Work Completed

This week we made major progress toward the final build. The bed back is been assembled, with only the track is left to align and attach. We also went o Mansfield Supply last Friday, March 30th, and came back with many crucial parts, such as a rod to be cut as spring supports, a 3 inch coupling for use on the motor support, plywood for the bed back, and 16 angle braces to be used in the combined bed support, and lifting support. We then measured the height of the bed from the ground and marked out a scrap piece of slotted angle steel, to be used in the lift support.

The 3 inch coupling will be used to grip the motor, supporting it securely, and preventing it from turning while applying torque to the jack. An especially nice feature accomplished by using this coupling, is that it will be extremely easy for the motor to be removed and worked on, or replaced. One major concern about attaching this coupling to the steel plates, which we machined early last week, is how well the bands will weld to the plates. We will also have to measure out the exact distance between the band slots in the rubber coupling, so that a proper fit can be obtained once tightened. Also, the bands should be welded to the plates while in the tightened state, so that there will be minimal stress on both the bands and the plate, while the motor is being retained. The coupling will be welded in place, between the two plates of the motor support. To do this, the two plates will have to be bent out about ½ inch each, and then straightened out, so that there is approximately 3 inches between them. Once this is done, the final step to finishing the motor support plates will be to welded to the round hole to Pin 1, as shown below in figure 1. The slot of eat plate will be placed over Pin 2, while a washer is welded on the end of the pin, so prevent the plate from slipping off.
This week, Alaena and I measured the height of the bed so that we can begin marking and constructing the bottom bed support. This support will be used to support the back of the bed, since the legs were moved to the middle, as well as secure the lift system. The height of the bed turned out to be 7 3/16 inches tall. We then marked out these sections on a scrap piece of slotted angle steel, to be cut to length. These can then be attached to the bed by using two angle braces, and then at the bottom to a piece of ply wood, also using two angle braces. By using four of these legs, and the plywood, the bed will be well supported, and the lift system, which will also be bolted to the plywood, will be stable, increasing the safety of our product.

The last component, of which I dealt with this week, was the handle. At Mansfield Supply, we found a foot long, 5/16th inch diameter threaded rod. This rod will be perfect for use as spring supports. There will be a peg on the top and bottom of each spring, extending at most 1 inch into each spring. One of the pegs will be attached to the handle, while the other peg for each spring will attach to the case. This setup will allow the spring to collapse the full 1 inch for which it is capable of, while also preventing buckling of the spring, which would reduce the force needed to compress it.

**Future Work**

In the following week, we plan to connect the legs to the bed frame, and the plywood to create the lift system support. Also, with the arrival of the wheel, and incorporation of the lift system support, we can place the rail system, and finish constructing the frame of the bed back. The last thing that should be done this week, will be to finish construction and attach the motor support to the jack. With this done, it will be possible to produce some with the lift system as a whole, and judge any foreseeable problems with the mechanical motion of the bed.
Project Review

The bed is partially constructed, with just a few more parts required for the main structure to be complete. The lifting apparatus is ready to be finished, so that testing can be performed, and the wheel track can be placed and tested. Before the purchases at Mansfield Supply, our remaining budget was $600. With our recent purchases, of $31.58, our budget is now at $568.42. This means that we have spent $1431.68 of our $2000 budget.

Hours Worked
13 hours