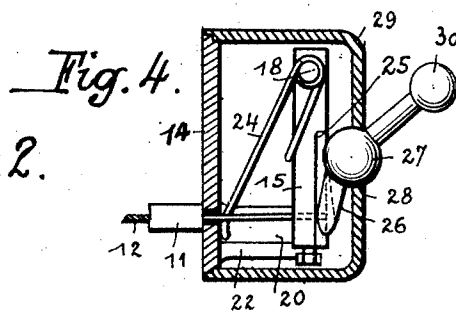
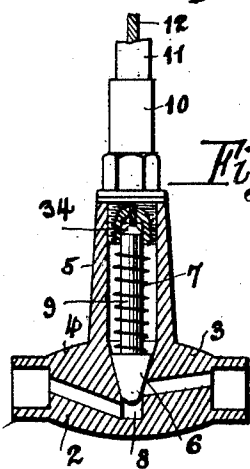
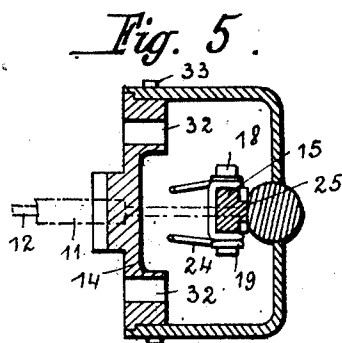
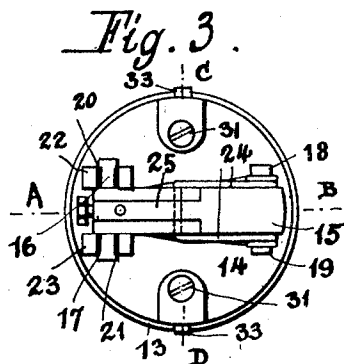
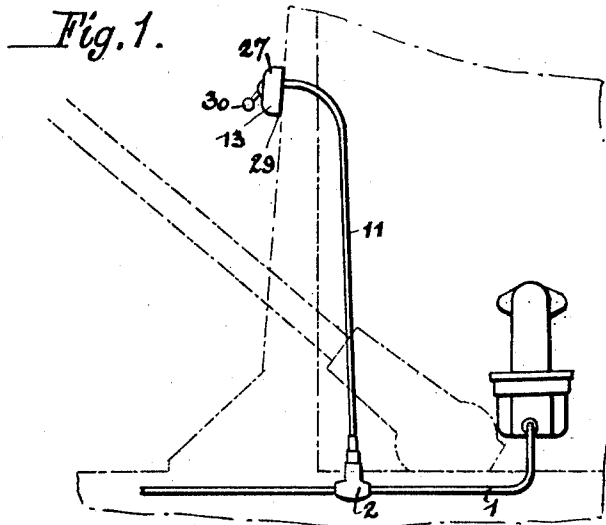


April 16, 1929.

L. I. POIRMEUR
CLOSING DEVICE FOR ALL FLUIDS, PARTICULARLY
FOR LIQUIDS USED IN AUTOMOBILES
Filed Nov. 1, 1926

1,709,039

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6

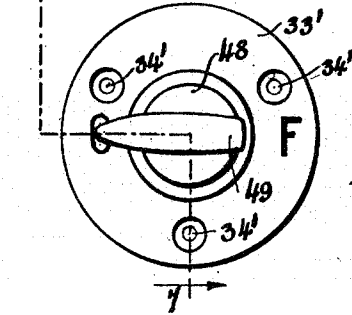


Fig. 7

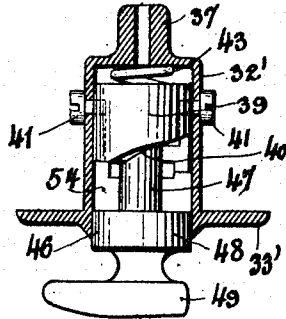
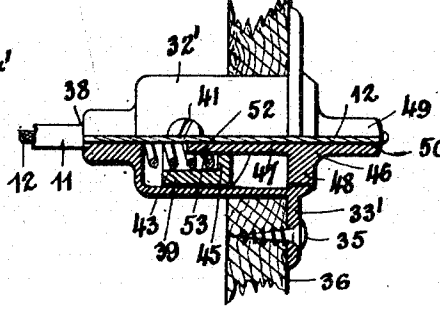


Fig. 9

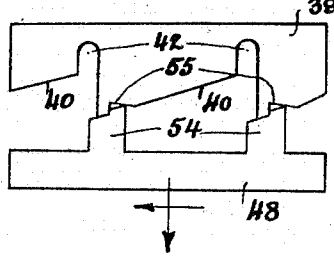


Fig. 8.

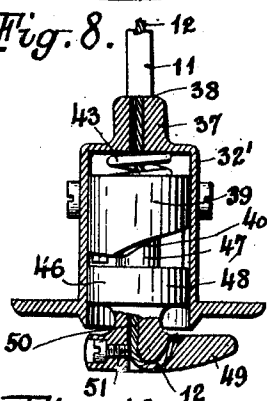


Fig. 11.

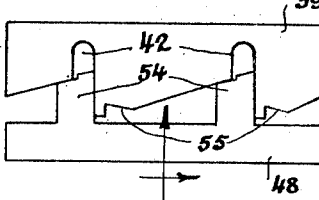


Fig. 10.

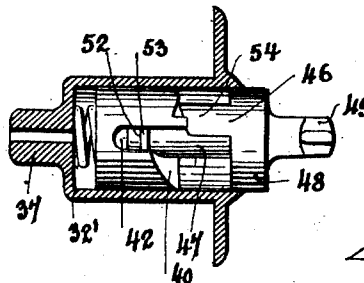


Fig. 12.

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CLOSING DEVICE FOR ALL FLUIDS, PARTICULARLY FOR LIQUIDS USED IN AUTOMOBILES.

Application filed November 1, 1926, Serial No. 145,682, and in France November 10, 1925.

It is sometimes desirable to close the flow of a fluid in a piping to make up for the lack of watertightness arising in the cocks for any reason whatever.

My invention relates to a closing device adapted for use in particular on the gasoline pipes of automobiles.

It is well known that all automobiles, trucks and the like comprise ordinarily a cock disposed at a suitable point of the piping connecting the gasoline reservoir with the carburettor.

It is also known that gasoline cocks are difficult to make watertight especially when they are not quite new. Moreover they do not work in a constant manner; sometimes they get wedged and sometimes they close under the sole action of the vibrations. On the other hand the carburettors frequently leak on the carriages so that it is necessary in order to avoid any loss of gasoline to close the cock whenever the automobile stops, which means the driver is obliged to lift the motor hood in most cases unless he is obliged as in the case of the Ford car to slip under the carriage. This is anyway a very uncomfortable and often dirty movement.

I have imagined to provide at any point of the piping leading to the carburettor for instance, a three way cock and a normal piping leading thereto wherein a spring-urged needle is adapted to move. This needle when closed is urged by its spring to close the passage of the fluid by engaging a recess provided therefor in the cock. The needle is suitably opened for instance by a yielding cable whereby it compresses its spring. The other end of the cable passes into a box wherein it is secured to a spring urged arrangement actuated by a swivel-joint lever disposed near the driver.

According to my invention I may replace this control arrangement by a controlling part provided with a helical slope. In this case the controlling part comprises a cylindrical box provided with a hole at its rear end where through the cable is adapted to pass. The cover of the cable is on the contrary secured by its extremity to this rear part of the box.

Inside the box is disposed a helical slope

along which is adapted to move the part bearing the lever to which is secured the end of the cable. Thus it is evident that when the cable holding lever is rotated in the proper direction, it will slide inside the box and draw along with it more or less the cable. The said lever must be adapted to be blocked and to remain stationary at each end of its track. In view of this stop notches can be provided at each end of the helical slope which the lever holding part can engage.

The helical slope may be cut out of a block independent from its casing; in this case it is yieldingly secured thereto. The lever holding part can be provided with a shoulder constituted by a metallic wire inserted in a slot and adapted to bear against a corresponding shoulder of the part bearing the helical slope so as to prevent the outward movement of the lever-holding part.

I have described hereinbelow and shown in appended drawings, by way of example, two forms of execution of my invention.

Fig. 1 is a general view of my invention used with an automobile.

Fig. 2 is a cross section of the cock and needle.

Figs. 3, 4 and 5 illustrate a first form of execution of the controlling part consisting in this case in a spring urged arrangement adapted to move between two given positions.

Fig. 3 is a view of the inside of the control box the cover of which is supposed to be removed.

Fig. 4 is a section along line A, B of Fig. 3 and Fig. 5 a section along line C, D of Fig. 3.

Figs. 6 to 12 illustrate a second form of execution of the controlling part consisting in a helical slope guiding the cable-holding lever.

Fig. 6 is a front view of the apparatus.

Fig. 7 is a vertical section taken along the line 7—7 of Fig. 6 and supposed seen in the direction of the arrows.

Fig. 8 is a side view of the inside of the apparatus; the casing being supposed cut along a central plane and the lever at an end of its path.

Fig. 9 shows the helical slope developed on a plane together with the corresponding part of the lever-holding part, the apparatus be-

ing supposed in the position shown on Fig. 8.

Fig. 10 is a view similar to Fig. 8 with the lever at the other end of its path.

Fig. 11 is similar to Fig. 9, the apparatus being disposed as on Fig. 10.

Fig. 12 is a side view of the apparatus seen at right angles with reference to Fig. 8 and the casing being cut along its central planes.

As shown on the drawings, the gasoline pipe 1 is provided with a cock 2 showing three ways 3, 4, 5 the normal pipe 5 of which series to guide the needle 6 which the spring 7 urges into the recess 8 of the cock 2. The body 9 of the needle 6 slides moveover in the connection 10 screwed on the pipe 5 and against which the spring 7 bears as well as the box or casing 11 enclosing the end of the yielding cable 12 secured to the needle. The casing 11 can be constituted by a watertight tube, or in a more simple manner by a metallic cover of the Bowden type, but in this case the connection 10 must comprise a watertight arrangement. In view of this, the body 9 of the needle 6 is provided at its top end with a second needle 34 bearing against a seat provided in the connection 10 when the cock is open.

The other end of the cable 12 is connected with the controlling part which as explained hereinabove, may be either a spring urged arrangement or a lever cooperating with a helical slope.

In the first case (Fig. 3, 4 and 5) the other end of the cable 12 passes into a box 13, the bottom 14 of which bears the sheath 11, and is connected with the movable plate 15. This plate shows lateral lugs 16, 17, 18, 19 at each end. The conical lugs 16 and 17 slide in the apertures 20, 21 of the guiding parts 22, 23 secured normally to the bottom 14 and the two others 18, 19 are capped by the coils of a spring 24 which constantly urges the plate 15 towards the upper end of the apertures 20, 21 the breadth of which is smaller at this point so as to prevent the plate from escaping.

The plate 15 is made thicker at 25 so as to guide a fork 26 secured to a lever of the first type the swivel joint bearing 27 of which rotates inside the central opening 28 of the cover 29 of the box 13 and the lever proper 30 being outside the box.

The bottom 14 is secured to a suitable part by the screws 31 passing through the holes 32 and the cover 29 is secured to the bottom 14 by a bayonet joint 33 for instance.

When it is desired to shut off the gasoline it is sufficient to actuate the lever 30 whereby the fork 26 bears against the part 15 and the cable 12 is released and thereby also the needle 6 which is urged by the spring 7 into its recess 8.

To admit the gasoline the lever 30 is rotated in the opposite direction so as to free

the plate 15 urged by its spring 24 towards the top of the apertures whereby it pulls the cable 12 and the needle 6 which compresses its spring 7.

I will now describe the second form of execution of the controlling part according to my invention.

Referring to Figs. 6 to 12, 32' is the casing of the apparatus comprising a cylindrical box open at one end. At this end the casing shows a lateral flange 33' provided with holes 34' for the passage of the screws 35 which allow the apparatus to be secured to any suitable point such as the control board 36 of an automobile for instance.

At its other extremity the casing comprises a tubular connection 37 where through the cable 12 can pass. The casing or sheath 11 of this cable abuts against the connection 37 at 38 (Fig. 10).

Inside the casing is disposed the hollow metal block 39 bearing the double helical slope 40 shown developed on Figs. 9 and 11. This block can be secured inside the casing by two screws 41 passing through two corresponding holes of the envelope and engaging two slots 42 (see especially Fig. 12) provided in the block at each end of the slope. The block is yieldingly secured to the casing by a strong coil spring 43 disposed inside the block 39 (see especially Fig. 7) and bearing on one hand against the bottom of the box and on the other against a shoulder 45 (Fig. 7) of the block 39. Thus it is easy to see the bottom of the slots 42 is constantly pressed against the screws 41.

The lever-holding part 46 can slide inside the block 39. This part is constituted by a cylindrical body 47 bearing a piston-like part 48 sliding inside the casing 32; to the outside of the piston is secured the hand-lever 49 through which is bored an axial hole 50 passing throughout the said hand-lever and allowing the cable 12 to pass through it (see on Fig. 10 a cross-section of the hand-lever). The cable is secured to the hand-lever by means of a tightening screw 51.

The cylindrical body 47 shows on the part which slides in the block 39 a slot 52 wherein is disposed a small bit of wire 53 (Figs. 7 and 12) adapted to bear against the shoulder 45 of the block 39. This bit of wire 53 serves to limit the outward sliding motion of the lever holding part 46.

The lever-holding part 46 comprises besides on both sides of the cylindrical body 47 two parts 54 sliding on the helical slope 40 which as shown on Figs. 9 and 11 comprises at 55 two notches adapted to stop the parts 54.

The apparatus works in the following manner:

Suppose the apparatus is in the position shown on Figs. 10 and 11 corresponding to the closing of the cock. It keeps this position

under the action normally exerted on the cable at its other end by the spring 7. This action is however not great enough to balance the action of the spring 43 on the block 39.

Now if the lever 49 is turned in an anti-clockwise manner, the parts 54 will slide on the helical slope 40 and thereby the lever is pushed inward in the direction opposed to the tension of the cable until the closing device at the other end of the cable is completely open, and the second needle 34 (Figs. 1 and 2) bears against its seat, which happens when the parts 54, which slide on the helical slope 40, have traveled over the two-thirds of their way. From this moment, the cable 12 is locked by the needle, at its other end, and thence, the block 39, which bears the helical slope is obliged to yield under the push exerted by the parts 55; the said block is then pushed inward the casing 32', the slots 42 sliding along the screws 41, and it compresses the strong coil spring 43, until the parts 54 are held back by the notch 55.

In this position the coil spring 43 exerts constantly a strain upon the whole including the block 39, the lever holding part 48, the cable 12 and the needle 34 which at the other end of the cable is then constantly yielding pressed against its seat.

This yielding closing permits then to automatically take up the slack which would occur in the transmission for any reason.

When the cock is to be closed it is sufficient to rotate the lever in the opposite direction whereby it returns to its original closing position F (Fig. 6) under the action of the cable.

As may be seen, the mounting of the apparatus is very easy, all its parts are easy to get at for cleaning and lubricating purposes.

Referring to the above description of the entire device, it is easy to see the needle cannot leak like an ordinary cock and remains constantly in the position it is given under all circumstances. Besides the apparatus has the advantage of being near the hand of the driver who can at any moment shut off the gasoline as he cuts off the ignition. No loss of gasoline can thus occur at the carburetter and the risks of fire are greatly minimized.

Of course the cock control given by way of example should not limit the scope of the invention and may be replaced by any other equivalent system such as a rod arrangement without departing from the spirit of the invention.

I claim:

1. In a means for operating a cable for the control of a valve, a casing open for the passage of the cable, a block held against other than a sliding movement in the casing, said block being formed with inclined guideways, a member rotatable in the casing and block and having projections to bear on said

guideways to move the member longitudinally of the casing in its rotation relative to the block, means for connecting the cable to said member, and means to cause the block to move longitudinally of the casing in the relative movement of the member following limit movement of the cable, whereby to maintain a take-up tension on the cable.

2. In a means for operating a cable for the control of a valve, a casing open for the passage of the cable, a block held against other than a sliding movement in the casing, a member mounted for relative rotation in the casing, the member and block cooperating to compel a longitudinal movement of the member during its relative rotation, means for connecting the cable to said member, the complete relative rotative movement of the member compelling a longitudinal movement thereof in excess of such movement as permitted by the cable, and means to cause longitudinal movement of the block to compensate for such additional relatively longitudinal movement of the member.

3. In a means for operating a cable for the control of a valve, a casing open for the passage of the cable, a block held against other than a sliding movement in the casing, a member mounted for relative rotation in the casing, the member and block cooperating to compel a longitudinal movement of the member during its relative rotation, means for connecting the cable to said member, the complete relative rotative movement of the member compelling a longitudinal movement thereof in excess of such movement as permitted by the cable, and means to cause longitudinal movement of the block to compensate for such additional relatively longitudinal movement of the member, such means exerting a yielding tension on the cable.

4. In a means for operating a cable for the control of a valve, a casing open for the passage of the cable, a block held against other than a sliding movement in the casing, a member mounted for relative rotation in the casing, the member and block cooperating to compel a longitudinal movement of the member during its relative rotation, means for connecting the cable to said member, the complete relative rotative movement of the member compelling a longitudinal movement thereof in excess of such movement as permitted by the cable, and a spring to cause longitudinal movement of the block to compensate for such additional relatively longitudinal movement of the member.

5. A means for operating a cable for the control of a valve, comprising a casing open to the passage of the cable, a block mounted for sliding movement in the casing, a spring for holding the block at its limit of sliding movement, said block being formed with inclined guideways terminally provided with reversely-inclined holding portions, a mem-

ber rotatable in the casing and formed with projections to ride on the inclined guideways of the block to compel a relatively longitudinal movement of the member during its rotation, and means for securing one end of the cable to said member, the limit rotative movement of the member serving to move the cable to its limit and thereafter move the block against the tension of said spring, whereby in limit operative position the projections of the member cooperate with the holding portions of the inclined guideways under the holding pressure of the spring to prevent casual reverse movement of the parts.

6. In combination, a valve limited in its opening movement, a cable for operating the

valve, and means for operating the cable, said means including relative rotary members, a connection between one of said members and the cable, the cable connected member moving longitudinally during a portion of its rotative movement to draw the cable to the limit permitted by the valve, and a spring permitting the other of said members to move longitudinally during the remaining portion of the rotative movement of the cable connected member to cause the spring to exert a continuous tension on the cable.

Signed at Paris, in the county of Seine and State of France this twenty second day of October A. D. 1926.

LOUIS ILDEVERT POIRMEUR.