Kicking Legs

by Scary Terry http://www.scary-terry.com/kicklegs/kicklegs.htm

Hi All. Here's a description of making a set of kicking legs for use in your Halloween displays. The idea is based on the "Kicking Witch" from Dan's Halloween Page (go to "Props" then "Kicking Witch").

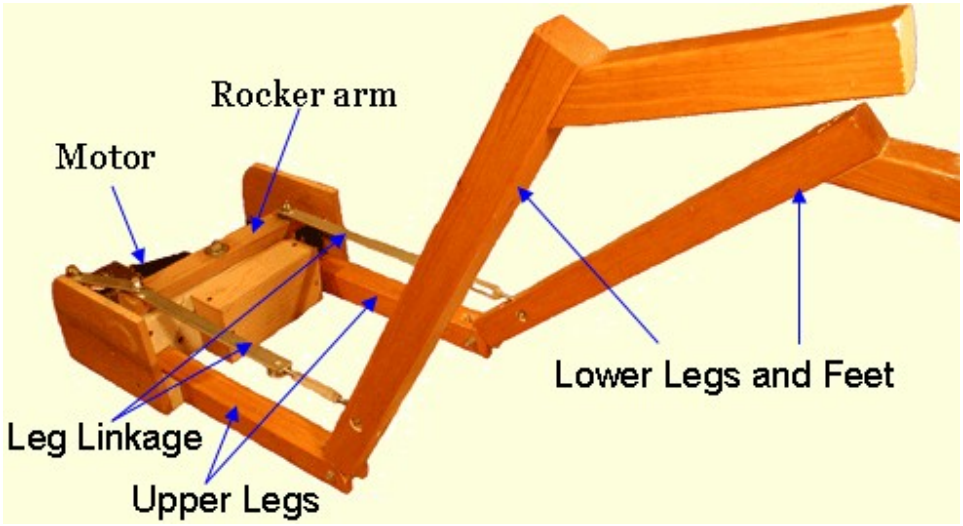
I use a set of these under a lawn mower, but I think they can have numerous other uses in your haunt limited only by your imagination.

The following presents pictures and descriptions on how I did it. It is by no means a definitive how-to. I encourage you to make changes to fit your own needs or just to make it work better.

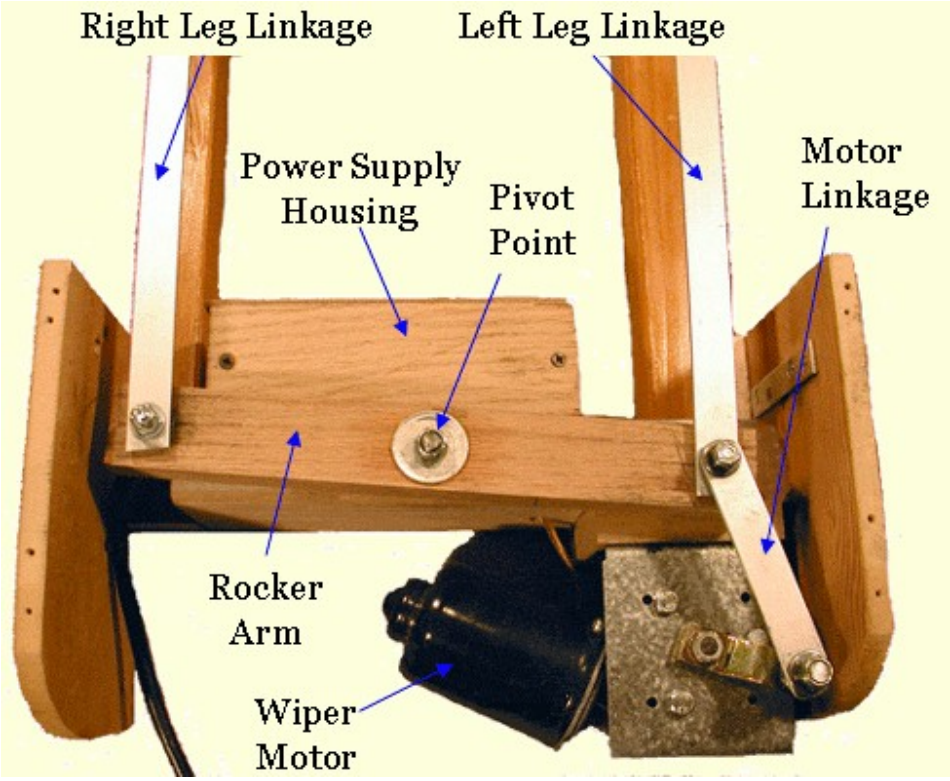
These kicking legs use a wiper motor to drive the mechanism. See my wiper motor page for detailed information on working with wiper motors.

Note: This design has been modified as of 12/2005. The new design repositions the motor and improves on the leg linkage which makes for a smoother operation. I'd like to thank Tom of Maniac Mansion for his design ideas on this.

To the right and below are the individual parts that make up the kicking legs.



The wiper motor drives the motor linkage by means of the crank that originally came with the motor. The crank is drilled out to accept a 5/16" bolt, nut, washers and nylon insert lock nut. The motor linkage connects to a rocker arm which in turn is connected to the left and right leg linkages. The rocker arm is free to rotate around a pivot point consisting of a 5/16" bolt, washers and nylon insert lock nut.

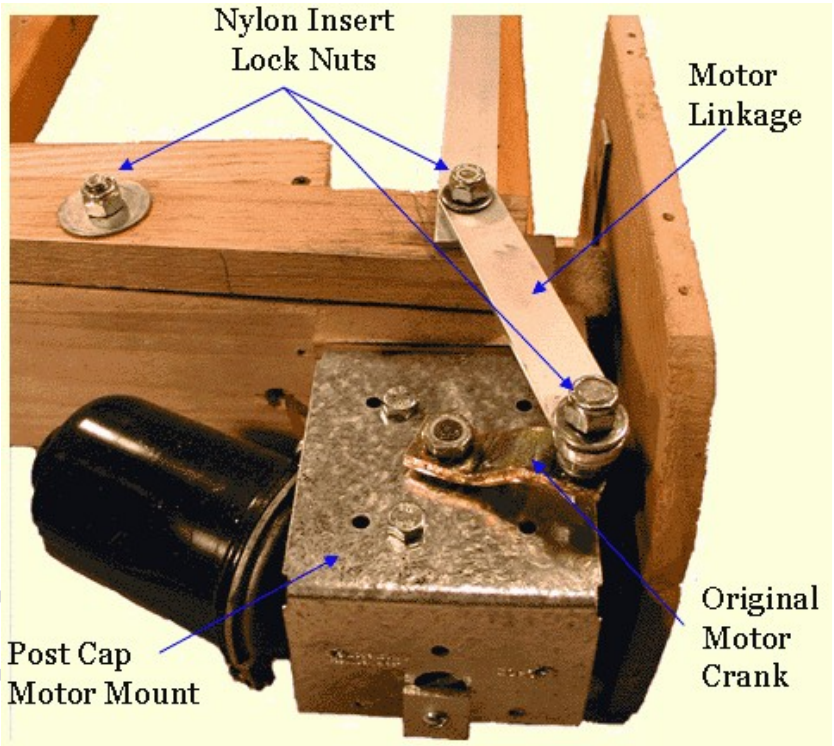


The leg linkages connect to the rocker arm using 1/4" bolts, t-nuts, washers and nylon insert lock nuts. The bolt and t-nut is shown below.

The motor is mounted using a 4x4 post cap (i.e. Simpson BC40, available in hardware stores and home centers) which is screwed to the framework.

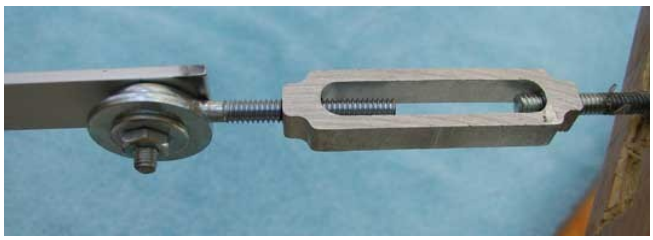
The motor mount is supported by a piece of aluminum bent to form a bracket as seen at the lower part of the photo at left and in the photo below. The wiring terminal is attached to that piece of aluminum (Note: if you look closely at the photo, you'll notice that the aluminum strip is broken. I didn't see this at the time the photo was taken. The break was probably due to trying to make too tight of a bend in the aluminum.)

The motor linkage is attached to the original motor crank using a 5/16" bolt which is tightly attached the the crank using a lock washer and nut. I then applied a 5/16" washer, the motor linkage, another washer and the nylon insert lock nut. The nut is backed off about 1/2 turn from being fully tight which allows the motor linkage the freedom to rotate without too much slop.



The "rocker arm" is a piece of hardwood drilled to pivot in the middle around a 5/16" bolt and drilled in the ends to accept hardware for the leg linkages. It's mounted to a 2x4 block of wood that serves as the main framework of the kicking legs.

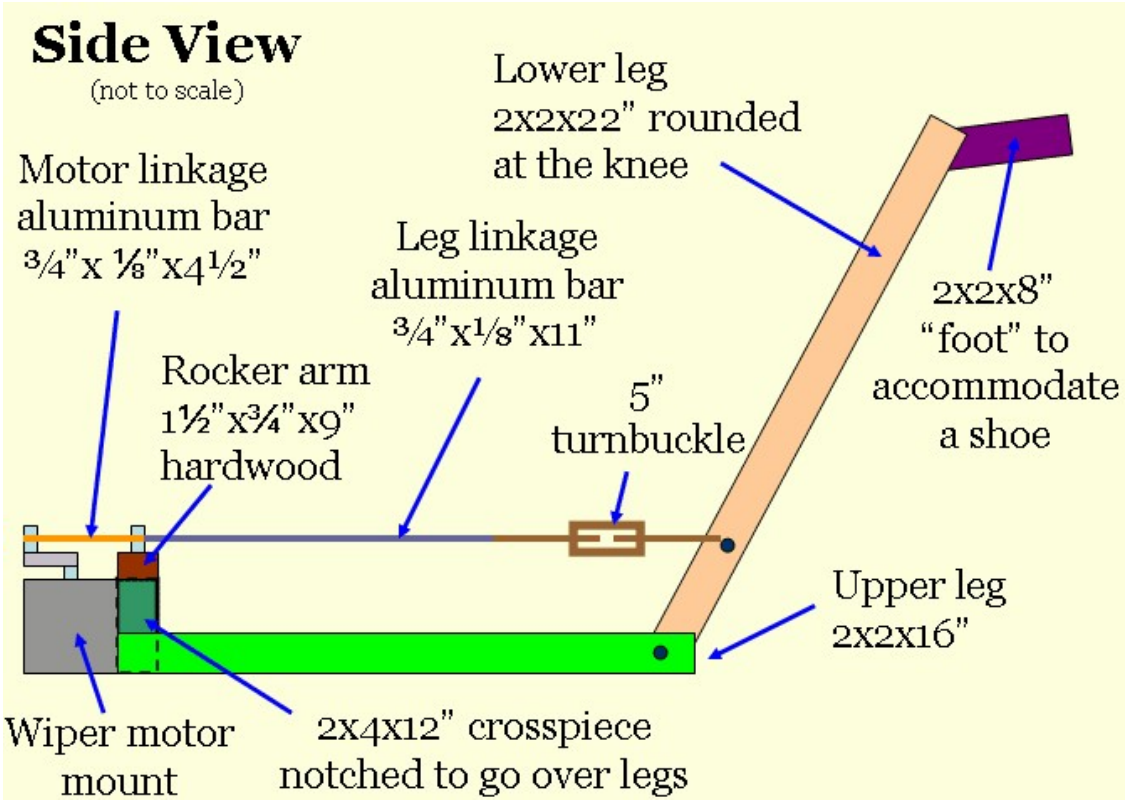
The legs consist of wooden 2x2's (approximate dimensions below). The leg joints are just simple tongue and groove cuts joined by a #10 screws, washers and nuts.

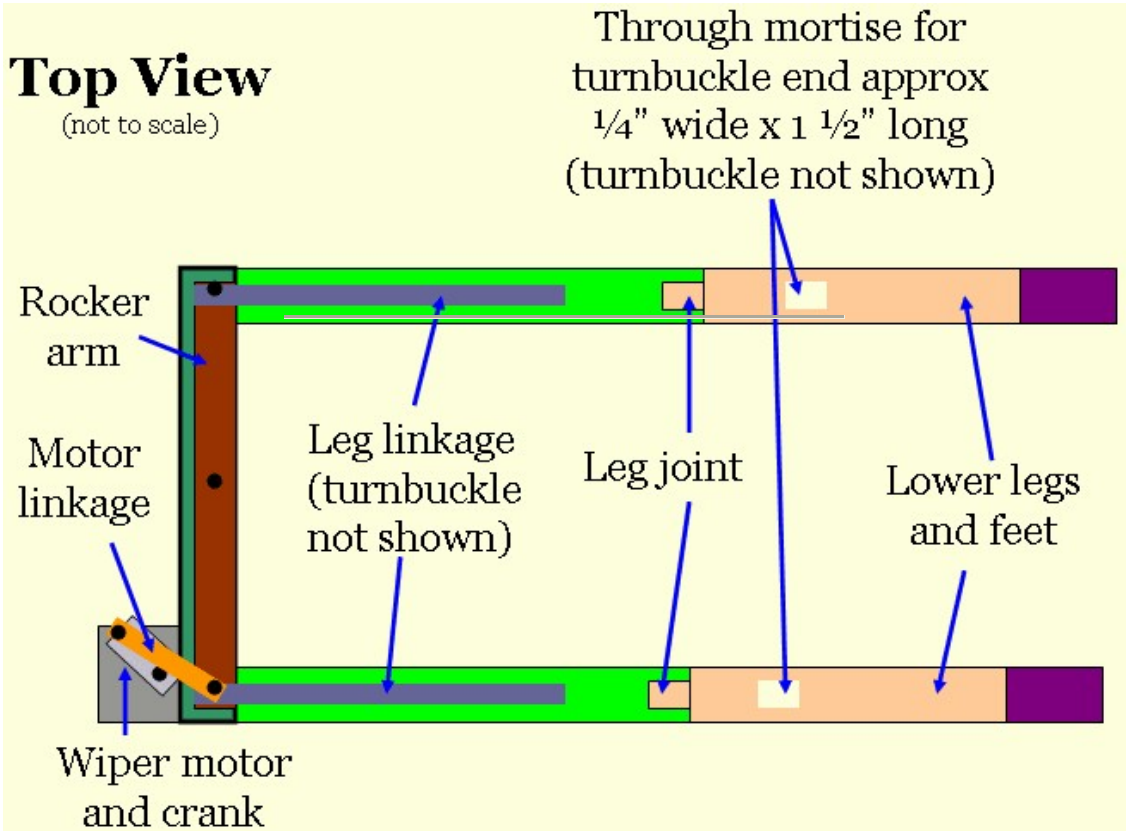


The leg linkages consist of 3/4" wide, flat aluminum bars (available at most hardware stores/home centers) connected to 5" turnbuckles. The turnbuckles are connected to the lower legs by inserting them into a "through mortise" cut into the leg and fastening with a screw. The easiest way to cut the mortise is by drilling a series of holes.

The power supply is mounted in a box just below the pivot arm. I used a surplus 12 volt/3 amp supply from All Electronics that cost $6.50 (I know that because the price tag is still on it). This is wired to the low speed terminals of the motor (see the wiper motor web site for details).

Here are some drawings that give approximate dimensions for the major parts of the kicking legs.





To finish things off, I added wooden sides and a top as well as a sheet metal cover over the motor. These keep the pants from getting tangled in the mechanism.

Here are a few more pictures that may help to clairify the design: