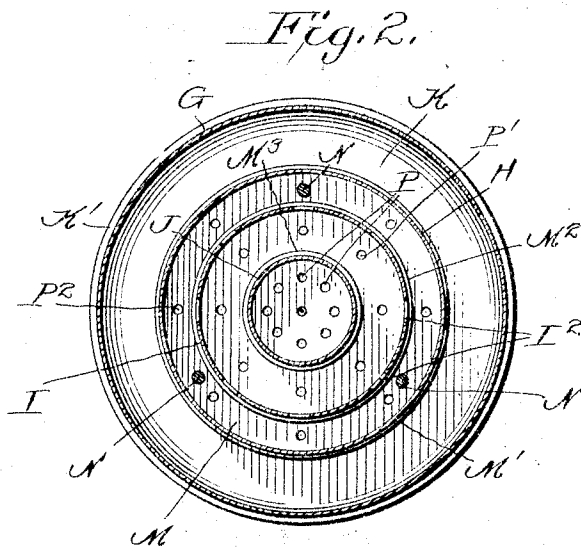
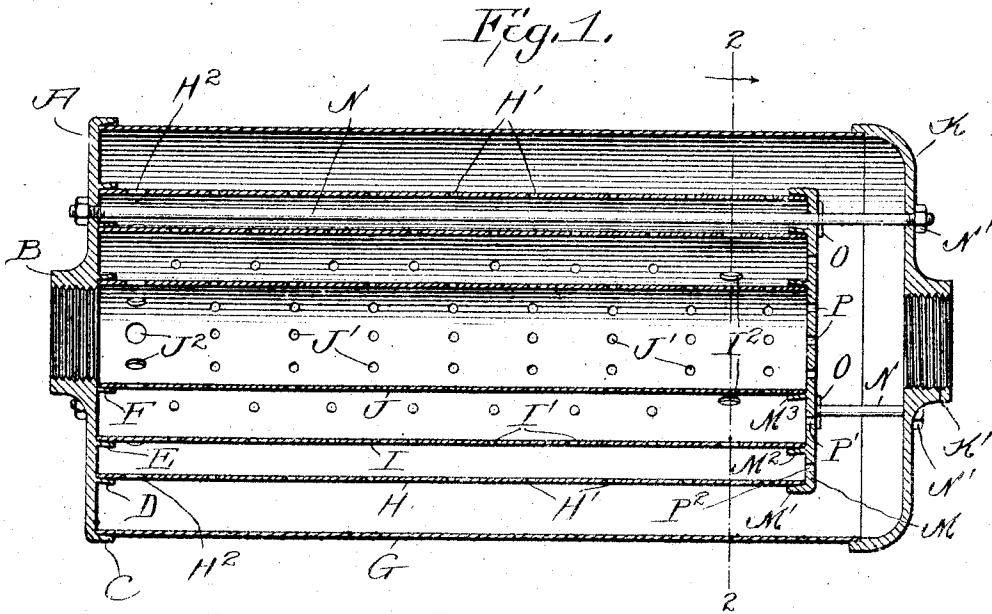


F. B. HERRIOT.
MUFFLER.
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1,042,347.

Patented Oct. 22, 1912.



Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK BITTMAN HERRIOT, OF SHELTON, CONNECTICUT.

MUFFLER.

1,042,347.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK BITTMAN HERRIOT, a citizen of the United States, residing at Shelton, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Mufflers, of which the following is a specification.

This invention relates to certain new and useful improvements in mufflers especially adapted to be used in connection with gas engines, the object being to provide a muffler which will deaden the sound of the exhaust without causing back pressure to any extent.

15 Another object of my invention is to provide a muffler which is exceedingly simple and cheap in construction, and one which is composed of a plurality of concentric cylinders through which the exhaust gases are adapted to pass before they escape to the open air, said cylinders being so arranged and having openings for causing the exhaust gases to pass from one end to the other of the cylinders.

25 A still further object of my invention is to provide a muffler which is so constructed that the same can be readily taken apart in order to clean the same if necessary, said parts being held together by bolts and pins.

30 With these objects in view, the invention consists in the novel features of construction, combination and arrangement of parts hereinafter fully described, and pointed out in the claim.

35 In the drawing forming a part of this specification:—Figure 1 is a longitudinal section through my improved muffler. Fig. 2 is a section taken on line 2—2 of Fig. 1.

In carrying out my improved invention I employ a circular head A which is provided with a central internally threaded apertured boss B upon one side in which the exhaust pipe from the engine is secured, and upon the opposite side of said head are formed concentric annular flanges C, D, E and F, the faces of which are slightly beveled for the purpose later described. Arranged within the concentric flanges C, D, E and F are concentric cylinders G, H, I and J, the outer cylinder being of a greater length than the cylinders H, I and J. The free end of said cylinder has a head K arranged thereon which is provided with a central boss K' to which an outlet pipe is adapted to be connected.

Arranged over the ends of the cylinders

H, I and J is a head M which is provided with concentric annular flanges M', M², M³, the inner walls of which are slightly beveled to receive the ends of the respective cylinders in such a manner that a tight joint will be formed between the same. The heads A and K are locked on the end of the outer cylinder G by longitudinal bolts N having nuts N' for securing the heads in position, and the head N is locked on the ends of the cylinders H, I and J by pins O extending through openings formed in the bolts, and said bolts extend between the cylinders H and I as clearly shown. It will be seen that by this manner of connecting the heads and cylinders, the muffler can be readily taken apart by simply unscrewing the nuts and removing the pins.

The inner cylinder J is provided with annular rows of perforations J' through which the gases are adapted to pass into the compartment surrounding said cylinder formed by the cylinder J which is likewise provided with annular rows of perforations J' out of alinement with the perforations J' through which the exhaust gases pass into the compartment formed by the cylinder I and J, and the cylinder H is also provided with perforations H' out of which the exhaust gases pass into the compartment formed by the outer cylinder G, and the cylinder H, and from which they escape through the boss K' of the head K. The head M is provided with perforations P, P', P² communicating with the respective compartments formed by the cylinders H, I and J and through which the exhaust gases are adapted to pass.

The inner cylinder K is provided with a series of openings J² at its forward end of a larger diameter than the perforations, and the cylinder I is also provided with a series of similar openings I² at the opposite end from the openings J², and the cylinder J is provided with similar openings H², whereby the force of the exhaust passing through these large openings will cause the spent gases to travel longitudinally of the compartments formed of the respective cylinders.

The operation of the muffler is as follows:—The exhaust gases passing into the cylinder J strike the head M which causes a slight back pressure so as to force the gases out through the perforations, the greater portion of the gases going through the

larger openings causing a circulation from one end of the respective compartments formed by the cylinders in such a manner that the gases will travel the length of the compartments before they reach the outer compartment, and will be cooled to such an extent that a contraction in volume will be caused which will result in a fall in pressure.

What I claim is:—

- 10 A muffler comprising an outer cylinder provided with heads, of a plurality of inner cylinders of less length than the outer cyl-

inder, and connected to one of the outer cylinder heads, a supplemental head for the inner cylinders, and means for securing said inner cylinders in place, said inner cylinders and the supplemental head being perforated, the perforations being enlarged adjacent alternate ends of said inner cylinders. 15

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