



US 20090145687A1

(19) **United States**(12) **Patent Application Publication**
Treat(10) **Pub. No.: US 2009/0145687 A1**(43) **Pub. Date: Jun. 11, 2009**(54) **MOTORCYCLE EXHAUST MUFFLER**(52) **U.S. Cl. 181/232; 181/212; 181/264**(76) **Inventor: Troy R. Treat, Niles, MI (US)**

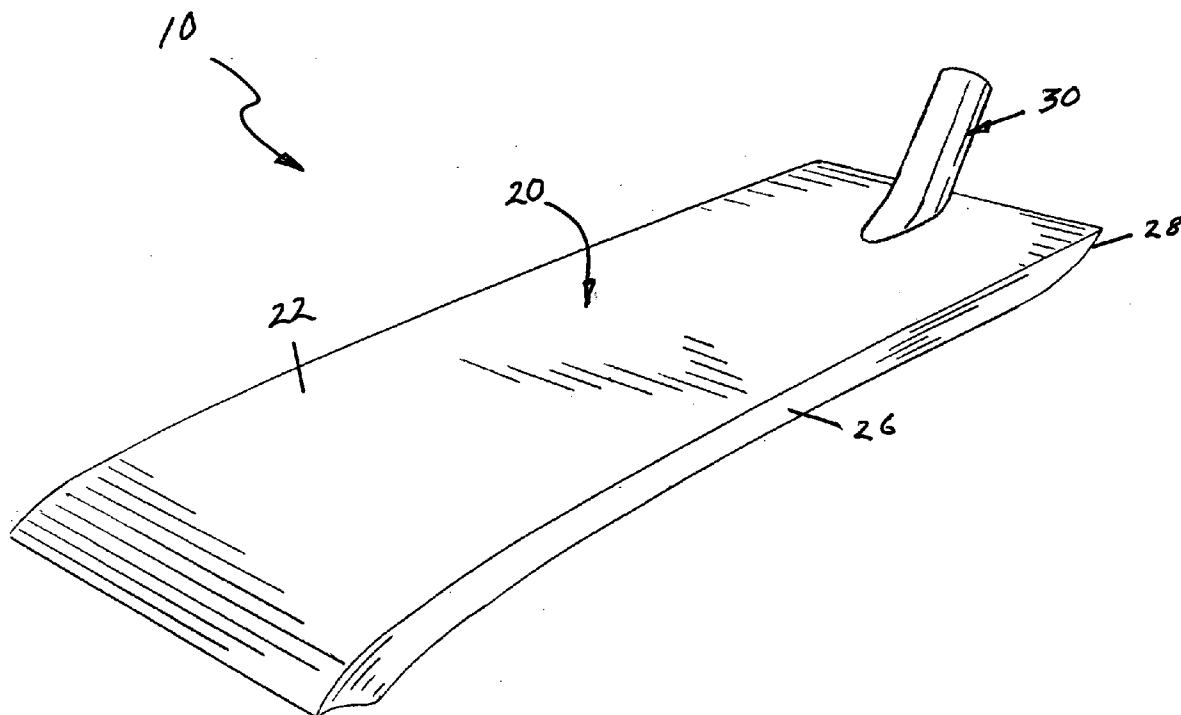
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(57)

ABSTRACT

The exhaust muffler includes a flat box-shaped body that underlies substantially the width of the motorcycle engine and frame. The rear end of the muffler body has exhaust vents that vent the exhaust downward or laterally from the motorcycle forward of the rear wheel. An inlet neck extending from the front end of the muffler body allows convenient and direct connection of the exhaust pipes from the motor to the muffler body without numerous or complicated bends in the exhaust pipes. The low profile of the muffler body allows the exhaust muffler to be mounted beneath the motorcycle frame without significantly effecting ground clearance.



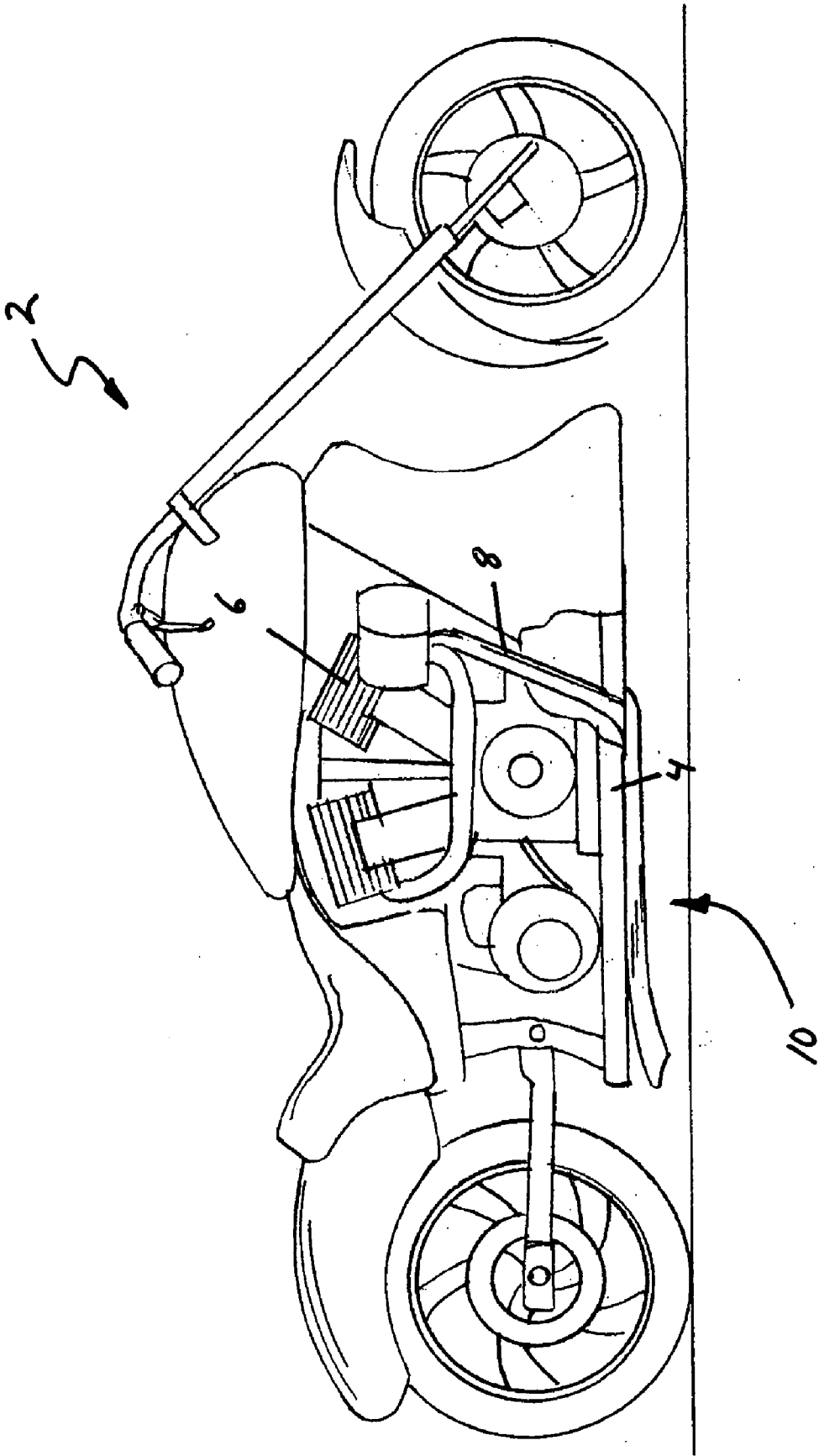


FIG. 1

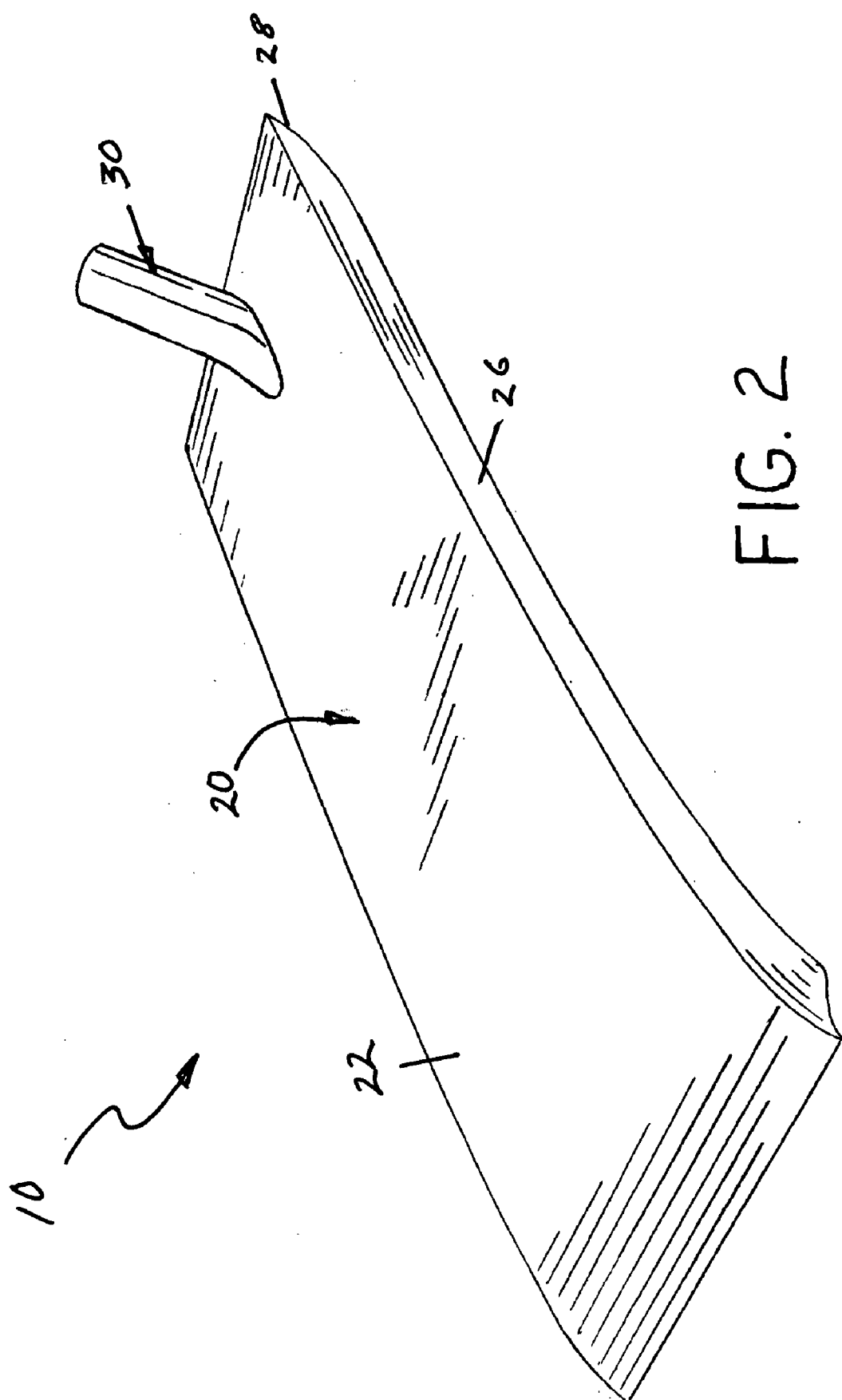


FIG. 2

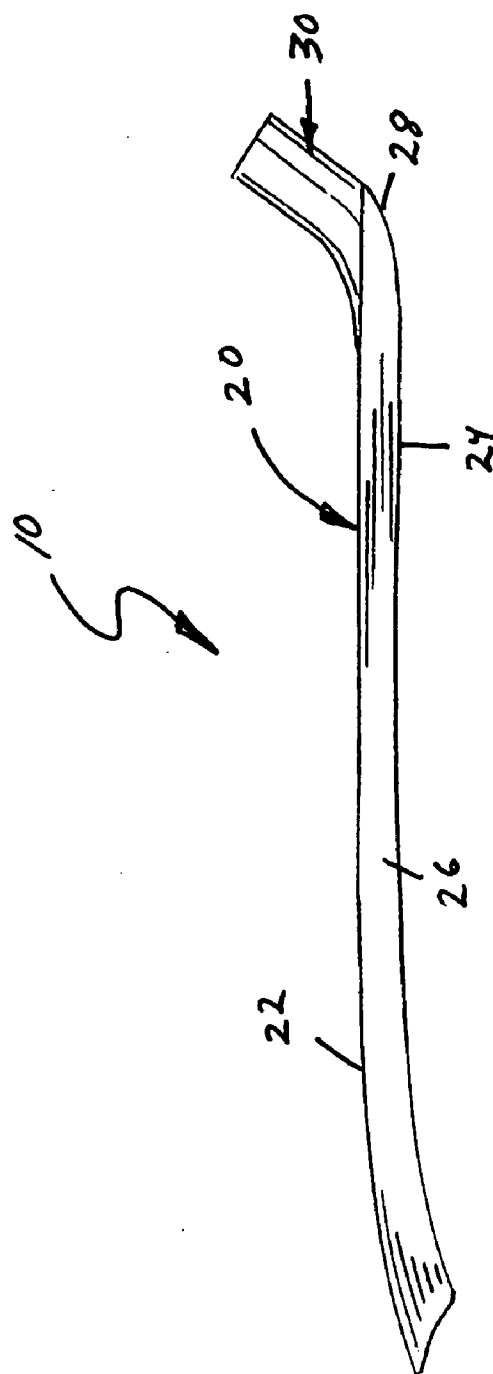


FIG. 3

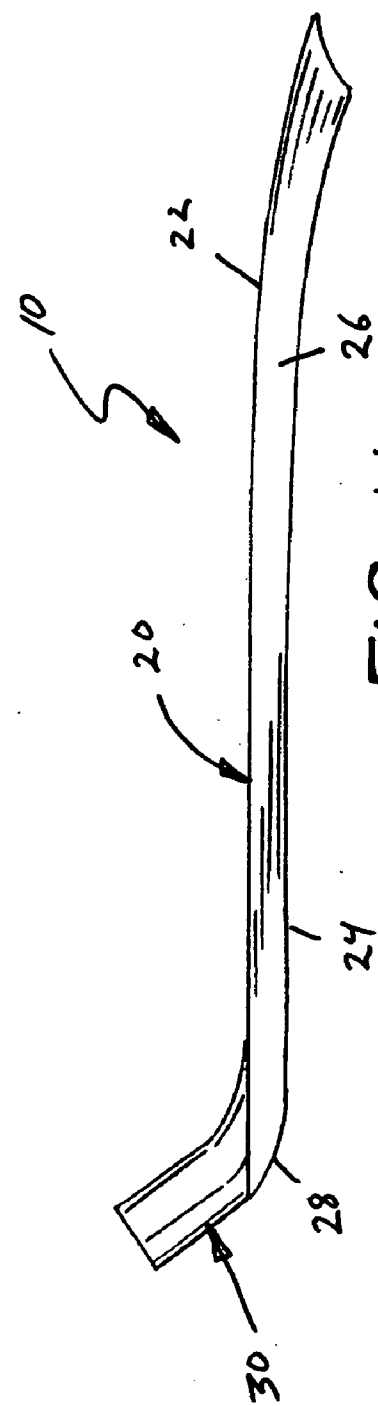
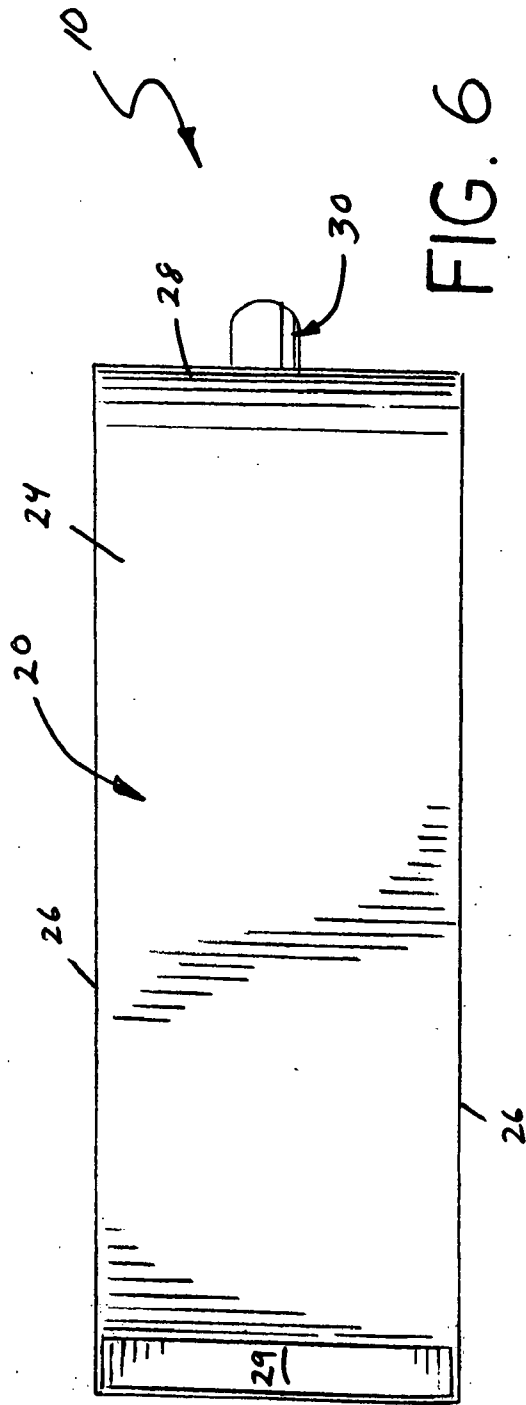
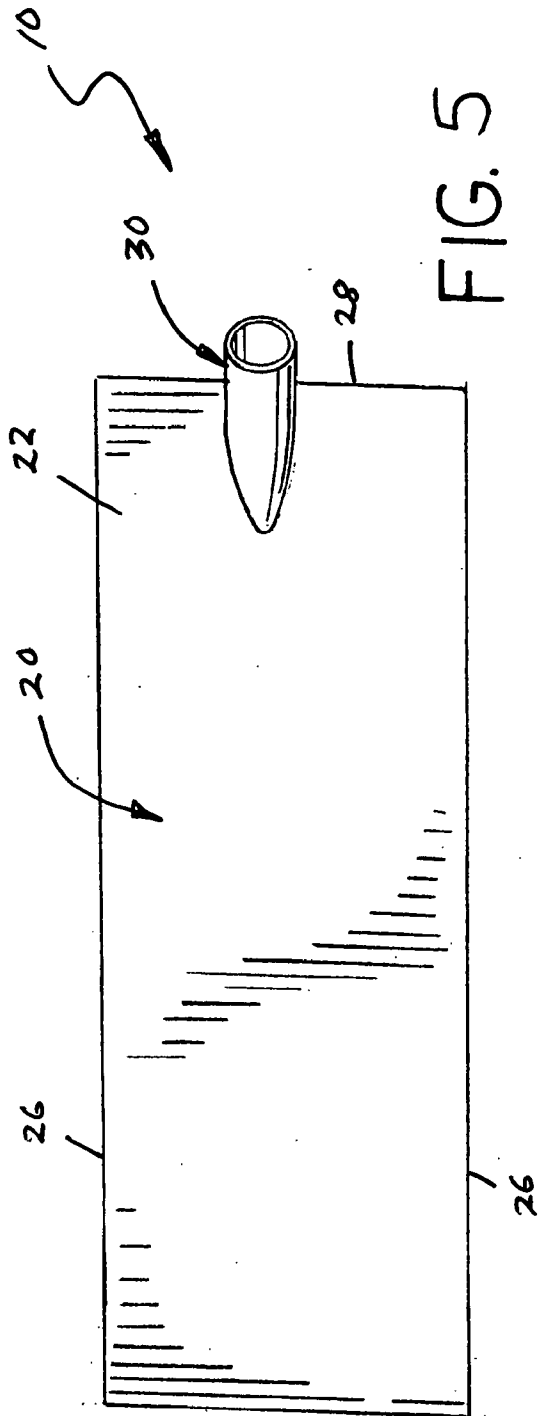


FIG. 4



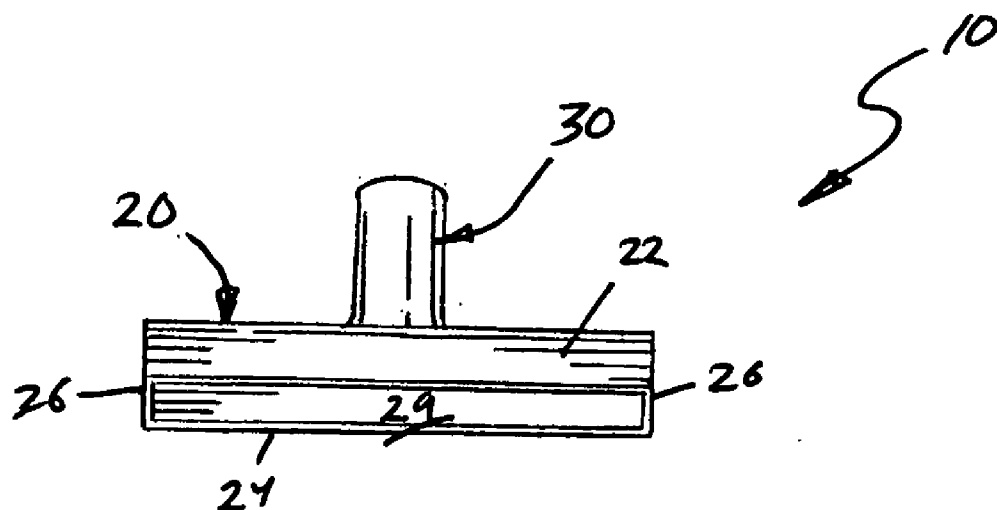


FIG. 7

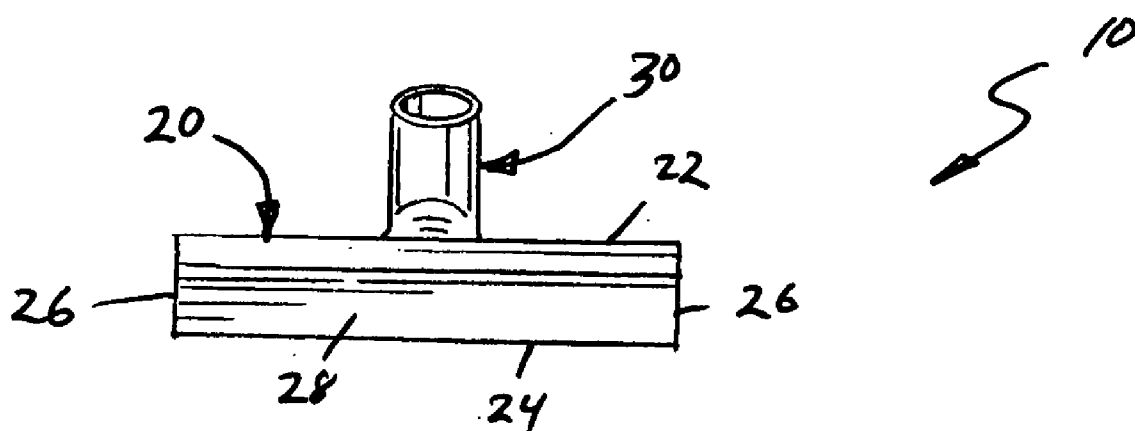
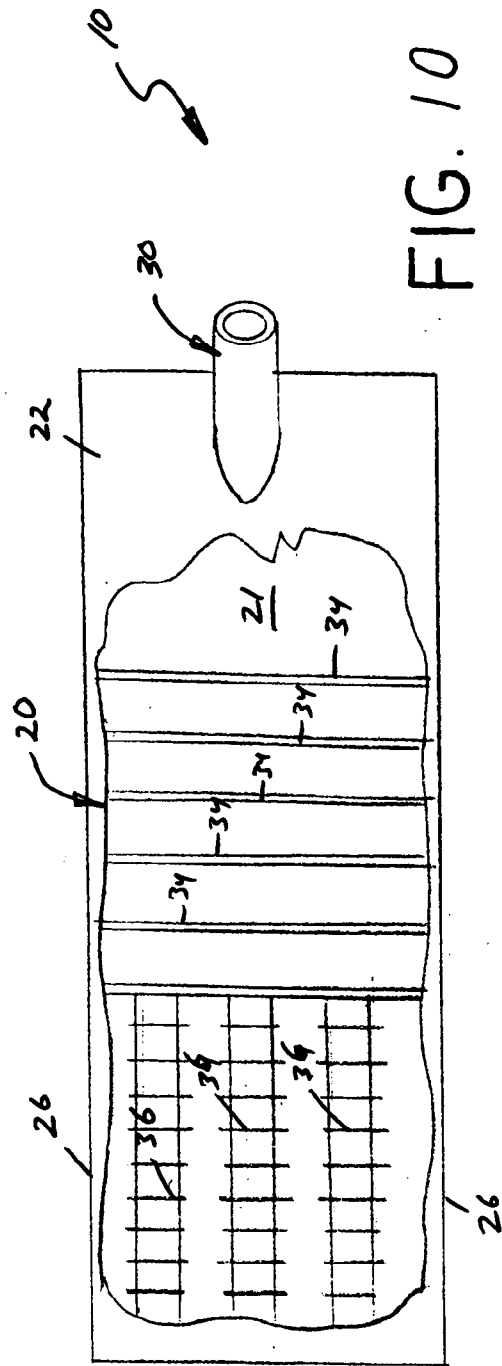
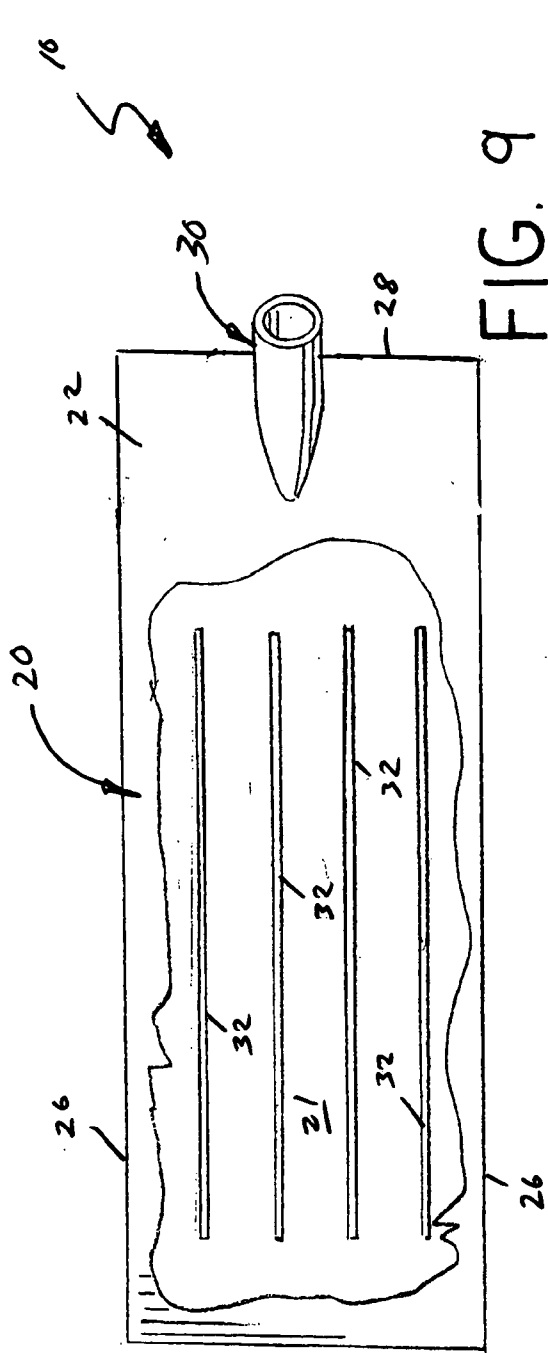


FIG. 8



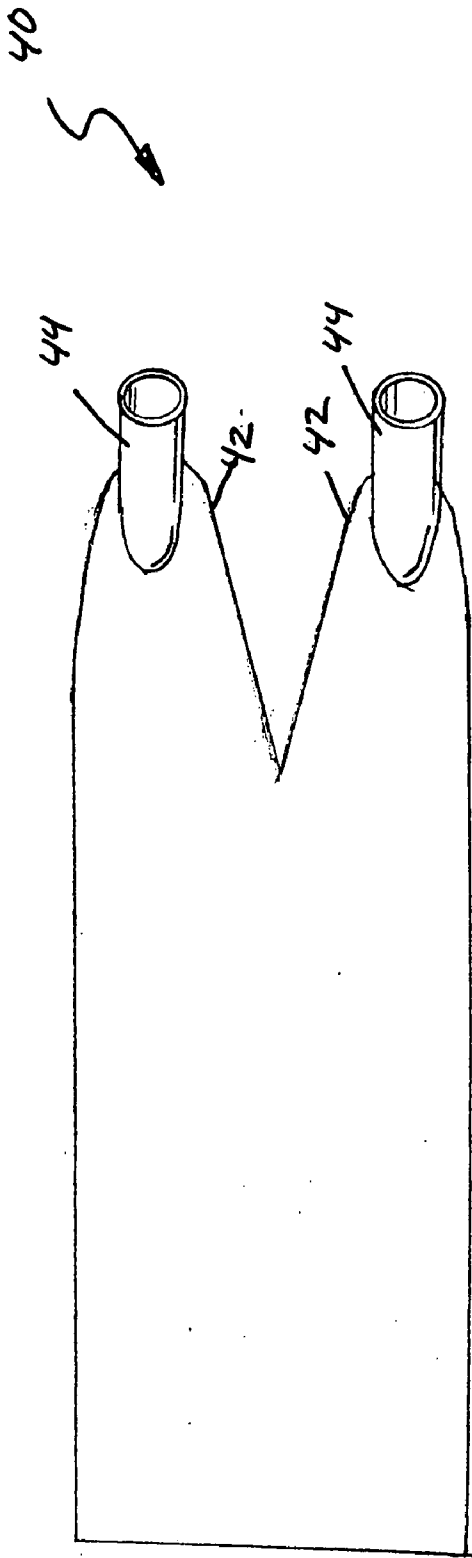


FIG. 11

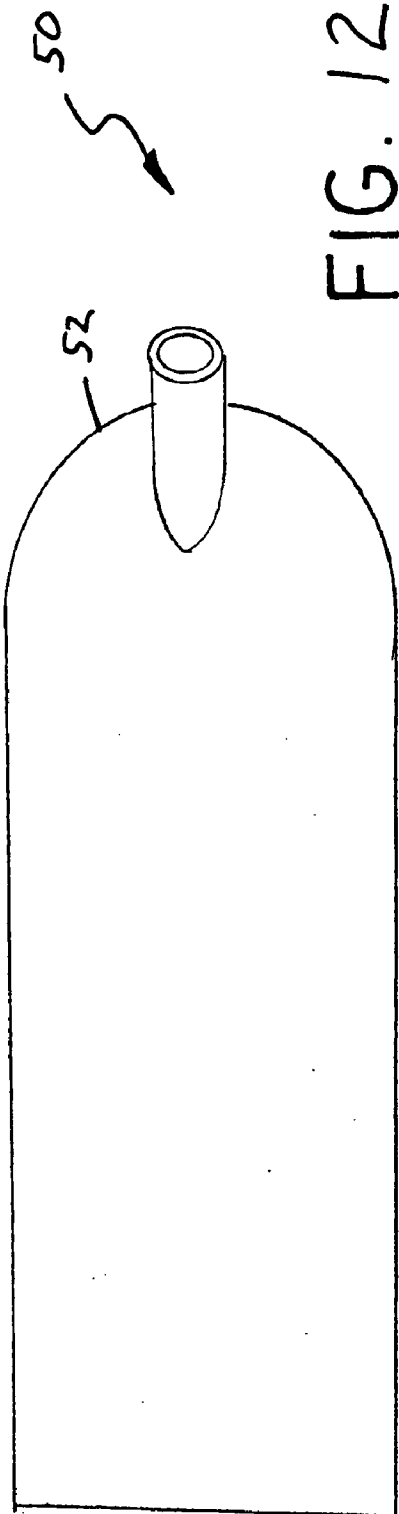
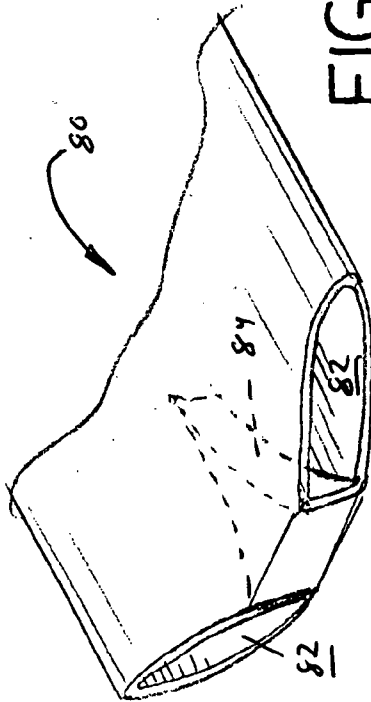
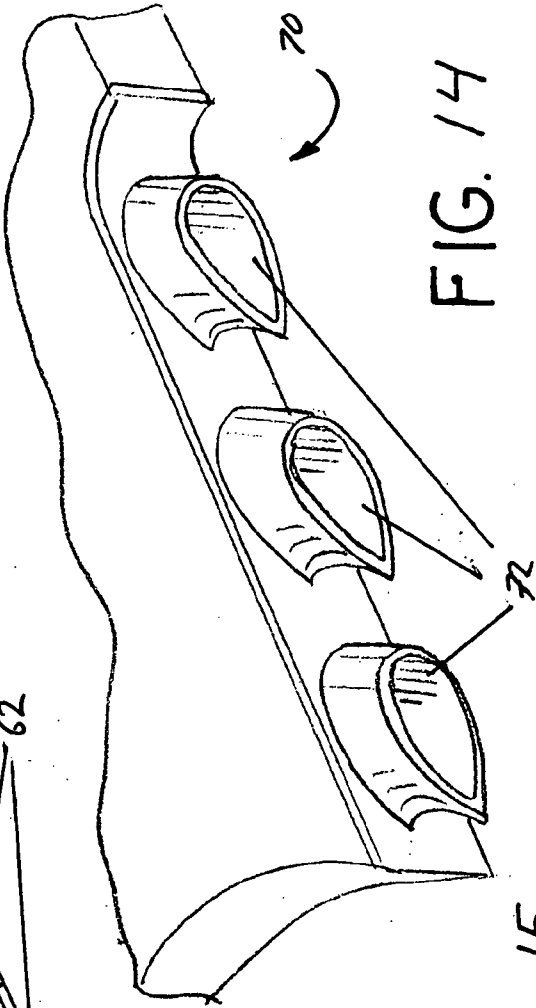
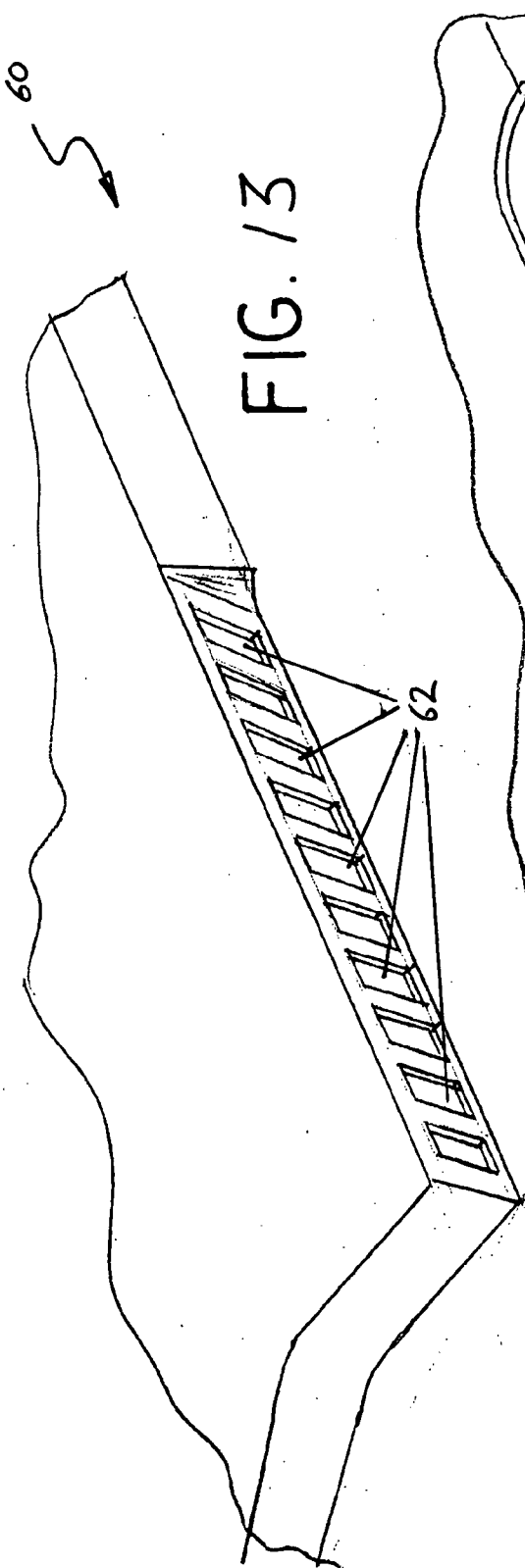


FIG. 12



MOTORCYCLE EXHAUST MUFFLER

[0001] This invention relates to an exhaust system for a motorcycle and in particular a n pan shaped muffler mountable beneath the motorcycle frame forward of the rear wheel.

BACKGROUND OF THE INVENTION

[0002] Heretofore, motorcycle exhaust systems have included exhaust pipes and mufflers that extend rearward along the sides of the motorcycles. Routing the exhaust pipes and mufflers along the sides of the motorcycle means that the rider's legs must straddle the exhaust pipes and mufflers making the riding platform wider and more difficult to handle as well as placing the rider's legs in close proximity to the hot exhaust pipes and mufflers. For custom chopper and low rider style motorcycles, routing the exhaust pipes and mufflers along the sides of the motorcycle often requires complicated bends and manifolds, which are difficult and expensive to fabricate.

[0003] The present invention seeks to provide an improved exhaust muffler for a motorcycle that is mountable beneath the motorcycle frame forward of the rear wheel. The exhaust muffler of this invention includes a flat box-shaped body that underlies substantially the width of the motorcycle engine and frame. The rear end of the muffler body has exhaust vents that vent the exhaust downward or laterally from the motorcycle forward of the rear wheel. An inlet neck extending from the front end of the muffler body allows convenient and direct connection of the exhaust pipes from the motor to the muffler body without numerous or complicated bends in the exhaust pipes. The low profile of the muffle body allows the exhaust muffler to be mounted beneath the motorcycle frame without significantly effecting ground clearance. The design and location of the muffler reduces the possibility of the rider's legs coming into contact with the hot muffler or exhaust pipes. The muffler also provides a sleek, clean aesthetic appearance to the motorcycle.

[0004] Theses and other advantages of the present invention will become apparent from the following description of an embodiment of the invention with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] The drawings illustrate an embodiment of the present invention, in which:

[0006] FIG. 1 is side view of a motorcycle showing an embodiment of the exhaust muffler of this invention;

[0007] FIG. 2 is a perspective view of the exhaust muffler of FIG. 1;

[0008] FIG. 3 is a right side view of the exhaust muffler of FIG. 1;

[0009] FIG. 4 is a left side view of the exhaust muffler of FIG. 1;

[0010] FIG. 5 is a top view of the exhaust muffler of FIG. 1;

[0011] FIG. 6 is a bottom view of the exhaust muffler of FIG. 1;

[0012] FIG. 7 is a rear view of the exhaust muffler of FIG. 1;

[0013] FIG. 8 is a front view of the exhaust muffler of FIG. 1;

[0014] FIG. 9 is a top view of the exhaust muffler of FIG. 1 having a portion cut away to show the internal baffling;

[0015] FIG. 10 is a top view of the exhaust muffler of FIG. 1 having a portion cut away to show a second embodiment of the internal baffling;

[0016] FIG. 11 is a top view of a second embodiment of the exhaust muffler of this invention;

[0017] FIG. 12 is a top view of a third embodiment of the exhaust muffler of this invention;

[0018] FIG. 13 is a partial perspective view of a fourth embodiment of the exhaust muffler of this invention;

[0019] FIG. 14 is a partial perspective view of a fourth embodiment of the exhaust muffler of this invention; and

[0020] FIG. 15 is a partial perspective view of a fourth embodiment of the exhaust muffler of this invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0021] Referring now to the drawings, FIGS. 1-9 shows an embodiment of the exhaust muffler of this invention designated generally as reference numeral 10. Exhaust muffler 10 is illustrated as a part of the exhaust system of a typical low rider style motorcycle 2, although the exhaust muffler can be adapted for use on any type of motorcycle within the teachings of this invention.

[0022] As shown in FIGS. 2-8, exhaust muffler 10 has a generally flat box-shaped body 20 formed by a top 22, bottom 24, vertical sides 26, and a rounded front end 28. Muffler body 20 has an open rear end that functions as an exhaust vent 29. It should be noted that top 22 and bottom 24 are flared slightly downward at the rear of muffler body 22 so that exhaust from the muffler is vented downward at an angle. Muffler 10 also includes an inlet port 30, which extends upward from top 22 at the front of muffler body 20. As shown in FIG. 9, exhaust muffler 10 includes a plurality of internal baffles 32 spaced inside interior 21, which suppress the sound of the exhaust vented from the motorcycle engine. The number and configuration of baffles 32 within interior 21 is selected to provide the desired level of sound suppression and the sound characteristic of exhaust muffler 10. FIG. 10 shows a second baffle configuration in exhaust muffler 10 using two sets of baffles 34 and 36. Muffler body 20 can also house a catalytic converter (not show) within interior 21. Enclosing the catalytic converter within muffler 20 simplifies the exhaust system. Typically, the catalytic converter is forward of any baffles.

[0023] As shown in FIG. 1, exhaust muffler 10 is mounted directly under the motorcycle engine forward of the motorcycle's rear wheel. Exhaust Muffler 10 can be bolted, welded or otherwise secured to motorcycle frame 4. As shown, a single exhaust pipe 6 at the front of motorcycle engine 6 connects exhaust muffler 10 to the exhaust manifold 8 of the engine. Exhaust pipe 8 is welded directly to inlet port 30 of exhaust muffler 10. As shown in FIG. 1, the low profile of exhaust muffler 10 allows the muffler to be mounted beneath the engine under frame without significantly reducing ground clearance.

[0024] FIGS. 11 and 12 shows two additional embodiments of the exhaust muffler of this invention. FIG. 11 shows an exhaust muffler 40 having a bifurcated front end 42 and dual inlet port 44. FIG. 12 shows an exhaust muffler 50 having a rounded front end 52 rather than the squared front end of exhaust muffler 10.

[0025] FIGS. 13-15 shows three alternative exhaust vents for use by different embodiments of the exhaust mufflers of this invention. FIG. 13 shows a plurality of "slit" openings 62 formed in the sides of muffler body 60, which provide the

exhaust vents. FIG. 14 shows exhaust vents formed as three stylized outlet ports 72 extending from the sides of the muffler body 70. FIG. 15 shows another set of stylized exhaust vents formed in the rear end 82 of muffler body 80. A triangular internal gusset 84 directs the exhaust laterally from the rear end of muffler body 80. As shown in FIGS. 13-15, each alternative exhaust vent directs exhaust away from the rear wheel of the motorcycle. While three different exhaust vents are shown and described, one skilled in the art will note that the exhaust vents used by the exhaust muffler of this invention are not limited to any particular style, design, configuration or number.

[0026] One skilled in the art will note that the low profile of the muffle body allows the exhaust muffler to be mounted beneath the motorcycle frame without significantly effecting ground clearance. The flat bottom of the muffler body also improves the aerodynamics of the motorcycle. The flat box-shaped muffler body allows air to flow smoothly under the motorcycles. The design and location of the muffler reduces the possibility of the rider's legs coming into contact with the hot muffler or exhaust pipes. The muffler also provides a sleek, clean aesthetic appearance to the motorcycle. Also, the flat box-shaped muffler body generates a unique deep "throaty" sound from the motorcycle engine.

[0027] The embodiments of the present invention herein described and illustrated are not intended to be exhaustive or to limit the invention to the precise form disclosed. They are presented to explain the invention so that others skilled in the art might utilize its teachings. The embodiment of the present invention may be modified within the scope of the following claims.

I claim:

1. In combination, a motorcycle and an exhaust system, the motorcycle including a frame, a motor mounted atop the frame and a rear wheel mounted to the frame aft of the motor, the exhaust system including an exhaust muffler and a exhaust pipe connected between the motor and the exhaust muffler, the exhaust muffler mounted beneath frame forward of the rear wheel and underlying substantially the width of the motor beneath the frame and includes a flat box-shaped body having an interior therein and a front end and rear end, the

muffler body also has an exhaust opening therein for venting exhaust beneath of the frame and forward of the rear wheel.

2. The combination of claim 1 wherein exhaust muffler includes plurality of baffles spaced within the muffler interior between the muffler body front end and the muffler body rear end.

3. The combination of claim 1 where the exhaust muffler also includes an inlet port extending upward from the muffler body front end and connected to the manifold.

4. The combination of claim 1 wherein the exhaust opening vents is located along the muffler body rear end exhaust downward from the muffler body.

5. The combination of claim 1 wherein the exhaust opening is located adjacent the muffler body rear end and vents exhaust from the motor laterally from the muffler body.

6. An exhaust muffler for a motorcycle having a frame, a motor mounted to the frame and a rear wheel mounted to the frame, the exhaust muffler comprising:

a flat box-shaped body mountable to a motorcycle beneath motorcycle frame forward of the rear wheel and underlying substantially the width of the motor beneath the frame, the muffler body defining an interior therein and having a front end and rear end, the muffler body also having an exhaust opening formed therein for venting exhaust beneath of the frame and forward of the rear wheel; and

an inlet neck extending upward from the muffler front end and connectable to the motor.

7. The exhaust muffler of claim 6 wherein exhaust muffler includes plurality of baffles spaced within the muffler interior between the muffler body front end and the muffler body rear end.

8. The exhaust muffler of claim 6 where the exhaust muffler also includes an inlet port extending upward from the muffler body front end and connected to the manifold.

9. The exhaust muffler of claim 6 wherein the exhaust opening vents is located along the muffler body rear end exhaust downward from the muffler body.

10. The exhaust muffler of claim 6 wherein the exhaust opening is located adjacent the muffler body rear end and vents exhaust from the motor laterally from the muffler body.

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