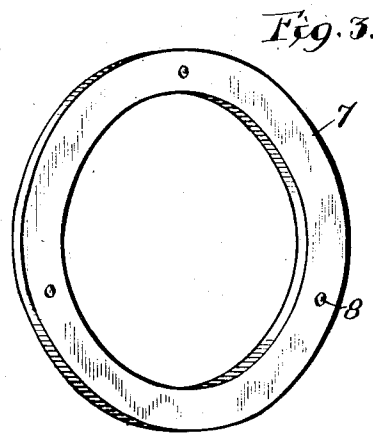
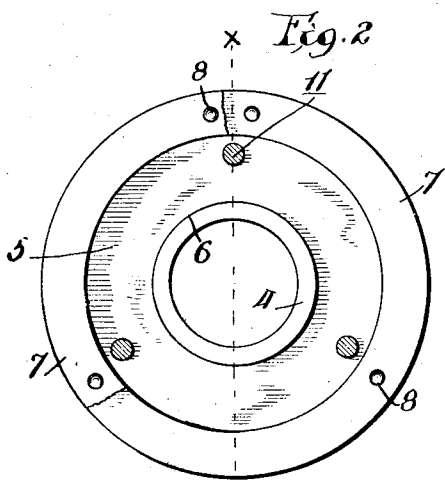
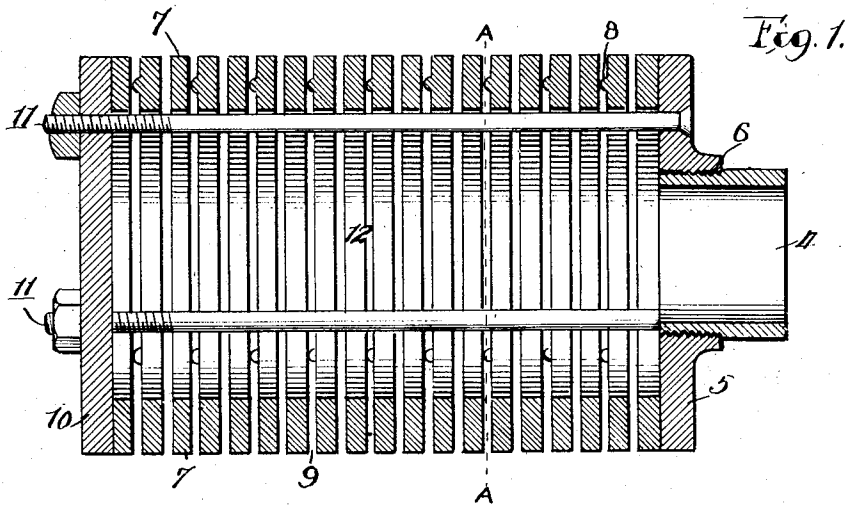


No. 855,913.

PATENTED JUNE 4, 1907.

W. A. WEBSTER.
MUFFLER FOR ENGINES OR MOTORS.
APPLICATION FILED MAR. 23, 1906.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM A. WEBSTER, OF MONMOUTH, ILLINOIS.

MUFFLER FOR ENGINES OR MOTORS.

No. 855,913.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed March 23, 1906. Serial No. 307,754.

To all whom it may concern:

Be it known that I, WILLIAM A. WEBSTER, a citizen of the United States, residing at Monmouth, in the county of Warren, in the State of Illinois, have invented certain new and useful Improvements in Mufflers for Engines and Motors, of which the following is a specification.

The exhaust from an engine or motor, especially from gas or gasoline engines of all kinds and particularly from those used for driving automobiles or other power vehicles or boats, or when used in an inclosed building, is exceedingly disagreeable and annoying on account of the noise produced thereby, and also on account of the smoke, gases and other vapors usually escaping from the exhaust pipe of such engines when in operation. Various attempts have been made to kill, deaden or minimize such noise and probably to some extent to consume or destroy the smoke, gases and other vapors, with varying success.

The object of the present invention is to construct a muffler, which will kill, deaden or minimize the noise of such exhaust, and at the same time consume or destroy such smoke, gases and other vapors.

The muffler is simple of construction and can readily be applied or attached to the exhaust pipe, without any material change in the construction or arrangement of the parts.

The invention consists, substantially, of the features of construction and combination of parts hereinafter described and claimed.

In the drawings illustrating the invention, Figure 1. is a vertical, sectional view of the muffler made on the line X—X, as indicated in Fig. 2.; Fig. 2., is a cross sectional view of the muffler made on the line A—A, as indicated in Fig. 1., showing part of the ring of such cross section to be broken away, thus exposing the ring next to it with the projections thereon, and also showing the projections on that part of the ring not broken away; Fig. 3. is a perspective view of one of the rings, showing projections on the face or flat surfaces thereof.

Reference now being had to the accompanying drawings by numerals, 4. represents the exhaust pipe to which the muffler is attached; 5, represents the open head of the muffler attached to the exhaust pipe by means of screw threads, as shown at 6, and through which the exhaust is received into the chamber of the muffler; 7, represents the

rings or sections out of which the main body of the muffler is constructed, 8 represents the projections on the flat surface of the rings; 9 represents the space between the rings; 10 represents the solid head which closes the end of the muffler opposite where the exhaust is received; 11 represents the bolts which pass through the heads of the muffler immediately inside the rings or sections, binding all the parts of the muffler together; 12 represents the chamber into which the exhaust is received.

The parts of the muffler are assembled by placing the rings in parallel planes one above the other, with their flat surfaces generally separated from each other by a space commensurate with the height of the projection on each ring, which touches the flat surface of the next adjoining ring. When the rings are thus assembled they form a hollow cylinder, to one end of which the solid head is adjusted, so as to close the same, and to the other end the open head is adjusted, so as to close the same except as to the opening through the head which is to receive the exhaust pipe. The bolts are then placed in and through suitable openings in both heads and a nut screwed on to the end of the bolts, sufficiently tight to bind the parts together and hold them in place, substantially as shown in the accompanying drawings. When thus assembled the muffler is ready for use and is attached by threading the open end thereof on to the end of the exhaust pipe.

The projections are formed direct upon the flat surfaces of the rings, so that when the rings rest one on the other, a regulated and defined space of uniform width will intervene between the rings for escaping and diffusing the gases and vapors in the use of the muffler, and this uniformity of space, obtained by the projections, will effect a positive separation of one ring from adjoining rings with practically no interruption of the space, thereby giving a complete clearance for escaping the gases and vapors.

The general figure of the muffler described is that of a hollow cylinder of a circular formation in cross section, but that form is not essential, as the cylinder could be of any other suitable form, such as square, rectangular or oval in cross section, in which case the rings should be square, rectangular or oval in form, which rings would make a cylinder suitable for the purposes herein sought and are intended to be included under the

word rings wherever used herein, such rings having flat surfaces and openings, corresponding in shape to the particular form of the muffler desired to be constructed.

5 It is not essential that the bolts be extended down through the chamber of the cylinder on the inside of the rings as the bolts may extend on the outside of the rings through ears in the heads of the cylinder; nor is it
10 essential that the parts be bound together by means of bolts, as rivets, clamps, or other suitable devices may be used to bind together the parts of the muffler, and wherever the word bolt occurs such word is intended
15 to embrace and include other means of securing together the heads and parts of the muffler.

When the muffler is attached to the exhaust pipe and the engine put in operation,
20 the exhaust entering the chamber from the exhaust pipe escapes through the spaces between the various rings or sections of the muffler, practically creating no noise whatever. The muffler of the present invention
25 enables, a perfect clearance to be furnished for the exhaust and by its use the sound and noise arising from the escaping of exhaust will be deadened and minimized, and this result is accomplished by the construction and
30 arrangement of the parts composing the muffler as a whole, and the provision of the space between the surfaces of the rings. The exhaust is diffused through the various spaces between the rings in such a way as to
35 check the force of the exhaust and kill the sound thereof and, yet, not produce or create any appreciable back pressure upon the engine, and the smoke and gases of the exhaust are sufficiently checked and held
40 within the muffler to cause them to become neutralized or consumed by the heat of the exhaust.

The muffler is small and of light weight compared with the general run of mufflers,
45 but at the same time will be found reliable and effectual in use for the purposes intended.

What I claim as new and desire to secure by Letters Patent is:

50 1. In a muffler, a casing having a circumferential wall formed of a plurality of rings, each ring having fixed projections on one face with the projections of uniform height, for the projections to definitely and entirely
55 separate the rings one from the other, the separated rings forming a casing having uniform spaces from end to end, and inclosing a pressure-receiving and expanding chamber for educting pressure from the chamber through
60 the spaces between the rings, substantially as described.

2. In a muffler, a casing having its circumferential wall formed of a plurality of flat
65 faced rings, each ring having fixed projections on one face with the projections of uni-

form height for the projections to definitely and entirely separate the rings one from the other, the separated rings forming a casing having uniform spaces from end to end and inclosing a pressure-receiving and expanding
70 chamber for educting pressure from the chamber through the spaces between the rings, substantially as described.

3. In a muffler, a casing having its circumferential wall formed of a plurality of flat
75 faced rings, each ring having on one face a series of projections with the projections of uniform height and arranged at regular intervals apart for the projections to act and definitely and entirely separate the rings one
80 from the other and furnish a complete clearance between the rings, the separated rings forming a casing having uniform spaces from end to end and inclosing a pressure-receiving and expanding chamber for educting pres-
85 sure from the chamber through the defined spaces between the rings, substantially as described.

4. In a muffler, a casing having its circumferential wall formed of a plurality of flat
90 faced rings, each ring having on one face a series of projections with the projections of uniform height and arranged at regular intervals apart for the projections to act and definitely and entirely separate the rings one
95 from the other and furnish a complete clearance between the rings, the separated rings forming a casing having uniform spaces from end to end and inclosing a pressure-receiving and expanding chamber for educting pres-
100 sure from the chamber through the defined spaces between the rings, a closing head for one end of the casing, a head for the opposite end of the casing and having a hole for attaching the muffler in position, and clamping
105 means retaining the rings and two heads in position, substantially as described.

5. In a muffler, a casing having its circumferential wall formed of a plurality of rings,
110 each ring having on one face a series of projections with the projections of uniform height and arranged at regular intervals apart for the projections to act and definitely and entirely separate the rings one from the
115 other and furnish a complete clearance between the rings, the separated rings forming a casing having uniform spaces from end to end and inclosing a pressure-receiving and expanding chamber for educting pressure from the chamber through the defined spaces
120 between the rings, a closing head for one end of the casing, a head for the opposite end of the casing and having a hole for attaching the muffler in position, and clamping means retaining the rings and two heads in position,
125 substantially as described.

6. In a muffler, a casing having its circumferential wall formed of a plurality of flat
faced rings, each ring having on one face a series of projections with the projections of
130

uniform height and arranged at regular intervals apart for the projections to act and definitely and entirely separate the rings one from the other and furnish a complete clearance between the rings, the separated rings forming a casing having uniform spaces from end to end and inclosing a pressure-receiving and expanding chamber for educting pressure from the chamber through the defined spaces between the rings, a closing head for one end of the casing, a head for the opposite end of the casing and having a hole for attaching the muffler in position, and clamping rods extending from head to head for retaining the rings and the heads of the casing in position, substantially as described,

7. In a muffler, a casing having its circumferential wall formed of a plurality of rings, each ring having on one face a series of projections with the projections of uniform

height and arranged at regular intervals apart for the projections to act and definitely and entirely separate the rings one from the other and furnish a complete clearance between the rings, the separated rings forming a casing having uniform spaces from end to end and inclosing a pressure-receiving and expanding chamber for educting pressure from the chamber through the defined spaces between the rings, a closing head for one end of the casing, a head for the opposite end of the casing and having a hole for attaching the muffler in position, and clamping rods extending from head to head for retaining the rings and the heads of the casing in position, substantially as described.

WILLIAM A. WEBSTER.

Witnesses:

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E. E. CLIPPINGER.