March 14, 1939. M. L. WARSING 2,150,530

MUFFLER

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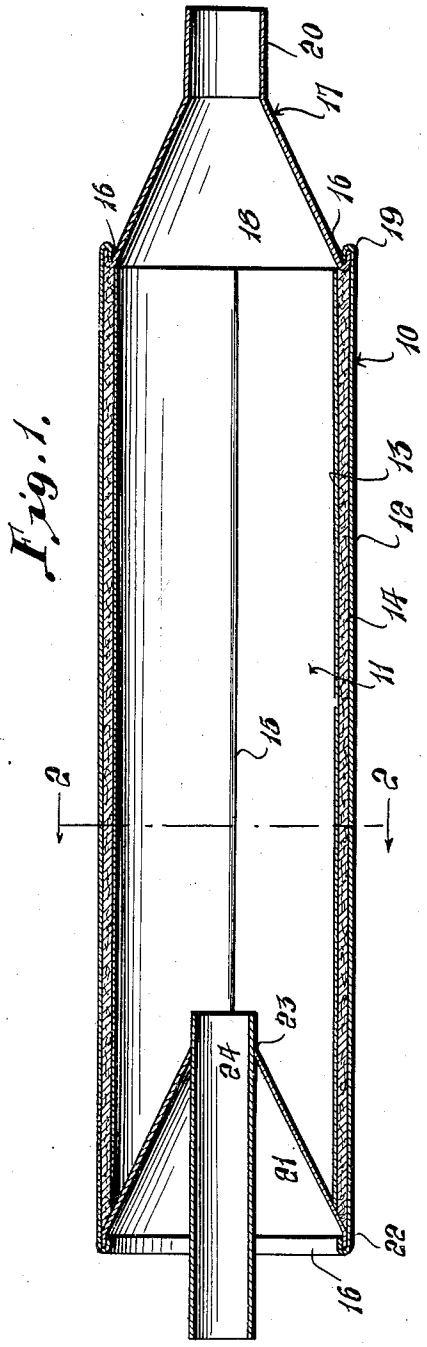


Fig. 1.

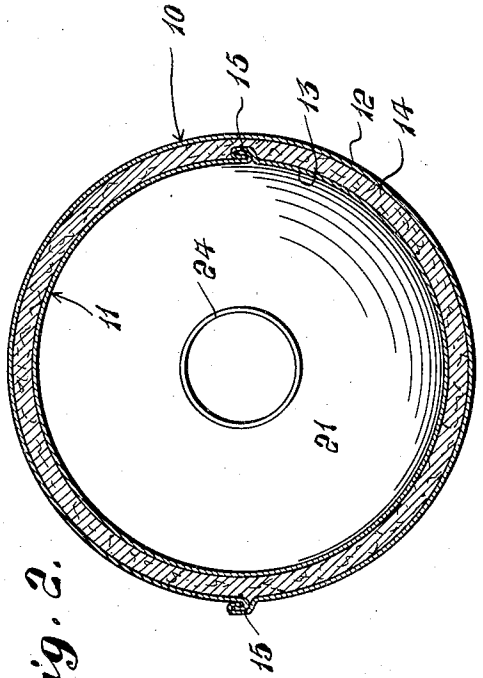


Fig. 2.

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MUFFLER

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3 Claims. (Cl. 181—42)

This invention relates to an improved muffler for internal combustion engines.

An important object of this invention is to provide a muffler permitting a straight exhaust of the gases from the engine.

Other objects of the invention are to provide a muffler having inner and outer tubes constructed to prevent a blow-out; an asbestos lining between said tubes to dampen the sound, to absorb moisture, to prevent fire, and to form a padding to cushion the tubes to resist any pressure tending to cause a blow-out; and means to permit expansion of the gases combined with a restricted outlet to facilitate complete expansion and cooling before exhaustion.

Other objects and advantages of the invention will hereinafter become more fully apparent from the following specification of which the drawing forms a part, and wherein:

Figure 1 is a longitudinal central sectional view of the invention, and

Figure 2 is a cross sectional view on the line 2—2 of Figure 1.

Referring more particularly to the drawing wherein like reference characters designate like or corresponding parts throughout, 10 designates generally a muffler including a casing 11 comprising an outer tube 12 and an inner tube 13 held in spaced relationship to each other by the material 14 which is preferably asbestos. Tubes 12 and 13 are each formed of a sheet of metal having their longitudinal edges bent upon themselves and interlocked to form the joints 15 which are then welded. The joints 15 of tubes 12 and 13 are arranged at opposite sides of the casing 11.

The tube 12 is substantially longer than the tube 11 and has its ends bent inwardly upon themselves to form the inwardly extending flanges 16 which are spaced from the remaining portion of tube 12. A funnel shaped inlet pipe 17 is bent outwardly upon itself at its larger end 18 to form the annular flange 19 which is interlocked with the flange 16 at one end of the casing 11. The reduced end 20 of pipe 17 is adapted to be connected to the exhaust outlet of an internal combustion engine, not shown.

A cone shaped member 21 is mounted in the opposite end of casing 11 with its larger end 22 clamped between the other flange 16 and the adjacent portion of tube 12. Member 21 projects inwardly of casing 11 and terminates at its smaller end in an opening 23 in which is mounted the exhaust pipe 24.

The opposite ends of the tube 13 engage against the portion 18 and the cone shaped member 21 to hold flange 19 and portion 22 in engagement with the respective flanges 16.

From the foregoing it will be obvious that muffler 10 provides a straight exhaust wherein the gases enter the portion 20 and are permitted to expand as they pass into the tapered portion 18 and on into casing 11. Member 21 restricts the outlet of the gases so that they will have a chance to become cooled before passing out through pipe 24. The asbestos lining 14 acts to dampen the sound, to cushion the tubes 12 and 13, to prevent blow-outs of the casing 11, and to absorb the moisture carried by the exhausted gases to prevent tubes 12 and 13 from rusting. The welded joints 15 arranged at opposite sides of casing 11 provide the maximum of resistance to the pressure within the casing 11. This muffler providing a straight exhaust increasing the power of the engine while retaining all the advantages of more complicated muffler construction.

Only the preferred embodiment of the invention has been disclosed, various changes and modifications may be made without departing from the spirit and scope of the invention as hereinafter claimed.

I claim as my invention:

1. A muffler for internal combustion engines comprising inner and outer tubes forming a casing, asbestos mounted between said tubes to form sound insulation, said outer tube being longer than said inner tube and having its ends bent inwardly upon themselves to form inwardly extending flanges, a tapered inlet pipe connecting with the engine and having its larger end bent outwardly upon itself to interlock with one of said flanges, a cone shaped member extending inwardly of said casing and having its large end clamped by the flange at the opposite end of said tube, and an exhaust pipe mounted in the reduced end of said cone shaped member, said cone shaped member restricting the exhaust from said casing to permit the gases to be expanded and cooled before passing out of the casing.

2. A device as in claim 1, and said inner tube having its ends abutting respectively against said inlet pipe and cone shaped member to hold them in locking engagement with said flanges.

3. In a muffler, a cylindrical body comprising inner and outer tubes containing an intermediate lining of sound proof material, said tubes having longitudinal seams at opposite sides of said body, said outer tube extending beyond the ends of said

inner tube and having its ends turned inwardly upon themselves to form inwardly extending flanges, an inlet pipe having a diverging end turned outwardly at its free edge to interlock with one of said flanges, a cone shaped member having its enlarged end engaging the other flange and projecting inwardly therefrom, the ends of said inner tube abutting against said cone shaped member and inlet pipe to retain them in engagement with said flanges, and an outlet pipe extending through the restricted end of said cone shaped member.

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