Oct. 22, 1929. V. OLDBERG 1,732,818

MUFFLER

Filed Nov. 14, 1927

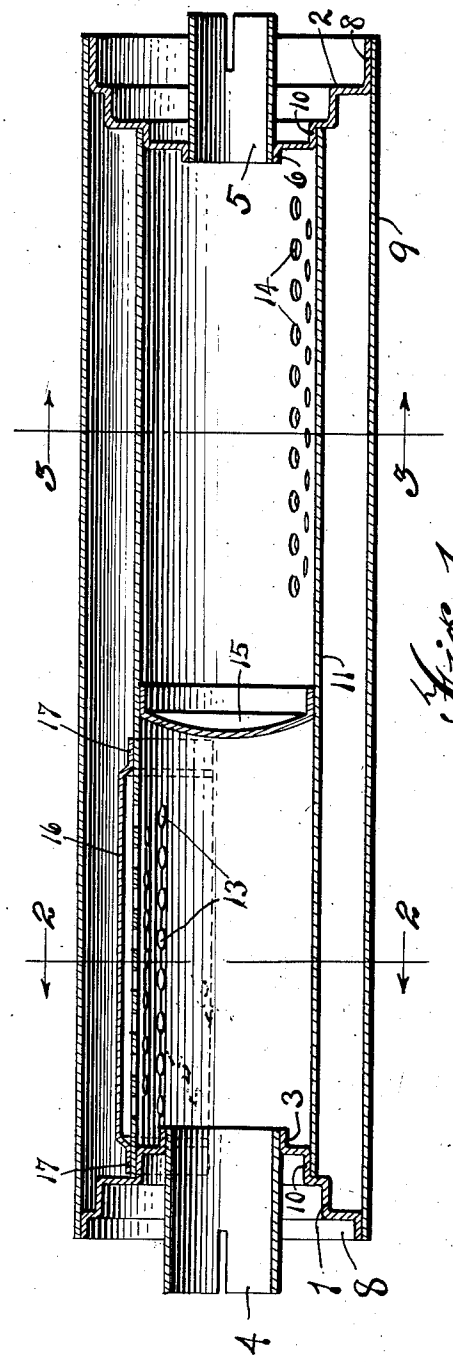


Fig. 1

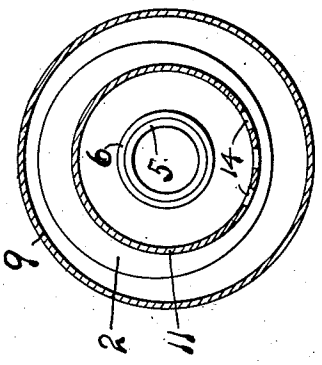


Fig. 3

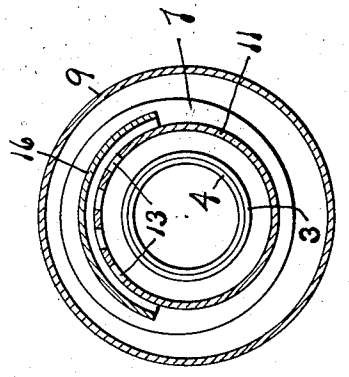


Fig. 2

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UNITED STATES PATENT OFFICE

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MUFFLER

Application filed November 14, 1927. Serial No. 233,046.

This invention relates to means for reducing the sound of the exhaust of internal combustion engines, and its object is to provide a device of this character which shall be simple in construction and of comparatively low cost of production.

I have been marketing mufflers built up of two ends or heads and three cylindrical shells connecting them, the intermediate shell being eccentric to the others, the ends being provided with intake and outlet openings and the shells being perforated to cause the exhaust gases to travel tortuous courses to cause the independent charges of exhaust gases entering the mufflers to merge so that the gases will leave in a substantially uniform stream. This muffler is shown by my Patent Number 1,542,829 dated June 23, 1925.

The present muffler embodies the same heads but has only two shells and a short plate secured to the inner shell.

In the accompanying drawing:—

Fig. 1 is a central longitudinal section of my novel muffler;

Figs. 2 and 3 are sections on the lines 2—2 and 3—3 of Figure 1 respectively.

The heads or ends 1 and 2 are preferably similar in construction, differing only in that the head 1 has a central flange 3 to receive the intake pipe 4 which is larger in diameter than the discharge pipe 5 which results in the flange 6 on the head 2 being smaller in diameter than the flange 3. These heads are preferably sheet metal stampings, each being formed with a cylindrical outer flange 8 to receive the outer shell 9 and with an intermediate cylindrical portion 10 to receive the inner shell 11. All parts of this muffler are preferably united by welding.

The inner shell is formed with groups of holes 13 and 14, one at each side of the partition 15 which divides it into two chambers, the groups being preferably diametrically opposite each other. A plate 16 bent to constitute a section of a cylinder has its longitudinal ends bent inwardly to constitute flanges 17 which are secured to the inner shell so that this plate extends over the holes 13 in such a manner that the exhaust passing through the holes 13 will impinge against this plate and pass circumferentially partially around the inner shell and then escape into the main space between the two shells.

The greatest value of the formerly used intermediate shell was that the sound of the exhaust passing out through holes in the inner shell and impinging on the intermediate shell was muffled by the gases in the space between the intermediate and outer shells. The sound of the gases impinging on this plate 16 is similarly muffled while at the same time the space between the shells 11 and 9 permits the exhaust impulses to merge into each other before the gases pass inwardly through the holes 14 into the second chamber of the inner shell from which they escape in a substantially constant stream through the pipe 5. While these gases are passing through the muffler they cool and their volume and pressure are both reduced. The present muffler approximates the earlier muffler in efficiency and can be more cheaply produced.

The details and proportions of the different parts of this muffler may all be changed by those skilled in the art without departing from the spirit of my invention as set forth in the following claims.

I claim:—

1. A muffler comprising ends and pipes connected thereto, two shells connecting said ends, one shell being within the other, a partition within the inner shell dividing it into inlet and outlet chambers, said inner shell being formed with groups of holes on each side of the partition, a plate secured to the inner shell and extending over one of the groups of holes therein, and pipes connecting into said ends.

2. A muffler comprising two heads and pipes connecting into them, two concentric cylindrical shells connecting said heads, a partition within the inner shell, said inner shell being formed with a group of holes at each side of said partition, and a cylindrical plate secured at its ends to the outer surface of said inner shell over one group of holes and spaced therefrom sufficiently to permit gases to pass circumferentially between the plate and shell into the space between the two shells.

3. A muffler comprising two heads and pipes connecting into them, two concentric cylindrical shells connecting said heads, a partition within the inner shell, said inner shell being formed with a group of holes at each side of said partition, and a cylindrical plate secured at its ends to the outer surface of said inner shell over one group of holes and spaced therefrom sufficiently to permit gases to pass circumferentially between the plate and shell into the space between the two shells, the two groups of holes being positioned diametrically opposite each other.

VIRGIL OLDBERG.