

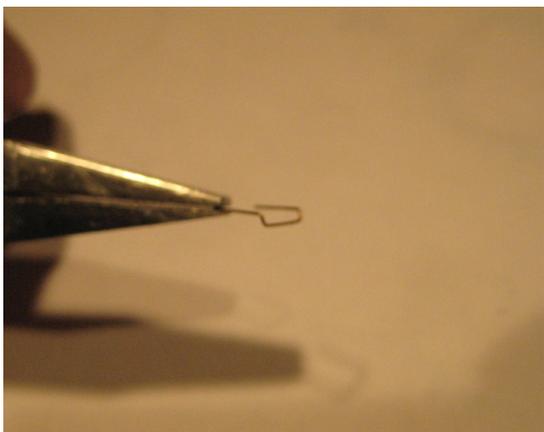
Twisting Wire for Great Grab Irons.

By Bob Parrish

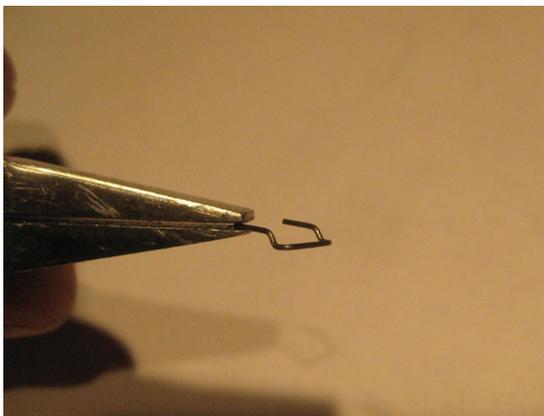
Grab Irons provided by the HO manufacturers over the years have evolved from oversize to very close to scale. Most early kit manufacturers packaged grab irons formed from .020" mild steel wire which was great for the time but scales out a bit fat. More recently .012" wire is used and comes as either brass or phosphor bronze and much closer to a true diameter. Both brass and bronze are great materials, but the shape of the wire is not always complete.

The earlier steel wire grabs were formed with a second break that simulated the forged end where the iron was bolted to the car body. This is a subtle little feature that is not represented in the currently supplied grabs but is easily added. This article will show how to get uniform size and shape grabs with only the simplest of tools.

The photo below shows the two versions of grab irons, which are most commonly provided.

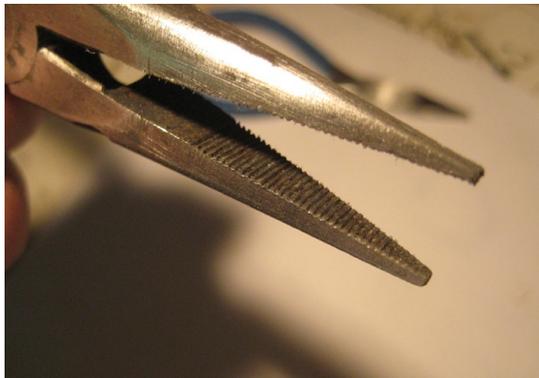


Current production grab.

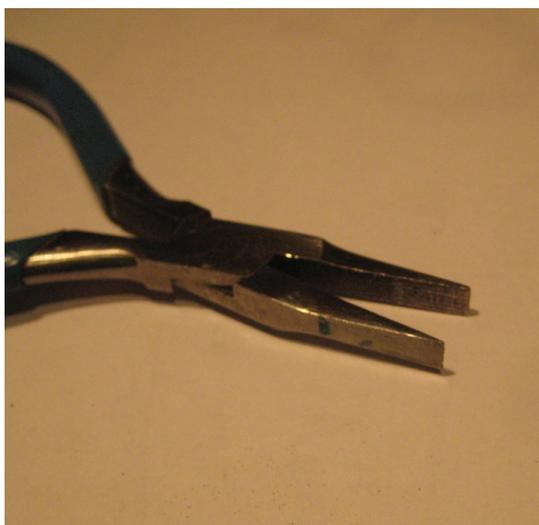


Older steel wire grab.

The tools needed are a needle nose pliers where the jaw grips are in straight lines and not a crosshatch pattern. A second plier is needed and must be a square nose plier as shown. Channelok Company offers a great one for modeling, as it is barely one-quarter inch across the jaw, perfect for HO modeling.



Straight groove needle nose pliers.



Square nose pliers.

A word or two on the materials that may be used for twisting grab irons. Avoid if at all possible using music or piano wire. There are some distinct problems with working this type of wire. Music wire is very brittle and does not like making sharp angle bends. It often snaps off and can throw out microscopic shards of steel. In addition, it is very tough on the cutting edges of wire cutters. A better material is soft yellow brass wire available at most hobby shops and phosphor bronze wire which is available from hobby suppliers that service the trolley and traction modeler as this is with is used for overhead wire.

A machinist vise or similar is also needed but what is most important is that the edge of the jaw be perfectly and sharply square. If you have a vise with some wear and rounding it can be shaped with a file and brought back to a usable edge. If you have limited access to a good vise you can use some square edge angle iron as an additional jaw liner to accomplish a good working edge.

The tool that will be most important is a good stainless steel machinist rule. A six-inch rule is all that is needed and General Tool Company makes one that is readily available in most home project stores. This will be used both for measuring and as a bar for forming the breaks of the wire grabs. Try and find one that has both inch divisions and a metric scale. The metric scale is easy to read and conforms to an amazing number of dimensions.

As a point of clarity, the term break is used by metal workers for any bending or shaping of metal, either sheet metal or wire. The degree angle of the bend is not important; any change of angle is referred to as a break.

In preparing the model for grab irons, this step should be done after most other detail work is done. The newest wire is easily bent when rolling the car body around on the work bench. For the lay out of the holes to receive the grabs, go to the story entitled "Straight Grab Irons" elsewhere on this web site. There you will see how to make a layout jig for plotting the holes.

Select a drill that is as close to the wire size as possible. This will have you down to drill sizes of 76 to 80. A pin vise is necessary for handling these small drills. The best fit is one of a slight resistance as gluing the grabs to the car body seldom leaves a clean area around the grab once installed. A good friction fit is sufficient for securing the wire as the final paint and sealer will serve as a glue. Test the fit of the wire with your selected drill in a scrap of similar wood.

As noted earlier, there is not much additional attention needed for the earlier steel grabs. The best scale appearance comes from the currently supplied fine wire grabs but additional steps are needed. To simulate the flattened forged end where the grab bolts to the car, try the following steps.

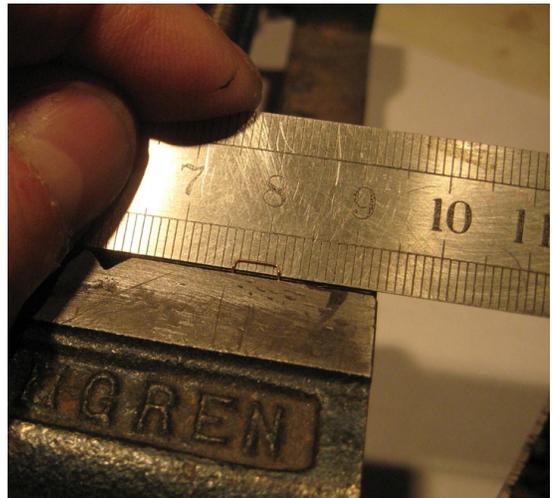
Set out as many grabs as are needed and place one of the wires in the vise as shown. The trick here is to place the wire on your steel rule as a spacer up from the jaw if the vise and then secure the vise.



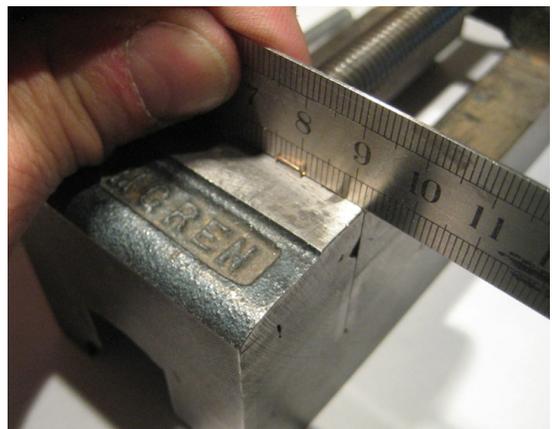
Setting the factory provided grab in vise on spacer.

This will cause each grab to be exactly the same. How wide the forged mount appears is a function of the thickness of your rule. Typically scale rules are .025" thick.

Once tightened into the vise do not remove the rule but rather rotate the rule up to a 90-degree angle from the vise jaw. Use both hands, one on each side of the grab iron and roll it firmly.



Begin the break by lifting the steel rule.

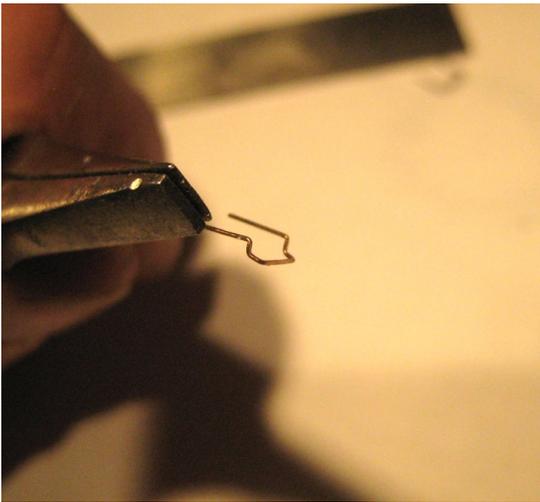


Square off to 90-degrees.

Then, another little trick, tap the rule with a small hammer to flatten the wire at this newly shaped angle. This will look just like the mountings necessary for fastening the grab irons on the prototype. Remove from the vise and repeat as many times as necessary for the entire model.



Tap down on rule to flatten the wire a bit to simulate the forged mountings.



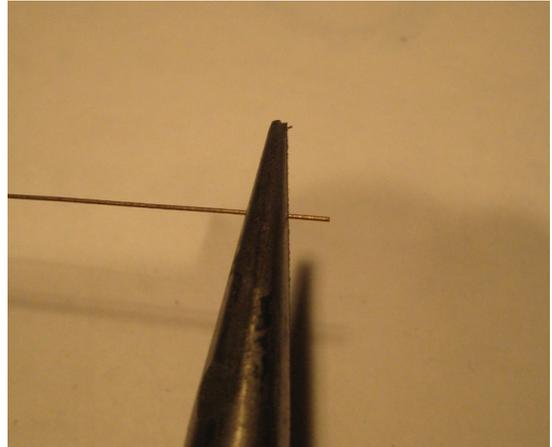
Completed grab iron.

Additional Grab Iron Tips

The manufacturers provide some small wire for twisting additional grabs and some manufacturers do not provide shaped grabs but only the wire. Here is a way to get perfectly matching grabs from wire.

Here is where the needle nose pliers with the straight grip marks will come into play. Count

up the grooves to the one that will give you the desired width of your grab. Place the wire in that groove with about a quarter inch sticking out of the far side of the pliers. If you are making a batch of grabs in this manner and you have counted up to the groove that gives the best width grab, mark the pliers at that location with a black felt pen to speed the placement of the wire in the pliers.



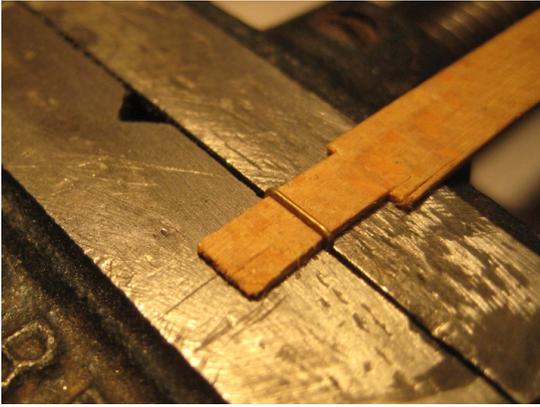
Brass wire in needle nose pliers.

Bend down both sides and then tap each side of the wire while in the pliers to get a really sharp angle on this break. Nip off the grab from the parent wire about a quarter inch back to equal the opposite side.



Tap the wire in the pliers to square up.

The first break of the grab is the next step. Place the grab in the vise with a small filler strip of wood or metal to hold the wire up from the surface of the vise by a predictable and consistent amount, usually about .025" to .030" works really well.



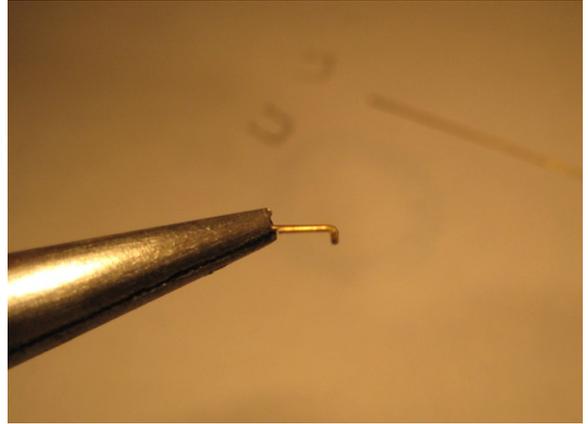
Wire grab with wood spacer underneath.

Then pull the filler strip out and make the first break. Use the steel rule to start the break. Do not attempt to use a small hammer, just pull the wire over. Then tap lightly with a hammer to square up.



Completed first break in vise.

This will give you the shape of the wire grab that is usually provided by the manufacturer and you may now return to the first part of the article for the instructions on the second break and a great finished grab iron.



Profile of first break. This is the shape that the factory provided grabs will have.

If you have a square nose pliers as identified at the beginning of this article you may find that it gives you the perfect width for a good HO grab iron. If you plan to make a ton of these and you have a pair of pliers that is a bit too wide you can grind one side of the pliers to get the necessary width and be able to crank these out with no additional measuring.