

A. W. EASTWOOD.
FUEL HEATING DEVICE.
APPLICATION FILED MAR. 15, 1917.

1,332,327.

Patented Mar. 2, 1920.

Fig. 1.

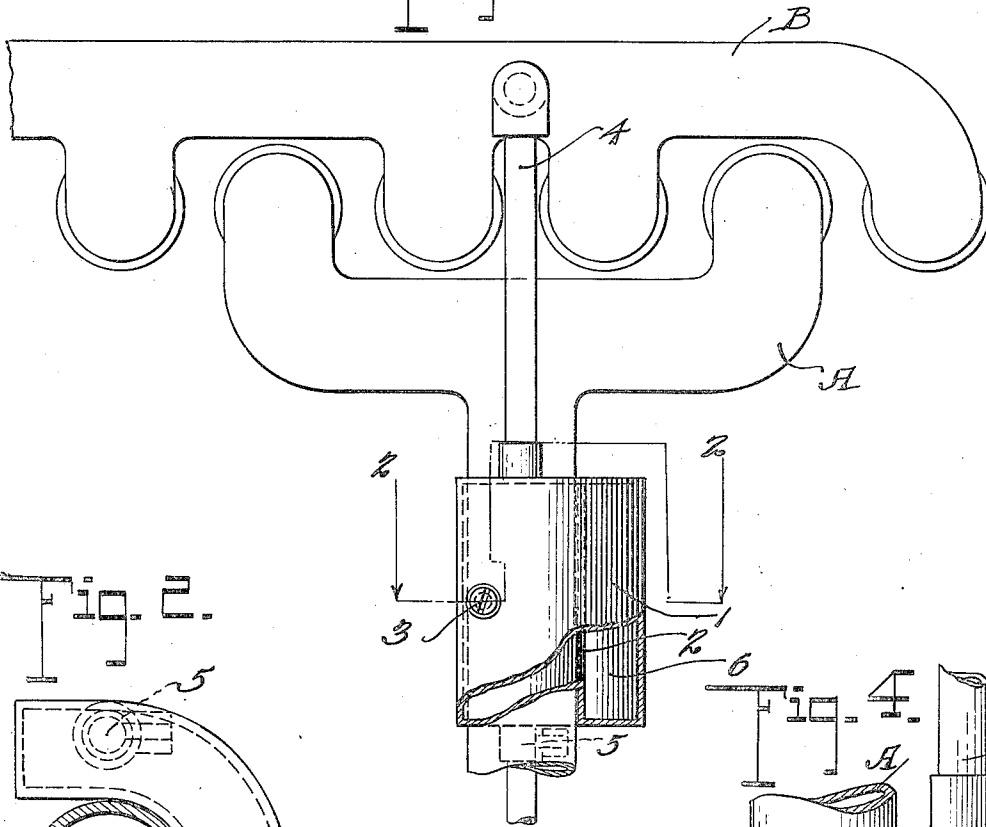


Fig. 2.

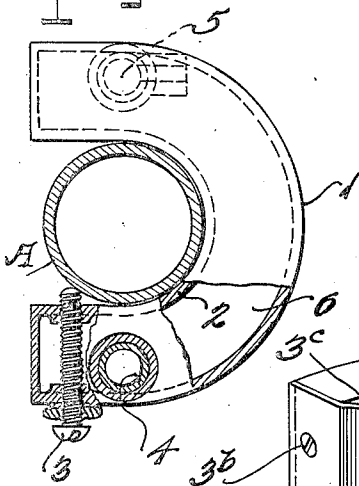


Fig. 3.

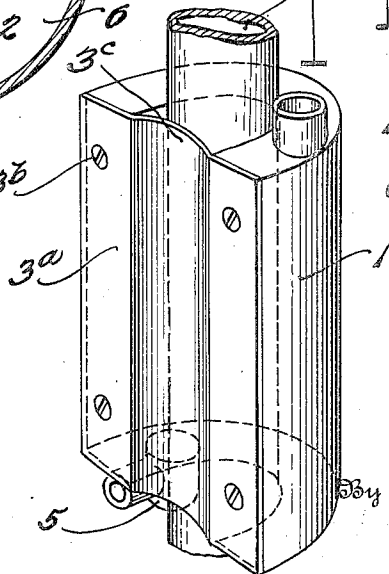
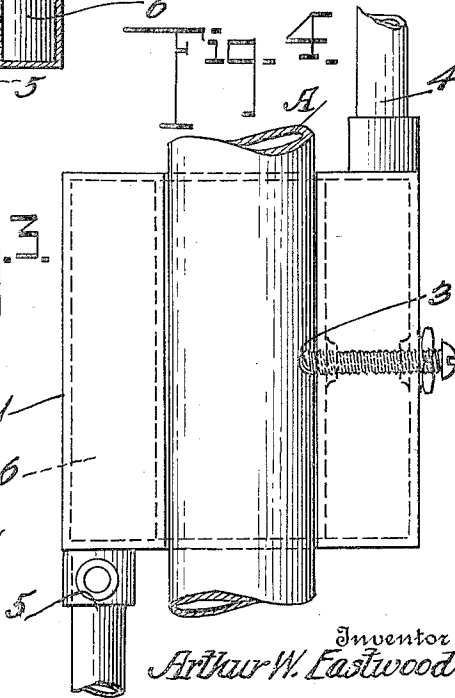


Fig. 4.



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FUEL-HEATING DEVICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR W. EASTWOOD, a citizen of the United States, residing at Alden, in the county of Erie and State of New York, have invented certain new and useful Improvements in Fuel-Heating Devices, of which the following is a specification.

The present invention relates to improvements in heating devices designed as an attachment for the manifold of an internal combustion engine by means of which heated gases, preferably taken from the engine exhaust, may be utilized, to impart heat to the fuel conveying passage for the purpose of materially assisting in effective vaporization of the carbureted fuel.

The device embodies a chambered body detachably mounted on the intake manifold and having a conduit leading thereto from the exhaust manifold so that a portion of the exhaust gases will pass through the body and in so doing heat the wall of the body which contacts with the surface of the manifold, this arrangement having special advantages pointed out more clearly hereinafter.

For a full understanding of the present invention, reference is to be had to the following description and the accompanying drawing, in which:

Figure 1 is an elevation showing the application of this invention to the manifold of an engine, parts being broken away and shown in section.

Fig. 2 is a sectional view taken substantially on the plane indicated by the line 2—2 of Fig. 1.

Fig. 3 is a perspective view showing a slightly modified form of holding means for the device.

Fig. 4 is a rear elevation.

Throughout the following detail description, and on the several figures of the drawing, similar parts are referred to by like reference characters.

Referring to the drawing A designates the intake manifold, and B the exhaust manifold of a conventional type of internal combustion engine. To an intermediate portion of the former, the device which forms the subject matter of this invention is preferably attached and said device consists of a hollow body 1 of substantially U-shaped configuration, the inner wall 2 of which contacts with the manifold A when the body is properly positioned in place and the ends of said body extend sufficiently around the manifold to se-

cure the maximum amount of heating surface while yet enabling the device to be slipped on and off of the manifold. The body is preferably held at the desired position by means of a set screw 3 which extends through one end of the body as shown most clearly in Fig. 2 and engages with the manifold to lock the member 1 in place. The exhaust manifold B of the engine is tapped at a suitable place above the member 1 and a conduit or pipe 4 is connected thereto at one end and to the member 1 at the other so as to establish communication between the exhaust manifold and said member. The body is provided furthermore with an outlet 5 preferably located at the opposite end of the body to that into which the conduit 4 leads so that the gases which pass from the exhaust manifold into the heating chamber 6 will necessarily have to follow completely around the chamber to the other side before escaping. This movement of the gases heats the inner wall 2 quite materially and said wall transmits its heat to the wall of the intake manifold A. The carbureted fuel which is injected into the manifold A in most instances and especially during cold weather is only partially vaporized and in passing the heated surface of the manifold when this device is in place such fuel is heated and introduced into the engine in a much better condition for affording proper combustion therein. It is to be understood that the direct application of heat to the wall of the manifold A is not entirely desirable because of the fact that the direct heating in this manner is likely to cause premature combustion of the fuel in said manifold. The fact that only a portion of the exhaust gases from the manifold B are let into this chambered body 1 and must become effective through the inner wall of said body as well as the wall of the manifold, provides a moderated heat which is an important phase of my device.

In Fig. 3 I have illustrated a slightly different form of fastening means for holding the member 1 upon the manifold. In this instance I provide a plate 3^a which is attached by suitable fastening members 3^b across the ends of the body thus inclosing the manifold. The plate is preferably provided with a laterally depressed portion 3^c which portion frictionally engages the manifold and said plate being of resilient material tends to prevent movement of the body 1 when the device is applied as shown.

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

5 The combination with intake and exhaust manifolds of an internal combustion engine, of a heating attachment adjustably connected to the intake manifold and comprising a
10 chambered body of substantially U-shaped conformation, the ends of said body extending sufficiently around the manifold to project slightly beyond the side of said manifold, a conduit establishing communication

between the exhaust manifold and the interior of the body, the body having an outlet and means for adjustably holding the body of the manifold comprising a yieldable plate 15 member connected across the ends of the body, said plate having frictional contact with the manifold for holding the device in place thereon.

In testimony whereof I affix my signature. 20

ARTHUR W. EASTWOOD.