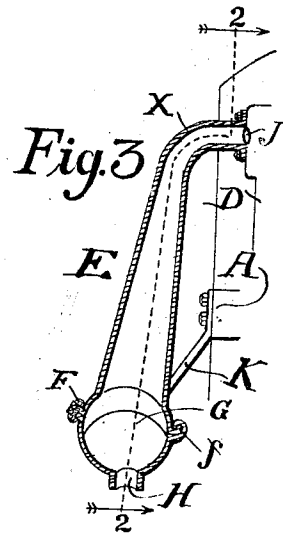
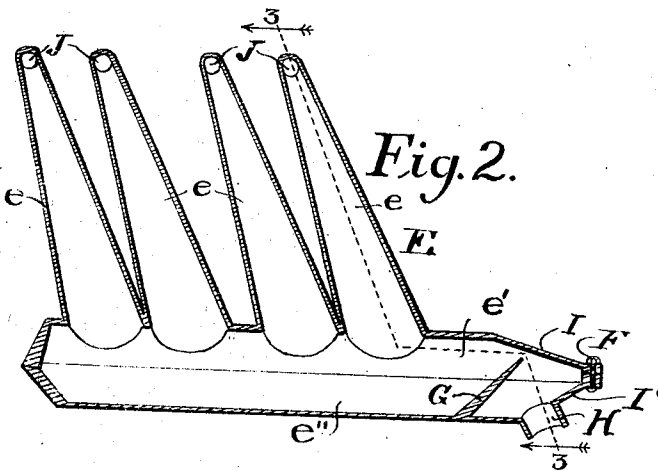
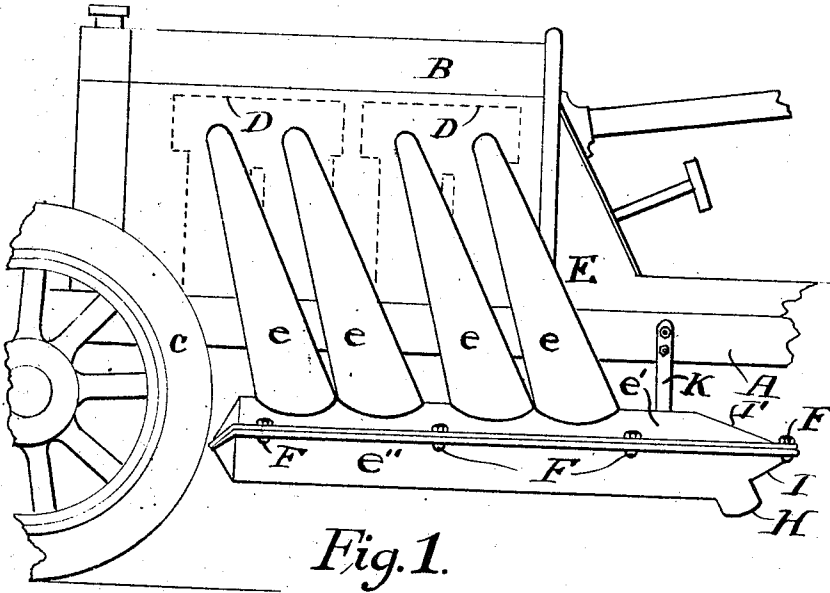


W. T. RICE,
 COMBINED MUFFLER AND EXHAUST PIPE FOR INTERNAL COMBUSTION ENGINES.
 APPLICATION FILED FEB. 9, 1912.

1,036,713.

Patented Aug. 27, 1912.



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WALTER T. RICE, OF CHICAGO, ILLINOIS.

COMBINED MUFFLER AND EXHAUST-PIPE FOR INTERNAL-COMBUSTION ENGINES.

1,036,713.

Specification of Letters Patent.

Patented Aug. 27, 1912.

Application filed February 9, 1912. Serial No. 676,609.

To all whom it may concern:

Be it known that I, WALTER T. RICE, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combined Mufflers and Exhaust-Pipes for Internal-Combustion Engines, of which the following is a specification.

This invention relates to a device to be attached to internal combustion engines to receive the exhaust gases therefrom and lessen the noise made by the discharge thereof.

The object of the invention is to obtain a combined muffler and exhaust manifold which does not produce any considerable back pressure, as it is termed in the art, that is, a device which does not produce much friction or other resistance to passage of the waste products of combustion therethrough; but which will materially lessen the noise made by the discharge of said gases from the exhaust ports of the engine.

A further object of the invention is to obtain a device which contains few parts, and which is easily separated into the several parts thereof; and also easily attached to and taken from the engine for which it is fitted.

A further object is to obtain a device which is not liable to be broken when subjected to severe usage, and not liable to get out of order.

The device is primarily designed for attachment to automobile engines or motors.

In the drawing Figure 1 is a side elevation of the front end of an automobile, the motor thereof being indicated by broken lines as under the hood, and a device embodying this invention attached thereto. Fig. 2 is a vertical section, on line 2—2 of Fig. 3, viewed in the direction indicated by the arrows. And Fig. 3 is a vertical section on line 3—3 of Fig. 2, viewed in the direction indicated by the arrows.

A reference letter applied to designate a given part is used to indicate said part throughout the several figures of the drawing, wherever the same appears.

A is the chassis of an automobile; B is the hood, and C is a front wheel thereof.

The broken lines D indicate a four cylinder internal combustion motor.

E is a device embodying this invention, and consists of the flaring tubes *e*, horizontal cylinder *e'* *e''*, and deflector G. Tubes

e are shown integral with part *e'* of the cylinder *e'* *e''*. Parts *e'* *e''* of the cylinder are joined together by the bolts F and the intermeshing hooked parts *f*. The deflector G is shown as integral with the part *e''* of the horizontal cylinder, and is located between the discharge passage way H and the discharge end of the flaring tube which is nearest to said discharge passage way H.

I, I' indicate the end of the horizontal cylinder which is provided with the discharge passage way H, and it will be observed that said end has somewhat the appearance of a funnel, and that said discharge passage way is located at the larger part of said funnel shaped end, on the cone shaped wall thereof.

J, J, are the inlet apertures of the several flaring tubes *e*. The upper ends of the flaring tubes *e* are curved, as at X, Fig. 3, to bring the device, particularly the horizontal cylinder *e'* *e''*, close to the chassis A.

K is a brace securing the horizontal cylinder of the device in place. The flare which is given to the tubes *e* is to permit the exhaust gases which are delivered thereinto from the exhaust ports of a motor to expand before being discharged therefrom into the horizontal cylinder, thus preventing, as hereinbefore stated, back pressure. The part *e''* is easily separated from the part *e'*, all that is necessary being to remove the bolts F and then to drop one side of the part *e''* down and disengage the hooked parts *f* from each other.

The operation of the device is—The waste products of the combustion in the cylinders of the motor are discharged therefrom through the exhaust ports thereof into the tubes *e* by way of the inlet apertures J, and said exhaust products flow through said tubes into the cylinder *e'* *e''*, and from thence, over the deflector G, out of the cylinder by way of the discharge passage way H. As said waste products flow over the deflector G they may, and some thereof do, come in contact with the funnel shaped end of the horizontal cylinder, and the direction given to said product destroys the pulsating character thereof, and but little noise is made as they issue from the passage way H.

Particular attention is called to the fact that when the motor or engine is run with the part *e''* removed from the device a definite direction is given to the exhaust gases discharged from the exhaust ports of the

motor and an increased volume of sound is produced thereby. The device may, therefore, be used with the part *e''* removed to intensify the sound of the discharge of waste gases from the motor.

I claim—

1. A two part horizontal cylinder, flaring tubes arranged to discharge at the larger ends thereof, respectively, into said horizontal cylinder, and adapted to receive the gases discharged from the exhaust ports of an internal combustion motor at the smaller ends thereof, in combination with a deflector in said cylinder, said cylinder provided with a discharge passage way adjacent to one end thereof, and said deflector positioned between said discharge passage way and the discharge end of the flaring tube nearest thereto.
2. A two part horizontal cylinder provided with a funnel shaped end and with a discharge passage way through the side wall of said funnel shaped end, in combination with flaring tubes which are curved at the smaller ends thereof, respectively, and adapted to receive the gases discharged from the exhaust ports of an internal com-

bustion engine, and to discharge said gases from the larger ends of said tubes into the said horizontal cylinder, and a deflector in said cylinder positioned between the discharge passage way and the larger end of the tube nearest thereto.

3. A two part horizontal cylinder provided with a funnel shaped end and with a discharge way through the side wall of said funnel shaped end, means to attach the parts of said cylinder together, and one of said parts provided with funnel shaped tubes integral therewith, with the smaller ends of said tubes curved and adapted to receive the gases discharged from the exhaust ports of an internal combustion motor and to discharge said gases from the larger ends of said tubes into the horizontal cylinder, in combination with a deflector in said cylinder positioned between the discharge passage way and the larger end of the tube nearest thereto.

WALTER T. RICE.

In the presence of—

CHARLES TURNER BROWN,
C. A. ADAMS.