Post Driver
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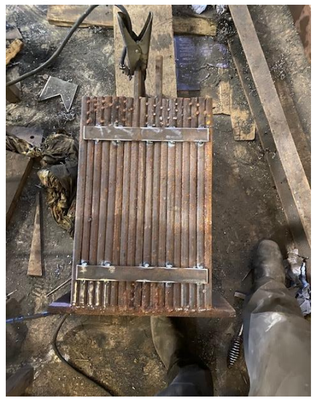
Aim of the Project

The Aim of the project is to fabricate a heavy duty post driver that is able to drive in fencing post and strainers for hanging gates on. And will work on the back of a tractor. I want an extra heavy hammer to be able to drive these strainers easily on hard ground. Shown below is my weight.



Background

I come from a farming background and have sheep at home on a lot of hill ground and have a lot of fences to maintain. We currently do not have a post driver at home and drive all our posts with a sledge hammer. A contractor would do all of our bigger bits of fencing although after I finish college I would like to do more of this myself.

I want the post driver to be mounted on the back of a tractor as we do not own a digger currently. It will be worked off the tractor hydraulics to raise and lower the hammer. I would like to leave it that digger brackets could easily be put on in the future though incase I buy a digger in the future

Research

Figure 1: Malone post driver

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This style of post driver works on a long hydraulic ram and a double pulley system to raise and lower the hammer. Personally I don't like this style as the ram holds a lot of oil it takes a long time to raise and lower the hammer.

The other common style of post driver works with a short ram and swinging arm as shown below. I prefer this design because the ram holds less oil meaning quicker to raise and lower meaning more impact force onto the post resulting in being quicker at driving post

Fig. 2 Photo of:post driver with swinging arm

Design

<u>Chosen design</u>

I have chosen to go with the short ram and swinging arm design because of less oil required and its simplicity. I want this post driver to last a long time and I think this is the best option for me

Photo of: swinging arm

Above is the swinging arm for my post driver with the pulley and holes bored out for the hydraulic ram. There is a 40mm pin going through. I welded in 2 heavy bushings with grease nipples to try and increase the machines working life. I had to drill these bushings and thread them for the grease nipples to thread into.

Bushing for 40mm pin with grease nipple

Conclusion

Current progress

My project is nearly finished, next step is to put on the pipes for the hydraulic rams, attach the weight and paint the metal surfaces. I think this will work well and I'm happy how it has turned out.

References

Fig.1 DH farm machinery https://s3-eu-west-1.amazonaws.com/webshop/data/thumbs/b7/b76e0bd866b8c587a8d54c6d472a0cef2d14a729.jpg

Fig.2 https://agrilife.co.nz/spree/products/1140/product/P200s_1.jpg?1509498031