Sept. 25, 1956 C. F. GEYER 2,764,393

MANUALLY ACTUATED CONTROL ATTACHMENT FOR AUTOMATIC CHOKE

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FIG. 1.

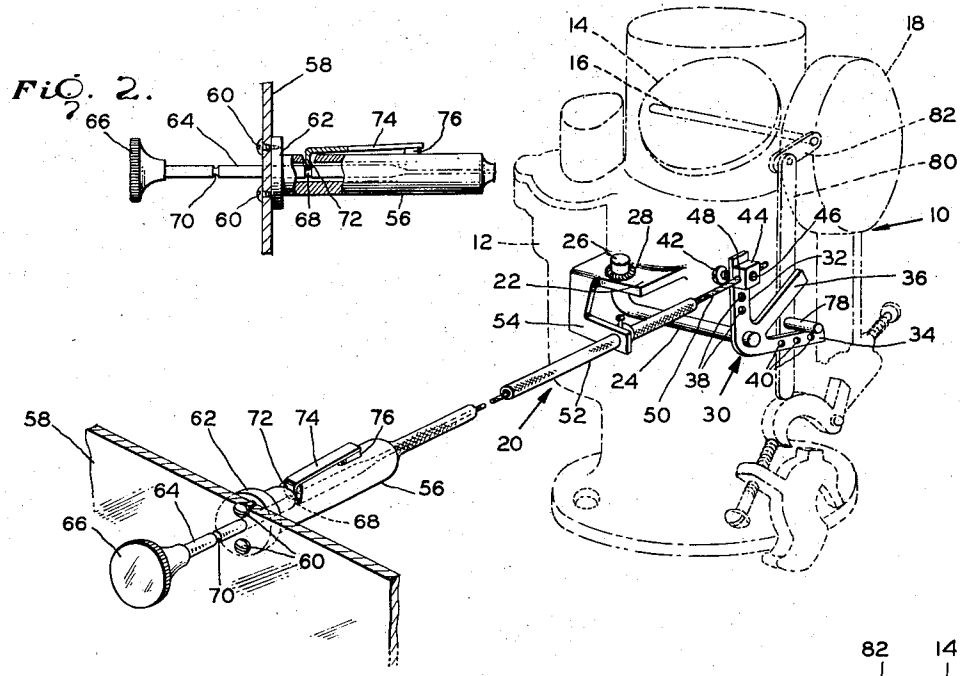


FIG. 2.

FIG. 3.

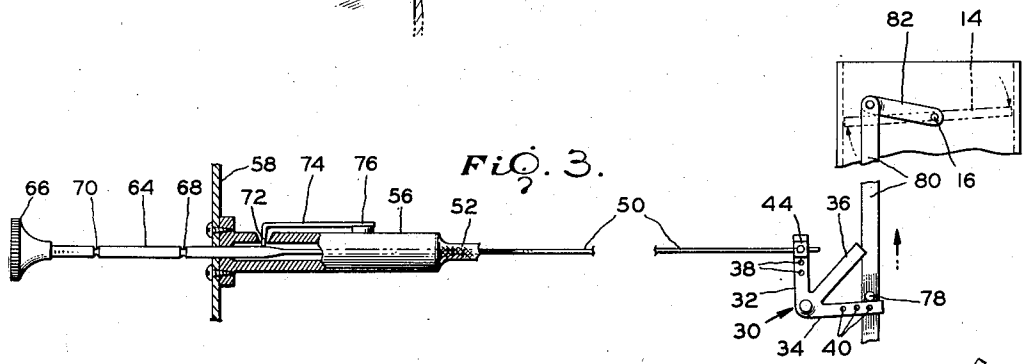
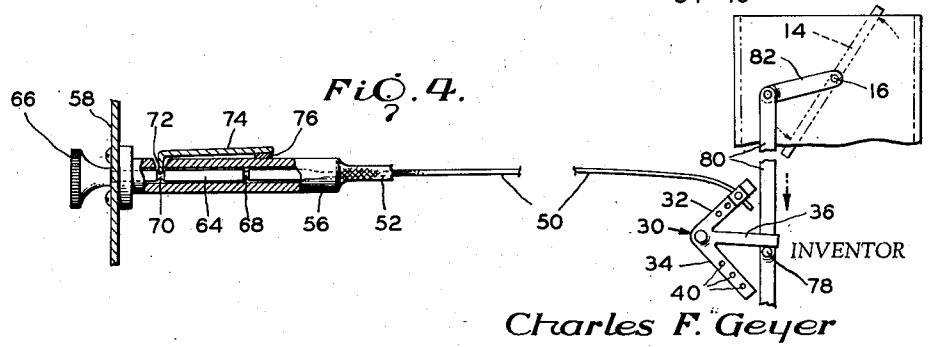


FIG. 4.



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MANUALLY ACTUATED CONTROL ATTACHMENT FOR AUTOMATIC CHOKE

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1 Claim. (Cl. 261—64)

This invention relates to a control device for chokes for internal combustion engines, and particularly relates to a choke control which can be used to manually regulate an automatic type choke when, for some reason, the automatic mechanism fails to function properly.

The control device embodied in this invention may be used with any of the conventional automatic choke type of engine carburetors, the Carter type being here illustrated as an example.

It has heretofore been attempted to provide a manually actuated control device for automatic chokes, but all of these prior art mechanisms have lacked the means to provide a positive opening and a positive closing movement of the choke. They have also had the disadvantage of interfering with the automatic operation of the choke during its normal operation. Furthermore, they have required a permanent attachment between the manual control and the choke assembly which necessitated a great amount of modification of the choke mechanism with a consequent large increase in cost of manufacture and assembly. In addition, the expense of repairs and replacements was practically prohibitive.

One object of this invention, therefore, is to provide a manually actuated control device for automatic chokes which acts to positively open and close the choke.

Another object of this invention is to provide a manual control for automatic chokes which is easily connected to and removable from any of the conventional carburetor mechanisms, and which does not require any alteration of such mechanisms.

Another object of this invention is to provide a manual control for automatic chokes which does not in any way interfere with the normal operation of the automatic choke.

Another object of this invention is to provide a manual control for automatic chokes which is compact and which consists of relatively few parts.

Other objects of this invention are to provide an improved manually actuated control device for automatic chokes which is easily and economically produced, which is sturdy in construction, and which is highly efficient in operation.

With the above and related objects in view, this invention consists in the details of construction and combination of parts as will be more fully understood from the following description, when read in conjunction with the accompanying drawing in which:

Fig. 1 is a perspective view of a device embodying the present invention, showing the device mounted on a typical automatic choke mechanism, shown in dotted outline, wherein the device is in neutral position.

Fig. 2 is a fragmentary side view, partly in elevation and partly in section, of the manual control means illustrated in Fig. 1.

Fig. 3 is a side view, partly in elevation and partly in section, of the choke control when in a position to close the choke.

Fig. 4 is a view similar to Fig. 3, but showing the mechanism in choke opening position.

Referring now in greater detail to the drawing wherein similar reference characters refer to similar parts, there is shown a conventional internal combustion engine carburetor **10** comprising a housing **12** in which is provided a butterfly choke valve **14** mounted on a pivot rod **16** which extends into the conventional thermostat housing **18** in which is provided a conventional thermostat coil, not shown. The rod is attached to the coil for actuation thereby, all in a manner well known.

The control means which embodies the present invention is indicated generally at **20** and comprises a bracket **22** either formed integral with or separably connected to the carburetor housing **12**. A rod **24** is provided with an off-set end **26** which is fixed in an opening **28** in the bracket **22**. The opposite end of the rod **24** supports a control member, generally indicated as **30**, for pivotal movement thereon. This member **30** comprises a pair of oppositely inclined end fingers **32** and **34**, which combine to form a generally V-shaped member, and a middle finger **36** bisecting the angle between the two end fingers.

Each of the end fingers forms a rocking arm and is provided with a series of openings as at **38** in the finger **32** and as at **40** in the finger **34**. Each of these openings is adapted to receive a set-screw **42** which co-acts with a lock-nut **44** in adjusted positions longitudinally of the finger. The set-screw receiving openings are provided in both end fingers so that the control member can be mounted on the rod **24** in any position and whichever of the end fingers is uppermost can be used as the actuating control finger.

The lock-nut **44** is provided with the ordinary screw-threaded hole **46** for receiving the set-screw and is also provided with an intersecting bore **48** for receiving a control cable **50**. The set-screw **42** also locks this cable into position on the finger **32**.

The cable **50** is movable in a flexible casing **52** which is supported at one end by an off-set position **54** on the bracket **22** and at the other end by a sleeve **56** to which it is connected. The sleeve **56** is connected to the engine side of the instrument board **58** of an automobile by means of screws **60** co-acting with a flange **62** on the sleeve.

The cable **50** extends into the sleeve **56** and is connected to a rod **64** which extends through the sleeve and through coinciding openings in the flange **62** and instrument board **58** into the driver's compartment. A control knob **66** is provided on the end of the rod within easy access of the driver. The rod **64** is provided with a pair of spaced circumferential grooves, as at **68** and **70**, each of these grooves being adapted to receive a detent **72** formed on the end of a spring finger **74** mounted on the sleeve **56** as at **76**.

The control member **30** controls the position of the valve **14** through a pin **78** fixed on a lever **80**, this lever **80** being connected with the rod **16** through a link **82**. The lever **80** is ordinarily controlled by the conventional automatic choke valve when the manual control is in neutral or non-operative position as shown in Fig. 1. In this position, the knob **66** is pulled back sufficiently to permit the detent **72** to engage in groove **68** in the rod **64**. In this position, the pin **78** is free to move vertically between the fingers **34** and **36**. When it is desired to close the choke valve, the knob **66** is pulled completely back, thereby bringing the finger **36** out of the vertical path of the pin **78** and allowing the finger **34** to move the pin, and consequently the lever **80**, up to the position where it acts to close the valve, as illustrated in Fig. 3. When it is desired to open the valve, the knob **66** is pushed completely in to the position where

the detent **72** engages in the groove **70**. In this position, as illustrated in Fig. 4, the finger **34** is moved out of the path of the pin **78** and the finger **36** is allowed to move the pin and lever downwardly so as to cause the valve to open.

The adjustability of the connection between the cable **50** and control member **30** by means of the series of openings **38** permits the throw of the control or rocking member **30** to be varied according to conditions.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

A manual control actuator attachment for automobile engine automatic choke valves wherein the choke valve is pivotally mounted within a carburetor, said device comprising a housing adapted to be connected to the instrument board of the automobile at one end and having the other end thereof extending toward the carburetor, said actuator attachment including an axially movable rod extending into said housing and through an opening in the instrument board, axially spaced grooves on said rod, a knob on one end of said rod at one side of said instrument board, a flexible cable connected to the opposite end of said rod within said housing, a spring finger fixed on said housing and adapted to removably engage within each of said grooves, a flexible casing connected to said housing at one end and fixed to a support on the carburetor at the opposite end thereof, said cable being longitudinally movable within said casing and extending beyond said casing at either end, a rocking member comprising at least three rocking arms angularly disposed in a common plane and adapted to be pivotally mounted adjacent the carburetor for oscillation in said common plane, a pivot, on which said rocking member oscillates, adapted to be mounted on said carburetor in longitudinal parallelism with the mounting pivot of the carburetor choke valve for synchronous actuation thereof through said arms, said cable being connected to said rocking member simultaneously to rock all of said arms upon longitudinal movement of said cable, linkage operatively connected to said valve for pivoting said valve upon movement of said linkage, and means separably connecting said linkage to one or another of said arms, depending on the position of rocking adjustment of said arms, to enable said arms to control the position of said valve within the carburetor, said rocking member comprising a generally V-shaped member having a pair of diverging end fingers and a center finger substantially bisecting the angle between said end fingers, each of said end fingers being provided with a series of openings for receiving a connecting means adapted to connect one end of the cable to the rocking member.

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