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BAFFLE TYPE MUFFLER WITH FLUID MINGLING

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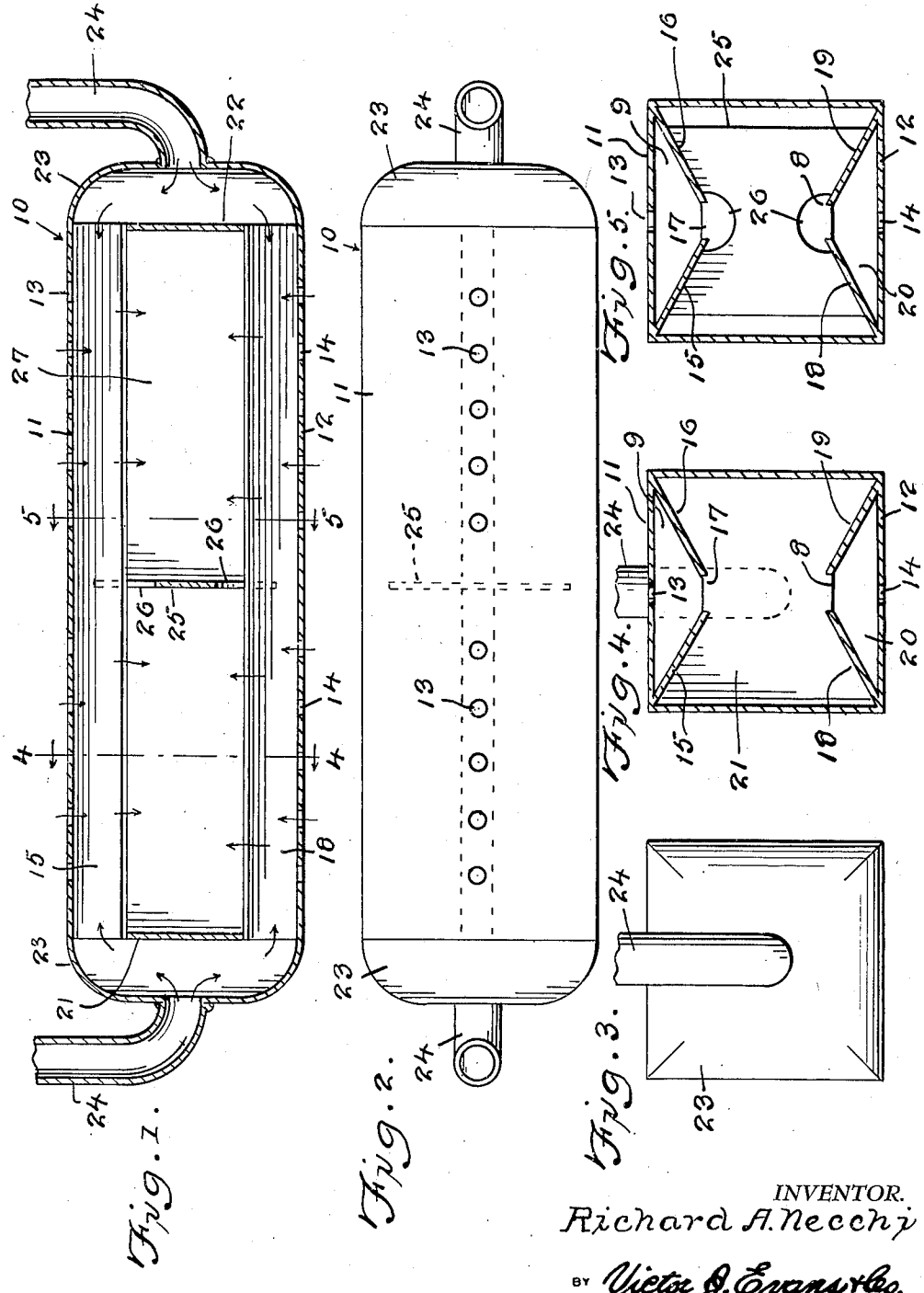


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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BAFFLE TYPE MUFFLER WITH FLUID MINGLING

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3 Claims. (Cl. 181—51)

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This invention relates to a muffler, and more particularly to a muffler for a fast-moving vehicle, such as an airplane.

An object of the invention is to provide a muffler for an airplane that will muffle sound produced by the exhaust from the internal combustion engine of an airplane.

Another object of the invention is to provide a muffler that will muffle the sound produced by the exhaust from the airplane internal combustion engine without causing a loss in power.

A further object of the invention is to provide an airplane muffler which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application, and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is a longitudinal sectional view of the muffler, according to the present invention;

Figure 2 is a top plan view of the muffler;

Figure 3 is an end elevational view of the muffler;

Figure 4 is a sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a sectional view taken on the line 5—5 of Figure 1.

Referring to the drawings in detail, the numeral 10 designates a housing provided with a top wall 11 and a bottom wall 12 arranged in spaced, parallel relation with respect to the top wall. Arranged in spaced relation along the top wall 11 is a plurality of apertures 13, there being a plurality of apertures 14 in the bottom wall 12 for the ingress therethrough of air. Dependingly carried by the top wall 11 is a pair of converging, longitudinally-extending plates 15 and 16 which coact with the top wall 11 to define a chamber 9 for a purpose to be subsequently described. The plates 15 and 16 have their lower ends spaced from each other to provide a longitudinally-extending opening 17.

Projecting upwardly from the bottom wall 12, and secured thereto, as by welding, is a pair of converging, longitudinally-extending plates 18 and 19 which coact with the bottom wall 12 to define a chamber 20 for a purpose to be hereinafter described. The plates 18 and 19 have their upper ends spaced from each other to provide a longitudinally-extending opening 8.

Positioned in the housing 10 adjacent the ends thereof is a pair of spaced, parallel partitions 21 and 22. The partitions 21 and 22 are so shaped

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that they are snugly positioned between the longitudinally-extending plates and are secured to the latter, as by welding. Each end of the housing 10 adjacent the partitions, is curved, as at 23, and closed, there being a conduit or pipe 24 connecting the ends 23 of the housing 10 to the internal combustion engine exhaust pipe for conveying exhaust gases from the latter to the housing.

Arranged intermediate the partitions 21 and 22 is a support 25 provided with a pair of opposed cut-outs 26. The support 25 is secured, as by welding, to the longitudinally-extending plates for preventing vibration of the plates and for maintaining the plates in fixed position.

From the foregoing it will be seen that the housing is so constructed that a longitudinally-extending passageway or throat 27 is provided for the passage therethrough of air.

In the drawings, the arrows indicate the direction of air flow and exhaust gas flow relative to the muffler when the aircraft or other vehicle is moving forwardly.

In use, the conduits 24 of the vent muffler are connected to the engine exhaust pipes, and the muffler is positioned so that it is in the slip stream during flight. Thus, in flight, the air flows through the passageway 27 of the muffler to create a vacuum which causes the exhaust gases to be conveyed through the conduits 24 into the chambers 9 and 20, and then be sucked out through the openings 8 and 17 and discharged along with the air passing through the throat 27. Simultaneously, air is being drawn through the spaced apertures 13 and 14 in the top and bottom walls of the housing 10 to thereby help eliminate the exhaust noises from the engine.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

I claim:

1. In a muffler for an airplane engine, a housing provided with a top wall, and a bottom wall arranged in spaced, parallel relation with respect to said top wall forming a longitudinally-extending passageway in said housing for the passage therethrough of air, a pair of longitudinally-extending converging plates dependingly carried by said top wall, the lower ends of said plates being spaced from each other to define an opening therebetween, a second pair of longitudinally-extending converging plates projecting from the bottom wall, the upper ends of said second plates

being spaced from each other to define an opening therebetween, there being a plurality of apertures in said top and bottom walls for the ingress therethrough of air, conduit means operatively connecting the ends of said housing to said internal combustion engine for conveying exhaust gases from the latter, whereby forward movement of said airplane causes air to flow through said passageway to suck air through said apertures and to suck air and exhaust gases through said openings, and a support positioned between said plates and secured thereto for preventing vibration of the latter during use.

2. In a muffler for an airplane engine, a housing provided with a top wall, and a bottom wall arranged in spaced, parallel relation with respect to said top wall forming a longitudinally-extending passageway in said housing for the passage therethrough of air, a pair of longitudinally-extending converging plates dependingly carried by said top wall, the lower ends of said plates being spaced from each other to define an opening therebetween, a second pair of longitudinally-extending converging plates projecting from the bottom wall, the upper ends of said second plates being spaced from each other to define an opening therebetween, there being a plurality of apertures in said top and bottom walls for the ingress therethrough of air, conduit means operatively connecting the ends of said housing to said internal engine for conveying exhaust gases from the latter, whereby forward movement of said airplane causes air to flow through said passageway to suck air through said apertures and to suck air and exhaust gases through said openings.

3. In a muffler for an airplane engine, a housing provided with a top wall, and a bottom wall arranged in spaced relation with respect to said top wall forming a longitudinally extending passageway in said housing for the passage therethrough of air, a pair of longitudinally extending plates dependingly carried by said top wall, the lower ends of said plates being spaced from each other to define an opening therebetween, a second pair of longitudinally extending plates projecting from the bottom wall, the upper ends of said second plates being spaced from each other to define an opening therebetween, there being a plurality of apertures in said top and bottom walls for the ingress therethrough of air, conduit means operatively connecting the ends of said housing to said internal combustion engine for conveying exhaust gases from the latter, whereby forward movement of said airplane causes air to flow through said passageway to suck air through said apertures and to suck air and exhaust gases through said openings.

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The following references are of record in the file of this patent:

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