

## Detail Description.

### Regulator Alarm Column.

This device is located on right hand side of boiler back of muffler. It is connected to boiler by two  $\frac{1}{4}$  in. pipes, one pipe above the water line, the other below. The upper one enters the regulator at (P) and the lower at (Q). From the regulator two  $\frac{1}{8}$  in. pipes continue in like manner to the water glass outside the body.

The regulator alarm consists of an outer shell or casing A, in which a float B is operated by the water. When float B is raised to normal water line, valve E is closed. When float drops below this line, valve E is opened, allowing steam to pass through aperture into pipe F, causing pressure on diaphragm G which closes valve H. Valve H being set in the bye pass overflow line from pump to tank, it will be seen that with this valve closed, water from pump must go to boiler restoring the water line to normal.

When valve E is closed the pressure on diaphragm G is released through outlet I; valve H is now opened, and water goes to tank. In the event of failure of pump or tank supply becoming exhausted water would drop from normal to alarm line when hub D would contact set screw K, causing whistle J-M to be sounded.

Vent I, which is connected to tank by tubing,

must pass enough steam to take pressure off diaphragm G at high water, and not too much to relieve pressure at low water, a very slight turn with screw driver after removing tubing from vent will adjust. All vents are properly adjusted when tested, and unless they should become clogged will need no further adjustment.

Plug L is designed to clean valve E if no pressure can be gotten on diaphragm G.

Blow off at O must be used daily if water is muddy or dirty, as indicated under road operations. Packing cap N may be tightened if it drips water, by using a nail or iron pin.

If regulator keeps water line higher than normal open vent I slightly. If the opposite of this, the trouble is that the pump is not working. If alarm whistle leaks there is dirt under the valve blowing down regulator, and a few taps on whistle with a wrench will remove it.

## Road Operation.

### Feed Water Regulator.

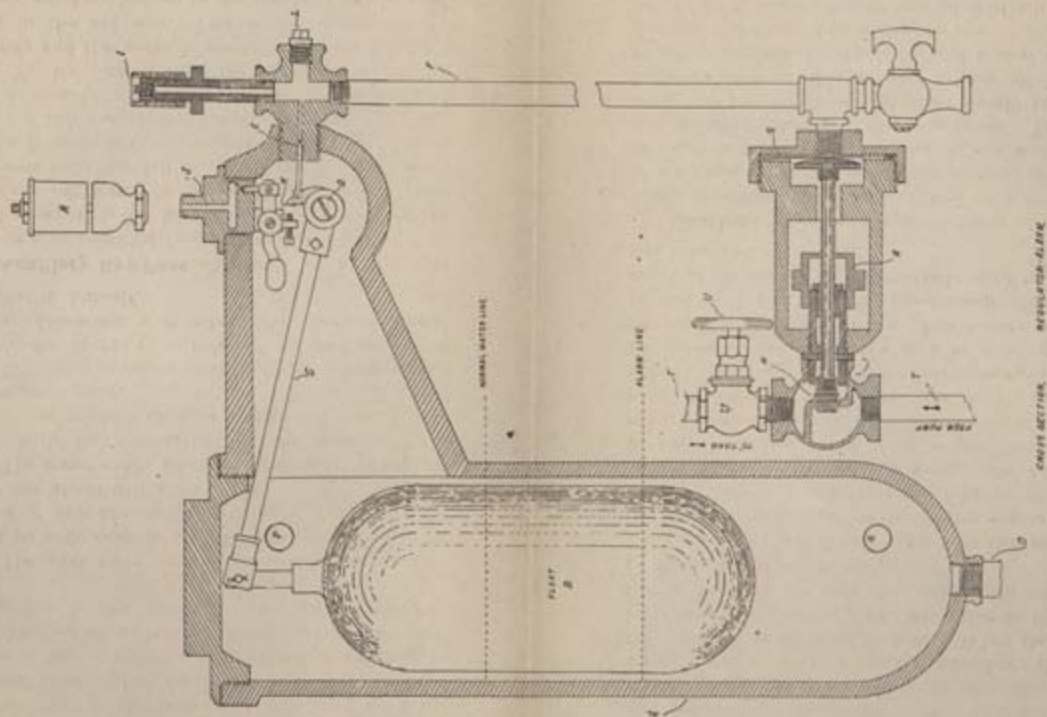
The next important point after care in the use of gasolene is the adequate supply of water to the boiler. When the vehicle is level there should be  $\frac{2}{8}$  to  $\frac{3}{4}$  of a glass of water. The supply is constant from the pump on the engine, and when in excess of what is required, its flow to the boiler is regulated by the Automatic feed water regulator

which is located on the right hand side of the boiler, and just back of the muffler. This regulator, when water reaches a certain point ( $\frac{3}{4}$  of a glass on a level) opens a valve in the bye pass line, allowing the water to be returned to tank. When the water level falls to  $\frac{2}{3}$  or  $\frac{1}{2}$  glass, this valve in bye pass line is closed by the regulator, causing the supply to be again forced to the boiler.

In this way it will be readily seen that one level of water is maintained in the boiler constantly as long as there is a supply in the tank or the pump on the engine is working properly. Should either of these conditions arise there is provided in connection with the regulator an alarm whistle which is sounded when the water drops 2 in. to  $2\frac{1}{2}$  in. below normal. In the event of the alarm being sounded the operator should at once look at water glass, if no water shows, turn off fire, then restore water to normal level with auxiliary hand pump, after which cause of the failure in water supply must be located and remedied.

**Caution**—To insure proper working of the feed water regulator, and alarm as well as water glass, it is necessary that the connecting pipes to the boiler be kept open and free, otherwise a false water level will result rendering them inoperative. To overcome this the regulator and pipes should be blown out daily and for this purpose a blow off valve is provided beneath the regulator, and a stop valve in the upper or steam line under the seat.

When blowing off it is best to start with water



at its normal level. Open blow off valve in line marked "O" at the bottom of regulator, until the whistle blows; then close this and also the stop valve in top steam line to regulator connecting at (P) blowing off as before. By this means the lower connection to the boiler is freed of accumulated scale.

The stop valve in top line connecting at (P) must be wide open at all other times. Should it be closed at any time while running neither the regulator nor alarm will work.

The water in the glass must be free to change its level with the inequalities of the road. If the water line appears dead or sluggish it should have attention at once.

For description in detail of the regulator and alarm the operator is referred to the descriptive matter following, with which the operator should familiarize himself.

**Auxiliary Bye Pass**—A hand or auxiliary bye pass is also provided (tagged) and is intended to be used to assist boiler in making steam on grades by shutting off water to boiler. When this is done operator must not fail to *close* hand bye pass when grade is made *as the regulator will not control water if this hand bye pass valve is open.*

A stop (U) valve is provided in the bye pass line T. By closing this, the regulator is cut out entirely and the water is controlled by the hand bye pass in the old way. This is for emergency use should anything happen to the regulator on the road.