

F. W. SPERRY.
MUFFLER.
APPLICATION FILED SEPT. 22, 1911.

1,149,699.

Patented Aug. 10, 1915.

Fig. 1.

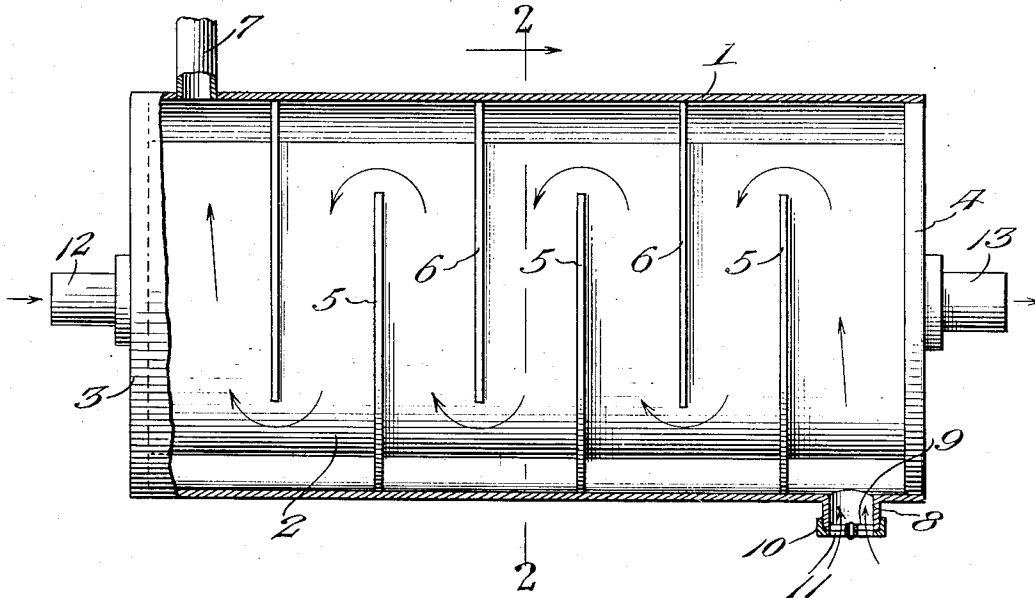
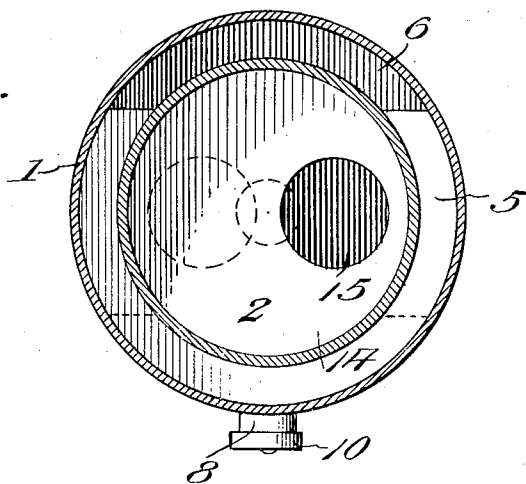


Fig. 2.



WITNESSES
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FRED W. SPERRY, OF PORT BYRON, NEW YORK.

MUFFLER.

1,149,699.

Specification of Letters Patent.

Patented Aug. 10, 1915.

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To all whom it may concern:

Be it known that I, FRED W. SPERRY, a citizen of the United States, and a resident of Port Byron, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Mufflers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to mufflers for gas engines and aims primarily to provide a muffler arranged to heat the air, drawn into the engine cylinder at the intake stroke, through the medium of the heated exhaust issuing from the cylinder. Therefore, the invention aims to provide a muffler which will serve as a means for economizing in the consumption of fuel and will render the engine more efficient in its operation.

Further, the invention aims to so construct the muffler that the heated exhaust gases will be retained therein for a considerable period of time so that the full benefit will be derived therefrom in heating the air taken into the engine cylinder.

With these and other objects in view the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described and finally pointed out in the appended claim, it being further understood that changes in the specific structure shown and described may be made within the scope of the claim, without departing from the spirit of the invention.

In the accompanying drawings forming a part of this specification, and in which like numerals of reference indicate similar parts in the several views: Figure 1, is a view partly in side elevation and partly in elevation of the muffler embodying the present invention, and Fig. 2, is a vertical transverse sectional view on the line 2, 2, of Fig. 1.

The muffler embodying the present invention comprises an outer shell 1, and an inner shell 2, both of which are cylindrical although they may be of any other desired shape. The inner shell is of a diameter less than that of the outer shell. These shells are connected and closed at their ends by means of heads 3 and 4; that is to say, the inner shell is closed at both ends by the said heads and the space between the shells is closed at the ends of the shells by the said heads. It will thus be seen that the outer shell forms

a jacket for the inner shell. Within the space between the two cylindrically held shells there are arranged a plurality of baffle plates 5 and 6, which are substantially semi-annular in form, and these plates are alternately reversed, as clearly shown in the drawings, so that the ends of the plates 5 project between the ends of the plates 6, and vice versa. At one end of the shell 1, and preferably at the upper side thereof there is connected a pipe 7, which serves to conduct the heated air to the engine cylinder, and at the opposite end of the said shell and preferably at its under side, there is connected an intake nipple 8. The end of the intake nipple is closed except for openings 9, formed therein, and rotatably fitted upon the end of the said nipple is a cap 10, provided with openings 11, adapted to register with the openings 9, for the purpose of admitting air through the nipple, it being understood that the cap may be rotated so as to regulate the quantity of air admitted.

The exhaust entering the inner shell passes through an inlet pipe 12, opening through the head 3, and escapes by way of a pipe 13, opening through the head 4, and between the two heads within the shell 2, are arranged baffle disks 14, formed with openings 15. The disks 14, are so arranged that their openings 15, will be located alternately at opposite sides of the axes of the shells, as shown in full and dotted lines in Fig. 2, of the drawings.

When the muffler embodying the present invention is placed in use, the pipe 7, is connected with the air intake of the engine, and the pipe 12, is connected with the exhaust. As the exhaust gases pass through the inner shell, they circulate between the baffle plates or disks 14, and through the openings therein and pass out by way of the pipe 13. In their passage through the inner shell, the gases heat the wall thereof and this heat is communicated to the air which is taken in through the intake pipe 8, so that when this air enters the engine cylinder and is mixed with the vaporized fuel, it will be in a heated state, although not deprived of any of its oxygen. More efficient working of the engine is thus insured. It will be understood at this point that the heated exhaust gases, as well as the intaken air are retarded in their passage through the muffler and that consequently the full benefit

is derived from the heat given off by the exhaust.

Having thus described my said invention, what I claim as new and desire to secure by United States Letters Patent is:

A muffler comprising an outer cylindrical shell, of heads closing the ends of said shell, an inner shell secured to said heads of a less diameter and held concentric to said outer shell, a plurality of semi-annular baffle plates alternately reversed and arranged between the two shells, the ends of one set of plates projecting between the opposite set of plates, whereby the gas is made to pass up and down in escaping through said drum, an exit pipe extending from one end and the upper side of said outer shell,

an intake nipple at the other end and under side of said shell, a rotatably held perforated cap closing said nipple, a plurality of disks arranged within said inner drum having openings located alternately at opposite sides of the axis of said inner drum, whereby the air passing through said drum is made to pass from side to side, one of said ends having an inlet, and the other an escape opening communicating with said inner drum, as and for the purpose set forth.

In testimony whereof I affix my signature, in presence of two witnesses.

FRED W. SPERRY.

Witnesses:

WILLIAM BLAKE,
EARL W. BLAKE.