

INNOVATION

## Nuts for truck safety

A \$2 solution from a novice inventor—and Manning Innovation Awards winner—that's saving lives

INVENTORS' TALES OFTEN begin with a eureka moment. But in Ifor Davies's case, equally important was the day he decided to become an inventor in the first place. Davies, who goes by the name Taffy, spent nearly three years on his sailboat with partner Lori Maguire—an extended sabbatical from his vice-president's job at a real estate development firm. "I didn't want to go back into the construction industry," the 65-year-old Oakville, Ont., businessman says. "So while we were away, we got to thinking that we should try to invent something and take it to *Dragon's Den* or something like that."

Nothing clicked until one day in 2008 as Davies drove along a southern Ontario highway. He watched two men struggle to change the tire on a tractor-trailer and wondered if they were doing it properly. After some research, he was convinced that he was on to something: solving the problem of deadly runaway truck tires. "In 2008, there had been 95 fatalities in the U.S. and Canada due to wheel-loss situations, and just under 6,000 incidents," Davies says. "I thought, 'There is a market for some kind of device to hold the nuts in place to stop these kind of accidents.'" What he came up with was the Zafety Lug Lock, a small piece of plastic that links two bolts on a truck's wheels, effectively freezing them in place.

Four years later, nearly one million of the two-dollar plastic locks are on the road. The successful invention has earned Davies

a \$10,000 Manning Innovation Award. The annual award is given to two Canadians who have developed a new concept without the assistance of research facilities or specific education in the field of the invention. (Two other Manning awards are given to Canadians working in their chosen field.)

Runaway truck wheels have proved to be a thorny problem. Even properly installed wheels can come off if the nuts holding them are allowed to work their way loose—usually due to vibrations and the temperature swings that cause metal to expand and contract. Although there are teardrop-shaped plastic tags already on the market to indicate when a nut has moved, Davies set out to devise a more fail-safe solution. He settled on a plastic design resembling a small pair of handcuffs—cleverly using the resistance of one nut to prevent its mate from moving. He got in touch with a Toronto moulding company whose owner had previously worked at auto parts giant Magna International. "I think it took us 17 tries to make sure it worked for vibrations, high and low temperatures, was easy to install and cheap to fabricate," Davies says, adding that the final product had to go through significant safety testing. Also key was giving trucking companies the option of purchasing the locks in a variety of bright colours—all the better to telegraph their commitment to road safety. In all, Davies estimates he spent

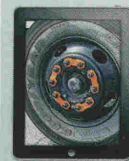
**Success story:** Davies's Zafety Lug Lock earned him a \$10,000 innovation award

\$100,000 developing the Zafety Lug Lock.

Davies's Tafcan Consulting is now selling the locks through distributors in Canada, the U.S., Europe and Australia. Some of his biggest customers include Greyhound, Villeneuve Milk Transport, Coach Canada, Saskatoon Transit and a major oil company's European tanker fleet. The devices are also being tested by a number of city transit operators, including ones in Cleveland and New York.

There have been some unexpected developments, too. Davies says he has been approached by an oil and gas industry executive seeking a way to keep the nuts on a pipeline's flanges from coming loose. "If it keeps the nuts on the wheel of a big truck, it's sure as hell going to keep the nuts in place on a pipeline," Davies reasons.

For both Davies and Maguire, the future looks as bright as those small pieces of plastic that are increasingly securing the wheels of big vehicles. But they don't have any plans to return to their sailboat just yet. "You go down south with the idea that you're going to sail around the world," Davies says. "Well, we sailed around the Bahamas and quickly realized that you will either become an alcoholic or a vegetable if you try and do that the rest of your life." Luckily for drivers everywhere, they decided to abandon ship when they did. **CHRIS SORENSEN**



For profiles of the other winners of this year's Manning Innovation Awards, including Principal Award winners Patrick McGrath and Patricia Lingley-Pottie, see this week's iPad edition of *Maclean's* and [macleans.ca](http://macleans.ca)