MUFFLER FOR GAS OR OTHER ENGINES.

(Application filed June 15, 1901.)

Fig. 1.

Fig. 2.

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MUFFLER FOR GAS OR OTHER ENGINES.

Application filed June 15, 1901. Serial No. 84,625. (No model.)

To all whom it may concern:

Be it known that I, JESS B. FENNER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Mufflers for Gas or other Engines, of which the following is a specification.

The object of my invention is the provision of a simple and effective muffling device for the exhaust of gas and other engines.

In the accompanying drawings, Figure 1 is a sectional elevation of my improved muffler. Fig. 2 is a cross-section thereof in line 22, Fig. 1.

Like letters of reference refer to like parts in both figures.

A is the exhaust-pipe of a gas or other engine.

B is the body or case of my improved muffler, which may be of any suitable form, but which is preferably cylindrical and comparatively long in proportion to its diameter. The case B is closed on all sides and at its lower end. At its upper end the case is provided with a central inlet-tube C, which extends inwardly from the adjacent head thereof and with which the exhaust-pipe A of the engine is connected.

D is a diaphragm or partition arranged in the case B at a short distance from its upper or inlet end and dividing the same into an exit-chamber E and a comparatively long expansion-chamber E'. This expansion-chamber is of sufficient size to receive a full exhaust charge. The exit-chamber E is provided with an exit-pipe f, which opens into the atmosphere. The lower end of the inlet-tube C extends into or through an opening formed centrally in the diaphragm D, which opening is somewhat larger than the inlet-tube, so as to leave a narrow annular passage g between the tube and the edge of the opening through which the exhaust escapes from the expansion-chamber E into the exit-chamber E'. The diaphragm D has no passages or perforations except the annular central passage g, thus compelling the products of combustion to escape through a single passage contiguous to the delivery end of the inlet-tube C.

h is a valved drain-pipe arranged at the lower end of the expansion-chamber E', through which the collected moisture from the gases may be drawn off from time to time.

In the use of the muffler the exhaust issuing from the inlet-tube C under pressure suddenly expands into the expansion-chamber and spends its force, and as this chamber is closed on all sides except at the inlet-tube C the sound is effectively muffled. Immediately after expanding in the chamber E' the gases escape through the annular diaphragm-passage g into the exit-chamber E and from the latter through the exit-pipe f into the atmosphere. By locating the passage g immediately adjacent to the inlet-tube C the gases do not double the end of the pipe immediately on entering the expansion-chamber and escape directly into the exit-chamber E', but are impelled laterally across said passages and expand in the expansion-chamber before reversing their course and escaping from said chamber. The sheet of incoming gas at the lower end of the inlet-tube forms a "cut-off," so to speak, which momentarily imprisons the exhaust charges in the expansion-chamber.

The best results have been obtained with my muffler by extending the lower end of the inlet-pipe C into the opening of the diaphragm D, but not below the latter, as shown in Fig. 1.

Although the engine-exhaust is delivered intermittently or by impulses into the muffler the gases are delivered continuously from the exit-pipe f, owing to the cushion formed in the expansion-chamber, thereby avoiding the noise ordinarily produced by the exhaust.

I claim as my invention—

1. A muffler for the exhaust of gas and other engines, consisting of a case having a diaphragm which divides the same into an expansion-chamber and an exit-chamber and which is provided with an opening, and an inlet-tube for the engine-exhaust having its delivery end arranged in said opening and separated from the edge thereof by an intervening exit-passage, substantially as set forth.

2. A muffler for the exhaust of gas and other engines, consisting of a case having a diaphragm which divides the same into an expansion-chamber and an exit-chamber and which is provided with an opening, and an inlet-tube for the engine-exhaust having its delivery end arranged in said opening and separated from the edge thereof by an intervening exit-passage, substantially as set forth.
phragm which divides the same into an expansion-chamber and an exit-chamber and which is provided centrally with a circular opening, and an inlet-tube for the exhaust which extends through said exit-chamber into said diaphragm-opening and which is smaller in diameter than said opening, leaving an annular exit-passage around the delivery end of the inlet-tube, substantially as set forth.

Witness my hand this 23d day of May, 1901.

JESS B. PENNER.

Witnesses:

THEO. L. POTT,

CARL F. GEYER.