

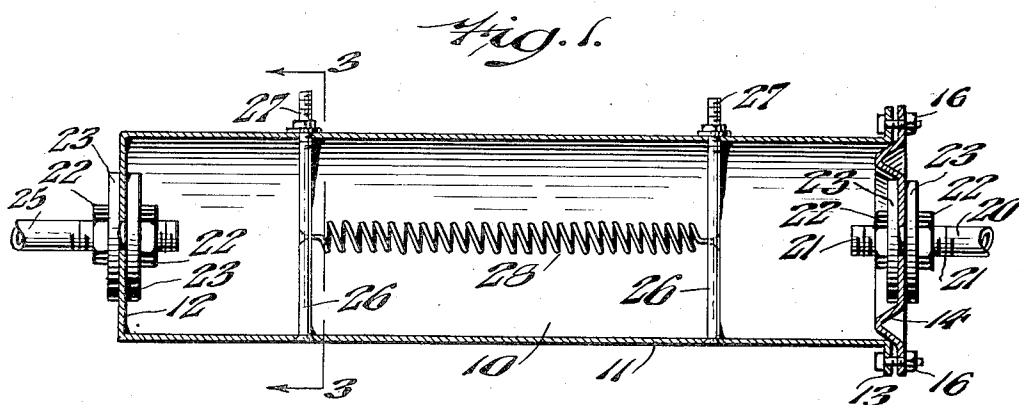
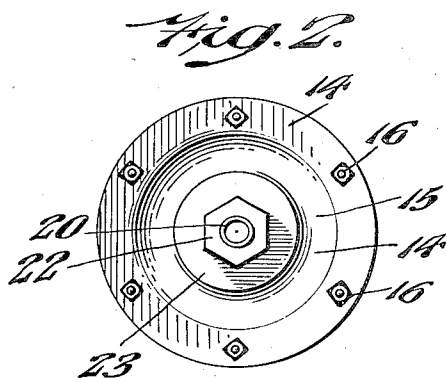
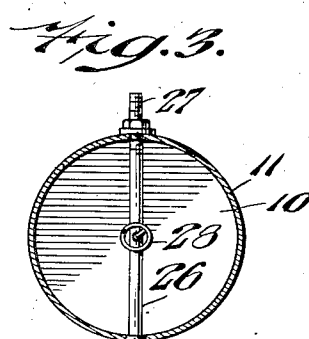
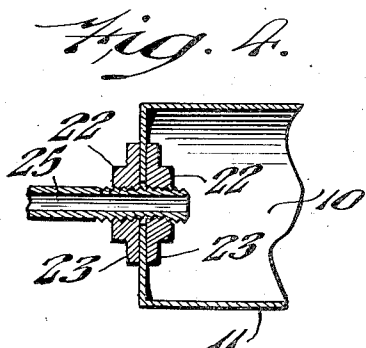
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AUTOMOBILE EXHAUST MUFFLER

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AUTOMOBILE EXHAUST MUFFLER

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3 Claims. (Cl. 181-49)

My invention relates to exhaust mufflers for internal combustion engines and more particularly to a muffler for use on an automobile engine.

It is well recognized that the mufflers now used on automobile engines while satisfactory in decreasing the noise of the exhaust gases discharged by the engine are unsatisfactory in that they decrease the efficiency of the engine by building up back pressure.

The present invention contemplates a novel muffler in which the noise reducing efficiency of the mufflers heretofore used is maintained and in which, at the same time, the efficiency of the engine is not materially decreased.

An object of my invention is to eliminate the noise caused by the exhaust discharge of an internal combustion engine without materially decreasing the efficiency of the engine.

A further object of my invention is to provide a muffler designed for attachment to an exhaust pipe which substantially eliminates the noise but which at the same time eliminates back pressure present in mufflers heretofore used.

A more specific object of my invention is to provide an exhaust muffler in which the series of baffles heretofore present are eliminated and in which there is provided a spring for eliminating the noise which existed heretofore when no muffler was used.

Another object of my invention is to provide a muffler which may be readily attached to and detached from an exhaust pipe, and which may be readily assembled and disassembled for the replacement of parts and for repairs.

Other objects and advantages of my invention will be apparent from the following specification, claims, and from the drawing, in which:

Fig. 1 is a vertical section taken through the longitudinal axis of a muffler embodying my invention;

Fig. 2 is a vertical elevation of the discharge end of the muffler shown in Fig. 1;

Fig. 3 is a section taken on the line 3-3 of Fig. 1; and

Fig. 4 is a fragmentary axial section taken through the receiving end of the muffler shown in Fig. 1.

Referring now particularly to Fig. 1, my invention embodies a substantially can-shaped casing 10, having cylindrical side walls 11 and a bottom 12 which is closed except for a circular opening therein. The open end of the casing is provided with an outwardly extending flange 13 for attaching a closing plate 14. The closing plate 14

is of disc-shape and formed with a circular groove 15 V-shaped in cross-section, as shown in Fig. 1, the outer portion of which is adapted to bear against the inner face of the side 11 of the casing 10, against which it is forced by bolts and nuts 16 passing through the plate 14 adjacent its margin and through the flange 13. It will be obvious that as the nuts are tightened upon the bolts the groove will be forced into close contact with the casing 10 and a substantially air-tight closure effected.

An axial opening in the plate 14 permits the passage therethrough of a discharge pipe 20 which is threaded adjacent its end, as at 21, for the reception of nuts 22 having flanges 23 thereon. The pipe 20 may be assembled with the plate 14 by first mounting one nut upon the pipe, placing the plate 14 thereon, and then positioning the second nut, the flanges on the nuts being faced toward the plate, and the nuts thereafter tightened against the plate.

The closed end 12 of the casing 10, as above pointed out, is formed with an opening to allow the passage therethrough of an exhaust pipe 25 coming from the exhaust manifold of the engine, which pipe is connected to the end 12 of the casing by similar flanged nuts 22.

Spaced from the ends of the casing 10 and passing diametrically through the walls 11 thereof are two bolts 26 preferably of greater length than the diameter of the casing to provide upon their extended ends 27 means for attaching the muffler to a bracket, not shown, upon the frame of an automobile. Connected to the bolt 26 and preferably spaced from the side walls 11 of the casing 10 is a helical tension spring 28 which may be connected to the bolts 26 in any suitable manner, as for instance by passing ends of the spring through a diametric hole in the bolt (Fig. 3). As thus mounted the spring will lie within the stream of exhaust gas discharged by the engine and will be spaced from both ends of the casing and from the side walls.

In assembling the above described device the exhaust pipe 25 is first connected to the casing and firmly attached thereto by tightening the nuts to the opening in the end 12 thereof. Thereafter the bolts 26 and spring 28 may be positioned and then the plate 14 with the discharge pipe 20 connected by means of bolts and nuts 16 to the flange 13.

It has been found by experimentation that the use of a spring within a closed casing having a greater volume per unit of length than the exhaust pipe coming from the exhaust manifold

and of the discharge pipe of substantially the same diameter as the exhaust pipe eliminates the noises coming from the explosion of the gases of the engine at least as well as do other types of mufflers while at the same time the muffler does not develop a back pressure which decreases the efficiency of the engine. This construction eliminates the need heretofore deemed essential for baffles within the casing; provides a muffler which may be readily attached to and detached from the exhaust pipe; and may be readily assembled and disassembled.

Various modifications may be made in the above described embodiment of my invention without departing from the spirit and scope thereof as set forth in the following claims:

What I claim as my invention is:

1. An automobile exhaust muffler comprising a closed cylinder; bolts passing diametrically

through said cylinder and fixed thereto, and a contraction spring connected to said bolts parallel to the side walls of said cylinder.

2. An exhaust muffler comprising a casing closed except for a receiving port and a discharge port, pipes entering said ports; a comparatively tight connection between each of said pipes and said casing, said casing being of greater capacity per unit of length than either of said pipes, and a spring within said casing positioned intermediate said ports and spaced therefrom.

3. An exhaust muffler comprising a casing closed except for a receiving port and an exhaust port, a spring within said casing, and means for supporting said spring out of contact with the walls of said casing, said spring and supporting means being the only elements within said casing.

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