

Claims

- [Claim 1] A rail damper mounting apparatus, comprising:
a) a clipping device adapted to clip onto a rail;
b) a mounting device adapted to allow an oscillator to secure thereto;
wherein the rail damper mounting apparatus forms at least three clipping points with a rail when the rail damper mounting device is installed to the rail.
- [Claim 2] The rail damper mounting apparatus of claim 1, wherein the mounting apparatus forms two clipping points located above a plane defined by foot tips on of the rail on two sides of the rail, and one clipping point below the plane, when the rail damper mounting apparatus is installed to the rail.
- [Claim 3] The rail damper mounting apparatus of claim 2, wherein the clipping device comprises a rail web contact member and a rail foot contact member; the rail web contact member forming a first clipping point and a second clipping point above the plane at a foot and a web of the rail respectively, when the rail damper mounting apparatus is installed to the rail; the rail foot contact member forming a third clipping point below the plane at the foot of the rail.
- [Claim 4] The rail damper mounting apparatus of claim 3, wherein the rail web contact member has a side edge in a curved shape that faces the web of the rail when the rail damper mounting apparatus is installed to the rail.
- [Claim 5] The rail damper mounting apparatus of claim 4, wherein the rail web contact member is formed as a single piece with the rail foot contact member; the side edge forming the first and second clipping points when the rail damper mounting apparatus is installed to the rail.
- [Claim 6] The rail damper mounting apparatus of claim 4, wherein the rail web contact member is formed as a single piece with the mounting device, where the side edge at least partially follows the contour of an oscillator installed to the mounting device.
- [Claim 7] The rail damper mounting apparatus of claim 5, wherein the first and second clipping points are located on the side edge at substantially the same radial distance from a rotating center defined by an intersection of two lines respectively normal to tangential lines at the first and second clipping points.
- [Claim 8] The rail damper mounting apparatus of claim 1, wherein the mounting apparatus forms one clipping point located above a plane defined by

- foot tips of the rail on two sides of the rail, and two clipping points below the plane, when the rail damper mounting apparatus is installed to the rail.
- [Claim 9] The rail damper mounting apparatus of claim 8, wherein the clipping device comprises a rail foot contact member and a hook member; the rail foot contact member forming respectively a first clipping point above the plane and a second clipping point below the plane with the foot of the rail, when the rail damper mounting apparatus is installed to the rail; the hook member forming a third clipping point with the foot of the rail.
- [Claim 10] The rail damper mounting apparatus of claim 9, wherein the rail foot contact member and the hook member are located on the two sides of the rail, and are connected through an extension arm that runs parallel to a bottom face of the foot of the rail when the rail damper mounting apparatus is installed to the rail.
- [Claim 11] The rail damper mounting apparatus of claim 9, wherein the hook member forms an inward tip which is adapted to contact the foot of the rail to form the third clipping point.
- [Claim 12] The rail damper mounting apparatus of claim 11, wherein the hook member comprises a hook portion having an opening substantially toward a direction away from the foot of the rail when the rail damper mounting apparatus is installed to the rail.
- [Claim 13] The rail damper mounting apparatus of claim 10, wherein the extension arm is at least partially resilient so that the clipping device can be clipped onto the rail by moving the hook member in a direction substantially perpendicular to a longitudinal direction of the extension arm using an external tool.
- [Claim 14] The rail damper mounting apparatus of claim 2 or 9, wherein the rail foot contact member contains a slot for receiving the foot of the rail from a side direction; the clipping point formed between a bottom face of the foot of the rail and the slot when the rail damper mounting apparatus is installed to the rail.
- [Claim 15] The rail damper mounting apparatus of claim 10, wherein the clipping points are located at the bottom face of the foot of the rail when the rail damper mounting apparatus is installed to the rail.
- [Claim 16] The rail damper mounting apparatus of any one of the preceding claims, wherein the mounting device has a plate shape; the mounting device adapted to allow two oscillators to secure thereto at two sides of

the plate shape.

[Claim 17]

The rail damper mounting apparatus of any one of claims 2-7, wherein the rail damper mounting apparatus is adapted to be connected to a similar rail damper mounting apparatus on an opposite side of the rail by an extension arm.

[Claim 18]

A rail damper system comprising:

- a) A plurality of rail damper mounting apparatus according to any one of claims 1-16 that are installed to a railway;
- b) An oscillator installed to each said rail damper mounting apparatus; wherein the plurality of rail damper mounting apparatus is positioned along a longitudinal direction of a rail, and/or positioned symmetrically on rail of the railway.