Nov. 8, 1927. 1,648,567

J. H. ROSENBERG

ALARM GAUGE

Filed Aug. 13, 1925

Fig. 1.

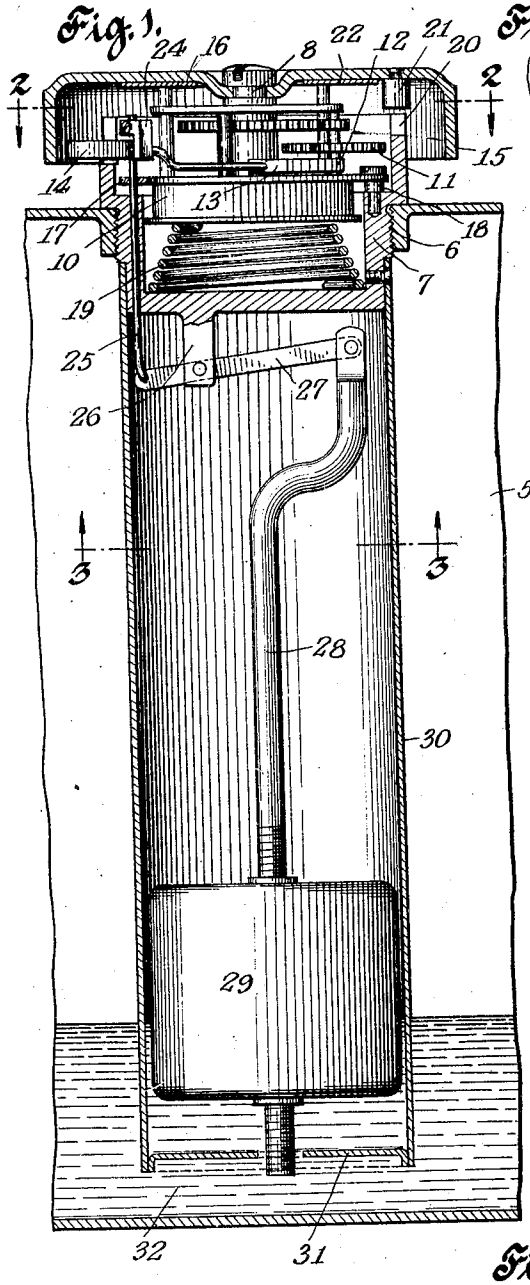


Fig. 2.

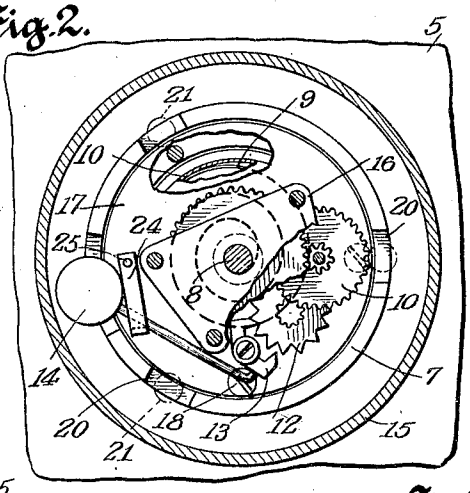
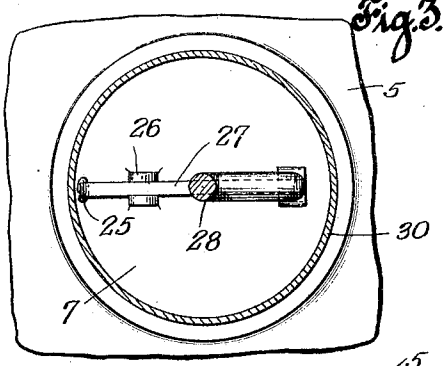


Fig. 3.



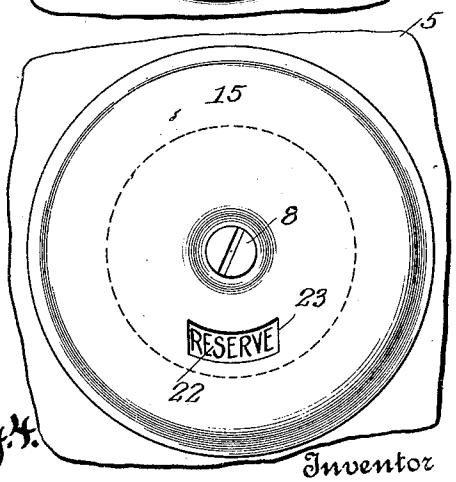


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOSEPH H. ROSENBERG, OF DENVER, COLORADO.

ALARM GAUGE.

Application filed August 13, 1925. Serial No. 49,938.

My invention relates to an alarm gauge intended for use in the fuel tank of a motor vehicle, and as will be seen from the following specification and in the accompanying drawings, it consists of a float operated device adapted to be inserted in a fuel tank, and provided with a mechanism which when actuated by the movement of the float as the supply of fuel is almost exhausted, will give an audible and a visible signal as a warning to the driver of the vehicle.

This device is also in the nature of an improvement with a number of manifest advantages on the structure of my co-pending application Serial No. 22,352 filed April 11, 1925, the said advantages comprising an improved way of mounting the mechanism which operates the alarm to prevent injury thereto from frequent movements of the gasoline cap, an improved construction in the shaft, which locks the operating mechanism against movement which greatly facilitates assembly, an improved construction in the base of cap and in the float rod whereby the leverage thereof is greatly increased, the addition of means to prevent the giving of a false alarm through the slushing of the fuel in the tank when driving over rough roads, and a visible signal in addition to an audible signal which under some conditions might not be heard.

I have shown herewith an alarm mechanism comprising a clock movement locked against operation through the upward pressure created by the buoyancy of a float positioned in the fuel in the tank, and provided with adequate leverage means as hereinafter more fully set forth. This upward pressure is steady and constant until such time as the supply of fuel in the tank nears the point of exhaustion, at which time, the float will move downwardly and release for operation the said clock movement, thereby giving an alarm or notification that the supply of fuel is nearly exhausted.

It should be understood that while I have shown herein a clock movement for the energizing of the alarm mechanism, electrical or other suitable operating means could also be utilized.

Other advantages and details appear in the following specification and are shown in the drawings, in which:—

Fig. 1 is a vertical sectional view of the device in position in a fuel tank.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

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

Fig. 4 is a plan view of the top of the device.

As shown, the fuel tank 5 is provided with a filler opening 6 which is threaded for engagement with the cap 7 on the alarm gauge. The clock movement comprises a winding arbor 8, a spring 9 enclosed in the casing 10, and the gear train 11 connecting the escapement wheel 12 with the arbor 8.

The audible alarm signal is given when the float 29 descends to a predetermined point, thereby moving upwardly the rod 25 and the stop lug 24, and through the operation of the escapement wheel 12, and the pawl 13 which is secured to the clapper 14 which is thereby caused to strike the gong 15, the said gong forming the external top covering for the clock mechanism which is enclosed between the top plate 16 and the bottom plate 17, the latter plate being secured by the shoulder screw 18 to the cap 7.

To avoid strain on the clock mechanism and provide for a strong wrench grip directly on the cap 7 when the same is to be screwed into position or unscrewed therefrom, the bottom plate 17 is positioned on the flat clock spring, beneath which is another plate positioned on the coil spring 19. In the upper surface of the cap 7, three notches 20—20 are provided for engagement with the three lugs 21—21 affixed to the inner top wall of the gong 15, so that when the said gong and clock mechanism are moved downwardly against the spring 19, and the said lugs 21 engage in the notches 20 (as shown in Fig. 2) the entire gauge may be rotated. Normally, when the spring 19 is not compressed, it serves to hold the said lugs out of engagement with the notches.

As shown in Fig. 4 a visible signal 22 may be used to indicate to the eye what the sound of the gong indicates to the ear. This will not always be necessarily used and the form thereof could be varied as to color, shape, etc., etc. It is shown herewith as the word "Reserve", showing through an aper-

ture 23 cut in the gong 15 and it could be moved into a position where it could be seen by any of the usual methods of attachment to the mechanism which causes the gong to sound.

As the float in this apparatus is necessarily of small dimensions, and as it is most important that when there is an ample supply of fuel in the tank, the clock mechanism shall be positively locked against the operation of any alarm signal, I have devised means for increasing the leverage on the construction which operates to lock the clapper against striking the gong, the said means consisting of a float rod 28 secured at its lower end to the float 29 and bent outwardly at its upper end where it is secured to one end of the lever 27 which is pivoted on the lug 26, the opposite end of the said lever being attached to the lower end of the rod 25. On the upper end of the said rod 25, a stop lug 24 is provided which holds the clapper 14 against movement when the float is supported by an ample supply of fuel in the tank, and moves out of the path of the said clapper and permits a signal alarm to be given when the said float drops to a predetermined point. The use of this stop lug works an economy in manufacturing and assembling the device, the latter being practically impossible if the rod 25 is made in one piece.

The slush bottom 31 in the cylinder 30 in which the gauge is enclosed, is provided to prevent an alarm being given before the supply of fuel has reached a predetermined level which might be caused by the slushing of the fuel 32 in the tank 5 when driving over rough roads or obstructions.

As is obvious from the foregoing, when this device is positioned in a tank filled with liquid fuel, the float supported thereby will hold the long end of the lever 27 in an elevated position and that this will result in causing the stop lug 24 to lock the clapper 14 against giving any alarm signal. When the float moves downwardly to the predetermined point indicative of approaching fuel exhaustion, in a reverse manner the stop lug 24 is moved upwardly and the clapper is released to give the alarm.

I do not desire to limit myself strictly to the details shown in this preferred form of my device as there are various ways in which the broad principles involved may be applied without any departure from the scope and spirit of my invention.

I claim:—

In an alarm gauge for liquid fuel tanks the combination of the following elements; a casing provided with a slush bottom and adapted to be detachably mounted in the filler opening of a fuel tank; a closure therefor comprising a cap, a clock mechanism, and an audible signal mounted in spaced relation to the said cap and adapted to be operated by the said clock mechanism; means for locking together for simultaneous rotation the said signal, cap, and casing; and means adapted to control the operation of the said clock mechanism and comprising a float suspended in the said casing, a rod secured at one of its ends to the said float and provided at its other end with an angular bend, a lever pivotally secured at one of its ends to the said rod, a second rod secured to the said lever and provided with a stop member adapted to move into and out of engagement with the said clock mechanism.

JOSEPH H. ROSENBERG.