E. I. WEISBERG.

MUFFLER.

APPLICATION FILED AUG. 5, 1915.

1,246,196. Patented Nov. 13, 1917.

Fig. 1.

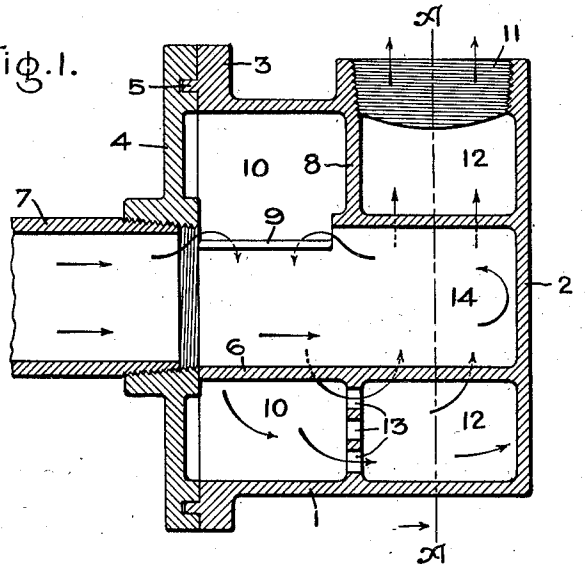


Fig. 2.

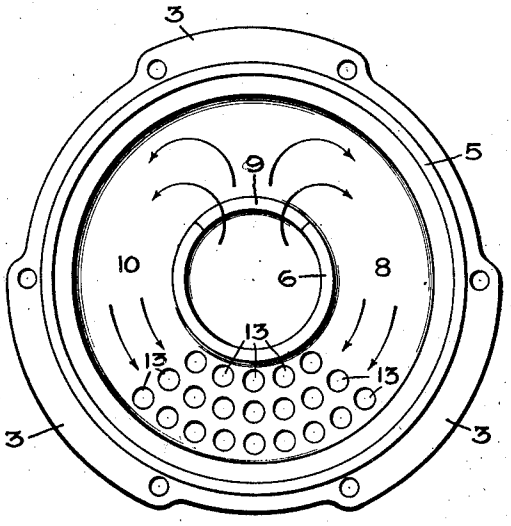
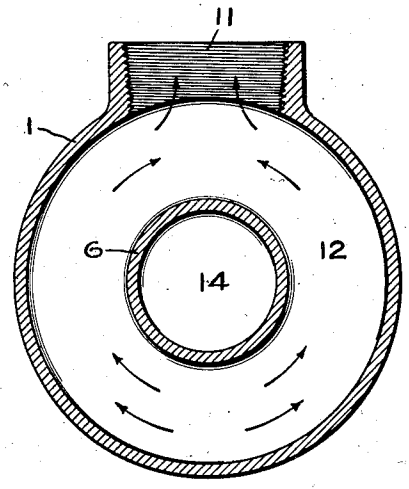


Fig. 3.



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UNITED STATES PATENT OFFICE.

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MUFFLER.

1,246,196. Specification of Letters Patent. Patented Nov. 13, 1917.

Application filed August 5, 1915. Serial No. 43,714.

To all whom it may concern:

Be it known that I, EDWARD I. WEISBERG, a citizen of the United States, residing at Erie, in the 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 silencing the noise of the exhaust gases escaping from oil, gas, and the like motors, and its object is to provide a muffler of extremely simple construction, which is durable in service, efficient in operation, and can be readily cleaned. The construction and operation will be clearly understood from the following description taken in connection with the accompanying drawing in which—

Figure 1 is a longitudinal axial section of the muffler; Fig. 2 is an end view of the same removed from its support, and Fig. 3 is a cross-section on the line A—A, Fig. 1.

The body 1 of the muffler is preferably cylindrical and has a head 2, preferably cast integral with the body. At its other end it is provided with a flange or flanges 3 by means of which it can be bolted to a suitable support, such as the plate 4. The joint between these parts may be made tight by a rib 5 on one part entering a groove in the other. Inside the body 1 is a central wall forming a central cylindrical longitudinal chamber 6 which opens at one end into the exhaust pipe 7; said pipe being suitably connected with an opening in the plate 4 in line with said chamber.

The annular space surrounding the chamber 6 is divided into two compartments by a transverse septum 8 parallel with the head 2. A port 9 in one side of the chamber 6 connects said chamber with the compartment 10. An opening 11 leads from the compartment 12 to the atmosphere, preferably on the same side of the chamber 6 as the port 9. In the septum 8 are one or more holes 13, preferably on the opposite side of the chamber 6 from the port 9. Between the port 9 and the head 2 the chamber 6 affords a dead end or *cul de sac* or pocket 14 for the entering gases.

The operation is as follows: The exhaust gases enter the chamber 6 through the pipe 7 on lines parallel with the axis of the muffler. They pass out through the port 9 into the compartment 10, in a direction at right angles to the path in which they entered. At this point they divide into two streams, one flowing to the right and the other to the left around the wall of the chamber 6, and meeting in the region of the holes 13, through which they flow to the compartment 12, in a direction parallel to the axis of the muffler. Here they divide again into two streams which pass in opposite directions around the walls of the chamber 6 and meet at the opening 11, through which they escape to the atmosphere, either directly or through an escape pipe threaded into the opening 11, and in a direction at right angles to the path of their entrance into the compartment 12. The course of the gases is indicated by the arrows in the several figures of the drawing.

The gases are thus compelled to change their direction of flow several times, and are also divided and united in streams which interfere and mingle; all of which aids materially in deadening the sound of the successive explosions. The pocket 14 holds a cushion of gas which tends to smooth out the waves and steady the flow of the escaping gases.

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 apparatus shown is only illustrative, and that the invention can be carried out by other means such as come within the scope of the appended claims.

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

1. A muffler comprising a body, end walls therefor, an axially extending wall therein forming a central chamber, one of said end walls having an admission opening communicating with said central chamber, a transverse septum surrounding the central wall and forming two compartments which surround the chamber, said septum having one or more holes therein which connect the two compartments, a port between the chamber and one of said compartments, and an escape opening leading from the other compartment.

2. A muffler comprising a body, end walls therefor, an axially extending wall therein forming a central chamber, one of said end

walls having an admission opening communicating with said central chamber, a transverse septum surrounding the central wall and forming two compartments which surround the chamber, said septum having one or more holes therein to one side of the central wall which connect the two compartments, a port in the wall of the central chamber near the end where the exhaust gases enter and opening into one of said compartments, said port being located diametrically opposite to said holes in the septum, and an escape opening leading from the other compartment on the same side of the central chamber as the said port.

3. A muffler comprising a body, end walls therefor, an axially extending wall therein forming a central chamber, one of said end walls having an admission opening communicating with said central chamber, a transverse septum surrounding the central wall and forming two compartments which surround the chamber, said septum having one or more holes therein which connect the two compartments, a port in the wall of the central chamber near the end where the exhaust gases enter and opening into one of said annular compartments on the side away from the holes in the septum, and an escape opening leading from the other compartment on the same side of the central chamber as the said port.

4. A muffler comprising a body having a wall forming a central longitudinal chamber open at one end only to receive the exhaust gases, and having a port in its wall near the end where the gases enter, the other end forming a cushioning pocket for the gases, and a transverse septum forming two annular compartments through which the gases flow in opposite directions around the central chamber, the septum dividing said compartments having one or more holes for the passage of the gases.

5. In a muffler, the combination of two concentric cylindrical walls, end walls therefor, a transverse septum dividing the space between the two concentric walls into two annular compartments, one of said end walls being provided with an admission opening communicating with the interior of the inner concentric cylindrical wall, said inner concentric cylindrical wall having an opening on one side which connects the interior thereof to the annular compartment which is adjacent the admission opening, said septum having an opening therein on the side opposite to said opening in the inner concentric wall which connects the two annular compartments, and said outer concentric wall having an exit opening which communicates with the annular compartment which is remote from said admission opening, said exit opening being located on the same side as is the opening in the inner concentric wall.

In witness whereof, I have hereunto set my hand this second day of August, 1915.

EDWARD I. WEISBERG.