

C. F. & G. W. LATTIME.
EXHAUST MUFFLER.
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1,051,130.

Patented Jan. 21, 1913.

Fig. 1.

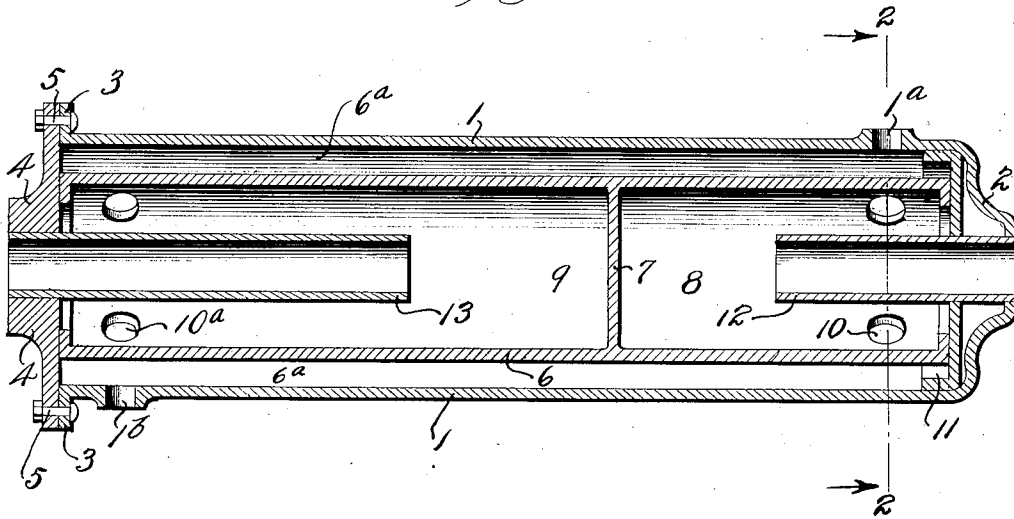
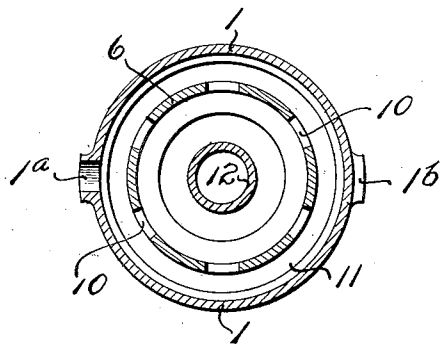


Fig. 2.



Witnesses

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EXHAUST-MUFFLER.

1,051,130.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, CHARLES F. LATTIME and GEORGE W. LATTIME, citizens of the United States, residing at Newburyport, 5 in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Exhaust-Mufflers, of which the following is a specification.

This invention relates to the subject of 10 mufflers for explosive engines, such as are generally employed on motor vehicles and motor boats.

The object of the present invention is to provide a device which will deaden the 15 sound of the explosion resulting from the ignition of a charge in the cylinders of a motor, and at the same time offer as little resistance as possible to the exhaust gases.

To this end, the present invention contemplates a simple, durable, and thoroughly 20 practical construction which can be easily assembled, and taken apart, when it becomes necessary to do so.

The essential features of the invention are necessarily susceptible of structural 25 modification. However, a preferred and practical embodiment of the invention is disclosed in the accompanying drawing, in which—

30 Figure 1 is a longitudinal sectional view through the muffler. Fig. 2 is a cross sectional view on the line 2—2 of Fig. 1.

Similar reference numerals designate corresponding parts throughout the several 35 figures of the drawings.

Referring specifically to the several figures of the drawings, the numeral 1 indicates an outer shell member which is closed 40 at one end, as indicated at 2, except for the intake port which will be hereinafter referred to. The said outer shell member 1 is provided on opposite sides thereof, adjacent each end, with water inlet and exhaust 45 ports 1^a and 1^b, and is further provided at the end opposite the closed end 2, with an annular perforated flange 3. It will thus be observed that the end of the shell member at which the flange 3 is located is open so 50 as to permit the placing of interior parts within the outer shell member, thus facilitating the assembling and taking apart of the muffler. However, in order to provide a complete closure for the shell member when it is in use, there is provided a cap 55 member 4 which is adapted to be separably

secured to the annular flange 3 by the fastening bolts 5.

Within the outer shell member 1 is mounted an inner cylindrical casing 6, which is 60 provided at approximately its middle portion with a dividing wall 7, which separates the interior of the casing 6 into a charge receiving chamber 8, and a charge exhausting chamber 9. The said charge receiving chamber 8 is provided with a plurality of 65 openings 10 near the end opposite the dividing wall 7. The said charge exhausting chamber 9 is similarly provided with a plurality of openings 10^a. There is secured to one end of the inner cylindrical casing 6 a 70 flanged supporting collar 11, which supports the said casing so that the exterior thereof is spaced away from the interior of the outer shell member 1 to form the pas- 75 sageway 6^a which is in communication with the auxiliary exhaust ports 1^a, and also in communication with the openings 10 and 10^a of the chambers 8 and 9 respectively. The end 2 of the outer shell member 1, which may be termed the intake end of the shell 80 member, is provided with an intake pipe extension 12 which projects from the exterior of the end 2 into the charge receiving chamber 8 at a point which is beyond the open- 85 ings 10. The opposite end of the shell member, which may be termed the exhaust end, is provided with an exhaust pipe extension 13 which extends from the exterior of the cap 4 into the charge exhausting chamber 90 beyond the intermediate portion thereof, and also beyond the openings 10^a.

From the foregoing description, it will be apparent that in order to assemble the muffler, it is only necessary to place within 95 the outer shell member 1, the inner cylindrical casing 6, which has secured to one end the flanged supporting collar 11, which holds the said casing 6 out of contact with the interior of the shell member. When this is done, the cap 4 is secured to the an- 100 nular flange 3 so as to close the open end of the casing 6 and also close the entire end of the outer shell member. The pipe extensions are then put in position and then the muffler is ready for use. The pipe extension 12 may be secured to the end 2 of 105 the shell member 1, and the pipe extension 13 may be secured to the cap 4, so that after the casing is put in place, the only part remaining to complete the assembling opera- 110

tion is the cap 4, which may be secured in place by the bolts 5.

When the muffler is in use, it will be apparent that the charge from the motor will enter the intake pipe extension 12 and pass into the charge receiving chamber 8. From thence, it will pass through the openings 10 into the passageway 6^a and then through the openings 10^a into the charge exhausting chamber 9 and out into the atmosphere through the exhaust pipe extension 13.

In connection with the water outlet and exhaust ports 1^a and 1^b, it will be observed that the water inlet 1^a is near the intake end of the muffler and the water outlet 1^b is near the exhaust end of the muffler. Water enters the inlet 1^a from the cooling system of the engine, and is permitted to circulate around the inner casing. However, owing to the heated condition of the muffler parts a great quantity of the water is turned into steam which has a marked tendency to deaden the sound of the explosion. The muffler parts, by coming in contact with the water are consequently kept comparatively cool. In event of any water going through the perforations, it is forced out by the exhaust gases and goes out with the exhaust, the bulk of the water, of course, goes through the water outlet. The present methods which have the water go into the chambers have the bad feature of back pressure slowing the engine down, but this is eliminated in the present invention by having the water go out through the water outlet, thus resulting in increasing the speed of the engine.

In view of the foregoing description, it is believed that our invention can be readily understood, and what we desire to claim by Letters Patent is:

1. A muffler comprising an outer shell member having inlet and exhaust ports, and also provided with water inlet and exhaust ports, a chambered inner cylindrical casing, pipe extensions projecting into said chambered casing from the inlet and exhaust ports of the outer shell member and a cap member adapted to be separably attached to the outer shell member.

2. A muffler comprising an outer shell member having inlet and exhaust ports, an inner cylindrical casing provided with openings, and adapted to be supported within the shell member to provide a passageway between itself and said shell member, a dividing wall intermediate the ends of the inner cylindrical casing forming two cham-

bers, and pipe extensions projecting from the inlet and exhaust ports of the shell member into the said chambers.

3. A muffler comprising an outer shell member having inlet and exhaust ports, an inner cylindrical casing provided with openings, a flanged supporting collar secured to the inner cylindrical casing, a dividing wall intermediate the ends of the said casing forming two chambers therein, and pipe extensions projecting into the said chambers.

4. A muffler comprising an outer shell member having one end integral therewith, said end having an inlet opening, an annular perforated flange on the opposite end of said outer shell member, an inner cylindrical chambered casing provided with openings adjacent each end thereof and supported within the outer shell member, a cap member adapted to be separably attached to the annular flange on the outer shell member, said cap member being provided with an exhaust port, and pipe extensions projecting inwardly into the chambered casing from the inlet and exhaust ports.

5. A muffler comprising an outer shell member having inlet and exhaust ports, an inner cylindrical casing provided with openings adjacent its opposite end portions and having charge receiving and charge exhausting chambers, means for supporting the cylinder within the casing so as to form a passageway therebetween, and pipe extensions projecting into the said charge receiving and charge exhausting chambers beyond the openings adjacent the ends of the casing.

6. A muffler comprising an outer shell member having inlet and exhaust ports, and also provided with water inlet and exhaust ports, an inner cylindrical casing provided with openings adjacent its opposite end portions and having charge receiving and charge exhausting chambers, means for supporting the cylinder within the casing so as to form a passageway therebetween, and pipe extensions projecting into the said charge receiving and charge exhausting chambers beyond the openings adjacent the ends of the casing.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

CHARLES F. LATTIME.
GEORGE W. LATTIME.

Witnesses:

FLORENCE E. WOODWELL,
CHARLES G. PRAY.