U.S. Patent No. 7,975,811 to Berliant, issued 12 July 2011, discloses a constant force rail clamp having a frame and a pair of levers. Each of the levers has a brake pad at a first end thereof, a cam follower at second end thereof, and is mounted to the frame by a pivot disposed between said first and second ends. A cam is disposed between the levers and a spring biases the cam in a first direction. A clamp release actuator is operable to displace the cam in a second direction, which is opposite to the first direction. A pair of variably sloped cam surfaces are disposed on opposite sides of the cam. Each of the variably sloped cam surfaces is in contact with the cam follower of a corresponding one of the levers, and each of the variably sloped cam surfaces has a slope which varies to counteract variations in a spring force of the spring as the cam is displaced, thereby maintaining a constant clamping force.

In U.S. Patent No. 8,646,582 to Bourhill et al., issued 11 February 2014, the rail clamp includes a carriage having an actuator frame mounted to its base so as to extend upwardly from the base. Springs are mounted in the actuator frame at the upper end of the carriage. An actuator is mounted between the base and the springs, and operates on the suspension frame so as to elevate the carriage. A wheel is mounted on a wheel support, and the wheel engages the rail. At least one suspension frame is pivotally mounted to the carriage and at an opposite end, to the wheel support. A pair of clamping levers is pivotally mounted to the base of the carriage, and the levers are pivotable so as to clamp their lower-most ends together when their upper ends are moved apart. Brake shoes mount on the lower-most ends of the levers.

SUMMARY

The presently disclosed retracting rail clamp for braking or anchoring a rail-mounted machine by clamping opposite sides of a longitudinal rail member comprises: a load transfer frame rigidly secured to the machine; and a clamp mechanism comprising a clamp frame including at least two spaced-apart guide posts connecting an upper frame plate or assembly with a lower main lever connector plate or assembly, wherein the clamp is suspended within the load transfer frame by at least one lateral pair of pivotally mounted lift levers, and operable between a raised, brake release position and a lowered, brake set position wherein at least one opposed facing pair of main levers of the clamp mechanism engage the side surfaces of the rail.

The primary forces to be resisted by the rail clamp (e.g. wind load) whilst deployed in the lowered, brake set position act in a direction that is substantially parallel to the longitudinal orientation of