Sliding Mechanism for Transporting Supplies Along an Extension Ladder

INVENTORS • Michael Sracic, Daniel Goesch, Logan Hamel, Elliot Haag, David Tengler

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a sliding lift mechanism that allows heavy supplies to be safely and easily transported up and down the full length of an extension ladder.

OVERVIEW

Lifting heavy objects while climbing a ladder can be dangerous; OSHA requires three points of contact to be made with the ladder at all times. To improve safety and conform to OSHA standards, lifting devices, such as pulley systems and sliding mechanisms, are used in the construction industry; however, pulley systems must be operated from the ground, and sliding mechanisms are limited to one section of an extension ladder.

THE INVENTION

UW-Madison researchers have developed a sliding lift mechanism that allows safe and easy transportation of supplies up and down the full length of an extension ladder. This system, known as the Ladder CAT (collar action transitioner), is equipped with two side trays to transport small objects and a rear supply rack for heavier equipment. Spring-loaded rung locks hold the Ladder CAT in place, while spring-loaded collar mechanisms allow it to transition from the lower section of an extension ladder to the upper section. See the Ladder CAT in action.

APPLICATIONS

• Lifting heavy objects while climbing a ladder

KEY BENEFITS

• Provides—for the first time—a simple lifting mechanism that can transition from the lower section of an extension ladder to the upper section
• Designed so the user pushes near the chest to maximize power
• Allows the user to maintain three points of contact at all times—hands are in constant
contact with the device to maintain balance

- Automatically locks to the nearest rung if the user falls or drops the device
- Prototype weighs only 18 pounds, and is rated to support 250 pounds.
- For safety, nothing is positioned above the user’s head.
- Platforms conveniently hold paint, tools and heavy loads while maintaining the balance of the system and ladder.
- Compatible with many brands, including 16- to 24-foot Louisville fiberglass extension ladders, and can be modified to fit all other types
- Low manufacturing costs

ADDITIONAL INFORMATION

Tech Fields
Engineering - Construction

CONTACT INFORMATION

For current licensing status, please contact Emily Bauer at emily@warf.org or (608) 262-8638.

FIGURES

Photo of the Ladder CAT system.
Illustration of the Ladder CAT system.