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1,541,684

F. W. BUSCH

FUEL ECONOMIZER

Filed Dec. 30, 1921

Fig. 1.

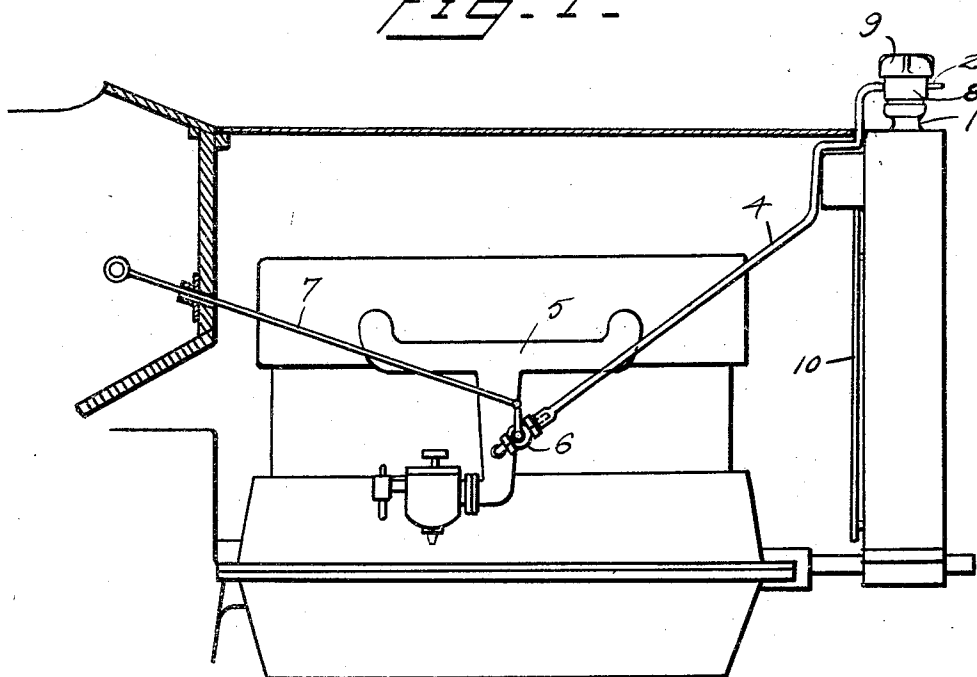


Fig. 2.

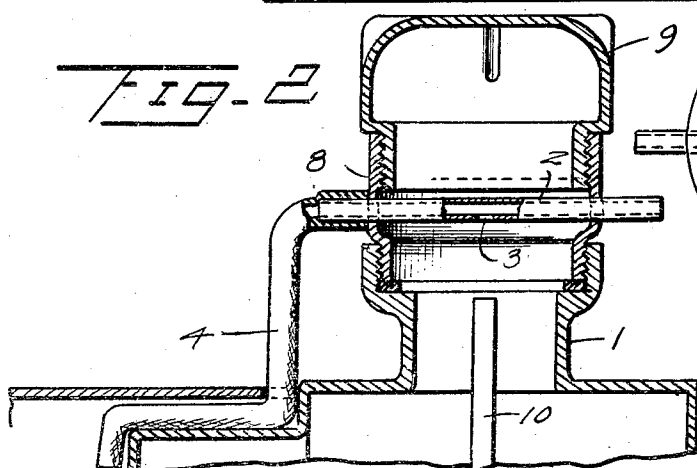
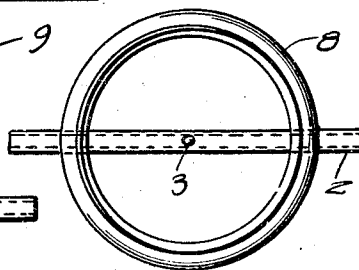


Fig. 3.

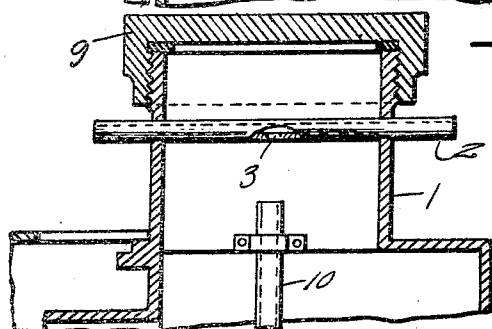


Fig. 4.

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UNITED STATES PATENT OFFICE.

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FUEL ECONOMIZER.

Application filed December 30, 1921. Serial No. 525,855.

To all whom it may concern:

Be it known that I, FERDINAND W. BUSCH, a citizen of the United States, residing at Berlin, in the county of La Moure and State of North Dakota, have invented certain new and useful Improvements in Fuel Economizers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The primary object of this invention is the conservation of fuel in the operation of internal combustion engines.

In accordance with the present invention, air and water vapor are supplied to the gaseous mixture preliminary to its admission into the engine.

Other objects and advantages will be apparent and suggest themselves as the nature of the invention is understood.

While the drawings illustrate an embodiment of the invention, it is to be understood that in adapting the same to meet different conditions and requirements, various changes in the form, proportion and minor details of construction may be resorted to without departing from the nature of the invention.

Referring to the accompanying drawings forming a part of the application,

Figure 1 is a diagrammatic view illustrating the application of the invention,

Figure 2 is a sectional detail of the radiator filling tube and parts cooperating therewith,

Figure 3 is a view of the attachment as seen from the lower end, and

Figure 4 is a sectional detail of a modification.

Corresponding and like parts are referred to in the following description and designated in the several views of the drawings by like reference characters.

The numeral 1 designates the filling tube of a radiator such as commonly employed in a water-cooled internal combustion engine. In accordance with the invention, a relatively small pipe 2 is disposed within

the filling tube 1 and is in communication with the outside atmosphere and with the interior of the filling tube, whereby air from the outside may pass freely into the filling tube 1 so as to commingle with the water vapor or steam contained therein when the engine is running and the cooling system is in active operation since the pipe 2 is provided in its side with an opening 3 for the supply of air to the tube 1. The filling tube 1 is closed at its upper end by the usual cap. A tube 4 connects with the filling tube 1 and leads to the intake manifold 5 of the engine or like connection, whereby to supply air and water vapor to the gaseous mixture passing therethrough to the engine. A valve 6 is disposed in the length of the tube 4 and is controlled from a convenient point by means of a rod 7.

In accordance with this invention, when starting the engine, the valve 6 is closed and after the engine has become warm and attained a given speed, the valve 6 is opened whereby to admit air and water vapor being drawn through the tube 4 from the upper portion of the radiator so as to mix with the gas in the manifold 5 preliminary to its admission into the engine.

By supplying air and water vapor to the gaseous mixture, a material saving of fuel results.

Figure 4 of the accompanying drawings illustrates the invention applied directly to the filling tube 1 of the radiator. However, in the preferred form of the invention, a ring 8 is provided and receives the pipe 2, one end of the ring being screw threaded to match the screw threads of the filling tube 1 and the opposite end being threaded to match the thread of the cap 9 which closes the same. The numeral 10 designates the usual overflow pipe leading from the filling tube 1.

What is claimed is:

1. In combination with a filling tube of a radiator in an internal combustion engine cooling system, and a detachable cap for the tube, a ring attachable to the tube and adapted to detachably receive the cap, and a

pipe carried by the tube in communication with the atmosphere and the interior of the tube and the fuel line of the engine.

2. In combination with a filling tube of a
5 radiator in an internal combustion engine cooling system and a threaded cap for the tube, a ring screw threaded in the tube in lieu of the cap and adapted to have the cap screw threaded thereto, and a pipe carried

by the tube in communication with the at- 10
mosphere and the interior of the tube and the fuel line of the engine.

In testimony whereof I affix my signature in presence of two witnesses.

FERDINAND W. BUSCH.

Witnesses:

G. E. POOLEY,
LOUIS O. MANUS.