Aug. 16, 1949. J. W. JACKSON 2,479,165

ROTATABLE BAFFLE TYPE MUFFLER

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Fig. 1.

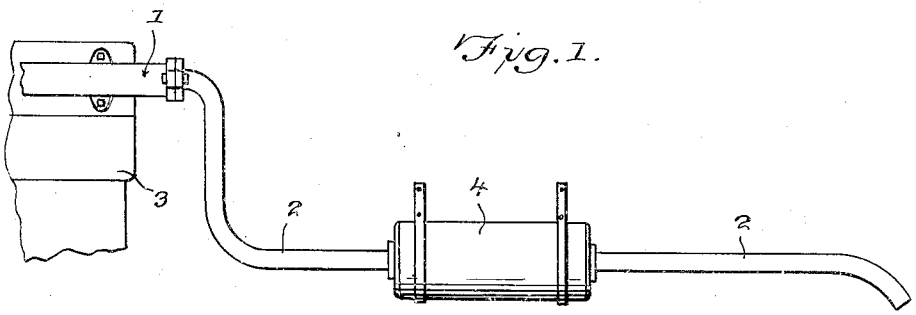


Fig. 2.

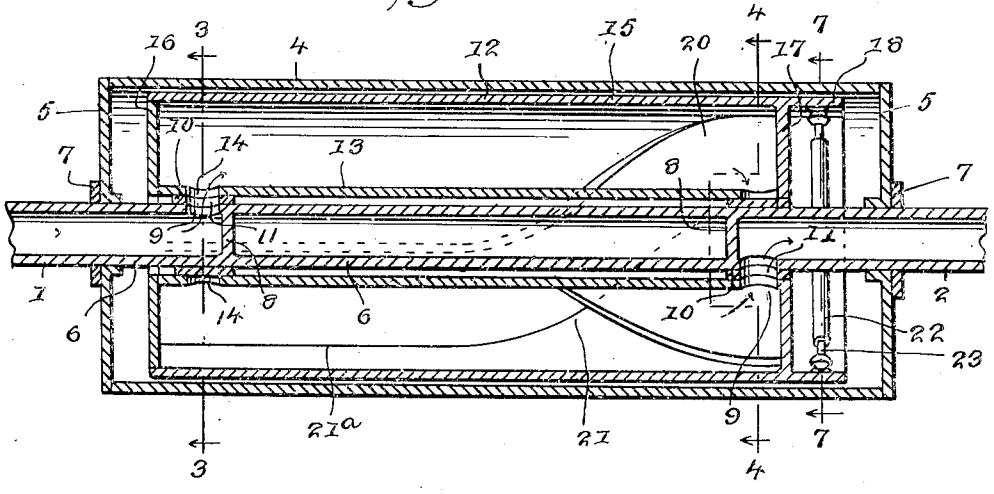


Fig. 3.

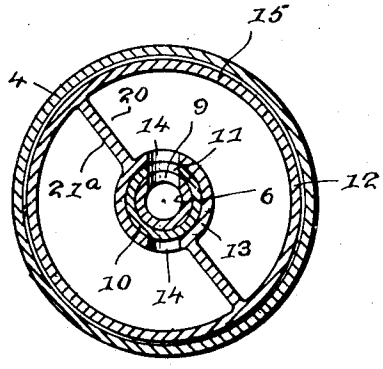
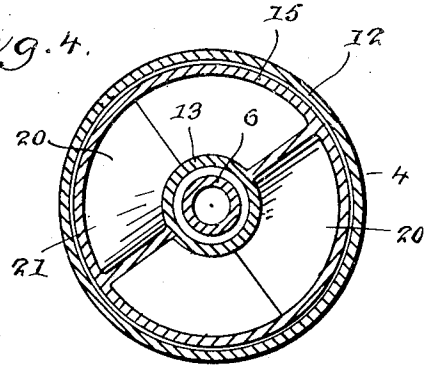


Fig. 4.



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Fig. 5.

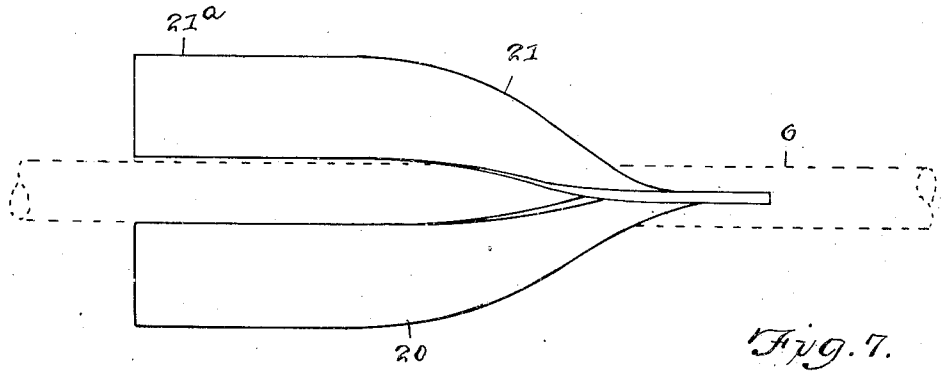


Fig. 7.

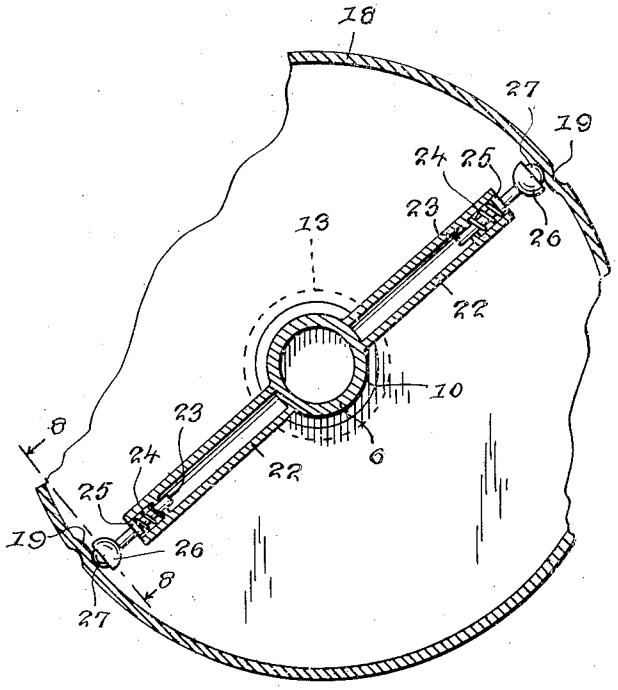


Fig. 6.

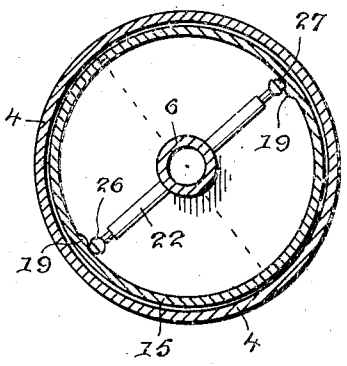


Fig. 8.

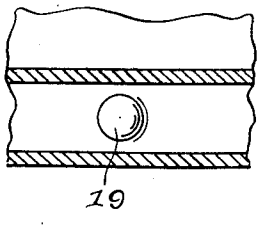
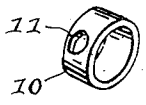


Fig. 9.



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ROTATABLE BAFFLE TYPE MUFFLER

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Application December 28, 1944, Serial No. 570,141

6 Claims. (Cl. 181—64)

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My present invention, in its broad aspect, is an improvement in mufflers and has for its principal object to more fully retard the explosive effect of exhaust gases, and carry such gases through a devious path before discharge into the exhaust pipe thereby to more fully eliminate noise. More particularly, it is my purpose to provide in conjunction with a core, a sleeve and a shell, a worm baffle which is turnable with the sleeve and shell and assists in breaking up the exhaust discharge and consequently eliminating noise.

Generally defined, the unique structural features attaining to the objects and advantages of my invention are the provision of a core in direct line with the exhaust discharge and which is partitioned to deflect the gases through lateral openings where they encounter the worm baffle which is supported and attached to a partially rotatable unit formed by the sleeve and casing to which the worm baffle is attached, whence they pass back into the core on the other side of the partition and are discharged into the exhaust pipe. The unit formed by the sleeve, casing and worm baffle makes a half turn or 90° turn upon each impulse of the exhaust, there being an anti-friction bearing and stop to accomplish that end.

Other and equally important objects and advantages of my invention are (1) to provide a worm baffle which turns under the impulse of the exhaust to cushion the impact thereof, break up the gases and retard the explosive effect thereof, (2) to provide in connection with the baffle exhaust openings so placed as to lead the exhaust gases through a devious path prior to discharge into the exhaust pipe to further absorb the expansive properties of the gases and reduce noise, and (3) to simplify, improve and render more practical and efficient the construction of the muffler.

Other and equally important objects and advantages of my invention will be apparent as the description proceeds, but changes are permissible in size, shape, form, arrangement and construction of parts, provided the same fall within the purview of what is claimed.

In the drawings wherein I have illustrated a preferred form of my invention:

Figure 1 is a view of an exhaust manifold and exhaust pipe in which my invention is interpolated:

Figure 2 is a sectional side elevation of my muffler.

Figure 3 is a transverse section taken on the line 3—3 of Figure 2.

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Figure 4 is a transverse section taken on the line 4—4 of Figure 2.

Figure 5 is a detail view of the worm baffle.

Figure 6 is a cross section showing the bearing elements carried by the core and engaging the casing.

Figure 7 is a transverse section taken on the line 7—7 of Figure 2.

Figure 8 is a fragmentary detail showing the form of the stops, and

Figure 9 is a detail of the bearing collar.

In the drawings wherein like characters of reference are used to designate like or similar parts throughout the several views:

The numeral 1 designates the exhaust manifold, and 2 the exhaust pipe of an internal combustion engine 3. My muffler which is interpolated in the exhaust pipe (as shown in Figure 1 has a cylindrical jacket 4 the closed ends 5 of which are fixed to the hollow core 6 as at 7. Exhaust gases are discharged into and out of the core in the direction of the arrows in Figure 2, and the core is provided with partitions 8 and lateral openings 9 so that upon striking the first partition they pass through the first opening, and after being operated upon in the manner hereinafter described return to the core through the rear lateral opening back of the rear partition and are thence discharged into the exhaust pipe 2. The core is provided with a bearing collar 10 at the front and rear openings, which collars are also provided with openings 11—see Figure 9—and mounted for rotation on the collars within the jacket 4 and spaced from the front and rear end walls 5 is a partly rotatable baffle unit generally designated by 12 and having a sleeve 13, with openings 14 registering with openings 9 and 11, mounted on the bearing collars 10. A cylindrical casing 15 has a front end wall 16 fixed to the sleeve, and a rear end wall 17 fixed to the sleeve, but located back of the rear edge of the casing to provide an extended portion 18 provided with a pair of stops 19—see Figure 8. Fixed to the sleeve and casing is a worm baffle 20 a portion of which is turned as at 21 and a portion of which has straight walls as at 21A. Mounted on the core 6 beneath the extension 18 of the casing are hollow bearing elements 22 in the ends of which are carried pins 23 and springs 24 pressing upon ribs 24 and the collars 25 on pins 23 to urge the pins outwardly. Each pin carries a ball cup 26 in which is a ball 27 pressing upon the inner wall of the extension 18 of the casing in line circumferentially with stops 19. Exhaust gases entering the core are deflected by the for-

ward or first partition 8 to pass through openings 9 and 11 with the unit formed by the sleeve 13 and casing 15 whence they strike the worm section 21 of haffle 20 rotating the unit 12 until the stops 19 contact with the bearing balls 25 whence the gases are discharged through companion registering openings in the sleeve, collar, and core, back into the core and out through the exhaust. The unit 12 rotates within the limits defined by the stops 19 and exhaust noises are effectively minimized.

While I have described in the foregoing a particular construction and arrangement of parts for the purpose of imparting a clear understanding of my invention, my broad inventive concept is only to be determined by reference to the appended claims.

I claim:

1. A muffler, comprising a core to receive the exhaust gases, and provided with lateral openings, partitions in the core to deflect the gases through the openings, a jacket, and a unit in the jacket mounted for limited rotation and having openings to receive the gases from the core and discharge the gases back to the core, and a worm baffle in the unit.

2. A muffler, comprising a hollow core having lateral openings therein and said core being partitioned between the openings, a jacket, bearing members on the core, a sleeve on the bearings and having limited rotational movement, a casing on the sleeve, a worm baffle mounted between the casing and the sleeve, the sleeve and bearing members having openings registering with the openings in the core to admit exhaust gases to the worm baffle, and means for limiting the rotational movement of the sleeve and casing assembly.

3. A muffler, comprising a jacket, a core extending through the jacket to receive exhaust gases, a casing in the jacket mounted for rotation about the core, bearing elements on the core engaging the casing, said casing formed with stops engaging the bearing elements to limit its rotational movement, bearing collars on the core, a sleeve carried by the casing and mounted on

the bearing collars, a worm baffle between the sleeve and casing and fixed thereto, and openings in the core, the bearing collars and the sleeve to permit exhaust gases to pass to and from the worm baffle, and the core having partitions between the openings therein.

4. A muffler for exhaust gases having a core to receive the gases, a rotationally mounted unit on the core for receiving the gases, means on the core for limiting rotation of said unit, and a worm baffle in said unit for cushioning said gases and minimizing their explosive effect, said worm baffle formed with curved positions and straight portions, and anti-friction means forming a bearing for said unit.

5. A muffler, comprising a jacket, a cylindrical casing in the jacket and spaced therefrom and having end walls, one of which is spaced from the end of the casing, a sleeve fixed to the casing, a worm baffle fixed to and between the sleeve and casing, a core on which the casing is mounted and provided with lateral openings, a partition between the openings, the sleeve having openings registering with the openings in the core, and bearing elements carried by the core and engaging the wall of the casing beyond its end.

6. A muffler, comprising a hollow core, a jacket mounted on the core, a rotationally mounted unit carried by the core within the jacket and said unit and said core formed with opening to admit exhaust gases from the core to the unit, means carried by the core for limiting the rotational movement of the unit, a worm baffle in said unit, and said unit formed with a sleeve and a casing supporting the worm baffle.

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