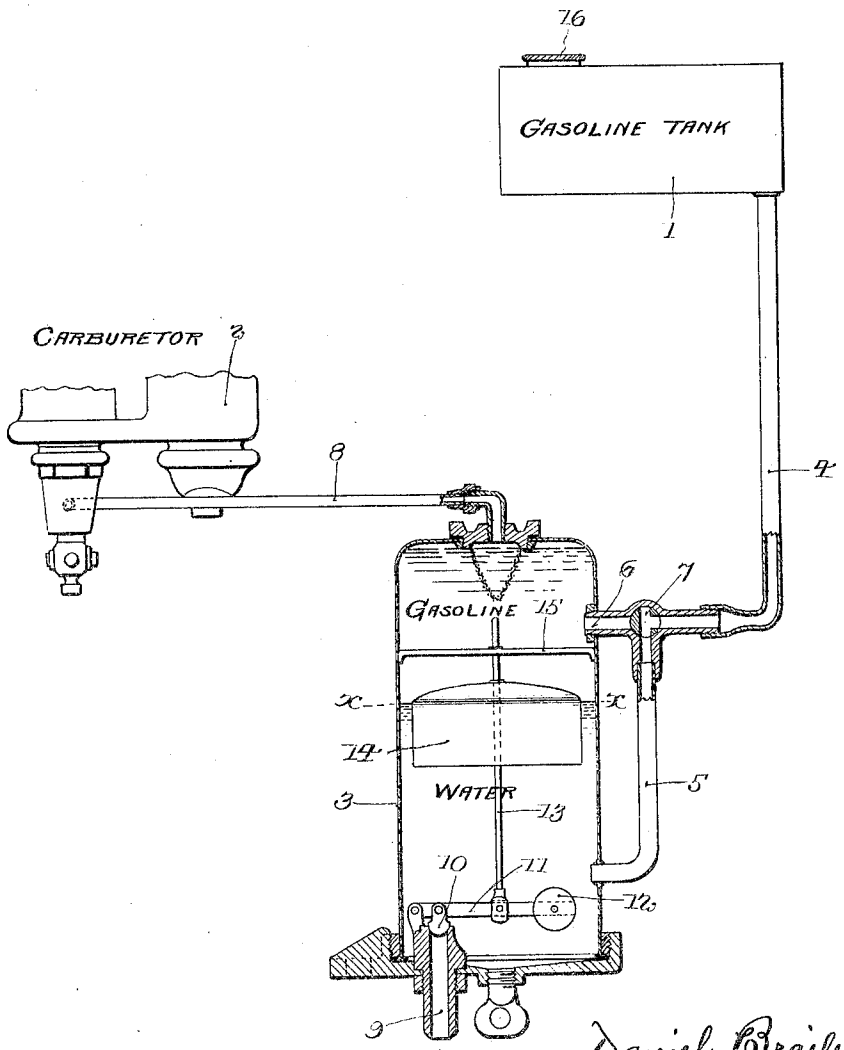
D. B. GISH.

PROCESS OF TREATING HYDROCARBONS.

APPLICATION FILED JUNE 12, 1917. RENEWED APR. 22, 1920.

1,373,720. Patented Apr. 5, 1921.



Witnesses:
Grace P. Brereton
B. B. Thompson.

Inventor
Daniel Bailey Gish

By Sturtevant Mason
Attorneys

UNITED STATES PATENT OFFICE.

DANIEL BRAILEY GISH, OF WASHINGTON, DISTRICT OF COLUMBIA.

PROCESS OF TREATING HYDROCARBONS.

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To all whom it may concern:

Be it known that I, DANIEL BRAILEY GISH, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Processes of Treating Hydrocarbons for Explosive-Engines, of which the following is a description, reference being had to the accompanying drawing, and to the figures of reference marked thereon.

The invention relates to new and useful improvements in processes for treating hydrocarbons for explosive engines and more particularly to the process for treating the hydrocarbon on its way from a storage tank to the carbureter.

An object of the invention is to provide a process of supplying an explosive engine with a volatile liquid hydrocarbon whereby the hydrocarbon is washed on its way to the engine and all foreign substances in suspension separated from the hydrocarbon and retained by the washing liquid, and whereby the hydrocarbon is caused to take up in suspension certain of the washing liquid and carry the same into the engine.

In order to aid in the disclosure of the invention I have illustrated in the drawing an apparatus which may be used in carrying out the process.

The figure of the drawing is a view partly in side elevation and partly in section showing such apparatus.

The process consists broadly in causing a liquid hydrocarbon on its way from a storage receptacle to the engine to pass through a body of water, coming directly in contact with the water so that the liquid hydrocarbon will be thoroughly washed and all foreign substances in suspension separated from the hydrocarbon and retained by the washing water, and whereby the liquid hydrocarbon will also take up in suspension a certain amount of the water and carry the same into the engine. In carrying out the invention, the hydrocarbon is caused to bubble in a finely divided state up through the water which brings about the above results. The hydrocarbon used may be gasolene, kerosene or a mixture of gasolene and kerosene, or in fact any other of the well-known similar distillates.

Referring to the apparatus which I have shown as one embodiment of a device for carrying out my process, 1 indicates a tank or supply for the hydrocarbon, and 2 indicates a carbureter where the hydrocarbon is carbureted before it is delivered to the engine. Located between the supply tank 1 which may be of any character, either a gravity feed, pressure feed, or a vacuum feed is a small tank 3. A pipe 4 connects with the pipe 5 which is tapped into the tank 3 near the bottom thereof. This pipe 4 is also tapped into the tank at 6 near the top of the tank. A three-way valve 7 directs the flow of hydrocarbon to the tank 3 and as the valve is set the hydrocarbon will pass into the bottom of the tank. A pipe 8 leads from the top of the tank 3 to the carbureter 2. The tank 3 is provided with a short pipe 9 which extends below the bottom of the tank and this pipe 9 is controlled by a valve 10. The valve 10 is attached to the lever 11 which is provided with a small weight 12. A rod 13 connected to the lever 11 carries a float 14. This rod is guided in a suitable bracket 15.

The tank is provided with a suitable filling opening indicated at 16. The hydrocarbon, whatever it may be, whether gasolene, kerosene, or gasolene and kerosene mixed or any other volatile distillate is placed in the supply tank 1. In this tank is also placed a quantity of water. The amount of water may be varied. For example, five gallons of gasolene and five gallons of kerosene may be put in the supply tank and to this amount of mixture should be added two quarts of water or thereabout. From time to time a little water should be added to the hydrocarbon mixture. The mixed hydrocarbon and water passing down into the tank 3 enters the tank near the bottom thereof and the water settles by gravity at the bottom of the tank 3. The water will accumulate in the tank until a water level indicated by the line x—x is reached. The float 14 and weight 12 are so proportioned that the float will rest on the surface of the water partly submerged therein but will sink in gasolene. When the water level reaches the line x—x any increase in water above this line will raise the valve and allow some of the water to drain off through the pipe 9. When however, the water column recedes to the line x—x the valve will close and thus a water-well is maintained, the level of which is at the line x—x. The hydrocarbon entering through the pipe 5 will bubble up through the water-well. As the hydrocar-

bon passes through this water-well it will be thoroughly washed and all foreign substances in suspension such as silica, alumina and free carbon will be removed and trapped by the water. Furthermore the hydrocarbon, bubbling up through the water, takes up a certain amount of the water in suspension and carries the same through into the engine. This water in suspension greatly increases the efficiency of the explosive charge and thereby greatly increases the mileage which may be obtained on a measured amount of hydrocarbon. It is obvious that from certain aspects of the invention, the water well may be otherwise formed. The essential feature consists in the causing of the hydrocarbon to bubble up from the water well where the hydrocarbon is thoroughly washed and all foreign substances in suspension, such as silica, alumina, and free carbon removed therefrom and trapped by the water, and where the hydrocarbon is also caused to take up in suspension water vapor.

Having thus described my invention what I claim as new is:—

The process of supplying an explosive engine with a volatile liquid hydrocarbon consisting in providing a body of water between the supply tank and the engine and passing the hydrocarbon through said water on the way to the engine, whereby the hydrocarbon is washed and all foreign substances in suspension separated from the hydrocarbon and retained by the water, and whereby said hydrocarbon is caused to take up in suspension a certain amount of water and carry the same into the engine.

In testimony whereof I affix my signature.

DANIEL BRAILEY GISH.