

Aug. 2, 1938.

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2,125,538

CONTROL LEVER

Filed Dec. 21, 1933

2 Sheets-Sheet 1

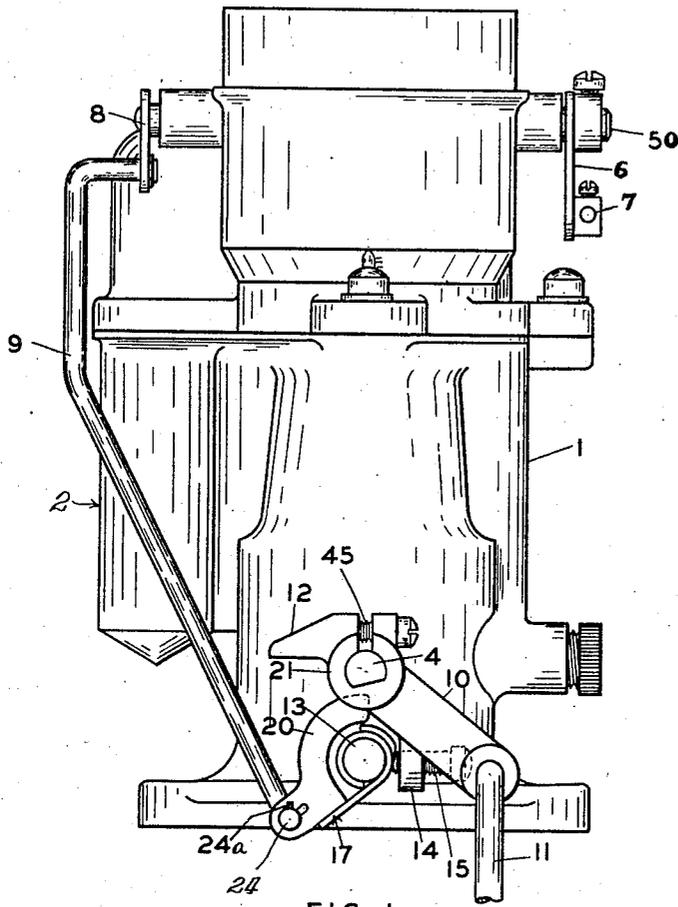


FIG. 1

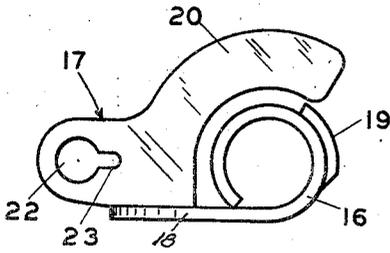


FIG. 3

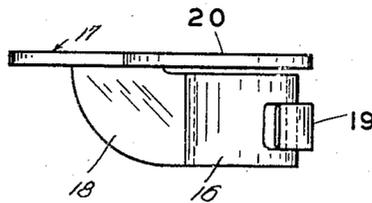


FIG. 4

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2 Sheets-Sheet 2

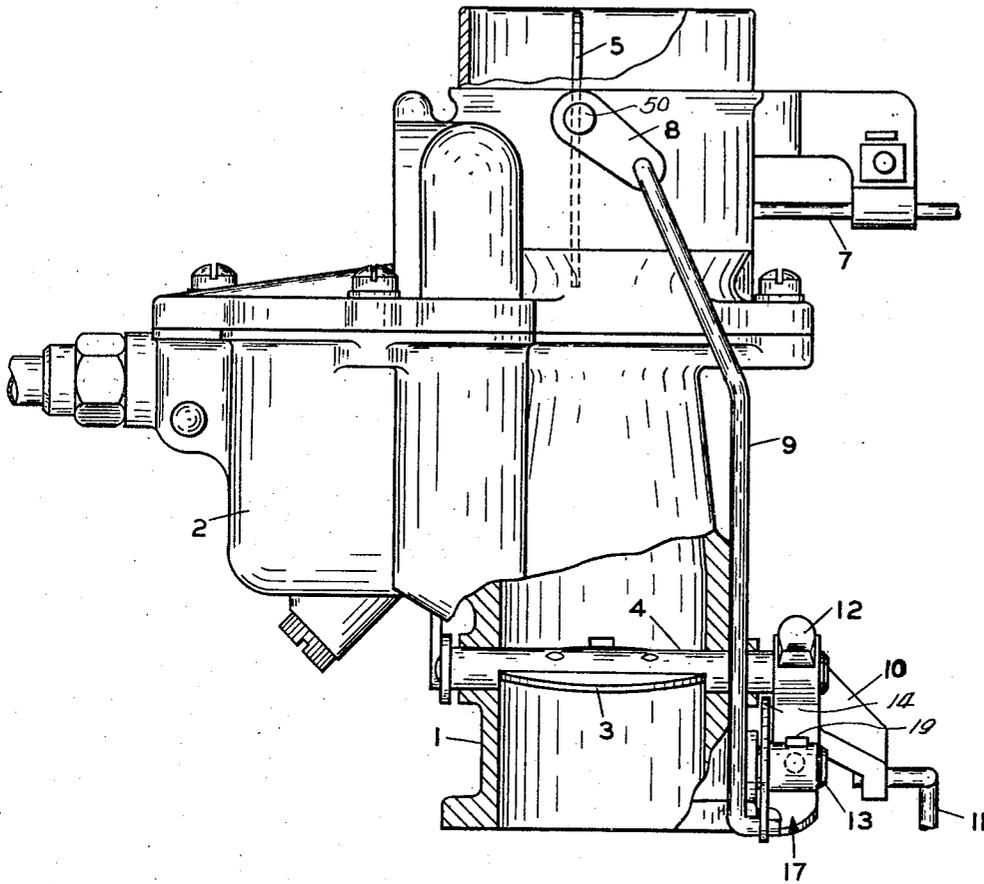


FIG. 2

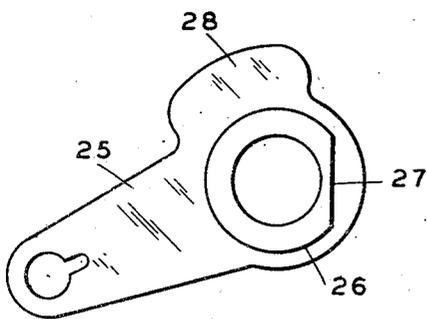


FIG. 5

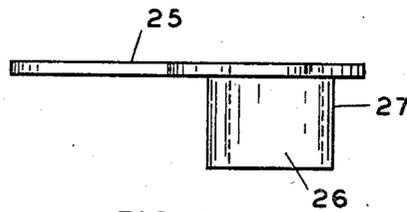


FIG. 6

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2,125,538

CONTROL LEVER

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Application December 21, 1933, Serial No. 703,341

9 Claims. (Cl. 261-52)

This invention relates to operating levers for use in carburetors and in particular to levers for use in combination with a fast idle, or in other words a device for temporarily holding the throttle in a partially open position during certain operating conditions.

It has been customary to form operating levers in such a manner that a set screw or other similar means of securing the lever to its shaft has been necessary. One of the objects of this invention is to provide a fast idle lever held in place on its shaft by the rigidly mounted throttle valve lever.

It has also been customary to provide separate fast idle mechanism including various links, slots, and lugs. Another object of this invention is to so adapt the throttle operating lever itself as to form a part of the fast idle mechanism.

A better understanding of the invention may be had by referring to the accompanying drawings and the following description.

Figure 1 is a front elevation of a carburetor with my invention in place.

Figure 2 is a side view of the same carburetor with my invention remaining in place, parts being shown broken away and others shown in section.

Figure 3 is an enlarged view of a part of the structure in Figures 1 and 2.

Figure 4 is a top view of the lever shown in Figure 3.

Figure 5 is an end view of a lever similar to that in Figures 2, 3 and 4, but embodying a modification.

Figure 6 is a top view of the lever shown in Figure 5.

The reference numeral 1 indicates the body of a carburetor having a float bowl 2, throttle valve 3 mounted on a throttle shaft 4, and a choke valve 5 mounted on a choke valve shaft 5. The choke valve and shaft are operated manually by means of a customary lever 6 and wire 7. Rigidly mounted on the choke valve shaft 5 is an arm 8 to which is attached the connecting link 9, for a purpose hereinafter to be described.

The throttle shaft 4 is provided with an arm 10 operated by means of the rod 11 which connects the throttle lever to the manually operable throttle control and foot accelerator. The throttle lever is rigidly secured to the throttle shaft by the clamping action provided when the screw 12 is tightened. The throttle lever 10 is provided with a stop lug 12 for engaging the boss 13 when the throttle is moved to "wide open"

position. The throttle lever also is provided with a lug 14 which is drilled and threaded to receive the set screw 15. This set screw may be adjusted so as to control the exact position of the "closed" throttle, thus controlling the speed at which the engine will "idle".

The set screw 15 seats against an annular portion 16 of a lever loosely embracing boss 13. A part of this annular portion is partially cut away and bent outwardly to provide the tongue-shaped raised portion 19 which is located on the annulus 16 of the cam-like lever, as shown in Figure 1, so that it is in close juxtaposition with the set screw 15 when the throttle is closed and the choke is open. The lever 17 is also provided with a curved fin 20 of proper shape and length to lie between the hub 21 of the throttle lever and the body of the carburetor when the mechanism is assembled. The lever 17 is provided further with a perforation 22, a part of which is formed as an extension recess 23. The connecting link 9 is provided at the end to be attached to the lever 17 with a bent over portion 24 and a nub 24a.

A modification of the lever 17 in Figures 2 and 3 is shown in Figures 5 and 6, in which the lever 25 is provided with a hub 26 substantially circular in shape, but having a flat portion 27. The lever 25 also is provided with an extended portion or fin 28 corresponding to the fin 20 of lever 17 in Figures 1 and 3.

In assembly, the lever 17 (or 25, as the case may be) is mounted on the boss 13. Link portion 24 and nub 24a are inserted in the perforation 22 and recess 23 in the lever and the link rotated to move nub 24a out of registry with the recess. Link 9 is then pivotally attached to the lever 8 in any convenient manner. When so assembled, the end of fin 20 is interposed between the carburetor body and the clamping hub 21 on the throttle arm 10 and lever 17 is thus held in position on the boss 13 while being free to rotate. When the throttle is in its "closed" position, the set screw 15 seats against the normal or regular circumference of the annular portion 16 of lever 17 allowing the engine to idle "slowly". When the choke valve is closed, as in starting the link 9 is raised thereby rotating the lever 17 in a clockwise direction (Figure 1). This rotation bringing the raised portion 19 under the set screw 15 forcing the throttle lever 10 to rotate slightly in a counter-clockwise manner, thus slightly opening the throttle valve 3. The engine thus runs at a "fast-idle" at any time when the choke valve 5 is in a closed or

partly closed position. On opening the choke valve, the lever 17 rotates in a counter-clockwise manner with respect to Figure 1, moving the raised portion 19 from under the set screw 15 and allowing the throttle valve to "close" to its "slow or normal idle" position. A substantial advantage of the sheet metal construction shown in Figures 3 and 4 is that the portion 19 may be bent outwardly or inwardly to adjust the fast idle mechanism in accordance with the particular carburetor. The tangential portion 18 of the lever 17 cooperates with the throttle "wide open" lug 12.

The modification shown in Figures 5 and 6 operates in a similar manner, the set screw 15 seating against the flat 27 in the "slow idle" position and against the normal of the hub 26 in the "fast idle" position. The lever is held in position on the boss 13 by the fin 23 in the same manner as in Figures 1 and 2.

It will be understood that instead of operating the choke valve 5 by means of a manually operated lever 6, a thermostat or other automatic means may be used for the same purpose. Of course the thermostat will not have sufficient power to rotate lever 17 and open the throttle against the resistance of the throttle closing spring which is usually provided, but when the throttle is opened by hand the set screw 15 is moved out of the path of the cam member 19, thus moving lever 17 and choke to close and permitting the cam 19 to a position in which the cam prevents the full re-closing of the throttle.

The invention is not limited in details to the structure shown but may be modified in various respects as will occur to those skilled in the art and the exclusive use of all such modifications that come within the scope of the appended claims is contemplated.

I claim:

1. In a carburetor having a main body member, a throttle valve shaft projecting from said member, a pivot on said member and having an axis parallel and adjacent to the axis of the throttle shaft, an operating lever mounted on said throttle shaft, means for preventing axial movement of said operating lever with respect to said shaft, and a cam member rotatably mounted on said pivot for cooperating with said lever to affect the functioning of said throttle valve, said cam member having a projection extending between said operating lever and said body member, said projection constituting a means for preventing dis-assembly of said cam member from said pivot.

2. A device of the character described in claim 1, and further characterized by the provision of an adjusting screw carried by said operating lever, the end of said adjusting screw being adapted to

contact with a cam surface on said cam member.

3. A device of the character described in claim 1, and further characterized by the fact that said cam member is formed of sheet metal and provided with a bendable cam surface adapted to serve as a stop for said throttle operating lever.

4. A device of the character described in claim 1, and further characterized by the fact that said operating lever is formed of sheet metal and provided with a bendable cam portion, said operating lever being provided with an adjusting screw, the end of said adjusting screw being adapted to contact with said cam portion.

5. In a carburetor, a body member, a throttle, an operating member for said throttle rotatably secured to said body member, and a cam member rotatably mounted on said body member and constituting a throttle control, said cam member having a part extending between said operating member and said body member for preventing dis-assembly of said cam member from said body member when said operating member is in position.

6. In a carburetor, a fluid conduit, a valve therein, operating structure for said valve, and a rotatable, cam-like member supported adjacent said structure and having a cam surface for engaging said structure to influence the operation of said valve, said rotatable member including an adjustable lip projecting from said cam surface for engaging said operating structure.

7. A fast idle device for a carburetor comprising a cam-like member constructed to be pivotally mounted adjacent the throttle and having a cam surface for influencing the positioning of the throttle, said device including an adjustable tongue forming part of said cam surface for influencing the throttle.

8. A device as specified in claim 7 formed substantially of thin metal and including an adjustable tongue cut from the body of the device and bent away from the adjacent portion of said device, said tongue forming part of said cam surface.

9. In a carburetor, a throttle, a choke valve, a device movable with said valve, an operating arm movable with said throttle having abutment structure, a rotatable member mounted adjacent said arm and having a cam surface for engaging said abutment structure to variably limit by cam action the closing movement of said throttle, said rotatable member also having an element for engaging said structure to limit the opening movement of said throttle, and a connection between said member and said choke valve device for rotating said member to prevent full closing of said throttle when said choke valve is closed.

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