Company in Canada gets U.S. patent for space elevator

August 15 2015, by Nancy Owano

20 km Space Tower

Exploring space while seated on Earth, gazing up on screens in museum theaters or at home via VR headsets. is exciting but the top imagination-grabber is the very idea of finding a way to access space. This is the present-day realm of creative thinking over space elevators, in the use of a giant tower to carry us to space.

Scientists working on space elevators are thinking about materials and

designs that can be used to access space as an alternative to rocket technology. A sign of the times is the upcoming Space Elevator Conference 2015 which takes place this month in Seattle.

Imagine, said The Spaceward Foundation, the space elevator, serving as a track on which electric vehicles called "climbers" can travel up and down carrying about 10 tons of payload."There are no intense gravity-loads during the trip, no acoustic vibration, no onboard fuel, nor any of the rest of the drama (and cost) associated with rocket launches," it added.

Now a Canadian company, Thoth Technology in Ontario, has a patent for a space elevator to access space. It would reach 20km (12 miles) above the planet. Its engineers said the technology could save more than 30 percent of the fuel of a conventional rocket— spacecraft and people could be lifted to a level in the atmosphere requiring less force to launch.

As *GCR* (Global Construction Review) *News* described it, this is a freestanding space tower concept, held rigid by pressurized gas.

In *Fast Company*, Charlie Sorrel had some thoughts on this: " The patent does say that the elevator could be scaled to reach 200km, but that's a little like saying that your bank balance could be scaled to reach $1 billion—it's technically true, but the execution may prove tricky."(The patent said the tower could be further scaled to provide direct access to altitudes above 200 km and with the gravitation potential of Low Earth Orbit [LEO].)

20 km Space Tower

The patent document reads: "The present invention is a self-supporting space elevator tower for the delivery of payloads to at least one platform or pod above the surface of the Earth for the purposes of space launch. The space elevator tower may also be used to deliver equipment, personnel and other objects or people to at least one platform or pod above the surface of the Earth for the purpose of scientific research, communications and tourism."

Thoth's approach suggests an interesting alternative. Eric Mack in *CNET* wrote, "Technically speaking, getting to space hasn't become any easier over the past half century or so. It still requires using huge rockets to create a massive enough amount of force to push a payload beyond the grip of Earth's gravity." Or, as *Information Week* put it, "Rockets are extremely hard to launch off the face of the earth because of gravity and air resistance."

In contrast, said Mack, the space elevator uses "much simpler gravity-defying technologies to access space."

David Wagner of *Information Week* said Thoth is using "technology that, for the most part, we already have (to build the building at least). It uses modular tubes of Kevlar-polyethylene composites filled with helium. The tubes are much lighter and forgiving than modern building materials, and the helium helps hold the structure up."

"From the top of the tower, space planes will launch in a single stage to orbit, returning to the top of the tower for refueling and reflight," said Dr. Brendan Quine, the inventor and a professor at York University's Lassonde School of Engineering.

Thoth Technology is a space and defense company in the business of services and products for space applications.

More information: thothx.com/news-2/

www.uspto.gov/web/patents/pato … eek29/OG/patent.html