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MANUAL AUXILIARY CONTROL SYSTEM FOR AUTOMATIC CHOKES

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FIG. 1.

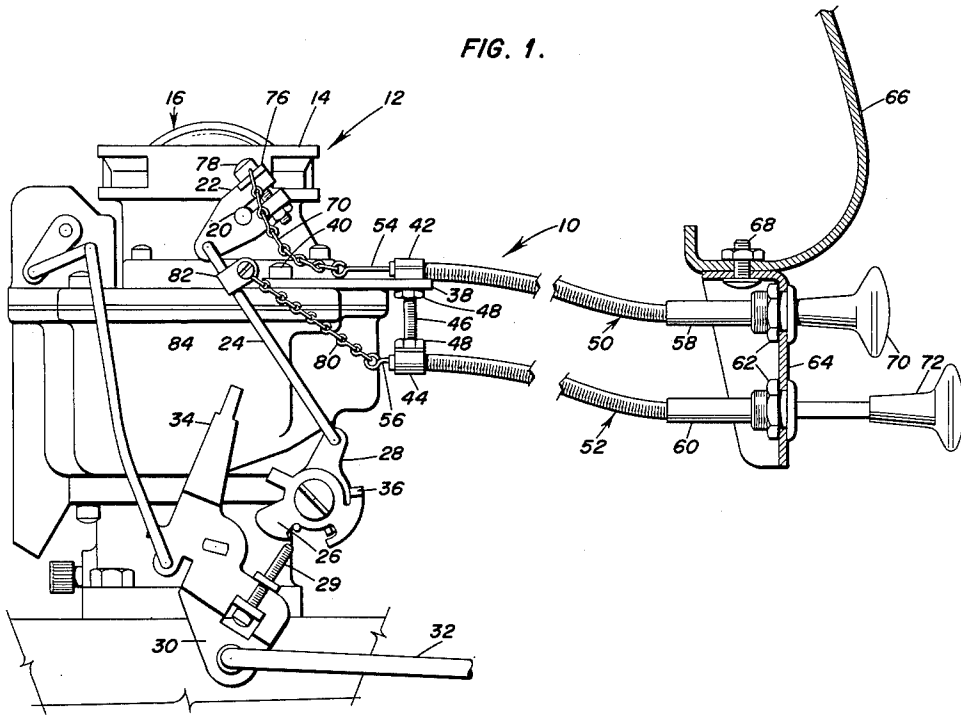
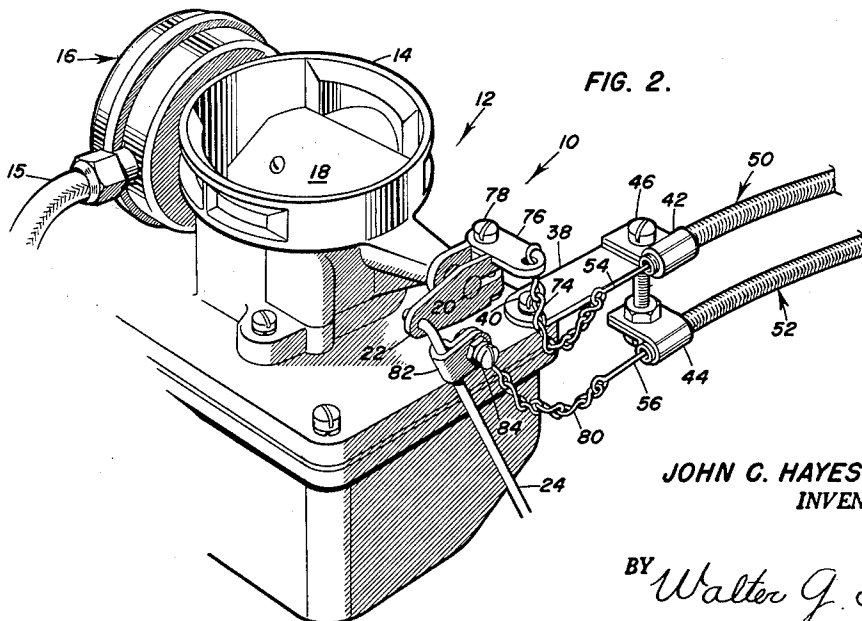


FIG. 2.



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MANUAL AUXILIARY CONTROL SYSTEM FOR AUTOMATIC CHOKE

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This invention relates generally to automobile carburetors, and specifically it pertains to an auxiliary manual control choke system for carburetors that are equipped with automatic chokes.

In cold weather, such as early in the morning, the automatic choke of an automobile is kept closed in order to facilitate the starting of the engine thereof. Normally, it will take from three to ten miles of equivalent driving before the automatic choke is open all the way. The automatic choke is controlled by a thermostatic coil. When this coil is cold, it is in a contracted position, and it maintains a tension on the choke to keep it in a closed position. When the engine of the automobile begins to heat up, the heat from the manifold then begins to heat the thermostatic coil, with the result that it expands. The result is that the tension on the choke is reduced, and the choke then begins to open.

It is an object of this invention, therefore, to provide an auxiliary manual controlled choke system for a carburetor of an engine which is equipped with an automatic choke to facilitate the starting of the engine in cold weather.

Still another object of this invention is to provide an auxiliary manually controlled choke system for the carburetor of an automobile engine, which can be used concurrently or independently of the automatic choke thereof.

And another object of this invention is to provide a novel manually controlled choke system which can be easily adapted to conventional carburetors for automobile engines having automatic chokes.

Even another object of this invention is to provide a manually controlled choke system for automobile engines which is economical to manufacture, efficient and reliable in operational use, and which is easy to install and maintain.

These objects and other attendant advantages of this invention will become more readily apparent from the following detailed specification and accompanying drawings in which:

FIG. 1 is a side elevation of a conventional automatically choked carburetor with an auxiliary manual choke control system incorporating features of the present invention installed thereon; and

FIG. 2 is a perspective view further illustrating the arrangement of the manual auxiliary choke of this invention.

Referring now to FIGS. 1 and 2 of the drawings, there is shown an auxiliary manual choke control system 10 installed upon an automatically choked carburetor 12. The carburetor 12 is of generally conventional design, and includes an air intake horn 14, and a thermostatic choke control assembly 16 which opens or closes a choke plate 18. The choke plate 18 is secured to a shaft 20, which carries a lever 22 that drives or is driven by a link 24 which connects with a fast idle cam lever 28 and its associated fast idle cam 26.

When the engine is first started during cool weather, the choke plate 18 is on a nearly closed position as shown in FIG. 2. The lever 22 is in a horizontal position and holds the fast idle cam 26 against a screw 29, thereby maintaining a throttle lever 30 in a partially open position. The closed choke plate 18 causes a richer fuel mixture to be fed to the engine during warm-up and the

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partially open throttle increases the idling speed of the engine.

As the engine temperature increases, manifold heat is fed through a hose 15, with the thermostatic choke control 16 which starts opening the choke plate 18. When the engine reaches a normal operating temperature, the choke plate 18 should open fully which movement will drop lever 22 and drive the fast idle cam 26 out of contact with the screw 29. Thus, the fuel mixture will be leaned and the idle speed of the engine reduced. It should be noted that the various carburetor elements are illustrated in FIG. 1 in a "choke open" position.

Frequently, several factors tend to prevent the proper functioning of the above described system. The hose 15 can become fouled, or the spring in the choke control 16 can weaken. In addition, the choke plate 18 and its shaft 20 can become gummed or "varnished" with the consequence that the choke plate 18 will only open part way or, at least, will take much longer than necessary to open fully. Continuous running with a partially closed choke, in addition to causing a rough idle of the engine, is extremely wasteful of fuel and is a principal cause of plug fouling. Further, the excess fuel will drain down the cylinder walls carrying away the lubricating film and diluting the contents of the crankcase.

The foregoing disadvantages are readily obviated or eliminated by utilizing a manual choke control system 10 which can be very easily installed on the majority of carburetors now in use. The manual choke control system 10 of this invention including a mounting plate 38 which is secured at one end to the carburetor 12 by a screw 40.

A pair of clamps 42 and 44 are fixed to the other end of the plate 38, by means of a screw 45 and locknuts 48. The clamps 42 and 44 secure one end of each of a pair of choke cable assemblies 50 and 52, respectively to the mounting plate and screw 46.

The opposite end of each of the cable assemblies 50 and 52 is fashioned with a threaded ferrule 58 and 60, respectively, both of which are secured to a mounting bracket 64 by nuts 62. The bracket 64 is hung from the undersurface of the dash panel 66 of the automobile by nuts and bolts 68. The cable assemblies 50 and 52 are provided with actuating knobs 70 and 72, respectively.

Returning now to the carburetor end of the choke cable assemblies 50 and 52, it is to be noted that their respective core wires 54 and 56 are formed in loops which receive one end each of a pair of short chains 74 and 80.

The other end of chain 74 engages a hole in one end of a short extension link 76, the other end of which is fastened by screw 78 to the choke lever 22. The other end of chain 80 is fastened to a clamp type lever 82 by a screw 84. The screw 84 also serves to secure the lever 82 to the link 24.

It is now to be noted that pulling knob 70 will cause lever 22 to rotate in a clockwise direction, thereby closing choke plate 18 whereas pulling knob 72 will cause lever 22 to rotate in a counterclockwise direction, thereby opening the choke plate 18. The latter condition is illustrated in FIG. 1. As shown in FIG. 2, sufficient slack is provided in chains 74 and 80 so as to eliminate any interference with the automatic choke control when both knobs 70 and 72 are pushed in.

The usual operation of the manual choke control system 10 will now be described. After starting the engine and getting underway, the operator can elect to open the choke manually in advance of the automatic system by pulling knob 72 out, thereby saving considerable fuel. If, however, a need for more power should arise before the engine reaches its normal operating temperature, the

choke can be restored to the setting determined by the automatic choke control by pushing knob 72 back in or by pulling knob 70 out.

It should be noted that pushing knob 72 in slackens the chain 80, thereby allowing the choke plate 18 to return to the position determined by the automatic choke control 16. On the other hand, pulling knob 70 full out will override the automatic choke control 16 and completely close the choke plate 18. It should be further noted that the manual system 10 will in no way interfere with the "unloader" system built into most carburetors.

For instance, should the engine become flooded during starting, it is only necessary for the operator to floor the accelerator pedal while cranking in order to dump the excess fuel through the exhaust system. Even though knob 70 may be full-out and thereby holding choke plate 18 closed, flooring the accelerator pedal will cause a throttle rod 32 to drive throttle lever 30 in a clockwise direction. As the throttle lever 30 rotates, it will carry its integral "unloader" arm 34 around with it causing the arm 34 to strike a projecting tab 36 on fast idle cam 26. Fast idle lever 23, the link 24 and the lever 22 will then be pulled downwardly thereby fully opening the choke plate and simultaneously knob 70 will be pulled back in.

Obviously many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. In an automatically choked carburetor for an engine having an air intake horn, a rotatable mounted shaft in said air intake horn, a choke plate mounted on said shaft in said air intake horn, a thermostatic choke control assembly for rotating said shaft to open as well as close said choke plate depending upon temperature environments of said engine, a choke plate lever pivotally secured to one end of said shaft, a link pivotally connected to said lever for driving as well as being driven by said lever, a fast idle cam lever connected to said link, a fast idle cam associated with said idle cam lever, a throttle lever for controlling the idle speed of said engine, and a screw located between said idle cam lever and throttle lever; in combination with a manual choke control system for said carburetor, said system including a mounting plate, a pair of spaced choke cable assemblies

secured to said mounting plate and the other ends thereof to a fixed support, each choke cable assembly including a core wire having a loop formed on one end, a short chain connected to each loop, the other end of each core wire having a handle, an extension lever connected to said choke lever, one of said chains for one of said choke assemblies being connected to said extension lever and the other of said chains of said other of said choke assemblies being coupled to said link, each said chains having sufficient slack so that movement of said choke plate can be controlled by the thermostatic choke control assembly without movement of the corresponding core wires, said choke assemblies being used to selectively open as well as close said choke plate in said air intake horn.

2. In an automatically choked carburetor for an engine having an air intake horn, a rotatable mounted shaft in said air intake horn, a choke plate mounted on said shaft in said air intake horn, a thermostatic choke control assembly for rotating said shaft to open as well as close said choke plate depending upon temperature environments of said engine, a choke plate lever pivotally secured to one end of said shaft, a link pivotally connected to said lever for driving as well as being driven by said lever, a fast idle cam lever connected to said link, a fast idle cam associated with said idle cam lever, a throttle lever for controlling the idle speed of said engine, and a screw located between said idle cam lever and throttle lever; in combination with a manual choke control system for said carburetor, said system including a mounting plate, a choke cable assembly secured to said mounting plate and to a fixed support, said choke cable assembly including a core wire having a loop formed on one end, a short chain having one end connected to said loop and its opposite end connected to said link, said chain having sufficient slack so that movement of said choke plate can be controlled by the thermostatic choke control assembly without movement of said core wire, the other end of said core wire having a handle so that said choke assembly can be operated to open said choke plate in said air intake horn.

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