ACCESSORY FOR CARBURETOR CHOKE ADJUSTMENT

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ABSTRACT

A carburetor attachable to an air cleaner wherein the carburetor has an air passage with a choke valve therein pivotable from a closed position to a full open position, a threaded stud mounted on the carburetor upstream of the choke valve for attaching the air cleaner to the carburetor, and a finger element mounted on the stud and projecting into contact with the choke valve to hold the choke valve in a slightly open position whereby the finger element prevents the choke valve from completely closing.

6 Claims, 5 Drawing Figures
ACCESSORY FOR CARBURETOR CHOKE ADJUSTMENT

BACKGROUND OF THE INVENTION

The vast majority of internal combustion engines use carburetors to control the fuel air mixture supplied to the engine. A carburetor typically includes a body defining an air passage and a choke valve in the air passage. An air cleaner is mounted on the carburetor in communication with the air passage to supply filtered air to the air passage with the air flow through the passage being controlled by the choke valve.

The choke valve is typically mounted by a shaft for pivotal movement between a closed position and a full open position. The degree of opening of the air passage depends upon the angular position of the choke valve. The degree of opening of the air passage is typically automatically controlled in response to various operating conditions.

One problem with a carburetor is that under certain conditions the choke valve sticks in the closed position. This may occur, for example, in cold weather or after a backfire in which the choke valve is rapidly closed. In these instances the choke valve may stick to its seat with the result that poor functioning of the engine is prevented.

SUMMARY OF THE INVENTION

The present invention solves this problem by providing means which prevents complete closing of the choke valve. As the choke valve cannot close completely, it cannot stick to its seat. Thus, the present invention establishes a partially open position for the choke valve. This can be accomplished by providing a finger element which engages the choke valve to prevent it from completely closing. The finger element is mounted on the same threaded stud which mounts the air cleaner on the carburetor thereby eliminating the need for separate mounting means.

The degree which the choke valve is open in the partially open position can be varied in two ways. First, the finger element can be advantageously be movably mounted on the threaded stud to thereby control the amount which the threaded stud projects toward the choke valve. Alternatively, or in addition thereto, the finger element may be bendable so that the degree of opening of the choke valve in the partially open position can be readily varied by bending of the finger element toward or away from the pivotal axis of the choke valve.

In a preferred construction, the stud is a threaded stud and two nuts mount the finger element on the threaded stud. This permits adjustment of the position of the finger element along the stud. The finger preferably projects radially of the stud for a short distance and then projects axially into engagement with choke plate.

The invention can best be understood by reference to the following description taken in connection with the accompanying illustrative drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view partially in section of a carburetor and a fragment of an air cleaner with the finger element being mounted on the threaded stud for mounting of the air cleaner.

FIG. 2 is a fragmentary perspective view on a reduced scale showing how bending of the finger element can control the degree to which the choke valve is opened in the slightly open position.

FIG. 3 is a side elevational view of the finger element.

FIG. 4 is a front elevational view of the finger element with the dashed lines representing a typical manner in which the finger element can be bent.

FIG. 5 is a top plan view of the finger element.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows a carburetor 11 having an air cleaner 13 mounted thereon. The carburetor 11 may be of standard construction and includes a housing 15 defining an air passage 17 which extends through the housing. A choke valve 19 is pivotally mounted on the housing 15 by a shaft 21. The choke valve 19 is mounted on the shaft 21 for pivotal movement therewith relative to the housing 15. During operation of the engine (not shown) with which the carburetor 11 is mounted for use, the pivotal movement of the shaft 21 and the choke valve 19 can be controlled manually or automatically in accordance with conventional practice. In the embodiment illustrated, the choke valve 19 is automatically controlled by a controller 23 which drives the choke valve through a rod 25 and a lever 27.

The housing 15 defines a seat 29 on which the choke valve 19 is adapted to be seated to completely close off the air passage 17. The controller 23 can pivot the choke valve 19 to any one of a plurality of open positions to thereby permit air in varying quantities to flow through the air passage 17. The carburetor 11 can perform the usual function of air fuel ratio selection in accordance with conventional practice.

The air cleaner 13 may also be of conventional design and includes an annular air filter 31 suitably retained in a housing 33, the lower wall of which is adapted to rest on a flange 35 of the carburetor housing 15. The air cleaner 13 defines a centrally located cyclindrical space 37 which is in communication with the upper end of the air passage 17.

Means are provided for mounting of the air cleaner 13 on the carburetor 11. Such means includes a web 39 mounted on, or forming a part of, the housing 15, a threaded boss 41 formed integrally with the web 39, a threaded stud 43 screwed in one end of the boss 41, and a wing nut 47 which is also mounted on the stud. The lower wall of the housing 33 of the air cleaner 13 rests on the flange 35 and the wing nut 47 can be turned down against an upper or cover plate 49 of the housing 33.

To hold the choke valve 19 in a slightly open position, a finger element 51 is provided. As shown in FIGS. 3-5, the finger element 51 includes a radial portion 53 and a generally axial portion 55 joined to the radial portion by a bend portion of about 90°. The radial portion 53 is of enlarged width at the free end thereof and an aperture 57 (FIG. 5) is formed in the enlarged end portion. In the embodiment illustrated, the finger element 51 is integrally constructed of a single, relatively thin strip of metal, and at least the axial portion 55 is manually bendable.

The finger element 51 is mounted on the stud 43 by inserting the stud through the aperture 57. There is a
sliding fit between the aperture 57 and the stud 43. An upper nut 58 and a lower nut 59 cooperate to clampingly retain the finger element 51 at the desired axial position along the stud 43. Thus, the axial position of the finger element 51 can be adjusted by turning of the nuts 58 and 59.

The finger element 51 projects downwardly into engagement with a region of the choke valve 19 which is spaced from the pivotal axis of the choke valve. As shown in FIG. 2, the end of the finger element 51 serves as a stop which prevents seating of the choke valve 19 against the seat 29. Thus, the choke valve 19 has no closed position but only a slightly open position and other positions in which the choke valve is more open than in the slightly open position.

To vary the degree to opening of the choke valve 19 in the partially open position, the nuts 58 and 59 can be adjusted to thereby move the finger element 51 therealong. Alternatively, or in addition thereto, the axial portion 55 of the finger element 51 may be bent to the position shown, for example, in dashed lines FIG. 2 in which the lower end of the finger element lies closer to the pivotal axis than in the full line position. By bending of the axial portion 55 in this fashion, the degree of opening of the choke valve is increased. Fairly large openings for the choke valve 19 are illustrated for clarity in FIG. 2, it being understood that the operator may make his own adjustments of the finger element 51 as desired.

Although an exemplary embodiment of the invention has been shown and described, many changes, modifications and substitutions may be made by one having ordinary skill in the art without necessarily departing from the spirit and scope of this invention.

I claim:

1. In a carburetor attachable to an air cleaner wherein the carburetor has an air passage with a choke valve therein pivotable from a closed position to a full open position, the improvement comprising:
   a stud mounted on the carburetor upstream of the choke valve for attaching the air cleaner to the carburetor; and
   a finger element mounted on said stud and projecting into contact with the choke valve to hold the choke valve in a slightly open position whereby the finger element prevents the choke valve from closing.

2. An improvement as defined in claim 1 wherein said finger element is readily manually bendable generally toward and away from the pivotal axis of the choke valve to permit adjustment of the opening of the choke valve in the slightly open position.

3. An improvement as defined in claim 1 wherein said finger element is mounted for movement along the stud so that the position of the finger element along the stud can be adjusted whereby the opening of the choke valve in said slightly open position can be varied.

4. An improvement as defined in claim 1 wherein said stud is threaded and said improvement includes first and second nuts mounted on said threaded stud for mounting the finger element on the stud, said nuts being movable on the stud to control the position of the finger element along the stud and hence the opening of the choke valve in said slightly open position.

5. An improvement as defined in claim 1 wherein said finger element includes an elongated metal element having a first portion projecting generally radially of the stud and a second portion projecting generally axially of the stud and into engagement with the choke valve when the choke valve is in the slightly open position.

6. An improvement as defined in claim 5 wherein said stud is threaded and said finger element is readily manually bendable to permit adjustment of the opening of the choke valve in said slightly open position, said improvement also including first and second nuts mounted on said stud for mounting the finger element on the stud, said nuts being movable on the threaded stud to control the position of the finger element along the stud and hence the opening of the choke valve in said slightly open position.