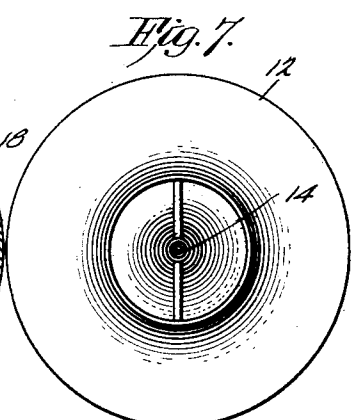
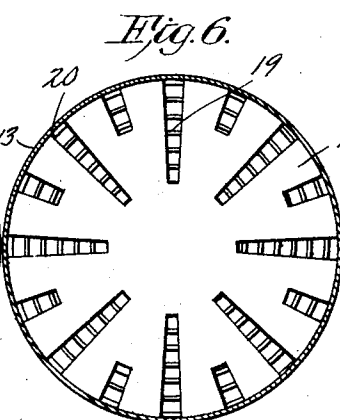
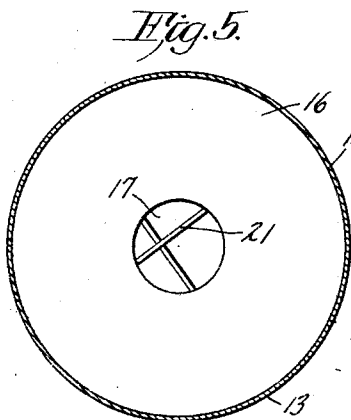
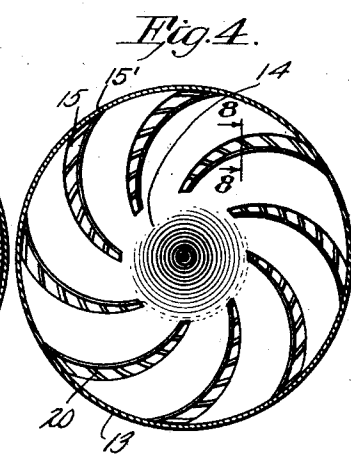
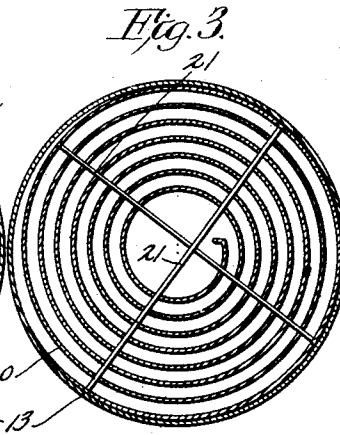
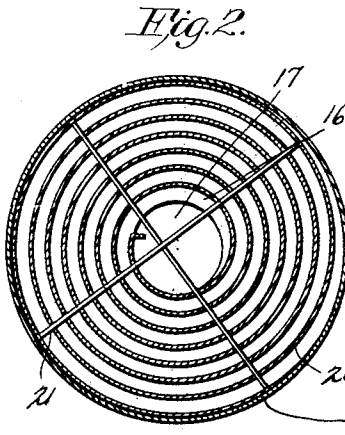
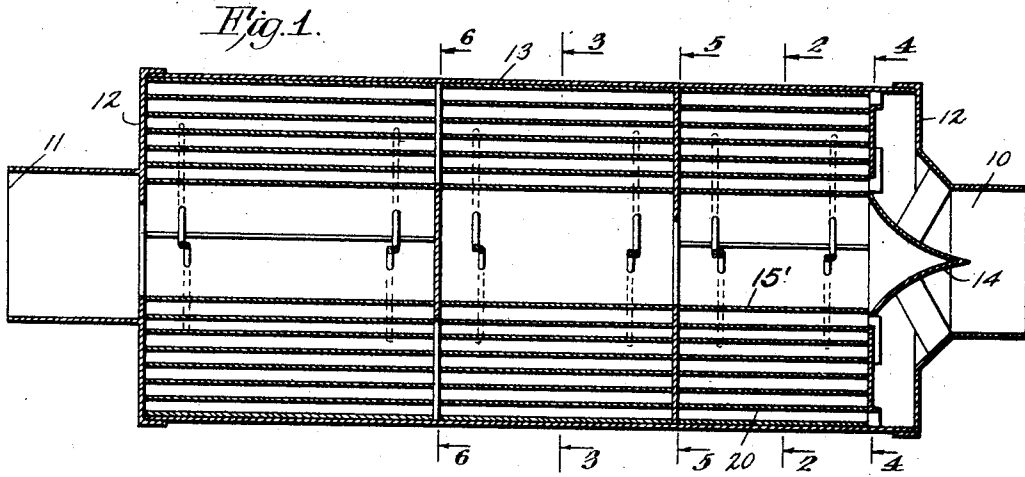


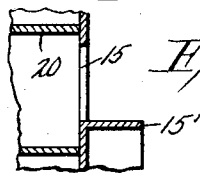
H. C. AND E. E. EMMONS.
MUFFLER.
APPLICATION FILED MAR. 29, 1920.

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Patented Dec. 13, 1921.



WITNESSES
Frank J. Paggiari
J. H. Emory



INVENTORS
HOWARD C. EMMONS,
EUGENE E. EMMONS.
BY *Mum & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

HOWARD C. EMMONS AND EUGENE E. EMMONS, OF SYRACUSE, NEW YORK.

MUFFLER.

1,400,350.

Specification of Letters Patent.

Patented Dec. 13, 1921.

Application filed March 29, 1920. Serial No. 369,732.

To all whom it may concern:

Be it known that we, HOWARD C. EMMONS and EUGENE E. EMMONS, citizens of the United States, and residents of Syracuse, in the county of Onondaga and State of New York, have invented a new and Improved Muffler, of which the following is a full, clear, and exact description.

It is well appreciated in connection with mufflers, that the gases merge from the exhaust end of the same in a series of intermittent puffs, *i. e.* in the manner of which they are conducted into the intake end of the same.

With a view of overcoming this we have now constructed a new and improved type of muffler, by means of which the gases merging from the exhaust end will flow into the air in an almost constant stream.

A further object of our invention is the construction of a practically simple form of muffler, whereby the same may be employed, and which may consequently be manufactured at a very low cost.

Reference is had to the attached sheet of drawings illustrating a practical embodiment of our invention, and in which drawings,

Figure 1 represents a sectional side view taken through the entire length of the muffler.

Figs. 2, 3, 4, 5 and 6 are sectional views respectively in the direction of the arrows, taken along corresponding sectional lines of Fig. 1.

Fig. 7 is a front view of a muffler constructed in accordance with my invention, and

Fig. 8 is an enlarged sectional view taken on the lines 8—8 of Fig. 4.

In all of these views like reference numerals designate similar parts, and the reference numeral 10 indicates the forward or inlet pipe of the muffler, and the reference numeral 11 the exhaust or outlet pipe of the same.

Associated with this device are conventional end portions of the muffler, supporting between them the cylindrical body 13. The body 13 is conveniently formed with a number of partitions, the first of which preferably includes a plate formed with centrally disposed cone shaped portion 14 adapted to project for a certain distance into the intake pipe 10, such plate being further formed

with radially extending curved slots 15 extending from a point adjacent the base of the cone portion 14 to the side edges of the plate. Vanes or out-struck portions 15' are arranged as has been indicated in Figs. 4 and 8 adjacent the slots 15 for a purpose hereinafter more fully specified.

A second partition, including a plate 16 formed with a central opening 17 is positioned to the rear and spaced from the first named plate in such a manner that the central opening 17 is substantially in line with the intake and exhaust pipes 10 and 11 respectively.

A further partition, including a plate 18 formed with any number of radial slots 19 is positioned within the body 13 to the rear of and spaced from the partition formed by the plate 16. Disposed between each of these partitions is a spirally coiled strip of any desirable material, as has been indicated at 20, it being noted that this strip provides a central bore, as has been shown in Fig. 1, and that adjacent strips extend in opposite directions as has been clearly shown in Figs. 2 and 3 for a purpose hereinafter more fully described.

Now with a view of holding all of the strips 20 in their proper position we conveniently position within the body portion 13 of the muffler, a number of transversely extending cross wires 21, which project through the convolutions of the strip 20 and serve to properly retain the same.

Now in operation it will be appreciated that the exhaust gas will enter through the intake 10 and will strike against the cone 14, whereby it will be distributed into that space existing between the plate forming the first partition, and the forward end portion 12. It will then enter the body of the muffler through the slots 15, and by virtue of their being curved, a slight twisting action will be given to the gases.

It will now be seen that the gases will flow through the channel formed by spacing over and under lying portions of the strip 20, and this channel will conduct the gases into the central bore beforementioned. It is to be noted that by having the slots 15 radially disposed that the products of combustion will be conveniently distributed through the coils of the strip 20, the gases entering the body of the muffler through the inner ends of the slots 15 merging into the

central bore first, that gas entering the outer ends merging subsequently into the bore.

5 The gases will now pass through the opening and will flow between the convolutions of the strip 20 positioned between the second and third partitions, and thus enter by means of the slots 19, the rearmost chamber of the muffler wherein they will be conducted toward the central bore of the same,
10 and through the end portions 12 into the exhaust pipe 11.

From the foregoing it will be appreciated that we have constructed a muffler in which
15 the gases will be so altered that the same will merge in the form of a steady stream by virtue of the twisting action imparted to the same, and the slots 15 and 19.

It will further be understood that gases
20 will travel through a much greater length of channels than is the case in a conven-

tional muffler where three or four lengths of pipe simply extend the distance between the end plates of the muffler.

Obviously numerous modifications of structure might be resorted to without departing from the scope of our claim, which reads—

A muffler, including a body portion, inlet and exhaust pipes connected to said body portion, a plate positioned adjacent the inlet end of the muffler, and provided with a centrally disposed cone shaped projection extending toward and in alinement with the inlet pipe, and adapted to deflect gases radially outward, said plate being formed with
30 radially disposed curved slots, and vanes attached to said plate adjacent each of said slots or imparting a whirling motion to fluid passing through said slots.

HOWARD C. EMMONS.
EUGENE E. EMMONS.