Claims

1. An exhaust cooling apparatus, comprising:

a body having a wall, a first end, a second end, an inlet, and an outlet, wherein the first end and the second end are on opposite sides of the body from each other, and wherein the inlet and the outlet are at least partially disposed between the first and second ends;

a cooling plate disposed within the body, wherein the cooling plate is connected to the first end, and wherein a gap separates the cooling plate and the second end; and

a device disposed over the cooling plate, wherein the device is between the inlet and the cooling plate and comprises:

a plate coupled to the wall; and

a plurality of fins extending from the plate and extending away from the cooling plate, wherein the plurality of fins comprises:

a center fin forming a first angle with respect to the plate;

a first angled fin forming a second angle with respect to the plate, the second angle is an acute angle facing the center fin; and

a second angled fin forming a third angle with respect to the plate, the third angle is an acute angle facing the center fin, and the second angle is greater than the third angle.

2. The exhaust cooling apparatus of claim 1, wherein the first angle is about 90° with respect to the plate.

3. The exhaust cooling apparatus of claim 1, wherein the plate is parallel to the cooling plate.

4. The exhaust cooling apparatus of claim 1, wherein the cooling plate comprises a plurality of through holes.

5. An exhaust cooling apparatus, comprising:

a body having a wall, a first end, a second end, an inlet, and an outlet, wherein the first end and the second end are on opposite sides of the body from each other, and wherein the inlet and the outlet are at least partially disposed between the first and second ends;

a cooling plate disposed within the body, wherein the cooling plate is connected to the first end, and wherein a gap separates the cooling plate and the second end; and

a first liner disposed over the cooling plate, wherein the first liner is between the inlet and the cooling plate and comprises:

a plate coupled to an end of the wall; and

a plurality of fins extending from the plate and extending away from the cooling plate, wherein the plurality of fins comprises:

a center fin forming a first angle with respect to the plate;

a first angled fin forming a second angle with respect to the plate, the second angle is an acute angle facing the center fin; and

a second angled fin forming a third angle with respect to the plate, the third angle is an acute angle facing the center fin, and the second angle is greater than the third angle.

6. The exhaust cooling apparatus of claim 5, wherein the first angle is about 90° with respect to the plate.

7. The exhaust cooling apparatus of claim 5, wherein the plate is parallel to the cooling plate.

8. The exhaust cooling apparatus of claim 5, wherein the cooling plate comprises a plurality of through holes.

9. The exhaust cooling apparatus of claim 1, wherein the plurality of fins comprises a first pair of angled fins and a second pair of angled fins, wherein the first pair of

angled fins is separated from the second pair of angled fins by the center fin, and wherein the first pair of fins comprises the first angled fin and the second angled fin.

10. The exhaust cooling apparatus of claim 9, wherein the first pair of angled fins and the second pair of angled fins are mirror images of each other.

11. The exhaust cooling apparatus of claim 10, wherein the center fin forms a right angle with respect to the plate.

12. The exhaust cooling apparatus of claim 5, wherein the plurality of fins comprises a first pair of angled fins and a second pair of angled fins, wherein the first pair of angled fins is separated from the second pair of angled fins by the center fin, and wherein the first pair of fins comprises the first angled fin and the second angled fin.

13. The exhaust cooling apparatus of claim 12, wherein the first pair of angled fins and the second pair of angled fins are mirror images of each other.

14. The exhaust cooling apparatus of claim 5, further comprising a second liner disposed below the cooling plate.

15. The exhaust cooling apparatus of claim 1, wherein the second angled fin is between the center fin and the first angled fin.

16. The exhaust cooling apparatus of claim 5, wherein the second angled fin is between the center fin and the first angled fin.

17. The exhaust cooling apparatus of claim 1, wherein the plate comprises a an opening disposed between the first angled fin and the first or second end of the body.

18. The exhaust cooling apparatus of claim 1, wherein the plate comprises:

a first opening disposed between the first end of the body and the plurality of fins, and

a second opening disposed between the second end of the body and the plurality of fins.

19. The exhaust cooling apparatus of claim 5, wherein the plate comprises a an opening disposed between the first angled fin and the first or second end of the body.

20. The exhaust cooling apparatus of claim 5, wherein the plate comprises:

a first opening disposed between the first end of the body and the plurality of fins, and

a second opening disposed between the second end of the body and the plurality of fins.