March 24, 1931. A. J. F. WRIGHT 1,797,310

MUFFLER

Filed May 16, 1929

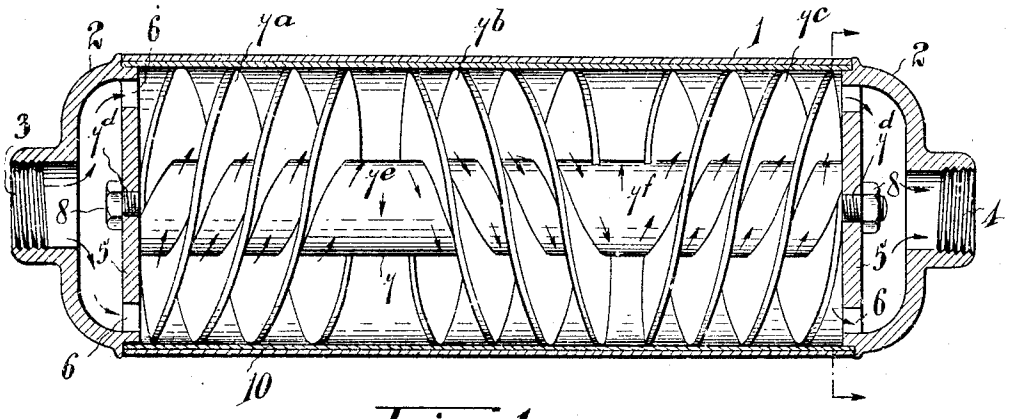

Fig. 1.

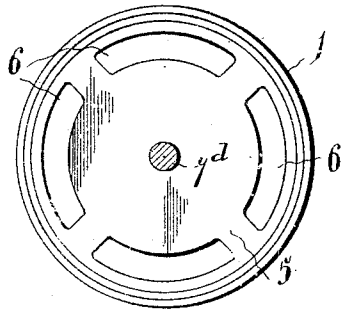

Fig. 2.

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SilencerCo - EX1025 - U.S. Patent No. 8,286,750

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UNITED STATES PATENT OFFICE

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MUFFLER

Application filed May 16, 1929. Serial No. 363,636.

This invention relates to mufflers of the type used in connection with internal combustion engines and my object is to provide a silent muffler in which the back pressure on the engine is reduced to a minimum.

I attain my object by arranging a core longitudinally of the muffler casing and providing the core with a helical wall formed in parts. The helix of each part is inclined to the axis of the core in a direction opposite to that of the helix of the adjacent part whereby the direction of movement of the exhaust gases through the passages, formed by the helical wall parts and the muffler casing, is alternated. The wall parts are preferably spaced apart to permit lateral expansion of the gases between the parts.

The constructions are hereinafter more fully described and are illustrated in the accompanying drawings in which

Fig. 1 is a longitudinal section of a muffler casing showing the core in side elevation therein; and

Fig. 2 a cross section on the line 2—2 in Fig. 1.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

The muffler comprises a casing 1 having ends 2 in which inlet and outlet openings 3 and 4 are formed. End plates 5 formed on or carried by the ends 2 are spaced from the inner ends of the inlet and outlet 3 and 4 and are provided with openings 6. These openings are located adjacent the inner peripheries of the ends 2 so that the end plates serve as baffles.

A core 7 having a helical wall formed in parts 7^a, 7^b and 7^c is provided with axially directed projections 7^d adapted to be passed through holes 5^a in the plates 5. Nuts 8 threaded on the projections hold the ends 2, core 7 and casing 1 together. Preferably a lining 10 is interposed between the casing and the periphery of the helical wall.

The helix of the part 7^b of the wall is inclined to the axis of the core in a direction opposite to that of the adjacent parts 7^a, 7^c. The exhaust gases entering the muffler through the inlet 3 are deflected by the adjacent baffle plate 5 through the openings 6 and then travel through the alternated right and left hand passages formed between the parts of the helical wall and the casing. Each part has a plurality of helices to form a plurality of passages. Preferably the parts 7^a, 7^b and 7^c are spaced apart to form expansion chambers 7^e and 7^f to permit lateral expansion of the gases before their direction of rotation is alternated. The gases pass from the interior of the casing through the openings 6 in the baffle plate 5 adjacent the outlet 4 and thence through the latter which is preferably the same diameter as that of the inlet 3.

What I claim is:

A muffler including a cylindrical casing having inlet and outlet ends; and an imperforate core arranged longitudinally of the casing and having a helical wall formed in sections, the helix of each section being inclined to the axis of the core in a direction opposite to that of the helix of the adjacent section to form a series of alternated right and left hand passages between the core and casing, the said wall sections being spaced apart on the core to form unobstructed expension chambers between the latter and the casing.

Signed at Toronto, Canada, this 29th day of April, 1929.

ALFRED J. F. WRIGHT.