

Uphill Wheelchair



Overview

- Going uphill manually is difficult
- Uphill wheelchair
 - Wheelchair retrofit
 - Ratcheting mechanism
 - Easily engages and disengages



How It Works



- Wheels engage independently of each other
- Gear attachment to standard wheel
- Ratchet attachment to wheelchair frame
- Bi-stable engaging mechanism
- Lever stops

How It Works

Audio track:

Input description: 32000 Hz, mono 64 kbps mp2 (mp3lib)

Current input bitrate: 64 kbps



Market

- Manual wheelchair users
 - 75% of all wheelchair users
- \$100 billion industry
- ~2 million people use manual wheelchairs
- “Even standard ramps can be difficult to climb.”
- “Any device that would help me manually climb hills would be very useful.”

Benchmarks / Prior Art

- US Patent 6,598,724
 - Wheelchair cover (168) rotates to give three states of operation: free, locked, forward only

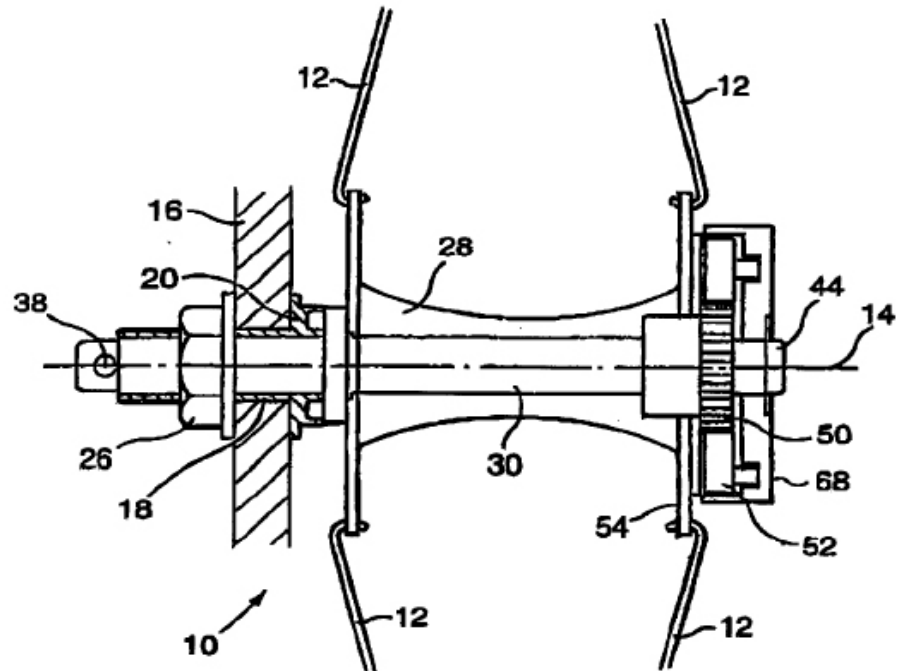
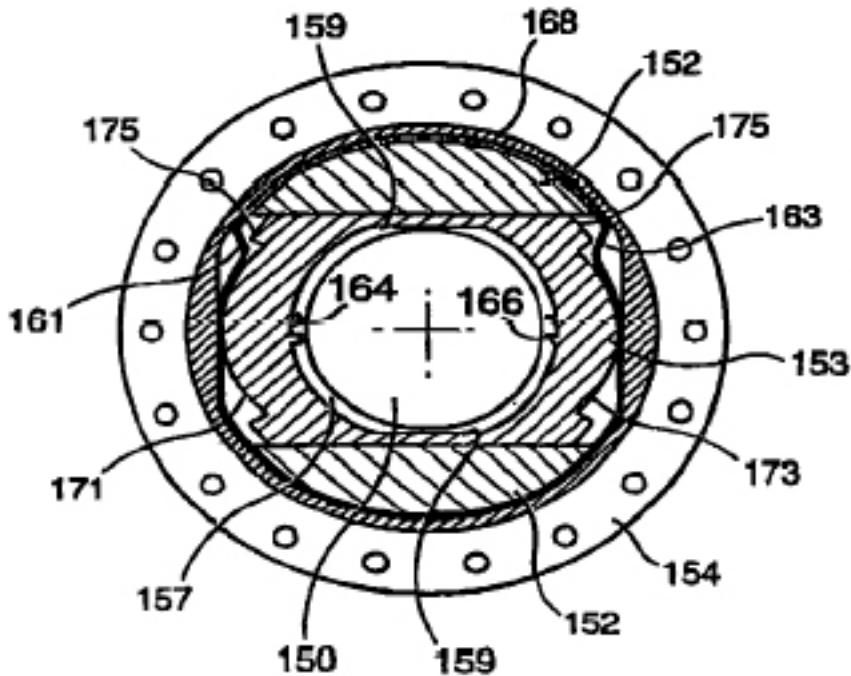


Figure 1

Differentiation

- Easy add-on installation to standard wheelchair wheel and frame
- Separate forward-only and brake controls allowing simultaneous use



Outlook

- Successful mechanism
- Tight spacing between wheel and armrests
- Make Modular
 - Easily attachable parts
- Turn into sprague clutch on wheel
- Perform tests with end user to gather feedback

Sprague Clutch

