

PRESS RELEASE

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Dreamweaver Files Patent on a Novel Light Weight Current Collector with Enhanced Safety for Lithium Ion Batteries

Dreamweaver International announces the invention of a new current collector with the potential to dramatically increase safety while also reducing weight in lithium ion batteries. Battery fires have been an ongoing issue for many manufacturers of lithium ion batteries, and this invention promises to eliminate them, while reducing the battery weight by more than 20%.

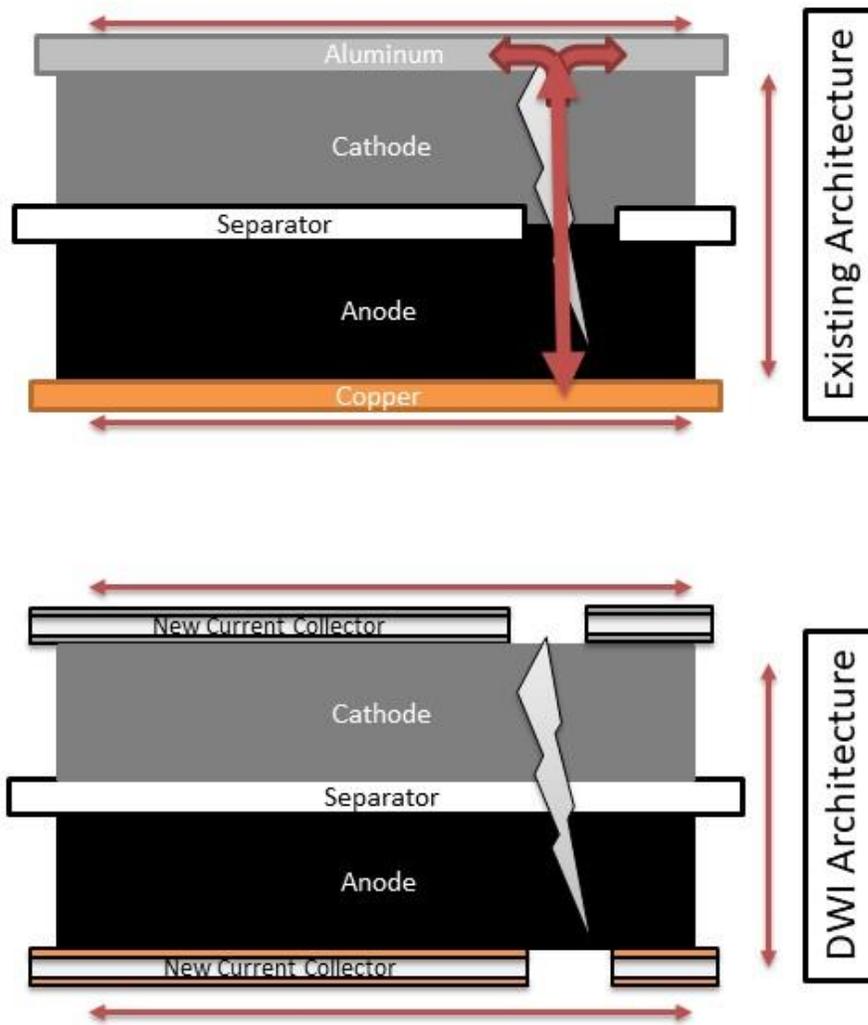
Lithium battery fires often stem from internal shorts caused by manufacturing defects or growth of tiny metal filaments called dendrites. While the current that flows through these internal shorts is similar to that in normal battery operation, the current density can be up to 10,000 times higher. This invention relies on the very high current density to destroy the conductive material around the short, similar to an electrical fuse. This new current collector is based on coating a thermally unstable substrate with a thin layer of metal. The amount of metal is much less than the existing solid metal foil current collectors which leads to a current collector weight reduction up to 80% allowing for a battery weight reduction of more than 20%.

The architecture in existing lithium batteries has a very stable solid metal current collector, and a separator that melts and shrinks at the high temperatures that occur near internal shorts. The current collector can deliver very high currents, and the separator melts, increasing the size of the short and leading to thermal runaway. The new architecture in the Dreamweaver patent switches the stability: the separator is stable to very high temperatures, while the current collector degrades at much lower temperatures. When this happens, the current stops flowing through the short, and there is no thermal runaway.

“When this is available at scale, we expect it to deliver a significant increase in safety, and take about 150 lbs out of every electric vehicle, all at a zero increase in cost,” said Brian Morin, President & COO of Dreamweaver International. Dreamweaver is studying the right route to market for this new architecture, and expects to have products available for testing in 2018.

About Dreamweaver International

Dreamweaver International Inc. is an advanced technology company whose products deliver best-in-class performance in lithium ion batteries and supercapacitors. Dreamweaver was founded in 2011 by Jim Schaeffer and Brian Morin, and is headquartered in Greenville, SC. For more information call 864-968-3320 or visit our website at www.dreamweaverintl.com.



In existing lithium ion battery architecture, when an internal short generates heat, the separator shrinks, opening a bigger hole, while the current collector delivers massive amounts of energy that can result in thermal runaway and fires. In the new DWI architecture, the separator is stable so the short does not grow, while the initial burst of current destroys the conductive regions around the short, neutering the short and leaving a battery that functions safely.