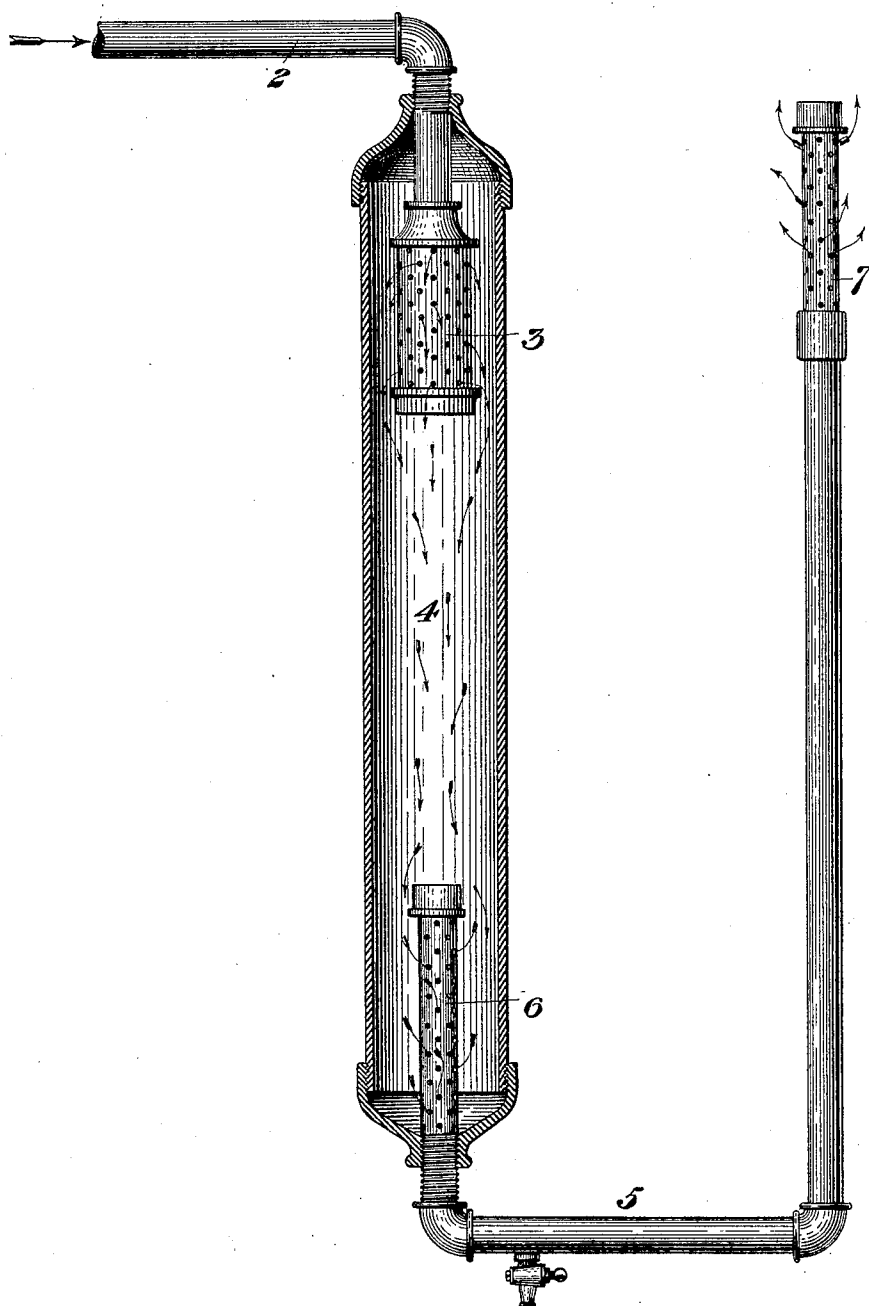


(No Model.)

C. A. SCHWARM.
MUFFLER FOR GAS ENGINES.

No. 593,970.

Patented Nov. 16, 1897.



WITNESSES

J. A. Schumacher
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INVENTOR

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UNITED STATES PATENT OFFICE.

CHARLES A. SCHWARM, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO GEORGE TRAUTMAN, OF SAME PLACE.

MUFFLER FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 593,970, dated November 16, 1897.

Application filed September 23, 1896. Serial No. 607,166. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. SCHWARM, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Mufflers for Gas-Engines, of which the following is a full, clear, and exact description.

The object of my invention is to provide efficient means for muffling the objectionable puffing noise of the exhaust from gas-engines, which is an annoyance to people living in the vicinity.

The invention is illustrated in the accompanying drawing, which shows the muffling-chamber in vertical longitudinal section.

In the drawing, 2 represents the exhaust-pipe leading from an explosive-gas engine, which terminates in a laterally-perforated cap 3, having a closed end fitting within a pipe or chamber 4 of larger diameter. The perforated cap is preferably of larger diameter than the exhaust-pipe 2 in order to allow of the expansion of the exhaust and prevent back pressure upon the engine.

5 is an outlet-pipe whose end portion extends within the chamber 4 and is also perforated laterally, as at 6. The delivery end of this pipe extends outside the building or to some other convenient place and is preferably perforated, as at 7. I have discovered that when the exhaust comes from the gas-engine and passes through the perforated pipe and through the chamber or pipe 4 the sound is so muffled as to be no longer substantially audible. In this respect my invention is of great utility and will be recognized as such by those familiar with the disagreeable puffing sound which comes from ordinary gas-engine exhaust-pipes.

Within the scope of my invention as defined in the broader claims variations in the form and construction of the parts may be made by those skilled in the art. For example, the perforated cap may be omitted from the end of the outlet-pipe 5.

I claim—

1. An exhaust mechanism for engines, comprising in combination with the exhaust-pipe, a larger pipe or muffling-chamber through which the exhaust is passed, and a discharge-pipe of smaller diameter leading from the chamber and having its outer portion exterior to the larger chamber provided with perforations which lead into the open air; substantially as described.

2. An exhaust mechanism comprising an exhaust-pipe, a larger pipe or muffling-chamber into which it leads, and a discharge-pipe of smaller diameter leading from within the larger pipe or chamber and having its outer exterior portion provided with perforations leading into the open air, at least one of said smaller pipes being perforated within the larger chamber.

3. An exhaust mechanism comprising in combination with an exhaust-pipe, a larger perforated pipe secured to its end, a larger pipe or chamber surrounding the perforated pipe, and a smaller perforated pipe leading from the opposite end of the surrounding pipe or chamber; substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES A. SCHWARM.

Witnesses:

G. I. HOLDSHIP,
G. B. BLEMMING.