F. D. NELSON.

VACUUM FUEL FEEDING SYSTEM.

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1,396,940. Patented Nov. 15, 1921.

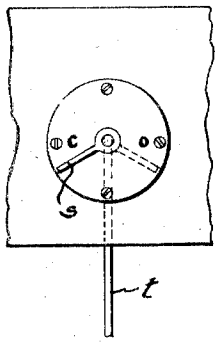


Fig. 2.

Fig. 1.

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VACUUM FUEL-FEEDING SYSTEM.

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To all whom it may concern:

Be it known that I, FREDERICK D. NELSON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Vacuum Fuel-Feeding Systems, of which the following is a specification.

My invention relates to vacuum fuel feeding system for internal combustion engines particularly adapted for use in connection with automotive vehicles. The object is to provide in connection with a vacuum tank an auxiliary fuel reservoir supplied from the vacuum chamber of such tank, provided with an independently controlled discharge leading to the carbureter.

In the known conventional construction because of the limited capacity of the vacuum tank, it is not possible to cover a very great distance after the main reservoir has been exhausted. My invention makes it possible to travel a considerable distance after such occurrence. Likewise in the present type of construction, when the supply is exhausted in the vacuum tank, it is necessary to re-fill vacuum tank to secure engine operation.

My invention provides an auxiliary supply of fuel, not capable of exhaustion in the feed provided for normal operation, but independently controlled, capable to supply the carbureter until the vacuum tank is again filled. Further should there be an obstruction in the feed pipe to or from the vacuum tank the supply in the auxiliary tank would be sufficient to keep the engine running until a repair station might be reached.

These and other objects of the invention together with details of construction will clearly appear from the within drawing together with the within specification and appended claims, in which:

Figure 1 is a vertical cross section through my improved form of vacuum tank.

Fig. 2 is a plan of the control positioned on the dash.

In the drawings, let *a* indicate the vacuum chamber, *b* the lower and gravity feed chamber. Fuel inlet *c* from the main fuel reservoir, suction conduit *d* from the engine, atmospheric opening *e*, float *f*, together with the lever and rods controlling the valves which regulate the passage of fluid through such conduits, and conventional construction, likewise the discharge pipe *g*, with its flapper valve *h*, which feeds the lower tank *b*, and through discharge pipe *i*, leading to the carbureter, and the drain *k*, from the gravity fuel feed tank *b* are well known, the above described construction being old and the one commonly found in use today.

I provide an auxiliary fuel tank *m*, which surrounds the tank *b*, which is supplied with fuel from the vacuum tank *a*, by means of a discharge pipe *n*, the passage of fuel through which is controlled by a gravity flapper valve *h*, which controls flow of fuel through pipe *g*.

It will be seen therefore that when the lower tank *b*, is first filled the secondary tank *m* is likewise filled, and that this tank *m* remains filled and has no effect on the normal fuel feed to the carbureter, the system operating in the usual manner. Secondary tank *m*, is provided with an air vent passageway m^2 leading to the air opening *e*, so that the auxiliary tank, like the lower tank *b*, is always open to the atmosphere. The auxiliary tank as shown is formed by the provision of a jacketed wall for the lower tank *b*.

Auxiliary tank *m* is provided with a discharge pipe *p* emptying into discharge pipe *i* which leads to the carbureter. Passage of fuel through pipe *p* is controlled by means of a valve *q*, regulated from the dash as shown in Fig. 2. The hand lever is indicated by letter *s*, and in connection to actuate the valve as *t*.

In the operation of my device when, for any reason, it is desired to feed the carbureter from the auxiliary tank valve *q* is actuated to permit flow of fuel through discharge conduit *p*.

Having described my invention, I claim:

1. In a vacuum fuel feeding system for internal combustion engines in combination with the vacuum chamber, a gravity feed chamber discharging into the carbureter, said gravity feed chamber provided with a jacketed wall adapted to receive fuel, a discharge conduit leading from said jacketed wall chamber to the discharge means leading from the gravity feed chamber to the carbureter.

2. In a vacuum fuel feeding system for internal combustion engines, in combination with the vacuum tank, an auxiliary gravity feed fuel tank provided with means for being supplied with fuel from the vacuum

tank, and provided with an independently controlled discharge means normally inoperative leading therefrom to the carbureter.

3. In a vacuum fuel feeding system for internal combustion engines, in combination with the vacuum chamber of the vacuum tank, a gravity feed fuel tank provided with means discharging into the carbureter, an auxiliary gravity feed fuel tank, discharge means leading from the vacuum chamber to the auxiliary tank, discharge means leading from the auxiliary tank to the carbureter, a valve positioned therein controlled from the dash adapted to regulate the flow of fuel therethrough.

4. In a vacuum fuel feeding system for internal combustion engines, in combination with the vacuum chamber of a vacuum fuel tank, a gravity fuel feed chamber supplied therefrom provided with a discharge conduit leading to the carbureter, a secondary gravity fuel feed chamber surrounding said fuel chamber adapted to be supplied with fuel from the vacuum chamber, discharge means leading from said secondary chamber to the carbureter, means for regulating the flow of fuel through said discharge means which leads from the secondary chamber to the carbureter.

5. In a vacuum fuel feeding system for internal combustion engines, in combination with the vacuum chamber of a vacuum fuel tank, a gravity fuel feed chamber supplied therefrom provided with a discharge conduit leading to the carbureter, a secondary gravity fuel feed chamber adapted to be supplied with fuel from the vacuum chamber, discharge means leading from secondary chamber to the carbureter, means for regulating the flow of fuel through said discharge means which leads from the secondary chamber to the carbureter.

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