

Transtibial Liner Donning System

BACKGROUND

- Several transtibial (below-the-knee) amputees have difficulties donning their prosthetic liner
- These difficulties can be due to several factors such as age, weight, strength, flexibility and vision.
- The prosthetic liner functions as the interface between the residual limb and prosthetic socket. It also provides comfort.
- Improper donning of the liner can lead to blisters, rashes, or sores.
- Our goal is to create a device that will correctly don the prosthetic liners for these transtibial amputees.

DESIGN GOALS

- Comfortable and Easy to Use
- Work with Commercial Liners/Prosthetic Components
- Accommodate Majority of Patients
- Reduce Strain for the Patient
- Require Little to No Hand Strength or Dexterity
- Aid Inflexible Individuals
- Properly Align the Pin
- Allow Independent Donning

CONCEPT DEVELOPMENT

Reduce Pin Alignment Errors:

- A liner loader with a labeled line will be available for users to lock their liner into during the donning process. The labeled line will allow the user to correctly align their liner.

Make a Flush Contact Between the Liner Umbrella and Residual Limb:

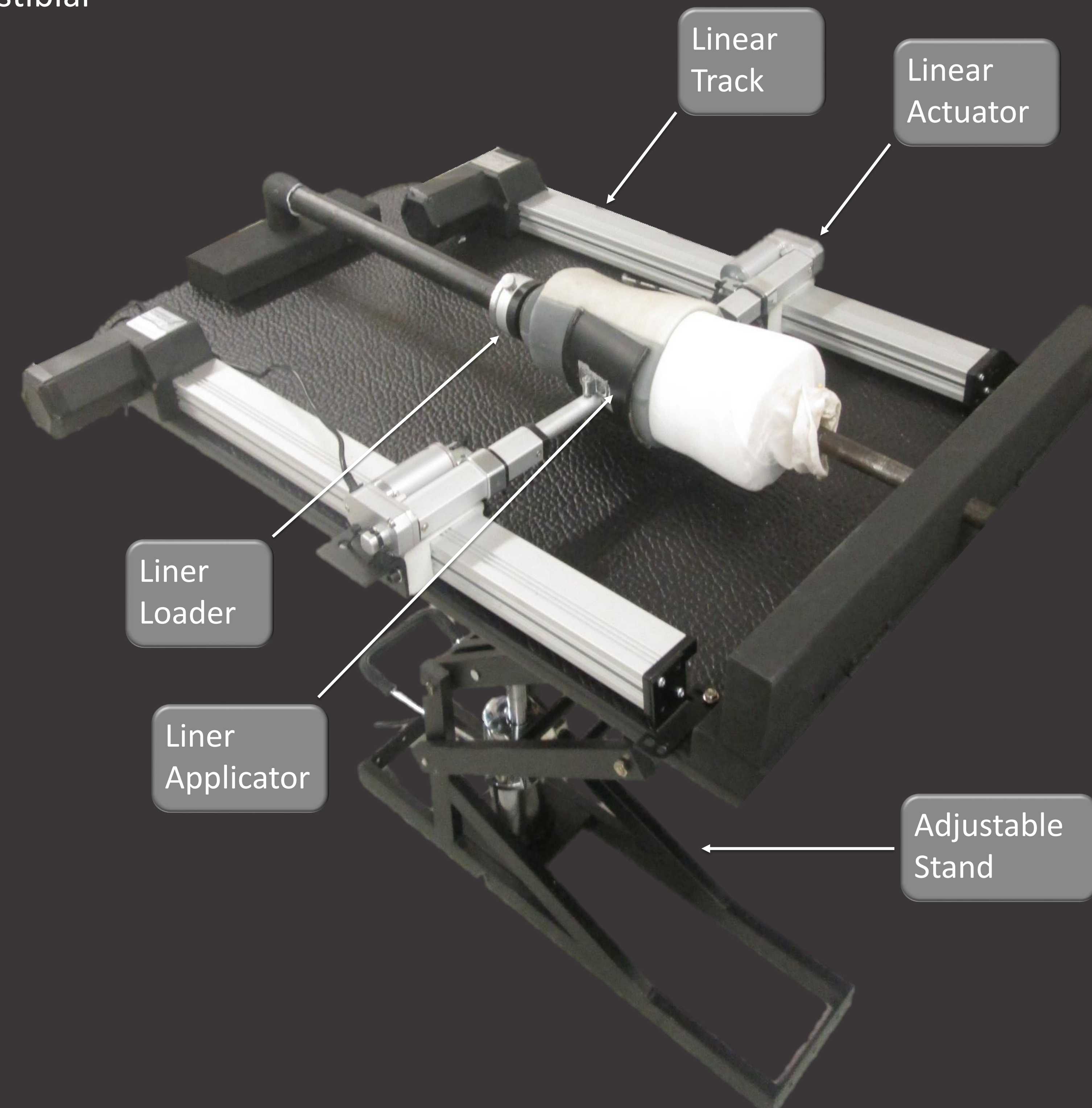
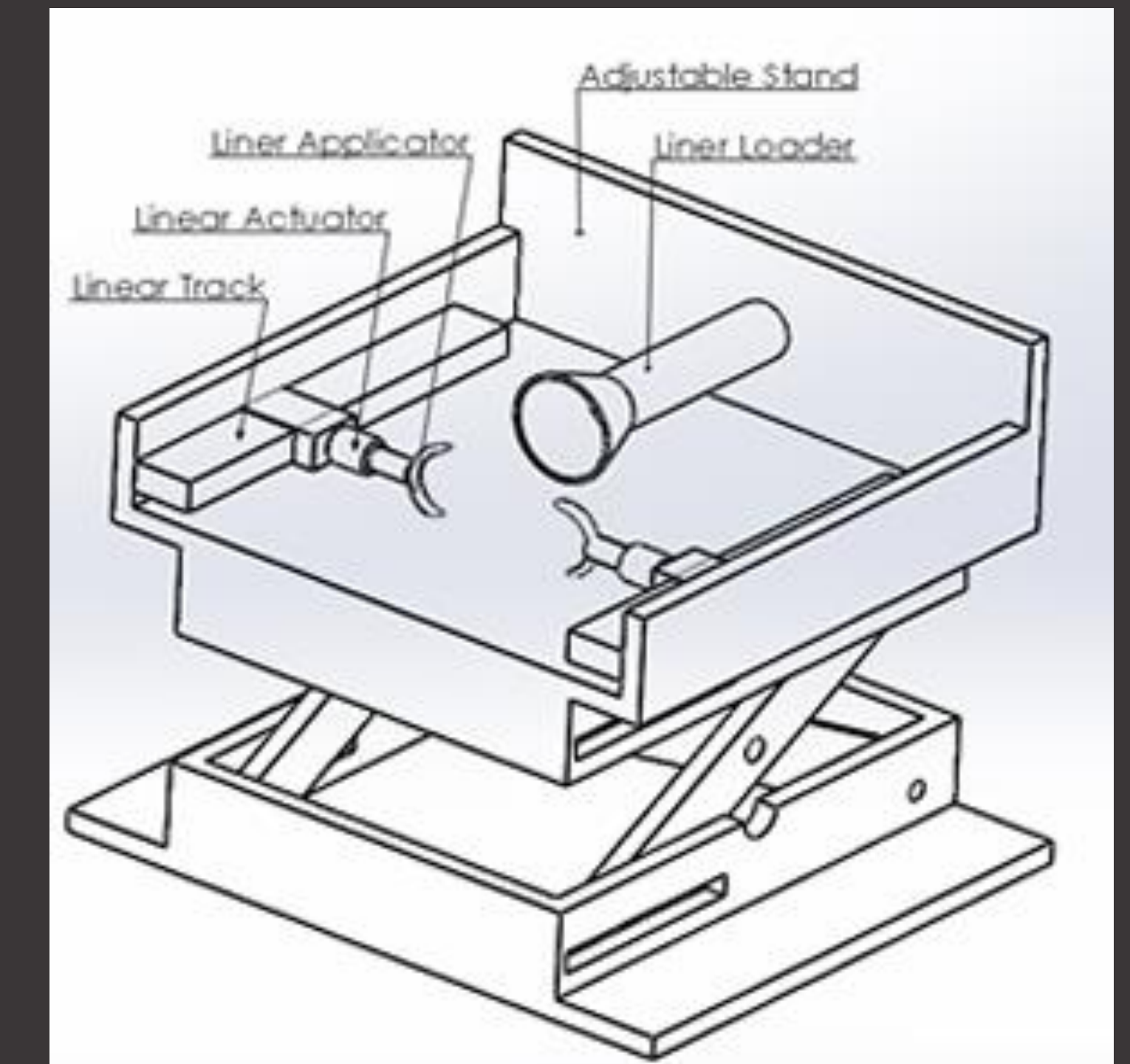
- An umbrella support cup that is attached to the liner loader will allow for the user to place their residual limb flush against their liner.

Decrease In the Need of Hand Strength, Hand Dexterity, Flexibility at Waist and Residual Limb, and Vision:

- Automated track/linear actuators with applicators.

Adjustability for Different Users:

- Stand adjusts for different sitting heights during donning process



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