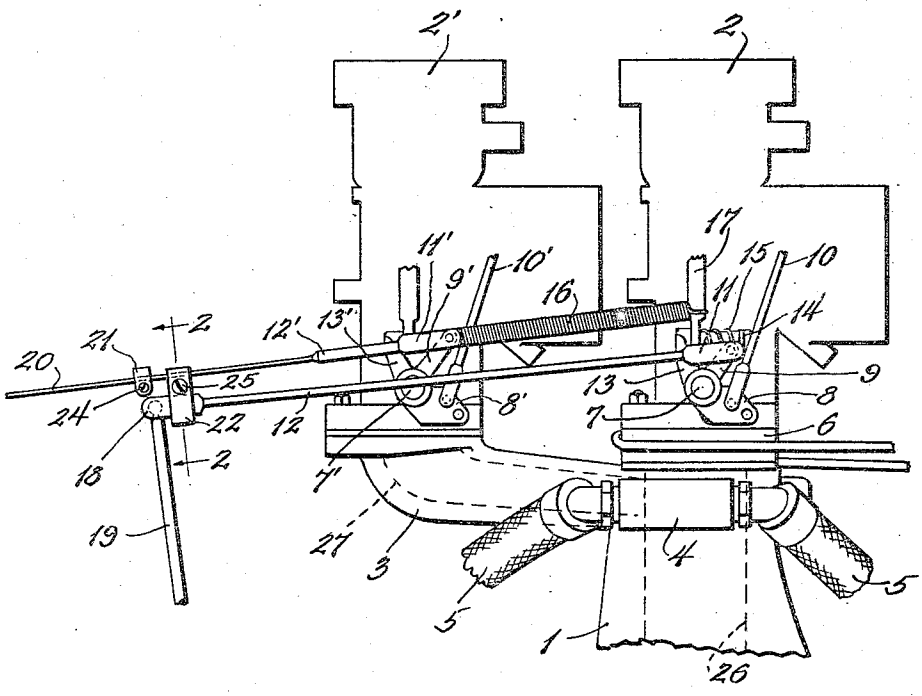
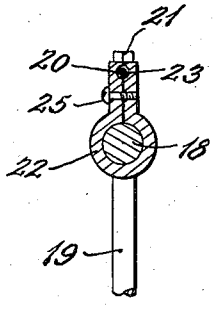


Fig. 2



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DUAL CARBURETOR CONTROL

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5 Claims. (Cl. 123—127)

My invention relates to a novel carburetor control mechanism and has particular reference to a device adapted for use with a multiple carburetor system to regulate the supply of fuel vapors from the various carburetors to an intake manifold.

In the modern types of multiple cylinder high speed gas engines, certain notable difficulties in operation have been encountered. Among other difficulties, it has been found necessary to supply additional fuel to the engine during overload operating periods by means of an auxiliary carburetor associated in a parallel fluid circuit with the customary gas engine carburetor. According to my invention, a device is provided to control the flow of fuel vapors from the various carburetors to the intake manifold.

The main object of my invention is to provide a means adapted for use with multiple carburetor systems in a manner to provide a supply of fuel vapors to a gas engine in accordance with the normal and overload fuel demands of the engine.

Another object of my invention is to provide a multiple carburetor control which is adjustable to obtain a predetermined supply of fuel vapors to a gas engine during an overload operating period.

For a full disclosure of the invention, reference is made to the accompanying drawing, wherein:

Fig. 1 shows a side view of the device associated with a dual carburetor system; and

Fig. 2 is an enlarged view in section on line 2—2 of Fig. 1.

Referring to the drawing in detail, the invention is shown as applied to a duplex manifold 1 of a V-8 motor which is provided with dual carburetors 2 and 2'. The carburetors 2—2' are conventional in type, being provided with butterfly valves to control the supply of fuel mixture to the intake manifold. The carburetors 2—2' are secured to an adapter unit 3 which is in turn attached to the intake neck of the manifold 1. The adapter unit 3 is provided with a plurality of passages (not shown) which conduct the fuel vapors from the carburetors to the manifold. The adapter unit is further provided with outlets 4 to which are connected tubes 5 which conduct a portion of the fuel vapors to the intake manifold at points adjacent the end cylinders. The adapter unit forms the basis for my application Serial No. 273,986, filed May 16, 1939 (Patent No. 2,192,067), and reference is made thereto for a more detailed disclosure of the structure and function of the unit. An electric heater 6 is inserted between the adapter unit 3 and the carburetor 2 which is mounted directly over the intake manifold 1.

The carburetors 2—2' are provided with butterfly valves (not shown) which are mounted on shafts 7—7'. The ends of shafts 7—7' are attached to L-shaped throttle levers comprising lower arms 8—8' and upper arms 9—9'. Lower arms 8—8' are connected with accelerating pump rods 10—10'. The upper arms 9—9' of the throttle levers are connected through ball sockets 11—11' to throttle rods 12—12'. The throttle levers are provided with stops 13—13'. The carburetor 2 is provided with the standard throttle stop screw 14 and a stop screw spring 15. The throttle rod 12' of carburetor 2' is maintained in a closed position by a return spring 16 which is connected at one end to the ball socket 11' and at the other end to spring hook 17. Throttle rod 12 is connected by ball socket 18 to the foot throttle lever 19. The throttle rod 12' has a steel wire or rod extension 20. A stop lug 21 is clamped to the extension 20 by means of a screw 24 and this lug 21 is adjustable to any desired position on the extension 20. A lug 22 is clamped to ball socket 18. The lug 22 is provided with an opening 23 which receives the extension 20 and permits lug 22 to slide on this wire. The lug 22 is preferably made in two similar halves which are clamped to the socket 18 by a screw 25. The gas conduit 26 for receiving gas vapor from carburetor 2 is shown by dotted lines and the gas conduit 27 within the adapter 3 is also shown by dotted lines as leading into conduit 26 at a right angle thereto.

In operation, the gas engine receives fuel vapors from carburetor 2 during idling and normal operating periods. The supply of fuel is controlled by operating the foot throttle lever 19 and throttle rod 12 to rotate the upper arm 9 of the throttle lever. Rotation of the throttle lever controls the supply of fuel by means of accelerating pump rod 10 which is connected to the lower arm 8 of the lever and the latter operates the butterfly valve shaft 7. During this period, carburetor 2' does not function. When it is necessary to supply larger amounts of fuel vapor during overload periods, the throttle rod 12 is moved to the rear until the lug 22 strikes the lug 21. Further movement of the throttle rod 12 causes the extension 20 and throttle rod 12' to move in the same direction against the action of spring 16. This movement of the throttle rod 12' operates the corresponding controls of carburetor 2' to supply additional amounts of

fuel vapors to the intake manifold of the gas engine through the conduits 26 and 27. Upon release of throttle rod 19 and movement of lug 22 to the right, the spring 16 functions to move rod 12' to the right in a manner to permit rotation of the butterfly valve shaft 7' to close this valve. The lug 21 may be set at any desired position on the wire 20 to permit operation of carburetor 2' and gas feed therefrom at any predetermined position of rod 12.

It will be noted that the carburetors shown are similar in form and construction and the adapter 3 is shaped adjacent each fuel inlet to interchangeably receive either carburetor, an arrangement which permits economy in construction and installation as well as lending simplicity to necessary carburetor adjustments.

While Fig. 1 of the drawing, for purpose of clarity, shows the carburetors arranged conventionally and in tandem, it is to be understood that the carburetors may be set side by side or in staggered oblique positions as desired in order to obtain the most direct vacuum down draft.

I claim:

1. In a dual carburetor control, an intake conduit having spaced inlet ports, a carburetor secured to the conduit adjacent each port, a fuel control valve within each carburetor, a fuel control rod operably secured to a control valve in one carburetor and extending therefrom alongside the other carburetor to a point remote therefrom, a second control rod secured to the fuel valve of the other carburetor and extending close to and parallel to said other control rod, a lug extending laterally from each rod and positioned one within the path of movement of the other whereby movement of said other rod will cause the lug thereon to contact the other lug and cause movement of the control rod to which the other lug is secured.

2. In a control as set forth in claim 1, one of said lugs being adjustably supported on a respective rod whereby the adjustable lug may be set a desired position on its supporting rod to vary the time of opening of the valve connected to the last-named rod.

3. In a dual carburetor control, an intake manifold having spaced inlet ports, a carburetor secured to the manifold adjacent each port, a fuel control valve within each carburetor, a fuel control rod operably secured to a control valve in one carburetor and extending therefrom alongside the other carburetor to a point remote therefrom, a second control rod secured to the fuel valve of the other carburetor and extending close to and parallel to said other control rod, a lug extending from said other rod and being slidably connected to said second control rod, a stop on said second rod in position to be engaged by said lug after a predetermined movement thereof, and a spring connected to the second control rod and being operable to return the second control rod to its original position after its displacement by said other rod.

4. In a device as set forth in claim 3 wherein the stop is adjustable to various positions along its supporting rod to permit variation in the time of opening of the related fuel valve in relation to time of opening of the other valve.

5. In a device as set forth in claim 3 wherein the lug is made in the form of a split clamp, said clamp having spaced parallel openings therethrough for respectively receiving the two rods, and means for closing the split clamp to a position to tightly engage one rod in a respective opening, the other opening being of sufficient size to permit the other rod to slide therein while the clamp is in tight engagement with said one rod.

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