S. I. FEKETE.

MUFFLER FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED FEB. 23, 1918.

1,305,347. Patented June 3, 1919.

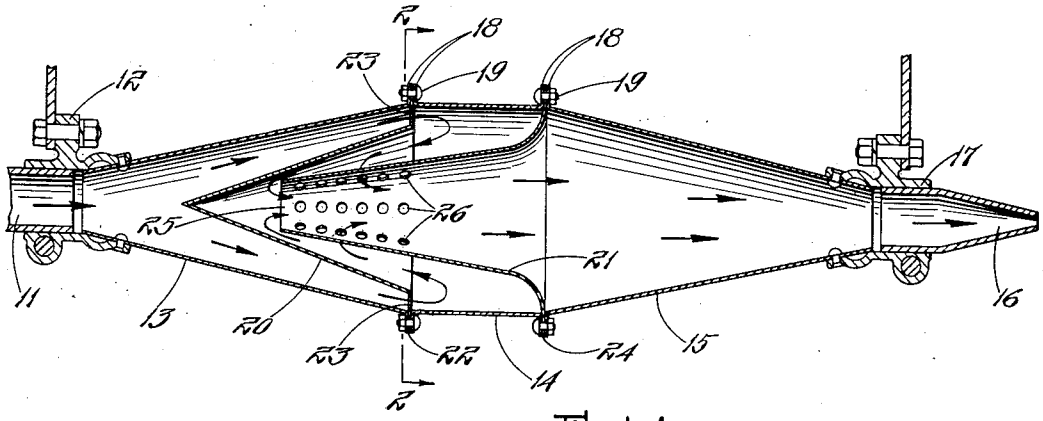


Fig. 1.

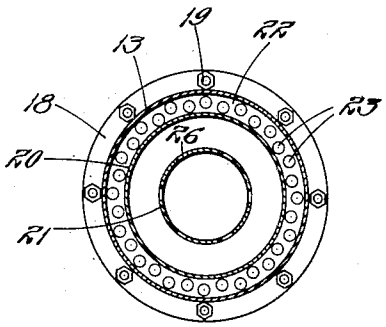


Fig. 2.

INVENTOR:

Stephen I. Fekete

by Marshall, Calver, Copeland & Dehg.

Attys.

UNITED STATES PATENT OFFICE.

STEPHEN IVAN FEKETE, OF DETROIT, MICHIGAN, ASSIGNOR TO ESSEX MOTORS, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

MUFFLER FOR INTERNAL-COMBUSTION ENGINES.

1,305,347. Specification of Letters Patent. Patented June 3, 1919.

Application filed February 23, 1918. Serial No. 218,656.

To all whom it may concern:

Be it known that I, STEPHEN I. FEKETE, a subject of the King of Hungary, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Mufflers for Internal-Combustion Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object a new and improved muffler for application to the exhaust of internal combustion engines. The particular object of the invention is to provide a muffler which can be made inexpensively and which shall completely muffle the exhaust of the engine without producing objectionable back pressure. Another object of my invention is to produce a muffler which can be taken apart and cleaned with a minimum of effort.

The invention will be fully understood from the following description when taken in connection with the accompanying drawings and the novel features thereof will be pointed out and clearly defined in the claims at the close of this specification.

In the drawings, Figure 1 is a longitudinal section of a muffler embodying my invention.

Fig. 2 is a section taken on line 2—2 of Fig. 1.

Referring now to the drawings, at 11 is shown the exhaust pipe and at 12 a support therefor. The outer shell of the muffler comprises a frusto-conical shell 13 the small end of which is of substantially the diameter of the exhaust pipe 11, a cylindrical portion 14 and a second frusto-conical portion 15 the base of which is toward the base of the first mentioned frusto-conical portion. To the small end of the frusto-conical section 15, is secured a discharge nozzle 16. At 17 is shown a supporting bracket similar to the supporting bracket 12 already referred to. Each of the sections 13, 14 and 15 which together comprise the exterior shell of the muffler is provided with out-turned flanges 18 through which pass bolts 19 securing the parts together.

Located within the muffler shell are two partitions 20 and 21. The partition 20 which is nearest the intake end of the muffler is conical in shape with a flange 22 which extends between the proximate flanges 18, 18 of the frusto-conical shell 13 and cylindrical shell 14 respectively. The largest diameter of the conical partition 20 is considerably less than the large interior diameter of the frusto-conical portion 13 so that the flange 22 is of a width sufficient to admit of a series of perforations 23. The point of the conical partition 20 is toward the intake of the muffler. The partition 20 and the shell 13 together form a diverging space the walls of which converge toward the perforated flange 22.

The partition 21 is frusto-conical in shape and has a flange 24 inserted between the perforated flanges 18, 18 of the cylindrical shell 14 and the frusto-conical shell 15. The frusto-conical partition 21 tapers toward the intake end of the manifold but is open at its end as shown at 25 and contains a series of perforations 26 about its sides but said perforations preferably are all located nearer the intake end of the muffler than are the perforations 23 in the flange 22. By this means, direct flow through the muffler is prevented as would result if the perforations 26 were located nearer the exhaust end of the muffler than the perforations 23. The space between the conical partition 20 and the frusto-conical partition 21 is somewhat constricted in the direction of flow and therefore tends to check the velocity of flow of the exhaust gases. The holes 23 and 26 break up the flow and assist materially in rendering the exhaust quiet.

After passing through the perforations 26 the exhaust gases expand gradually within the partition 21 and then pass into the frusto-conical shell 15. They finally escape into the atmosphere through the constricted nozzle 16. The muffler is of such a construction that the exhaust gases on entering the muffler expand as they pass through the shell 13; their direction is then changed after passing through the perforations 23 and again after passing through the perforations 26. Throughout the entire distance the heat contained in the gases is being radiated from the exterior of the muffler so that the tendency to expand suddenly is reduced.

The muffler embodying my invention is very inexpensive to manufacture and to assemble and is thoroughly effective for the purposes intended. When it is desired to clean the muffler, this may be easily and quickly done by removing the bolts 19 after

which the parts of the shell and the interior partitions may be separated and cleaned.

What I claim is:

1. The improved muffler for internal combustion engines comprising a frusto-conical shell section, a cylindrical shell section, a second frusto-conical shell section, said parts arranged with the large ends of the frusto-conical sections abutting the ends of the cylindrical section, a conical partition within the said shell sections the apex pointing toward the inlet end of the muffler and a second partition of conical shape and having its small end pointing in the direction of the inlet end of the muffler, said partitions being perforated the perforations in the partition which lies nearer the exhaust end of the muffler being nearer the inlet end of the muffler than are the perforations in the partition which is nearer the inlet end of the muffler.

2. The improved exhaust muffler which comprises a shell made up of two frusto-conical end sections arranged base to base with a cylindrical section connecting them, a conical interior partition, the apex of which is toward the intake end of the muffler, and having a flange about its base interposed between the contacting edges of the cylindrical center section and the inlet end section, said partition being perforated about its base and a frusto conical interior partition the small end of which is open and extends toward the inlet end and into the interior of the other partition, said second partition having an imperforate flange about its base interposed between the contacting edges of the cylindrical center section and the outlet end section so that the exhaust gases enter through one frusto-conical end section into the cylindrical section, and pass thence back between said two partitions, and thence through the frusto-conical interior partition, and out through the second frusto-conical end section.

In testimony whereof I affix my signature.

STEPHEN IVAN FEKETE.