E. C. WILLIAMS.

MOTOR LOCK.

APPLICATION FILED SEPT. 21, 1917.

1,279,954.

Patented Sept. 24, 1918.

3 SHEETS—SHEET 1.

Fig. 1.

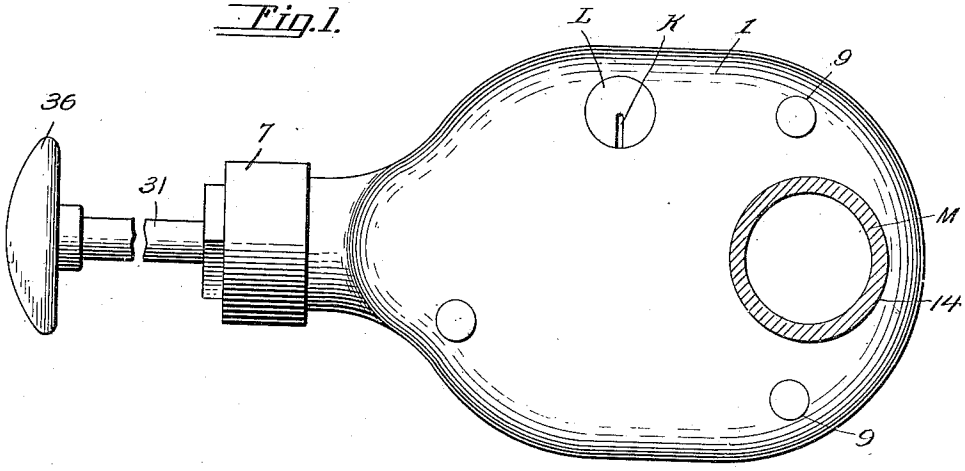


Fig. 2.

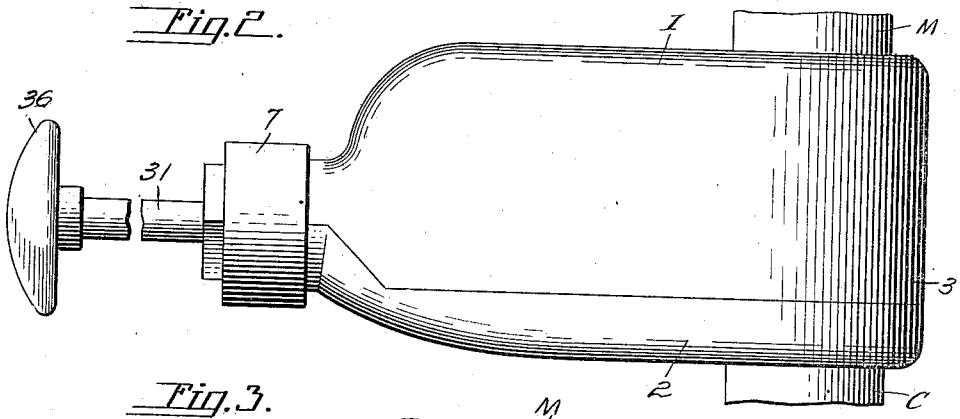
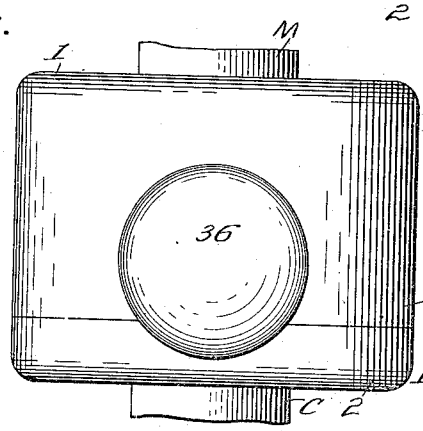


Fig. 3.



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3 SHEETS—SHEET 2.

Fig. 4.

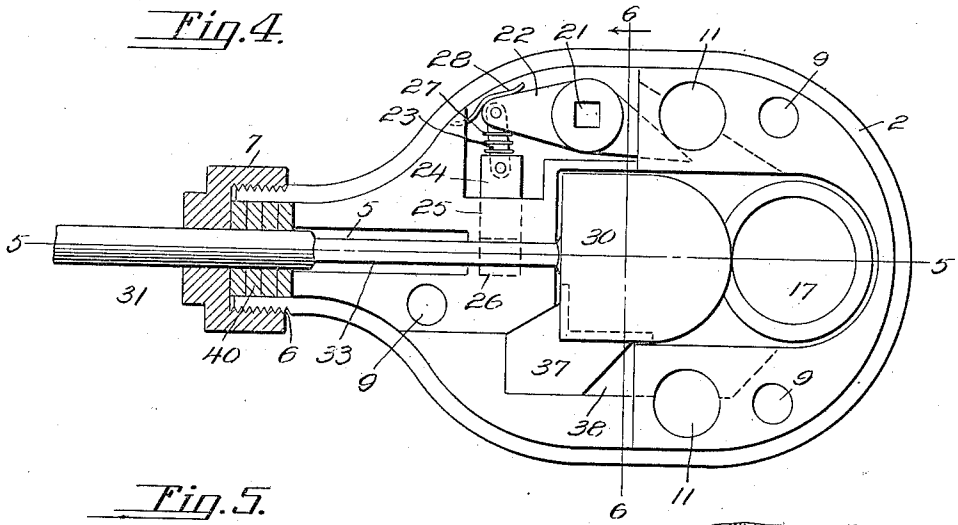


Fig. 5.

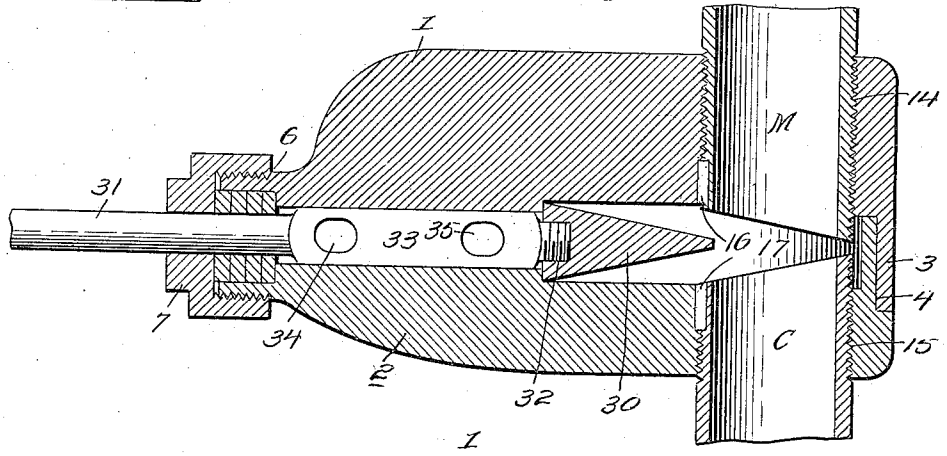
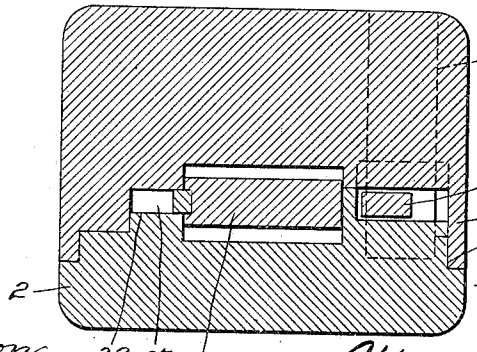


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 7.

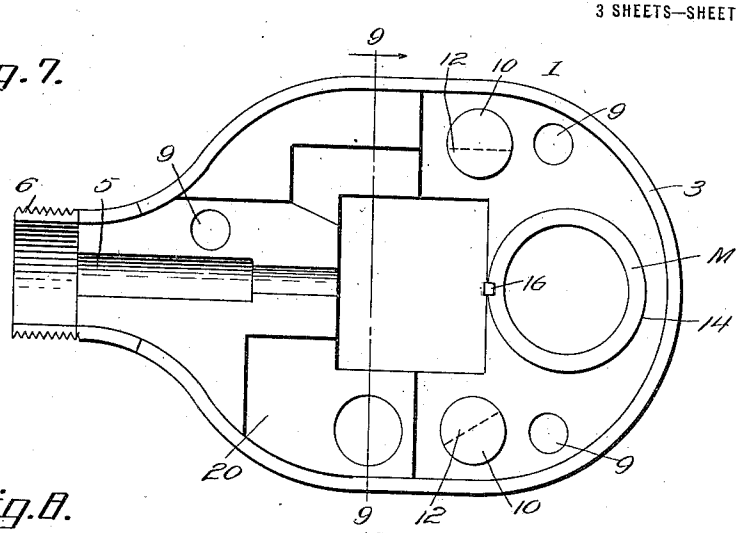


Fig. 8.

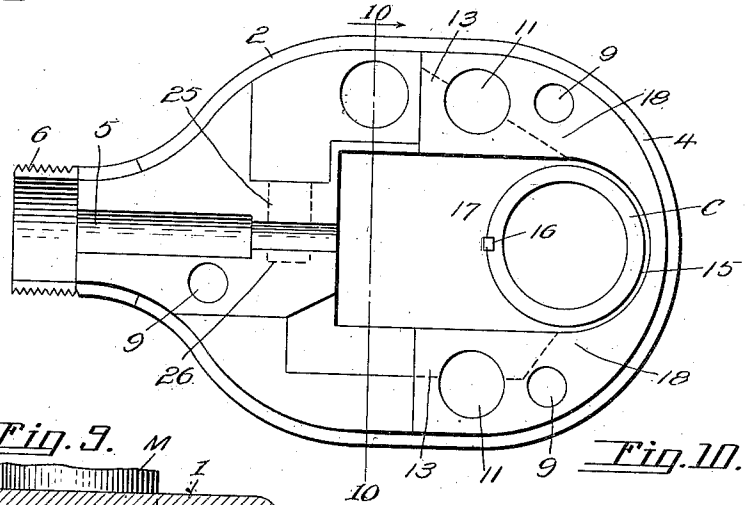


Fig. 9.

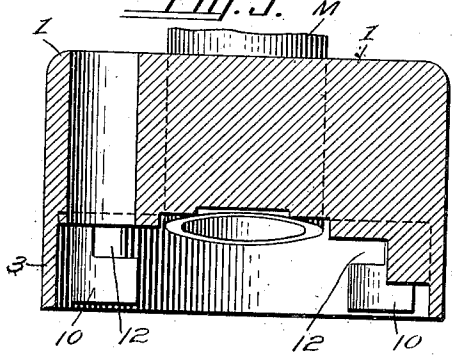
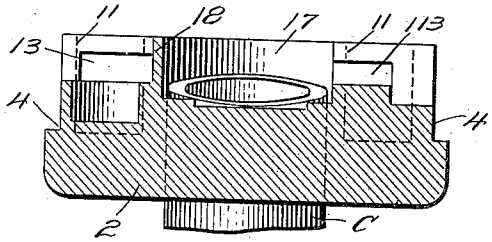


Fig. 10.



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UNITED STATES PATENT OFFICE.

EARL C. WILLIAMS, OF JACKSON, MICHIGAN.

MOTOR-LOCK.

1,279,954. Specification of Letters Patent. Patented Sept. 24, 1918.

Application filed September 21, 1917. Serial No. 192,542.

To all whom it may concern:

Be it known that I, EARL C. WILLIAMS, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented new and useful Improvements in Motor-Locks, of which the following is a specification.

This invention relates to locks and latches, and more especially to valve locks; and the object of the same is to provide means for shutting off the flow of the motive fluid to a motor when desired, through the instrumentality of a manually operated gate valve, together with means for locking said valve in either open or closed position.

A further object is to so construct and connect the parts that they may not be separated to gain access to the interior of the casing unless and until the lock is unlocked—thereby putting it out of the power of an unauthorized person to open the valve by prying the casing apart and getting at the interior mechanism.

Other objects are to simplify the structure and reduce the number of parts, to make the device small in size, and to prevent leakage of moisture inward or of the motive fluid outward as far as possible.

Details are set forth in the following specification, reference being had to the accompanying drawings wherein:—

Figure 1 is a plan view.

Fig. 2 is a side elevation.

Fig. 3 is an end elevation.

Fig. 4 is a plan view of the lower part.

Fig. 5 is a longitudinal section of both parts, taken on the line 5—5 of Fig. 4; and

Fig. 6 is a transverse section of both parts taken on the line 6—6 of Fig. 4.

Fig. 7 is a bottom plan view of the upper part. Fig. 8 is a top plan view of the lower part, these two views showing the casing only. Fig. 9 is a transverse section of the upper part in its proper position, taken on the line 9—9 of Fig. 7.

Fig. 10 is a transverse section of the lower part, taken on the line 10—10 of Fig. 8.

The casing herein shown has a body which is of a general ovoid contour with its smaller end extended into a neck, but of course the general configuration is unimportant. By preference it is made in upper and lower parts 1 and 2, the former having a flange 3 around its body fitting a marginal recess or rabbet 4 around the body of the latter part, and the two halves of the neck having grooves 5 which register to produce a channel along the axis of the neck when the two parts are assembled. Externally said neck-halves are threaded as at 6 for the reception of a packing nut 7 which draws said halves close together when it is applied, and this nut has an axial opening 8 alining with said channel for a purpose yet to appear. Transversely through the body of the parts are holes 9 through which are passed bolts or screws for holding the parts together and attaching the entire casing to some contiguous member if desired, although such casing may be held on the pipes only if preferred. Said pipes are herein illustrated and lettered C and M, the former designating the pipe leading upward from the carbureter to the device, and the latter designating the pipe leading upward from the device into the stem of the intake manifold of an ordinary internal combustion engine. I speak of these as two pipes, but ordinarily the stem of the manifold will be cut and my improved device inserted in a manner set forth below, as its purpose is to provide a gate valve within the conduit through which flows the motive fluid to the engine, and when said valve is closed it is obvious that the engine can not run.

Studs 10 projecting from the face of the upper part 1 are designed to enter sockets 11 in the face of the lower part 2, the studs being cut away or notched as at 12 and the sockets intercepted by transverse grooves 13 with which the notches register. Alined threaded openings 14 and 15 receive the inner ends of the carbureter pipe C and the manifold M, which inner ends may be upset within the casing so that they cannot be unscrewed from the exterior without first getting into the interior. Or, if preferred, the inner extremities of the pipes could be keyed into the inner ends of the openings for the same reason, and I have illustrated the keying at 16. Said openings communicate with an interior chamber 17 whose walls diverge toward the neck, and this chamber is of sufficient length to contain the gate valve whether the latter closes the openings as when it is borne inward, or uncovers the openings as when it is drawn outward. The chamber is formed by casting the contiguous faces of the two parts of the casing with walls 18 surrounding the chamber, the sockets 11, and the parts yet to be described, and these walls are continued into the neck

and grooved as at 5 to produce the channel referred to.

Within the wall 18 of the upper part 1, and at one side of its chamber 17 at an appropriate point, is formed a cavity 20 containing a lock broadly designated herein by the letter L, and this lock may be of any type or character although I have shown one which is capable of being operated by a key inserted through the key-opening K. Movement of this lock operates a shaft having a squared projecting extremity 21 engaging the midlength of a rock lever 22 whereof one extremity stands opposite the groove 13 and is capable of being projected into the notch 12 of one of the studs 10. To the other extremity of said rock lever is pivoted one end of a connecting rod 23 whose other end is pivoted to a small bolt 24 movable in an appropriate transverse guide 25 in the wall of the casing and capable of being projected across the channel 5 and into a socket 26 at the other side of said channel. The connecting rod 23 is surrounded by an expansive coiled spring 27 to hold the parts against rattling, and a leaf spring 28 bears on this arm of the rock lever to normally project the bolt. The latter is for the purpose of locking a plunger yet to be described, and when it is projected the tip of the inner arm of the lever moves into the notch 12 of one of the studs 10 so that obviously the two parts of the casing can not be separated so long as the device remains locked.

The valve is composed of a gate 30 whose faces are round and of a size to inclose the inner ends of said threaded openings, for which purpose said faces converge slightly as shown; and the valve also includes a stem 31 whose inner end is preferably screwed into a socket 32 in the thicker end of said gate. The stem lies in said channel 5, and a portion of it is flattened as at 33 to prevent its rotation and pierced with two openings 34 and 35 at appropriate points to receive the locking bolt 24 when projected—hence the valve may be locked either opened or closed. Beyond its flattened portion the stem is carried outward through the axis of the neck, through the opening 8 in the nut 7, and for some little distance beyond the casing, where it is provided with a button or knob 36 herein shown as screwed onto the stem, and by means of which the latter may be moved outward to open the valve or moved inward to close it. It will be quite obvious without further illustration or description that the stem might have considerable length so as to place the knob within reach of the operator at a point quite remote from the manifold and in fact the stem need not be rigid throughout its length, as it might contain levers or other instrumentalities to permit the movement of the valve from a remote point. After the valve has been closed, the lock L is actuated to project the bolt through the opening 34 so that its tip enters the socket 26, and this locks the device in closed position. The motorist may now leave his machine, confident that no malicious person can start the engine until the valve is opened again to permit the flow of motive fluid, and of course the valve can not be opened until the bolt 24 is retracted by manipulating the lock. When the motorist returns to his machine, he inserts his key in the hole K and unlocks the device, then grasps the knob 36 and draws the plunger or stem 31 outward, and thereby withdraws the gate 30 from its closed position; after which the engine may be started. It is not necessary that he lock the gate valve open, but he may do so if he desires. By preference the valve is provided at one side with a laterally projecting wing 37 moving in a channel 38 in the wall 18, so that when this valve is closed the wing enters the groove 13 and the notch 12 of the other stud 10 so as to lock the parts of the casing against malicious separation until the valve is again opened, Therefore if the motorist should close the valve without locking it, and the would-be thief attempted to pry open the casing without withdrawing the plunger or stem, he could not do so. This detail therefore is supplemental to the projection of the tip of the rock lever 22 into the notch 12 of the other stud, and is but another safeguard against the evil-doer. The device may possess details and refinements which are hardly necessary to describe and illustrate. For instance, the flange 3 should closely fit the rabbet 4 around the body to prevent the entrance of moisture or the escape of the motive fluid, and to this end packing may be interposed; possibly the faces of the gate-valve could be packed so as to effectively shut off the flow of said fluid; and in any event I would apply a gasket 40 around the stem 31 where it screws into the socket 32 of said gate, so as to close the channel 5 against leakage of motive fluid or entrance of air when the gate is opened—thereby leaving no possibility that the richness of the mixture may be impaired. The device is let into the stem of the intake manifold in a manner suggested above, and as thus far described it will be necessary for the motorist to raise the hood in order to insert his key into the lock, although obviously the stem might be carried to a point where the knob 36 would be exposed at the inside of the dash. The operation and utility of the device are thought to be obvious.

What is claimed as new is:—

1. In a device of the class described, the combination with a casing containing a valve chamber, and a channel alined therewith, said casing having transverse open-

ings intersecting said chamber, inlet and outlet pipes connected with said openings, a gate-valve movably mounted in said chamber and adapted to close said openings when projected, a stem attached to the valve and mounted slidably within said channel and provided in its length with two openings, and manual actuating means at the outer end of the stem; of a lock within the casing, the latter having a guide at one side and a socket at the other side of said channel, and a bolt moved by the action of said lock and sliding within said guide, its body being adapted to be passed through either of said openings in the stem according to the position of the valve and its tip to be seated in said socket.

2. In a device of the class described, the combination with a casing containing a valve chamber and a channel alined therewith, said casing having transverse openings intersecting said chamber, inlet and outlet pipes connected with said openings, a gate-valve movably mounted in said chamber and adapted to close said openings when projected, a stem attached to the valve and mounted slidably within said channel and provided in its length with two openings, and manual actuating means at the outer end of the stem; of a lock mounted within said casing, a rock lever actuated by the movements of said lock, a bolt slidably mounted within a guide in the casing and adapted to be projected through either of said stem-openings according to the position of the valve, and a connecting rod pivotally attached to said rock lever and bolt and surrounded by a coiled expansive spring to prevent rattle.

3. In a device of the class described, the combination with a two-part casing of ovoid contour and having a neck at its smaller end, said parts containing walls formed to produce an internal chamber and a channel leading therefrom through said neck, said parts also having threaded pipe-openings communicating with said chamber, a flange around one part fitting a rabbet around the other, a packing nut connecting the parts of the neck and having an opening alining with said channel, and means for holding said parts together; of a gate valve movably mounted in said chamber and adapted to close the inner ends of said threaded openings, a stem connected with this valve and extending through said channel and the opening in the nut, a manual device at the outer end of the stem for reciprocating it to open and close the valve, means within the casing for locking the stem in position to hold the valve closed, and devices actuated by said locking means for controlling the case-locking means.

4. In a device of the class described, the combination with a two-part casing of ovoid contour and having a neck at its smaller end, said parts containing walls formed to produce an internal chamber and a channel leading therefrom through said neck, said parts also having threaded pipe-openings communicating with said chamber, a packing nut connecting the parts of the neck and having an opening alining with said channel, and means for holding said parts together; of a gate valve movably mounted in said chamber and adapted to close the inner ends of said threaded openings, a stem connected with this valve and extending through said channel and the nut, a manual device at the outer end of the stem for reciprocating it to open and close the valve, a lock within the casing, a rock lever actuated by the movements of said lock, one end of said lever constituting part of said case-locking means, and a bolt connected with the other end of said lever for engaging said stem and locking the same when the valve is closed.

5. In a device of the class described, the combination with a two-part casing whereof the parts have mating faces provided with walls formed to produce a valve chamber and a channel communicating therewith and extending out the end of the chamber, the wall of one part having sockets intersected by transverse grooves, studs on the other part placed to enter said sockets and provided with notches adapted to register with said grooves, and inlet and outlet pipes opening through the parts at opposite sides of said chamber; and a valve movable longitudinally within the chamber, a stem projecting from the valve through said channel and having a knob at its outer end, a wing on the valve adapted to enter the notch in one stud when the valve is closed, a lock in the casing, a rock lever carried thereby and having one arm adapted to enter the notch in the other stud when the valve is closed, and a bolt connected with the other arm and adapted to engage said stem.

In testimony whereof I affix my signature.

EARL C. WILLIAMS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."