United States Patent [19]

Jones

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[54] **ACCESSORY FOR CARBURETOR CHOKE ADJUSTMENT**

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[52] **U.S. Cl.**.....**261/39 B,** 261/64 R, 55/DIG. 28

[51] **Int. Cl.**.....**F02m 1/08**

[58] **Field of Search**.....261/39 B, 64 R; 55/DIG. 28

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[57] **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

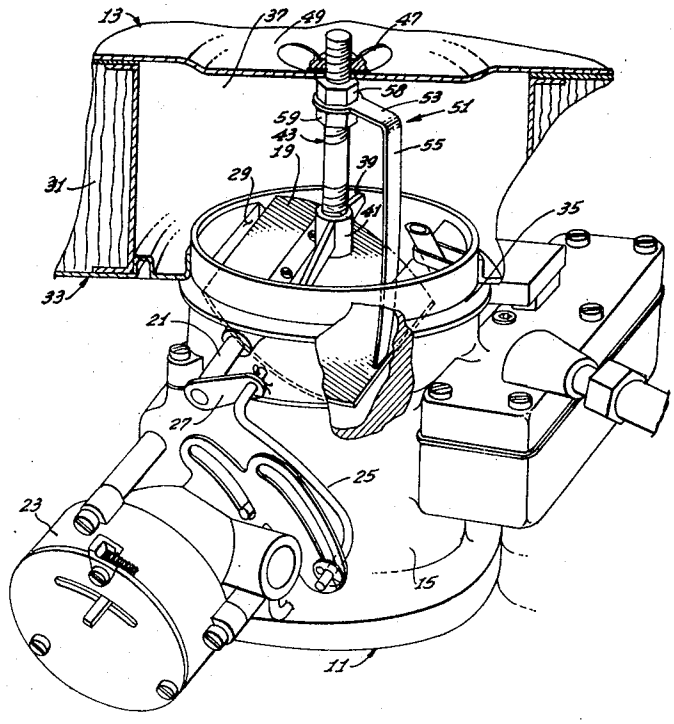


Fig. 1

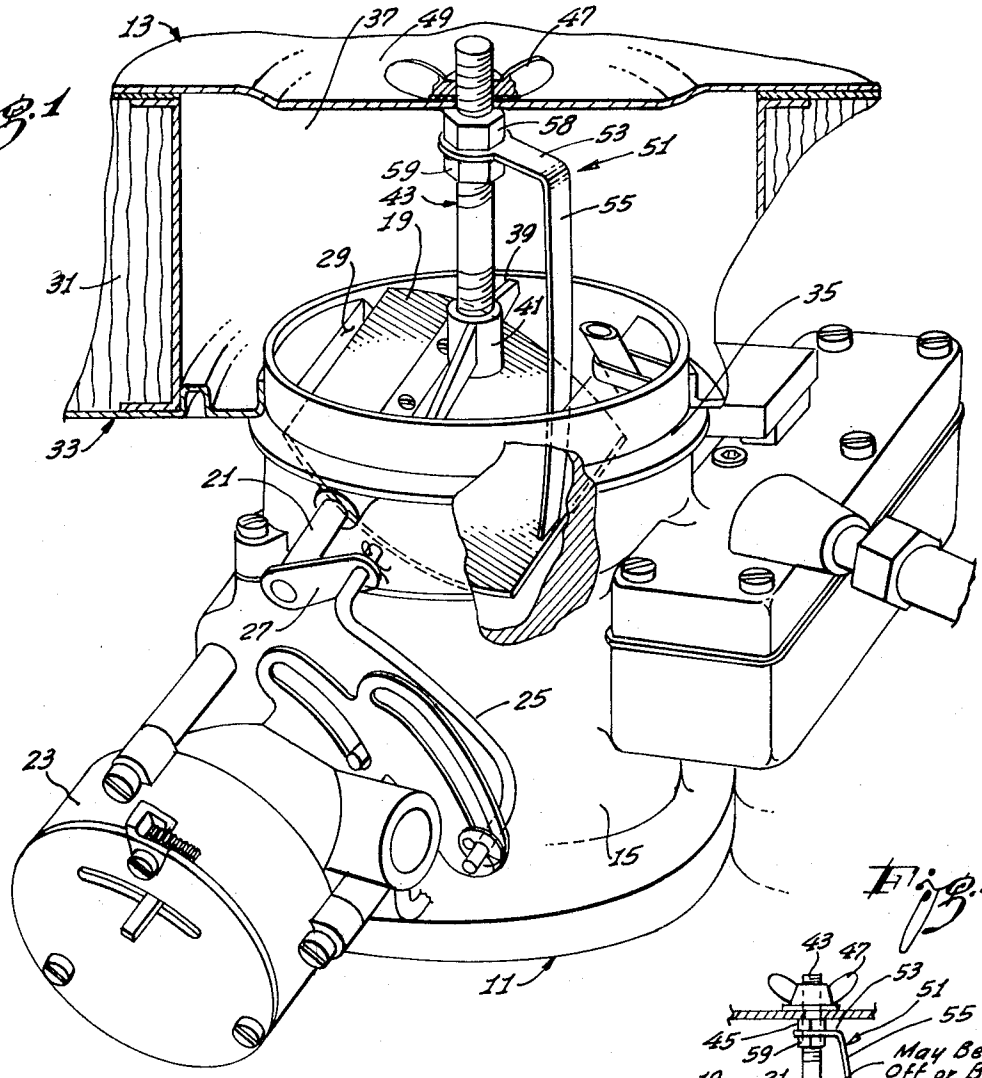


Fig. 2

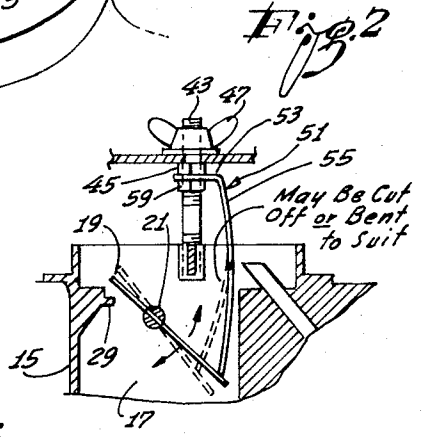


Fig. 3

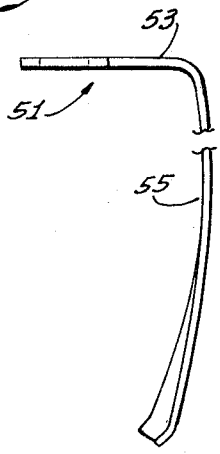


Fig. 4

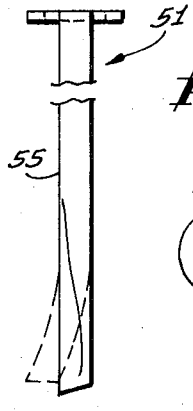
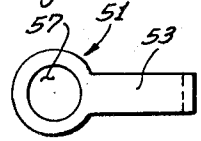


Fig. 5



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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 carburator 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 proper 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 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 adapted 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 cylindrical 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.

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