J. M. MICHAELSON.

MUFFLER.

APPLICATION FILED JUNE 6, 1911.

1,038,931. Patented Sept. 17, 1912.

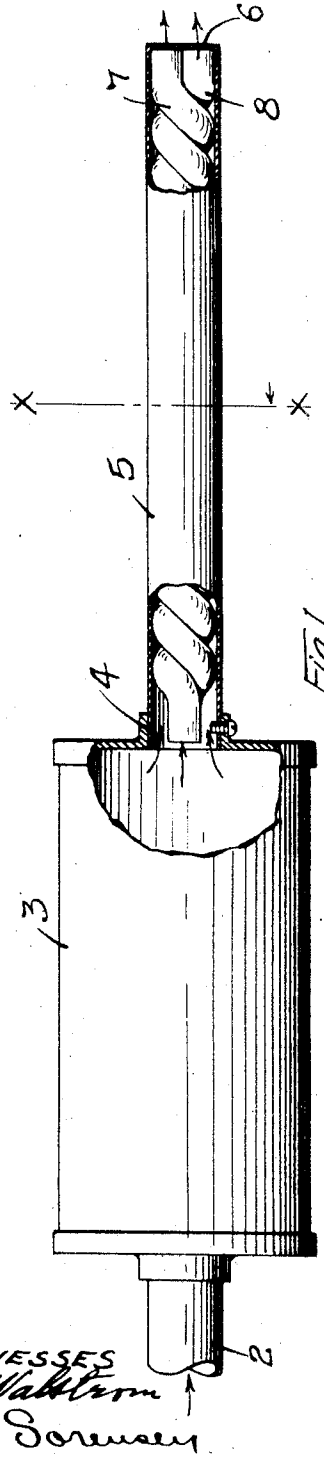

Fig. 1.

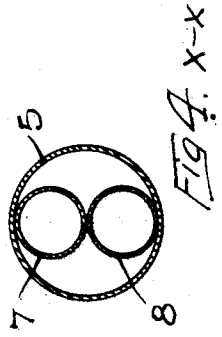

Fig. 4. x-x

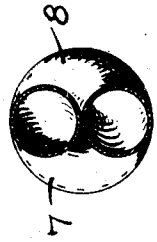

Fig. 3.

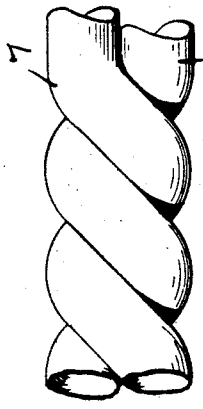

Fig. 2.

WITNESSES

A. M. Wahlstrom

H. E. Sorensen

INVENTOR

JOSEPH M. MICHAELSON

BY Paul & Paul

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSEPH M. MICHAELSON, OF MINNEAPOLIS, MINNESOTA.

MUFFLER.

1,038,931. Specification of Letters Patent. Patented Sept. 17, 1912.

Application filed June 5, 1911. Serial No. 631,236.

To all whom it may concern:

Be it known that I, JOSEPH M. MICHAELSON, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Mufflers, of which the following is a specification.

The object of my invention is to provide a simple, inexpensive muffler for gas engines by means of which the exhaust will be compelled to follow a circuitous path before being discharged into the atmosphere to the end that the explosions incidental to the usual discharge of an exhaust will be entirely eliminated.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a side view, partially in section, of a gas engine exhaust muffler embodying my invention, Fig. 2 is a detail view of the spirally arranged tubes forming part of my invention, Fig. 3 is an end view of said tubes, Fig. 4 is a transverse, sectional view on the line *x*—*x* of Fig. 1.

In the drawing, 2 represents an exhaust pipe leading from an engine and 3 a comparatively large expansion chamber, into one end of which the pipe 2 discharges. At the opposite end of the chamber 3 is an opening 4 communicating with a pipe 5 having an open discharge end 6. Within this pipe are tubes 7 and 8, twisted around one another to form a spiral and adapted to fit snugly within the pipe 5. These tubes are open at each end and their spiral arrangement forms comparatively long, circuitous passages through the pipe 5 so that by the time the gas reaches the discharge end of the pipe 5 the exhaust will be completely silenced, the gas becoming cooled and flowing out at the discharge end of the spirals and the pipe 5 without causing the explosions generally incidental to the discharge of the exhaust into the atmosphere.

In the operation of the device, the exhaust will enter the explosion chamber and from thence pass into the pipe 5, following the walls of the spirally coiled tubes and through the tubes themselves until the discharge end of the exhaust pipe is reached. The length of this pipe and the number of coils of the spirals may be varied until the desired result is obtained.

I claim as my invention:—

A muffler comprising an expansion chamber, an exhaust pipe leading therefrom and having open ends, tubes twisted together to form a spiral fitting within said pipe and also having open ends, the walls of said pipe being spaced from said tubes to allow the passage of the exhaust through said tubes or through the space between said tubes and the wall of said pipe and out at the discharge end of said pipe.

In witness whereof, I have hereunto set my hand this 31st day of May, 1911.

JOSEPH M. MICHAELSON.

Witnesses:
GENEVIEVE E. SORENSEN,
EDWARD A. PAUL.