L. V. HARDY.

SILENCING MUFFLER.

APPLICATION FILED MAR. 23, 1915.

1,169,030.

Patented Jan. 18, 1916.

Fig. 1.

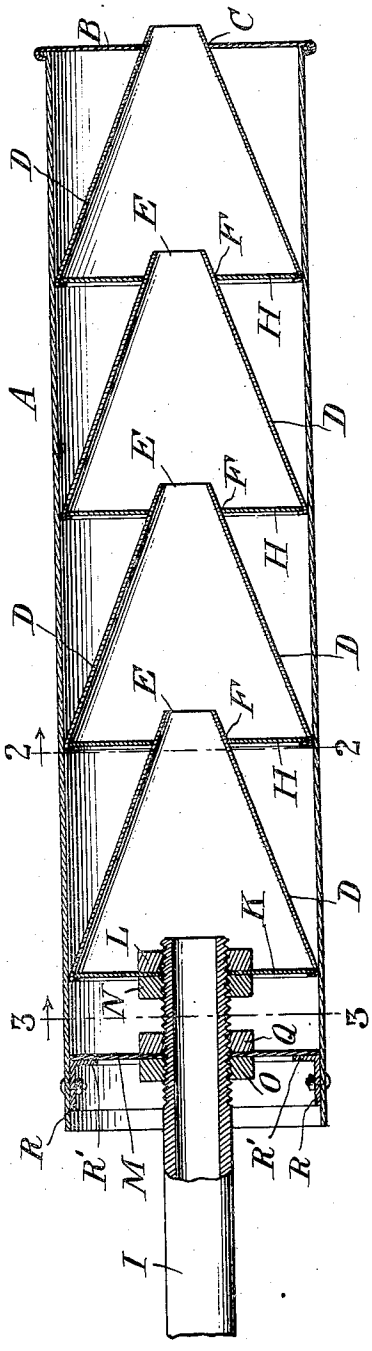
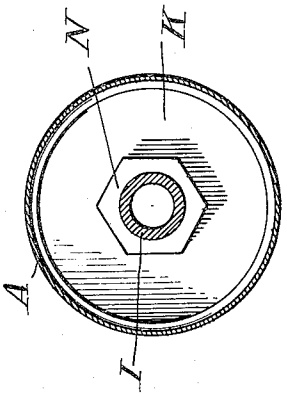


Fig. 3.



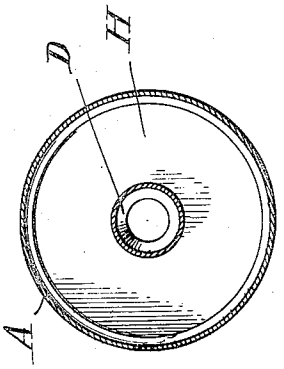


Fig. 2.

Witnesses

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SILENCING-MUFFLER.

1,169,030. Specification of Letters Patent. Patented Jan. 18, 1916.

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To all whom it may concern:

Be it known that I, LYLE V. HARDY, a citizen of the United States, residing at Lowville, in the county of Lewis and State of New York, have invented certain new and useful Improvements in Silencing-Mufflers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in mufflers for engines and consists in the provision of a silencer of this nature whereby the possibility of back pressure and after firing are eliminated and by which an economy in fuel is afforded.

My invention consists essentially in the provision of a muffler having a series of conical-shaped members, the open apex end of each extending centrally through an opening in the base of the next adjoining member and forming a continuous passageway through the series of reversely arranged megaphones.

My invention consists of various other details of construction, combinations and arrangements of parts which will be hereinafter fully described, shown in the accompanying drawings and then specifically defined in the appended claims.

I illustrate my invention in the accompanying drawings, in which:

Figure 1 is a central longitudinal sectional view through the muffler. Fig. 2 is a sectional view on line 2—2 of Fig. 1. Fig. 3 is a sectional view on line 3—3 of Fig. 1.

Reference now being had to the details of the drawings by letter, A designates a cylindrical muffler having an end B with a central opening C, the marginal edge of said end being bent over the flanged end of the muffler and securely fastened thereto. Within the shell of the muffler is a series of conical-shaped members, each designated by letter D, each having an open apex E extending through an aperture F in the bottom H of the member, the series being held in place by means of the pipe I which passes through registering apertures in the bottom K of the outermost of the several conical-shaped members and also through an apertured disk M. Lock nuts N and L are mounted upon the exhaust pipe I, one upon either side of the bottom K, and similar nuts O and Q are mounted upon the pipe, one upon either side of the disk or end M. A flanged collar R is bolted or otherwise secured within the shell of the muffler and its angled portion, designated by letter R′, is adapted to bear against the outer face of the disk or end M, thus forming a secure means for holding the various conical-shaped members in place with the pipe I in alinement with the several apertures through the apex of each member.

By the provision of a silencing muffler made in accordance with my invention on the principle of a series of reversed megaphones, I have found that after firing is avoided, a great saving of fuel effected and dispensing with the noise usually accompanying the opening of the cut out in climbing hills and, owing to the direct passage of the gas, its course is prevented from spreading and which tends to decrease the velocity of the gas, whereas, in the operation of mufflers in which the reverse arrangement of megaphone-shaped members is employed, the gases are allowed to spread and necessarily retard their exit.

What I claim to be new is:—

1. A silencing muffler comprising a shell having a series of conical-shaped members mounted therein, each having an apex opening and a central aperture in its closed bottom, the open apex end of each member extending through an aperture in the bottom of an adjacent member, an exhaust pipe fastened in an aperture in the bottom of the end of the series of members and in alinement with the openings through the apices of said members.

2. A silencing muffler comprising a shell having a series of conical-shaped members mounted therein, each having an apex opening and a central aperture in its closed bottom, the open apex end of each member extending through an aperture in the bottom of an adjacent member, an apertured disk within the muffler, an exhaust pipe passing through the aperture of said disk and an opening in the bottom of the adjacent conical-shaped member, and means for fastening the pipe to said disk and apertured bottom.

3. A silencing muffler comprising a shell having a series of conical-shaped members mounted therein, each having an apex opening and a central aperture in its closed bottom, the open apex end of each member ex-

tending through an aperture in the bottom of an adjacent member, an apertured disk within the muffler, a circumferentially threaded exhaust pipe passing through the aperture of said disk and an opening in the bottom of the adjacent conical-shaped member, lock nuts mounted upon the pipe and engaging the apertured disk and bottom of the adjacent member, and means for holding the disk within the shell.

4. A silencing muffler comprising a shell having a series of conical-shaped members mounted therein, each having an apex opening and a central aperture in its closed bottom, the open apex end of each member extending through an aperture in the bottom of an adjacent member, an apertured disk within the muffler, a circumferentially apertured pipe passing through the aperture of said disk and an opening in the bottom of the adjacent conical-shaped member, lock nuts mounted upon the pipe and engaging the apertured disk and bottom of the adjacent member, and a collar fitted within the shell and holding the disk in place.

5. A silencing muffler comprising a shell having a centrally apertured end, a series of conical-shaped members, each having an open apex extending through the bottom of a central aperture in the bottom of an adjacent member, the apex of the end member of the series extending through the aperture in the end of the shell and the marginal edges of the members frictionally engaging the inner surface of the shell, an apertured disk within the shell in registration with the openings in the bottoms of the members, a threaded pipe passing through said disk and the aperture in the bottom of the adjacent member, lock nuts mounted upon the pipe and engaging said disk and bottom of the adjacent member, and a flanged collar fastened within the shell and bearing against said disk.

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

LYLE V. HARDY.

Witnesses:

JOHN A. MITCHELL,

CHAS. MULLIN.