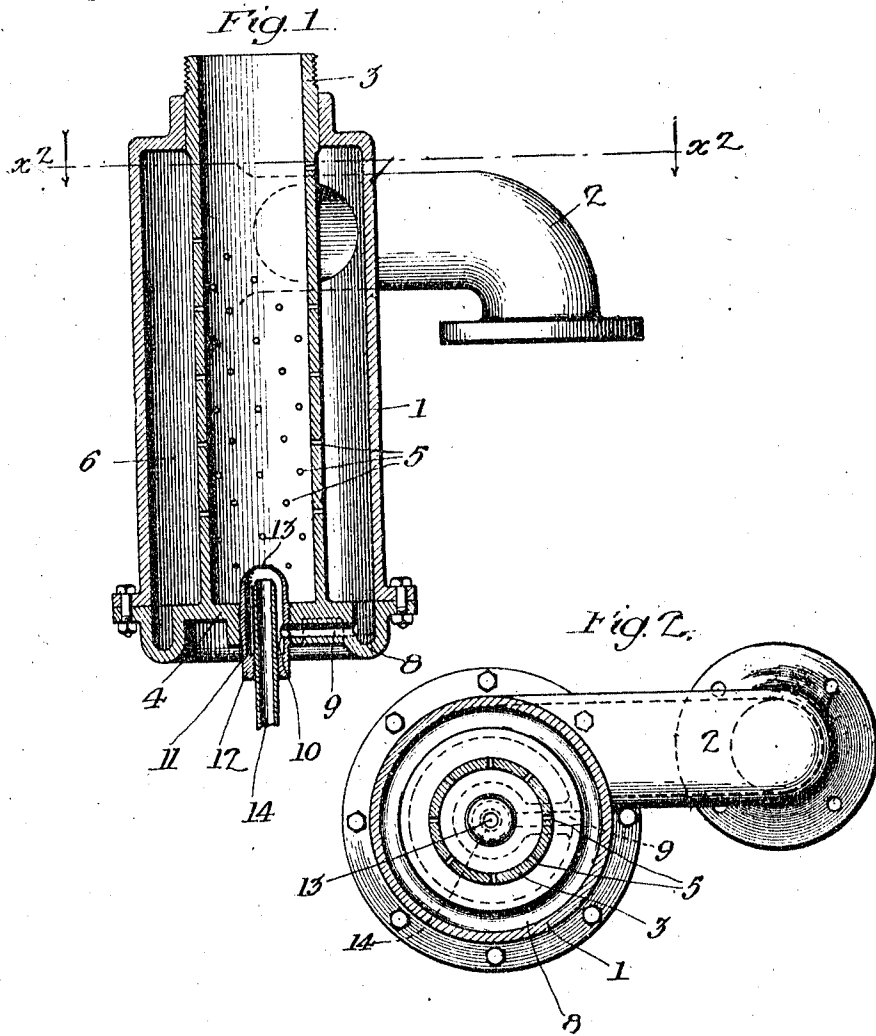


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MIXING ATTACHMENT FOR CARBURETERS.
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1,021,079.

Patented Mar. 26, 1912.



Witnesses:

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UNITED STATES PATENT OFFICE.

ALFRED C. STEWART, OF LOS ANGELES, CALIFORNIA.

MIXING ATTACHMENT FOR CARBURETERS.

1,021,079.

Specification of Letters Patent. Patented Mar. 26, 1912.

Application filed October 31, 1910. Serial No. 590,040.

To all whom it may concern:

Be it known that I, ALFRED C. STEWART, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Mixing Attachment for Carbureters, of which the following is a specification.

This invention relates to an attachment for use with carbureters for effecting more perfect mixture of the oil and air before the mixture enters the engine, the attachment being particularly adapted for use when heavy oils are supplied to the carbureter, such oils being difficult to vaporize and liable to separation from the mixture in passage from the carbureter to the engine.

A further object of the invention is to provide for forcible atomization of the oil to facilitate the mixture thereof with the air.

Other objects of the invention will appear hereinafter.

The accompanying drawings illustrate the invention, and referring thereto: Figure 1 is a vertical section of the mixing attachment. Fig. 2 is a horizontal section on line x^2-x^2 in Fig. 1.

The attachment comprises a case 1 provided with an inlet pipe 2 for attachment to the carbureter or the throttle thereof, and with an outlet pipe or chamber 3 for connection to the engine. The case 1 may be formed as a vertical cylinder and the inlet pipe 2 preferably extends tangentially thereinto, so that the incoming mixture is given a swirling movement in the chamber 6 between case 1 and pipe 3, tending to separate the heavier particles by vortical action. The chamber 6 constitutes an inlet chamber, and the pipe 3 constitutes a mixing and outlet chamber. The outlet pipe 3 extends down to the bottom 4 of the case 1, and is provided with a plurality of openings or perforations 5 in its wall for passage of mixture into the outlet pipe 3 from the annular space or chamber 6, between the pipe 3 and the case 1. The bottom 4 of the case is provided with a depression or trough 8 to receive the unvaporized or condensed oil deposited in case 1, said trough 8 communicating with a duct 9 extending in the bottom member 4 and leading to an opening 10 in a chamber 11, formed in a member 12 extending through the bottom member 4, and having its upper and converging end terminating in restricted opening 13. A pipe 14 for commu-

nicating elastic fluid pressure extends through the bottom or member 12 and upwardly within the chamber 11 therein into proximity of the opening 13 at the top thereof, said pipe 14 being connected to any suitable source of elastic fluid pressure whereby elastic fluid is discharged from said pipe through the opening 13 thereby drawing the oil upwardly from the chamber 11 by ejector action and spraying or atomizing the oil into the outlet pipe 3. Elastic fluid under pressure may be supplied to pipe 14 from any suitable means, for example, exhaust gases from the engine may be used for this purpose.

The operation is as follows: In the operation of the engine, air is drawn into the carbureter and mixing attachment, carrying with it a certain proportion of oil or fuel supplied thereto by the carbureter. The mixture of air, vapor and oil particles passes through the inlet tube into the chamber 6 of the case 1. The swirling movement imparted thereto by reason of the tangential entry of the inlet causes the unvaporized particles of oil to pass outwardly and to be deposited on the outer wall of said case, and eventually to descend into the trough 8, while the air and vapor pass through the perforations 5 into the outlet pipe 3. Exhaust gases under pressure being supplied through the pipe 14, the resulting blast produced through the pipe 14 into the mixing outlet pipe 3, causes the oil to be drawn upwardly from the well 10 and to be discharged in a spray or atomized condition into the mixture in the mixing chamber outlet pipe 3, thereby insuring complete mixing with the air of all of the oil taken up at the carbureter, even when the oil is so heavy that a large proportion passes over from the carbureter in an unvaporized state. Any suitable source of elastic fluid pressure may be used for supplying the compressed air or gases to the pipe 14.

What I claim is:

1. A mixing device for carbureters, comprising a case formed with an inlet chamber and with inlet means for said chamber adapted for connection to a carbureter for supplying oil and air thereto, an outlet chamber extending within the aforesaid chamber and provided with openings for passage of air and vapor from the inlet chamber to said outlet chamber, means for collecting oil in the bottom of said inlet

chamber and injector means communicating with said oil collecting means and with said outlet chamber and a pressure pipe connected to said injector means to produce a blast
5 of elastic fluid through said injector means into said outlet chamber, thereby atomizing the oil from said oil collecting means into said outlet chamber.

2. A mixing attachment for carbureters,
10 comprising a case provided with an inlet chamber, inlet means adapted for connection to a carbureter and communicating tangentially with said inlet chamber, an outlet chamber extending within said inlet chamber
15 in the central portion thereof, and provided with perforations establishing communication between said inlet and outlet

chambers, means for collecting oil in the lower portion of said inlet chamber, injector means connected with said oil collecting
20 means and having an outlet communicating with said outlet chamber and an elastic fluid supply pipe connected to said injector to discharge a blast of elastic fluid through the injector and through the outlet thereof, to
25 supply the atomized oil from the oil collecting means into the outlet chamber.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 18th day of October, 1910.

ALFRED C. STEWART.

In presence of—

ARTHUR P. KNIGHT,
FRANK L. A. GRAHAM.