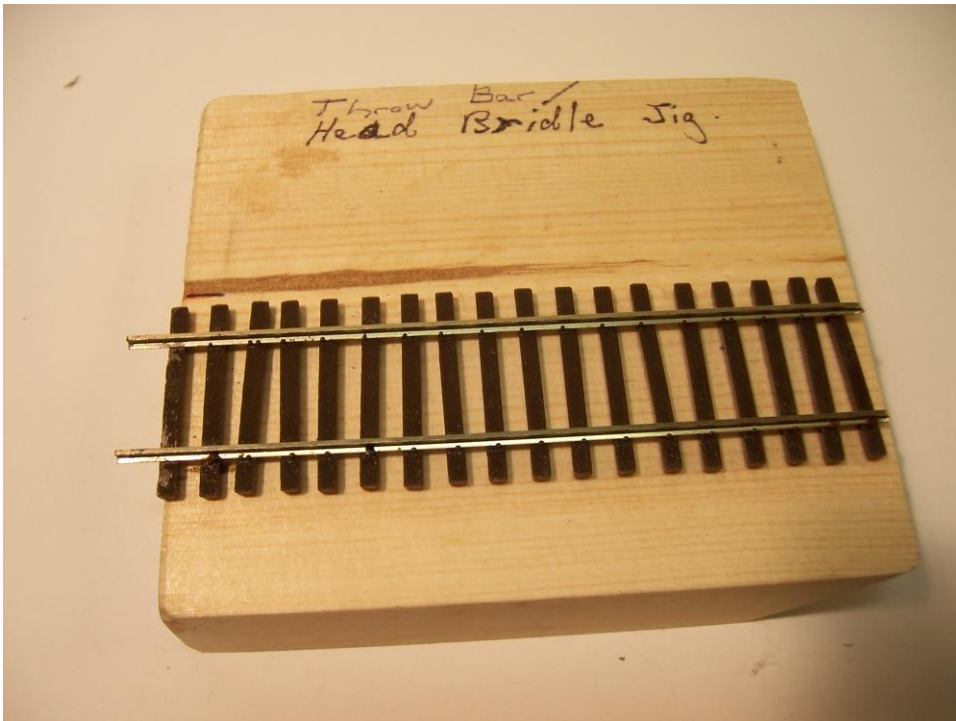


Making Head Bridles / Throw Bars for Stub Switches By Alan G. Mueller

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Head bridles (throw bars) are easy and fast to make from printed Circuit (PC) board and rail joiners. The rail could be soldered directly to the PC board, but I find the joiners allow some slide when the head bridle is thrown whereas a directly soldered head bridle binds each time it is thrown, potentially breaking the solder joint after many uses. The following instructions are for HO scale. They apply to all scales; just change the measurements.

1. Build a simple fixture to properly space the rail joiners and hold the throw bar in position for soldering. Attach a short piece of the flex track you are using (or hand lay a short section of track, if you are spiking rails to ties) to a flat piece of 1" X 4" wood. The rails should extend about one and one-half tie widths past the end of the board. The crude fixture I use is shown in the photo below.

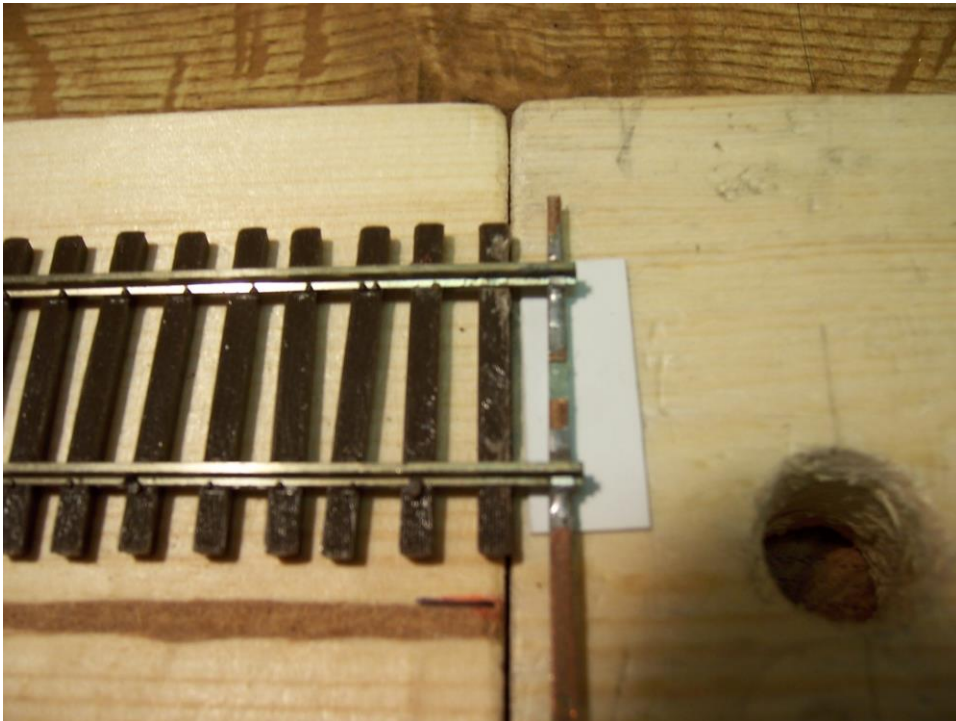


2. I cut 0.065" thick PC board to a width of 0.080" and a length of 1.760". The PC board must be thinner than your tie thickness! The board can be cut with a razor saw. (The PC board in the

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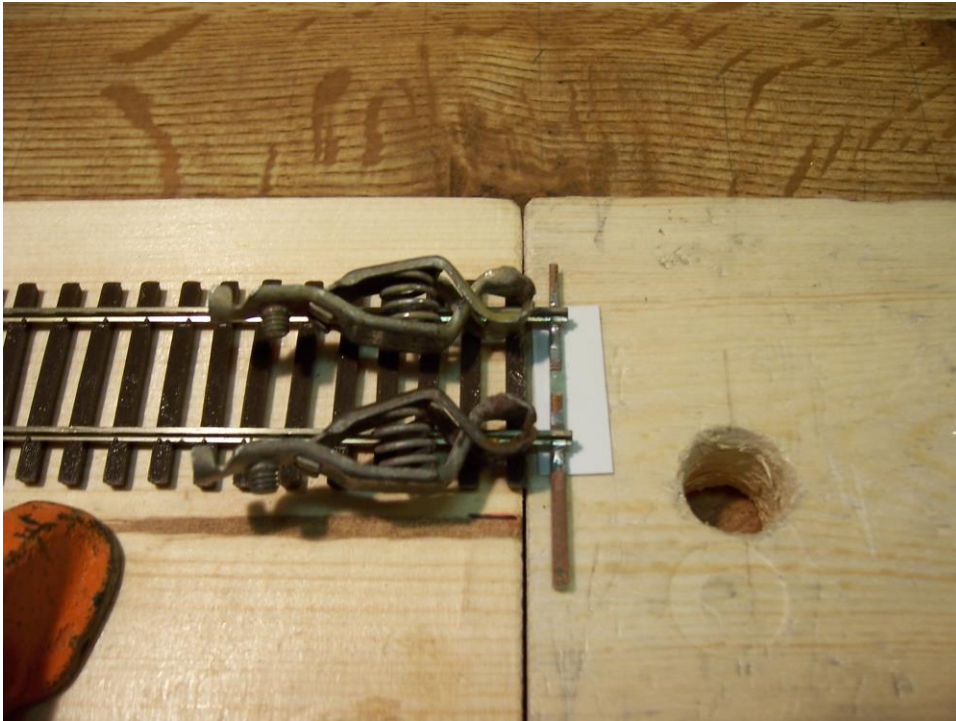
photos is a reject. I was experimenting with cutting them on a small table saw. Bad idea.) Clean up the cut edges with a fine file.

3. Use rail joiners to match whatever code rail you are using. Use solder to tin the bottom of the rail joiners and the top of the PC tie where the rail joiners will sit.
4. Clamp the fixture and another piece of 1" X 4" board to your workbench. Place the rail joiners on the rails of the flex track, sticking out half way. Position the PC tie under the exposed ends of the rail joiners and in about 0.030 from their ends.
5. Slide a shim under the PC tie so that it is tight against the bottom of the rail joiners. The setup appears as in the photo below.



6. Place heat sinks on the flex track rails to prevent melting the plastic ties when soldering.

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7. Carefully solder the PC tie to the rail joiners.
8. When cool, remove the shim and 1" X 4" board. Use a Dremel tool with a cut-off wheel (**AND ALWAYS USE SAFETY GOGGLES OR GLASSES**) to cut off the joiners flush with the exposed side of the PC tie. Note that the head bridle is still joined to the flex track.
9. Use a fine file to dress the cut edges of the rail joiners. Now. Push the head bridle back on the flex track rails to clear the grooves in the rail joiners.
10. Turn the head bridle around on the flex track and repeat steps 8 and 9. Keep the scraps of rail joiner for re-use if you want.
11. Cut a gap in the center of the PC tie's foil to avoid a dead short. The gap is shown in red for clarity in the photo below.

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12. Here is a side view of the completed head bridle.



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13. Drill an appropriate sized hole at one end of the head bridle for attaching the switch stand or switch machine of your choice.
14. DO NOT put ballast between the ties where the head bridle will go. It must be able to move freely when installed.
15. Slide the completed head bridle back and forth on some flex track to be sure the joiners can slide instead of bind when the switch is thrown. You want a snug but not tight fit.