Aug. 24, 1926. 1,597,448

O. KUWERTZ ET AL

SILENCER FOR MOTOR VEHICLES

Filed June 16, 1925

Fig. 1

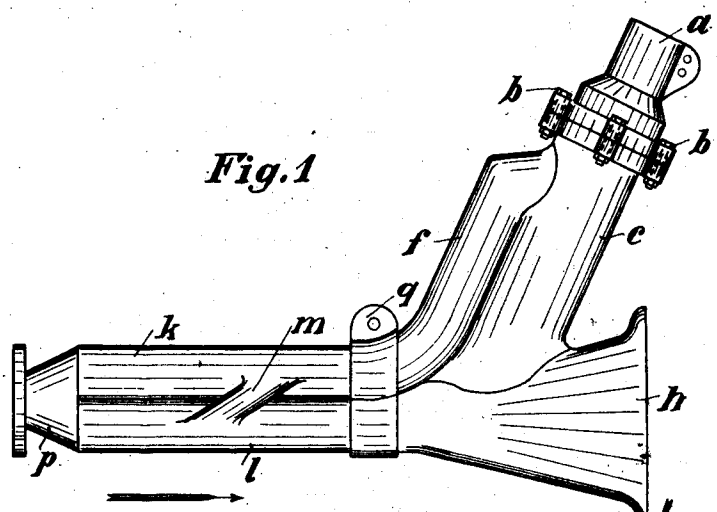


Fig. 2

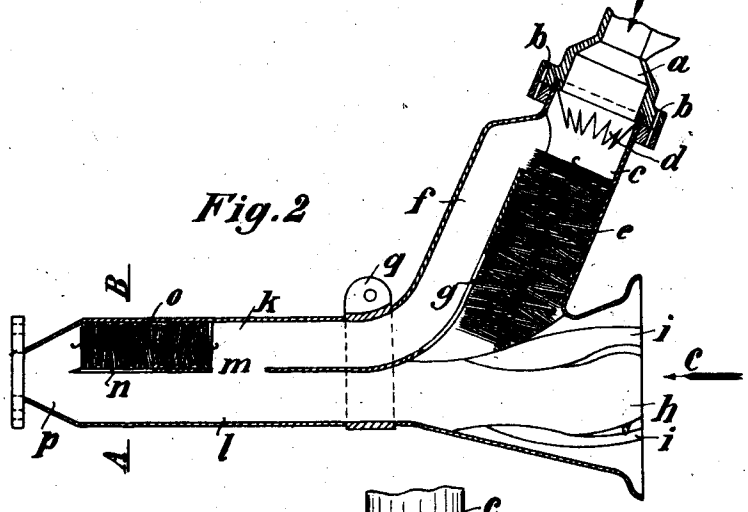


Fig. 3

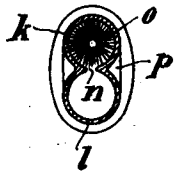
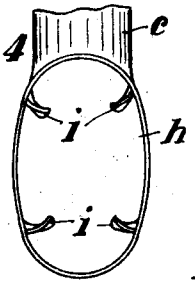


Fig. 4



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SILENCER FOR MOTOR VEHICLES.

Application filed June 16, 1925. Serial No. 37,472.

This invention relates to silencers for motor vehicles, which also regulate the temperature or maintain the cooling of the engine.

The silencers hitherto used present the disadvantage that the gases in the silencer are throttled to a considerable extent. Owing to the consecutive shocks, the combustion gases cannot escape sufficiently quickly, with a consequent reaction on the engine affecting its power. Moreover, the existing silencers quickly become sooty and have only a very short life as the gases accumulating in them make the silencer red hot.

This invention relates to a silencer and temperature regulator which eliminates all the disadvantages set forth above. It is made in different sizes according to the purpose, and may be used for any vehicles, from the heaviest motor vehicles down to motor cycles. Moreover not only does it not interfere with the escape of the exhaust gases, but on the contrary it assists it, as these gases are strongly drawn in by an air current and thoroughly mixed with the said current which passes helically through the silencer, long before they escape into the atmosphere, owing to which a complete cooling of the gases is insured. The soot is caused to settle down by the first brush and owing to the vibrations of the bristles, falls down. Moreover the gases are completely atomized by the first brush, whilst they are again broken up by a second brush, and in that way again thoroughly mixed with the air current. This invention insures a noiseless escape of the mixture of air and gases into the atmosphere, and particularly does away with any smell or dust. In addition, the temperature of the engine remains normal, as the expelled gases which are drawn in by the eddying air current, cannot remain for any length of time in the exhaust of the cylinder of the engine. If the engine becomes hot on a steep rise, it will be quickly cooled again as soon as the speed increases.

A construction according to the invention is illustrated by way of example in the accompanying drawings in which:

Figure 1 shows the silencer in elevation,

Figure 2 in longitudinal section,

Figure 3 is a section on the line A—B and

Figure 4 a side elevation looking from C.

In the drawing, a is the head which is secured by means of screws b to the inlet branch c of the silencer. The head a is pressed by means of lateral screws round the exhaust pipe. Between the head a and the inlet branch c is arranged a cone shaped nozzle d having a star-shaped hole therethrough. In the gas inlet branch c is arranged a steel wire brush e. Parallel to the inlet branch c extends a second conduit f which is connected through a recess g to the branch c. The branch c opens into the air inlet branch h which is arranged in the direction of driving and provided with four helically twisted partitions i in order to impart an eddying motion to the air. The air branch h and the conduit f are extended by the two conduits k and l which are connected by means of a small conduit m throughout the whole of their width, and also by means of a recess n. Just before the escape into the atmosphere a further steel wire brush o is arranged in the conduit k. At the end, the two conduits k and l open into a cone p owing to which an ejector action is imparted to the air current. In the centre is arranged a boss q in order to enable the silencer to be secured at this point.

The working of the silencer is briefly as follows. The exhaust gases enter the branch c and are atomized here by the steel wire brush e, the soot settling down at the same time. The atomized gases are conveyed through the branch c and also through the conduit f owing to the existence of the recess g. At the same time however, the gases are powerfully drawn by the air current entering through the branch h and caused to eddy by the partitions i, and are thoroughly mixed with said air current in the conduit l. The atomized gases escaping through the conduit f are again broken up by the brush o mounted in the conduit k and thoroughly mixed with the air current and completely cooled in the conduit m and the recess n. The air and gas thus mixed, passes then into the atmosphere through the cone p. Consequently a completely noiseless escape of the exhaust gases is insured, without any smell or soot. Thus the exhaust is not in any way interfered with, but on the contrary, the gases are forced out by the eddy-like air current, owing to which the

engine cannot become hot and is always maintained at its full power. The brush *e* may be withdrawn from time to time, and the soot removed. Owing to the cone *d* arranged between the head *a* and the gas inlet branch *c* and having a star-shaped hole therethrough, the escaping flame cannot strike the brush *e* directly, so that the latter is adequately protected.

What we claim as our invention and desire to secure by Letters Patent is:

1. A silencer for motor vehicles comprising a body having an air inlet at the forward end, helical projections within the air inlet for giving the air an eddy-like motion, an inlet branch leading into said body, a conduit parallel to said inlet branch and opening into the branch along part of one side and a wire brush in the inlet branch for collecting the soot.

2. A silencer for motor vehicles comprising a body having an air inlet at the forward end, helical projections within the air inlet for giving the air an eddy-like motion, an inlet branch leading into said body, a conduit parallel to said inlet branch and opening into the branch along part of one side, a wire brush in the inlet branch, said conduit having a continuation forming a part of said body, a brush in the continuation, an extension of the air inlet running parallel to the continuation, a conduit joining the continuation to the extension, said last-mentioned parts being further joined by a recess beneath said second mentioned brush and a cone shaped end on the body.

3. A silencer for motor vehicles comprising a body having an air inlet at the forward end, helical projections within the air inlet for giving the air an eddy-like motion, an inlet branch leading into said body, a conduit parallel to said inlet branch and opening into the branch along part of one side, a wire brush in the inlet branch and a nozzle having a star-shaped hole therethrough for the purpose of protecting the wire brush from flames which occur.

In testimony whereof we have signed our names to this specification.

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