O. F. PERSSON.

MUFFLER.

APPLICATION FILED SEPT. 14, 1912.

1,087,398. Patented Feb. 17, 1914.

Fig. 1.

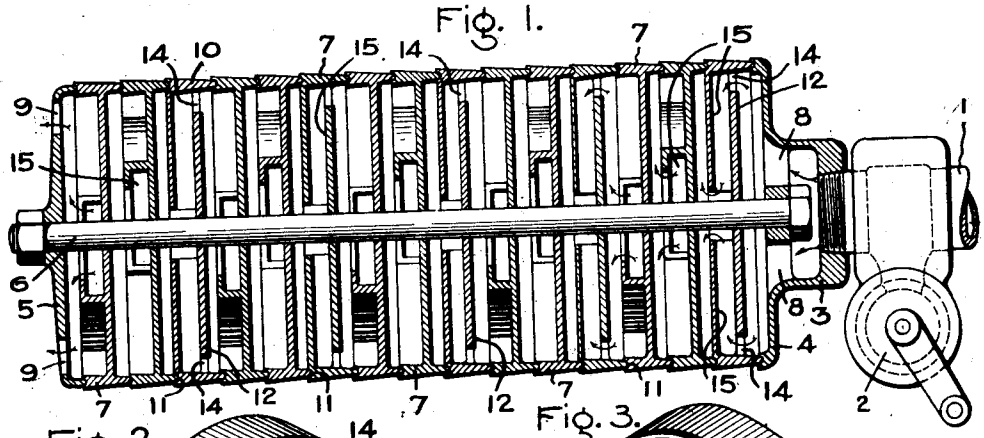


Fig. 2.

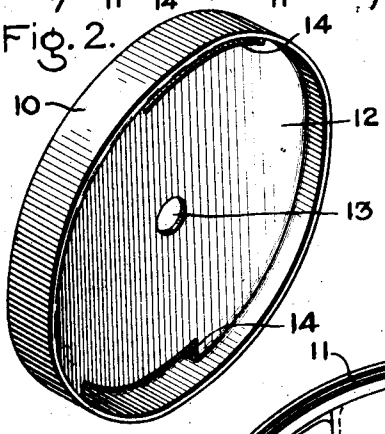


Fig. 3.

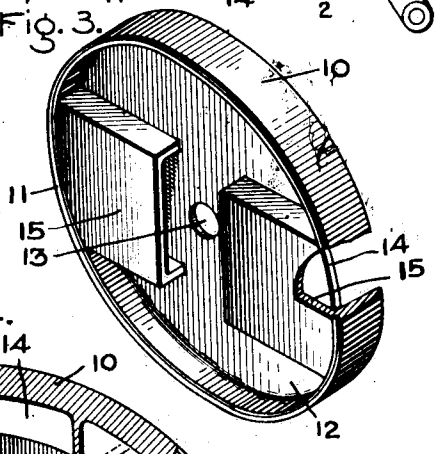
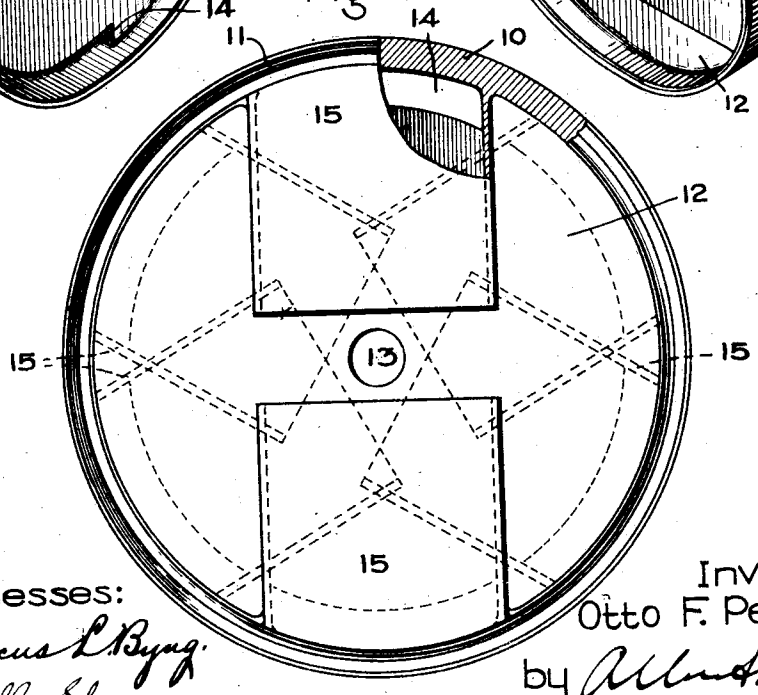


Fig. 4.



Witnesses:

Marcus L. Byng.

J. Ellis Glen

Inventor,

Otto F. Persson.

by Albert G. Davis

Att'y.

UNITED STATES PATENT OFFICE.

OTTO F. PERSSON, OF ERIE, PENNSYLVANIA, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

MUFFLER.

1,087,398. Specification of Letters Patent. Patented Feb. 17, 1914.

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To all whom it may concern:

Be it known that I, OTTO F. PERSSON, a citizen of the United States, residing at Erie, county of Erie, State of Pennsylvania, have invented certain new and useful Improvements in Mufflers, of which the following is a specification.

This invention relates to devices for deadening the sharp explosive sound of the exhaust from engines driven by expansive fluids, such as steam or gas.

The object of the invention is to simplify the construction of such a muffler, enabling it to be built up to any desired length by assembling a plurality of similar sections. Each section may be a casting of simple construction, and when a number of them are grouped in proper angular relations, a tortuous passage is formed which effectually silences the noise of the expanding gases passing through it. The preferred form of section is a short cylinder having one end rather thin, and the other end being thick and provided with a groove to receive the thin end of the next section and thus form a tight joint. A partition extends across the section, and has openings at diametrically opposite points. On one side of the partition are radial flues communicating at their outer ends with said openings and having open inner ends near the center of the section. When constructed in this form, each section is unitary and operatively complete in itself (regardless of its being structurally an integral casting, as above mentioned), and from such sections the muffler can be built up by the mere addition of inlet and outlet connections and fastening means for securing the sections together. When a plurality of such sections are grouped together with the flues on each section angularly displaced with reference to those on the next section, there is formed a tortuous passage for the exhaust gases, in which they are led alternately in and out in radial lines and at the same time carried in a helical path around the axis of the muffler.

In the accompanying drawing, Figure 1 is a longitudinal section of a muffler embodying my invention. Fig. 2 is an isometric view of one side of one of the sections. Fig. 3 is a similar view of the other side of said section, partly broken away, and Fig. 4 is a cross section on a larger scale.

The muffler is attached to the end of the exhaust pipe 1, which is provided with the usual cutout valve 2. The pipe may be screwed into a boss 3 on one of the heads 4, 5 of the muffler, which are connected by a central bolt 6 by which said heads are clamped against the plurality of sections 7 of the muffler. The gases issuing from the pipe 1 pass through openings 8 in the head 4 and after traversing the several sections of the muffler escape to the atmosphere by the holes 9 in the head 5.

Each section has a short cylindrical body 10, thin at one end and thick at the other. A groove 11 is formed in the thick end to receive the thin end of the next section and make a tight joint. A partition 12 extends across the section, having a central hole 13 for the clamping bolt 6. The body 10 forms, as it were, a rim around the diaphragm or partition 12. One or more ports 14 are formed in the partition, preferably close to the body or rim 10, and at diametrically opposite points, if there are two. On one side of the partitions are one or more radial flues 15, each communicating at its outer end with its respective port 14 and having its inner end open, near the bolt 6. In assembling a number of such sections, they are so arranged that the flues on one are not in longitudinal line with those on the next section, but are angularly displaced. Fig. 4 shows an angular difference in position of sixty degrees, so that between any two sections whose flues are in line there are interposed two other sections with their flues displaced by sixty and one hundred and twenty degrees (60 and 120) respectively. Other arrangements of course, may be made without departing from the scope of my invention.

The gases entering from the pipe 1, pass through the ports 14 of the first section, then inwardly through the flues 15 toward the bolt 6, then outwardly to the ports of the next section and so on; traversing opposite sides of the partitions in opposite directions, at the same time following a path around the axis of the muffler by reason of the angular displacement of the ports and flues.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the appa-

ratus shown is only illustrative, and that the invention can be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. A muffler comprising a plurality of similar cylindrical sections fitted together, each section having a partition, and means for causing the exhaust gases to traverse said partition in opposite directions on opposite sides.

2. A muffler comprising a plurality of similar sections fitted together, each section comprising a rim and a partition having one or more ports near the rim, and carrying a flue on one side thereof communicating with said port and opening toward the center of said section.

3. A section for a muffler having a short cylindrical body or rim and a partition extending across it and provided with one or more ports near the rim, and also with radial flues communicating with said ports and opening near the center of said section.

4. A muffler comprising a plurality of similar cylindrical sections, each having a partition containing ports and carrying radial flues communicating therewith, said sections being angularly displaced so that the flues on adjacent sections are not in the same longitudinal alinement.

5. A muffler comprising a plurality of similar unitary cylindrical sections fitted together, each section having a partition carrying means for causing the exhaust gases to traverse said partition in opposite directions on opposite sides.

6. A muffler comprising a plurality of similar unitary sections fitted together, said sections each comprising a rim and a partition having a port adjacent the rim and carrying on one side thereof means forming a flue communicating with said port and opening toward the center of the section.

7. A muffler comprising a plurality of similar unitary sections fitted together, said sections each comprising a rim and a partition having on the side thereof a radially extending flue which is open at one end and at the other end communicates with a port in said partition.

In witness whereof, I have hereunto set my hand this 9″ day of Sept., 1912.

OTTO F. PERSSON.

Witnesses:
DORMAN WEAVER,
W. S. CARROLL.