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Damping Mechanism to Prevent Chassis Tip-Over

Abstract: A damping mechanism provides stability to a narrow chassis that has a high center of gravity, thus preventing the device from tipping over.

This disclosure relates to the field of electronic devices.

A technique is disclosed that provides stability to a narrow chassis that has a high center of gravity.

Many electronic devices, such as traditional small form-factor PCs, are constructed in a "tower" configuration with a tall, narrow chassis. Such a device has a high center of gravity, which makes it susceptible to being tipped over if a lateral force is applied near the top of the chassis. If the device topples over, internal components such as, for example, hard disk drives, can easily be damaged, resulting in data loss and/or inoperability of the device. Furthermore, the interconnections between components can become intermittent.

According to the present disclosure, and as understood with reference to the Figure, a damping counterweight on the device can prevent the device from tipping over, and/or allow the device to withstand a greater amount of lateral force applied to the device without tipping over.

A damping mechanism includes a damping counterweight 10 which is fixedly attached to one end of an arm 20. The other end of the arm 20 is rotatably attached to one of the narrow walls 30 of an electronic device 40 by a fastener 50, such as a screw. In the case of a tower PC, for example, the narrow wall 30 may be the front wall or the rear wall of the PC.

When the device 40 is subjected to a sudden external lateral force 60 which rotatably displaces the top portion of the device 40 and shifts the center of gravity such that the device 40 tends to tip over in the downward direction 70, the damping counterweight 10 swings in the opposite direction 80 creating a competing downward force 90 which resists the external force 60 and thus prevents the device 40 from tipping over.

The damping mechanism is advantageously made from simple, low-cost mechanical parts.

Disclosed by Patrick Chung, HP Inc.

