No. 702,031. Patented June 10, 1902.

A. G. RONAN.

MUFFLER.

(Application filed June 24, 1901.)

(No Model.)

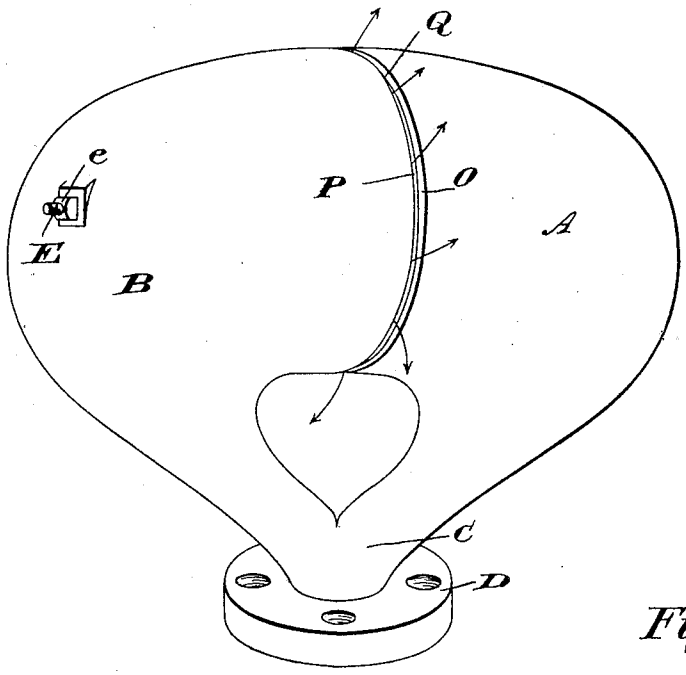


Fig. 1.

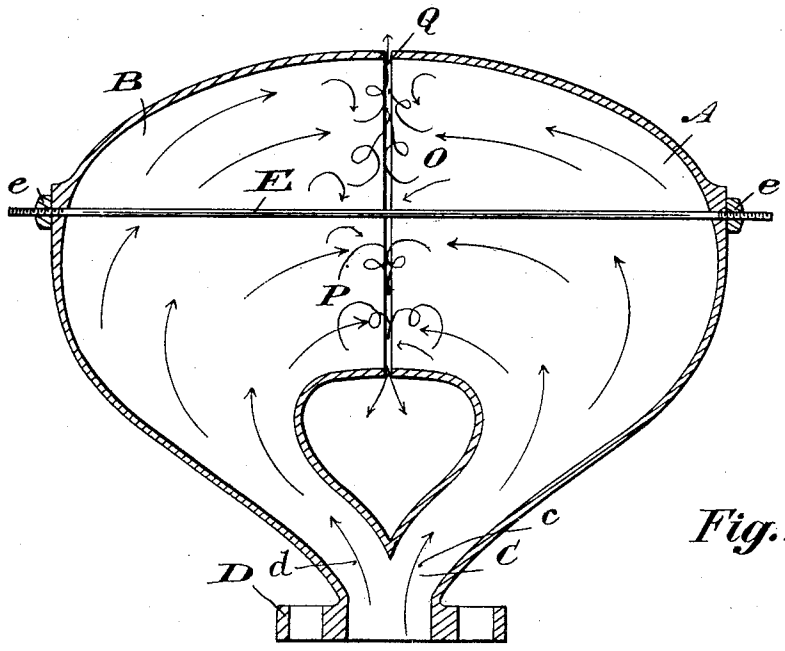


Fig. 2.

Witnesses.
J. F. Geny
Ella A. Francis

Inventor.
A. G. Ronan
by Egerton R. Case.
Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ANSON GROVES RONAN, OF TORONTO, CANADA.

MUFFLER.

SPECIFICATION forming part of Letters Patent No. 702,031, dated June 10, 1902.

Application filed June 24, 1901. Serial No. 65,865. (No model.)

To all whom it may concern:

Be it known that I, ANSON GROVES RONAN, a subject of the King of Great Britain, and a resident of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Mufflers, of which the following is a specification.

My invention relates to improvements in mufflers; and the object of my invention is to combine with a muffler, which comprises a plurality of hollow members, each of which is provided with an exhaust aperture or mouth and an intake-aperture, the said exhaust apertures or mouths being of the same size and placed directly opposite each other and in close proximity to each other, means for adjusting the distances apart of said exhaust apertures or mouths of said members, as hereinafter more particularly explained.

Figure 1 is a general perspective view of a muffler constructed as hereinafter particularly described, with my adjusting means attached to same. Fig. 2 is a vertical section through the muffler, showing the adjusting means for same.

In the drawings like letters of reference indicate corresponding parts in each figure.

The muffler is of course designed to be suitably secured to the engine and communicates with a suitable part of the combustion-chamber of same.

In the drawings I have shown the muffler as composed of the hollow members A and B, the exhaust-mouths O and P of which are of the same size and open directly opposite each other, as shown.

C is the neck of the muffler, from which branch off the said members. *c* and *d* are the intake-apertures of the members A and B, respectively. The neck C is provided with a suitable base D, which may be bolted to the engine, or else the said base may be secured to the engine in any of the ways well known in machine practice.

It will be seen from the drawings that the members A and B get larger from the intake-apertures of same toward the exhaust-mouths of same. This allows the waste products of combustion to expand before exhausting.

The object of my invention is to adjust the distance apart of the exhaust-mouths of the members of the muffler, so as to deaden the sound of the exhaust of the waste products of combustion to a minimum. I of course do not confine myself to any shape or form of muffler of which the action is the same as the one I describe, although I preferably use the muffler shown.

The waste products of combustion whirling through the member A rush from the mouth O of same and against the waste products of combustion rushing from the mouth P of the member B, as shown by arrows. The waste products of combustion then escape into the air by means of the space Q between said members. By means of so dividing the waste products of combustion and causing the different streams to rush one against the other I reduce the momentum of same and at the same time let the same immediately escape into the atmosphere through the regulated space Q, so that there will be no noise whatever of the exhaust. I find from experiment that the distance apart of the mouths of the members of the muffler is a most important factor in deadening the sound of the exhaust. On one occasion I reduced the distance between the exhaust-apertures from sixteen one-thousandths of an inch to nine one-thousandths of an inch with much better results. The mouths of the muffler must of course be of the same size and must be directly opposite each other.

In order to adjust the distances apart of the muffler's mouths, I pass from one to the other of the members a rod E, on the threaded ends of which I screw nuts *e*. This, it will be seen, effectually prevents any springing apart of the members. I of course do not confine myself to any particular means for adjusting the distances apart of the mouths of the muffler.

From experiment I have found that notwithstanding the small distance between the mouths of the muffler the said muffler causes little or no back pressure against the piston of the engine.

It is well known that in the production of sound the action of edges plays an important role. Therefore it will be my object to so con-

struct the edges of the muffler I use that the same will produce the minimum amount of sound.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with a muffler comprising a plurality of hollow members, each member being provided with an exhaust aperture or mouth, and an intake-aperture, the exhaust apertures or mouths of said members being of the same size and being placed directly opposite to each other and in close proximity to each other, of means for adjusting the distances apart of the exhaust apertures or mouths of said members.

2. In combination with a muffler comprising two hollow members provided with a common neck having a passage-way therein, each member having an intake-aperture opening from said neck, and being further provided with an exhaust aperture or mouth, the said exhaust apertures or mouths of said members being of the same size and being placed directly opposite each other and in close proximity to each other, of means for adjusting the distance apart of the exhaust apertures or mouths of said members, as described.

3. In combination with a muffler comprising two hollow members provided with a common neck having a passage-way therein, each member having an intake-aperture opening from said neck, and being further provided with an exhaust aperture or mouth, the said exhaust apertures or mouths of said members being of the same size and being placed directly opposite to each other and in close proximity to each other, the said hollow members being smallest at their intake ends and gradually getting larger toward their exhaust apertures or mouths, of an adjusting-rod provided with threaded ends passing through said members, near the upper portion of same and at right angles to their exhaust apertures or mouths, as shown, and nuts on the threaded ends of said adjusting-rod and on the outside of said muffler.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANSON GROVES RONAN.

Witnesses:
EGERTON R. CASE,
T. F. GERRY.