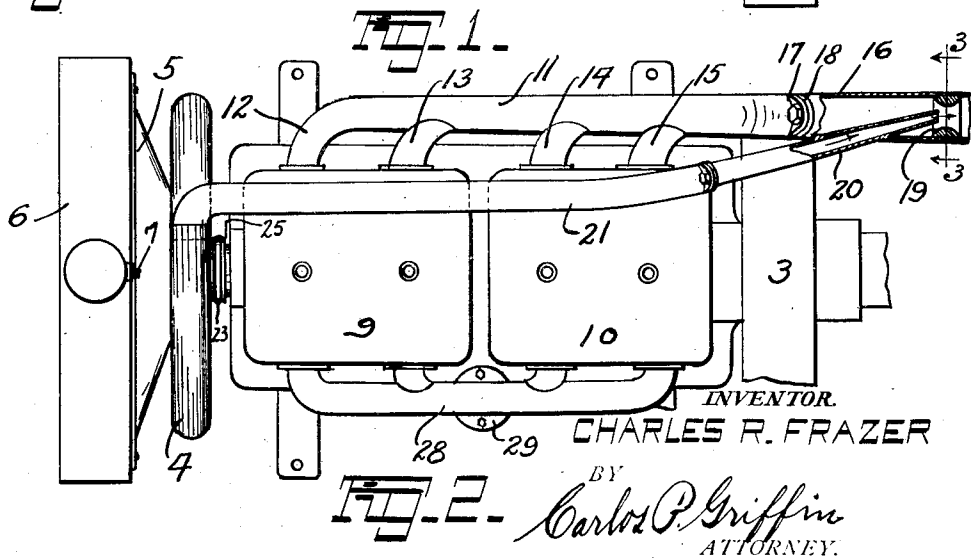
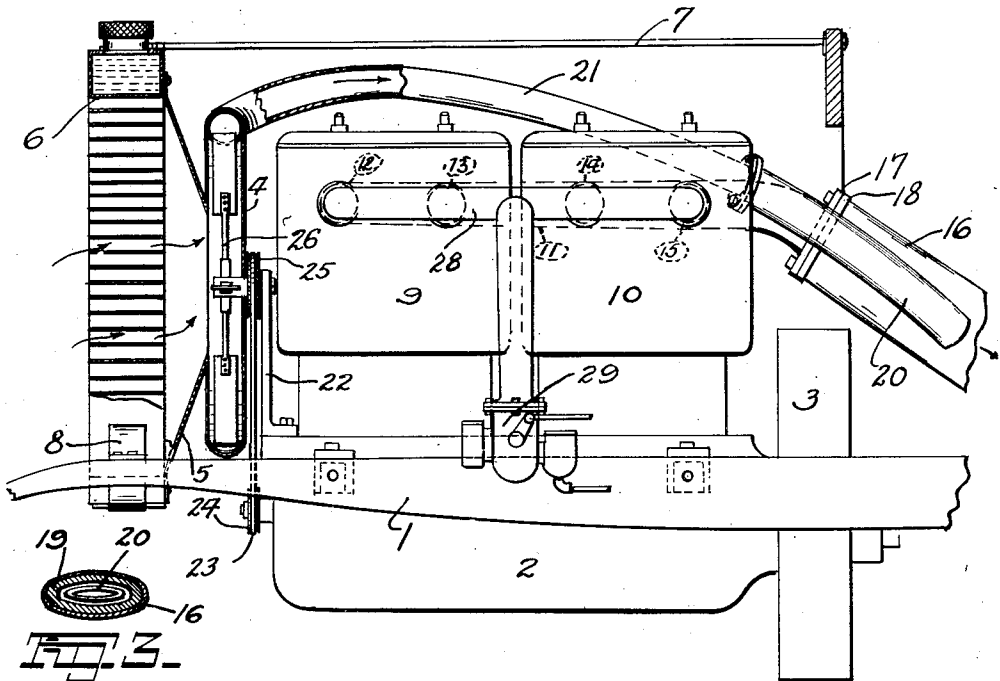


C. R. FRAZER.
EXHAUST AUXILIARY FOR EXPLOSION ENGINES.
APPLICATION FILED MAY 17, 1916.

1,244,442.

Patented Oct. 23, 1917.



INVENTOR.
CHARLES R. FRAZER

BY
Charles P. Griffin
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES R. FRAZER, OF SAN FRANCISCO, CALIFORNIA.

EXHAUST AUXILIARY FOR EXPLOSION-ENGINES.

1,244,442.

Specification of Letters Patent.

Patented Oct. 23, 1917.

Application filed May 17, 1916. Serial No. 98,068.

To all whom it may concern:

Be it known that I, CHARLES R. FRAZER, a citizen of the United States, residing at San Francisco, in the county of San Francisco, State of California, have invented a new and useful Exhaust Auxiliary for Explosion-Engines, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

This invention relates to an exhaust auxiliary for explosion engines, the object of which is to reduce the atmospheric pressure in the exhaust pipe thereby increasing the efficiency of the engine.

An embodiment of the invention is shown in the drawing in which the same reference numeral is applied to the same portion throughout, but I am aware that there may be many modifications thereof.

Figure 1 is a side elevation of an engine, cooling fan and radiator, a portion of an automobile frame being shown for purposes of illustration, although the invention may be applied to any explosion engine that may have a cooling fan.

Fig. 2 is a plan view of the engine, fan and radiator shown in Fig. 1, and

Fig. 3 is a cross section on the line 3—3, Fig. 2 showing the dimensions of the air discharge pipe relative to the exhaust pipe.

The numeral 1 indicates the frame of the machine, 2 the motor base, 3 the fly wheel and 4 a fan casing with a flaring funnel shaped inlet casing indicated at 5. The flaring casing 5 is suitably secured to the back of the radiator 6. The radiator has a rod 7 to hold it in the proper upright position and it is secured to the frame of the machine by means of the customary brackets as illustrated at 8.

The engine cylinders are cast in pairs and are shown at 9 and 10 and are suitably secured to the engine base 2. On the side of the engine cylinders there is an exhaust manifold 11 with inlet pipes 12, 13, 14 and 15 from the four cylinders of the engine. The exhaust pipe leads to the muffler 16 and

is connected to the exhaust pipe 11 by means of suitable flanges 17 and 18. The exhaust pipe 16 is made somewhat larger than the exhaust pipe 11 and it is provided with a Venturi bushing 19, which bushing is placed adjacent the discharge of a nozzle 20, which nozzle is connected with a pipe 21 leading from the fan casing 4.

The fan is supported on a bracket 22 and is driven by means of a belt 23 passing under the pulley 24 and over the pulley 25. The fan 26 is of a well known type having a plurality of blades and operates upon a centrifugal principle and blows the air through the pipe 21 and out of the nozzle 20, the result being that a region of low pressure is produced in the pipes 11 and 16 thereby increasing the efficiency of the motor.

The engine has the usual inlet manifold 28 and carbureter 29.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States, is as follows, express reservation being made of permissible modifications:

1. In an explosion engine, the combination with an engine of an exhaust pipe, a fan, a radiator through which the air delivered by the fan passes, a discharge pipe leading from the fan to the exhaust pipe, and a Venturi bushing in the exhaust pipe adjacent the air discharge pipe whereby a pressure lower than atmospheric is produced in the exhaust pipe.

2. In an explosion engine, the combination with an explosion engine of an exhaust pipe, a fan for cooling the engine, a discharge pipe leading from the fan to the exhaust pipe, and a bushing having a Venturi opening in said exhaust pipe adjacent the end of the air discharge pipe whereby a pressure lower than atmospheric is maintained in the exhaust pipe.

In testimony whereof I have hereunto set my hand this 9th day of May, A. D. 1916.

CHARLES R. FRAZER.