

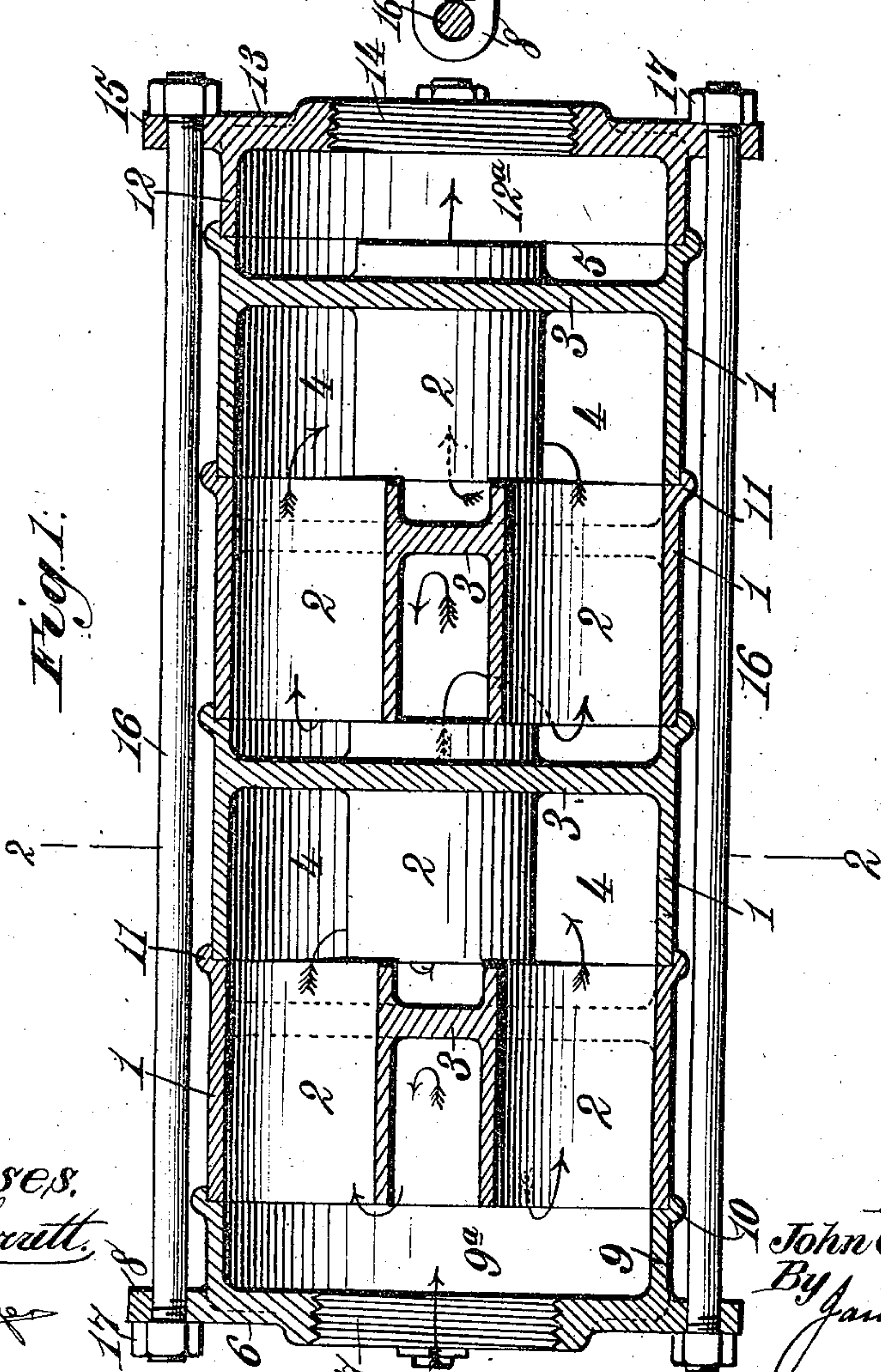
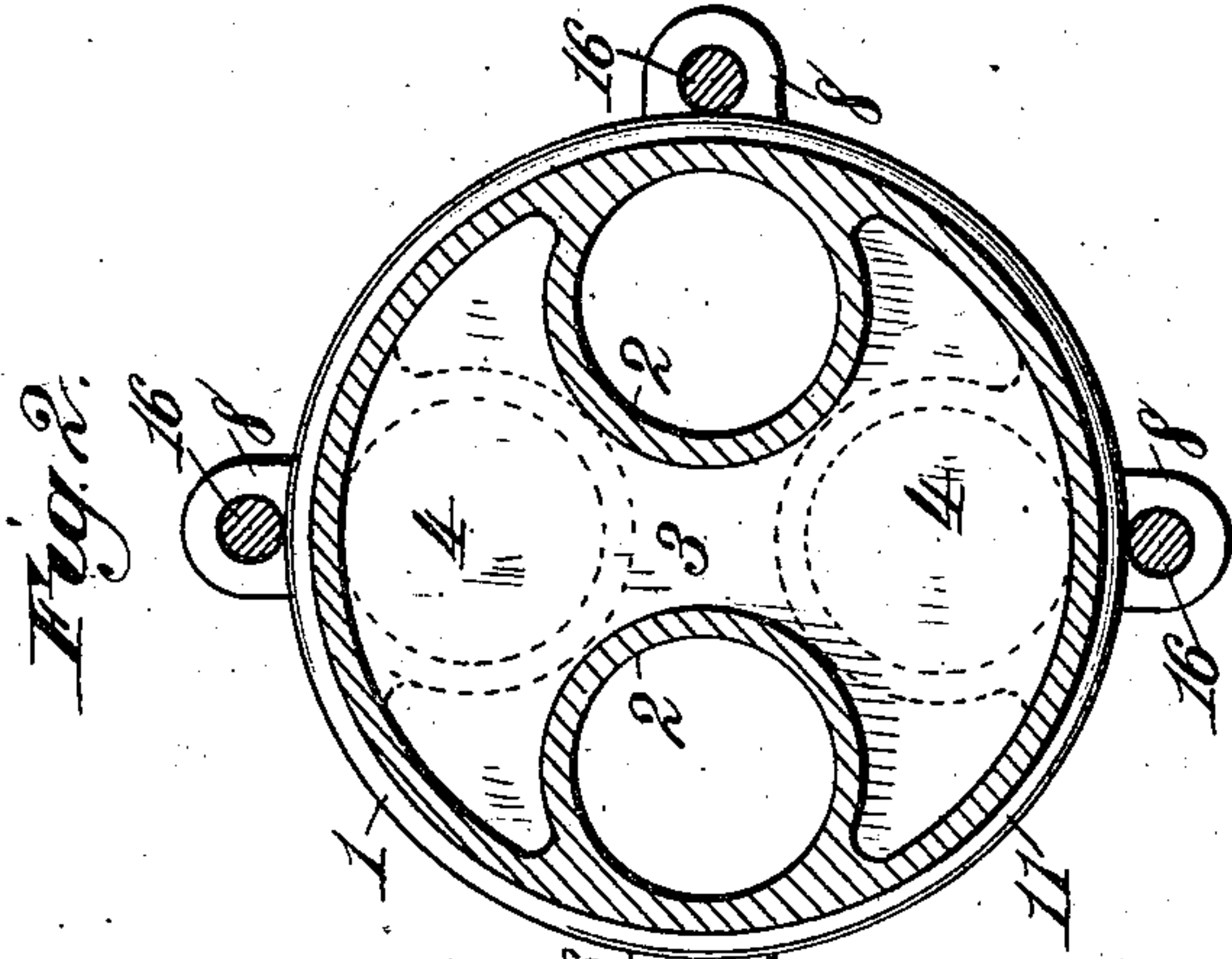
No. 666,622.

Patented Jan. 22, 1901.

J. C. GEBHART.  
MUFFLER FOR ENGINE EXHAUSTS.

(Application filed June 25, 1900.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

JOHN C. GEBHART, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO THE GULF MOTOR WORKS, OF SAME PLACE.

## MUFFLER FOR ENGINE-EXHAUST.

SPECIFICATION forming part of Letters Patent No. 666,622, dated January 22, 1901.

Application filed June 25, 1900. Serial No. 21,512. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. GEBHART, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Mufflers for Engine-Exhaust, of which the following is a specification.

This invention relates to an improved muffler for engine-exhaust, and has for its object to provide simple, efficient, and comparatively inexpensive means for obviating the noise of an engine-exhaust.

The invention consists in a muffler comprising a tubular casting—one or more—constructed with tubular exhaust-passages and a baffle or diaphragm—one or more—to break the current of the exhaust and obviate the usual blowing noise, and having an inlet-head and an outlet-head at opposite ends of the device for connection, respectively, with the exhaust-port of an engine and with any suitable final exhaust pipe or passage.

The invention also comprises a muffler composed of a plurality of detachably-connected castings, each having tubular exhaust-passages and diaphragms or baffles, said castings being so constructed and so arranged with relation to each other as to break the current of the exhaust, thereby obviating the usual disagreeable noises incident to engine-exhaust, an inlet-head, and an outlet-head, and, further, in details of construction, as hereinafter described and claimed.

In the annexed drawings, Figure 1 is a longitudinal section of my improved muffler for engine-exhaust. Fig. 2 is a transverse section of the same on the line 2 2 of the preceding figure.

The reference-numeral 1 designates a hollow cylindrical casting, open at both ends. In its interior, at diametrically opposite points, this casting 1 is formed with tubular exhaust-passages 2, Figs. 1 and 2, each of which is the full length of said casting. Within the casting 1 there is a web or diaphragm 3, located between the tubular passages 2, near their outlet ends, a chamber 4, Fig. 1, being left between the tubular exhaust-passages 2 at the inlet end of the casting. There is also a chamber 5, Fig. 1, at the outlet end of the casting beyond the web or dia-

phragm 3 and between the outlet ends of the exhaust-passages.

In constructing my improved muffler it is preferable to employ a plurality of the above-described hollow cylindrical castings. These castings are arranged as shown in Fig. 1, each alternate casting being quartered with the adjoining castings at its opposite ends, or, in other words, every alternate casting is turned on its axis to an angle of ninety degrees with relation to the adjoining castings.

The inlet end of the muffler is provided with a head 6, having a central circular inlet opening or port 7. This inlet-head has on its circumference a plurality of lugs 8, provided with suitable bolt-holes, and on its inner face it has an annular flange 9, provided with a shouldered or rabbeted collar 10 for receiving the inlet end of the first cylindrical casting. This annular flange 9 incloses a circular chamber 9<sup>a</sup>, hereinafter referred to. Each cylindrical casting, as shown, is also provided with a shouldered or rabbeted collar 11, Fig. 1, to receive the inlet end of the succeeding cylindrical casting comprised in the muffler, except that the shouldered or rabbeted collar 11 of the last casting receives an annular flange 12 on the inner side of an outlet-head 13, Fig. 1. The annular flange 12 incloses a chamber 12<sup>a</sup>, as shown. This outlet-head 13 is constructed with a central outlet-opening 14, as shown, and it is also provided on its periphery with a plurality of lugs 15, having bolt-holes therein. The bolt-holes of the lugs 8 on the inlet-head 6 and of the lugs 15 on the outlet-head 13 are for the reception of bolts or tie-rods 16, Fig. 1. By means of these bolts or tie-rods 16 and nuts 17 screwed on the ends thereof the several sections or parts of the muffler are securely held together without permitting any part to shift out of position with relation to the others.

The inlet-port 7 of the muffler is internally screw-threaded for connection with the exhaust-port of an engine, and the outlet-port 14 is similarly screw-threaded for connection with a final exhaust-pipe.

By reference to Fig. 1 it will be observed that a portion of the exhaust entering the muffler will pass into the chamber 4 of the



first cylindrical casting, while other portions will pass into the tubular exhaust-passages 2 of said casting. That portion of the exhaust which enters the chamber 4 will be obstructed 5 by the web or baffle 3 and will consequently be reflected and pass eventually into the exhaust-passages. From the outlet ends of the exhaust-passages of the first casting a portion of the exhaust will pass into the cham- 10 ber 4 of the second casting and being reflected therefrom will pass through the chamber 5 into the tubular passages 2 of the second casting, and so on throughout the muffler. In this way the current of the exhaust is broken, 15 and consequently the explosive noises of an engine-exhaust will be obviated.

It will be obvious that any number of hollow cylindrical castings 1 having the construction described may be employed in a 20 muffler, according to the requirements of the engine. When the parts are assembled and secured together as shown in Fig. 1 there is an inlet-chamber 9<sup>a</sup>, with which the exhaust-passages 2 and reflecting-chamber 4 of the 25 first casting are in communication, and at the other end of the muffler there is an outlet-chamber 12<sup>a</sup>, through which the exhaust-passages 2 are in communication with the final exit.

30 The construction of the muffler is such that any part thereof can be readily detached and replaced and the muffler can be shortened or lengthened without difficulty.

What I claim as my invention is—

35 1. In a muffler for engine-exhaust, a hollow, cylindrical casting having its interior provided at diametrically opposite points with tubular exhaust-passages extended the entire length of said casting and parallel therewith 40 and having a web or diaphragm located transversely between said tubular passages near their exit ends, substantially as described.

2. In a muffler for engine-exhaust, a plurality of connected hollow, cylindrical castings 45 each provided internally at diametrically opposite points with tubular exhaust-passages extended the entire length of a casting and each having a web or diaphragm located transversely between said tubular passages near 50 their exit ends, each casting being quartered

with relation to an adjoining casting, substantially as described.

3. In a muffler for engine-exhaust, the combination of a plurality of hollow cylindrical castings, each provided in its interior with 55 tubular exhaust-passages and a web or diaphragm between said passages, an inlet-head having an inlet-port, an outlet-head provided with an outlet-port, and means for detachably connecting the said castings and heads, 60 each casting being quartered with relation to adjoining castings, substantially as described.

4. In a muffler for engine-exhaust, the combination of a plurality of hollow cylindrical 65 castings, each having its interior provided with tubular exhaust-passages and with a diaphragm between said passages, every alternate casting being quartered with relation to adjoining castings, an inlet-head having 70 an inlet-port and an inlet-chamber, an outlet-head having an outlet-chamber and an outlet-port, and means for securely connecting the several castings and their heads, substantially as described. 75

5. In a muffler for engine-exhaust, the combination of a plurality of hollow cylindrical castings, each having a rabbeted collar on one end and provided in the interior with tubular 80 exhaust-passages and a diaphragm between said passages, every alternate casting being quartered with relation to the adjoining castings at its opposite ends, an inlet-head having a shouldered or rabbeted collar to receive 85 the plain end of the first casting and provided on its periphery with perforated lugs, an outlet-head to be engaged with the shouldered or rabbeted collar of the last casting and provided on the periphery with perforated lugs, 90 tie-rods or bolts engaged with the lugs of said heads, and nuts on said tie-rods, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN C. GEBHART.

Witnesses:

WM. M. STOCKBRIDGE,  
GEO. W. REA.