Simple, inexpensive, EZ to build Flying Crank

While working on my Ultralignt FCG I got to thinking that with a little thought I could build a flying crank using very basic hand tools and a simple designee from inexpensive, easily available parts. I couldn't resist the challenge and I'm quite pleased with the results.

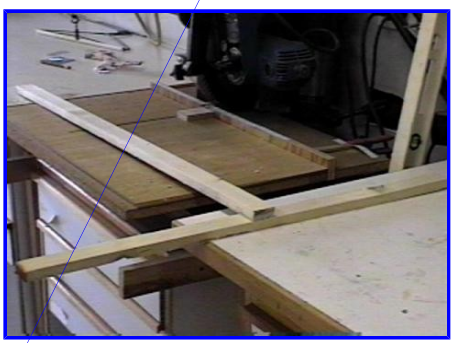
Since this was something of a pilgrimage into the unknown I felt I should incorporate most of the mystical elements required for a successful DIY project including duck tape, glue, coat hanger, hammer and sticks.

All of the parts are from Home Depot and the swap meet. None of the dimensions are very important. None of the parts are "special" so feel free to improvise (that's what I did). No special tools are required (I used tools I thought most people would have, could borrow or could buy for very little money)

Finished product hanging in the FCG room.

Most of the parts.

Building the frame work



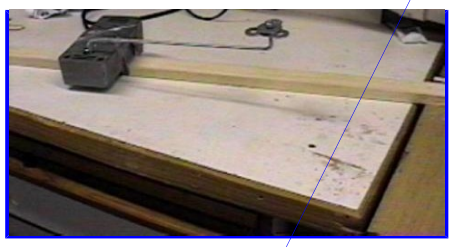
Connecting crank to rotisserie motor

Attaching motor to frame work

The washer at the end of the crank

Washer, crank and motor integration

Sky hooks - bolting it up to the ceiling



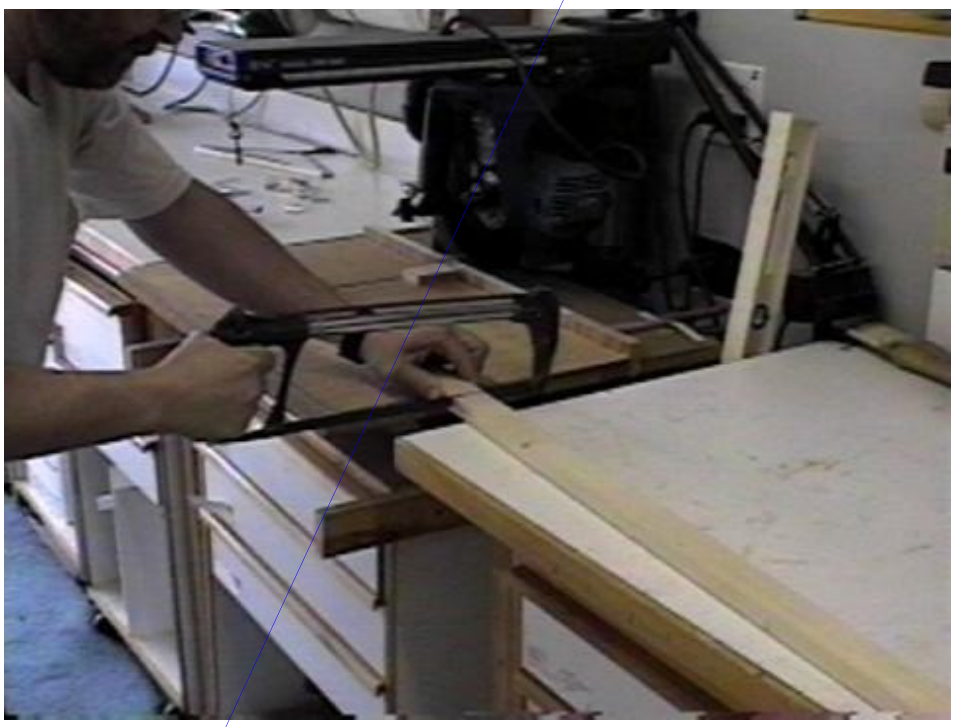
The finished product

Last updated on 09/30/2003

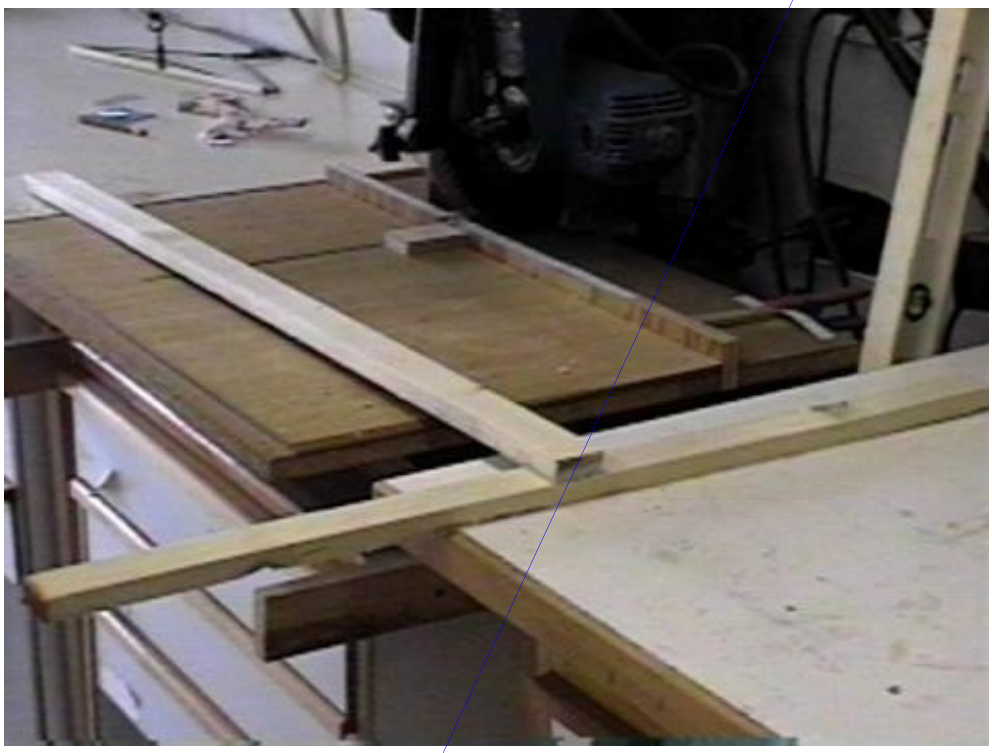
The frame work is extremely simple

Just a "T" made from 2 pieces of 1x2 pine (or white wood and Home Depot (HD) likes to call it). All measurements and symbols are standard hardware store gibberish. Single quote ' means feet and double quote " means inches. 1x2 refers to 1 inch thick and 2 inches wide with an unknown length (of course it's not actually 1" by 2" and the only length you can get is 8').

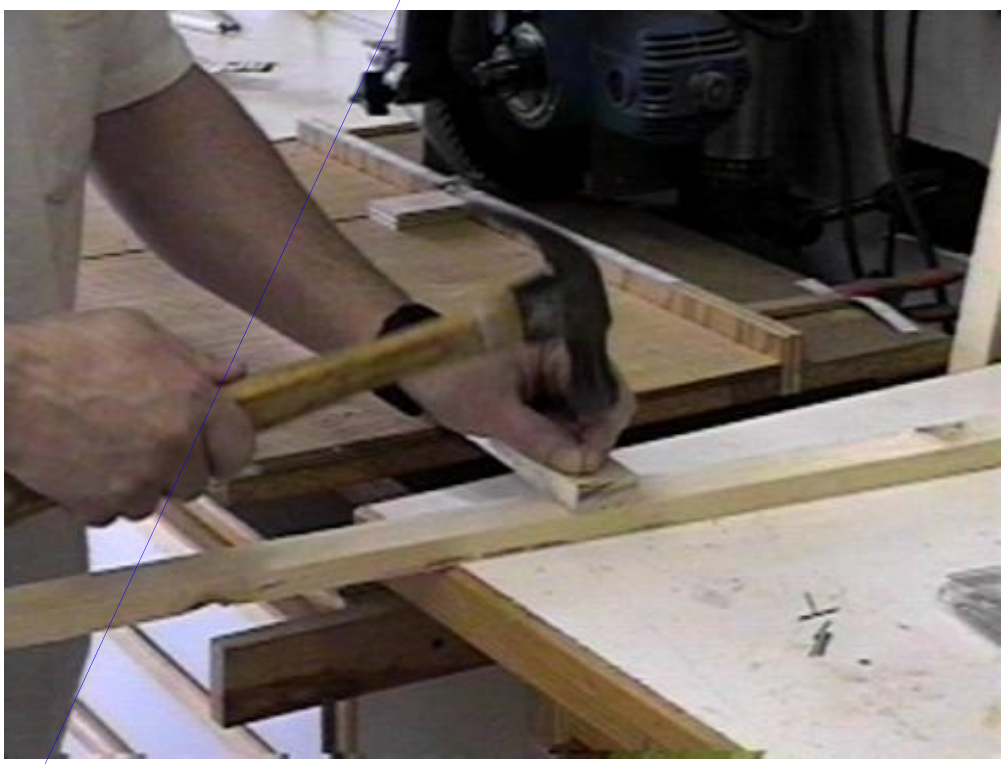
I bought an 8' piece of 1x2 at HD and had them cut it in half so it would fit in my car. I cut 1 piece 29" long (cap of T) and the other 39" (trunk of T).



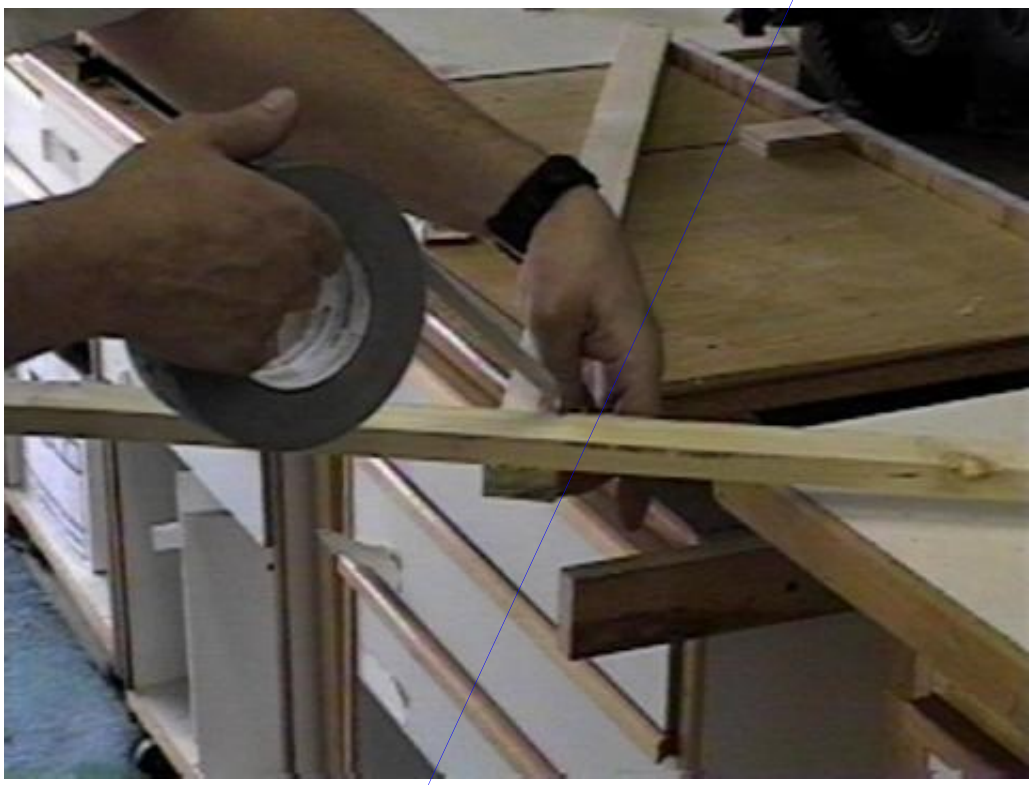
I set the two pieces together in a T shape

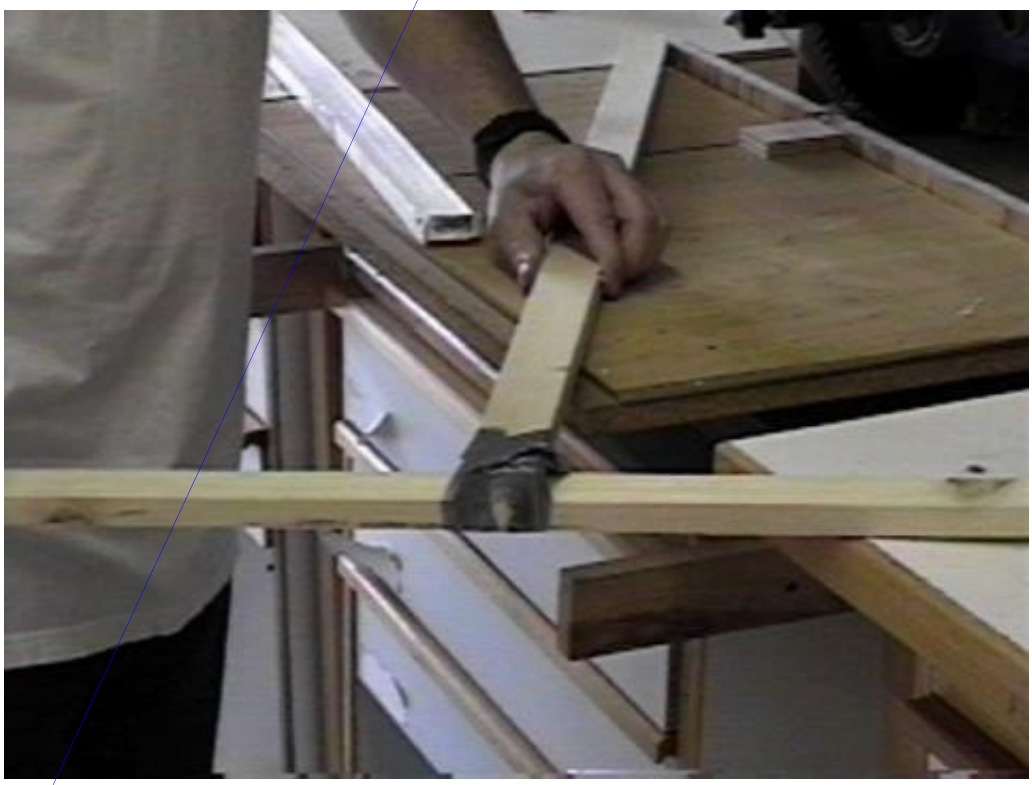


Added a couple of small nails (1.5")



And some duck tape





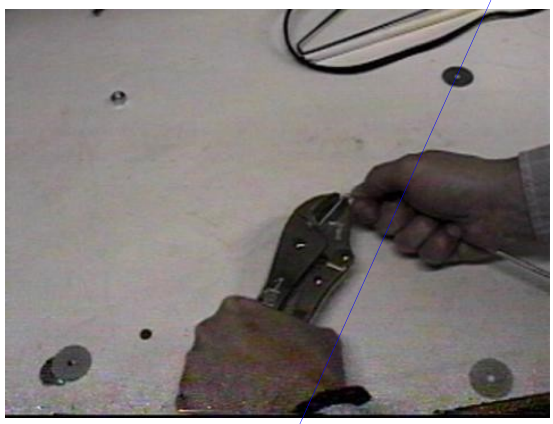
Last Updated 08/29/03

Beating swords into plow shears

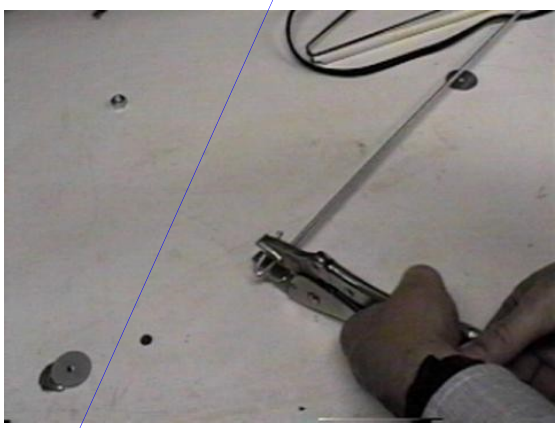
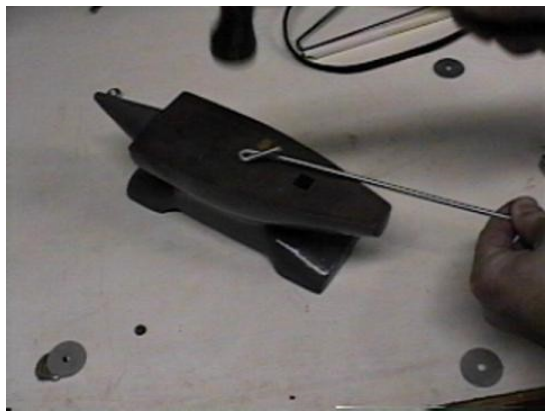
Or in this case beating #10x32 rod into a rotisery motor (#10 is HD speek for the diamiter of the threded rod and x32 is the kind of thrid. Be careful when you buy nuts that the thred is the same as the rod (#10 comes in x32 and x24, doesn't mater which one you use; but, you have to use all the same kind (no mixing #10x32 rod with #10x24 nuts)).

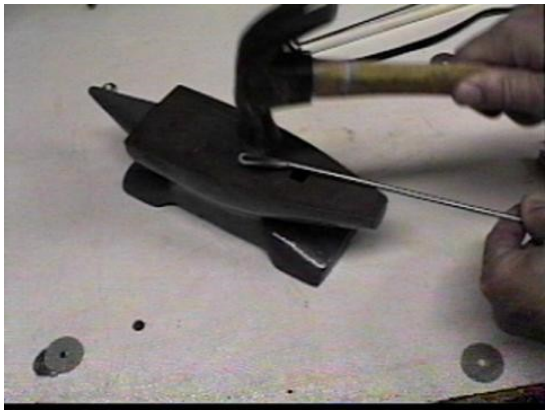
You want to find a rod that will fit snugly in the hole when the rod is foled over on it self. Take your motor to HD and go find the threded rod section. Pick out rods 2 at a time (e.g.: 2 #10's) and see if you can fit both of them in the motor hole at the same time. Buy about 3' of this size.

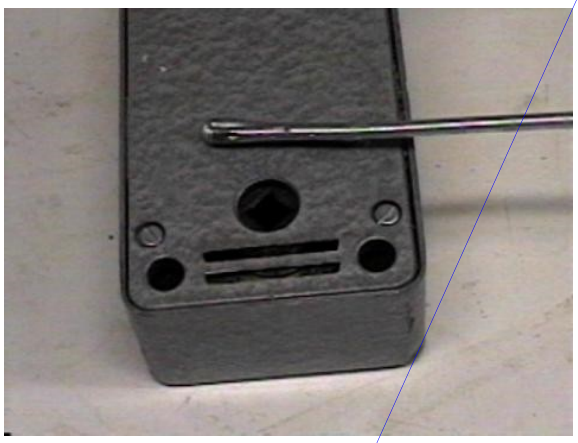
Bending rod over on it self to fit snugly in the motor hole

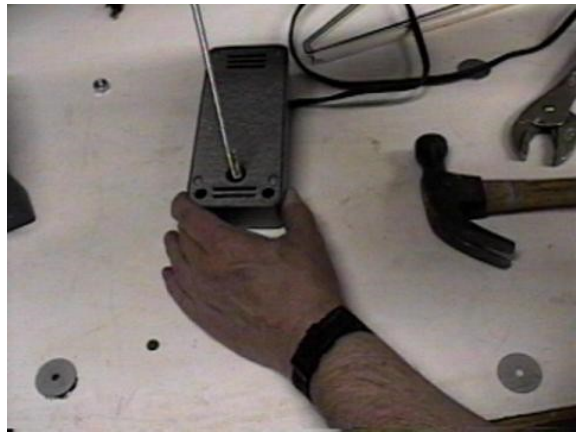


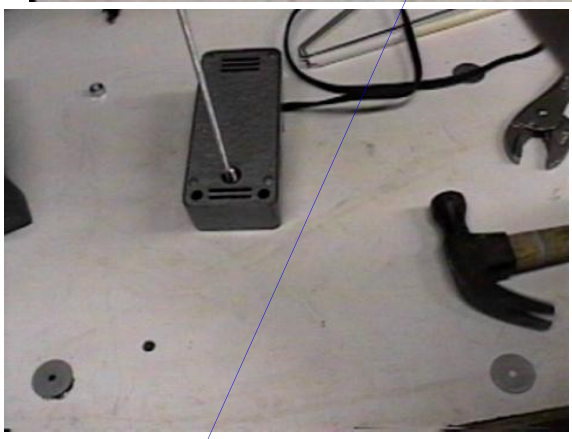

You may find it nessisary to beat it into submission. Ok I cheeted and used a little anvil; but, a large rock will work just as well.

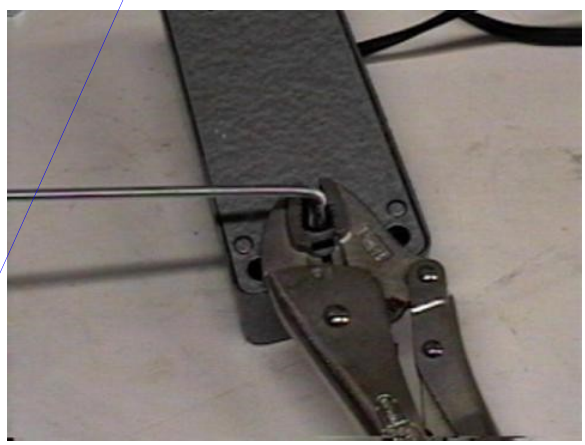


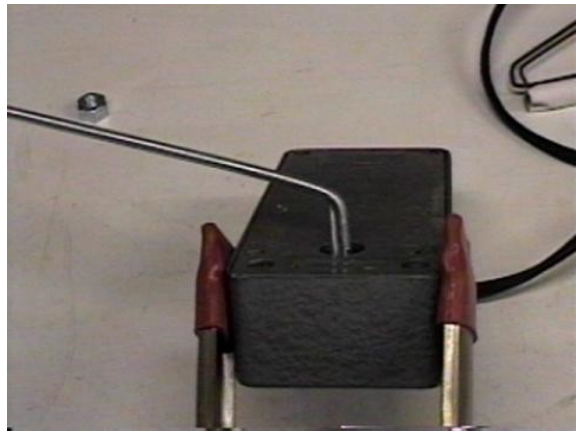


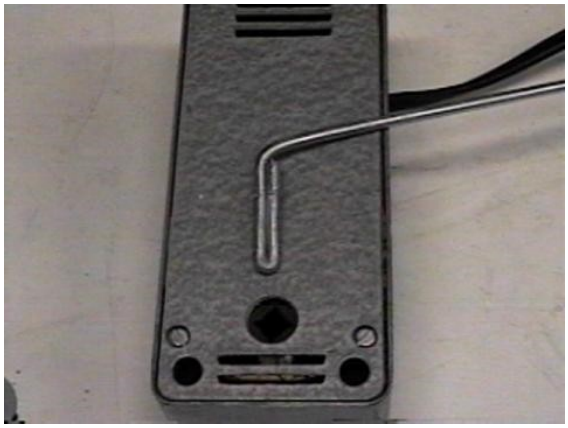




Finaly grab the rod just above where it come out of the motor hole and bend it over to about 45deg (we will bend it to final shape later)



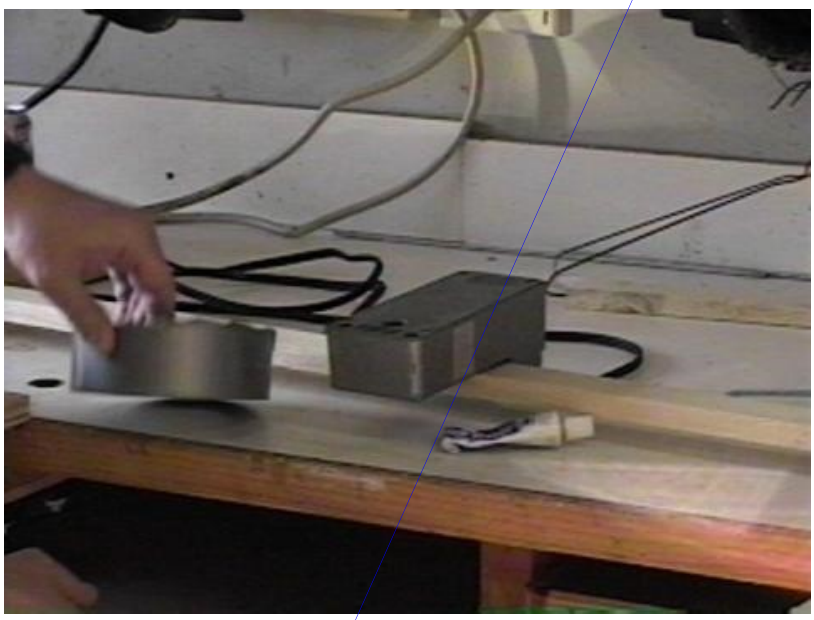


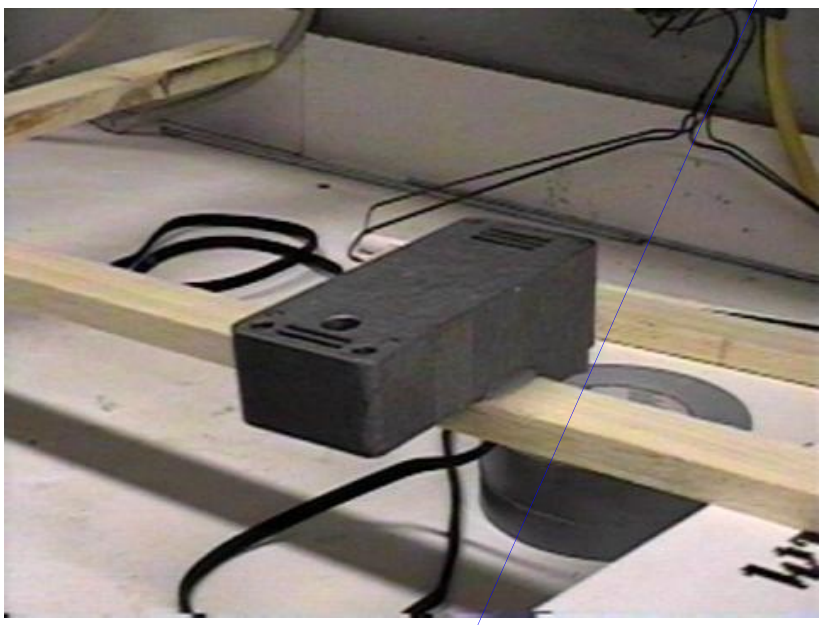


Last update 08/29/03

Duck tape and glue

Mount the motor on the shaft of the T (longer stick) 16" away from where the cap and shaft meet. I arived at this number by deviding the length of the cap (29") by 2 and adding a little fudge factor (15" or 17" would work just as well).



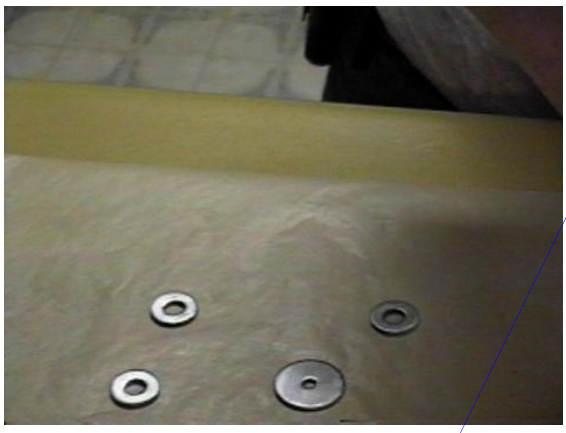


Last Update08/29/03

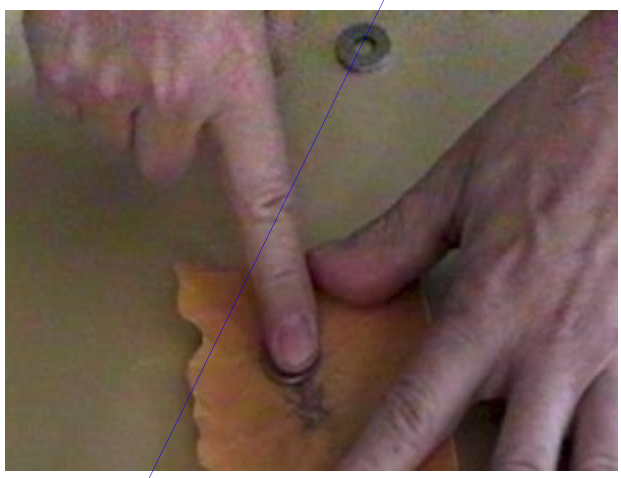
The Washer

Standard FCG construction requires you to drill 3 small holes in a washer to connect strings from the crank to the ghost. This designee eliminates having to drill the holes

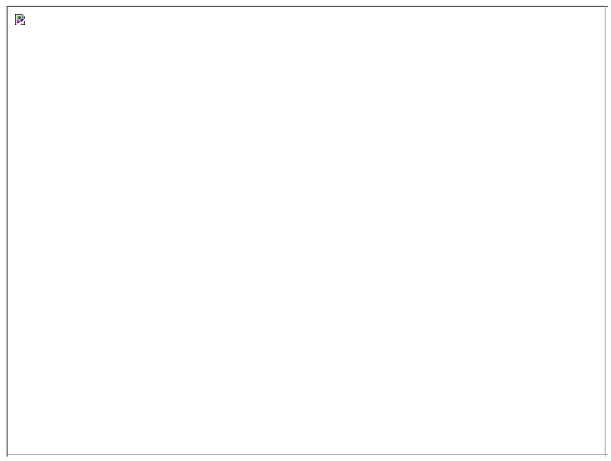
Here are the parts. A #10 fender washer (the big one lower right) and 3 regular 1/4" washers (which will function like the holes in a standard FCG ghost washer)



Ruff up the washers with sand paper

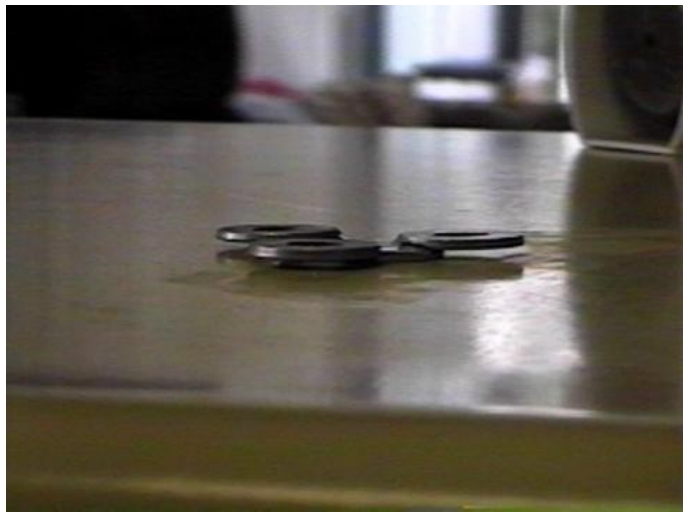


Apply epoxy glue to one side of the big washer



Stick the little washers onto the big washer (I used extra, big washers to help hold the little washers flat against the big one with glue) and let the glue dry

Finished product



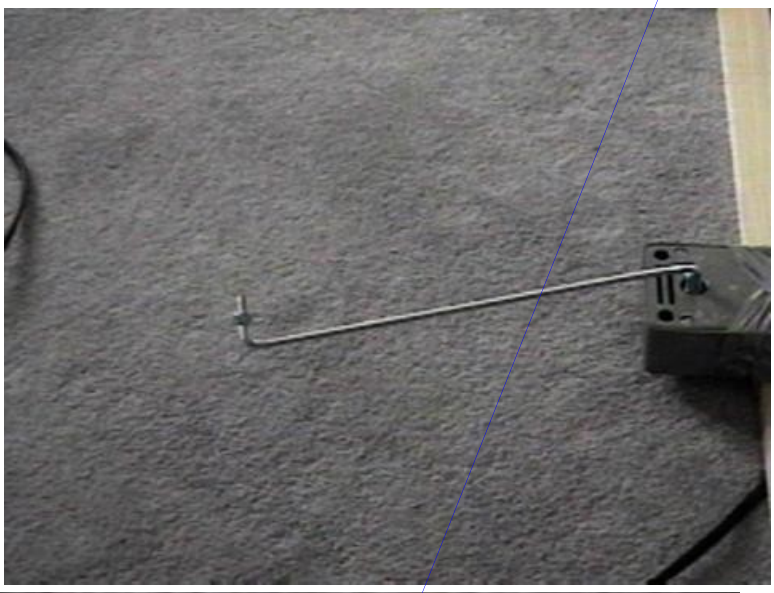
Last Update 09/30/03

Integrating the Washer, crank and motor

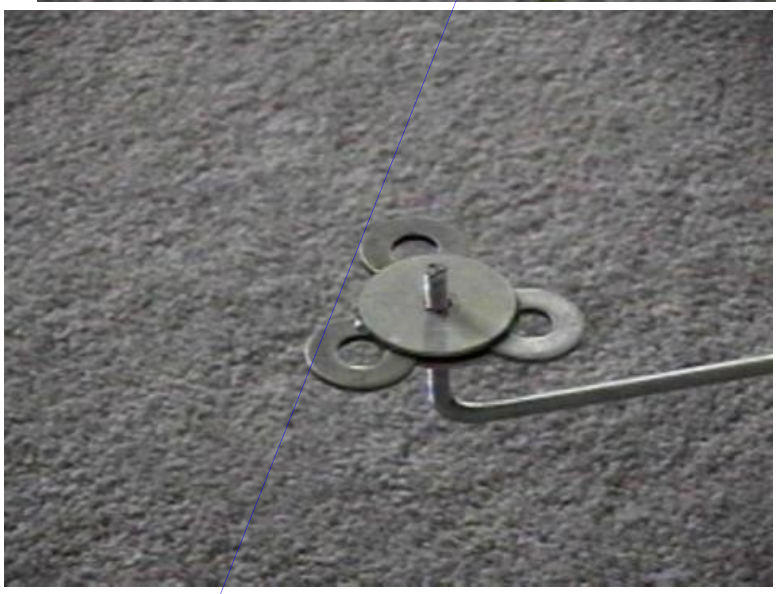
Length of crank should be 12" from bend for motor to bend for washer. Distance from bend for washer to end of rod should be about 2"

Rod bent, 2 nuts inplace, ready for washer.

WARNING! 1. make bend for washer 12" from motor. 2. Spin several nuts onto the 2" of shaft for the washer. 3 cut shaft allowing 2" for washer. When you cut the shaft you will screw up the threads and it will be difficult or impossible to screw a nut onto the shaft; but, if you screw a few nuts onto the shaft before cutting when you take the nuts off after cutting they will automatically fix the threads. Sorry, I didn't get pictures of this process

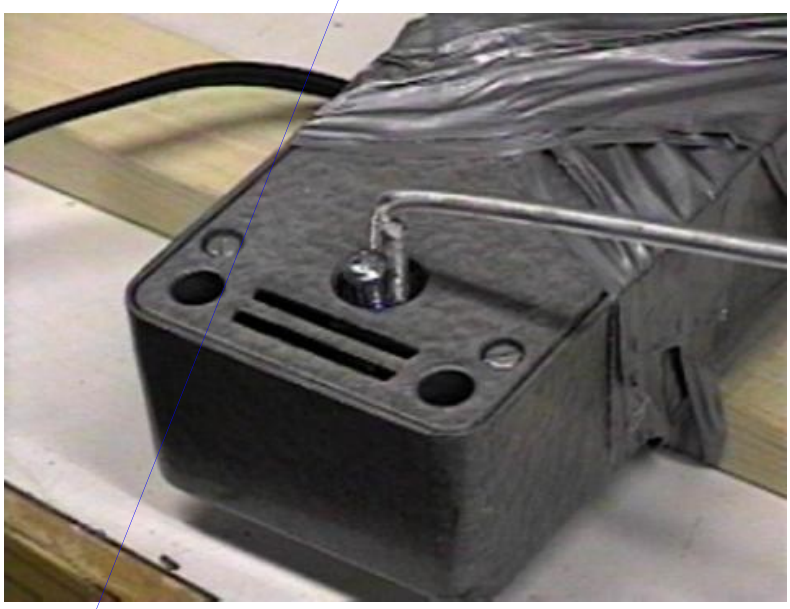


Remember the FCG is upside down right now. After putting nuts in place (about 1" onto the shaft) add one of the big shoulder washers. Then add the "3 hole" washer, sandwiching the smaller washers between the 2 larger ones.

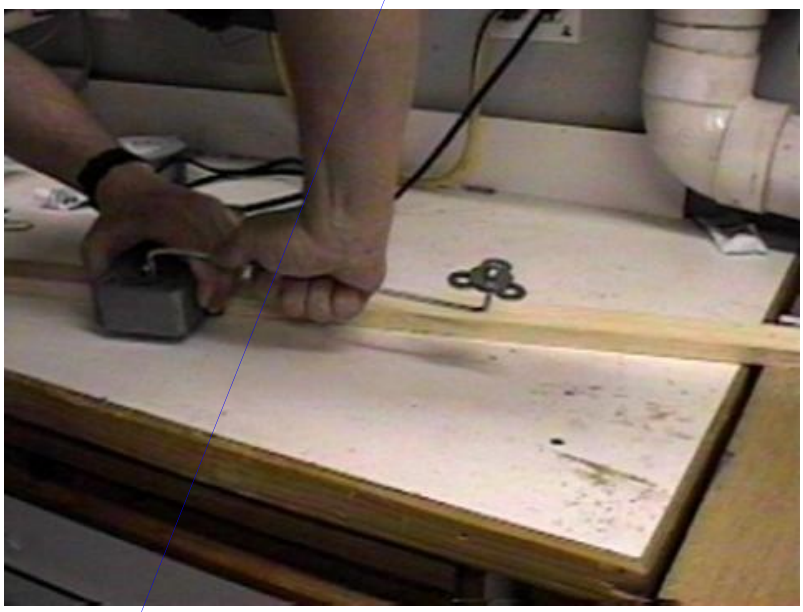


Finally add 2 nuts onto the end of the shaft and adjust every thing down to the end of the shaft. The washers must be able to spin freely. That's why there are 2 nuts on each side. Each nut of a pair of nuts can be tightened against each other to lock the nuts in place with out putting force on the washers. The technospeek term for this trick is "LOCK NUTS". If your having trouble with the concept ask a mechanical friend to explain what lock nuts are and how they work. He will be delighted. It's a good trick that Mech. types love to pass along

Time to lock the shaft into the motor hole. I was originally going to use glue; but, forcing a sheet metal screw (#8 x 1/2) works even better. The threads of the rod pull the screw into place and the extra diameter of the screw forces the rods against the sides of the motor hole. I could not pull this apart.; but, take the screw out and it disassembles very easily.



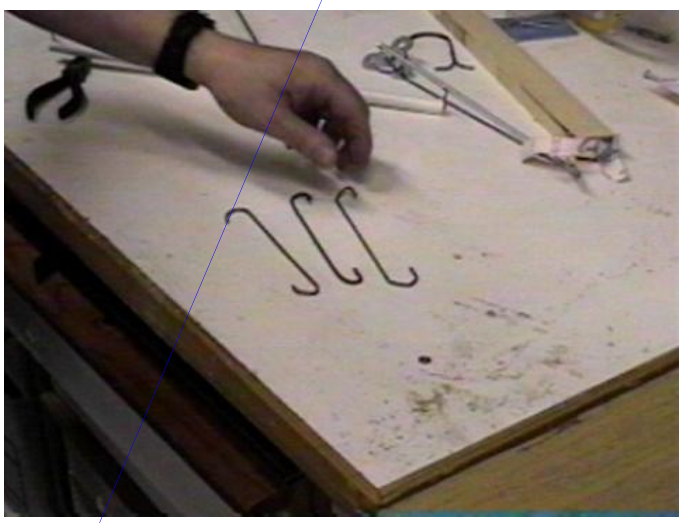
Finally bend the rod (near the motor) so that the rod is about parallel with the frame

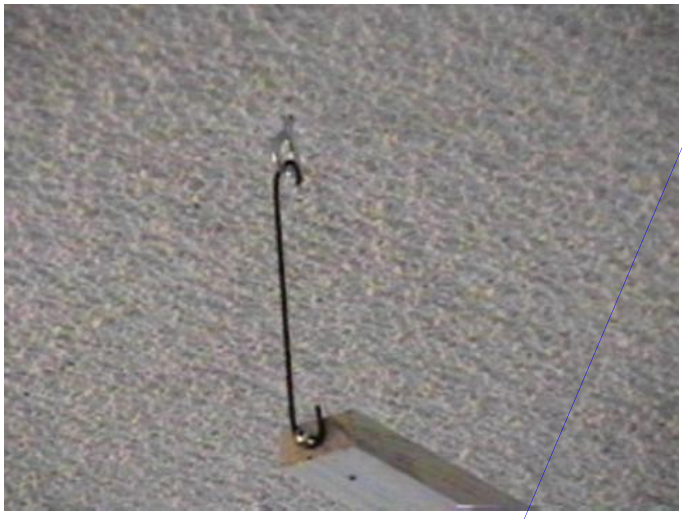


Bolting this thing to the ceiling

Eye loops screwed into my favorite dry wall anchers. Use what ever dry wall ancher you like; but if your not sure, try E Z Ancor.

Screw eye to FCG fraim connectors. Bend a hook onto 3 pieces of coat hanger. Try to get the lengths close to equal. Put a screw into each end of the frame (T) and hook the frame to the screw eyes with the coat hanber bits

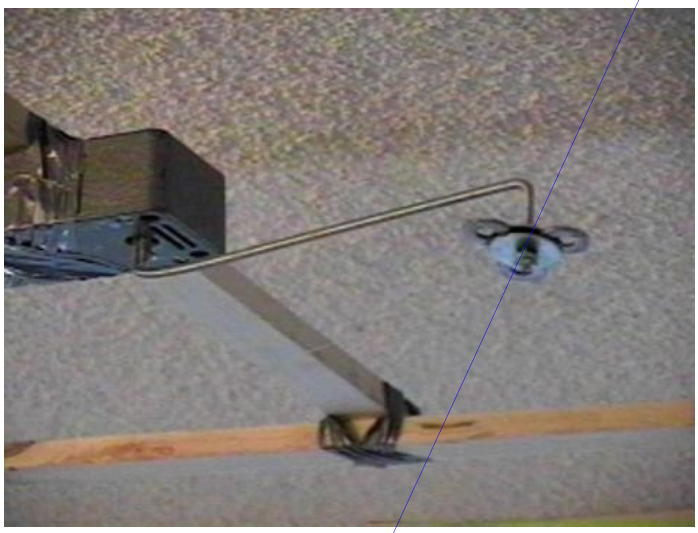




Last Update 08/29/03

So here's the final product hooked to the ceeling and ready for a ghost

Fraim held together with duck tape and nails. and glue



Rotiser motor held to fraim with duck tape

One of the "pullies" at the end of a framework arm

ghost washer with line feeding each of the "pullies"

last updated 08/29/03