Lever Aid for Enhanced Mobility Wheelchair

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Abstract
This project involves a lever attachment for the Quickie 2 wheelchair. The design involves a clamp wrapping around a pulley wheel mounted at the axle by squeezing a biking brake handle.

Methods and Materials
The first engineering principle at play is the moment equation for force applied at a distance.

\[ M = Fd \]

The materials used are mostly reclaimed aluminum tubes and specialty rubberized contact surfaces for sufficient friction. The easily accessible materials make for a very low build cost which can be made significantly lower by mass production.

Introduction
Quickie wheelchairs have become the most popular model of wheelchair across the young generation of wheelchair users. This generation of users will want to go more places than the standard chair is currently capable of. This lever is built in as an arm rest and does not increase the size of the original wheelchair's footprint. By not increasing the chair's size, the user will not need to compromise on any aspect that their current chair offers.

Results
The final design accomplishes the goals of enhanced movement and movement over different types of surfaces. The finished product is one of the lowest cost enhanced movement systems on the market.

Discussion
This new attachment-based design is a low-cost alternative to buying an entire new enhanced movement chair for several thousands of dollars. Lever positions below.

Conclusions
A new lever wheelchair allows a user a more complete experience by permitting them to go farther and to more locations. This inexpensive attachment will be available to any customer at any time to act as an upgrade to their existing chair. Most EMW options are available only with the purchase of an entire chair making this option by far the most economic choice.

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