

G. F. TURNER.
EXHAUST MUFFLER.
APPLICATION FILED FEB. 18, 1916.

1,213,558.

Patented Jan. 23, 1917.

Fig. 1.

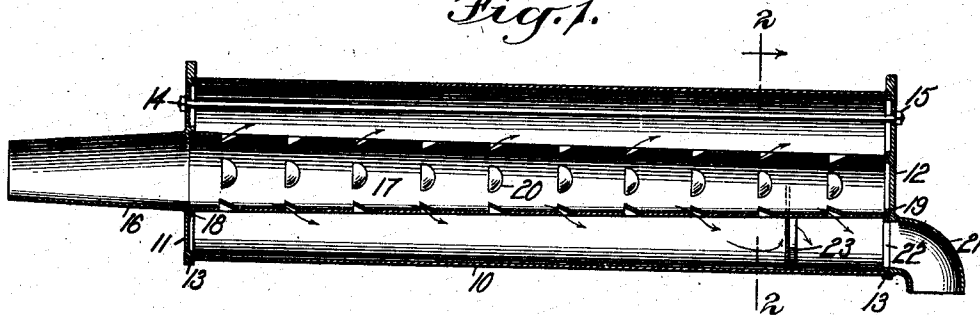


Fig. 2.

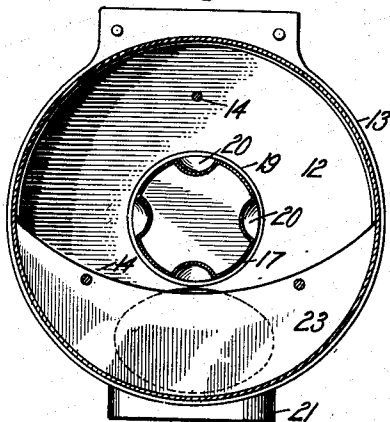


Fig. 3.

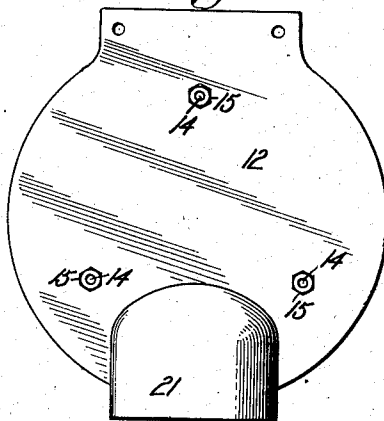
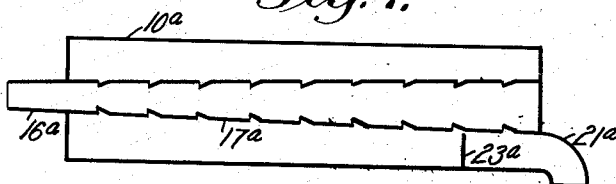


Fig. 4.



WITNESSES

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GEORGE F. TURNER, OF MAHONINGTOWN, PENNSYLVANIA.

EXHAUST-MUFFLER.

1,213,558.

Specification of Letters Patent. Patented Jan. 23, 1917.

Application filed February 18, 1916. Serial No. 79,039.

To all whom it may concern:

Be it known that I, GEORGE F. TURNER, a citizen of the United States, and a resident of Mahoningtown, in the county of Lawrence and State of Pennsylvania, have invented a new and Improved Exhaust-Muffler, of which the following is a full, clear, and exact description.

My invention is more particularly intended for use as a muffler for the exhaust of an internal combustion engine.

An object of the invention is to provide a device of the class referred to that will effectively muffle the sound of the exhaust without appreciably creating back pressure.

A further object of the invention is to provide a strong and simple construction.

The purpose of the invention is served by a construction involving an external shell having heads thereon provided respectively with an inlet and an outlet and having a tube extending between the heads axially of the shell and communicating with the inlet thereof, said tube having a series of lateral outlets to the interior of the shell along the length of said tube for the expansion of the exhaust fluid, the outlet of the shell being at a side of said central tube.

In connection with the shell referred to and its interior tube, I provide a transverse plate between the central tube and the wall of the shell at the side of the shell adjacent to which the outlet is positioned and located a short distance from the latter, the plate, by reason of its form and position, constituting a barrier designed to minimize the emission from the muffler of sounds caused by the escape of the exhaust fluid from the central tube in the rear of said plate.

The invention will be particularly explained in the specific description following.

Reference is to be had to the accompanying drawings forming a part of this specification in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a longitudinal vertical section of an exhaust muffler embodying my invention; Fig. 2 is an enlarged transverse section on the line 2—2, Fig. 1; Fig. 3 is a rear end view; Fig. 4 is a diagrammatic view of a slightly different form of the invention.

In carrying out my invention in practice, an elongated shell 10, preferably cylin-

dric, is provided with a head 11 at the inlet end and a head 12 at the outlet end, said heads having recessed annular beads 13 to receive the opposite ends of the shell 10. The rods 14 extend longitudinally of the shell, tying the heads, 11, 12, together, said tie rods having nuts 15. The head 11 has an elongated neck 16 thereon to connect with the exhaust of the engine, said neck leading to the interior of the shell through the head 11, and communicating with a tube 17, which is disposed axially in the shell 10 and clamped therein between the heads, 11, 12. The head 11 has an annular flange 18 receiving the adjacent end of the tube 17 and the opposite head 12 may have a channeled annular bead 19, similar to the beads 13. Thus, the head 12 closes the adjacent end of the tube 17.

A multiplicity of lateral outlet openings are provided in the tube 17, preferably by cutting and bending the material of said tube as at 20, whereby to form curved front walls so that the products of combustion escaping through said lateral openings may be given a forward direction toward the outlet end of the shell.

An outlet 21, preferably in elbow form, is carried by the head 12 for the escape of products of combustion, said outlet being located at one side of the center and therefore at one side of the tube 17 and communicating with the interior of the shell through an opening 22.

In order to baffle the sounds incident to the escape of the exhaust fluids from the tube 17, I provide a crescent-shaped baffle plate 23 in the shell at that side of the tube 17 at which the outlet 21 is located. The baffle 23 is positioned in the shell 10 a sufficient distance from the outlet opening 22 for the escape of the products of combustion over the said baffle through the said outlet. The arrangement is such that sound waves in the rear of the baffle 23 will be interrupted by said baffle so the sound waves escaping through the outlet 21 will be minimized.

I have found in practice that increased efficiency is obtained in the running of the engine when employing the muffler as described in substitution for mufflers of other makes and also find that the device is very effective in muffling sound.

In Fig. 4 the outer shell 10^a is provided with a tube 17^a corresponding with the tube 17 but having an integral inlet extension 16^a.

Said tube flares in the opposite direction from the tube 17 in Fig. 1. The outlet 21^a, corresponding with the outlet 21, has provided at the opposite end from the inlet 16^a, 5 a baffle plate 23^a which is formed and arranged as the baffle 23.

In both forms of the invention, the longitudinal tube forms an extension chamber for the gases whereby it will lose its pressure or 10 density in passing from the exhaust pipe to and through the muffler. The gases again gradually lose their density by escaping through the successive rows of perforations to the main shell, so that practically the 15 pressure is lowered to a degree to prevent noise in the escape of the gases to the atmosphere.

Having thus described my invention I claim as new and desire to secure by Letters 20 Patent:—

An exhaust muffler including an elongated shell having a head at each end, the one head having an extension at the center forming an inlet adapted to connect with the ex- 25 haust of an engine and the other head hav-

ing an outlet at one side of the center, a tube concentric with the shell and extending from one head to the other said tube constituting an expansion chamber, one end of the shell communicating with the said inlet, and the 30 opposite end being closed by the adjacent head, said tube having a multiplicity of outlet openings to the interior of the shell; together with a crescent-shaped plate to baffle 35 the sounds, the plate being disposed in the shell transversely of the tube at the same side from which the outlet leads and positioned a short distance from the said outlet, there being a free space in the shell at the 40 opposite side of the tube from the baffle and extending both in front and behind the said baffle.

In testimony whereof I have signed my name to this specification in the presence of 45 two subscribing witnesses.

GEORGE F. TURNER. 45

Witnesses:

GEORGE W. MUSE,
ROGER H. UPDEGRAFF.