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DEVICE FOR CONTROLLING THE FLOW OF FUEL FROM A SUPPLY
TANK TO A CARBURETOR IN AN AUTOMOBILE

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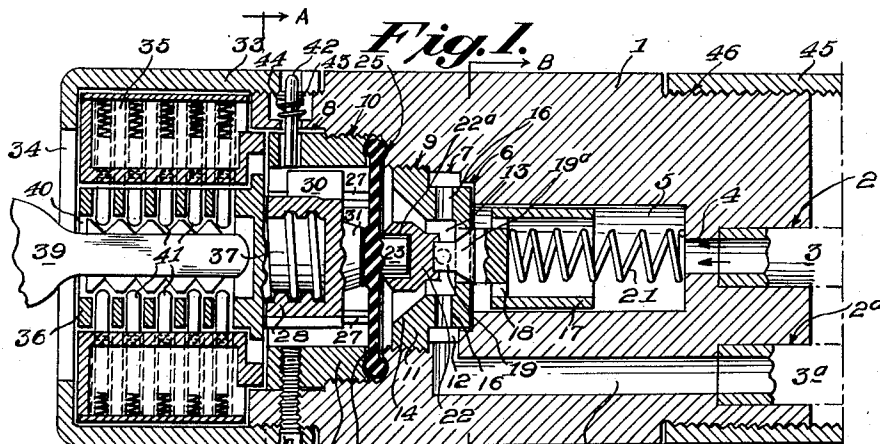


Fig. 2.

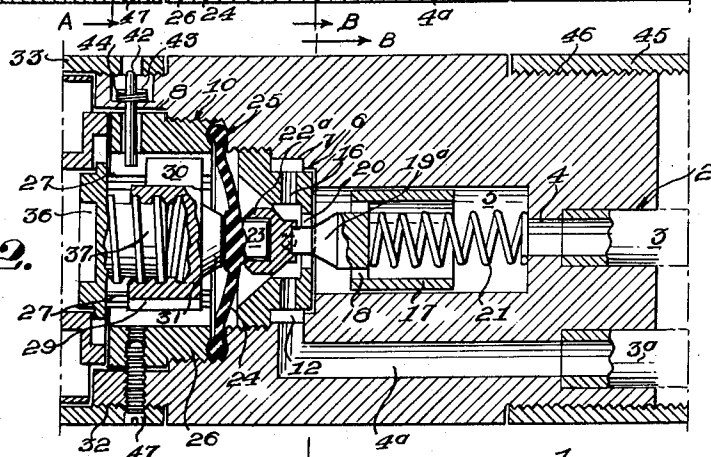


Fig. 3.

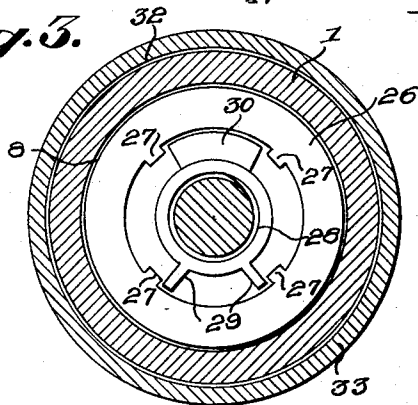
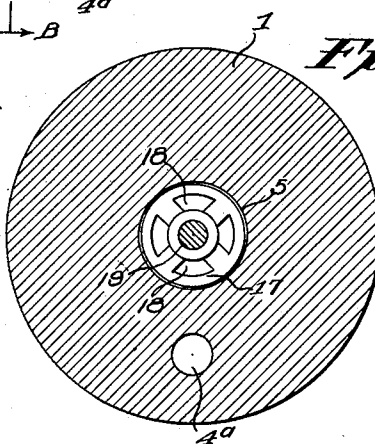


Fig. 4.



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1

2,906,284

DEVICE FOR CONTROLLING THE FLOW OF FUEL FROM A SUPPLY TANK TO A CARBURETOR IN AN AUTOMOBILE

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3 Claims. (Cl. 137—384.8)

The present invention refers to a safety device against robbery of automotive vehicles, its essential object being to provide a novel and simple device which, apart from its excellent constructive and functional features, offers evident practical advantages in application and use, for the purpose specified.

The improved safety device according to the present invention comprises a body the interior of which is provided with a chamber communicating with the fuel tank and the corresponding engine carburettor. Said chamber houses a valve capable of being actuated by a control mechanism connected to the barrel of a cylinder lock, in such a manner as to interrupt the flow of fuel feeding said engine carburettor. It is thus impossible to start the engine.

The invention is essentially characterized by the novel construction of said valve control means and by the particular arrangement of the parts comprising the device, as shown further on.

The invention likewise envisages other accessory objects which will be clear during the course of the present specification.

In order that the present invention may be more clearly understood and readily put into practice, an example of same will now be described with particular reference to the attached drawings, in which:

Figure 1 is a longitudinal section of the device according to the present invention, in closed position.

Figure 2 is a section similar to Figure 1, showing the same device in opened position.

Figure 3 is a crosswise cut through section A—A of Figure 1 and, finally

Figure 4 is a further crosswise cut through section B—B of Figure 2.

Like numerals represent like or similar parts throughout the several figures of the drawing.

In the embodiment illustrated, the safety device object of the present invention consists of a body 1. One end of said substantially cylindrically-shaped body is provided with an axial conduit 2, to be connected to the fuel feed line 3 from the fuel tank of the vehicle. Said fuel line, after passing through a narrow conduit 4, terminates in the interior of cylindrical chamber 5 which, in turn, passes axially through the inside of said body 1 and continues through successive cylindrical widened portions 6, 7 and 8 as well as through two intermediate threaded areas 9 and 10.

The mouth opening of said chamber 5 is closed by a ring-shaped bushing 11, serving as a cover and screwing into threaded recess 9, forming between its side surface and the adjacent widened portion 7 an annular chamber 12 from which a further conduit 4a branches off to connect, at its outlet, 2a, with tube 3a which supplies the carburettor with fuel.

Said annular bushing 11, in front, is provided with a recess 13 limited at its inlet by a chamfer 14 and provided with a plurality of small-diameter radial orifices

2

16. Said orifices serve to provide free communication between said recess 13 and aforementioned annular chamber 12.

The interior of central chamber 5 is in turn provided with a slidable tubular body 17, serving as a plunger. The tubular body or plunger 17 is provided with an end wall which is provided with a series of small orifices 18 in equally spaced relation to the center thereof, and a stem 19 extends axially from said wall and inwardly of said orifices and which stem extends through an orifice 20 in an end wall of the bushing 11. The middle portion of said stem is provided with a frustum-shaped portion 19a, capable of hermetically seating against the outer edge of said orifice due to the thrust exerted by an expansion spring 21 lodged inside of said tubular body 17.

The free end of stem 19 is connected, through simple insertion, with a supplement 22 the outer face of which is provided with a recess 22a in turn housing a cylindrical appendix 23 forming integral part of a flexible membrane or diaphragm 24 peripherally resting on a flat projection 25 formed between threaded widened portions 9 and 10 and in sealing engagement therewith by means of a tubular bushing 26 in turn threaded into the latter.

From the detail illustrated in Figure 3 it can be seen, furthermore, that the inside of said bushing 26 is provided with a series of radial ribs 27. These ribs act as guides for a small thrust cylinder 28 furnished for sliding engagement therewith with a pair of radial fins 29 which are capable of being guided between aforesaid ribs 27 to prevent rotation of the cylinder in question. Said cylinder 28 is also provided, in a position diametrically opposite to said fins, with a further transversal fin 30. The shape of this fin 30 is part circular and its thickness is substantially equal to a fraction of the length of said cylinder; commencing at the front face of the latter, a small appendix 31 is arranged to be capable of pressing against the adjacent face of above-described membrane 24.

The free end of said body 1 is in turn provided with an annular shoulder 32 receiving, through threaded engagement, a cover 33 the front portion of which is furnished with an opening 34 housing a cylinder lock 35. The rotary barrel 36 of said lock is extended inwardly to form a threaded stem 37 which is interiorly threaded on to threaded stem or thrust cylinder 28 and is capable of being rotated by means of key 39, of "Yale" or similar type inserted through a longitudinal slot 40 provided in said barrel and capable of acting, in a known manner, on a series of tumblers 41 blocking the rotation of the barrel.

From Figures 1 and 2 it can be seen, furthermore, that body 1, bushing 26 and cover 33 are passed through by a pin 42, slidably inserted within an orifice coaxially extending through said members, said pin forming integral part of a small radial widened portion 43 or disc, the inside part of which presses against an expansion spring 44 tending normally to maintain said pin in its outward retracted position, for a purpose that will be explained further on.

The device as described is intended to be applied, preferably, to the vehicle dashboard or to any other fixed part within the driver's reach such as, for example, the instrument panel. The device can be fixed in position by any adequate means, for example, a tubular support 45, preferably threaded into a recess 46 provided at the back of body 1.

In normal position the operative members of the device as described are arranged in the position illustrated in Figure 2. In said position stem 19 of valve body 17 by means of frustum-shaped portion 19a is seated

3

against inlet orifice 20, hermetically sealing off all communication between tubes 3 and 3a.

If in these conditions and by means of key 39 barrel 36 and integral appendix 37 are made to rotate, the latter, through its thread advances cylinder 28 which is longitudinally guided by fins 27 of bushing 26 against ribs 29 of said cylinder. During advance, central appendix of this cylinder exerts pressure against the inside face of membrane or diaphragm 24, as shown in Figure 2, and said membrane, in turn, through supplement 22, brings about the backwards movement of the valve body, against the bias of spring 21, thus uncovering orifice 20. The fuel is thus able to enter feed line 3 connected to the fuel tank of the vehicle. The fuel follows the direction of the arrows of Figure 2, through inside chamber 5, through orifices 18 of the body of the valve and through orifice 20 of cover 11. It will thus reach recess 13 and from same unload into conduits 16, annular chamber 12 and outlet conduit 4a, from where it will reach the carburettor through tube 3a.

When parking the vehicle, lock barrel 36 is actuated; by means of membrane 24 portion 19a of the valve body, under pressure exerted by spring 21, is once more seated against the inlet to orifice 20, as illustrated in Figure 1, automatically interrupting the arrival of fuel to the engine carburettor and thus preventing starting up, at least until said valve body be once more drawn back.

In order to remove cover 33 the set screw 47 is extracted, subsequent to which and with the cylinder 28 being in the position of Fig. 2, while the key 39 is in the lock 35 the pin 42 is pushed inwardly until its rounded head engages the inner wall of cover 33. With the pin 42 disposed the cover can readily be removed.

When the pin 42 is pushed inwardly its inner end engages projection 30 and thereby prevents displacement at the cylinder 28 while the cover is being removed. Upon removal of the cover the pin 42 may be removed in order to dismantle other parts of the device.

The pin may, of course, be replaced and initially be held down until the front end of cover 33 engages the rounded head thereof.

The invention as herein specified and illustrated in the drawings, may be clearly understood and no further explanations will be required by those versed in the art.

Inasmuch as the present invention has been described and illustrated with particular reference to embodiments preferred for such purposes, it will be readily understood that sundry changes in construction and detail may be made without departing from the scope of the invention, as defined in the following claims.

I claim:

1. A device for controlling the flow of fuel from a supply tank to a carburetor in an automobile; comprising an elongated cylindrical casing, said casing being provided with a cylindrical walled chamber coaxially thereof, said casing forwardly of said chamber being provided with cylindrical seating areas of successively greater diameters toward the front end thereof with radial shoulders therebetween, a circular bushing removably disposed within the smaller of said cylindrical areas and at the forward open end of said cylindrical chamber, said bushing having a central cylindrical walled opening, an annular chamber surrounding said bushing, orifices in said bushing intercommunicating said opening and said annular chamber, an inlet conduit in said casing, an outlet conduit in said casing, said inlet conduit opening into the rear end of said cylindrical chamber, said outlet conduit

4

opening into said annular chamber, said circular bushing being provided with an orifice communicating with said central opening and said cylindrical chamber, valve means disposed within said central opening and including a portion engageable with the inner wall of said bushing for closing said orifice, spring means disposed within said cylindrical chamber with one end thereof engaged with said valve means for holding same in position for closing said orifice, a flexible diaphragm disposed outwardly of said bushing and having its margin engaged with one of said radial shoulders, the central portion of said diaphragm being connected with said valve means, a tubular bushing removably engaged with one of said cylindrical seating surfaces and bearing on the margin of said diaphragm, a thrust cylinder disposed within said tubular bushing and having an axial slidable engagement therewith, said thrust cylinder having a nose portion engageable with said diaphragm for rearwardly flexing same with a resulting unseating of said valve means, and a rotatable cylinder lock including a portion cooperating with said thrust cylinder for axially moving same within said tubular bushing.

2. A device for controlling the flow of fuel from a supply tank to a carburetor in an automobile; comprising an elongated cylindrical casing having a central fuel receiving chamber therein, an inlet conduit in said casing in communication with said fuel receiving chamber, an outlet conduit in said casing, an annular bushing in said casing spanning an end of said fuel receiving chamber and having a central recess therein; said bushing further having an orifice normally in communication with said recess and said fuel receiving chamber, said casing and said bushing having cooperating walls defining an annular chamber, said outlet being in communication with said annular chamber said bushing being provided with radial passageways in communication with said recess and said annular chamber, valve means disposed co-axially within said fuel receiving chamber and said bushing, spring means disposed within said fuel receiving chamber normally urging said valve means to seating position on said bushing in closing relation to said orifice, a flexible diaphragm supported in said casing and engaged with said valve means, and key-actuated locking mechanism cooperating with said diaphragm for moving said valve means for opening said orifice.

3. A device according to claim 2, wherein said valve means includes a tubular body disposed within said cylindrical chamber co-axially thereof, said tubular body having a valve stem unitary therewith which engages the diaphragm and a circumferential series of orifices in the forward end of said tubular body in surrounding relation to said valve stem, and said spring means comprising an elongated coil having its forward end engaged with said tubular body within said circumferential series of orifices.

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