Releasable Wagon Bed

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The Problem:

Employees at a tree farm are having a tough time handling larger trees, thus resulting in slow shipping speeds and back injuries.

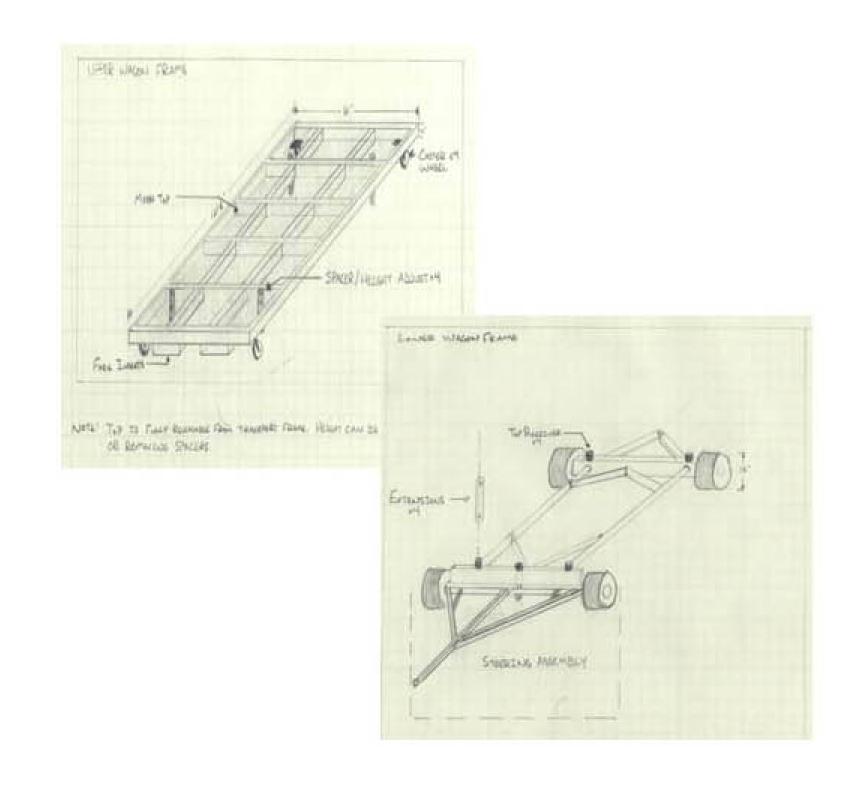
The Solution:

Design a wagon that is both economical and practical to speed up shipping times. This wagon should also have a lower height to aid in the prevention of injuries.

Final Deliverables:

A wagon that has a shorter frame, with a releasable wagon bed that can be picked up by a forklift. A back injury prevention guide, as well as a complete construction guide on how to create another wagon.

The Construction Process



Step 1: Design preliminary sketches



Step 2: Design mock-ups on AutoCAD



Step 3: Evaluate the old wagon frame



Step 4: Disassemble



Step 5: Construct lower frame



Step 6: Construct upper frame



Step 7: Add forklift pockets



Step 8: Put together and paint



Step 9: Finished product



The Results



Graphical Data Ground-to-Wagon Loading Times 35.00 ■ Modified Wagon Time (seconds) 25.00 Original Wagon 10.00 Wagon-to-Semi Loading Times 100.00 80.00 70.00 ■ Modified Wagon Time (seconds) Original Wagon 50.00 40.00 30.00 20.00 10.00 Total Semi Load Times 35.0 30.0 25.0 ■ Modified Wagon Time (minutes) Original Wagon 15.0 10.0 5.0

Test Results:

- Less strain on the back
- Easy use and interchangeability.
- Faster shipping time for larger trees in 15 gallon bags.
 - ⇒ Total time saved from beginning to end:

7 Minutes per wagon load

 Faster shipping times for smaller trees in 1-5 gallons pots.





"This wagon is going to help us out a ton on many aspects of shipping" -Kent Berg, Owner

Special Thanks to our Sponsors

Advisor



Kent Berg & Woody Warehouse Nursery Inc.

Dr. Dennis Buckmaster