Description of the preferred embodiments

In reference first to the assembly appearing in FIG. 1, the muffler has an outer tubular shell 10, the longitudinal extent of which may vary, e.g. as between 1 to 2 feet depending upon the requirements of dependent engines or installations. Preferably the ends of the muffler shell are swaged or reduced at 11, one end connectable as by pipe or fitting indicated by the broken lines 12 with the engine exhaust manifold, and the outlet end with a tailpipe 13 although in some instances the tailpipe may be omitted.

The shell 10 contains a helical baffle 14 which, like the shell may be formed of heat resisting metal, the baffle extent being generally between and in terminal proximity to the swaged shell ends 11. The baffle is shown to be peripherally bonded to the shell at spaced intervals by welding or brazing at 15 through openings in the shell. Entering from the inlet 12 the engine exhaust gas travels both a helical path through the continuous spaces 16 between the baffle turns and within a central through-passage 19, see FIG. 2 defined by the inner edge of the baffle.

The invention is primarily concerned with the baffle configuration particularly illustrated in FIG. 3 wherein the baffle is shown to have uniformly spaced radial corrugations 17 produced by cold deformation of the baffle metal, the corrugations starting from radially outward locations along the helic strips and increasing as illustrated to a considerable depth at the inner edge 16a of the baffle as in the portions shown in FIG. 3. Thus the corrugations present baffling progressively projecting crenels 17a and channels 17b, impinged against and swept by the gas stream throughout the course of its helical passage in the channel 16.

As previously indicated, additional attenuation is given the gas flow by the formation of apertures 18 through the baffle outwardly from the corrugations 17, with which the apertures may be radially aligned.

During its passage through the muffler the gas stream has lateral sweeping impingement against the corrugations 17 resulting in localized baffleting of the gas and deflection of a portion through the corrugation channel 17b into the through-passage 19. Turbulence in the latter also tends to reversely displace some of the gas back into the helical space 16 and through the corrugation channels 17b. The total effect is productive of attenuation of the sound pulsations or waves in the gas stream, contributory to their elimination at audible level in the discharge gas. Presence of the apertures 18 through which the gas flow is restricted, further attenuates the gas flow so that the end result is a muffler performance eliminative of high efficiency of all audible sounds.

I claim:
1. An engine muffler comprising a tubular shell, an extended helical baffle of single sheet metal thickness within the shell and having its turns radially corrugated at increasing depth toward the inner edge of the baffle, said corrugations presenting deflecive impingement surfaces about a central passage defined by the inner edge of the baffle to combustion gases being directed spirally between the baffle turns, said baffle having spirally spaced apertures radially outwardly beyond the corrugations.

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ROBERT S. WARD, JR., Primary Examiner.