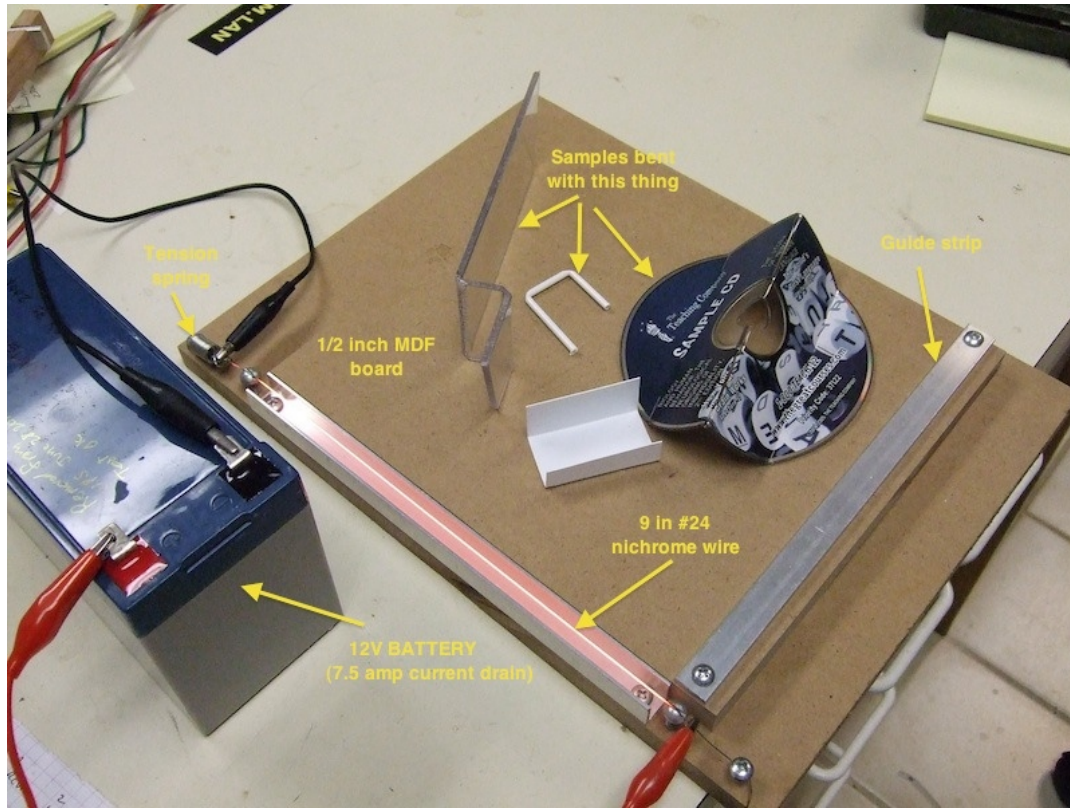# Hot Wire Plastic Bender

by Dale Heatherington

This is a simple hot wire plastic bending jig I made. It can be used to bend thermoforming plastics up to about 1/8 inch thick. I've bent polystyrene and polycarbonate and PVC.

The base is 1/2 inch multi-density fiber board (MDF board) The heater wire is suspended in a piece of 1/2 inch aluminum channel supported by two slotted 10-32 screws. A small spring on one end keeps the wire from sagging when it gets hot. Note the hot wire does not touch the plastic. It is located 0.080 inch below the work. I installed a 1/2 x 1/16 inch aluminum guide strip perpendicular to the wire to help align the work.
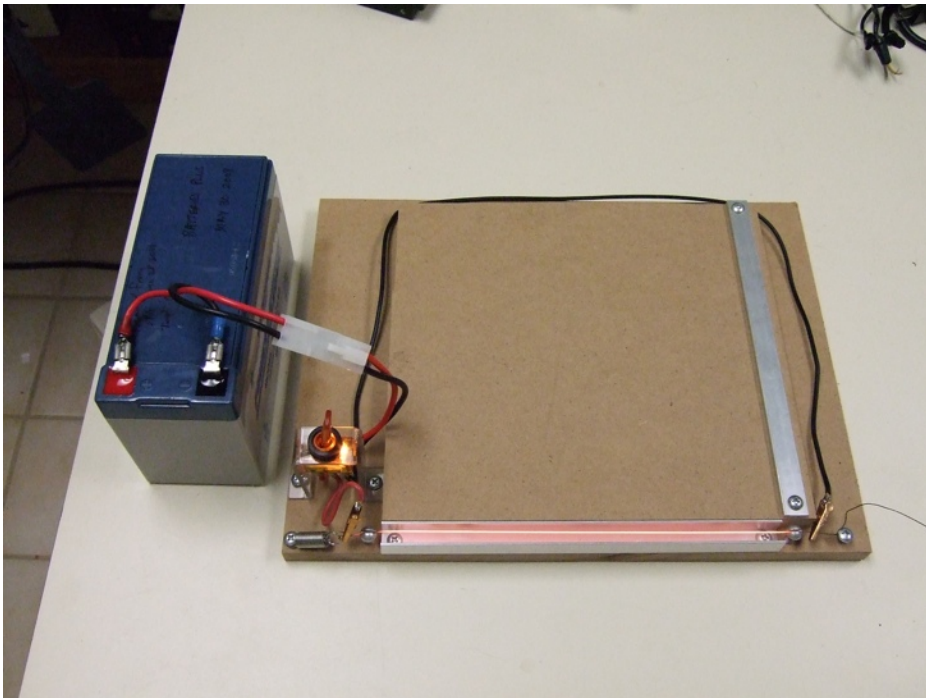
Here it is after I added a power switch, battery connector and permanent wiring. I still use alligator clips to connect to the hot wire. The battery is a 12 volt, 7 Ah SLA unit.
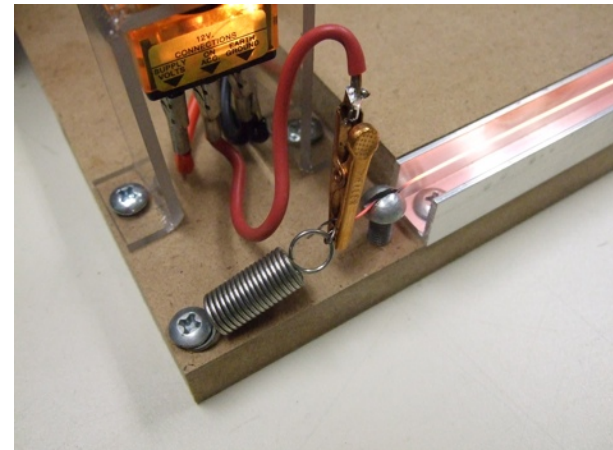
This is a 1/4 pound spool of #24 nichrome wire I bought from McMaster Carr. Diameter is .0201 inch. I used it for the hot wire. Resistance is 1.6 ohms per foot. According to a table on this website (http://www.wiretron.com/nicrdat.html) it will heat to 1600 degrees F at 7.1 amps.

There is 9.25 inches between the two clips. This works out to 1.25 ohms.
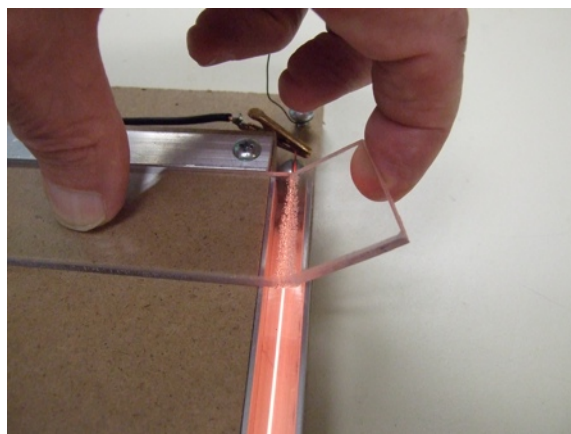
Nichrome wire also may be salvaged from toasters and electric heaters.
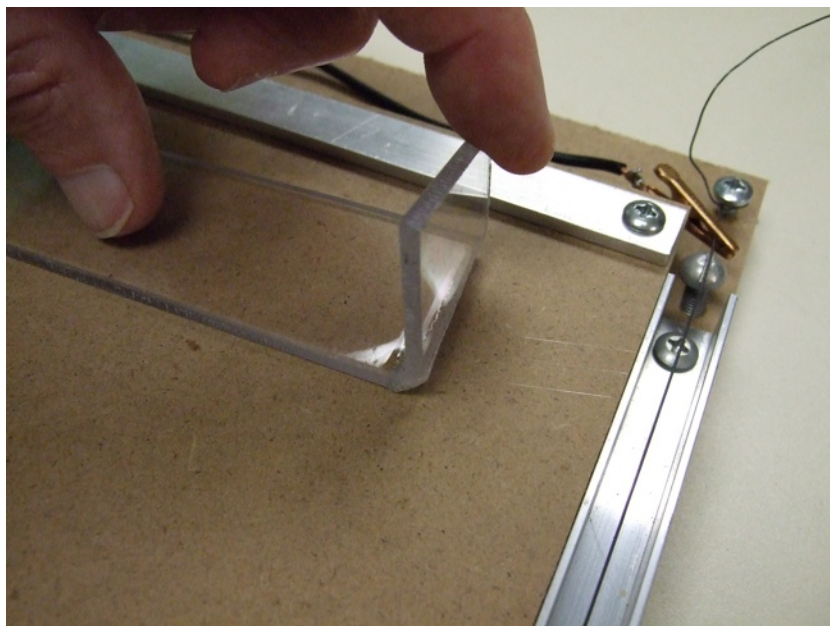

How to bend plastic
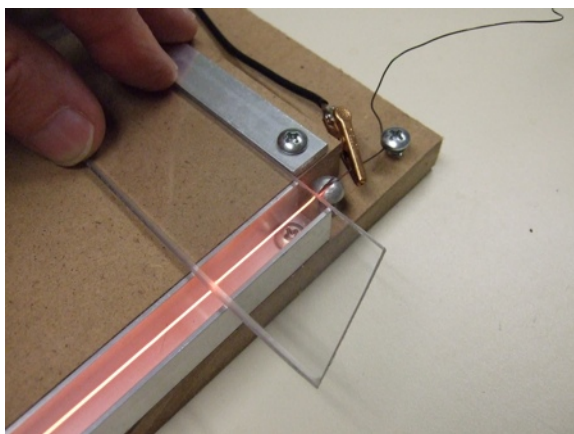
Position the work with the bend line over the hot wire.

Put tension on the work until you notice it soften and start to bend.

Quickly move the work off the hot wire and bend it to the desired angle and hold it until it cools.