Conventional Wisdom tells us there is no point in modeling anything that cannot be seen from three-feet away. However. . .

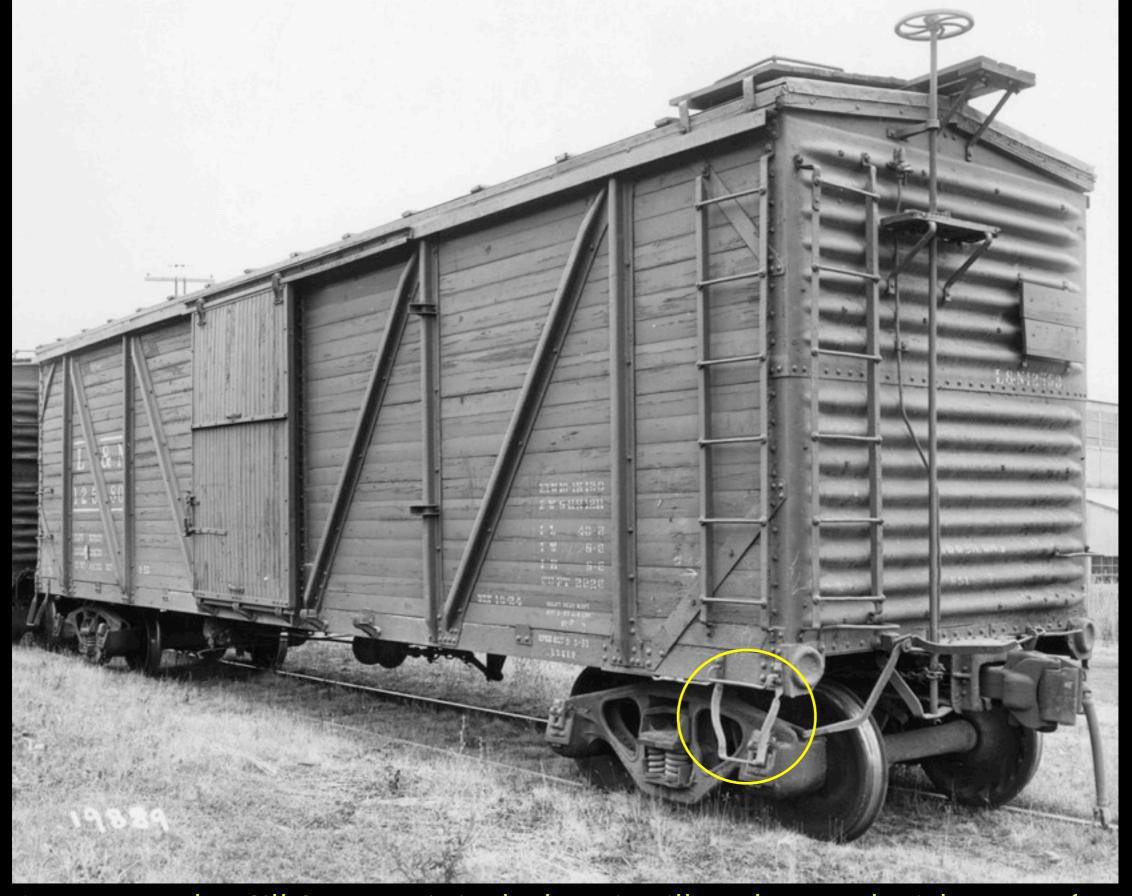
I don't believe in modeling anything that cannot be seen from three-inches away. . .

I don't believe in modeling anything that cannot be seen from three-inches away. . . without an *Optivisor* that is.

It is not just about the Rivet, Panel or Rib count, for me it is also about Sill Steps, Latitudinal Supports, Placard Boards, Ladders and other details.



My pursuit of more and better detail started with the ubiquitous Sill Step and trying to perfect its profile.



No matter what Sill Step part is in the box, it will not be exactly right most of the time. The A-Line Type "C" is close for this application but needs to be widened slightly, "squared," and angled outwardly.



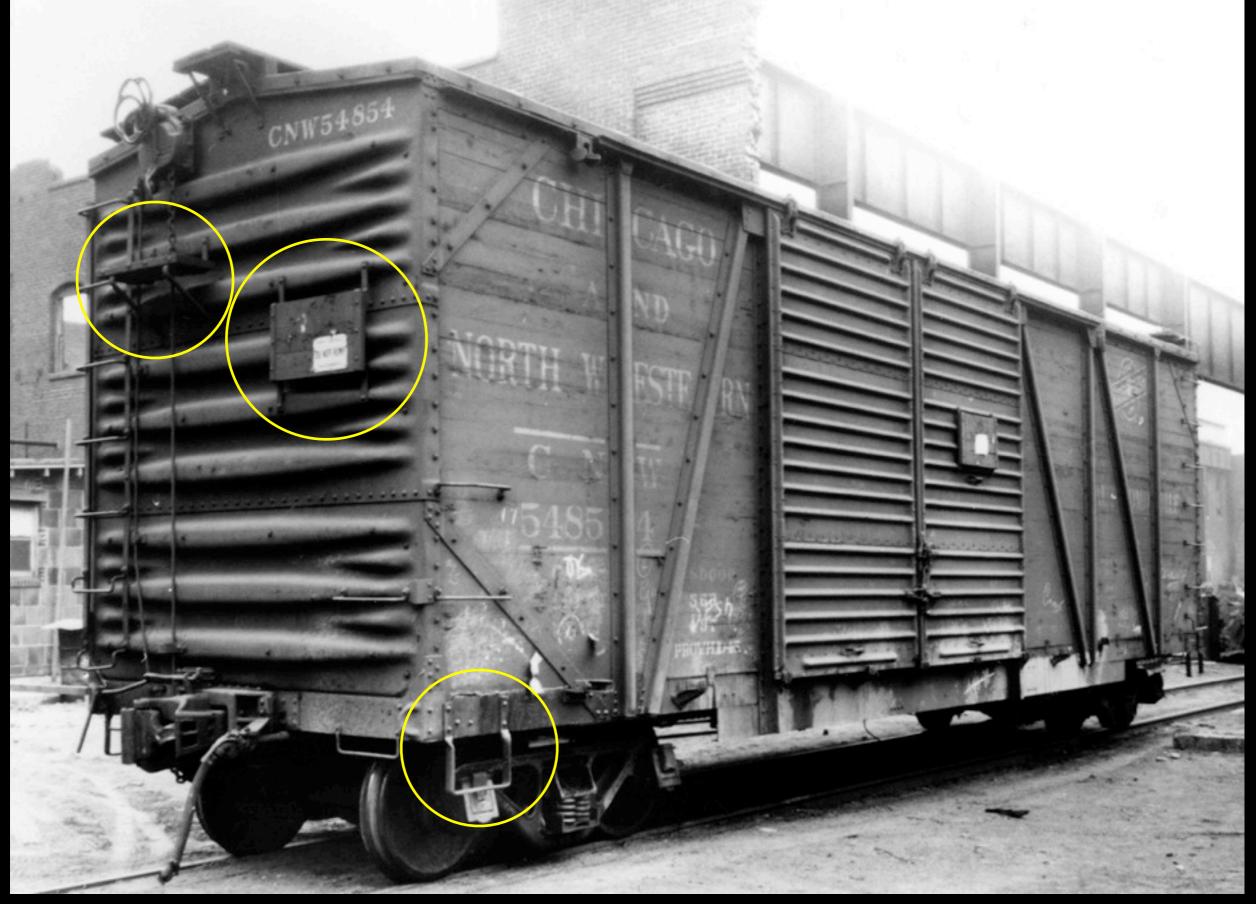
Note how square the corners are on this Sill Step.



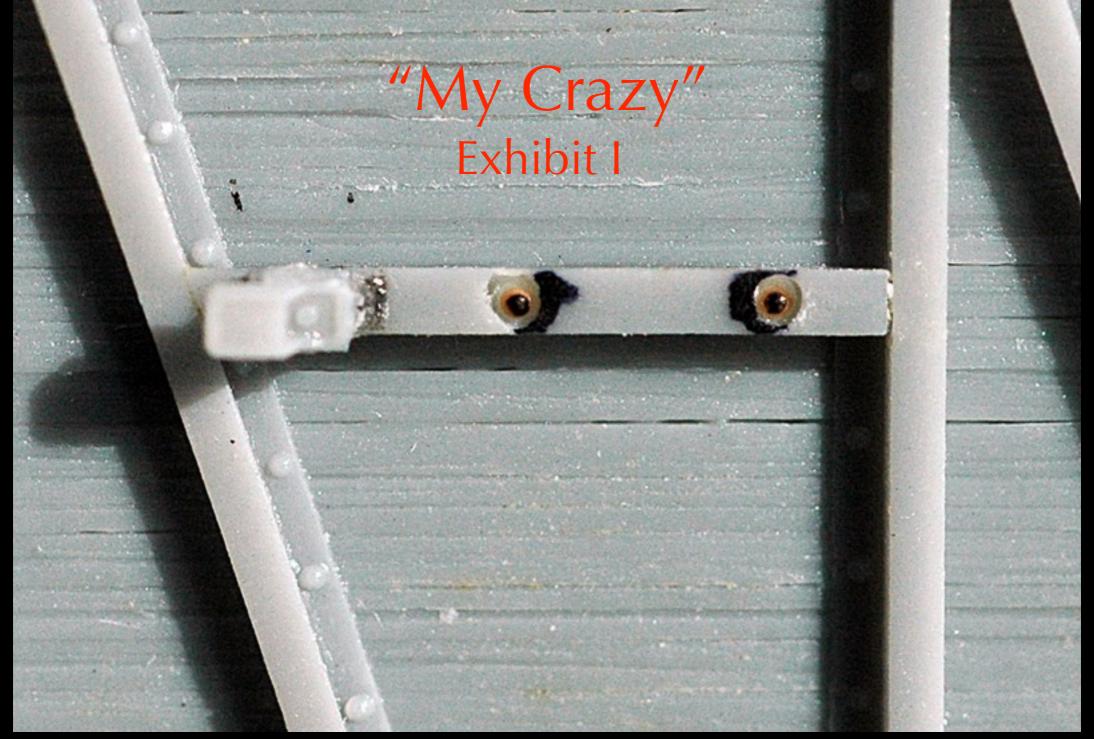
The cars built and leased by the Mather Company used round bars fabricated into Sill Steps and modelers have to do the same thing to model them.



The CNW used a distinctive Sill Step that has to be fabricated if it is to be modeled.



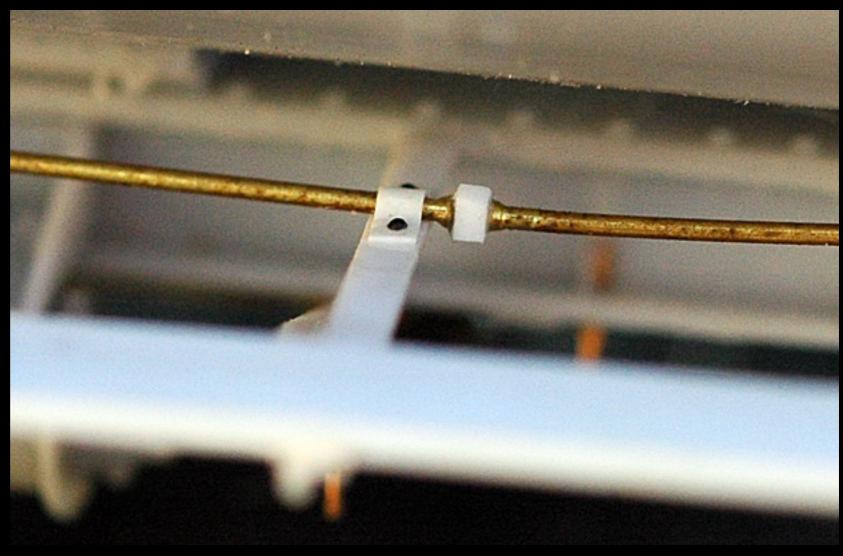
As I looked elsewhere around the various cars, especially the Single-Sheathed types, I saw many variations of such details as Placard Boards and their attachment and brake steps. It was Downhill from there!



Here my intent is to model Countersunk Carriage Bolts used to hold the Door Stop Mounting Board. To do so I attached an Athearn rivet to the end of .020 styrene rod and drilled holes in the mounting board to receive them. This permitted me to control the depth of the bolt head that I wanted to be just below the surface of the board. I am pleased with the result.



I am always keeping an eye out for reasons to use Evergreen's 0.005 styrene sheet. Here I have used it to create pipe brackets to keep the train-line of a tank car well anchored.



# Oh No! Detailing Brake Wheels

Yes, I have been adding a NBW to Stemwinder Brake Wheels!



In terms of Materials or Media—whatever you call them—think wood, metal sheet and wire, styrene sheet and strip and anything else that helps you get out of the box. Well known Extreme Modeler Jack Spencer loves Mylar and Contact Cement. Learn to use what works for you and exploit it to the maximum.



Homemade Drill: Thank You Brian Ehni!



Scriber/Drill Starter & Single Edge Razor Blade



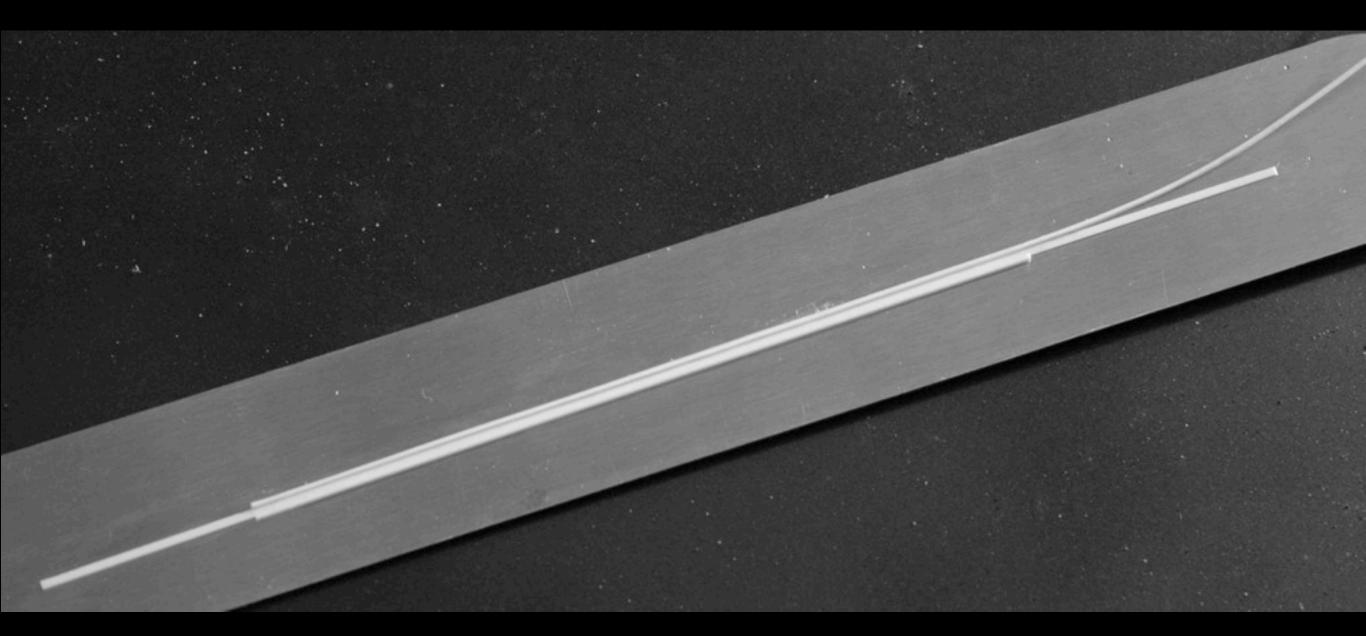
Undecorated Athearn boxcar for Harvesting Rivets



**Dull** Disposable *Testors* Hobby Knife for Placing Rivets

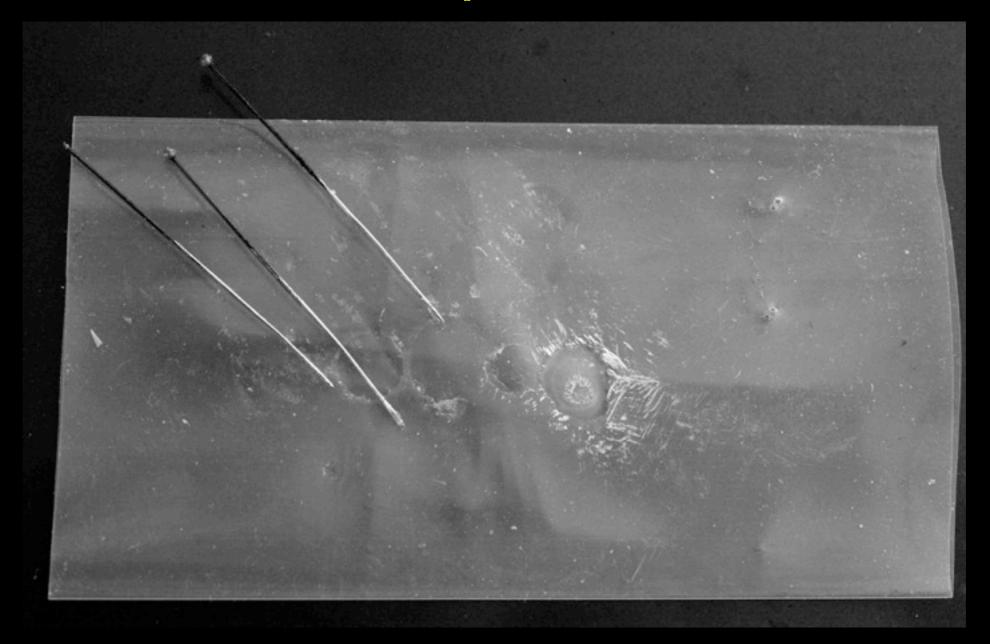


Sakura Pens in a variety of sizes down to .005

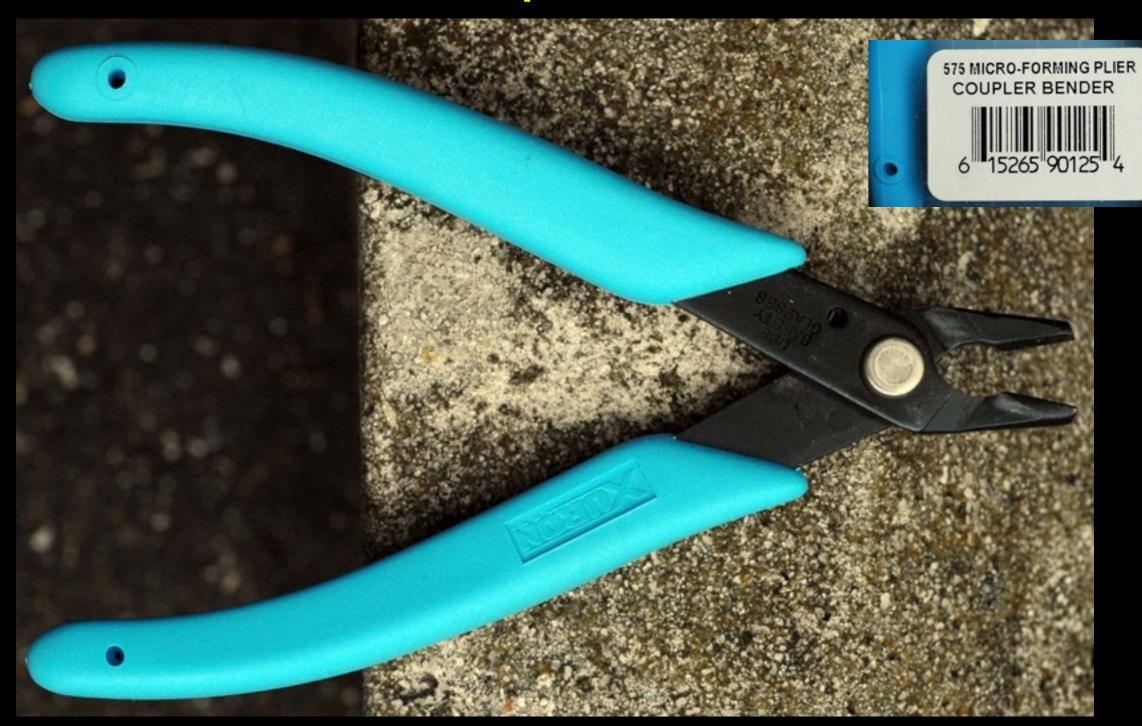


#### Stainless Steel Straight Edge as a Substrate

Tip: Liquid Testors will allow you to tack strip styrene to metal so you can combine various dimensions of the wobbly material to make a more complex part or assembly. Once it has dried, use a razor blade to free it.



CA Pallet & Applicators: a.k.a. insect pins and discarded small parts bag



#### Xuron Coupler Bending Pliers

Despite what *Xuron* calls them, the jaws of these pliers form a 90° angle, making them ideal for getting better corners on Sill Steps.

## Other Necessities, for Me at least

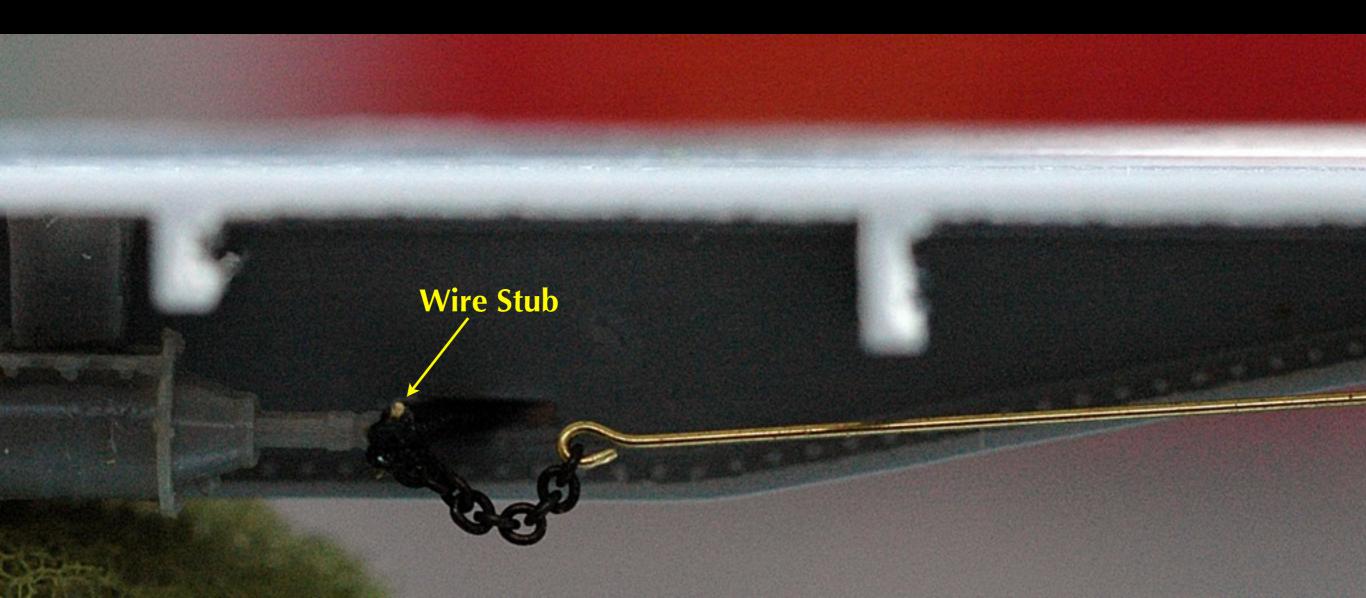
Optivisor NWSL "True Sander" 0.005 Evergreen Styrene sheet An inventory of Evergreen Dimensional styrene from .010 x .020 to at least .040 x .080, Rod starting at .010, and their Sheets.

#### Brake Chains

I routinely CA a very short length of .010 or .012 wire that goes through the extreme end of the brake lever angled towards the "B" end before I secure the lever to the brake cylinder. I use chain nose pliers to create a loop on the end of some .012 wire



and tease the chain onto it and cut the chain leaving 6-8 loops of chain. With the brake cylinder and lever in place I tease the chain onto the wire stub and secure it with CA.



### Brake Rod Clevises

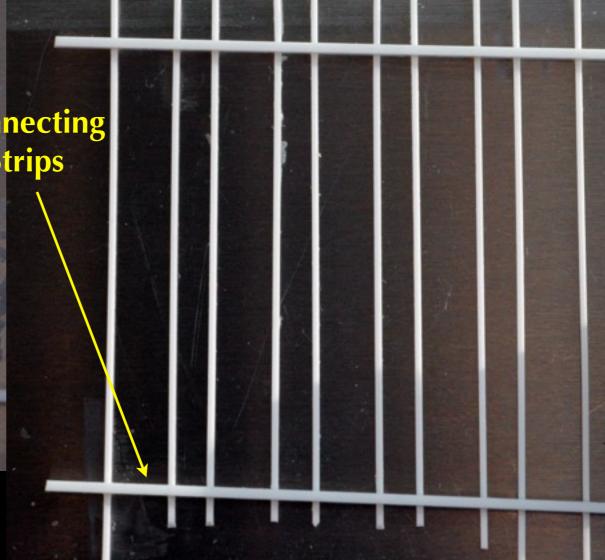


Tichy's styrene turnbuckle makes a good clevis too!

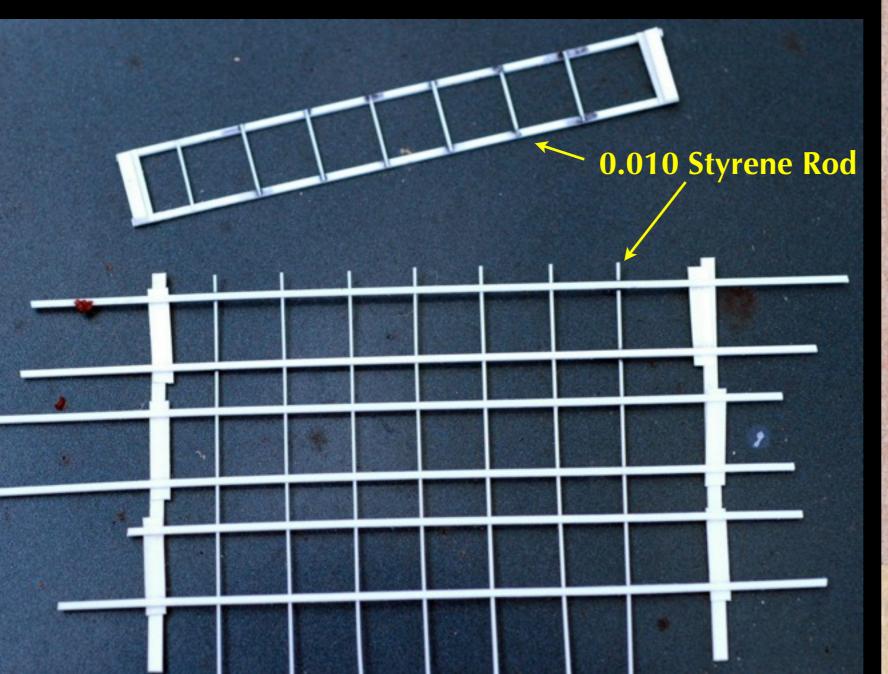
## Scratch Building Ladders

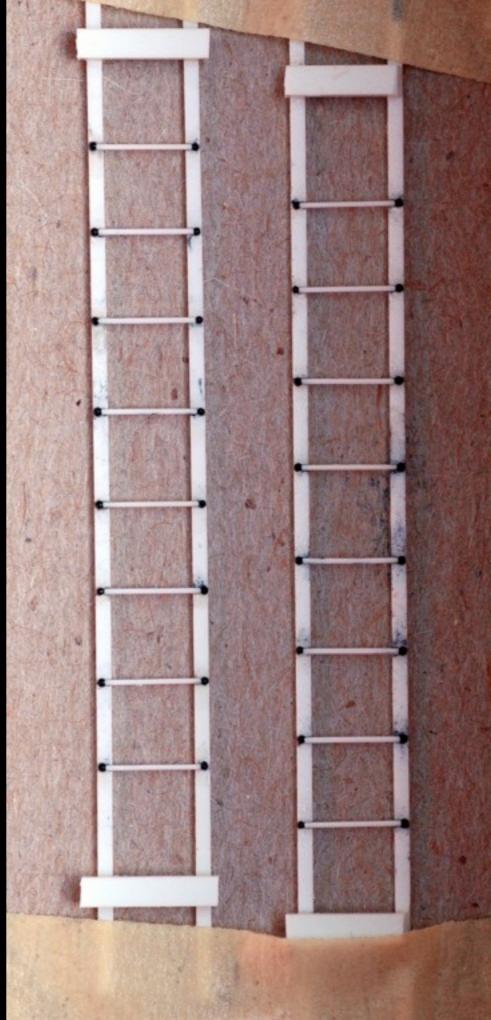


The key is exactly spaced stiles: In place are two styrene *Spacers*. The wider one goes between each pair of stiles as I glue them down one at a time to what I will call the *Connecting Strips* at each extreme end. The thinner Spacer fits between each new pair of stiles keeping everything square and parallel.



Whenever I build ladders, I tape the stiles down as I go to either a **Metal** or **Cardboard** substrate since the styrene will be easy to lift off once everything has cured.

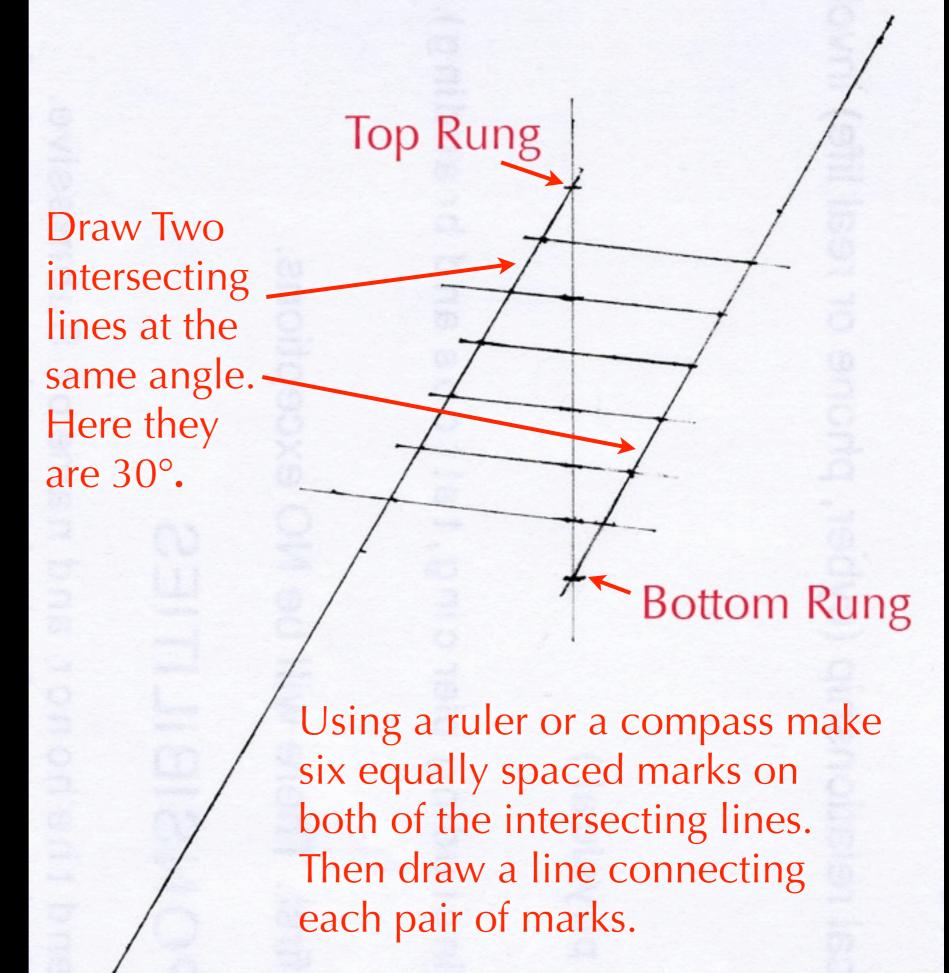




Scratch Built Ladder for Columbus & Greenville Howe Truss Single Sheathed Boxcar



Calculating
Spacing for an
Eight-Rung
Ladder



# Modeling Damage



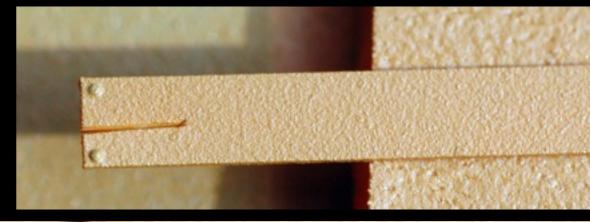


When wood is involved, the potential for damage is present.

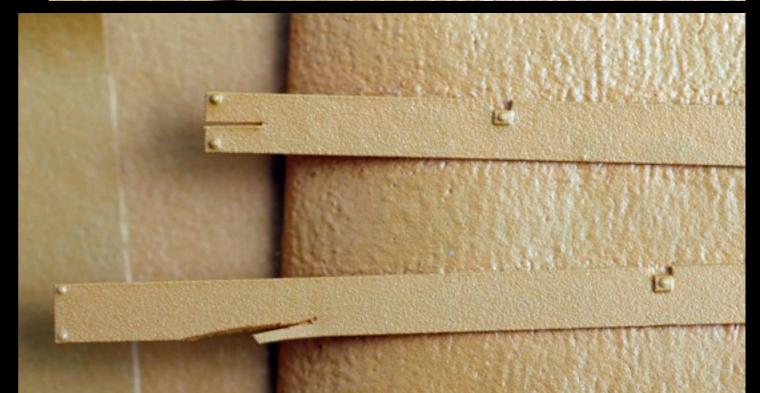




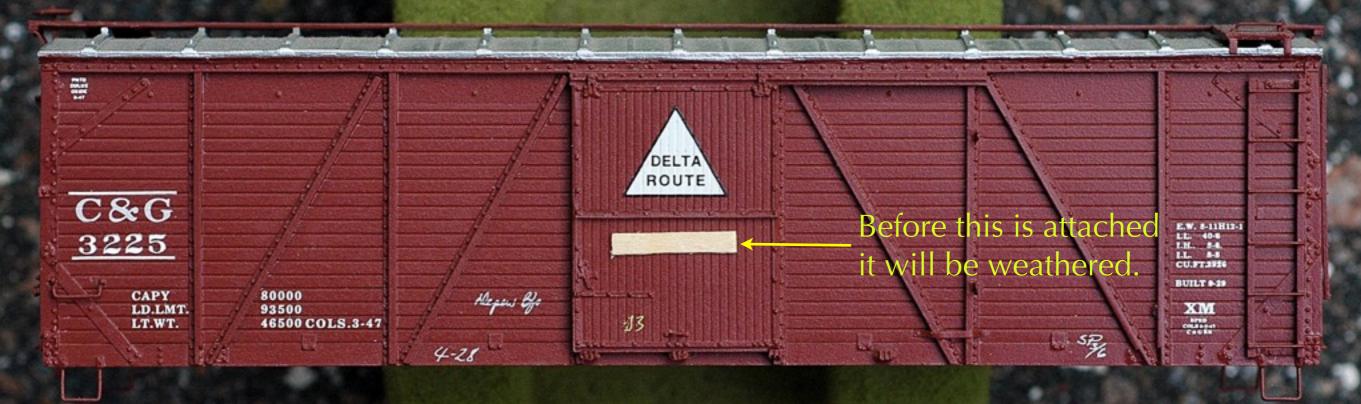
The Letter Boards on the Pennsy designed R7 reefers provide a good opportunity to model damage sometimes seen on wood cars.









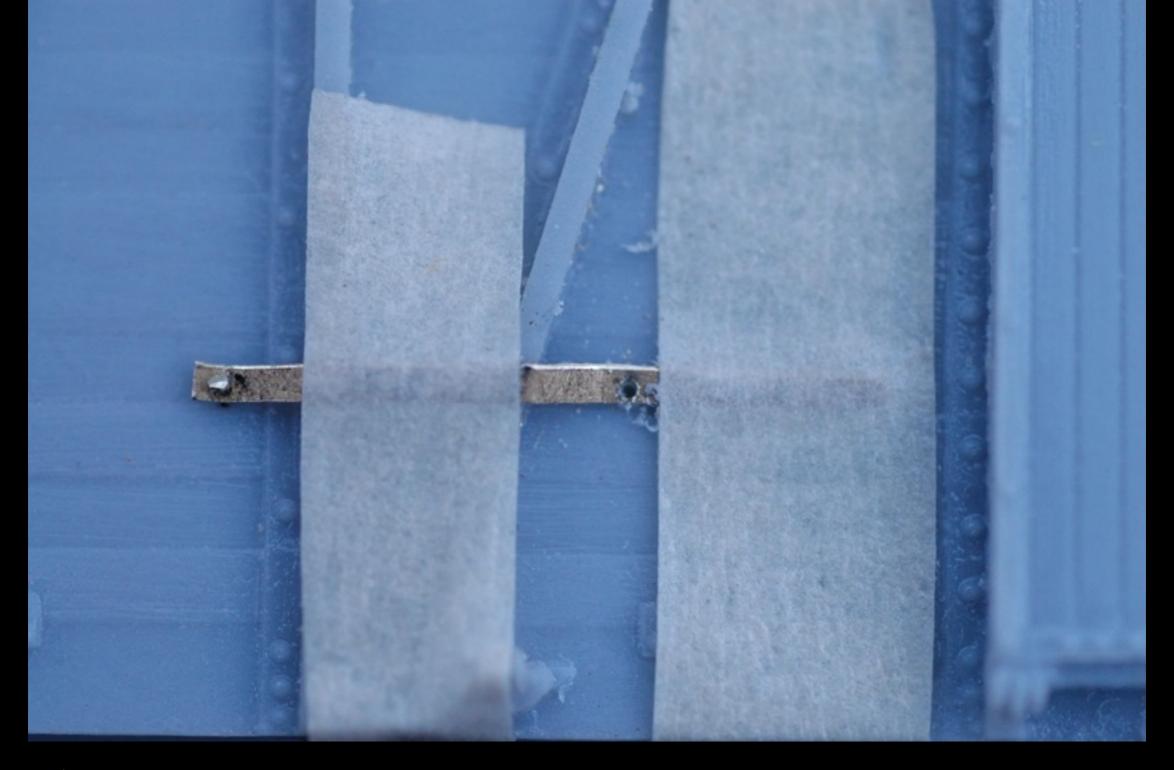


# The "Which ma'call-it" or is it the "Thing ah ma Gig"

Because the steel braces of Single-Sheathed cars could be an impediment to getting their doors fully open, a simple device was bolted to the first pair of braces to the right of the door. I cut thin sheet brass for the strap and use "peened" .012 brass wire to simulate the attaching bolts. Note the unique Door Stops on this Howe trussed Columbus & Greenville boxcar.







After using a #11 blade to cut strips I sort out how long the strips need to be, mark their length and drill a #79 bit to drill a hole on one end, place the strip on the car side and mark where the first hole should be, drill it and mount it on the car side holding it with some peened wire and tape it in place, mark where the second wire will go, use a sharp point to help center the bit and drill the second hole in the brass and car side.



When I can I like to build similar or identical cars since it as easy to do something twice with the same tool as it once, especially when drilling holes. With these two I could make eight of the door gadgets and do everything associated with them at one time.



Here is one of the devices, albeit a slightly different style on a CB&Q 50-foot car. This was typical "Q" practice.



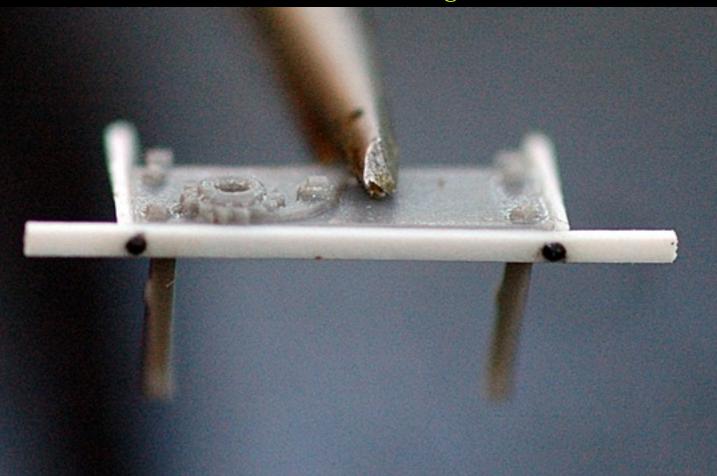
Here is a strap with paint. Note the "loose" door stop.

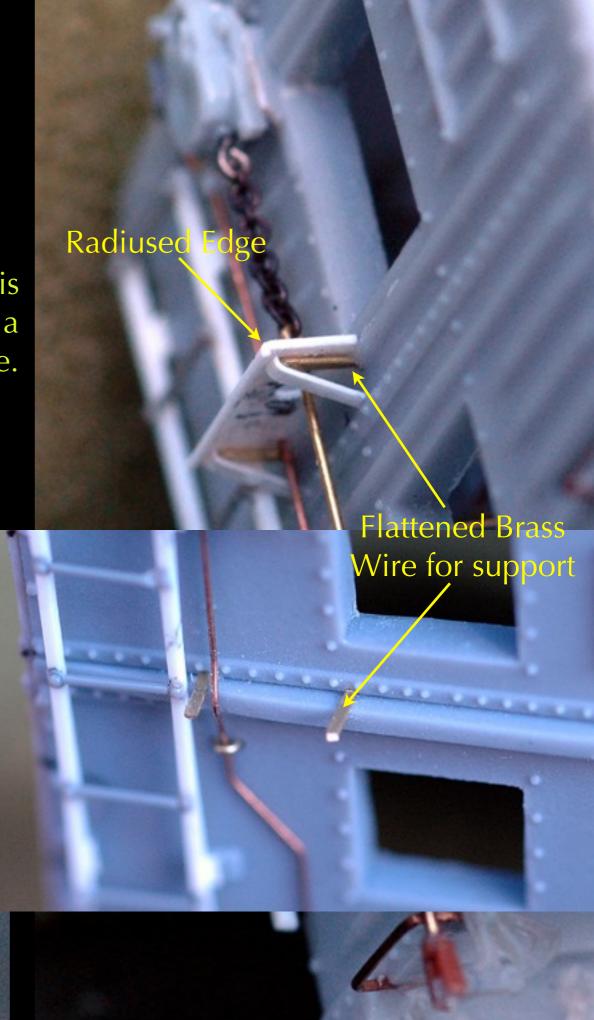
### Brake Steps

Unique appliance designs specific to each railroad existed all over a car

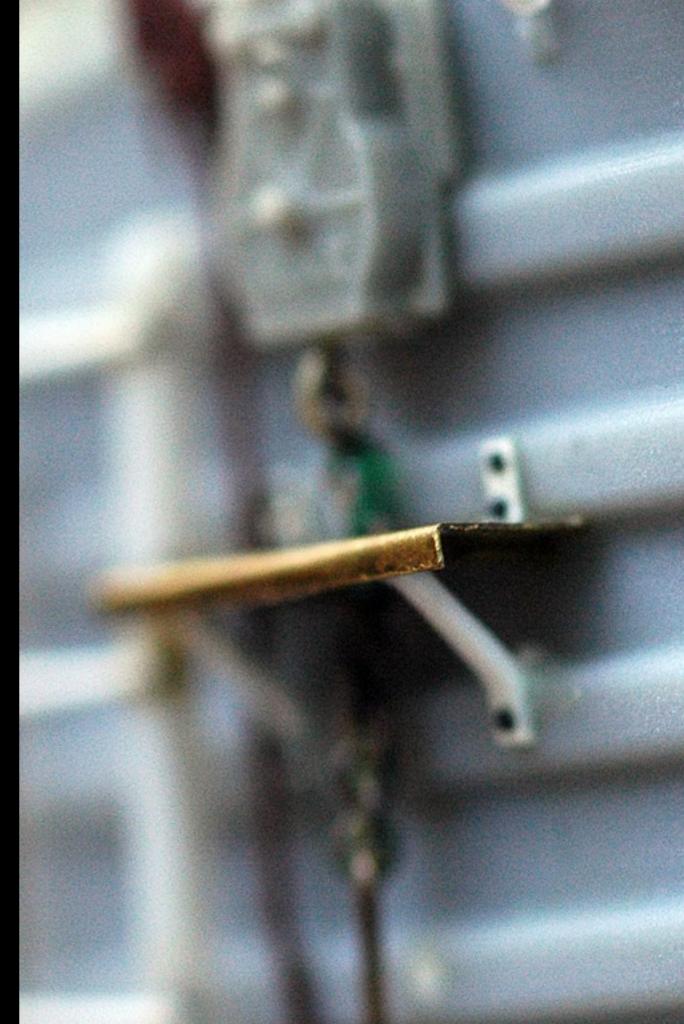
The SAL Vent brake step on the right is meant to represent sheet metal with a curved flange along its edge.

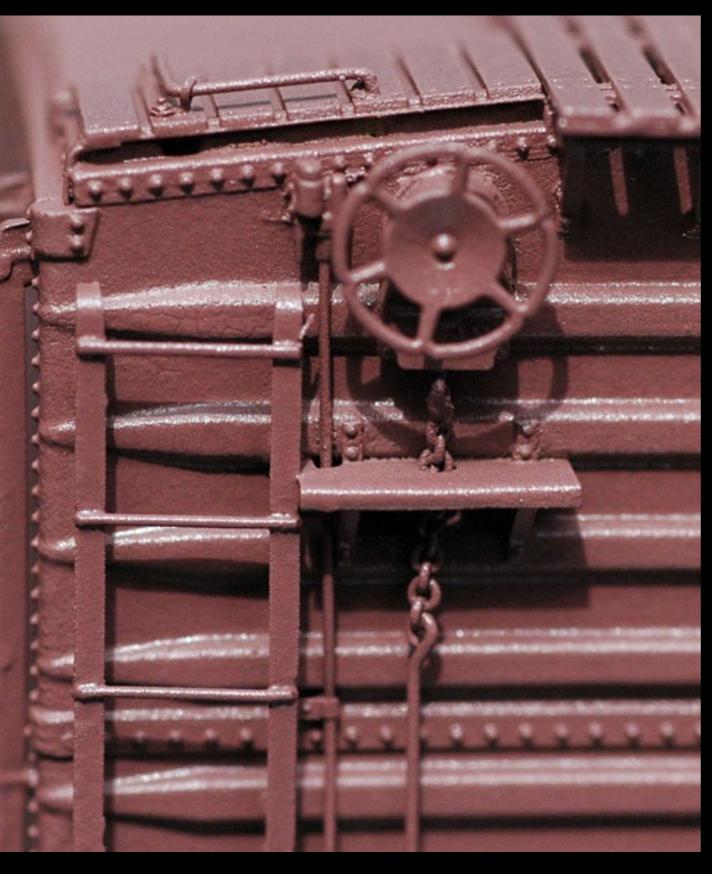
Below is a new Brake Step for F&C's Illinois Central SS boxcar rebuilt as a single door car.

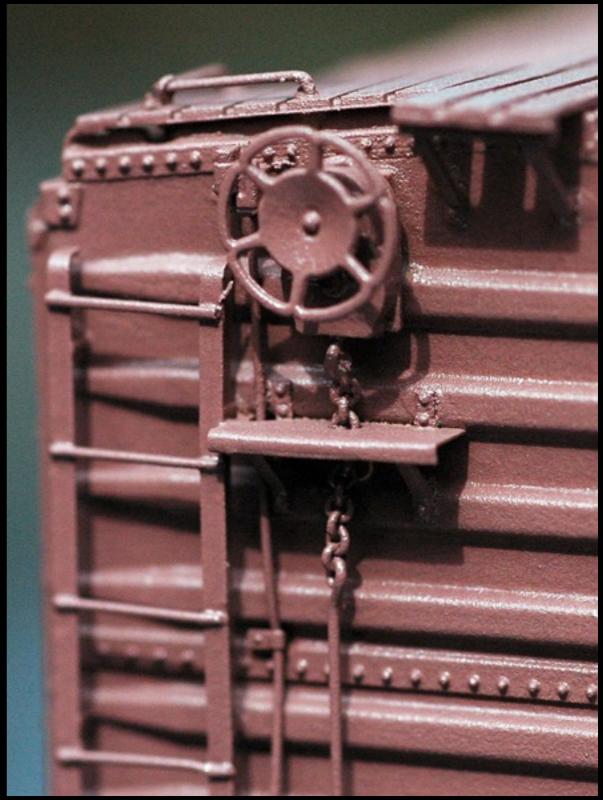




I used a snipped piece of brass sheet to create this brake step for a Tennessee Central steel boxcar. . .

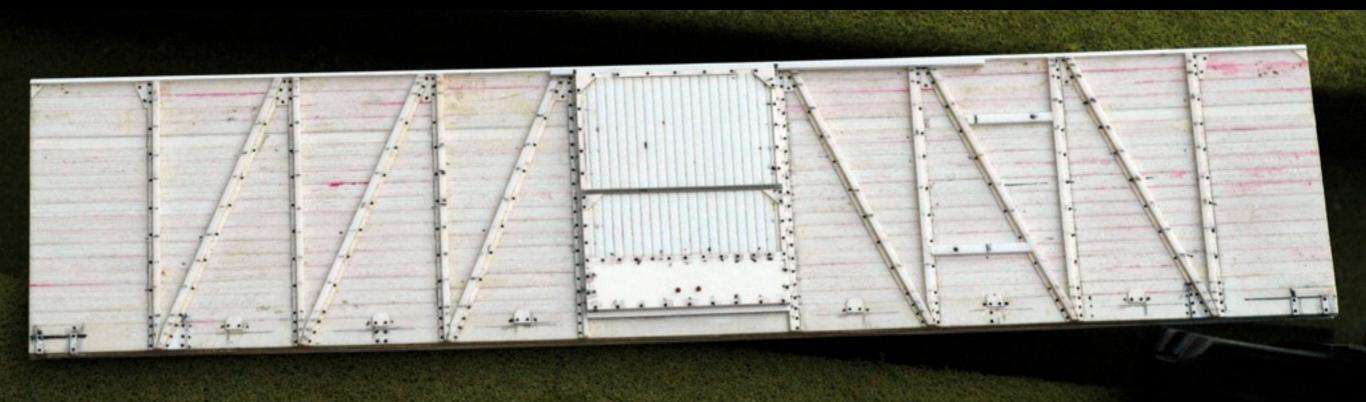






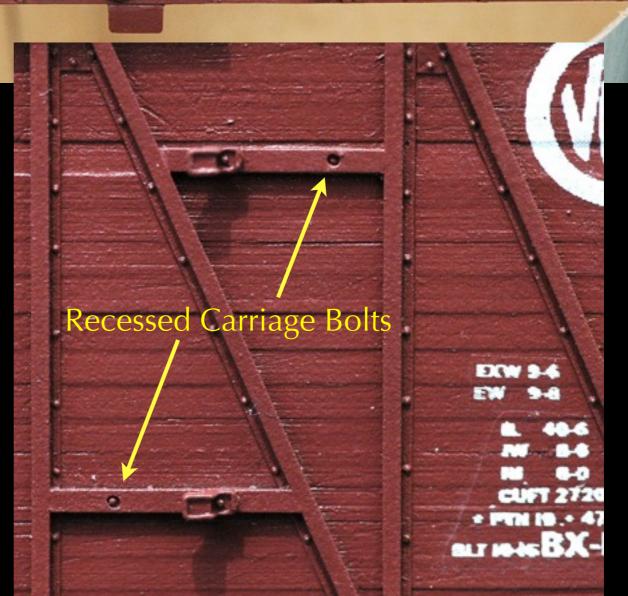
...and here is result.

## The Case for Harvesting Rivets



People ask me why I continue to harvest rivets. This is why. I don't think decals would work here.





E. 40.6 M 8-0 CUIT 2720 - PTR 10 - 47 BLT HHIS BX-10

#### Truss Rod Underframes



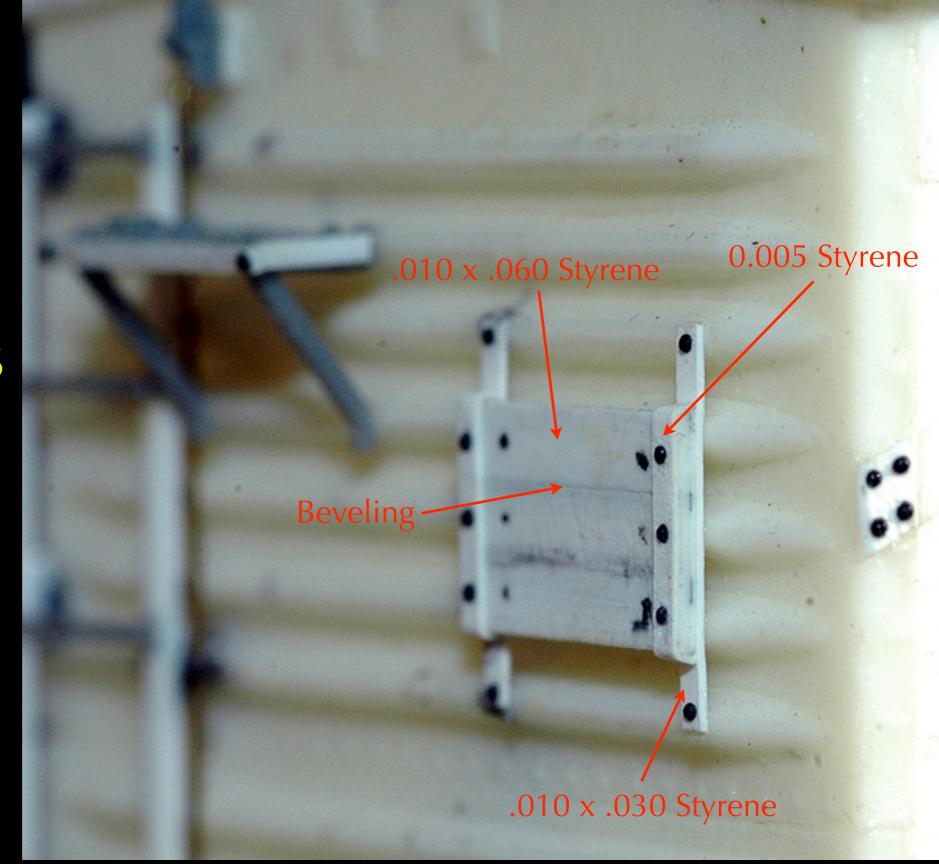
I like to use Brass Wire and Grandt Line Brass Turnbuckles and keep the turnbuckle's center open.

#### Placard Boards



Placard Boards often varied from railroad to railroad and are easy to make with styrene most often using .10  $\times$  .60 for boards and . 010  $\times$  .030 strip & .005 sheet. To give the hint of separate boards I slightly bevel the edge.

#### Placard Boards



After roughing up one side of a piece of .010 x .060 styrene, I bevel one edge with a blade and use a *Sharpie* to mark which side on the back. I then cut the strip using NWSL Chopper II and glue the "boards" to a .005 Substrate.

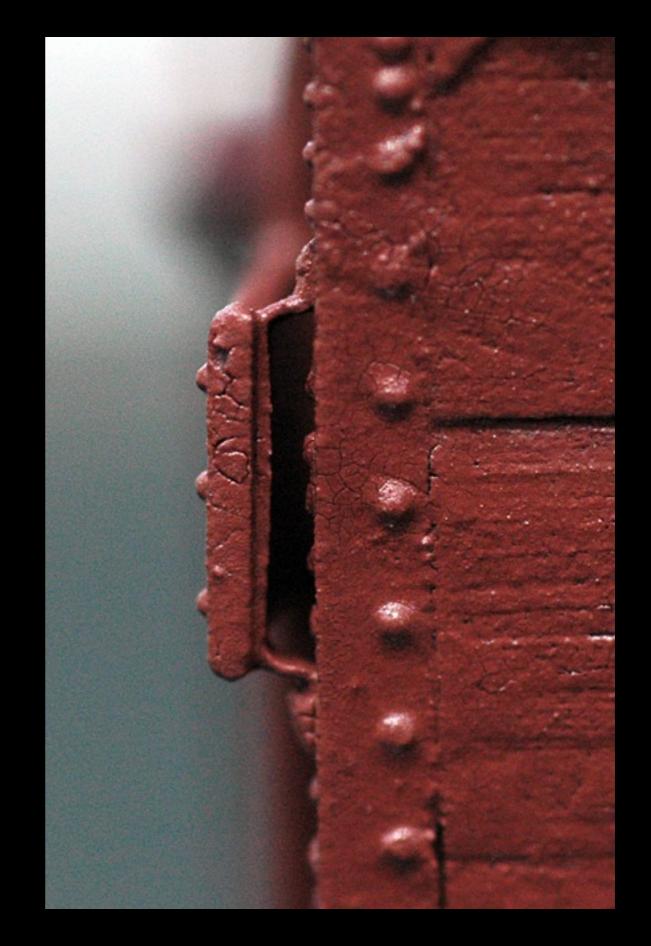


In the case of the IC boxcar, I was also building a Sunshine IC boxcar kit so instead of two Placard Boards I made six. The key in gluing the "boards" down is to make sure a beveled edge abuts a sharp edge. Sometimes I bevel both edges. Boards are glued to a .005 substrate.

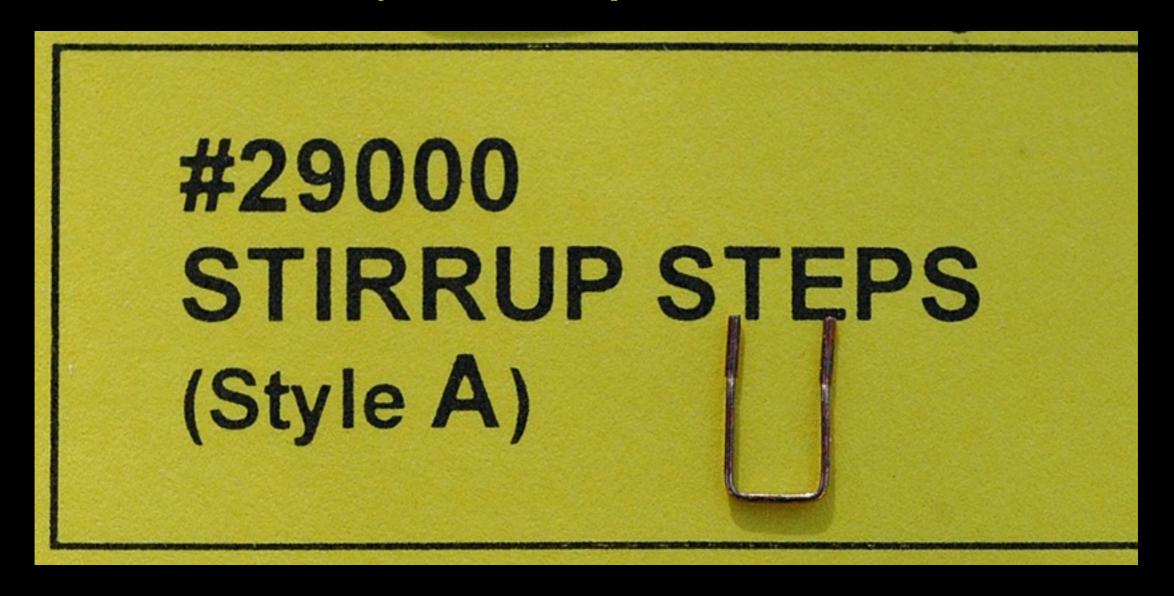


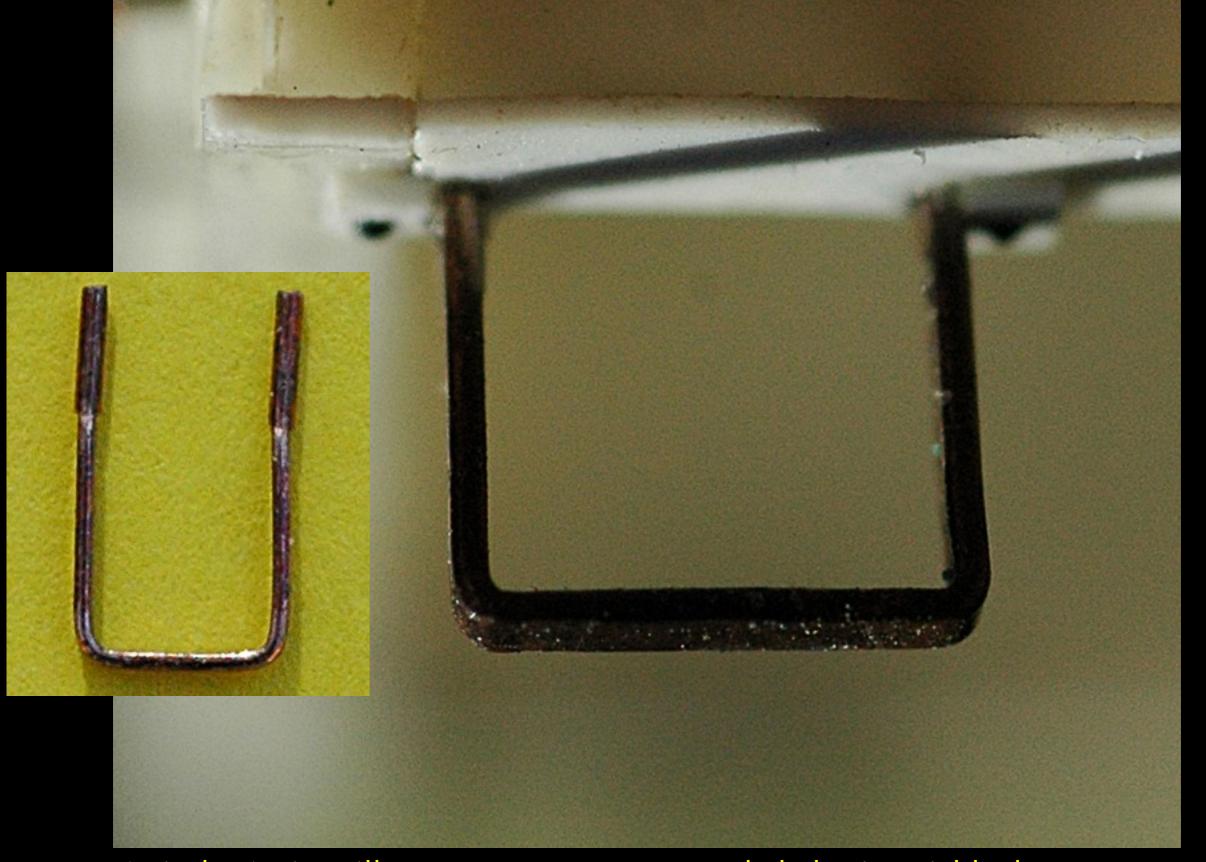


Here is a mounting bracket with a Placard board in place and painted.

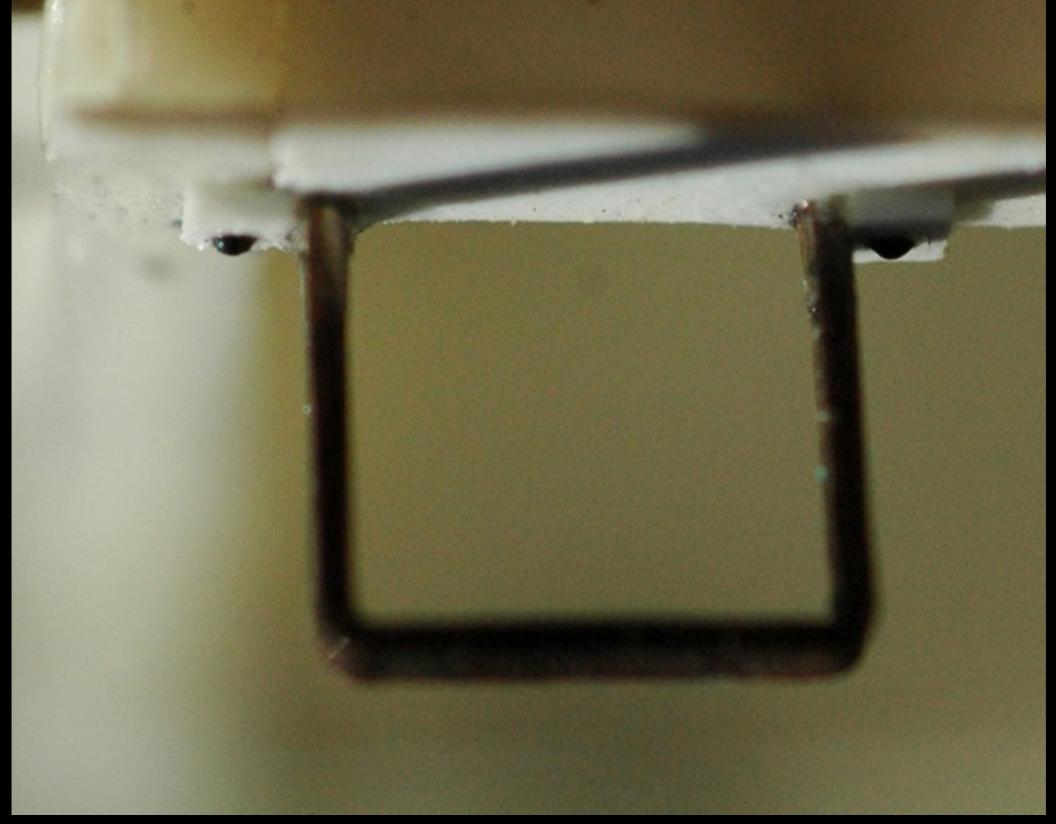


### Those Pesky Sill Steps



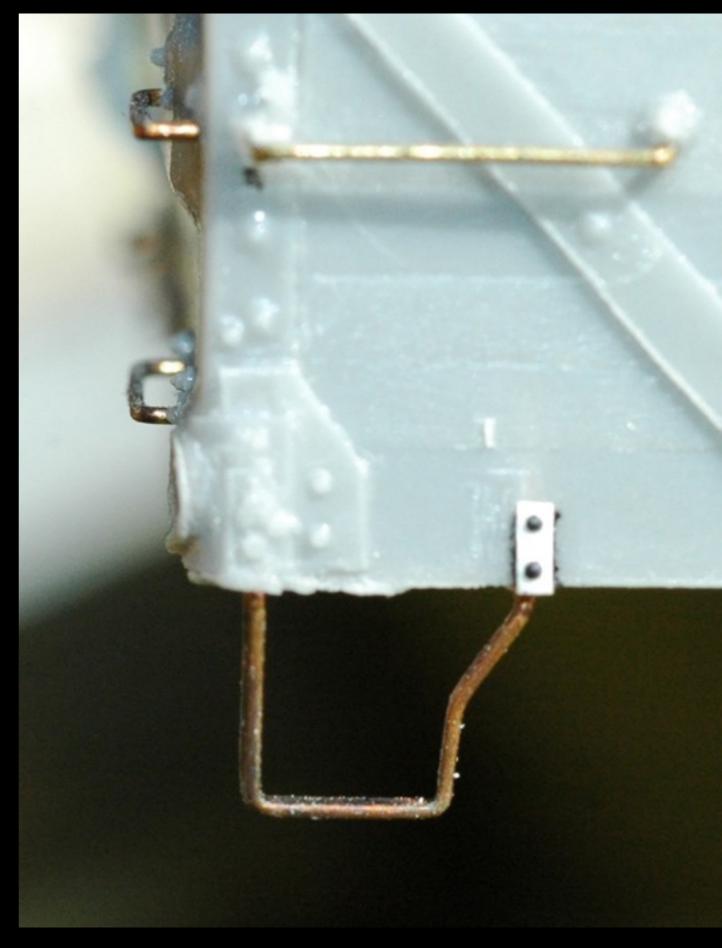


As is the A-Line sill step corners are too rounded plus invariably they are not wide enough so after putting them in a candle flame and flattening them out, I re-bend them widening them as necessary and using *Xuron* pliers to create sharper corners.



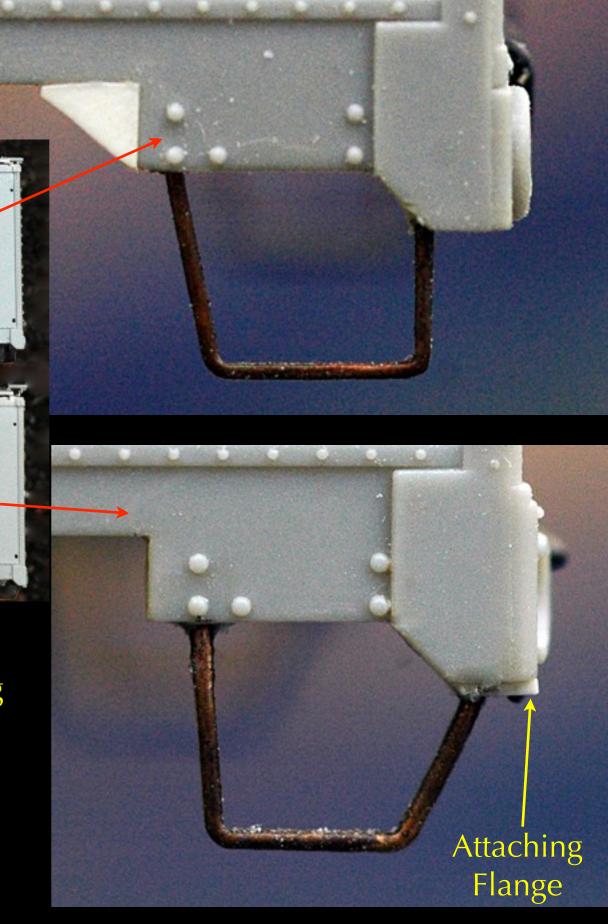
This type of Sill Step was usually attached to the bottom of the car side with bolts that I model using 0.030 strip and an Athearn rivet to simulate the mounting flange and bolt.

Again the corners have been squared and the step has been widened slightly to create a more accurate profile on my opinion.



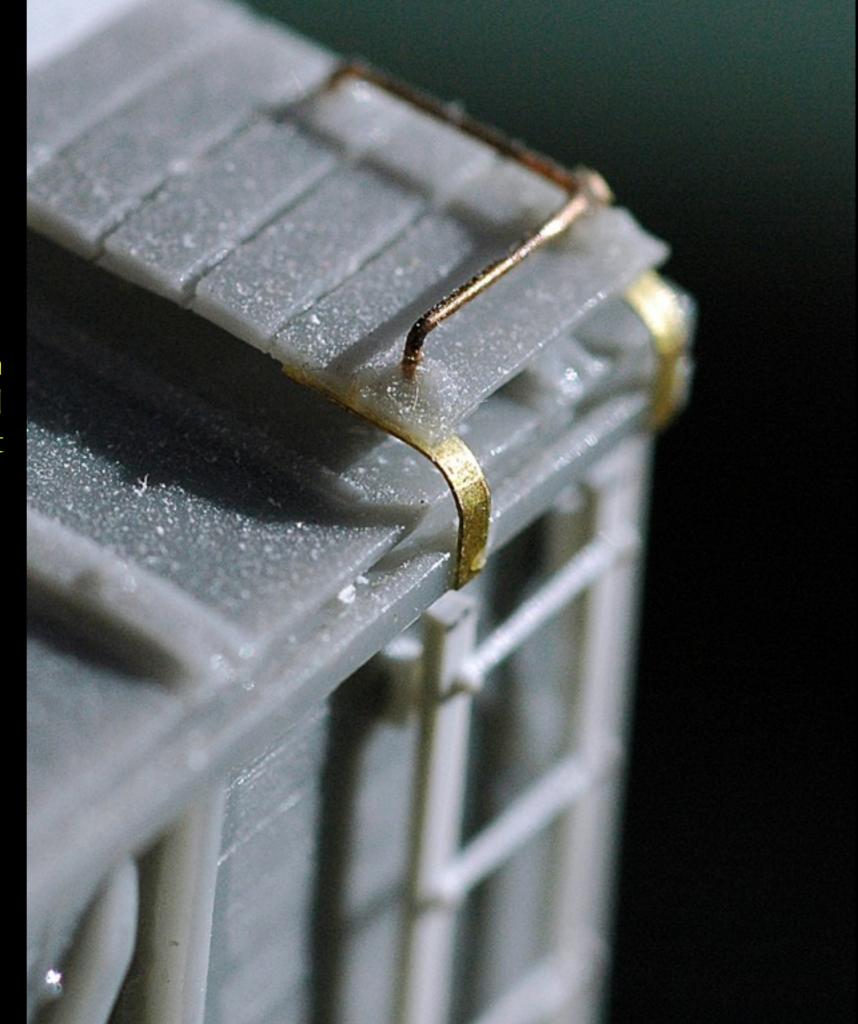


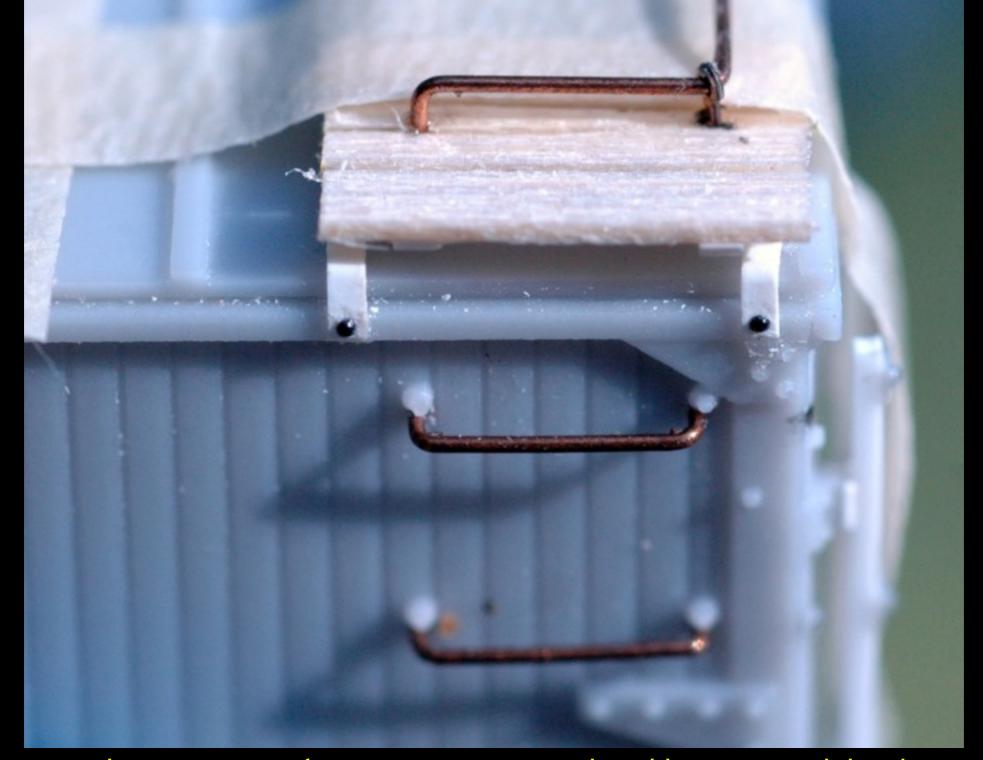
As we know even "Standard" cars like the 1932 A.R.A. steel boxcar differed in their details, including their Sill Steps.



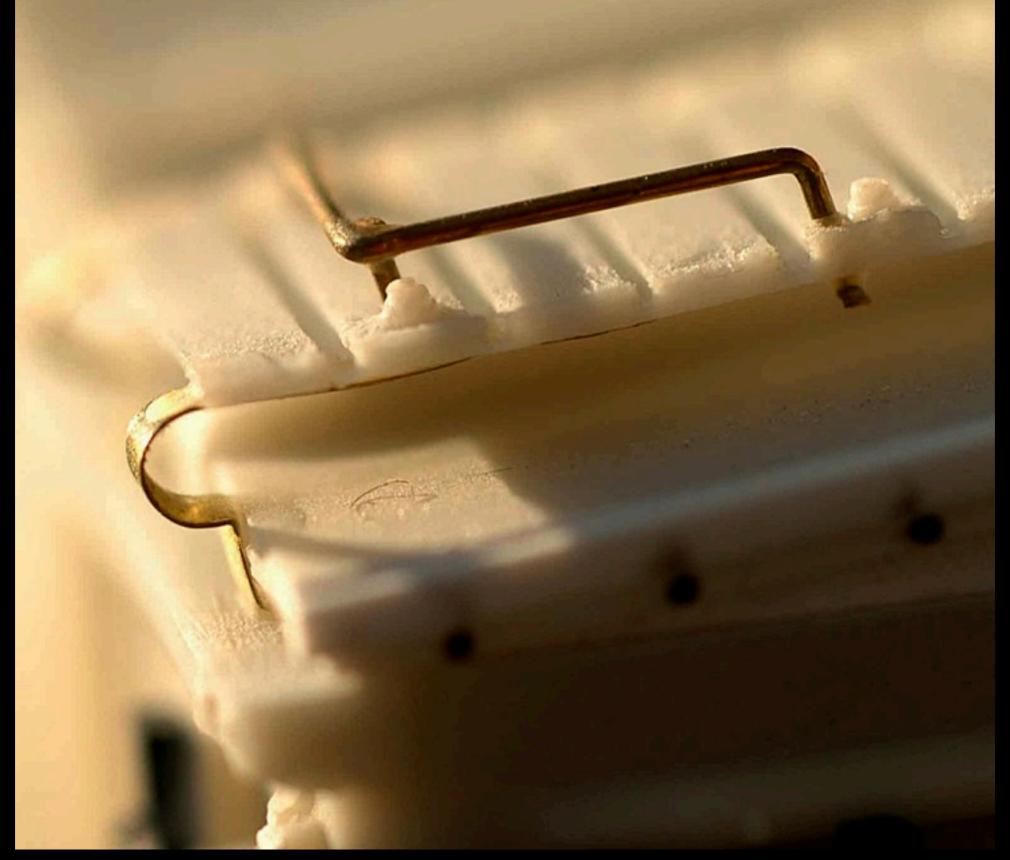
# Latitudinal Supports

Here sheet brass has been used to create the latitudinal supports on a PM/C&O kit from Speedwitch.



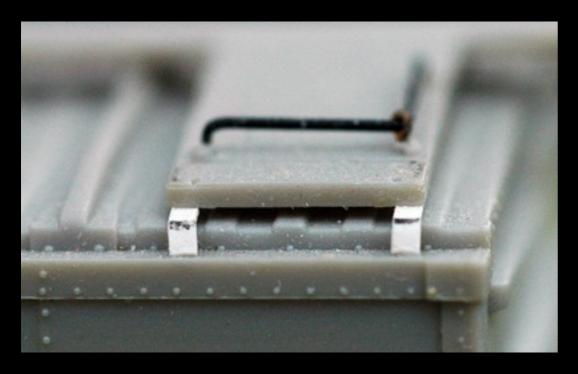


I used .005 styrene for my two SAL Ventilated boxcar models. The etched Eye Bolt is available from *Yarmouth Model Works*.



Here I wrapped the brass strips around the Shank of a Drill Bit to get a consistent curved shape for my TN&O B50-15 model.

# Missouri Pacific & Subsidiaries

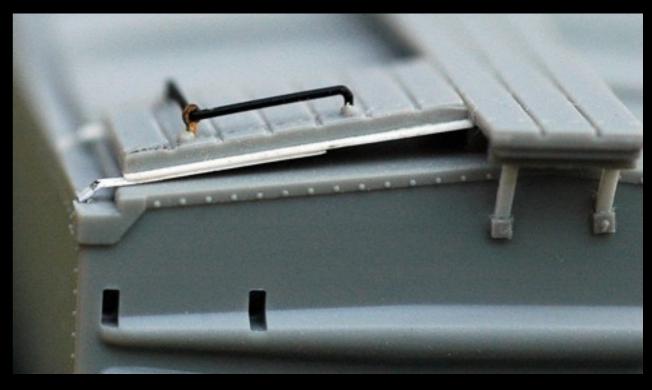




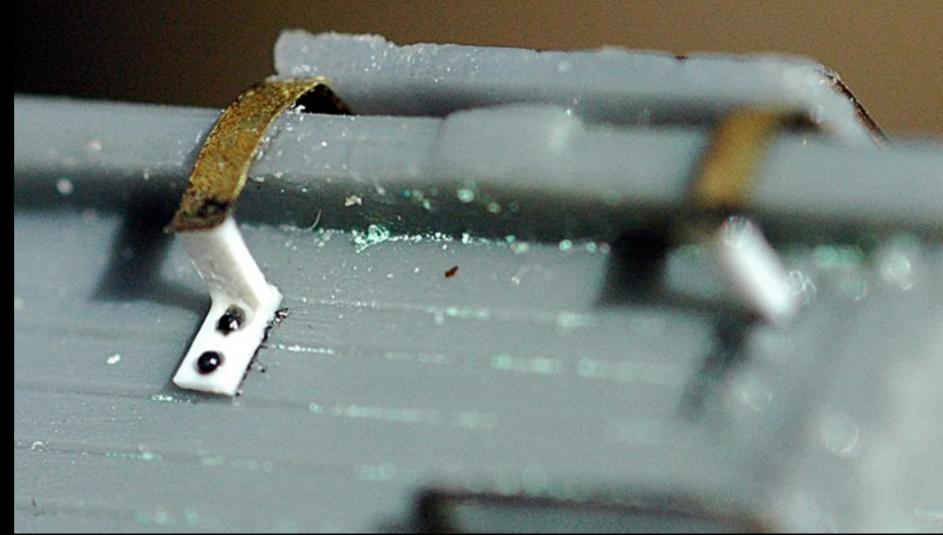
MP and Erie 1932 A.R.A. steel boxcars had slightly different Latitudinals that Atlas neglected to model.

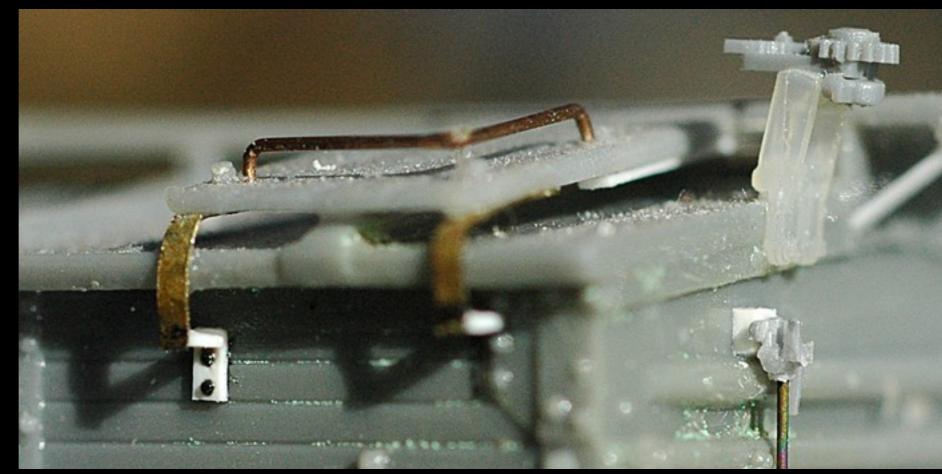
Erie





My model of a Burlington Route FW&D XM 25/26 from *Speedwitch* required a mixed media approach.



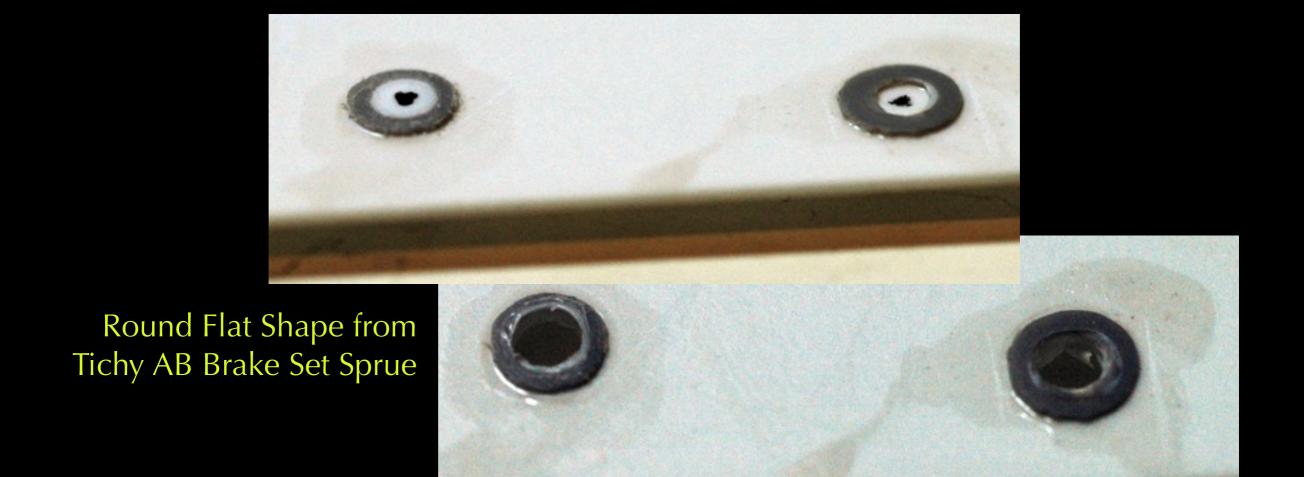


# When We Need a Flange . . .

I begin the process by gluing the round styrene shapes to a styrene substrate with Testors. When I am finished I use my trusty single-edge razor blade to lift them up.

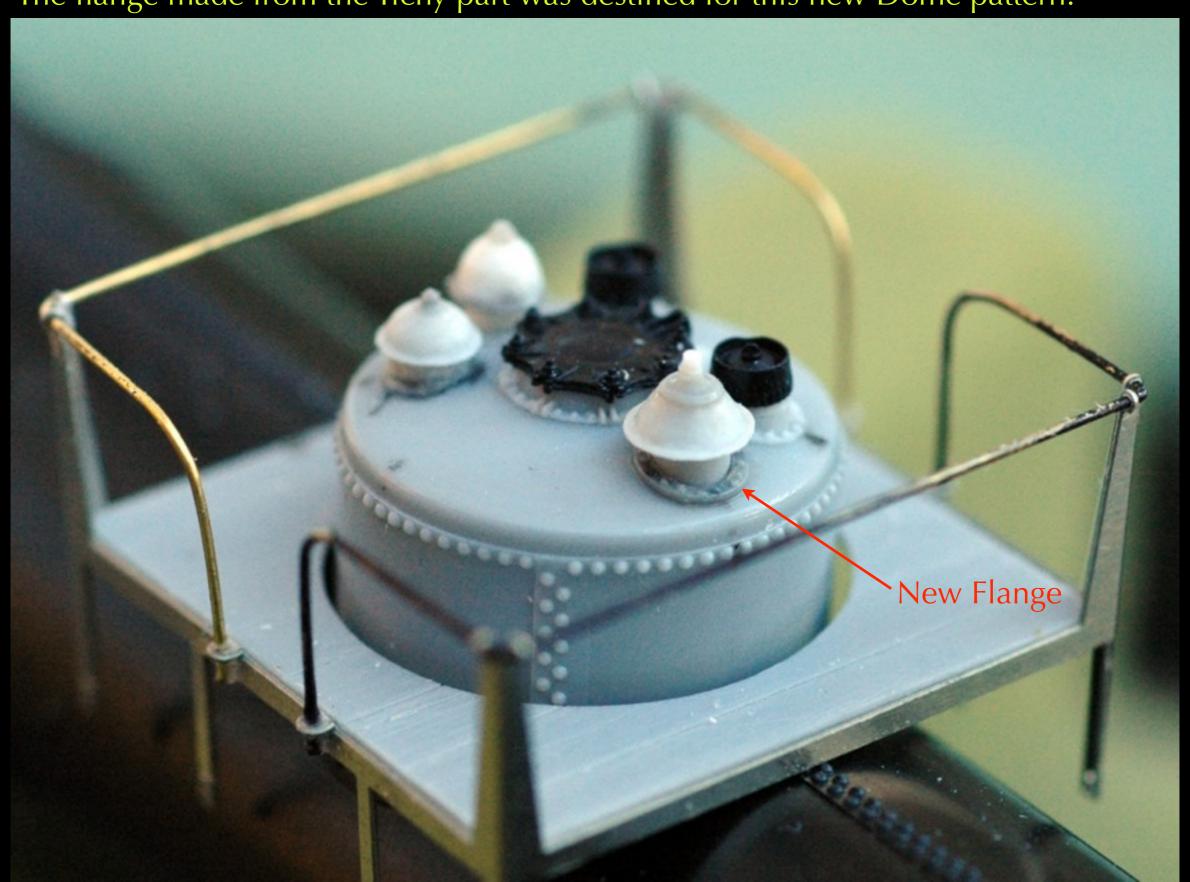


Grey item is *Tichy* rear brake cylinder part that never gets used. Black part is a *Detail Associates* "SD" Cover Plate



# Specialized Tank Domes

The flange made from the Tichy part was destined for this new Dome pattern.



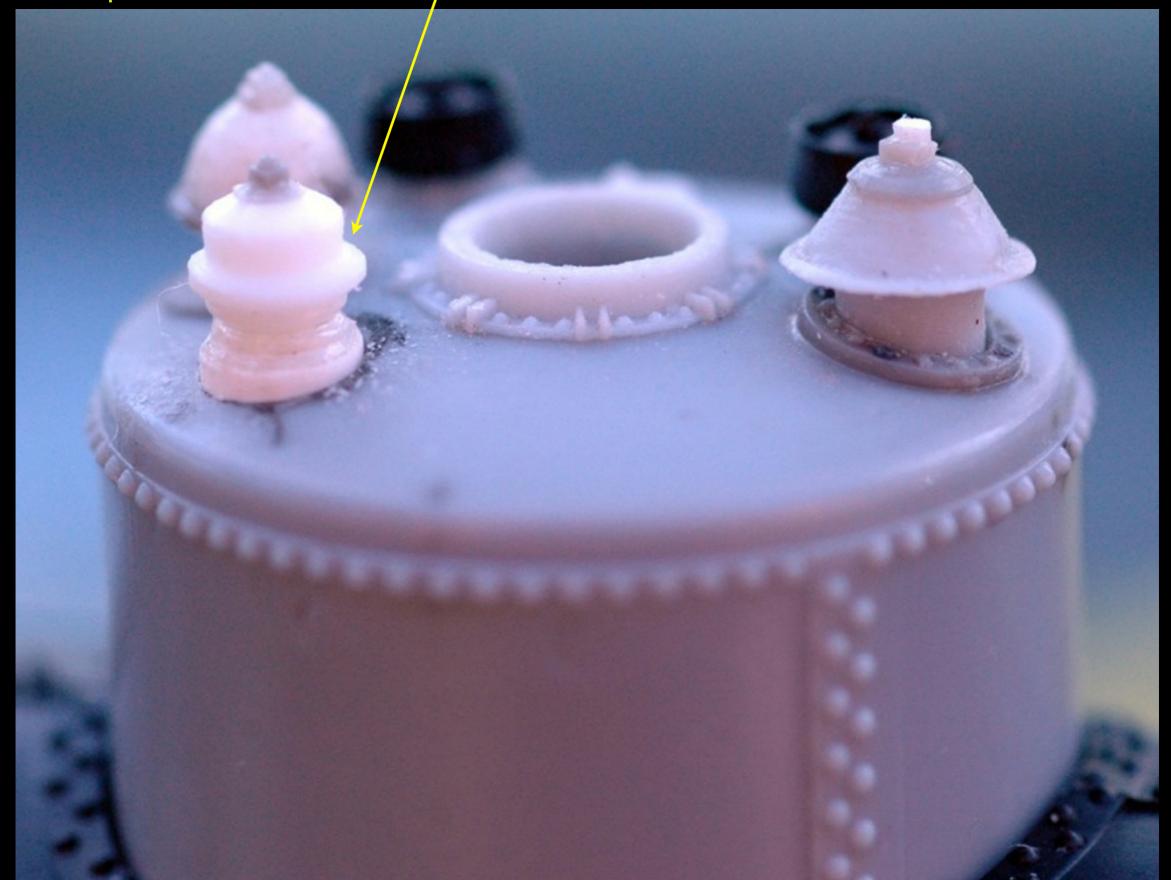
Another fitting required what appeared to be a cast base.



I used CA to add a filet around the base to give it the appearance of being one piece. Almost finished here or so I thought. . .

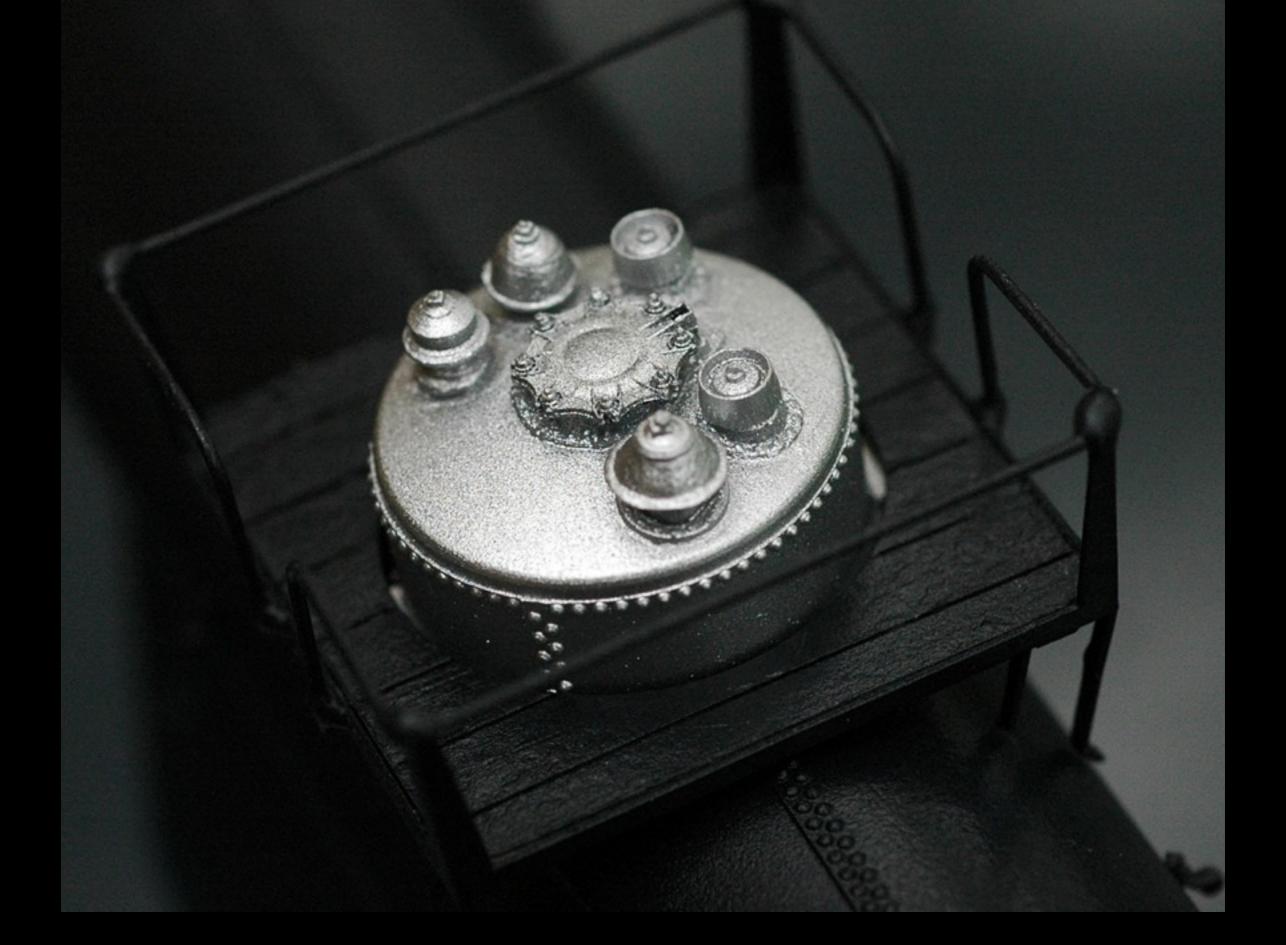


...when I finally found a good view of the last dome fitting shown here as the white part on the left.

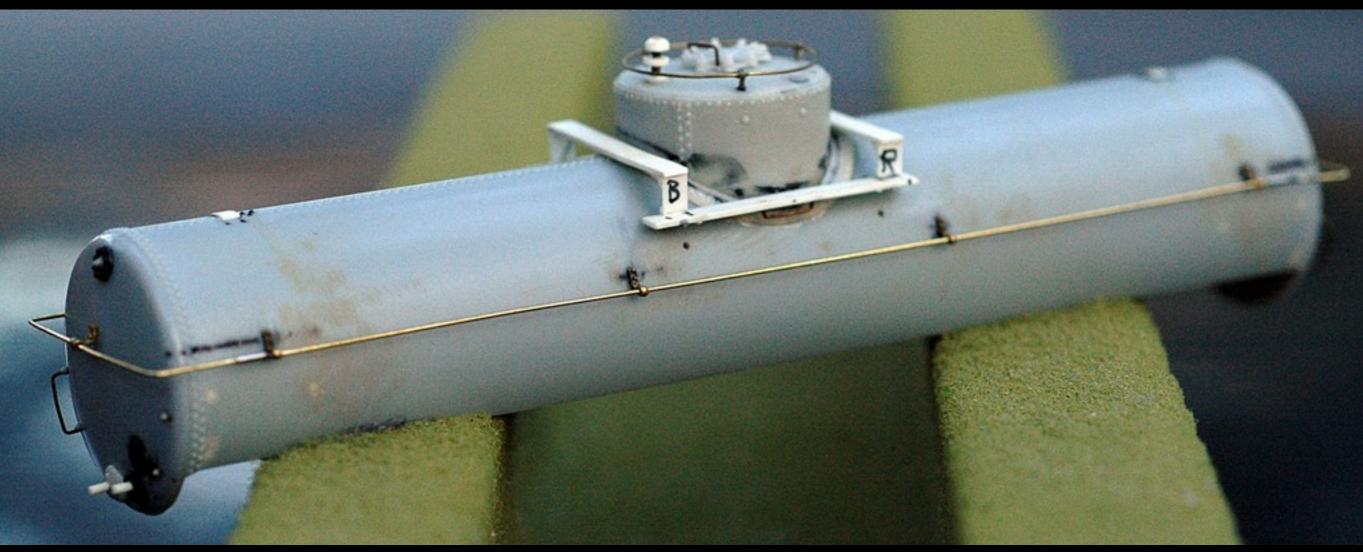


I "turned" this from a section of 1/16-styrene rod chucked into the collet of a *Dremel* using a small half-round file for its sharp edge as a milling tool. I was very surprised how easy turning this part was. I capped it off with a *Grandt Line* nut.



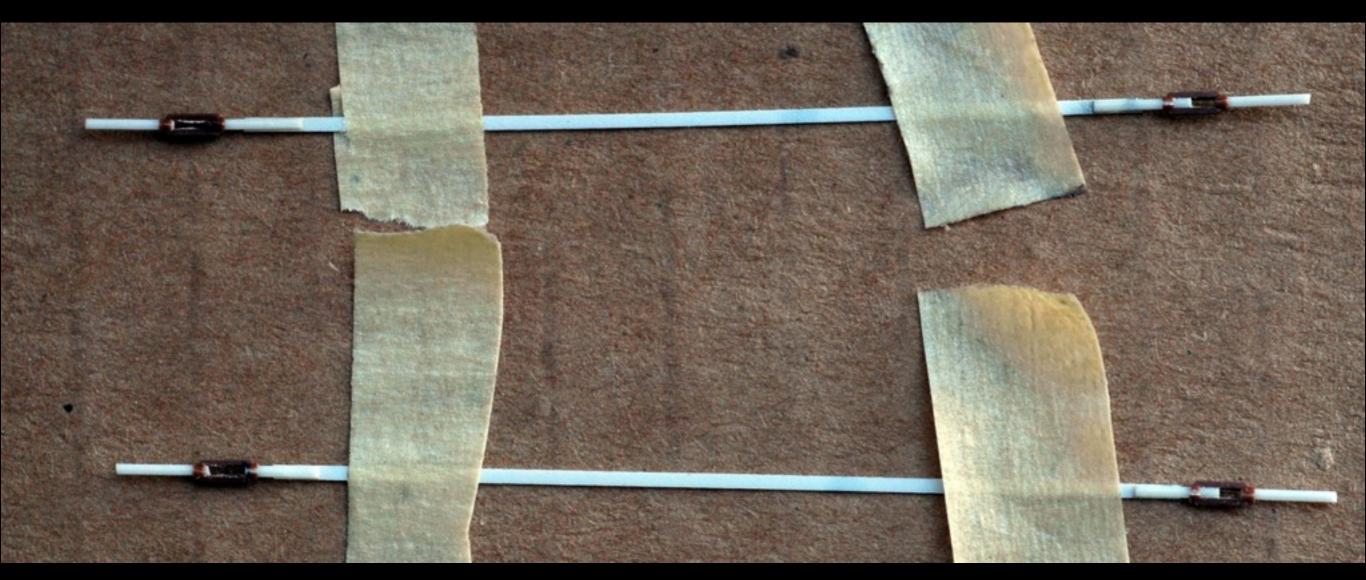


# Case Study: Converting a Tank Car



This *Sunshine* kit started out as a standard Type 30 General American tank car that I decided to convert for corn starch service with Union Starch.

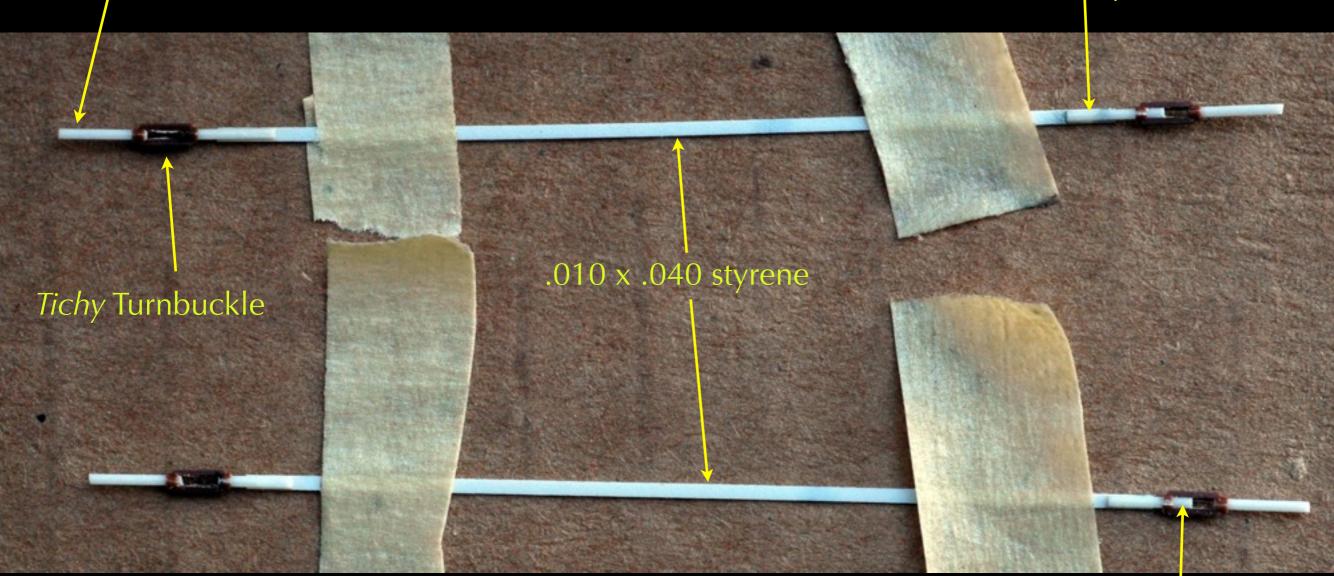
### Working with Subassemblies



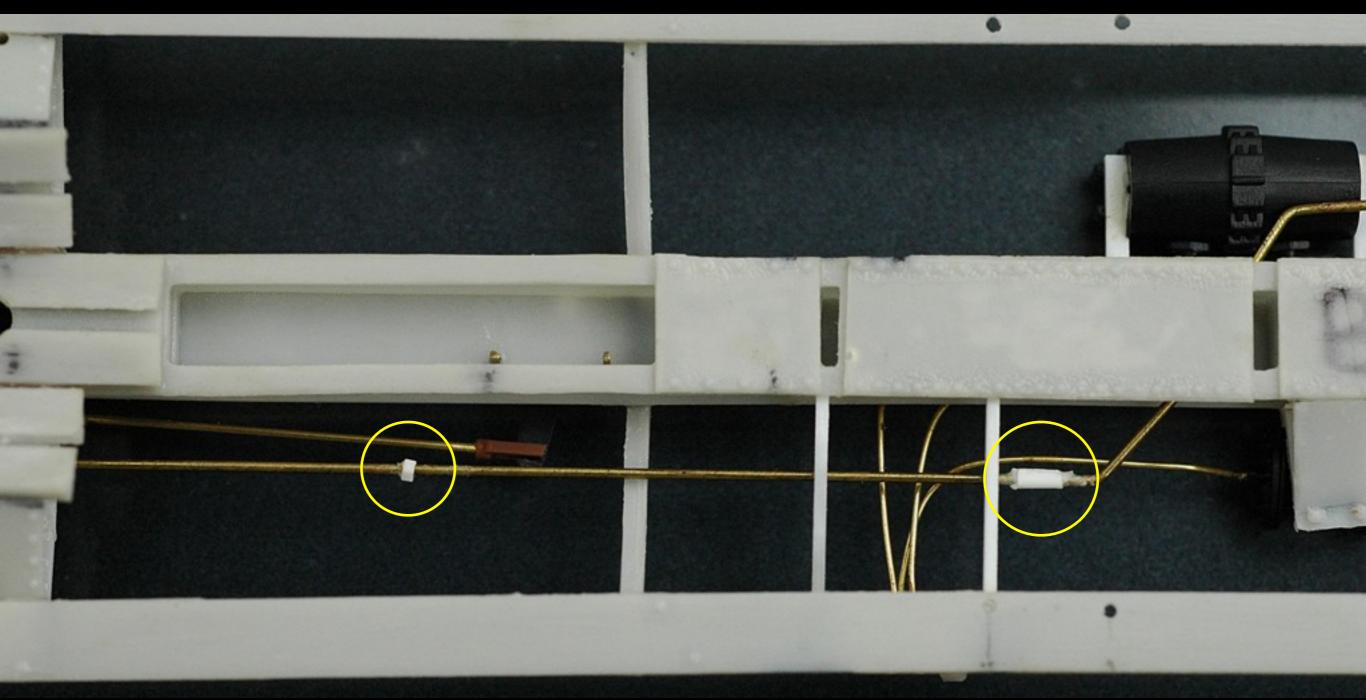
Structurally Tank Cars are complex: Therefore I tend to treat everything associated with building a tank car as a Sub-Assembly. Obviously these are the Tank Bands.

This end will be glued into a hole drilled into underframe

Evergreen rod—one end whittled flat and glued to the strip styrene

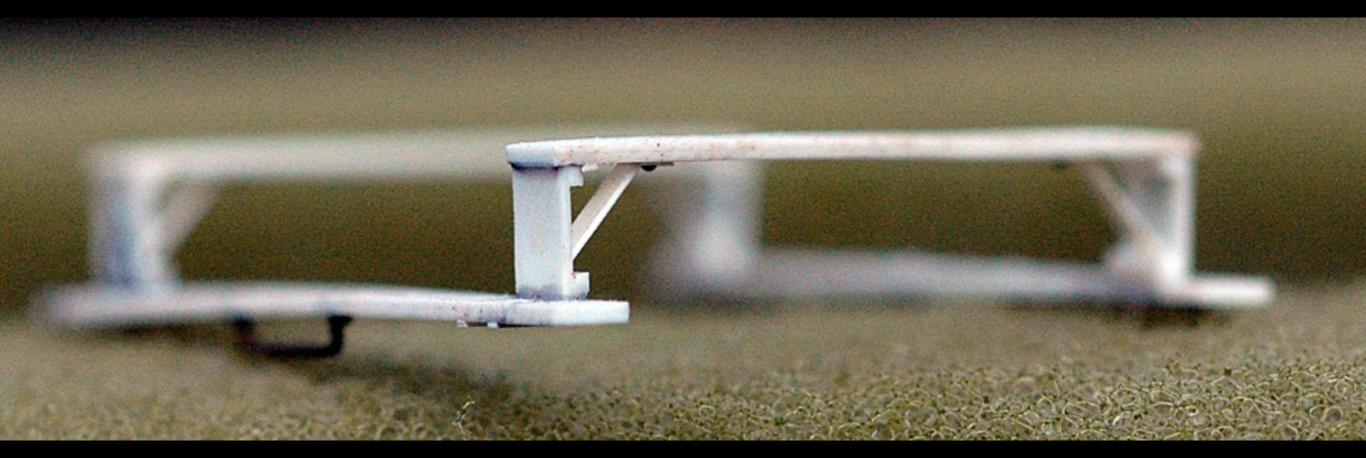


The modified rod remains a slip joint until final assembly when it will be trimmed and glued



Train Lines had pipe unions and other fittings that can be seen on a Tank Car.

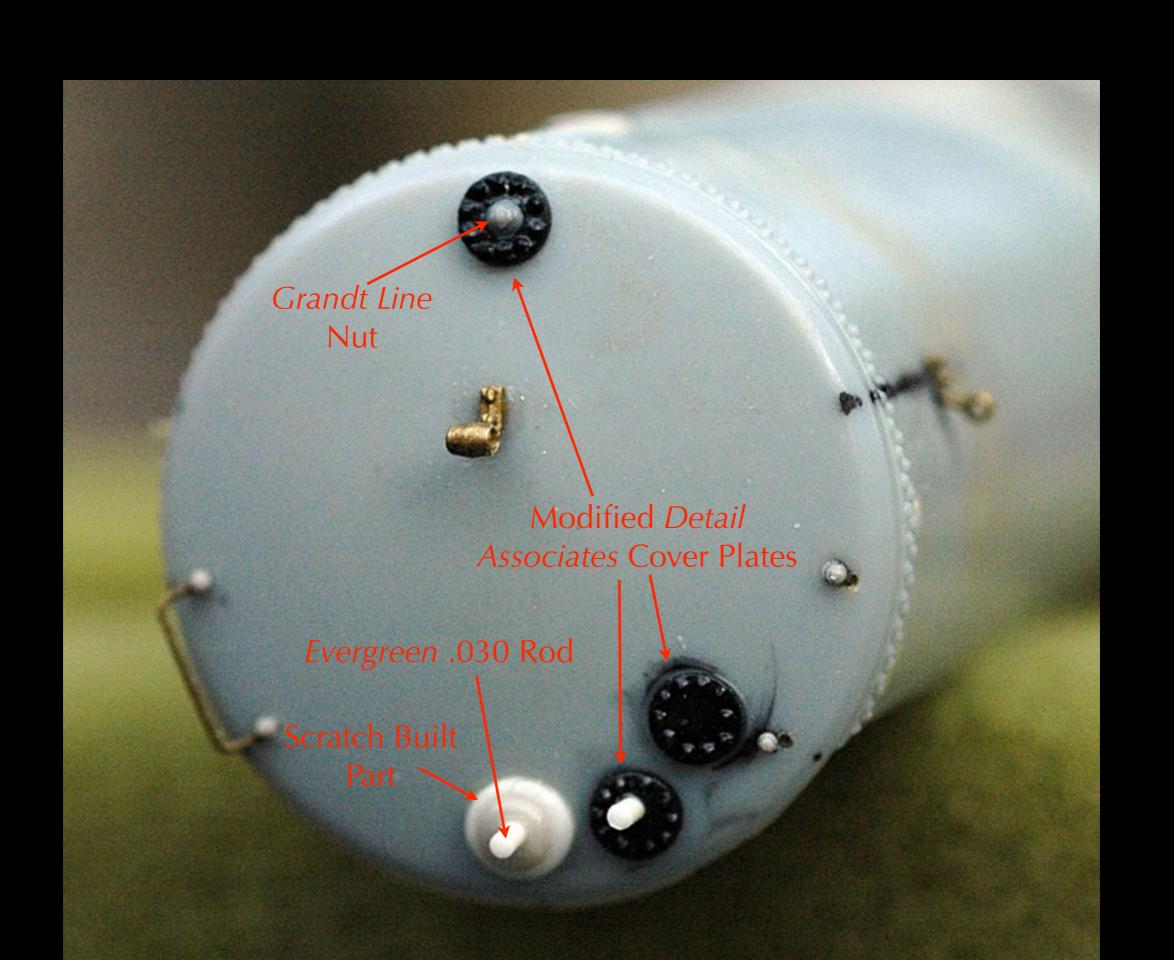
#### If there is a chance it will be seen...



. . .so I felt compelled to model the diagonal braces on the unique Dome Platform used on some Union Starch cars. The braces are made with .005 styrene.



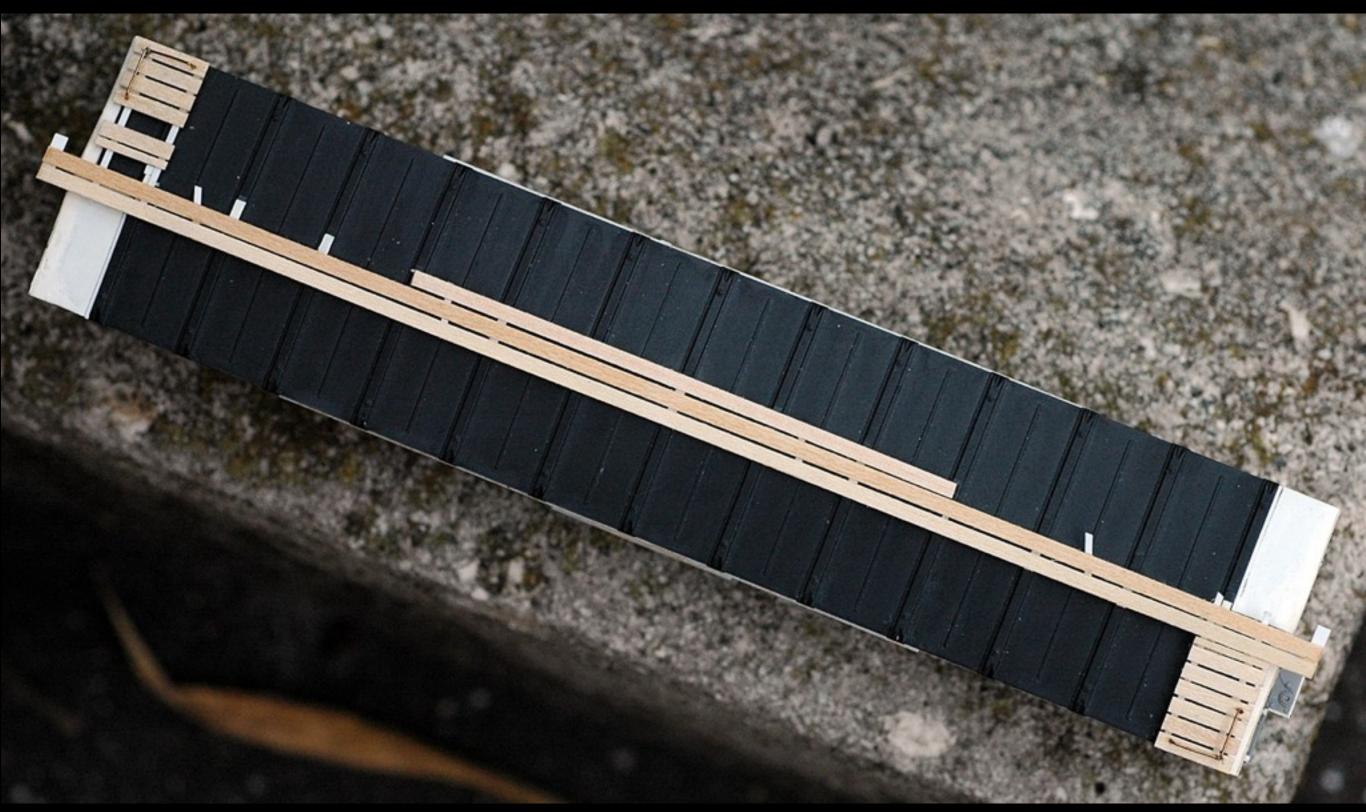
This Frangible
Disk is made
using 1/16-inch
styrene rod and
1/32 brass wire.





Inspired by RMC's Essential Freight Car Series

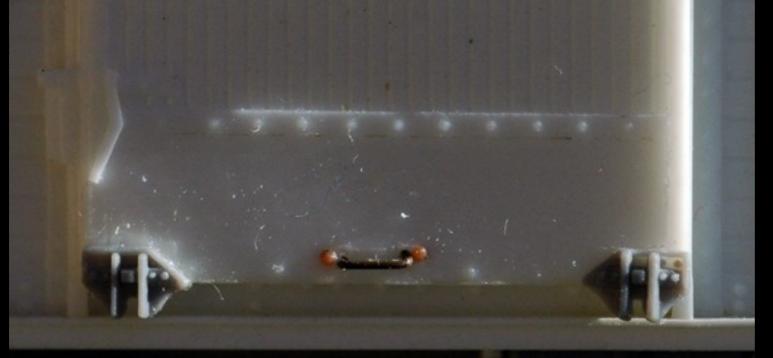




For about every third model I build a Wood Running Board System for it. The missing boards will be installed after the model is painted. The replacement boards may be fresh boards or weathered to some degree, as with the prototype.



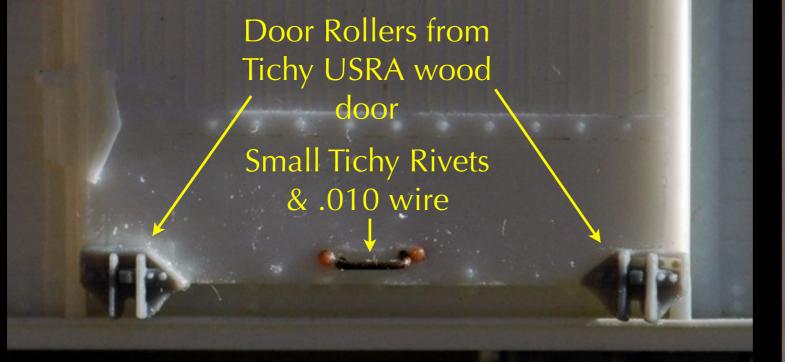
The sheet metal of the Hutchins roof was bent over the very end and riveted or bolted in place. I used a veneer of .010 and .005 styrene and *Athearn* rivets to recreate this look, carefully filing and sanding the edges of the roof to model the look of the bent metal. Note the *Yarmouth* photo-etched eyebolt at the corner of the roof grab.



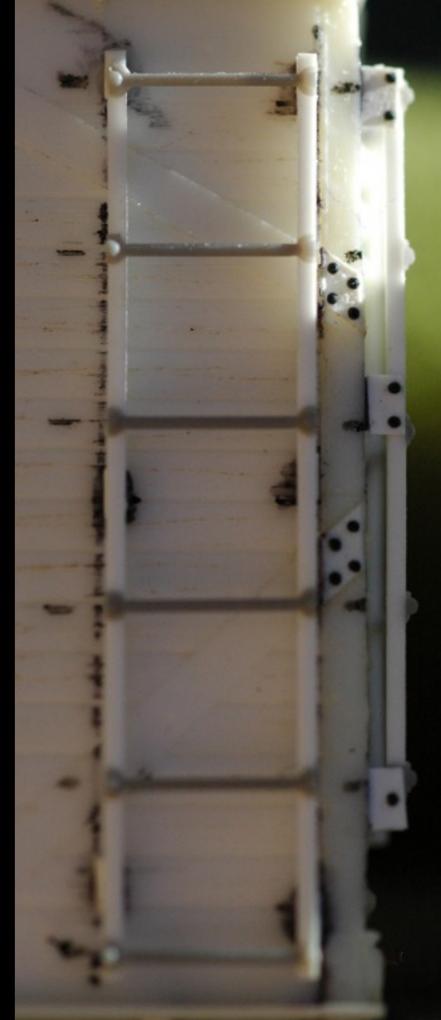


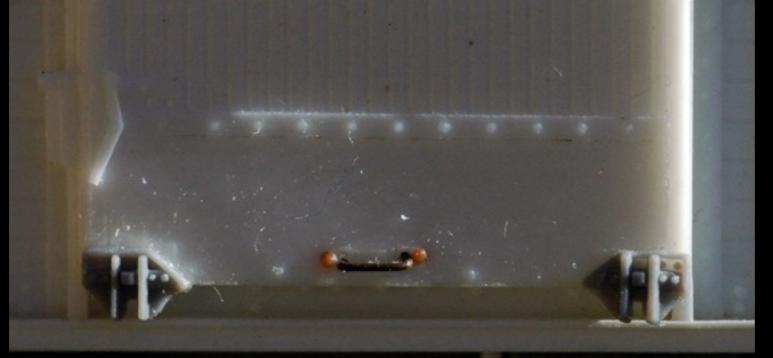
I found several opportunities to improve the sides of the car at each end and the doors.

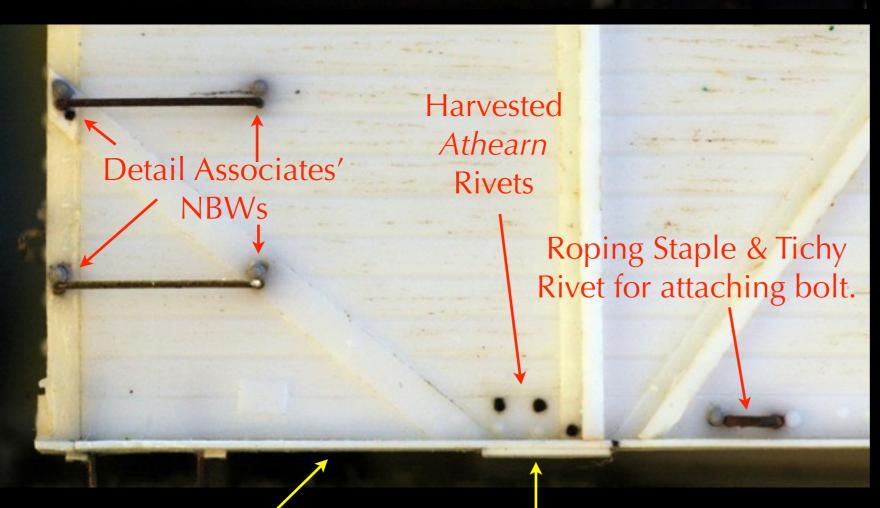








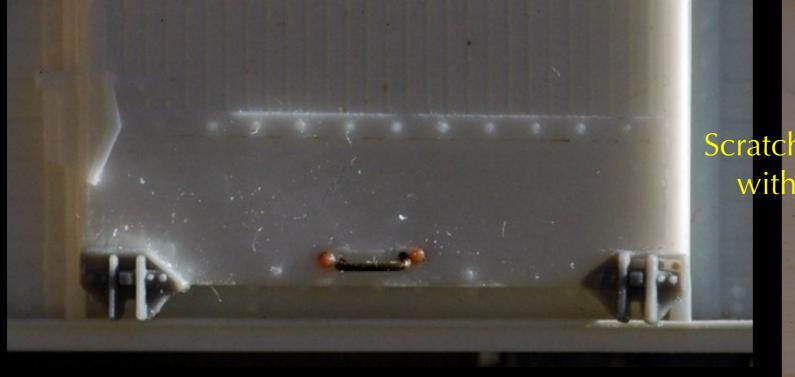




0.010 thick styrene strip to create flange.

Jacking Pad





Scratch Built Ladders' with Tichy rungs —



Diagonal Braces
Extended & Rivets
Added

End Ladder Mounting Brackets



Of course I improved the Sill Steps on this car.

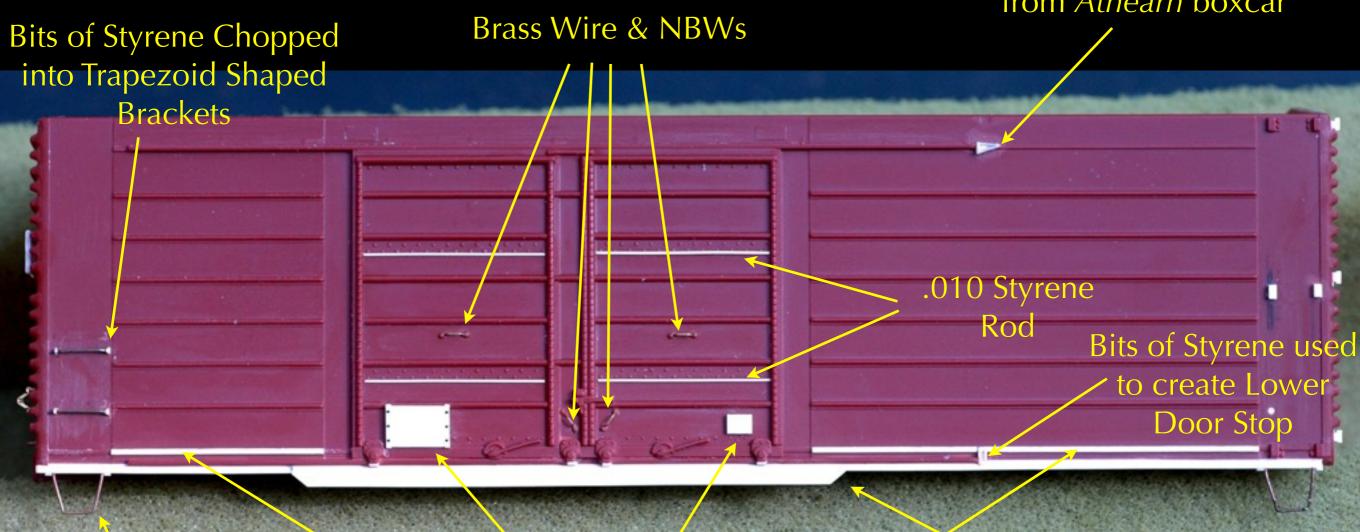
## Improving the *Rib Side Cars* DD 40-Ft. Welded Car



Out of the box the *Rib Side Cars'* 40-foot DD car does not model anything but with some work it will be very close to one group of Milwaukee Road cars as documented in *RP CYC Volume 13*.

## Improving the *Rib Side* Cars DD 40-Ft Welded Car

Door Stop Harvested from *Athearn* boxcar



A-Line Sill Step, corners sharpened & bent w/.010 x .030 styrene strip for mounting flange

Scratch Built Placard & Route Card Boards

.010 x .030 Styrene Strip

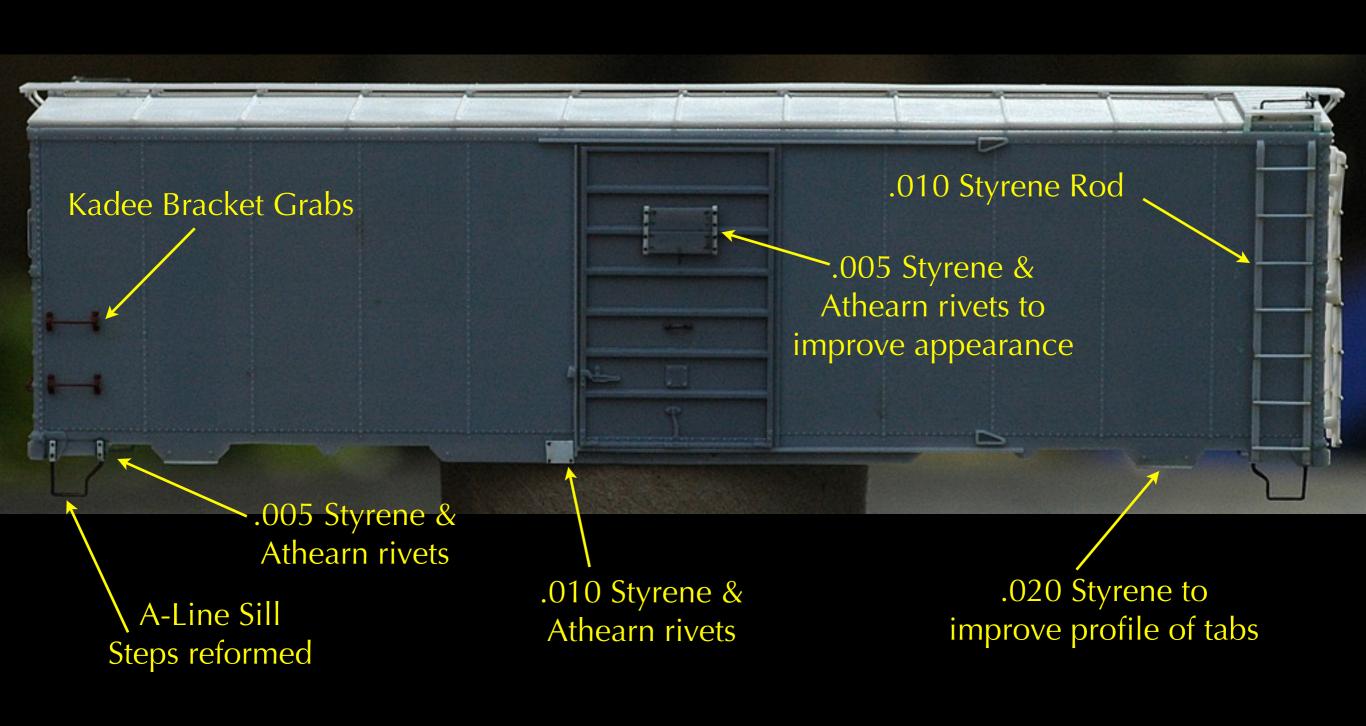
Various Dimensional Styrene Strip for Sill



Although there is some compromises along the bottom of the sill that I could not figure out how to solve, the overall result was very pleasing for me. The ladders were scratch built.

## Improving a Tennessee Central resin boxcar









You can read more about my Craziness in two articles in Volume 3 of *Prototype Railroad Modeling* from Speedwitch Media.

Thank you for your attention today!

## I hope you found a few ideas and take aways for you own modeling— Bill Welch