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Inventors

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Cork-Screw Passive CO2 Capture

-Background

Capturing carbon dioxide (CO₂) from the environment is an important mechanism in the fight against climate change. More specifically, the capture of CO₂ from ambient air at an affordable price could become a critical tool in managing the anthropogenic carbon cycle. Efficient air capture technology would increase the number of options for developing the global energy infrastructure and fighting climate change.

The combination of air capture technology with CO₂ storage technology could compensate for CO₂ emissions from any source, without requiring changes to the existing infrastructure or proximity to the point of emission. Air capture technology makes it possible for existing infrastructures to live out their natural life spans and permits the continued use of carbon-based fuels in distributed and mobile applications.

Invention Description

Researchers at Arizona State University have developed a novel passive CO₂ capture device using a raised cork-screw structure to increase the amount of CO₂ captured and harvested. Passive capture relies on natural air movement to bring air with CO₂ to the capture device which does not require any additional energy expenditure. The cork-screw shape is a unique form that allows passive capture from every direction while providing the opportunity for a twisting motion for either capture or relieving excess moisture. The sorbent can be developed from various chemical compounds and will be formed to fit onto the cork-screw shape.

Potential Applications

- Liquid hydrocarbon fuels without any climate impact
- Capturing CO₂ emissions from existing global energy infrastructure

Benefits & Advantages

- Passive capture mechanism reduces energy expenditure
- Capture and harvest can be performed with any sorbent
- Cork-screw shape reduces wind and environmental pressures on device

Inventor Bio: [Klaus Lackner - Person - Global Institute of Sustainability and Innovation \(asu.edu\)](#)

