

Dec. 23, 1930.

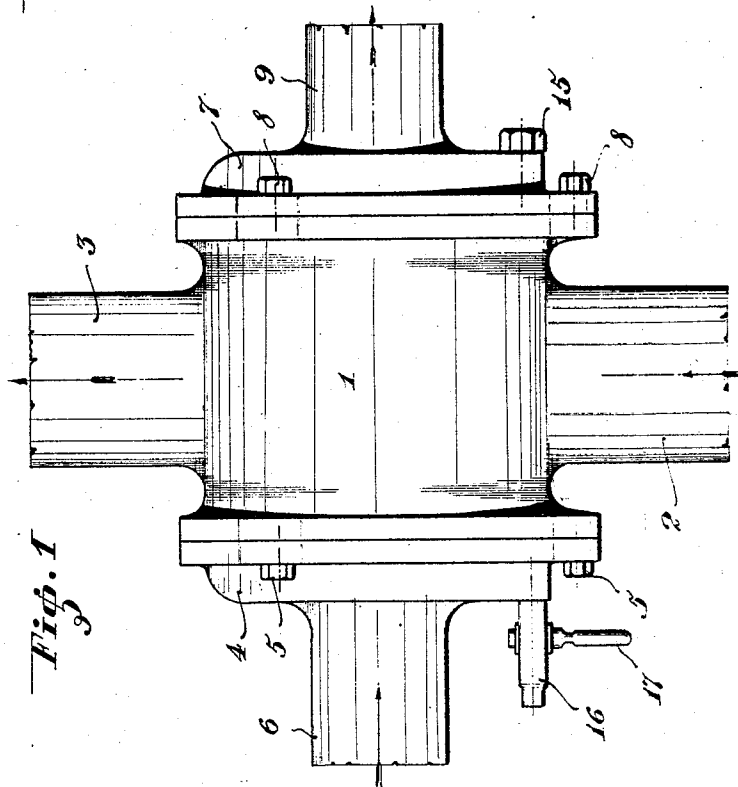
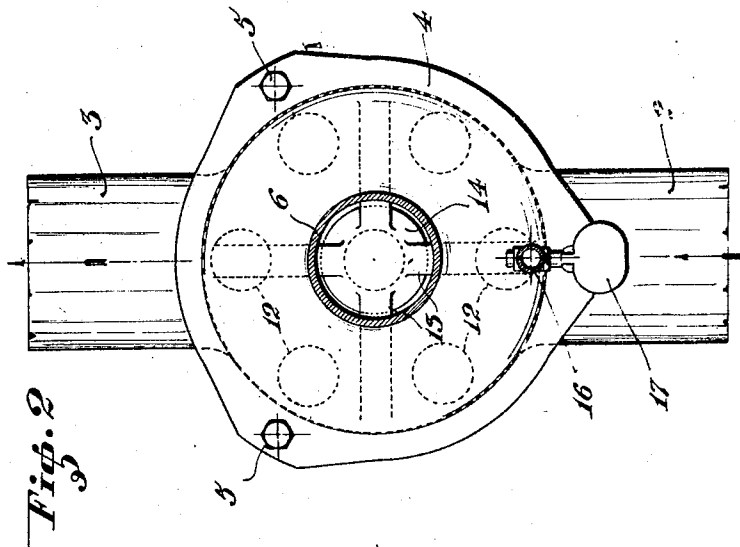
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1,786,233

HEATING APPARATUS FOR THE CARBURATED MIXTURE

Filed Aug. 23, 1929

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

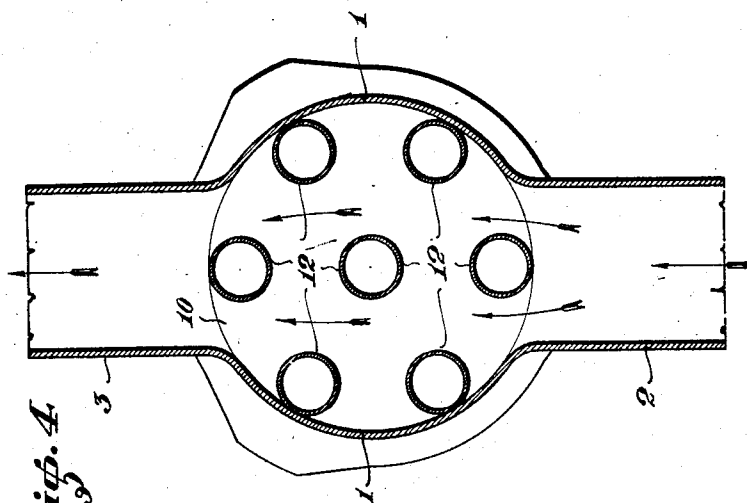


Fig. 4

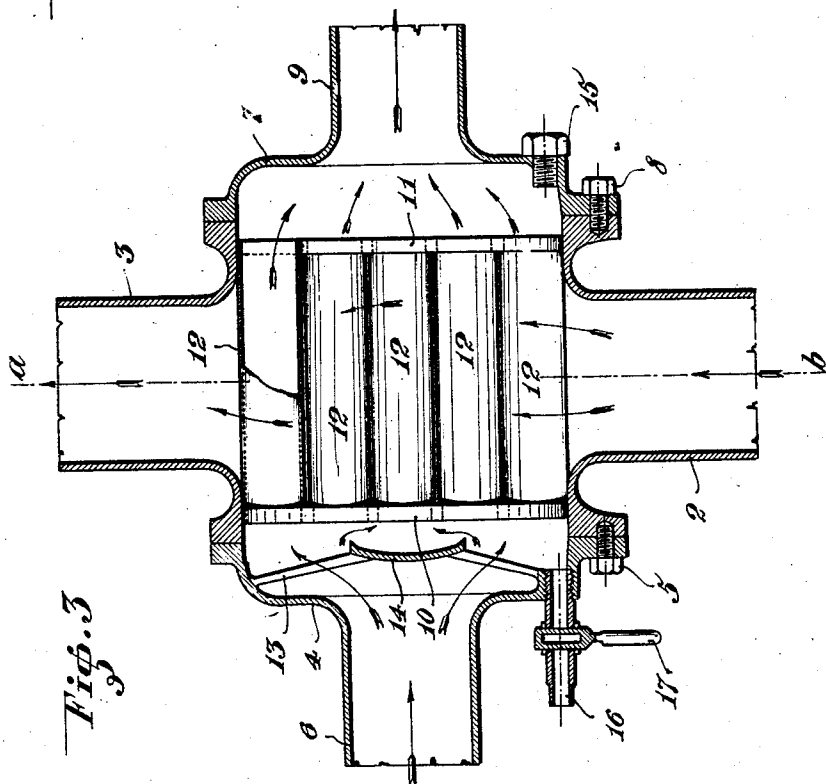


Fig. 3

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UNITED STATES PATENT OFFICE

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HEATING APPARATUS FOR THE CARBURATED MIXTURE

Application filed August 23, 1929, Serial No. 388,019, and in Argentina April 17, 1929.

The present invention refers to a heating apparatus for the carburated mixture to be utilized in internal combustion motors, and has for its object to provide certain improvements and advantages in the utilization of the fuel, as will more clearly appear in the course of the present specification.

According to this invention, said apparatus is placed on the inlet of internal combustion engines, between the carburator and the combustion chamber of the cylinders and is constituted principally of a box provided in its interior of a series of tubes, placed lengthwise the inlet pipe through which passes the carburated mixture. The said box is traversed, perpendicularly, by the burnt gases escaping from the motor, which gases enter and go out through the corresponding pipe or tube, so that the passage of the gases which, as it is known, maintain still high temperature, heat the inside tubes raising their temperature and, consequently, the temperature of the carburated mixture which reaches thus the combustion chamber better vaporized and in a more suitable condition for working.

This makes possible to employ gas oil in common kerosene motors.

With the object that the invention be clearly understood and easily carried into practice, same has been shown on the accompanying drawings in its preferred form of execution. In the drawings:

Fig. 1 shows an exterior view of the whole apparatus,

Fig. 2 is an exterior view of one side of same wherethrough enters the carburated mixture,

Fig. 3 is a cut of a total view of the apparatus, and

Fig. 4 is a view in a transversal cut of same, as per plan A—B of Figure 3.

In these drawings same characters of reference designate equal or equivalent parts.

It has been indicated as 1 the box properly said, which is, preferably, of cylindrical conformation and to same is applied a tube 2 wherethrough arrive the exhaust gases which traverse the box and are discharged through a tube 3. The fore end of the box carries a

cover conveniently fixed to box 1 by screws 5 and to said cover 5 is secured a tube 6 wherethrough enters the carburated mixture. On the opposite end of box 1 there is another cover 7, fixed by screws 8, holding a tube 9 intended to let out the carburated mixture. Inside box 1 there are, mounted on plates 10 and 11, series of tubes 12 of cylindrical conformation, seven in number in this case, which communicate the entrance and the discharge tubes for the mixture. Moreover, on the cover 4 is mounted by means of arms 13, a plate or disc 14 for distributing the mixture for its better passage through the tube 12.

As it will be easily understood on referring to the drawings, the heat retained by the burnt gases which arrive through 2 and go out through 3, heat the tube 12 and, consequently, the carburated mixture which arrives through 6 to contact with plate 14 and is distributed to pass through tubes 12 and leave, afterwards, through tube 9 on its way to the combustion chamber of the cylinder.

The apparatus, which can be easily dismounted, carries also a tap 15 for the purpose of permitting a provisional cleaning of the same and also carries a tube 16 with a cock 17 for drainage when too much fuel stores on same.

The arrows indicate, on the drawings, the way followed by the mixture and the burnt gases.

It is evident that it will be possible to make certain changes in the construction and details without departing from the scope of the invention which will more clearly be determined in the following claims.

Having now particularly ascertained the nature of my invention and how same can be carried into practice, I declare that what I claim, is:

1. A heater for the carburated mixture of internal combustion engines comprising a cylindrical casing, a pair of discs secured to said casing, a plurality of tubes extending parallel to the longitudinal axis of said casing and having their ends secured to said discs, two ports in said casing diametrically opposed to one another for the inlet and outlet of the combustion gases for heating said

tubes, a cover fixed to one end of said casing having a tube shaped prolongation extending parallel to said tubes for the entry of the carburated mixture, arms secured to said cover, a plate supported by said arms disposed in front of said tube shaped prolongation against which the carburated mixture will strike and be diffused through said tubes, another cover fixed to the other end of said casing having a tube prolongation thereon through which the carburated mixture is conducted to the engine and means upon said casing through which said casing may be cleaned.

2. A heater for the carburated mixture of internal combustion engines comprising a cylindrical casing, a pair of discs secured to said casing, a plurality of tubes extending parallel to the longitudinal axis of said casing and having their ends secured to said discs, two ports in said casing diametrically opposed to one another for the inlet and outlet of the combustion gases for heating said tubes, a cover fixed to one end of said casing having a tube shaped prolongation extending parallel to said tubes for the entry of the carburated mixture, arms secured to said cover, a plate supported by said arms disposed in front of said tube shaped prolongation against which the carburated mixture will strike and be diffused through said tubes, another cover fixed to the other end of said casing having a tube prolongation thereon through which the carburated mixture is conducted to the engine, a cock upon said first named cover for draining accumulated liquid in said casing and a tampon threaded to said cover for facilitating the cleaning of said casing.

In testimony whereof I affix my signature.
GABRIEL FERRARA.

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