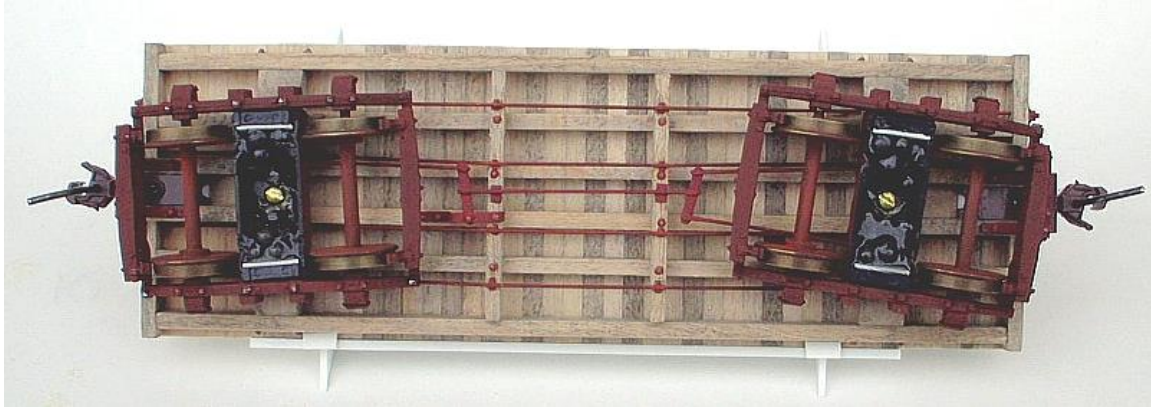


# **Rusty Metal and Weathered Wood;** Scratch-building a Carson and Colorado Flat Car in On3

By Chris Butler

Photographs and Illustrations by the Author

*Part 3 – Finishing*



*Fig. 1. Underside view of the author's completed flat car.*

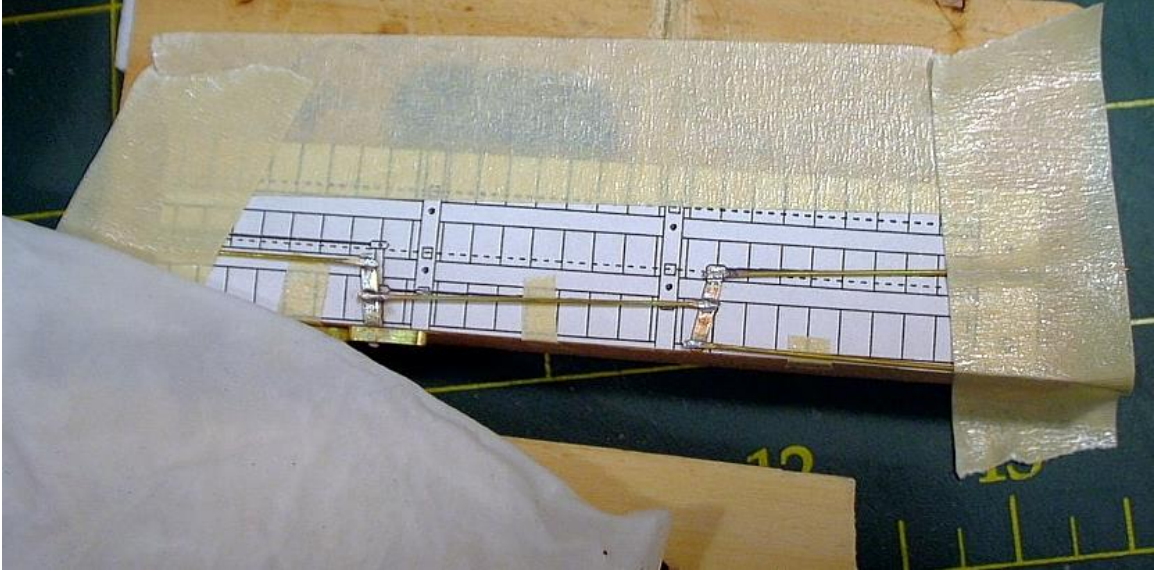
In the previous edition of the **Mail Car**, we made a start on the construction of a 22' C&C 3' narrow gauge flat car. Now we've started, let's complete the model.

## Brake Rigging

I made the parts from 0.022" brass rod and 1/64<sup>th</sup> (~0.016") x 1/16<sup>th</sup> K&S brass strip – available from most local hobby stores. The coupling rods were shaped at their linkage ends by simply hammering the end flat on a smooth concrete floor. OK, on to the soldering (remember guys, there's an 'L' in soldering...). Anyway, since my soldering iron is extremely unsophisticated – 18 Watts and not temperature controlled, I soldered some of the joints and used ACC on the others so the thing wouldn't fall apart while I was building it. It was then I discovered that ACC isn't all that strong (especially if you bake it at 200°F!) and consequently devised plan "B".

Plan "B" entailed soldering all the parts. Since I was soldering parts that were often only a couple of millimetres from another solder joint, the problem was to prevent the initial joints from becoming unsoldered as I added another part. A few years back, I remembered reading about using wet tissue paper as a heat shield. I used this approach and found it worked very effectively.

Once I finished beating, bending and filing the rigging parts, I laid them out on top of the plans which were attached to a scrap piece of wood with masking tape. Now I could see where all the bits were located. One by one, I carefully fluxed the joints and sparingly applied solder. When I had two adjacent joints, I simply used the wet tissue paper to prevent the joint from coming undone. Who needs a high-tech resistance soldering setup anyway? Well, one would be nice! Man, this project is growing.

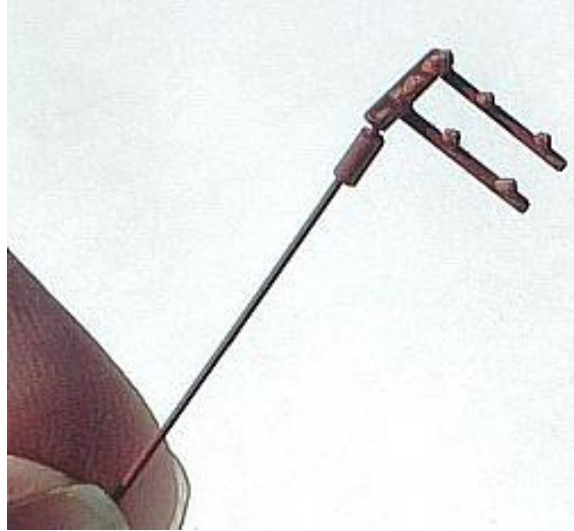


*Fig. 2. Assembling the brake rigging parts – note the wet tissue paper and masking tape*

Prior to installation on the car, I carefully washed the entire assembly in dish washing detergent and airbrushed it with my old rust formula.

Once dry, I super-glued a few pre-airbrushed Grandt Line #99 1 5/8" NBW (NBW - Nut, Bolt, Washer) castings to the rigging. The final result was well worth the extra effort and this time it didn't fall apart. Triangles and soldering (with an "L" rule!

One the main rigging was completed; I turned my attention to the small sub-frame located at the "B" end of the car on top of the draft timbers. This supports the brake wheel shaft and roller bar for the flexible chain linkage. For the brake shaft and support frame, I made the parts from 0.022" brass rod and 1/64<sup>th</sup> (~0.016") x 1/16<sup>th</sup> K&S brass strip which I soldered together.



*Fig. 3. Brake shaft and Roller bar “sub-frame”.*

I used a Grandt Line #94 15” Lovested brake wheel, ratchet and pawl set. I made the roller bar from some 0.025” internal diameter brass tube cut to roughly 6” scale inches in length. This was ACC’d to the brake shaft. Next, I added some NBW castings and the entire sub-assembly was then washed, dried and airbrushed with my old rust mix.

### Trucks

I used the MacLeod Western T-3 Carter Bros. 4’ trucks. These are simple styrene kits and went together easily. The brake beams however were another matter. I used Foothill Model Works FMW-4000 wooden brake beams which are designed to be used with the MacLeod Western trucks. These beams are a work of art but extremely fragile and so I spent quite a bit of time repairing them! Be sure to take extreme care in removing them from the sprue as this was where I encountered most of my problems. The prototype used body hung brake shoes however, this is close to impossible to replicate in O-Scale and so mine are truck-mounted as per the FMW instructions.

I cleaned up the castings and the NWSL 24” wheels and airbrushed them with my “old rust” mix – a blend of Floquil Rust and Floquil Zinc Chromate Primer. For the wheel sets, I cut up some masking tape and masked the treads prior to airbrushing them. Once they were dry I brushed the wheel sets and trucks with weathering chalks and dry brushed the details with Polly S Reefer white.

The final step was to increase the truck’s weight with lead shot and some 2-part epoxy. The last step really makes a difference in how the trucks roll. This is important because on a flat car, there are not too many places we can hide weights!

### Decking

The decking was HO Scale Northeastern 3” x 10” basswood. This works out to be almost a 2” x 6” (finished dimensions) in O-scale (1 7/8” x 5 7/8”) – close enough. The Northeastern basswood was scribed (with an old Atlas Snap saw) to represent a grain and stained with a very light wash of black shoe dye and Isopropyl alcohol mix in order to make it look like weathered wood. In order to add some interest, the basswood strips were stained with various shades of the shoe dye / Isopropyl mix. Once dry, these were cut into

scale 7' 4" lengths and carefully glued to the flat car frame. I used a small square to ensure correct alignment. The finished pieces were butted up close together to represent the "Z" ship-lap decking because I didn't want any daylight showing through the gaps.

#### Paint and finishing details

I pre-airbrushed some Grandt Line #99 1 5/8" NBW castings with my old rust mix for the Needle beams where they connect to the sills. I did the same thing with the 8 NBW castings for the buffer blocks. These were then glued onto the under frame with ACC.

Finally, I installed the completed MacLeod Western T-3 Carter Bros. trucks described earlier to the bolsters with two ¼ inch long x 1/72 brass pan head screws.

As I wanted a car that had been used a lot and was well weathered, I used a dry brushing technique with a small Nylon brush that I had "modified" (ruined) so as to make its individual hairs 'splay out'. The Floquil paint (Boxcar red) was applied to the previously stained outer sills to simulate peeling paint.

#### Conclusion

I really enjoyed building this simple flat car and I'm really keen to build a Caboose using the same construction techniques and jig.

If you'd like to construct this flat car (or something similar), please send me an email at [cabutler@primus.ca](mailto:cabutler@primus.ca) and I'll respond with scale drawings in CorelDraw 9 format, DXF format and un-scaled drawings in hi-resolution JPEG formats. Just let me know.

This is the final part in the series and I hope you enjoyed reading it. Until next time...