May 3, 1932. W. A. CHRYST 1,856,746

CARBURETOR CHOKE CONTROL

Filed Aug. 20, 1929

Fig. 1.

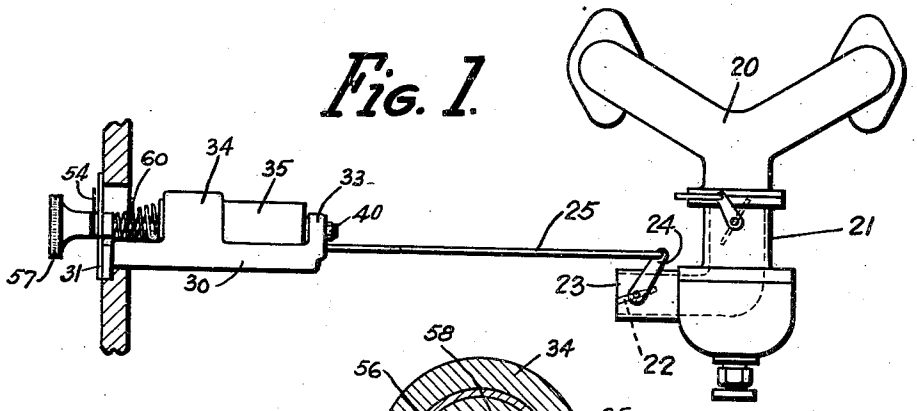
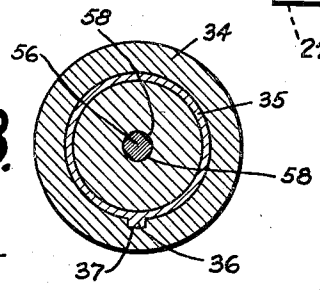



Fig. 3.



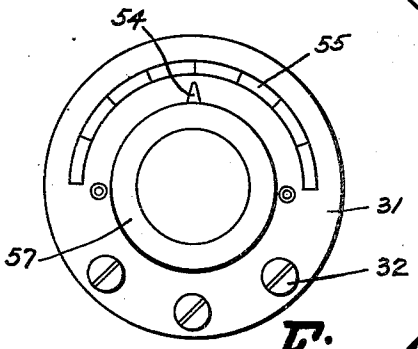




Fig. 4.

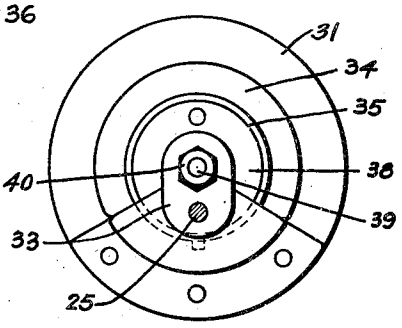



Fig. 5.

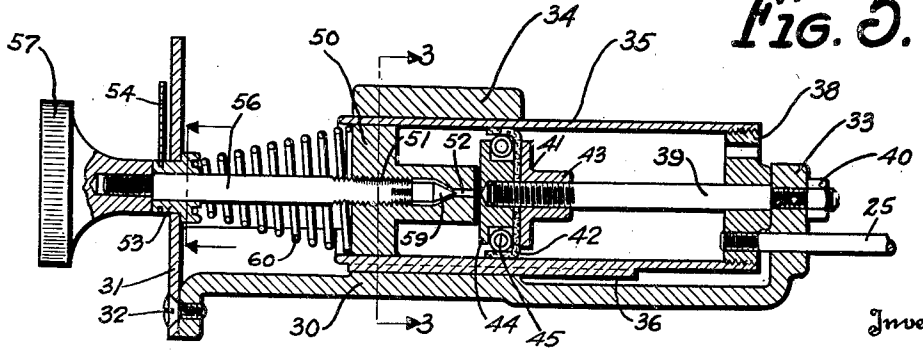



Fig. 2.

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# UNITED STATES PATENT OFFICE

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## CARBURETOR CHOKE CONTROL

Application filed August 20, 1929. Serial No. 387,216.

This invention relates to a control device for the fuel supply apparatus of an internal combustion engine.

It is among the objects of the present invention to provide a device by which the choker valve of a carburetor may be closed for engine starting purposes, said device having a retarded movement for opening said choker valve.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of one form of the present invention is clearly shown.

In the drawings:

Fig. 1 is a view showing the choker control device connected with the choker valve of a carburetor.

Fig. 2 is a longitudinal sectional view taken through the axis of the carburetor choke control device.

Fig. 3 is a detail sectional view taken along the line 3—3 of Fig. 2.

Fig. 4 is a front elevation of the device.

Fig. 5 is a rear elevation of the device.

Referring to the drawings, the numeral 20 designates the intake manifold of an engine not shown. The carburetor 21 is secured to the manifold 20 in any suitable manner. The carburetor has a choke valve 22 which, during the normal operation of the engine, is wide open to permit a full charge of air to enter the air intake pipe 23, said valve, however, being closed for engine starting purpose whereby, an enriched fuel supply is delivered to the engine. The valve 22 has an operating lever 24 on the outside of the carburetor to which one end of a rod 25 is secured.

The carburetor choke controlling device illustrated detailedly in Fig. 2 comprises a bracket 30 having a plate 31 secured thereto by screws 32. At the end of the bracket 30 opposite the plate 31 an angular portion 33 is provided substantially at right angles to the main body of the bracket. Intermediate the ends of the bracket there is provided a cylindrical portion 34 which slidably supports the cylinder 35. In order to avoid rotation of the cylinder relative to the cylindrical portion 34 of the bracket, said cylinder has a tongue 36 which fits into a groove 37 provided in the inner surface of the cylindrical portion 34.

At the one end of cylinder 35 a plate 38 is provided having a central opening for receiving a rod 39 which is anchored to the angular portion 33 of the bracket 30 by a nut 40. The one end of rod 25 which, as has been described, is connected with the choke valve operating lever 24, extends through an aperture in the bracket portion 33 and is anchored to the end member 38 of the cylinder 35. From this it may be seen that cylinder 35 is slidably supported at one end by the cylindrical portion 34 of the bracket and at the other end by its end member 38 slidably supported upon the rod 39.

The rod 39 supports a piston 41 within the cylinder 35, said piston comprising a fibrous cup-shaped washer 42 gripped between members 43 and 44, secured to the rod 39. An expansion spring 45 is provided inside the fibrous washer 42, said spring urging the washer into sealing engagement with the inner wall of the cylinder.

At the end of the cylinder 35, opposite the end member 38 a cylinder head 50 is secured within the cylinder. This head has a central passage 51 longitudinally of the cylinder 35, a portion of said passage being provided with screw threads, another portion is restricted providing the orifice 52. This construction provides a compression chamber within the cylinder 35 between the head 50 and the piston 41.

The plate 31 supported substantially at right angles of the axis of the cylinder 35 has a collar 53 rotatably supported thereby in coaxial alignment with cylinder 35. This collar supports an indicating pointer 54 adapted to be moved into indicating position relative to the graduated dial 55. Collar 53 has a central opening for receiving the square shaft 56, the outer end of which has the actuator 57 secured thereto, the inner end of said square shaft 56 being provided with screw threads of such a nature that the threads are cut only in the four corners of the square

shaft. This shaft 56 threadedly engages the threaded portion of the passage 51 in the cylinder head 50. By using a square shaft and cutting the threads on the corners of the shaft provides passages 58 between the inner surface of the passage 51 and the outer flat surface of the shaft 56. At the inner end of the shaft there is a reduced portion having a pointed end 59 adapted to be moved into various positions relative to the orifice 52 by the rotation of the actuator 57. A spring 60 is interposed between the cylinder head 50 and the collar 53, said spring normally urging and tending to maintain the cylinder 35 in the position as shown in Fig. 2, in which position the choke valve 22 of the carburetor is open.

The device operates as follows. When it is desired to start the engine the operator grasps the actuator 57 and exerts a pull there on which will move the cylinder 35 toward the left as regards Figs. 1 and 2, against the effect of spring 60 whereby, the rod or link connection 25 will rotate the choker valve operating lever 24 in a counterclockwise direction causing the valve 22 to close the air inlet pipe 23. The engine now receiving a richer mixture will start more readily. After the engine has started the operator releases the hold upon the actuator 57 thereby, permitting spring 60 to return the cylinder 35 to its normal position in which the choke valve 22 is wide open. The return of cylinder 35 to normal position is retarded by the air confined between the head 50 and the piston 41, this air being able to escape only through the orifice 52, the size of which is controlled by the position of the pointed end 59 of the actuator rod 56. If the pointed end 59 of rod 56 is in close proximity to the mouth of the orifice 52 a substantial restriction to the escape of air from the compression chamber is obtained and a slow return of cylinder 35 to normal position will result. If a faster return is desired the actuator 57 may be rotated to move the pointed end 59 from the opening of the orifice 52 substantially reducing the restriction to the escape of air through said orifice.

The entire assembly may be secured to the dash of the vehicle in which the engine is used in any suitable manner and in any position easily accessible.

While the form of embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A dash pot control device comprising in combination; a cylinder; a piston; an actuator adapted to be operated to cause relative movement between the piston and cylinder; a valve for controlling the operation of the device, said valve being adjustable by the rotation of the actuator to vary the operation of said device.

2. A dash pot control device comprising in combination; a cylinder having a cylinder head; a valve in said head; and an actuator operable in one direction to effect relative movement between the piston and cylinder and operable in another direction to adjust the valve to vary the operation of the device.

3. A dash pot control device comprising in combination; a stationary rod; a cylinder having two apertured, cylinder heads, one of which is slidably supported upon said rod; a piston carried by said rod; a valve in the aperture of the other cylinder head; and an actuator secured to said other cylinder head for moving said cylinder relative to the piston and rod, said actuator being movable relative to the cylinder head to adjust the valve for varying the operation of the device.

4. A dash pot control device comprising in combination; a stationary rod; a cylinder having two apertured, cylinder heads, one of which is slidably supported upon said rod; a piston carried by said rod; a restriction in the aperture of the other cylinder head providing an orifice; and an actuator secured to said other cylinder head for moving the cylinder relative to the piston, said actuator providing a valve pin, adjustable by the rotation of the actuator relative to the cylinder head for varying the size of the orifice therein.

In testimony whereof I hereto affix my signature.

WILLIAM A. CHRYST.