April 30, 1963 M. KATOGIR 3,087,579

MUFFLER

Filed March 2, 1961

FIG. 1

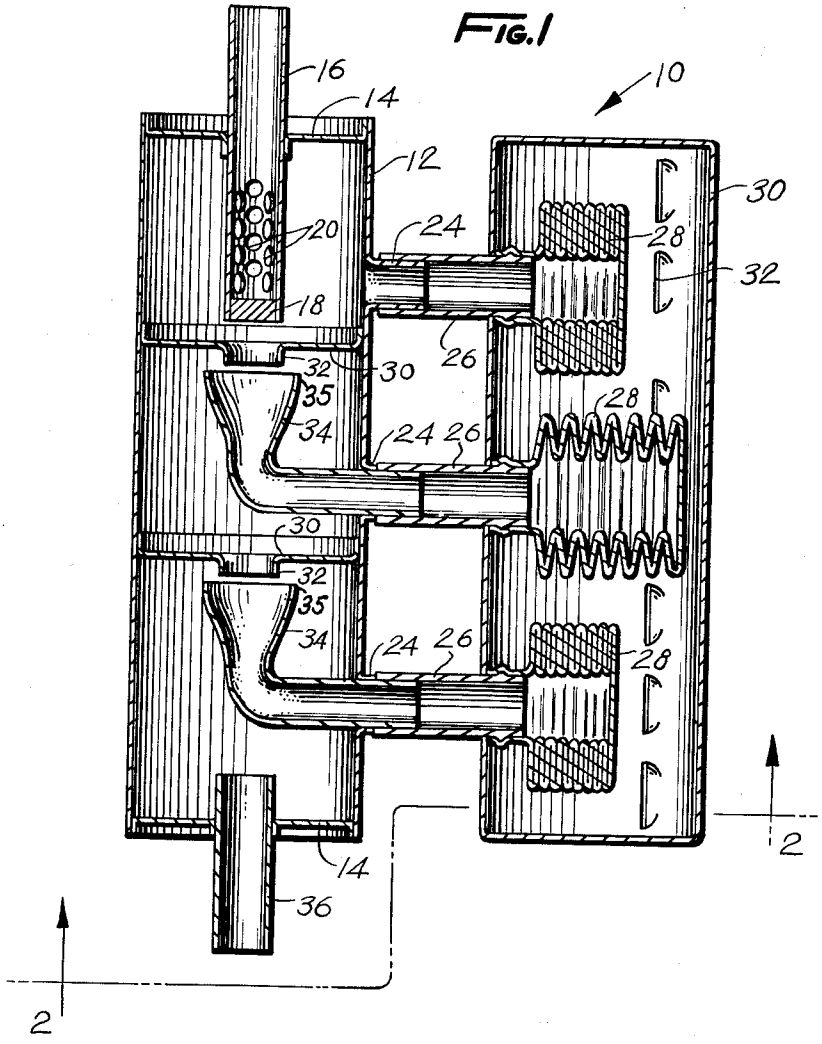
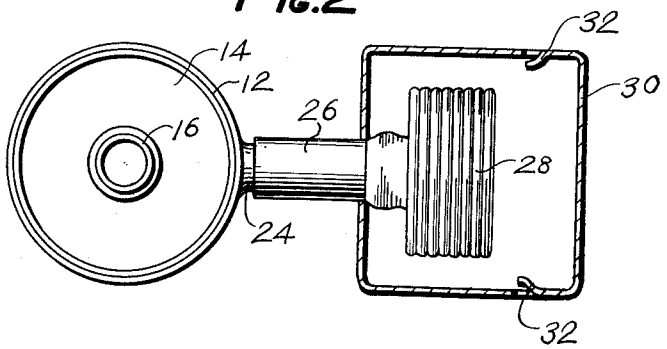


FIG. 2



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3,087,579
Patented Apr. 30, 1963

3,087,579

MUFFLER

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Filed Mar. 2, 1961, Ser. No. 92,805
5 Claims. (Cl. 181—57)

This invention relates to mufflers and more particularly to a quiet and effective muffler for internal combustion engines.

It is an object of the present invention to provide a muffler for automobile engines which will effectively reduce the noise of the exhaust gases, and which will readily reduce the pressure of the exhaust gases of the engine.

Still another object of the present invention is to provide a muffler of the above type which can be readily installed in all types of automotive vehicles, and which can be readily serviced or replaced whenever required.

Other objects of the invention are to provide a muffler bearing the above objects in mind which is of simple construction, has a minimum number of parts, is inexpensive to manufacture and efficient in operation.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in conjunction with the accompanying drawing, in which:

FIGURE 1 is a longitudinal cross sectional view of a muffler assembly made in accordance with the present invention; and

FIGURE 2 is a fragmentary cross sectional view taken along line 2—2 of FIGURE 1.

Referring now more in detail to the drawing, a muffler **10** made in accordance with the present invention, is shown to include a main cylindrical vessel **12** having an end wall **14** at each end with an inlet duct **16** projecting through one end wall and an outlet **36** projecting outwardly through the opposite end wall. The inlet duct **16** may be connected to the exhaust manifold of the internal combustion engine, with the innermost end of the duct **16** having a plurality of apertures **20** through which the gas may exhaust into the interior of the vessel **12**, the adjacent end of the duct piece **16** being closed by an end piece **18**.

The interior of the main vessel **12** is divided into three separate compartments by a pair of partition walls **30**, each having the central flanged aperture **32**. Each of the compartments is provided with a fitting **24** upon which a duct **26** is secured at one end. The opposite end of each duct piece **26** extends through the side wall of an auxiliary housing **30** having vents **32**, for connection to individual expansible diaphragms **28**.

Two of the compartments are provided with a pair of L-shaped duct members **34** having flared inner ends **35** directly beneath the flanged apertures **32** of the baffle plates **30** for directing exhaust gases into the respective connecting ducts **26** communicating with the respective diaphragm **28**.

It will now be recognized that in actual use, the exhaust gases are initially introduced to the system through the inlet duct **16**. The gases are first allowed to expand within the main vessel **12** and are then directed to the expansible diaphragm **28**, which individually will expand

to accommodate the pressurized gases, and will intermittently return to their normal collapsed position in response to intermittent reduction in pressure within the main vessel **12** during the discharge of the exhaust gases through the outlet duct **36**.

It will thus be recognized that the bellows **28** serve to reduce the kinetic energy of the gases, thus reducing the noise level and gas pressure during final exhaust outwardly through the exhaust duct **36** which can be connected to the tail pipe of the vehicle.

The vents **32** allow for the expansion and contraction of the bellows **28** without resistance as would otherwire result from the build up of pressure within the auxiliary housing vessel **30**.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. A muffler comprising, in combination, a main vessel having an inlet at one end and an outlet at the opposite end, an auxiliary vessel, expansible units mounted within said auxiliary vessel, partition means having apertures and dividing the interior of said main vessel into a plurality of individual compartments between said inlet and said outlet, individual ducts communicating between each said compartment and the respective one of said expansible units, and vent means in said auxiliary vessel allowing for the expansion and contraction of said expansible units.

2. The combination according to claim 1, wherein said main vessel comprises a substantially cylindrical enclosure, and said partition means comprise substantially circular baffle plates extending transversely within the interior of said enclosure.

3. The combination according to claim 2, wherein said auxiliary vessel comprises a substantially cylindrical enclosure and wherein said vent means includes a plurality of vents in the side wall of said auxiliary vessel to communicate between the interior of said auxiliary vessel and the atmosphere, certain of said individual ducts which extend between the respective compartments of said main vessel and said respective expansible units within said auxiliary vessels having open inner ends aligned with said apertures for receiving gases as said gases enter their respective compartments.

4. The combination according to claim 3, wherein said expansible units comprise individual bellows mounted for movement between a normally contracted and an expanded position.

5. The combination according to claim 4 wherein said open inner ends flare outwardly toward said apertures and terminate in spaced relationship thereto.

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