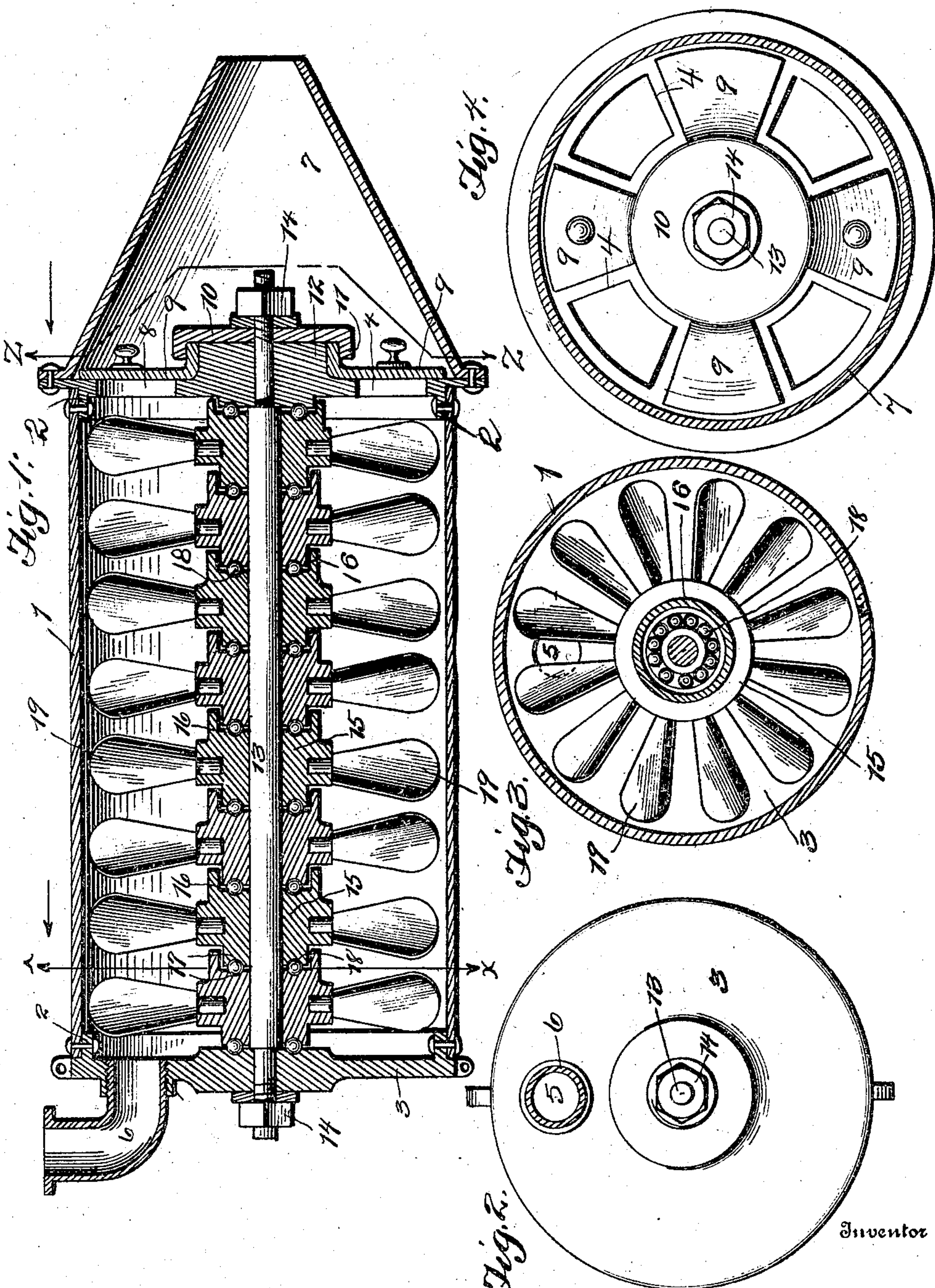


No. 832,124.

PATENTED OCT. 2, 1906.

S. E. FARMER.
MUFFLER.
APPLICATION FILED NOV. 1, 1905.



Witnesses

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UNITED STATES PATENT OFFICE.

SILAS E. FARMER, OF CINCINNATI, OHIO.

MUFFLER.

No. 832,124.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed November 1, 1905. Serial No. 285,458.

To all whom it may concern:

Be it known that I, SILAS E. FARMER, a citizen of the United States, residing at 3144 Durrell avenue, Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Mufflers, of which the following is a specification.

This invention relates to certain new and useful improvements in mufflers, of which the following is a full, clear, and exact description.

This invention contemplates a muffler to be used in connection with the exhaust of engines, and particularly explosive-engines.

The object of this invention is to arrange within the muffler revolving means operated by the pressure of the exhaust for splitting the force thereof with the least possible back pressure.

A further object of this invention is to produce a muffler which while highly efficient will be comparatively simple and inexpensive to manufacture.

Referring to the accompanying drawings, forming a part of this application, and in which like numerals of reference designate corresponding parts throughout the several views, Figure 1 is a vertical longitudinal section in elevation of the invention. Fig. 2 is a view in elevation of one end with the inlet-pipe in section. Fig. 3 is a sectional view taken on line X X of Fig. 1, and Fig. 4 is a sectional view taken on line Z Z of Fig. 1.

Reference-numeral 1 designates the cylindrical casing, which is secured in any suitable manner to the flanges 2 of the end plates 3 and 4. The rear plate 3 is provided with an inlet-opening 5, within which is secured the pipe 6, from the engine-exhaust. To the front plate 4 is secured a conical shell 7, provided with the usual outlet 8 to the atmosphere.

Openings 8 are provided in the front plate 4, and a spider 9 is arranged on one side of the plate 4 to regulate the openings 8. This spider is secured between the flanged edge 11 of a disk 10 and the hub portion 12 of the plate 4; this arrangement permitting revolution of the spider. A shaft 13 passes through the cylindrical casing and has its opposite end reduced and passed through the end plates, being stationary therein and secured by nuts 14, threaded on the said reduced ends. It

will be observed that the said disk 10 is secured in position against the hub 12 by one of the said nuts. Mounted on the said shaft is a plurality of rotating wheels, the alternate wheels rotating in the opposite direction from that in which the others turn. Each of the hubs 15 of the wheels is provided with an annular flange 16, which embraces the hub of the adjacent wheel. The adjacent faces of the hubs and end plates are each provided with an annular groove 17 or race for the reception of a series of ball-bearings 18, which take up the end thrust which is apt to occur. The blades 19 of the wheels are arranged an angle, and the distance between the blades of each wheel is slightly less than the diameter of the inlet-port 5 to always insure rotation of the wheels.

The operation is as follows: Upon the exhaust from pipe 6 striking the first wheel said wheel will be caused to rotate by reason of its being pitched, and as the force of the exhaust strikes the succeeding wheel the same is caused to rotate by the opposite inclination of its blades in an opposite direction, and so the operation is repeated throughout the series. The exhaust is permitted to escape from the muffler proper through the openings 8 into the conical shell 7. Attention is called to the fact that the speed at which the wheels rotate is governed by the opening and closing of the openings 8, governed by the spider 9.

By this construction it will be seen that there is little back pressure, as the wheels do not offer the resistance of a stationary body, as in the ordinary type of muffler, but at the same time a complete displacement of the exhaust through the splitting of the force thereof by the oppositely-rotating blades.

It is not intended that this invention be limited to the details of construction, as various changes may be made within the scope thereof.

Having fully described this invention, what is claimed as new and useful, and desired to be secured by Letters Patent, is—

1. A muffler comprising a casing, a stationary shaft therein, and a plurality of alternately oppositely rotating impeding elements.

2. A muffler comprising a casing, a stationary shaft therein, and a plurality of

blades on the shaft, the alternate blades being rotatable in opposite directions by the exhaust of the engine.

5 3. A muffler comprising a casing, a stationary shaft therein, blades mounted on the shaft, the alternate blades being rotatable in opposite directions by the exhaust from the engine, and ball-bearings between the adja-

cent faces of the blades, and the casing and the blades.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

SILAS E. FARMER.

Witnesses:

GEORGE D. KIMBELL,
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