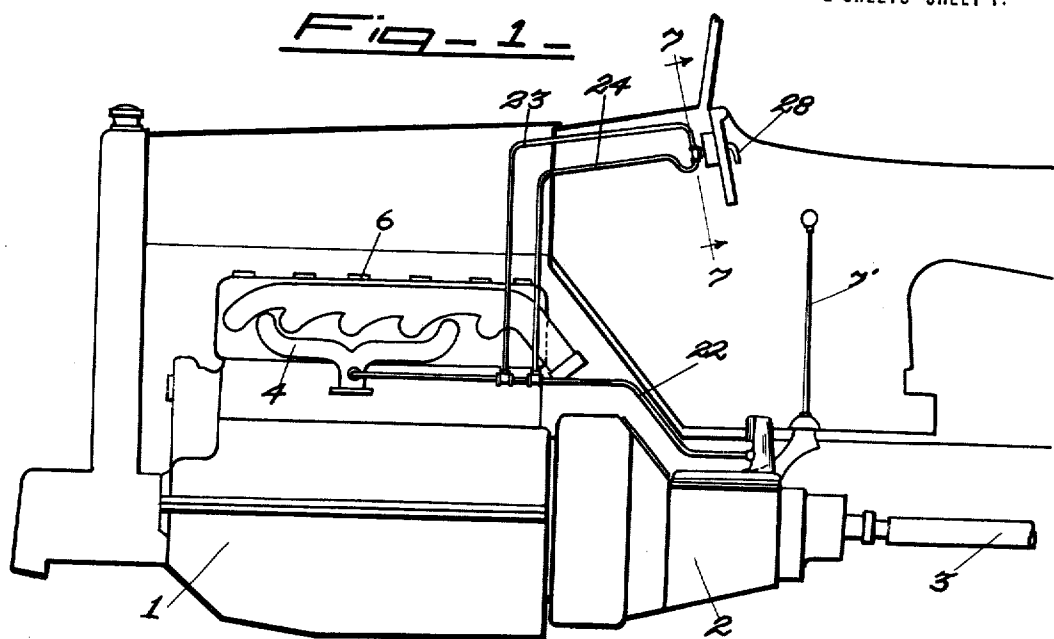
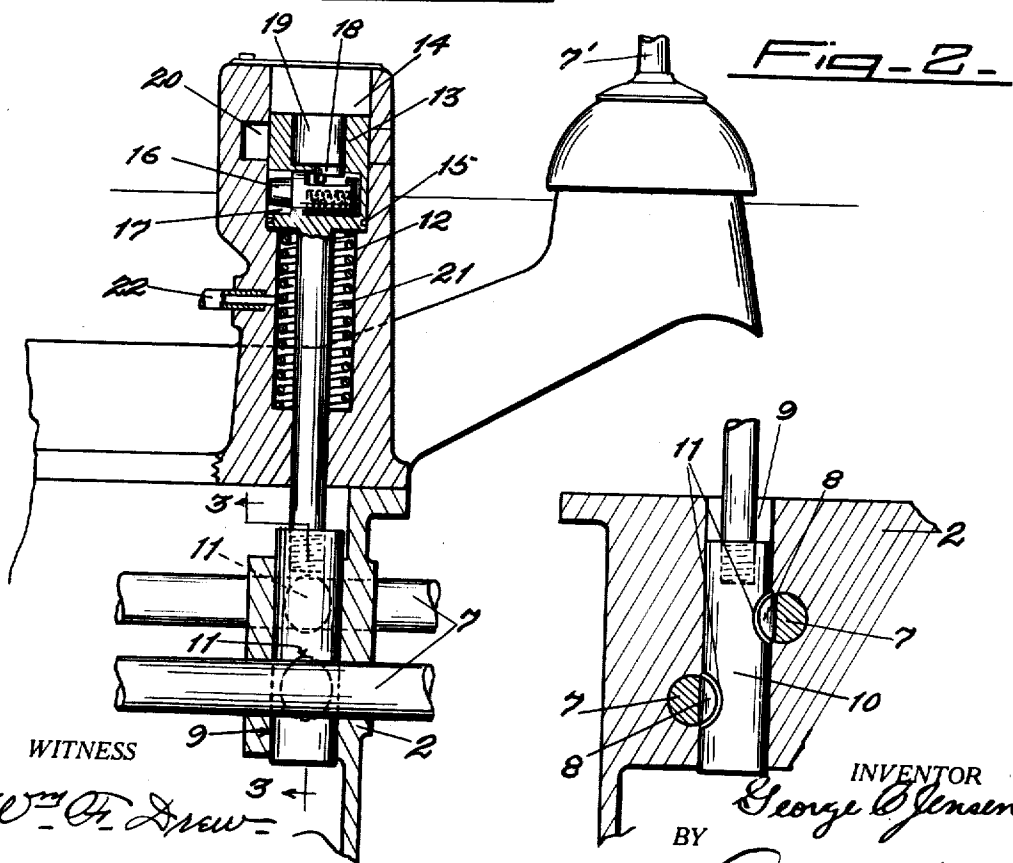


1,296,526.

Patented Mar. 4, 1919.
2 SHEETS—SHEET 1.



ATTORNEYS

1,296,526.

Patented Mar. 4, 1919.
2 SHEETS—SHEET 2.

Fig. 6.

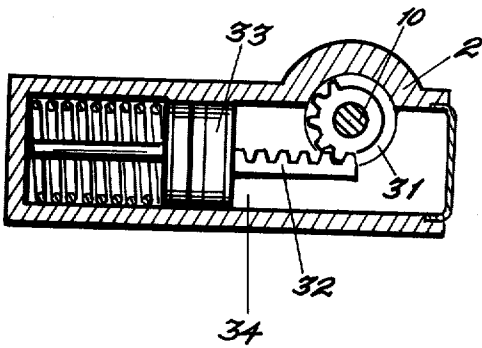


Fig. 7.

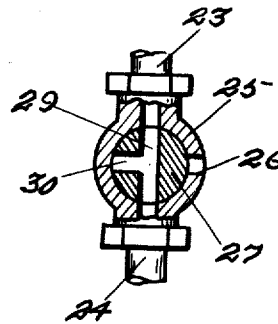
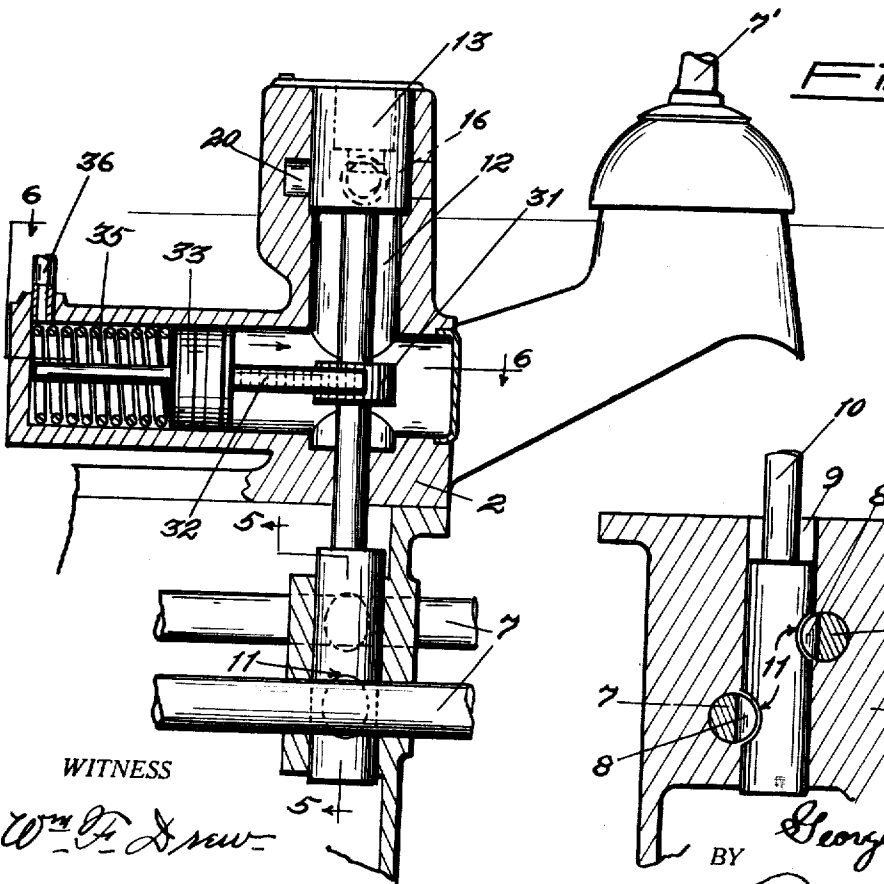


Fig. 4.



WITNESS

Wm. B. Snow

INVENTOR

BY

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Fig. 5. *Cornell & Totten*

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE C. JENSEN, OF OAKLAND, CALIFORNIA.

VACUUM-OPERATING LOCK.

1,296,526.

Specification of Letters Patent.

Patented Mar. 4, 1919.

Application filed December 24, 1918. Serial No. 268,194.

To all whom it may concern:

Be it known that I, GEORGE C. JENSEN, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Vacuum-Operating Locks, of which the following is a specification.

The present invention relates to a locking device which is normally maintained in unlocked position by the creation of a vacuum with a certain apparatus to which it is connected, the breaking of said vacuum occasioned as for example, by the stopping of the apparatus to which the locking mechanism is connected permits the locking means to automatically move to locked position whereby devices associated therewith are precluded from movement.

The invention relates more particularly to a locking means for motor vehicles and wherein a lock is provided for precluding movement of the vehicle when desired, it being preferably connected to the suction or inlet side of the motor and constructed in such manner that the creation of the vacuum during the operation of the motor will maintain the lock in inoperative or released position, the stopping of the motor permitting the locking device to automatically move to locked or operative position whereby the same precludes operative movement of the vehicle by unauthorized persons. In the stopping of motor vehicles it is desirable, and in fact necessary in order to avoid injury to delicate operating mechanism for the motor to cut off or interrupt the electrical supply or ignition circuit of the motor, and it is one of the objects of the present invention to connect a controlling means for the lock mechanism with said circuit interrupting means whereby on the interruption of the ignition circuit the vacuum between the lock mechanism and the motor is manually and positively interrupted thereby insuring operation of the lock mechanism on the stopping of the motor when the ignition circuit therefor is cut off.

To more fully comprehend the present invention, reference is directed to the accompanying drawings, wherein,

Figure 1 is a view in elevation of the power plant for a motor vehicle, illustrating the preferred embodiment of my invention employed in connection therewith.

Fig. 2 is a vertical sectional view of the preferred form of locking mechanism.

Fig. 3 is a sectional view of the locking bolt, taken on line 3-3 of Fig. 2.

Fig. 4 is a vertical sectional view of a modified form of bolt operating mechanism.

Fig. 5 is a sectional view of the locking bolt taken on line 5-5 of Fig. 4.

Fig. 6 is a sectional view of the bolt operating plunger taken on line 6-6 of Fig. 4.

Fig. 7 is a sectional view of the controlling valve in the line connection between the lock casing and the suction side of the motor, the view being taken on line 7-7, Fig. 1 of the drawings.

In the drawings wherein like characters of reference designate corresponding parts, 1, indicates a suitable internal combustion motor associated with the change speed gearing, not shown, and contained within a housing 2, from which extends the usual propeller shaft 3. The motor is provided with the usual inlet manifold 4, to which is attached the carbureter, not shown, and said motor is also provided with the usual exhaust manifold 6.

Within the housing 2 are preferably positioned the longitudinally movable gear shifting devices or rods 7, which are selectively operated to effect the desired speed changes of the gearing by the operation of the lever 7', and said rods 7 are provided on adjacent faces with semicircular recesses 8, so positioned as to aline with each other on the movement of the rods by the lever 7' to position the gears controlled by the rods in what is commonly termed, neutral or non-power transmitting position. The recesses 8 when in alinement are adapted to register with a bore 9 formed in the housing 2, and which passes between the rods 7, said bore having positioned therein for reciprocating movement the lower end of a locking bolt 10 which is formed in its periphery with other semicircular recesses 11, which are adapted when the bolt is in released or inoperative position, as in Figs. 2 and 3 of the drawings, to register with the recesses 8, and permit longitudinal movement of the rods 7 by the lever 7'. The recesses 8 are adapted to receive the solid portion of the lower end of the bolt 10 when the same are in alinement and when the bolt is reciprocated or drawn upwardly into locked or operative position, thus, the movement of said rods is precluded

until such time as the bolt is again moved as hereinafter described into released or inoperative position.

The upper end of the locking bolt 10 extends into a suitable chamber 12, and has an enlarged head 13 which snugly fits the upper open end 14 of said chamber, said head providing a piston for the locking bolt and carrying a suitable washer or other packing 15, which has contact with the walls of the enlarged end 14 of the chamber 12. When in its uppermost position in the chamber 12, it is desirable to lock the bolt from further operation, any suitable means for automatically locking the same may be employed, that illustrated, consisting of an outwardly spring-pressed latch 16 mounted within a transverse recess 17 in the enlarged head 13, the same adapted for retraction by the operation of a key-controlled barrel 18 opening through a cylinder 19, into the upper end of the head 13, said latch when the bolt moves upwardly in said chamber to lock said rods from movement being received in a depression 20 in the wall of said enlarged end 14 of the chamber 12. A spring 21 coiled about the bolt 10, and positioned within the chamber 12, below the enlarged head 13 acts to normally force said bolt to locked position.

Connecting with the interior of the chamber 12 is a pipe 22, illustrated in Fig. 1, as leading to the inlet manifold 4; however, the same may connect direct to the interior of the motor through what is termed, the suction side of the same, that is, at any point exteriorly of the motor intake valves in order that a suction or vacuum is drawn into the chamber 12, during the operation of the motor. When connected in this manner, it will be apparent that on moving the rods 7 to neutral position the stopping of the motor will release the vacuum in the chamber 12, at which time the spring 21 will force the bolt 10 upwardly into locked position precluding the operation of the vehicle by unauthorized persons until such time as the motor is again started and the bolt is unlocked to permit the same to be drawn into depressed position by the vacuum in the motor.

If desirable, branch pipes 23 and 24 may cut in at spaced intervals within the length of the pipe 22, said pipes connecting at one end with the valve casing 25, formed with a lateral 26, and having rotatably mounted therein a suitable turn plug 27, connected with and adapted for rotation on the operation of the ignition switch 28 controlling the motor ignition circuit. The plug is provided with a transverse channel 29 therein, adapted to connect the pipes 23 and 24 during such time as the ignition circuit is in "on" or operative position, thus permitting the vacuum created by the motor to be main-

tained in the pipes 24 and 23. A lateral 30 is also formed in said plug 27 and communicates with the channel 29, said lateral 30 and one end of said channel providing a direct connection through said port 26 to the atmosphere and one of said pipes 24 or 23 on the manual operation of said plug in the positioning of the ignition switch 28 in "off" or inoperative position, thus providing a manually operated means for interrupting or breaking the vacuum in the pipe 22, when the motor is stopped on the interruption of the ignition circuit.

It is apparent that I have provided a locking mechanism which is maintained open or in released position as long as the motor is in operation and a vacuum is created on the inlet side thereof, and associate therewith means whereby said vacuum is broken on the interruption of the motor ignition circuit or is automatically interrupted on the stopping of the motor from other causes, and which permits the vehicle to be locked from use by unauthorized persons until such time as the locking means is manually released after the motor is again started.

In Figs. 4 and 6, a rotating locking bolt is illustrated and said bolt other than being capable of rotation is in all respects similar to the bolt 10, with the exception that the same is provided intermediate of its length with a gear 31 with which coöperates a rack 32 carried by a reciprocating plunger or piston 33, slidably mounted in a bore 34 intersecting the chamber 12. The plunger is normally forced into operative position in the direction of the arrow, Fig. 4 and to rotate the bolt 10 into position to lock the rods 7 from movement by a coil spring 35, and is held in its retracted or inoperative position to maintain the bolt 10 in unlocked position as in Fig. 5 of the drawings by the vacuum of the motor which is created in rear of said piston by the connection of the rear end of the bore 34 with the inlet side of the motor through the pipe 36.

Having thus described my invention what I claim is:

1. In combination with a movable member, an internal combustion motor associated therewith, a lock associated with said movable member, and adapted when in operative position for locking said member from movement, a connection between said lock and motor whereby the vacuum created in the motor during the operation thereof maintains said lock in inoperative position, means for throwing said lock to operative position on the interruption of the vacuum due to the stopping of the motor and releasable means for locking said lock in its later position.

2. In combination with a movable member, an internal combustion motor associated therewith, a lock associated with said movable member and adapted when in operative

position for locking said member from movement, a connection between said lock and motor whereby the vacuum created in the motor during the operation thereof will maintain said lock in inoperative position, controllable means within said connection for breaking the vacuum between the motor and lock, means for automatically throwing said lock to operative position on the interruption of the vacuum between the same and the motor and releasable lock controlled means for locking said lock in its later position.

3. In combination with a movable member, an internal combustion motor associated therewith, a lock associated with said movable member, and adapted when in operative position for locking said member from movement, a plunger associated with said lock, a connection between said motor and lock whereby the vacuum created by the motor during the operation thereof operates said plunger to maintain said lock in inoperative position, means within said connection and capable of manual operation for breaking the vacuum between the motor and plunger, means for automatically moving said lock to operative position on the interruption of the vacuum between the plunger and motor and releasable lock controlled means for locking said lock in its later position.

4. In combination with a motor driven vehicle including a motor and a power transmitting mechanism associated therewith and capable of movement into and out of power transmitting position, a locking member associated with certain elements of said mechanism and adapted when in operative position for locking said elements associated therewith from operative movement, means for moving said lock into operative position, means for locking said lock in operative position, a connection between said motor and lock whereby said lock is acted on by the suction of the motor on the operation thereof and is maintained thereby in inoperative position during the operation of the motor.

5. In combination with a motor driven vehicle including a motor and a power trans-

mitting mechanism associated therewith, said power transmitting mechanism including power transmitting gear shifter devices, a locking bolt associated with said shifter devices and adapted for movement into operative position for locking said devices from operative movement, means for moving said bolt into operative position, releasable lock controlled means for locking said bolt from movement when in operated position, a tubular connection extending from said motor and through which a suction is created on the operation of the motor, whereby said bolt is maintained in inoperative position during the operation of the motor.

6. In combination with a motor driven vehicle including an internal combustion motor and a power transmitting mechanism associated therewith, said power transmitting mechanism including power transmitting gear shifter devices, a locking bolt associated with said shifter devices and adapted for movement into operative position for locking said devices from operative movement, a tubular chamber within which said bolt operates, a tubular connection between the inlet side of said motor and said chamber whereby the suction of the motor operates said bolt to normally maintain the same in inoperative position during the operation of the motor to permit the operation of the gear shifter devices, a spring against the tension of which said bolt is maintained in inoperative position and adapted for throwing said bolt to operative position on the interruption of the suction in said tubular connection, means within said connection for interrupting the suction between the motor and bolt chamber, and releasable lock controlled means for locking said bolt in its operative position when moved thereinto.

In testimony whereof I have signed my name to this specification in the presence of a subscribing witness.

GEORGE C. JENSEN

Witness:

D. B. RICHARDS.