

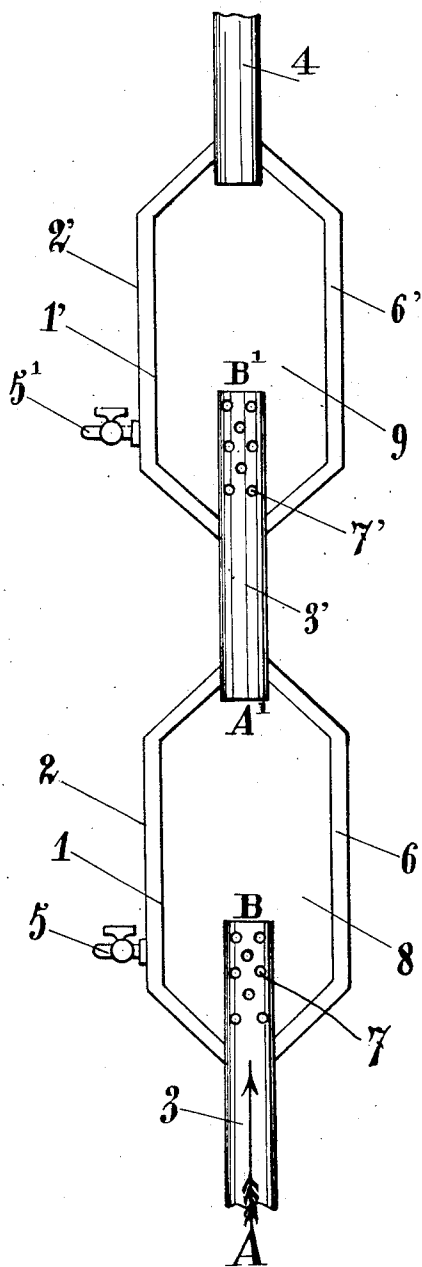
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C. PAROLINI ET AL

SILENCER FOR INTERNAL COMBUSTION ENGINES

Filed Aug. 16, 1921



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UNITED STATES PATENT OFFICE.

CESARE PAROLINI AND GUSTAVE PERRON, OF PARIS, FRANCE.

SILENCER FOR INTERNAL-COMBUSTION ENGINES.

Application filed August 16, 1921. Serial No. 492,788.

To all whom it may concern:

Be it known that we, CESARE PAROLINI and GUSTAVE PERRON, both citizens of the French Republic, residing at Paris, in the Department of Seine and Republic of France, have invented certain new and useful Improvements in Silencers for Internal-Combustion Engines (for which patents have been filed as follows: France, No. 499,519, July 24, 1918; Germany (pending), filed October 28, 1919; England, No. 134,844, November 4, 1919; Belgium, No. 286,434, April 29, 1920; Switzerland, No. 89,859, April 30, 1920; Holland, No. 6,741, May 19, 1920; Spain, No. 73,835, May 26, 1920; Italy, No. 145,530, June 30, 1920), of which the following is a full, clear, and exact description.

This invention has for its object to provide an improved silencer which will do away entirely with the noise of the exhaust of internal combustion engines.

The improved silencer has also the advantage of being very light and of not taking too much power from the engine.

The improved silencer is characterized essentially by the combination of a large expansion chamber having very thin walls, arranged concentrically inside a second chamber of larger diameter.

In the space left between the two chambers a vacuum is established for preventing the transmission of the vibrations of the walls of the inner chamber into which latter the exhaust gases of the engine expand.

The accompanying drawing illustrates by way of example a constructional form of the improved silencer in longitudinal section.

As shown, 1 and 1' are two inner casings of rather large capacity constructed of very thin metal.

2 and 2' are two outer casings surrounding the casings 1 and 1' respectively.

3 is the pipe connecting the engine to the inner casing 1; A being the end nearest the engine. The other end B of the pipe is closed, and its sides are pierced with holes 7 that allow the exhaust gases to escape into the chamber 8 of the inner casing 1.

A pipe 3' connects the chamber 8 with the chamber 9 of the inner casing 1', the end A' opening into chamber 8 and the end B' opening into chamber 9.

4 is the final exhaust pipe.

5 and 5' are cocks communicating with

the outer spaces 6 and 6'; they serve for producing a vacuum in the said spaces.

The operation of the improved silencer is as follows:—

The gases exhausting from the engine cylinders are led by the pipe 3 into the inner chamber 8.

In this chamber the gases expand and pass through the pipe 3' into the inner chamber 9 of the second outer casing 1' wherein they expand again.

After this they pass out through the pipe 4.

To do away with the noise caused by the vibration of the walls of the casings, a vacuum is formed in the outer spaces 6 and 6', whereby the exhaust is completely silenced.

The improved silencer does not take any power from the engine, because the gases do not have to flow through circuitous passages in order to escape into the atmosphere. Moreover, the improved silencer can be made very light because it can be constructed of very thin metal plates.

It is to be understood that the invention is not strictly limited to the details as described, and that the forms, proportions, dimensions, arrangements and materials may be modified at will as may be considered necessary to satisfy the requirements of practice, without departing from the nature of the invention as herein described.

What we claim is:

1. A silencer for the exhaust of internal combustion engines, characterized by the arrangement of one or more large chambers wherein the exhaust gases are allowed to expand, said chambers being constructed with double walls comprising between them a space in which a vacuum is produced.

2. A silencer for explosion engines comprising a casing having therein an expansion chamber, with a reduced outlet opening and an inlet pipe projecting through the casing into the chamber with apertures in its periphery within the chamber and closed at its inner end, said casing having double spaced walls separated by a vacuum.

In testimony whereof, we affix our signatures in presence of two witnesses.

GUSTAVE PERRON.
CESARE PAROLINI.

Witnesses:

CAIUS DANZEY,
CHARLES DÉLID.