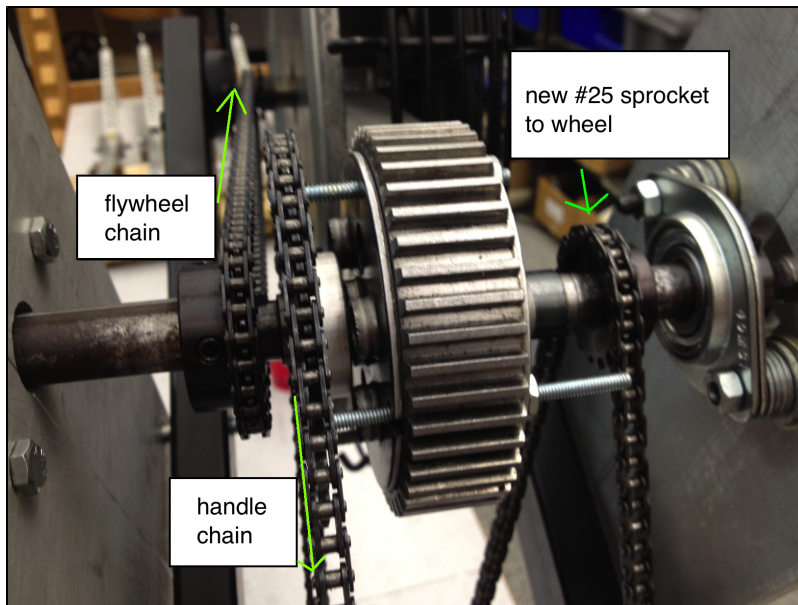


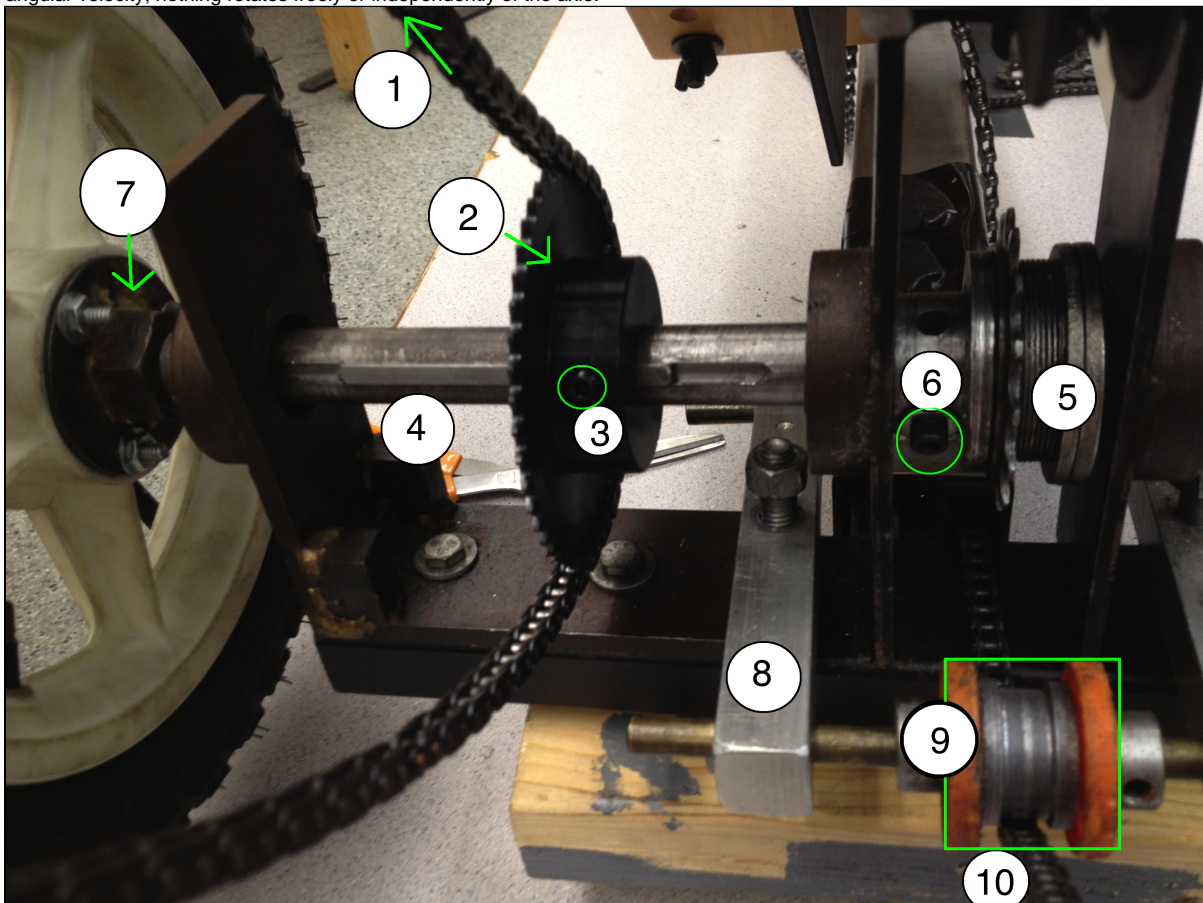
## Wednesday 06-12-13 Lin

Joe the Machine Shop Guy used a broach set and press to cut out keyways in two of our sprockets. We placed these new sprockets on the differential and on the wheel axle, and all the chains on the differential are all set up. Now, the differential uses only type #25 chain.

The differential is now set up comme ça:



The wheel axle looks the same, but with different sized chain+sprocket that connects the differential to the wheel. Everything on the wheel axle spins with the same angular velocity; nothing rotates freely or independently of the axle.



The numbers in the above picture correspond to:

1. New #25 chain that connects to a differential half-shaft.
2. #25 sprocket, 45 teeth. This sprocket is fixed to the wheel axle because of the keyway (4) and the set screw (3).
3. Set screw. There are two of these on the sprocket, and they stop the sprocket from moving laterally along axle.
4. 3/16" x 3/16" keypiece and 3/16" x 3/32" keyway. These ensure that the axle rotates with the sprocket and they always have the same angular velocity; i.e. there is no slippage between the sprocket and its axle.
5. #40 sprocket. The bungee cord chain runs along this sprocket, so when the erg moves bowards, the sprocket rotates with the wheels and shortens the chain on one side, which stretches the bungee cord. When the bungee cord relaxes, it pulls the erg sternward to return the machine to its starting position. The chain for this sprocket is currently missing.
6. A bolt running perpendicularly through the axle and the sprocket's axis fixes the sprocket to the axle.
7. A flange nut fixes a wheel to the axle.
8. Metal bars and rods that support the handle chain pulley (9).
9. Freely rotating pulley for handle chain.
10. #25 handle chain. One ends goes around the differential and connects to the handle, and the other end is connected to a soft bungee inside of the bottom bar.

The threads on the end of the wheel axle were wearing down, and we couldn't get the wheel nuts screwed on, so we cut off an inch of the axle on both sides.

We still need to attach the bungee cords.