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GASOLINE TANK AND IGNITION LOCKING DEVICE

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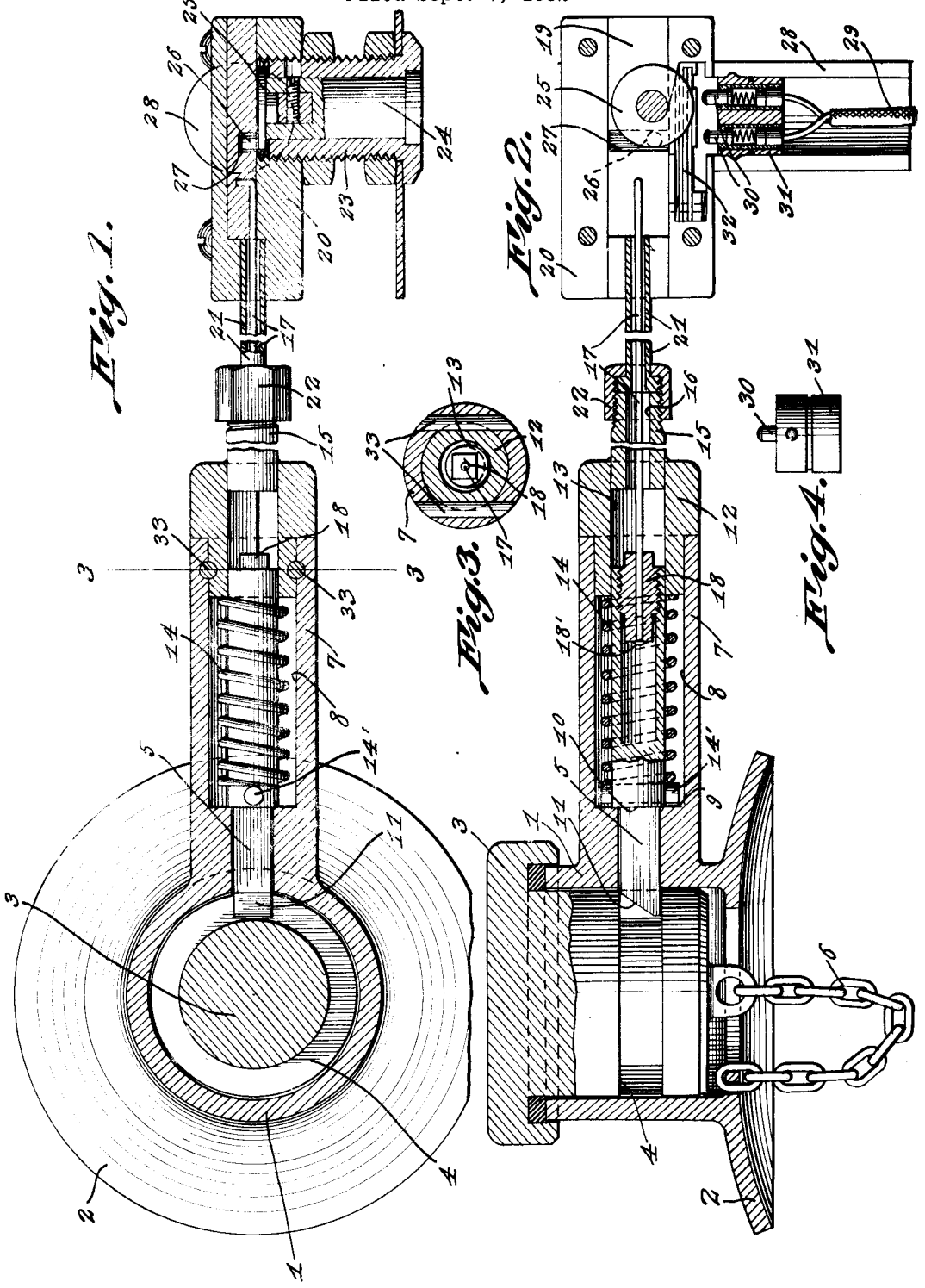


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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GASOLINE TANK AND IGNITION LOCKING DEVICE

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This invention relates to locking devices for closure elements for fuel tanks of automobiles and has for the primary object, the provision of a device of the above stated character which will prevent unauthorized removal of the closure element and operable by means which controls the ignition circuit of the automobile so that when said means is actuated in one direction the circuit will be interrupted and the closure element released, thus insuring against the running of the automobile during the removal of the closure element from the fuel tank.

With these and other objects in view this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention reference is to be had to the following description and accompanying drawing, in which

Figure 1 is a longitudinal sectional view illustrating a locking device constructed in accordance with my invention.

Figure 2 is a vertical sectional view illustrating the locking device for securing a closure element to the neck of a fuel tank.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a detail view illustrating an electrical plug.

Referring in detail to the drawing, the numeral 1 indicates the filling neck of the fuel tank 2 employed on an automobile for furnishing the engine of the latter with fuel. The neck 1 is normally closed by a closure element 3, the shank of which fits within the neck and is provided with an annular groove 4 to be engaged by a plunger 5 forming a part of my present invention. An anchor chain 6 is attached to the shank of the closure element 3 and to the neck 1 to prevent loss of the closure element when removed.

An extension 7 is formed integrally with the neck 1 and is provided with a bore 8 communicating with the interior of the neck and slidably supports the plunger 5. One portion of the bore 8 is increased in size over the inner portion to form an annular shoulder 9. A portion of the plunger 5 is increased in size to form a shoulder 10 adapted to engage the shoulder 9 for limiting the inward movement of the plunger 5 relative to the neck. The locking end of the plunger is beveled, as shown at 11, so that when the plunger is in a locking position the closure cap may be applied to the neck and become automatically locked thereto by the plunger moving into the groove 4. The bore 8 extends through the free end of the extension 7 and receives therein a shoulder sleeve 12 provided with a bore 13 which also slidably receives the plunger. An expansion spring 14 is mounted upon the plunger and bears against the sleeve 12 and a pin 14′ carried by the plunger for the purpose of urging the latter into locking position. The sleeve 12 carries an extension 15 having a bore 16 to receive an operating flexible rod 17, the inner end of which is received by a plug 18 threaded into a socket formed in the enlarged portion of the plunger. The inner end of the rod 17 is headed, as shown at 18′, to prevent the rod from pulling out of the plug when moved outwardly of the extension 7. However, the headed end 18′ will permit an inward movement of the rod without effecting the plug or causing the movement of the plunger.

The operating rod 17 is connected to an operating plate 19 slidably mounted in a mounting 20. A tubular housing 21 surrounds the operating rod between the extension 15 and the mounting 20 and is detachably secured to the extension 15 by a coupling 22. The mounting 20 is located on the instrument board of the automobile and has detachably secured thereto a housing 23 receiving a key actuated lock barrel 24, the inner end of which carries a disc 25 provided with a lug 26 fitting in a groove 27 formed in the operating plate 19. The mounting 20 also carries a tubular extension 28 to receive conductors 29 of the ignition circuit of the automobile and the conductors are electrically connected to contacts 30 carried by a plug 31 mounted in the extension 28. A resilient contact 32 is carried by the mounting and is normally disengaged from the contacts 30 for interrupting the circuit. However, by oper-

ating the key barrel 24 by the proper key in one direction the lug 26 moves out of the groove 27 into engagement with the contact 32 and flexes the latter to bridge the contacts 30 and complete the ignition circuit. The neutral position for the lock barrel 24 is with the pin 26 located in the groove 27 adjacent one end thereof, as shown in Figure 2. The pin 26 when in the stated position allows the contact 32 to disengage the contacts 30 to interrupt the ignition circuit. A movement of the key barrel in an opposite direction causes a sliding movement of the operating plate 19 for retracting the plunger 5 from the groove 4 of the closure element 3 so that the latter may be manually removed from the filling neck 1. The contact 32 during the operation of the plunger 5 is positioned to interrupt the circuit to the engine, consequently insuring against the running of the engine during the removal of the closure element from the filling neck of the fuel tank. Upon the return of the lock barrel to a neutral position, as shown in Figure 2, the plunger 5 assumes a locked position. The closure element 3 may then be applied to the neck 1 and as the shank of the neck engages the plunger 5, it causes the same to move against the action of the spring until the groove 4 is alined with the plunger, whence said plunger assumes a locking position, retaining the closure element against removal from the neck until the key barrel is again operated in the proper direction.

The lock barrel 24 is of the character in which the key may only occupy a certain position when inserted therein so that on turning the key in one direction the ignition will be closed and the turning of the key from a neutral position in an opposite direction will cause an actuation of the locking device to free the cap from the neck of the tank.

The sleeve 12 is retained within the extension 7 by pins 33 fitting in grooves formed in the sleeve and the extension, as shown in Figures 1 and 3.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of my invention, as claimed.

Having described the invention, I claim:

A switch lock comprising a mounting, an operating plate slidable in the mounting for effecting operation of a remote latch and having a groove, a housing carried by the mounting, a key operated lock barrel in said housing, a disc secured to said barrel, an extension on the mounting, contacts in said extension and connected to an ignition circuit, a movable contact in the mounting and normally disengaged from said first contacts, and a lug on the disc and movable into and out of the groove by rotation of the barrel in opposite directions for effecting movement of the operating plate when moved in the groove and to engage the movable contact with the first contacts when moved out of said groove.

In testimony whereof I affix my signature.

HARRY W. GANG.