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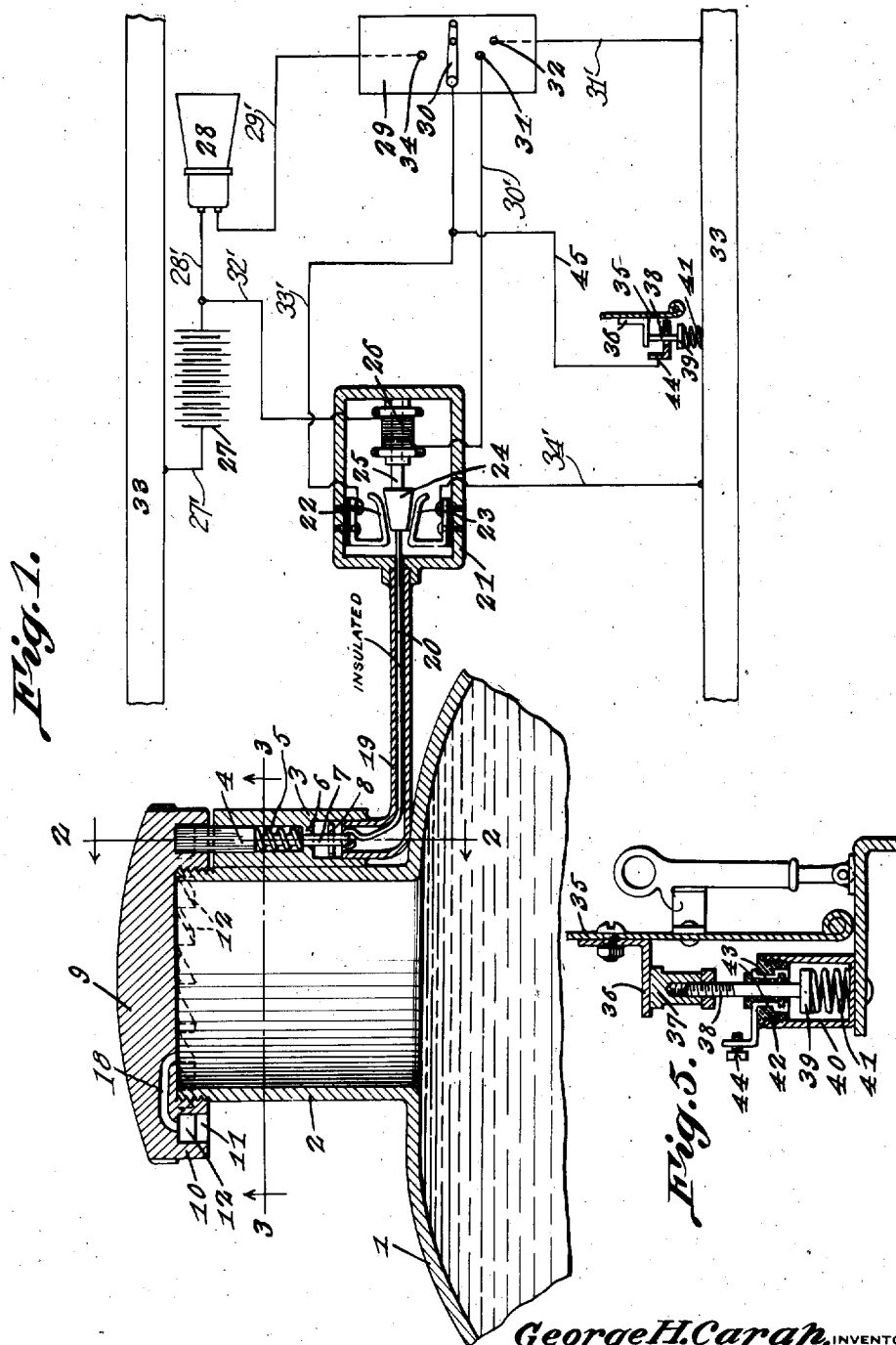
G. H. CARAH

2,019,393

GAS CAP AND SIGNAL

Filed Aug. 28, 1933

2 Sheets-Sheet 1



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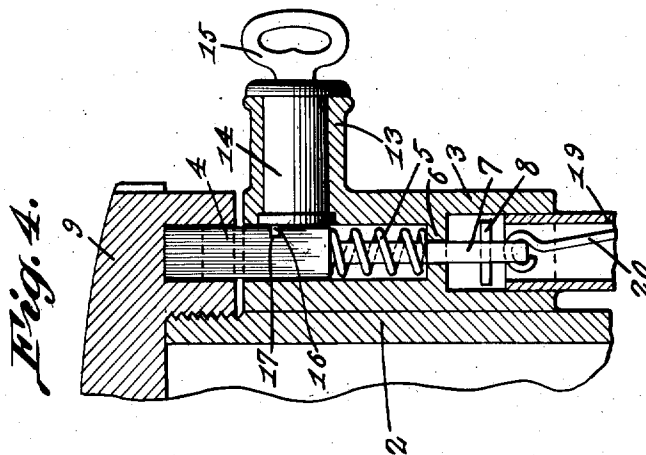
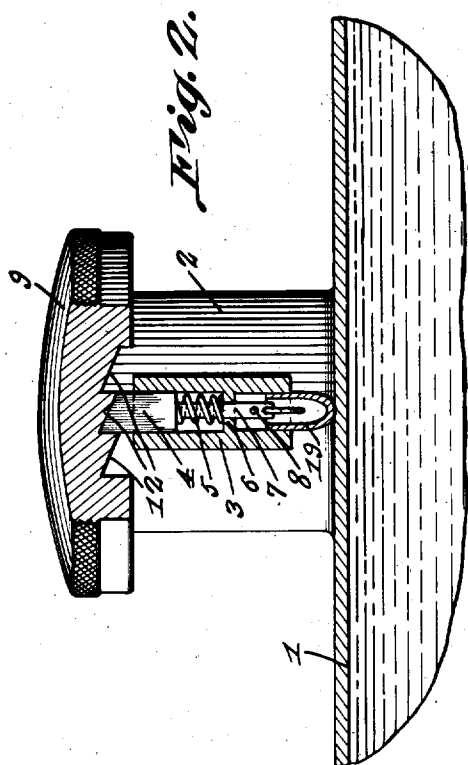
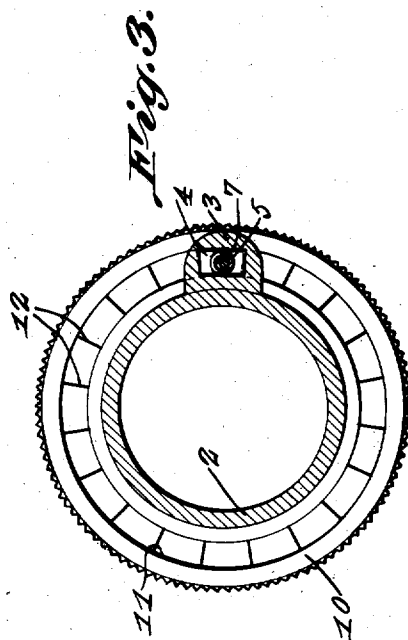
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,019,393

GAS CAP AND SIGNAL

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Application August 28, 1933, Serial No. 687,228

1 Claim. (Cl. 177-314)

My present invention has reference to attachments for automobiles, and among the objects are the provision of means for preventing the surreptitious removal of the cap for the intake spout of the gas tank of an automobile to prevent the gasoline being siphoned therefrom by unauthorized persons; to prevent the air vent in the cap from being plugged accidentally or otherwise which interferes with the suction of the gas through the gas line from the tank to the vacuum tank and carbureter; to cause the sounding of an electric alarm should the cap be removed by breaking the same or should the spout be bent or tampered with to allow the removal of the cap and to also cause the sounding of an alarm should the sides of the hood for the motor be raised without due authority, so that parts of the engine concealed by the hood cannot be surreptitiously tampered with.

The invention will be fully and comprehensively understood from a consideration of the following detailed description when read in connection with the accompanying drawings which form part of the application, with the understanding, however, that the improvement is capable of extended application and is not confined to the exact showing of the drawings nor to the precise construction described and, therefore, such changes and modifications may be made therefrom as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claim.

In the drawings:

Figure 1 is a longitudinal sectional view through a sufficient portion of an automobile to illustrate the application of the improvement thereon.

Figure 2 is a sectional view approximately on the line 2-2 of Figure 1.

Figure 3 is a sectional view approximately on the line 3-3 of Figure 1, looking in the direction of the arrows.

Figure 4 is an enlarged detail sectional view showing the key actuated means for retracting the bolt.

Figure 5 is a detail sectional view to illustrate the switch arrangement between one of the hinged sides of the hood and the body frame for the automobile.

In the drawings the numeral 1 designates a gasoline storage tank for automobiles which is of the usual type and which is provided with the reduced tubular and vertically extending portion 2, commonly termed the filling spout.

The filling spout from its upper end is pro-

vided with exterior threads and in the present instance has one of its sides formed with a hollow enlargement 3 for the reception of a bolt 4 that is spring influenced, as at 5, in a direction through the enlargement or casing 3. The lower end of the spring rests on a partition 6 in the casing 3, the stem 7 passing through the said partition, and the stem 7 has fixed thereon a stop element 8 to contact with the partition and to limit the outward movement of the bolt 4 through the casing 3 when influenced by the spring 5. The cap 9 for the spout 2 is provided with the usual depending circumferential flange 10 whose inner wall is threaded to engage with the exterior threads of the spout 2. The flange 10 is of a greater width than those of the ordinary caps and has its outer face provided with an annular channel 11 and the said channel has its inner wall formed with saw teeth 12, and these teeth are designed to ratchet over the tapered active end of the bolt 4 when the cap is screwed on the spout, and the said bolt is designed when the cap is screwed home, to be fully received in the channel 11 and to have its said tapered end received in the space provided by the straight and angle surfaces of one of the teeth 12. Thus when the cap is screwed on the spout it cannot be accidentally removed therefrom, but in order to accomplish this the casing 3 is formed with a lateral and tubular extension 13 for the barrel 14 of a key operated lock 15. The lock is of the tumbler type and carries on its inner end a stud 16 to be received in a keeper notch 17 in the bolt 4 and the turning of the lock bolt through the medium of the key 15 may be employed for both raising or lowering the bolt. The stud or bolt 16 may be of the spring retracted type and is forced into the keeper by the insertion of the key in the lock and held in the keeper until the key is turned to a position to permit of its withdrawal. Obviously any type of lock may be employed but in all instances the key therefor is removed when the bolt is in cap-locking position.

Unless the cap 9 is provided with an air vent proper suction of the gasoline to the vacuum tank or carbureter cannot be obtained and I have found in numerous instances that the vent openings have been closed either maliciously or accidentally and for this reason I provide the bottom of the cap with one or a number of passages 18 whose ends or ports communicate respectively with the portion of the cap that covers the spout 2 and the portion thereof provided with the annular channel. By this arrangement

it will be practically impossible to plug or otherwise close the passage 18.

In instances where dishonest persons resort to the breakage of the cap it is desirable that an audible alarm is sounded. For this reason I connect to the bottom of the casing 3 the angle end of a tube 19 and thread through this tube a flexible cord or cable 20 of insulating material and connect one end of the said cable to the lower end of the stem 7 of the bolt 4. The tube 19 is threaded in a boss in one end of a metal box-like housing 21 that has arranged therein but insulated therefrom oppositely disposed spring contact members that have angle ends 22 and 23, respectively. The end of the cable that enters the housing 21 is connected to a cone-shaped metal head 24 which engages and disengages with said contact members. The head 24 is provided with a stem 25 that is received in and provides a core for a solenoid 26.

A battery 27 is connected to the frame 33 of the automobile by a conductor 27' and is also connected to an electric alarm 28 by a conductor 28'. The alarm is connected to a contact 34 of a switch 30 by a conductor 29'. The switch 30 is mounted at any suitable place upon the automobile by a support 29. The switch also includes contacts 31 and 32 and the contact 31 is connected to the solenoid 26 by a conductor 30' and the contact 32 is connected to the frame or ground 33 by a conductor 31'. The solenoid 26 is connected to the conductor 28' by a conductor 32'. The switch 30 is connected to the contact 22 by a conductor 33' and the contact 23 is connected to the ground or frame by a conductor 34'.

Prior to leaving the automobile unattended the switch 30 is moved into engagement with the contact 34 so that should the cap 9 be removed or broken from the neck by an unauthorized person the spring actuated bolt 4 will exert a pull on the cable 20 bringing the contact element 24 into engagement with the contacts 22 and 23, completing the circuit to the alarm consequently setting the latter in operation so that attention will be attracted to the automobile and thereby prevent removal of the fuel from the tank by an unauthorized person.

When it is desired to retract or actuate the bolt 4 electrically from the switch 30 the latter is moved into engagement with the contacts 31 and 32 completing the electric circuit to the solenoid 26 which exerts a pull on the cable 20 retracting the bolt so that the cap can be unthreaded from the neck without the sounding of the alarm.

The electric circuit may be also employed for sounding the alarm should either of the sides of the hood of the automobile be raised by an unauthorized person. In this event I secure to the inner face of each of the hinged sides 35 an angle bracket 36 whose under face is contacted by a plug 37 in which is screwed the upper end of a stem 38, the lower end of the metal stem being

provided with a head 39 arranged in but out of contact with a tube or casing 40 that is fixed on the horizontal flange of one of the side members 33 of the automobile frame. A coil spring 41 exerts a pressure against the head 39 to force the stem 38 outwardly through the casing. The open top of the casing is closed by a plug 42 of insulating material, and let through this plug there are metal contacts 43, respectively, one of which has an offset or right angular outer end provided with a binding post 44 for a branch wire 45 that connects the conductor wire 33'.

Should the hood 35 of the automobile be lifted by an unauthorized person and with the switch 30 in engagement with the contact 34 the alarm 28 will be actuated due to the fact that the head 39 engages with the contact 43 on the lifting of the hood completing the electric circuit between the battery, the alarm 28 and the ground 33.

Obviously the filling spout and cap may have their threads arranged differently from that herein set forth, and as a matter-of-fact, the cap may be removably attached to the spout in any desired manner. Also while I have illustrated and described the teeth 12 as saw teeth, the said teeth may be differently formed and as a matter-of-fact the cap may be provided with depressions or simply-roughened surfaces to be engaged by the bolt. Also, it is to be understood that the alarm may be connected to the auto horn or to any auxiliary horn or any other signal placed where desired, within the car or under the hood.

It is believed the foregoing description will fully and clearly set forth my construction and the advantages thereof to those skilled in the art to which such invention relates so that further detailed description will not be required.

Having described the invention, I claim:

A device of the character set forth including a fuel tank neck and a cap threaded thereto and provided with keeper teeth, a housed spring-pressed bolt carried by the neck to engage the teeth to prevent unscrewing of the cap from said neck, a key actuated means for retracting the bolt to free the cap for unscrewing from the neck, a circuit maker and breaker including spaced contacts and a slidable contact, a solenoid connected to said slidable contact, means for connecting said slidable contact to the bolt, an electric alarm circuit electrically connected to said spaced contacts and including a source of electrical energy, an electric alarm electrically connected in said circuit, an electrical circuit electrically connected to said solenoid, and a control switch electrically connected to said circuits for opening and closing either of said circuits whereby the alarm may be actuated by the bolt moving in one direction due to the removal of the cap from the neck or to cause energization of the solenoid for retracting the bolt without actuation of the alarm.

GEORGE H. CARAH,