Part 1 and to be continued.

Back in March Charlie had sent me pictures of his HO scale fire train and that spark my interest.
So I searched the internet for anything I could find on fire trains.
I found a bit on the Southern Pacific fire trains #2248, #2252. EJ (Blue Flag Model Trains) had SP #2252 in HO brass and had a book (Southern Pacific Maintenance of Way), This book has a chapter on water tank cars /fire trains.

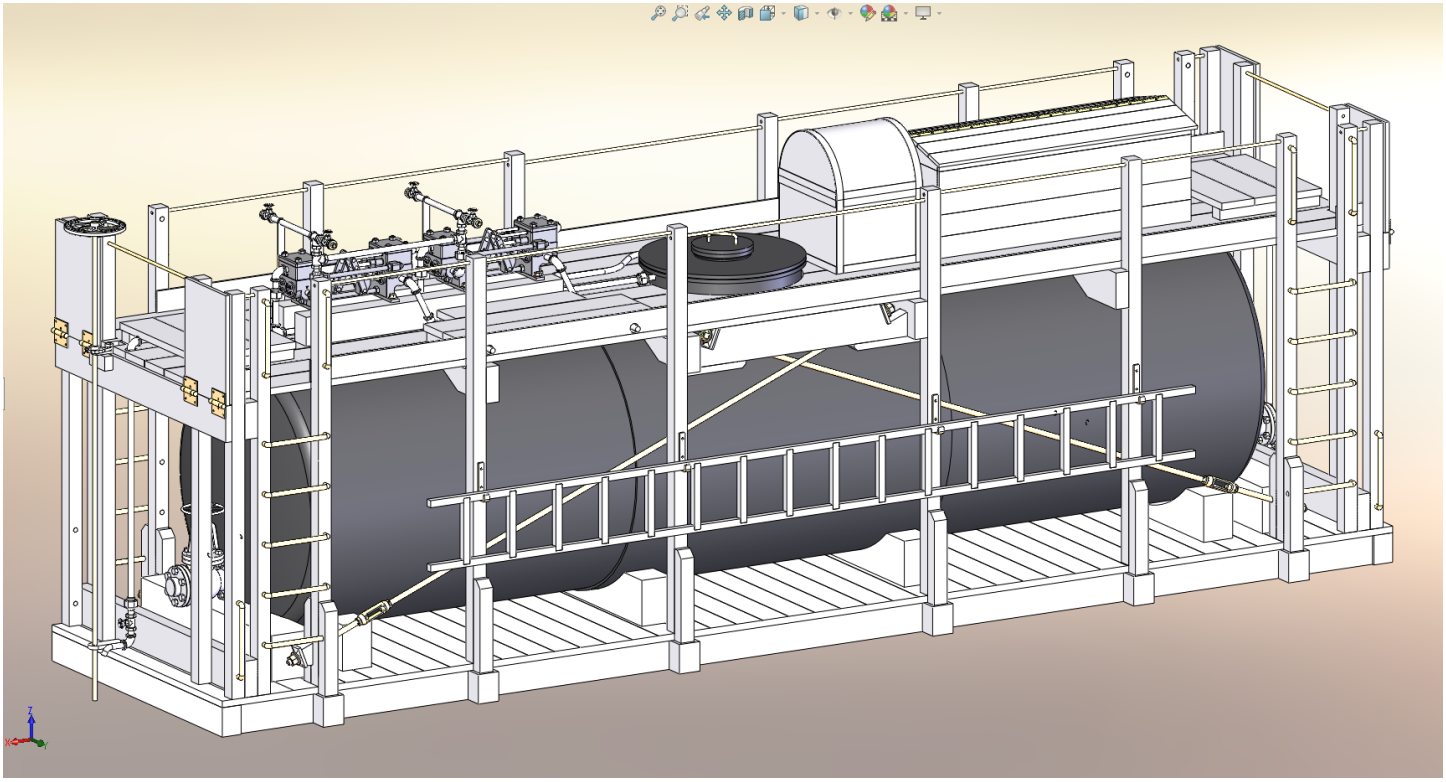
EJ put me in touch with Arizona Hobbies who had the book is stock. This gave me a lot of information on fire trains in general.

Having converted an AMS (Accucraft) oil tank car into a battery car I looked at the possibility of converting two AMS tank cars into fire train water tank cars.
I next generated CAD (Computer Aided Design) models of the AMS tank car in SolidWorks (a CAD design software package) and was able to fine tune the conversion into something resembling a SP fire water tank car.

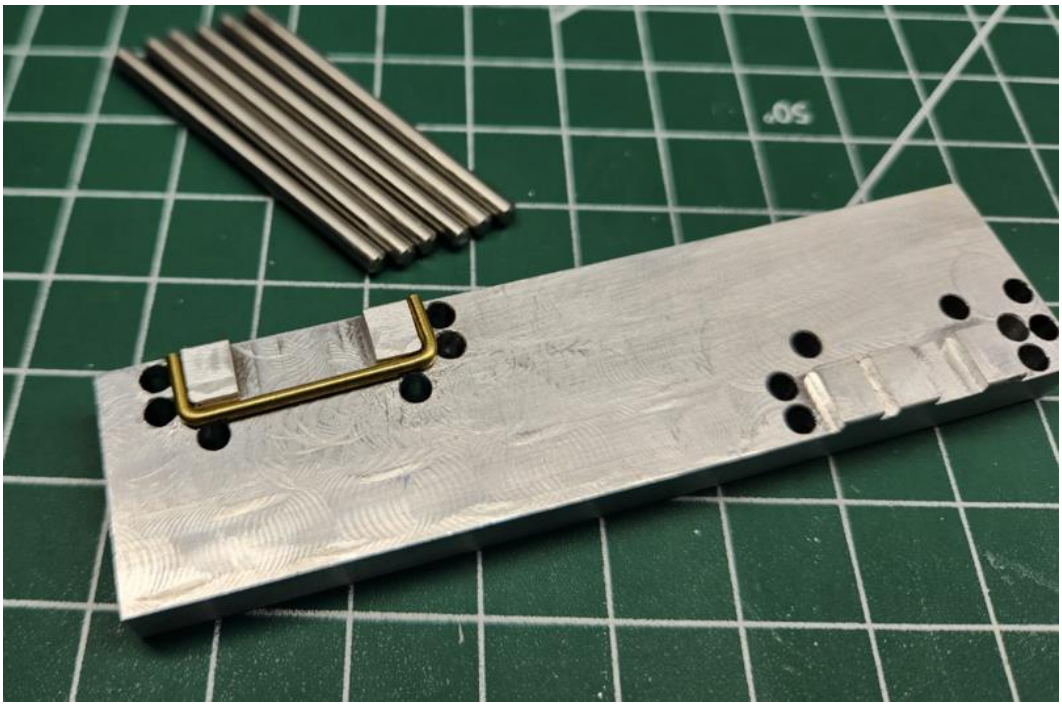
My fire tank cars will be modeled in “F” scale 1:20.3, this is slightly larger than the “G” Scale that most of the club’s member’s model. “F” scale and “G” scale both run on the same 45mm track.

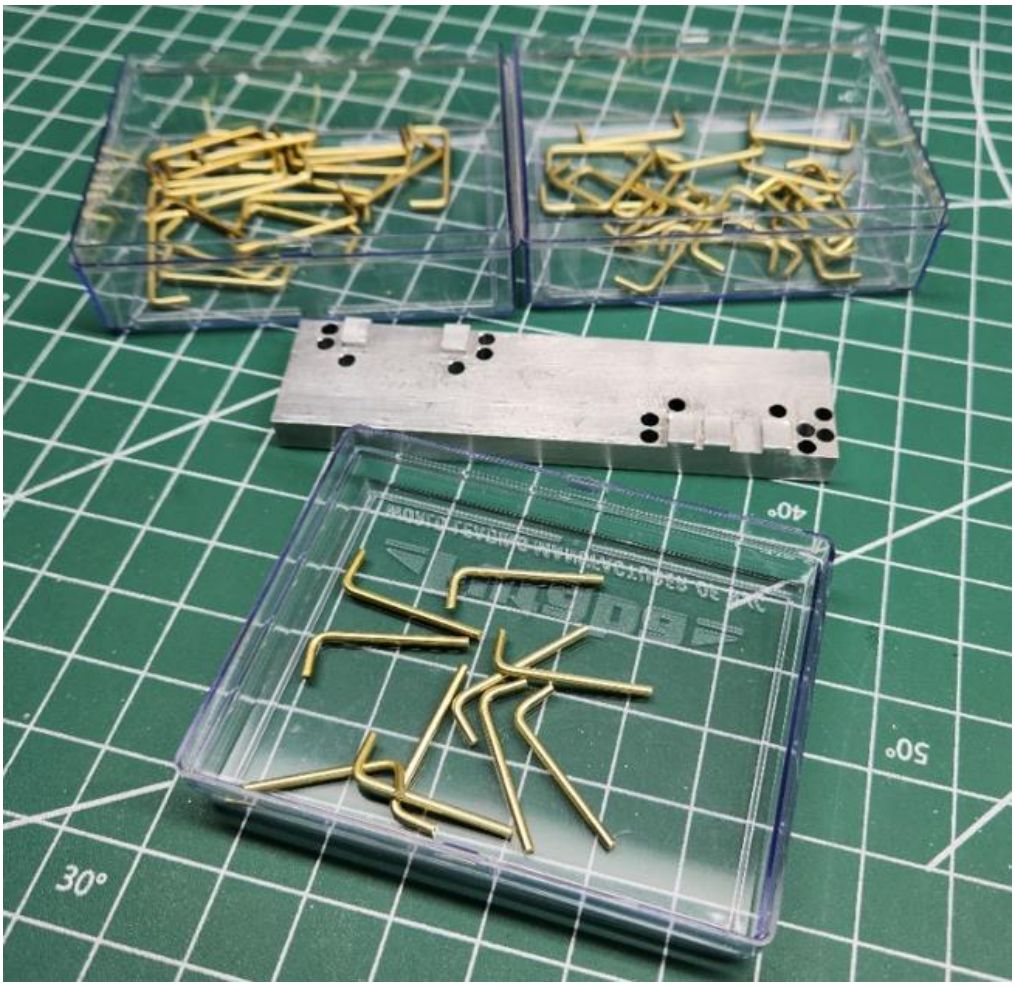
My models are not prototypical, so I’ve taken some creative license. For me it’s a fun thing to do.
I haven’t decided rather to paint D&RGW Boxcar Red or D&RGW MOW Gray, still working that out.
My fire train will be led by a converted D&RGW C-19, something like what’s pictured below.

Initial SolidWorks 3D model concept.



Grab Rails and Step Rails:
Machined aluminum bend and cut fixture.
Three different rails
All rails overall widths are +/- .005





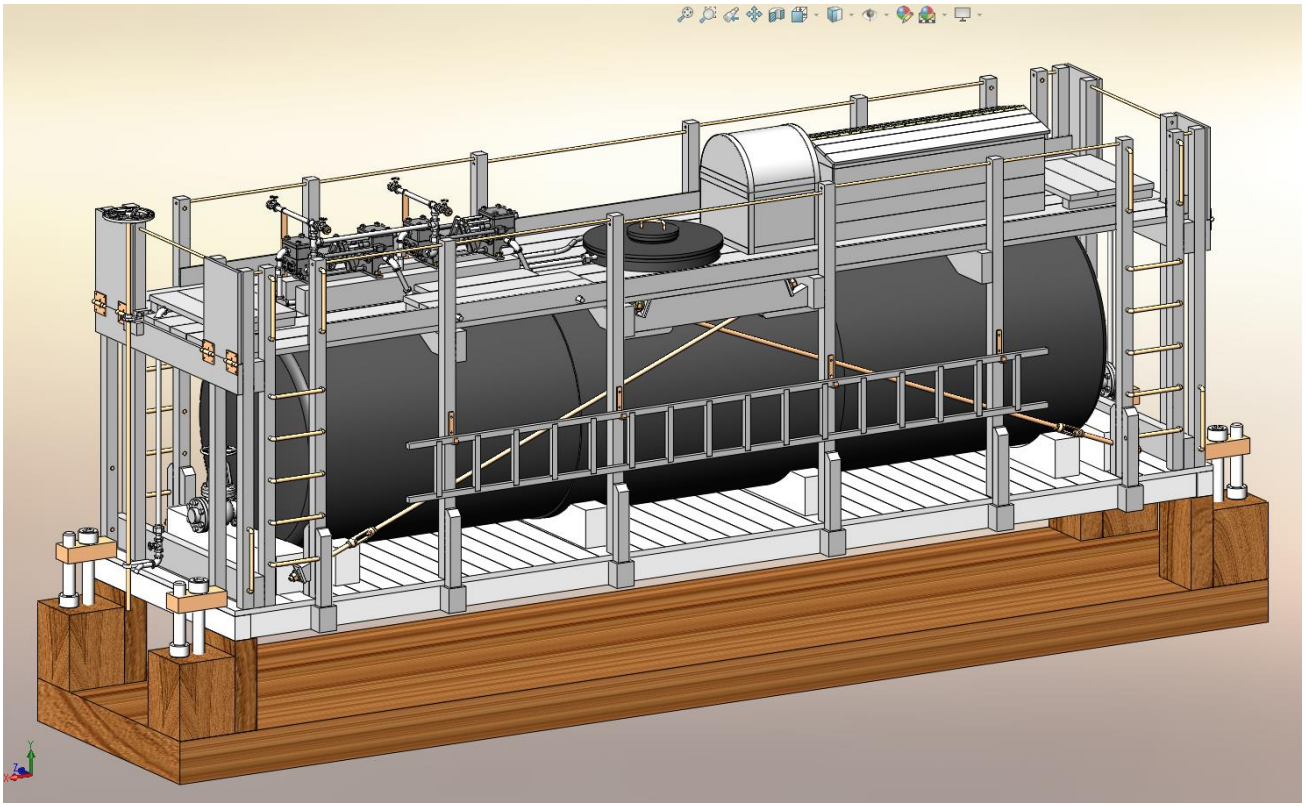
Cut, sand and drill jigs.
These are examples of typical cut and sand jigs (top row) and drill jigs (bottom row)

Wood pieces, brass railing and cut, sand and drill jigs:
Gray 3D printed parts are cut, sand and drill jigs.
All wood is cut and sanded to +/-.003 for height and width and +/-.005 for length.
All holes are drilled in 3D printed drill jigs.

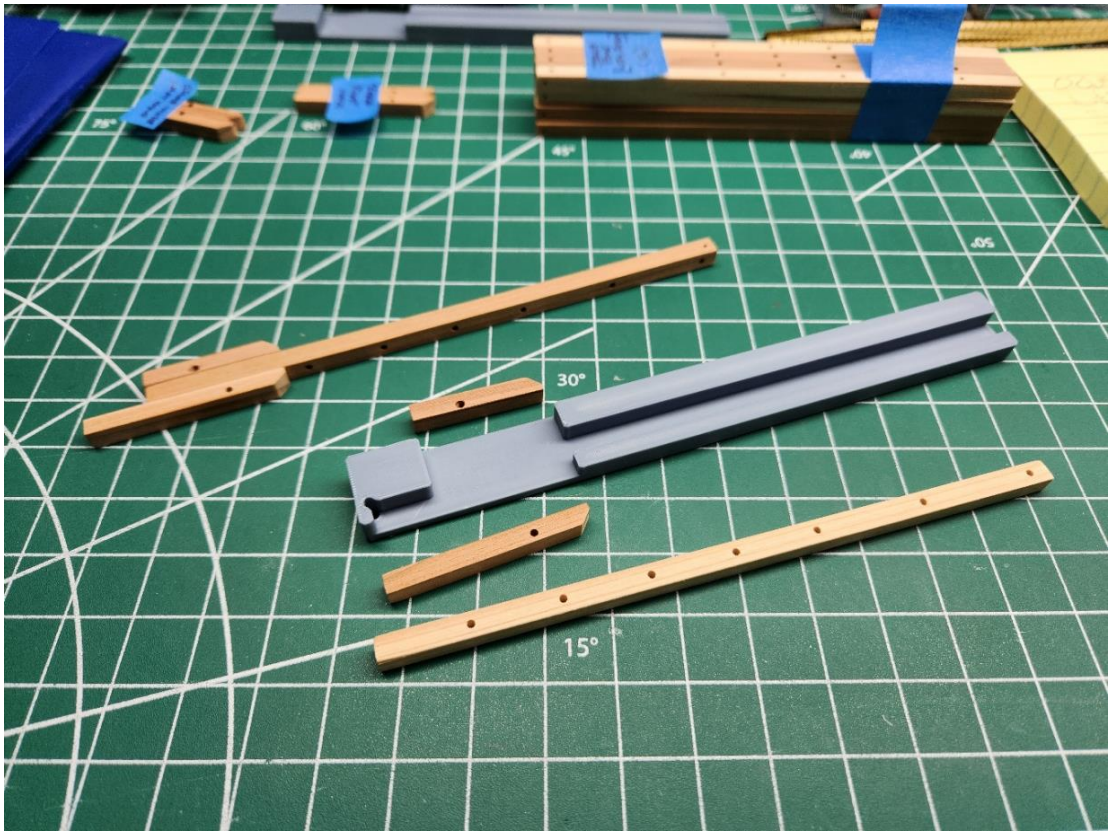
AMS Oil cars being disassembled for the water tank conversions.

Build fixture:
This poplar wood jig is to hold the AMS tank car base securely held during assembly.

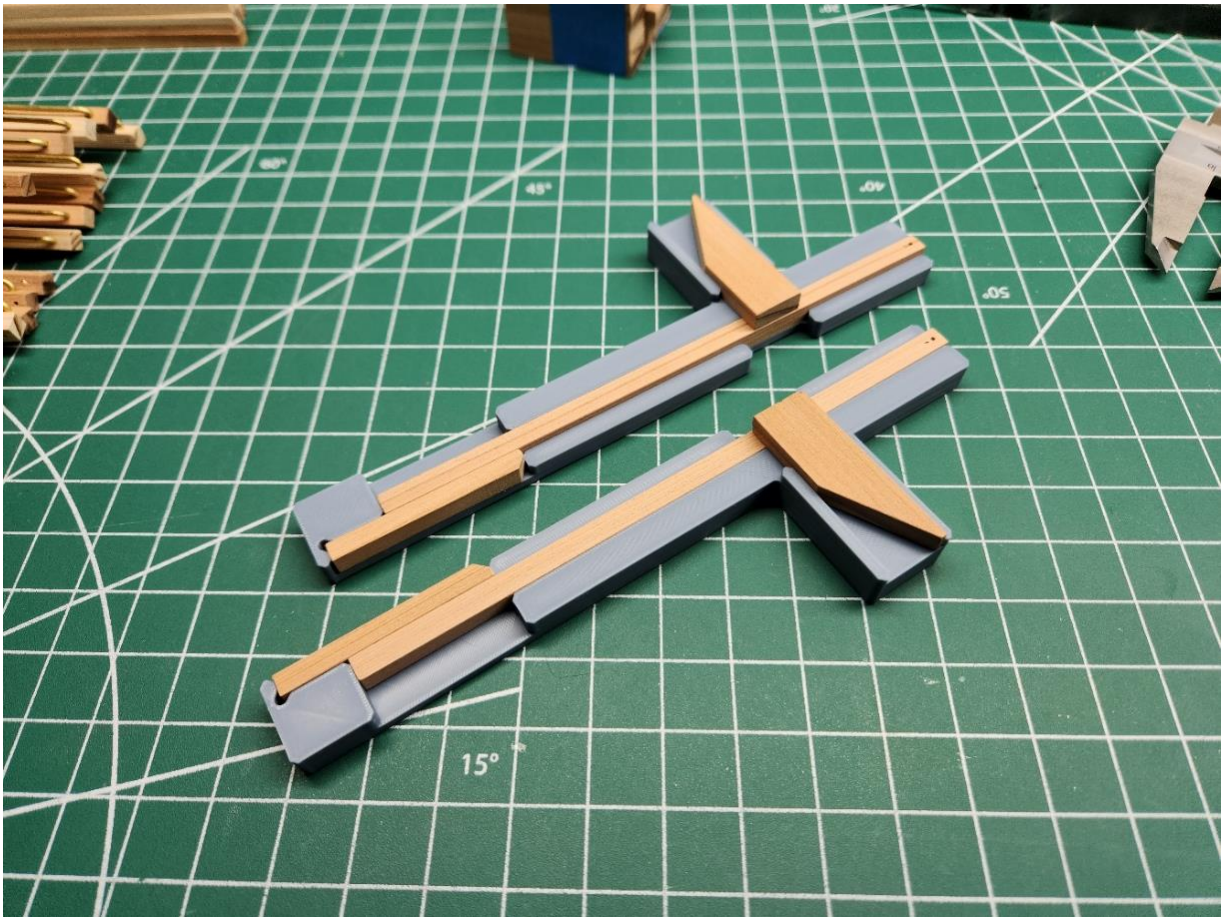
This is a SolidWorks 3D model of the car on the assembly fixture.

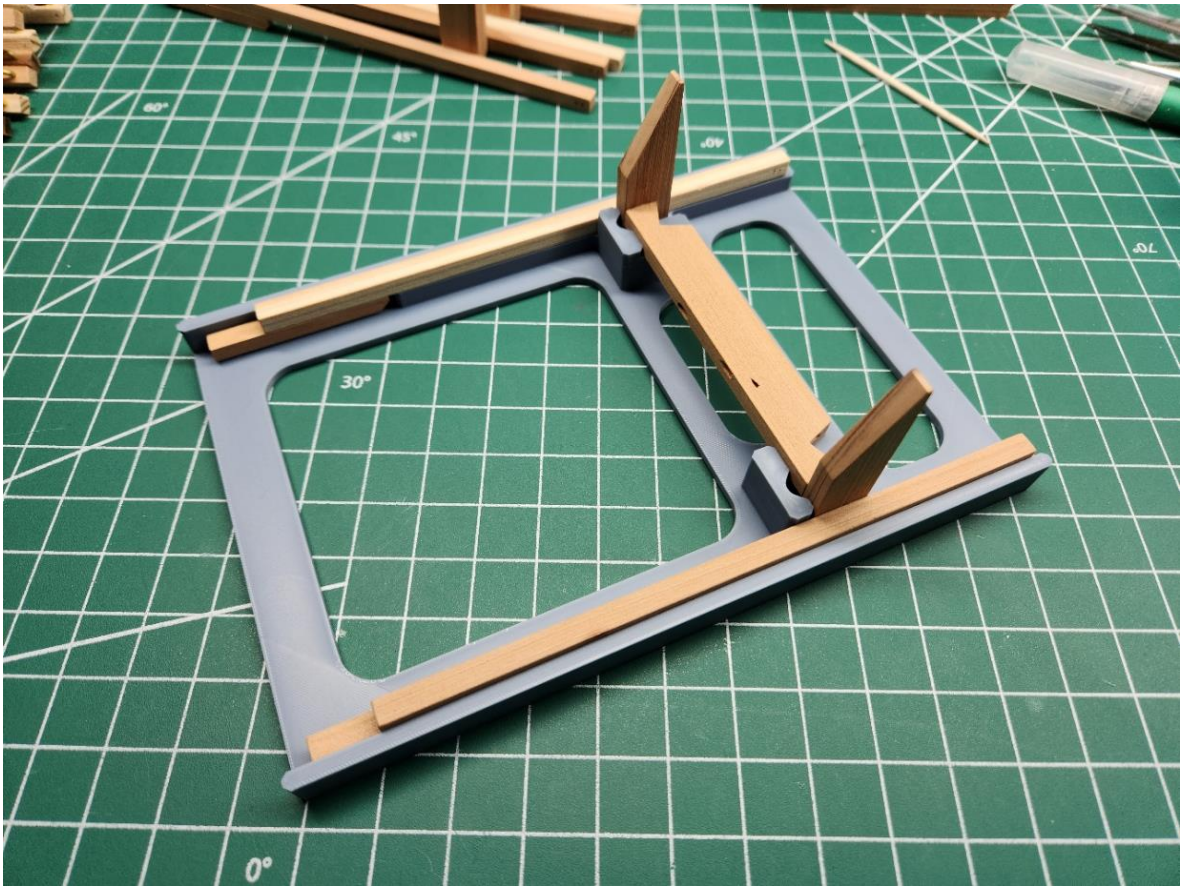


The gray pieces are 3D printed assembly jigs. In most cases there are right and left hand versions. Some are simple and some are more complex.

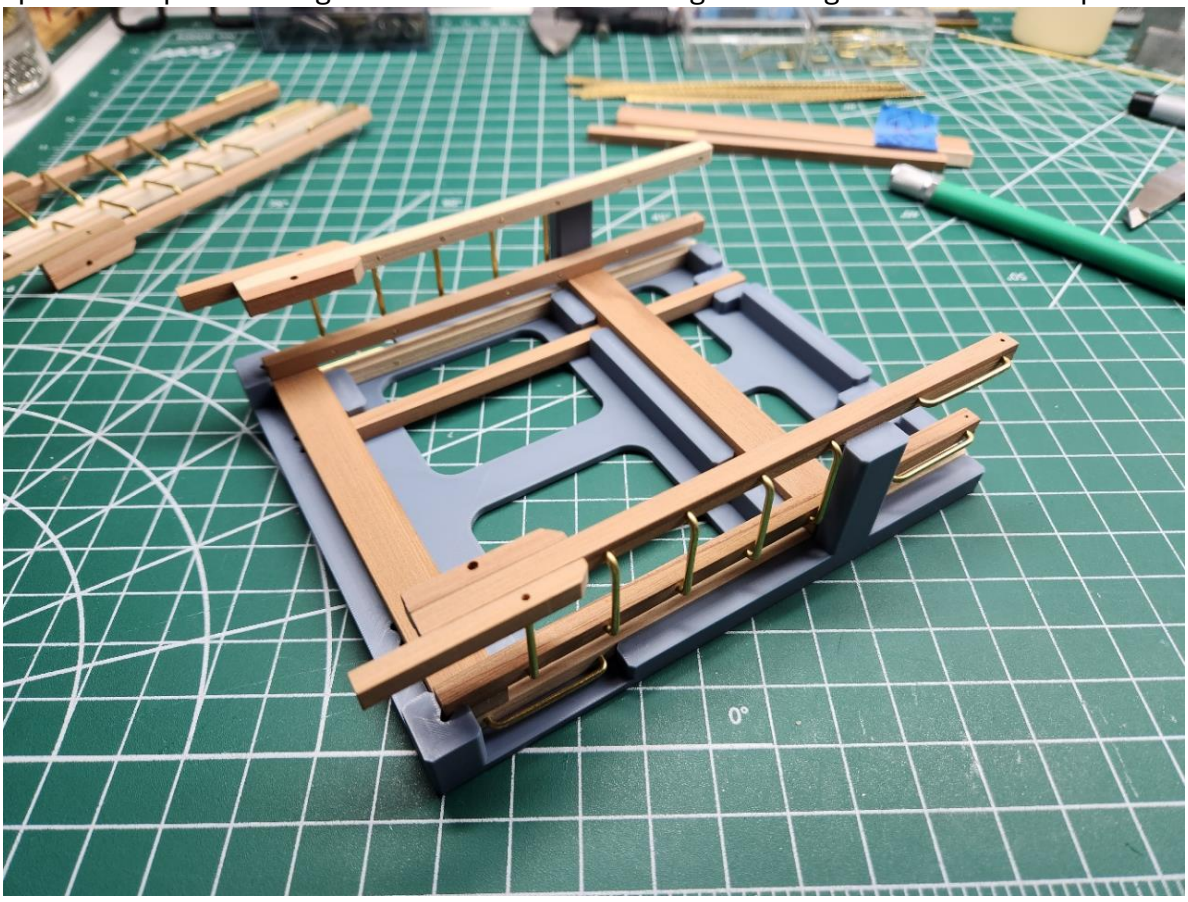



15°

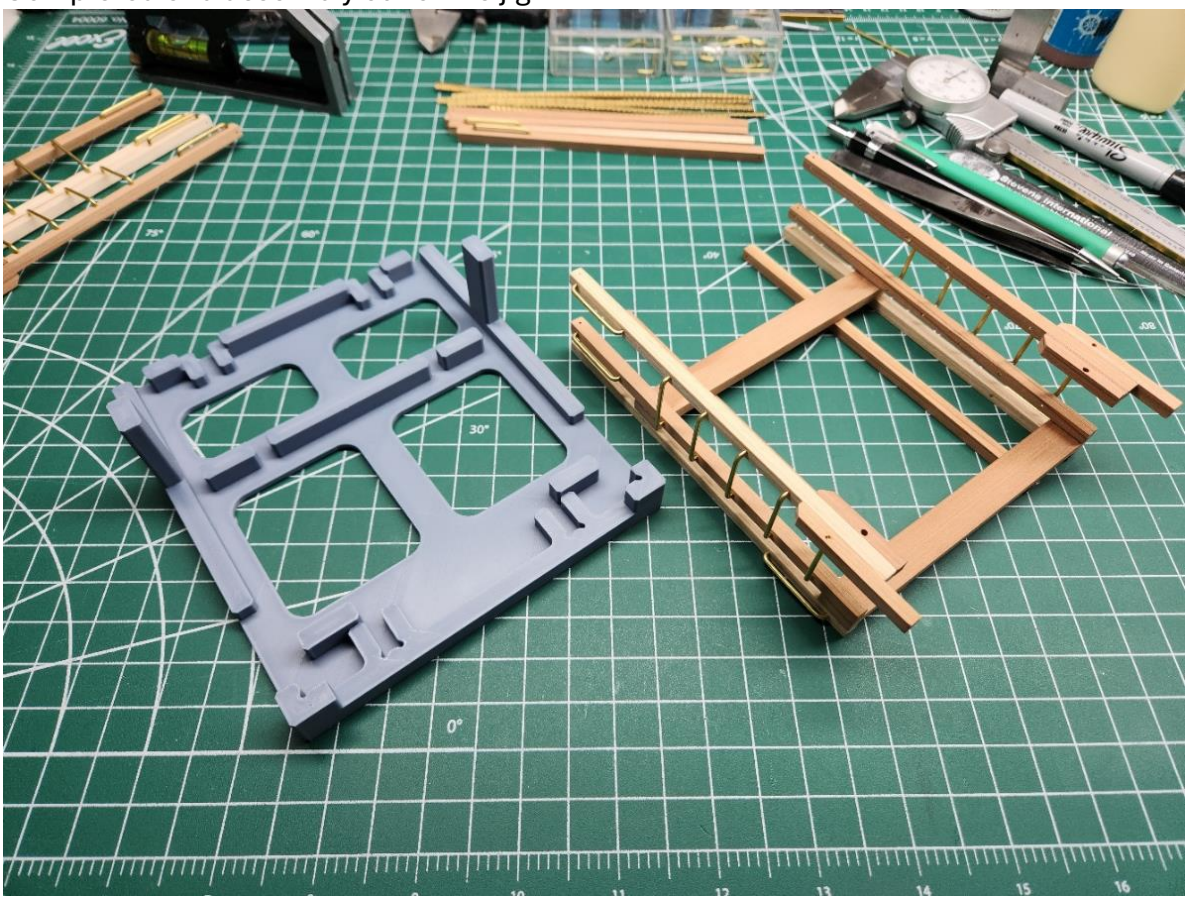

15°



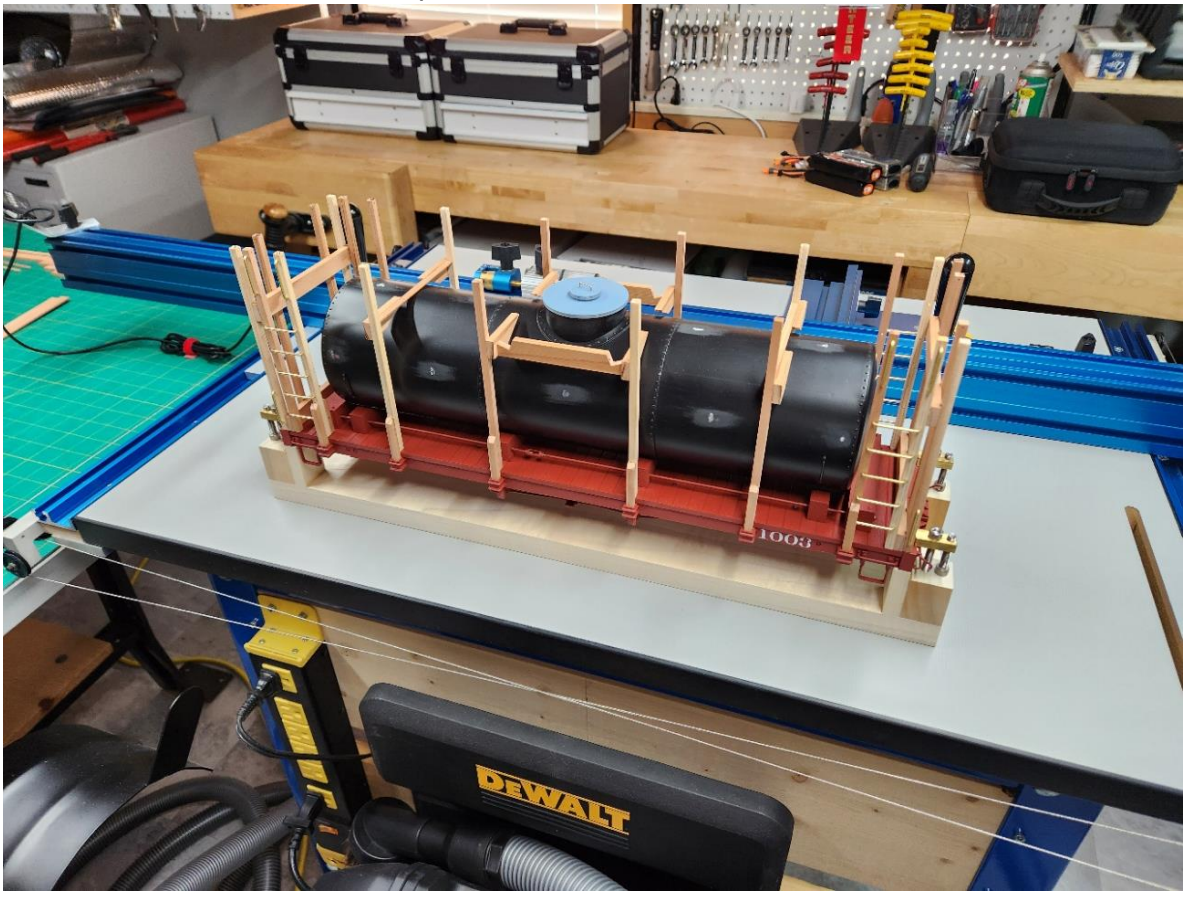
This Jig is a multi-operation jig:
I place four posts then glue two cross beams then glue the right and left ladder post assemblies.

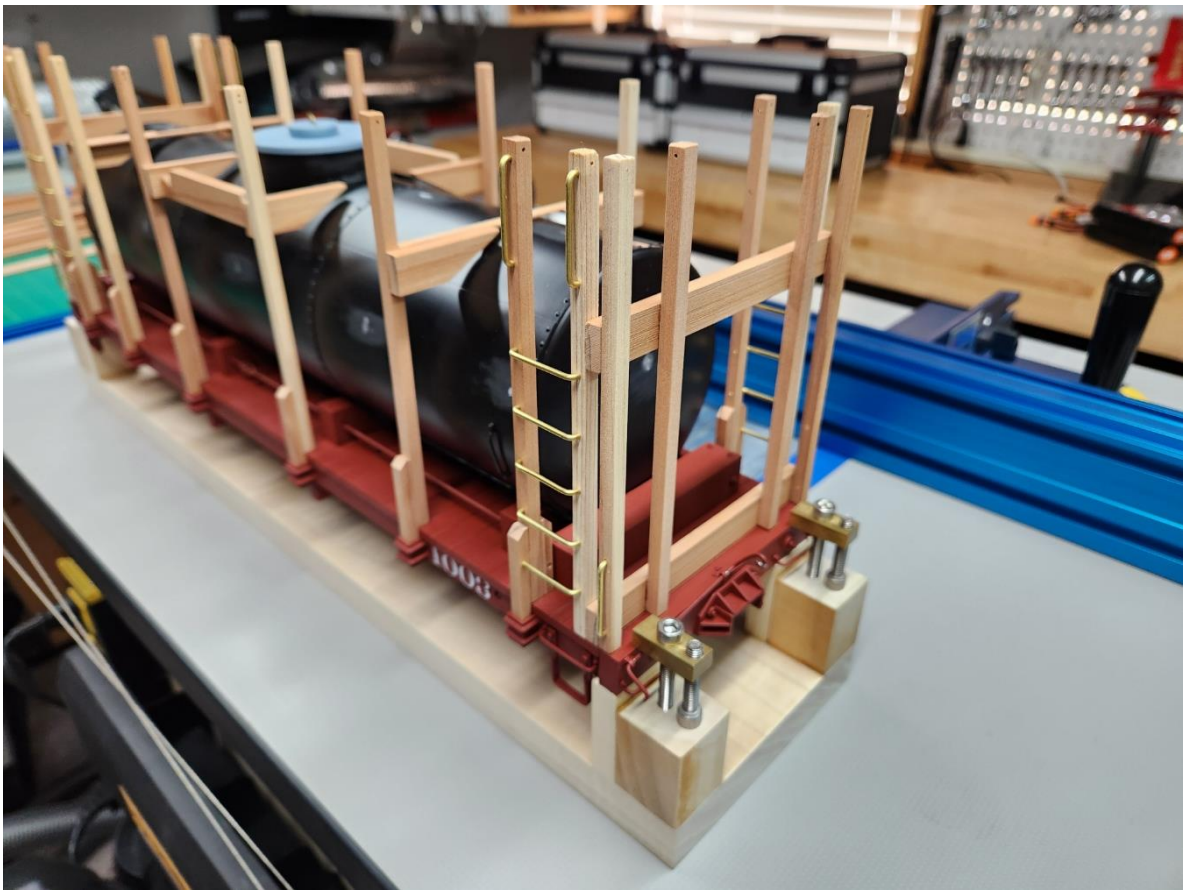


Completed end assembly out of the jig.

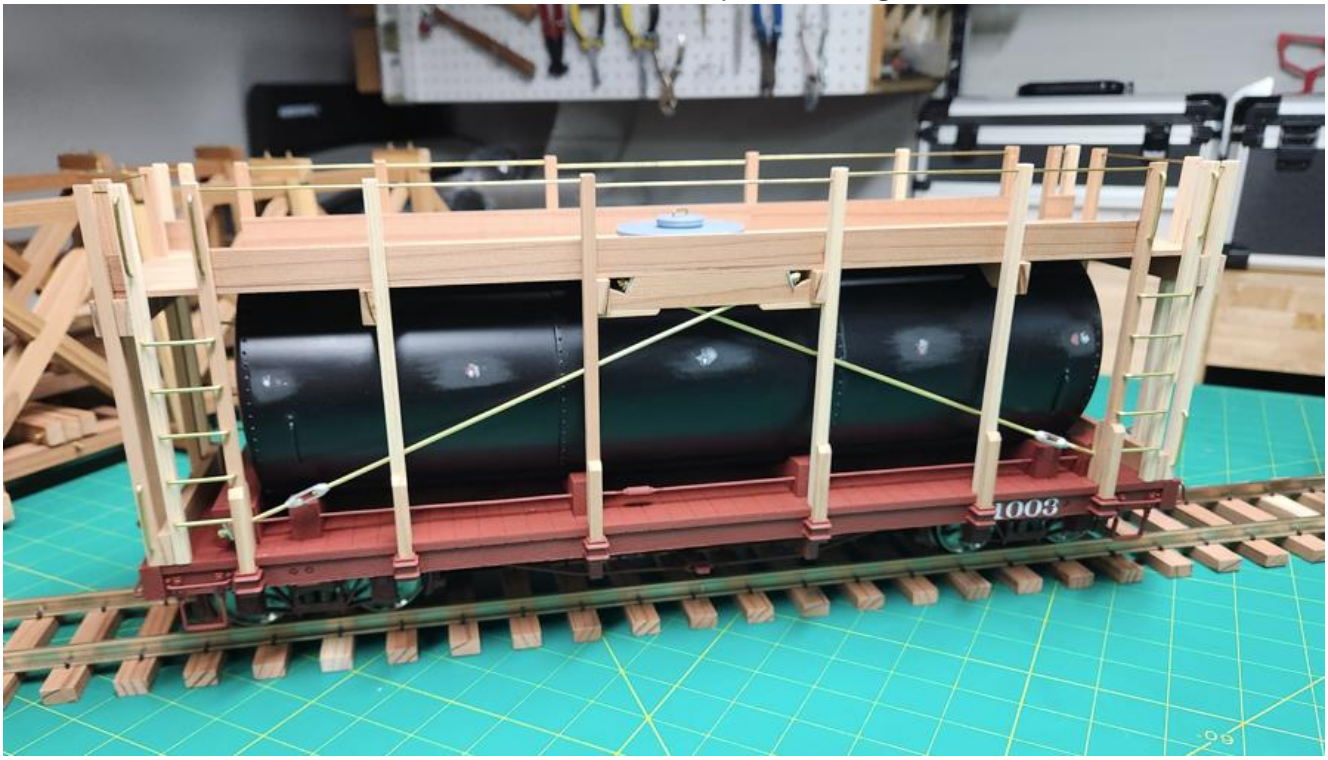


This is where I test fit all the separate assemblies to make sure there are no interference.

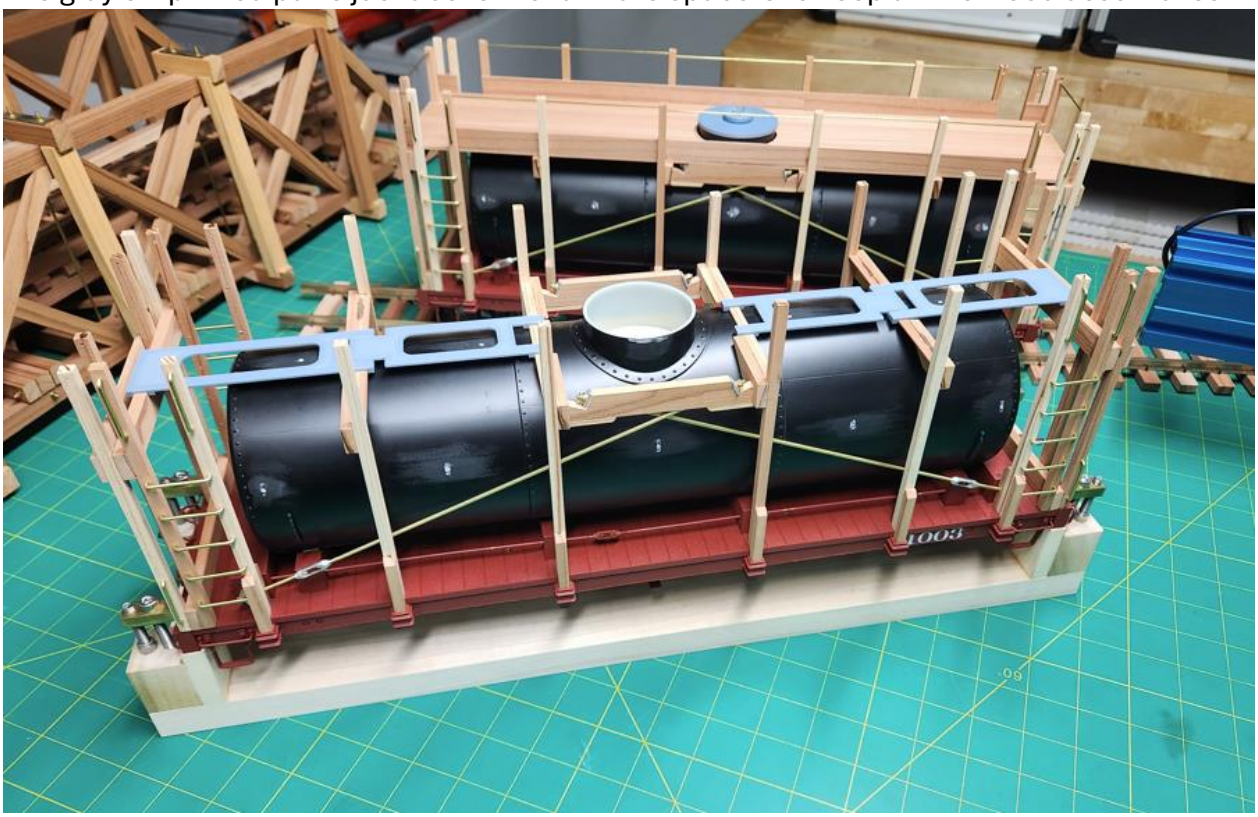




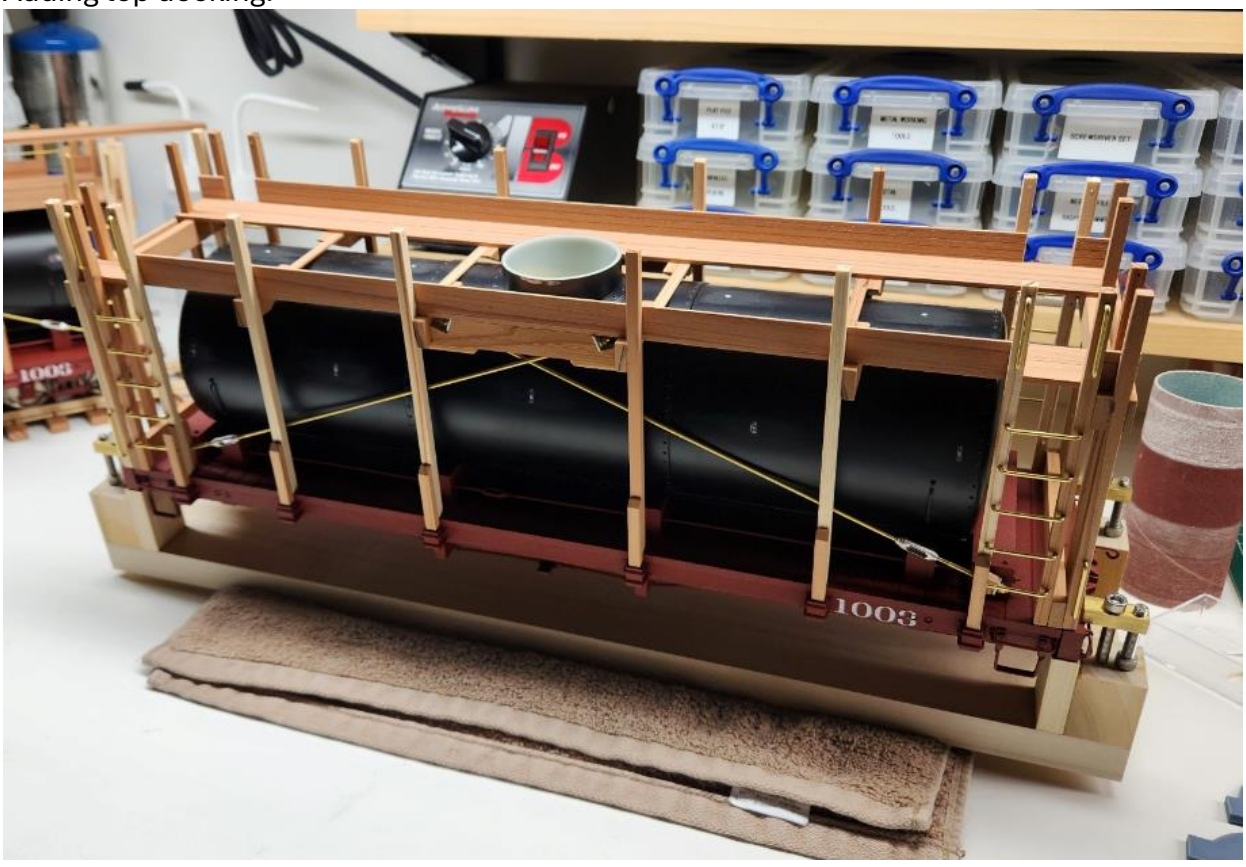
This is the first of two cars, I've added the side truss rods , top decking and railing.
The truss rods are .070" brass rod machine threaded 2-56, right hand one end and left hand the other.
The white metal turnbuckle is machine drilled and taped 2-56, right hand one end and left hand the other



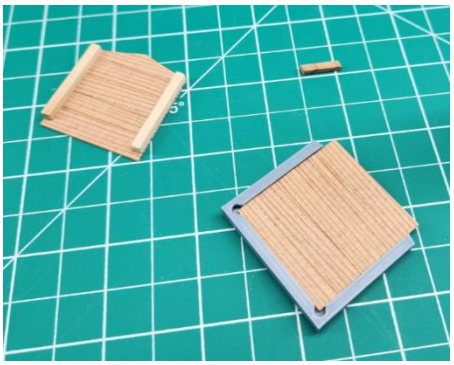
This is the second car (in the build fixture) ready for top decking and railing.
The gray 3D printed parts just above the tank are spacers to keep all the wood assemblies in alignment.



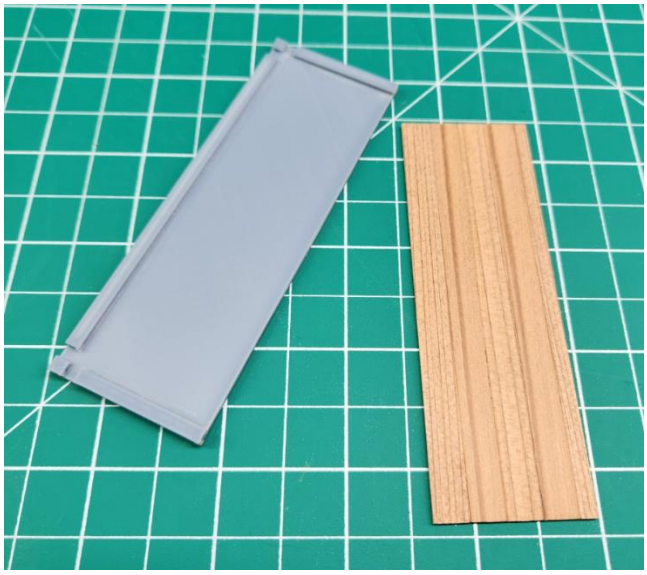
Adding top decking.



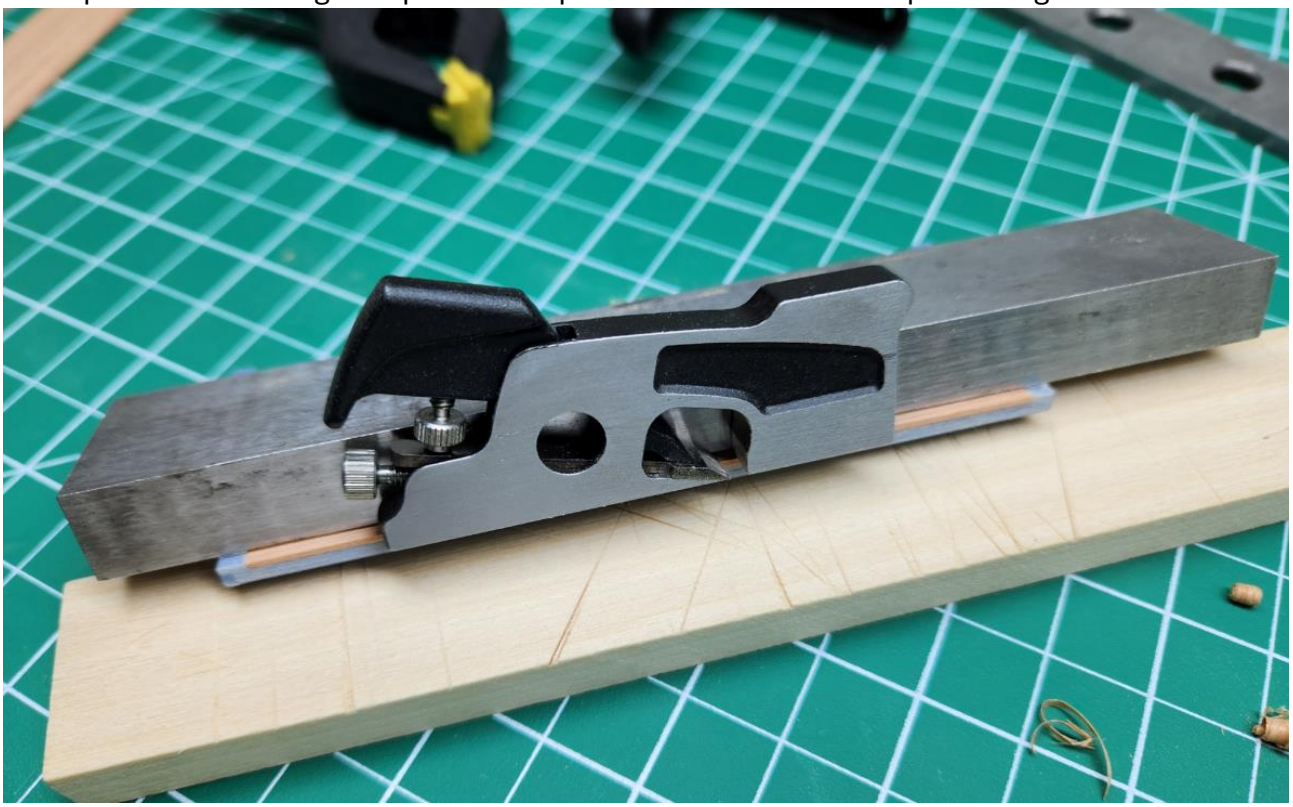
Stages of the toolbox construction and assembly.



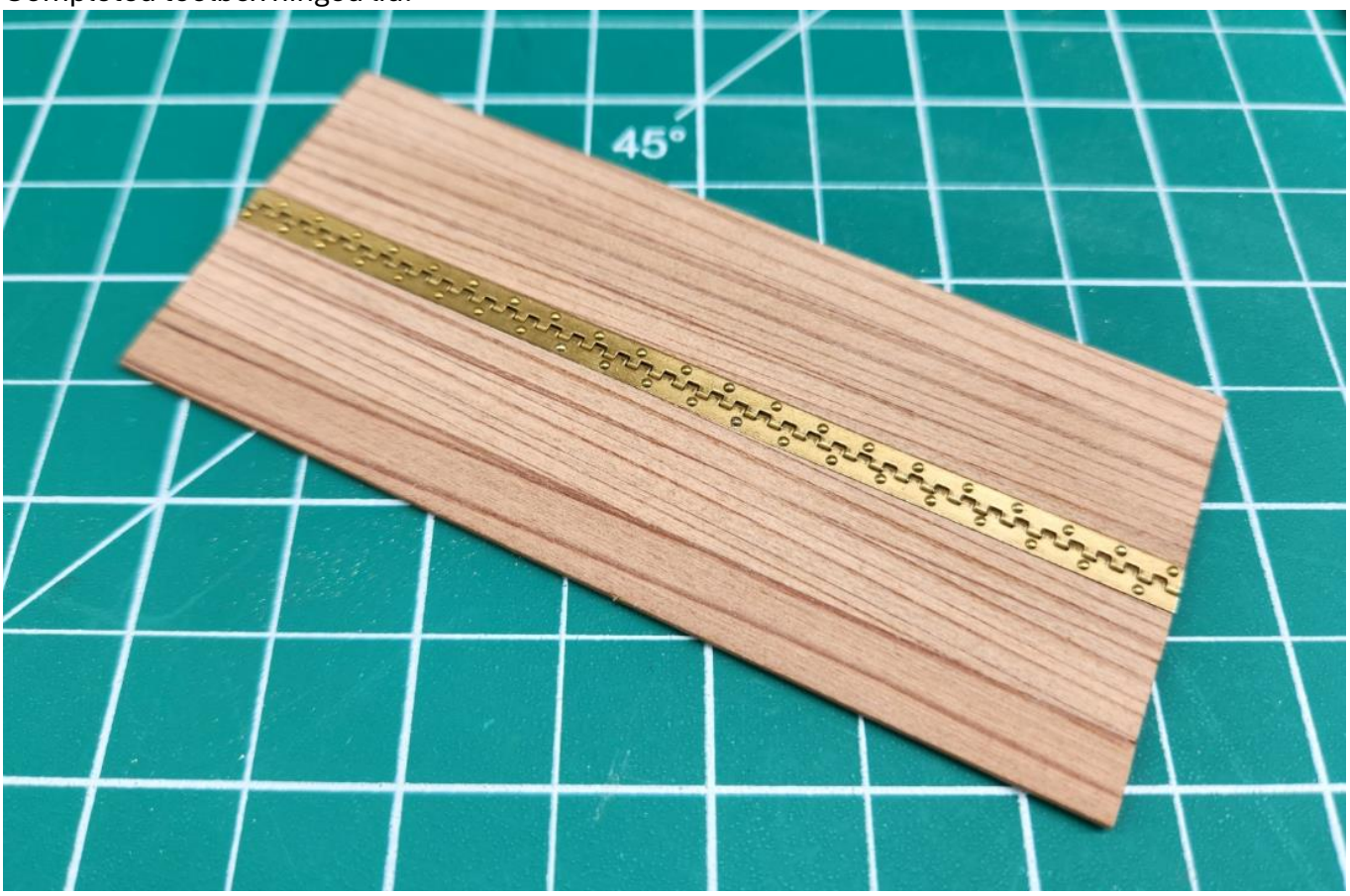
Jig used to glue the toolbox lids



This operation is cutting a step .010” deep in the toolbox lid so the piano hinge can be recessed.



Completed toolbox hinged lid.

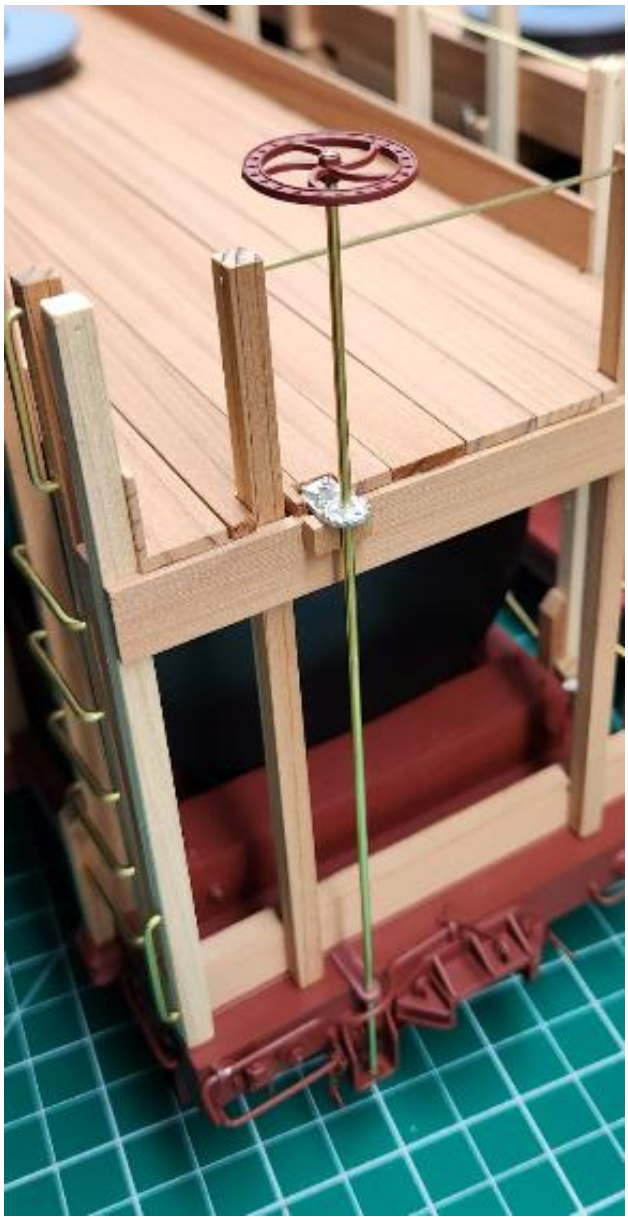


Completed toolbox with hinged lid covers.

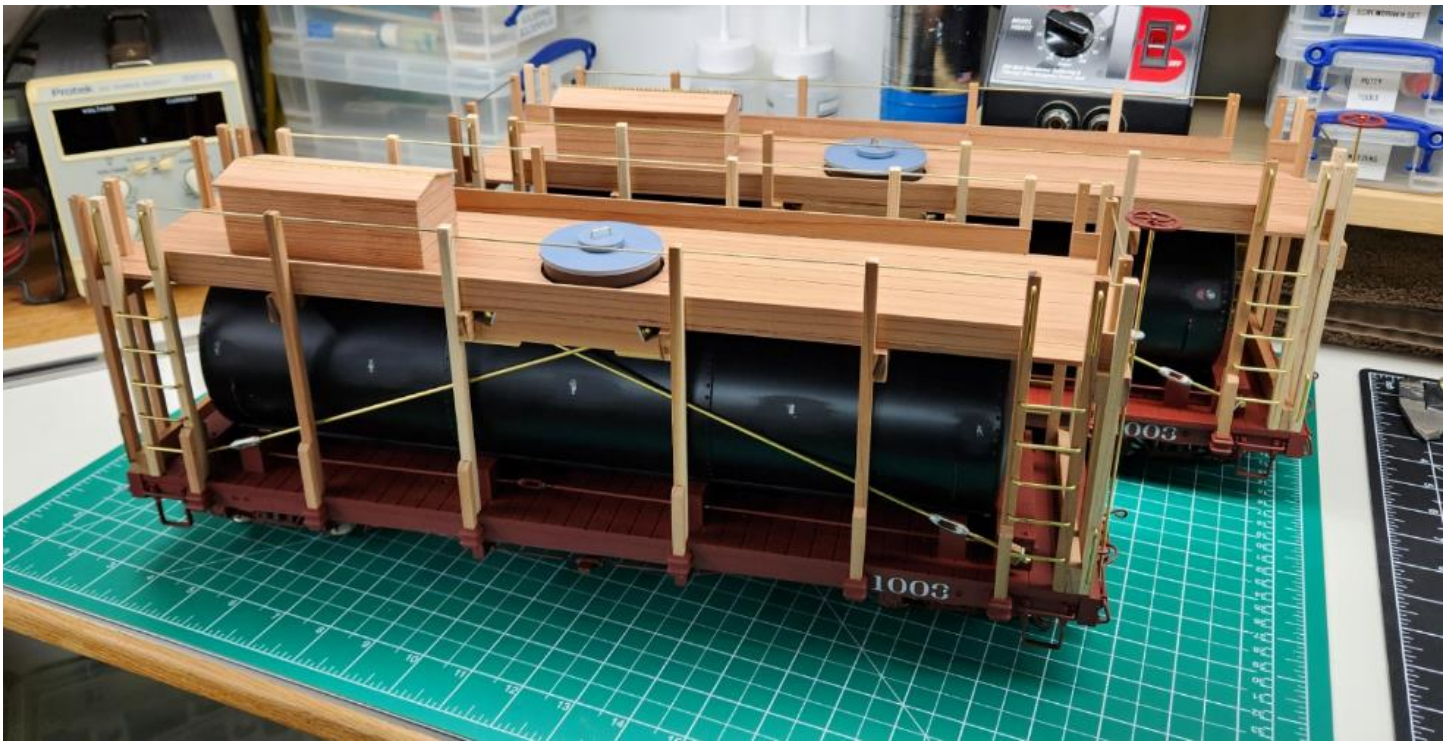
Cutting pocket for new brake locking paw unit.

Removing the plastic brake locking paw.

Completed brake assembly



At this point top decking, railing and toolboxes have been added.
Main tank covers have been 3D printed and covers and toolboxes have been temporarily placed in position. Both cars are completed to the same stage.



This is the end of part1, more parts to follow.
Cheers
Steve