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FIREARM SUPPRESSOR BAFFLE

Abstract

A firearm suppressor baffle of the invention includes a plurality of baffles, one or more vertical support members, and a body enclosing the baffles and the vertical support members. In addition, the one or more vertical support members are fixed to at least two of the baffles. The firearm suppressor baffle is effective in sound suppression, ruggedness, and can be manufactured economically.

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Background/Summary

CROSS REFERENCE [0001] This U.S. Non-Provisional Application claims benefit to U.S. Provisional Application Ser. No. 63/553,561, which was filed Feb. 14, 2024.

BACKGROUND

[0002] A firearm suppressor reduces the sound volume of a firearm muzzle blast by enclosing the muzzle in a can shaped body that has a hole in the end of the can aligned to the firearm barrel bore so that the bullet can escape. Inside the can is a baffle structure that slows the escape of the gases before exiting the bullet hole. The simplest silencer has a plurality of washer shaped baffles separated by short sections of pipe that either stand off the washer shaped baffles inside an external body (can), or are themselves the body/can and welded directly thereto.

[0003] Firearm suppressors have undergone much development from the simplest example above that results in better sound suppression, ruggedness, and reduced size and weight, primarily by design of the baffle structure. However, there is a great deal of labor and materials involved in these technologies. Therefore, a new baffle design that is rugged and economically manufactured is desirable.

Description

BRIEF DESCRIPTION OF DRAWINGS

[0004] FIG. **1**A is the top view of the firearm suppressor baffle.

[0005] FIG. **1**B is the side view of the firearm suppressor baffle.

[0006] FIG. **1**C is the disassembled view of the firearm suppressor.

[0007] FIG. **2** is a perspective view of a baffle.

[0008] FIG. **3** is a side view and a top view of an embodiment of a baffle.

[0009] FIG. **4** is a perspective view of 4 trapezoidal members without other baffle parts.

DETAILED DESCRIPTION OF INVENTION

[0010] An embodiment of this invention comprises washer type baffles that are further supported with vertical support members. See FIG. **1**A (top view), **1**B (side view), and **1**C (disassembled view). This embodiment comprises washer baffles **101** and vertical support members **110**. The vertical support members **110** are fixed (by way of non-limiting example, welded) to vertical support mount locations **103** so that they leave bullet hole **102** free and unobstructed. This structure is very strong in the compression direction, but weak in a torsional direction, e.g. twisting top baffle **101** in the opposite direction of bottom baffle **101** in FIG. **1**C. Therefore, it is desirable to fix the baffles **101** to the can (not shown), by welding or slot and key, or any other means well established in the art.

[0011] The baffles **101** and vertical support members **110** can be, for example, economically manufactured from standard metal sheet stock by laser cutting then welding in a jig. Further, the welding can be automated by a welding robot, further reducing cost.

[0012] As mentioned above, simple washer type baffles are less efficient at slowing the expanding gases than modern baffle shapes. The prior art (FIG. **2**) includes cone shaped baffles **201** that more efficiently trap gases when the bullet traveling in direction **205** passes through baffle hole **202**. The gases that go outside hole **202** have to reverse direction to eventually pass through hole **202**, thereby creating more turbulence, and more efficiently slowing the expansion of the gases.

[0013] Referring to FIG. **3**, an embodiment may include trapezoidal member **301** fixed to vertical support member **110** and two adjacent washer baffles **101**. Note the top view shows the orientation of the vertical support member in the side view to be at 45-degree angles so that the front **2** are occluding the back two, i.e. only front two members **110** are visible at this viewing angle in the side view of FIG. **3**. If four trapezoidal members **301** are fixed in the 4 quadrants made by the four vertical members, they form a pyramidal baffle similar to the prior art cone baffle **201**.

[0014] FIG. **4** shows the four trapezoidal members **301** without the other baffle parts occluding the image. A bullet traveling in direction **405** (**305** in FIG. **3**) passes through hole **401** and gasses that miss the hole get trapped and increase turbulence as with the prior art baffle **201**. This structure in FIG. **3** is very strong, and the trapezoidal member **301** may also be cut from sheet metal and welded by robot like the structure in FIGS. **1**A-C.

[0015] Although the FIGS. herein depict **4** vertical support members **110** as a non-limiting example, any practical number of members **110** may be used. The FIGS. also depict baffle **101** as having a circular profile, by any practical shape may be used. The FIGS. depict trapezoidal member **301** as a flat piece fixed to flat baffle **101** and vertical support member **110**, but any practical shape may be used. For example, a cone shape cut into 4 quadrants could be similarly fixed to **101** and **110**.

[0016] Although the embodiments shown feature a combination of washer type baffle **101** and a pyramidal cone formed of trapezoidal members **301**, one can appreciate how vertical support members could be used with other baffle types to strengthen the suppressor.

Claims

1. A firearm suppressor baffle, comprising: a plurality of baffles, the plurality of baffles comprising aligned holes, one or more vertical support members, and a body enclosing the plurality of baffles and the one or more vertical support members, wherein the one or more vertical support members are fixed to at least two of the baffles, and wherein the body is fixed to at least two of the baffles.