

Restoring Bent Wood Steering Wheels

by Arend Stolte

This month I find myself in a familiar situation where not enough members have stepped forward and given me articles to publish in the March *Running Board*. I have too much material for the short eight page version and not enough for the usual 12 pager. Your punishment is another article by yours truly about another of my own restoration efforts.

As you probably all know, I am in the process of restoring a 1929 Willys Overland Whippet sedan. This car has some family history that is probably one of the reasons I am tackling this project. I probably already told you but at risk of boring you, my dear readers, I'll tell you again.

One of my brothers-in-law (I am blessed by many of these) and his neighbor friend dragged this car out of the bush when they were teenager in the late sixties or early seventies. The two boys cut down the trees growing around it, lifted it on a wagon with a front end loader, and hauled it home, several miles away. It ended up belonging to the neighbor friend and over the years he worked on it off and on, and had it in his family's own small museum on his farmyard. Eventually it was relegated to a shed that collapsed on it one winter. This neighbor was tragically killed in a car accident and the Whippet again ended up in the bush. The farm was eventually sold to another brother-in-law (did I mention I have a lot of these?). I bought the car off him for a loonie and dragged it home last fall. Bringing it home on a trailer during the first snowfall of the season last year was kind of exciting.

Today's story is about the restoration of the steering wheel of this car. The original had suffered the ravages of many seasons exposed to the elements and was far beyond redemption. I probably could have found one in reasonable shape but loving a challenge, I decided to make a new rim from scratch.

Early steering wheels were usually made with a wooden rim fastened to a metal spider. These were sometimes made from six or eight sections finger-jointed together or they were made out of one or two steam-bent sections. This one was made with two laminated sections finger-jointed together. This presented a number of interesting woodworking challenges.



Bending the steamed wood around the form.

The first challenge was to make the two curved pieces. First I thought I would try to make them as bent laminations by which thin strips of wood are bent and glued around a form. This worked quite well except to me it did not look right since by looking closely you could see the layers. I also messed up the finger joints which I tried to cut by hand. I decide that this result didn't pass quality control.

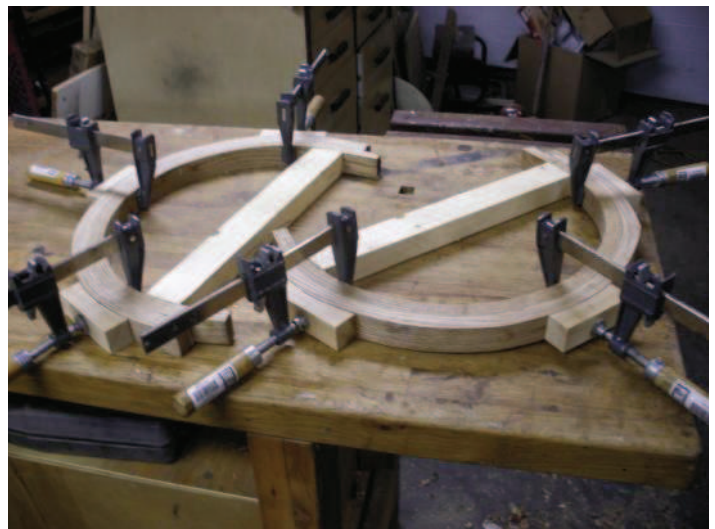
I then decided to try steam bending. I had previously steam bent the top bows on my 1926 Chevy so I had some experience. However I had used an old plumber's lead melter as my heat source which of course had to be used outside. I had no wish to try this outside in January and inside it would be too dangerous, what with the danger carbon monoxide, explosions and fire. I needed another steam source.

I purchased a garment steamer for under \$30, connected its hose to a length of galvanized heating duct and I had my steam box. I experimented with different kinds of wood. I had some apple wood which I thought would look neat. However this was a total failure since it did not bend at all - just went snap, snap, snap all the way. Next I tried black walnut. This worked a little better but again it cracked. I decided to go back to what I knew would work - red oak.

To make the rim I needed four pieces of oak each 5/8" x 1 1/4" by 60". I steamed each piece about 80 minutes and bent them



The original steering wheel.



Gluing on the glue blocks.



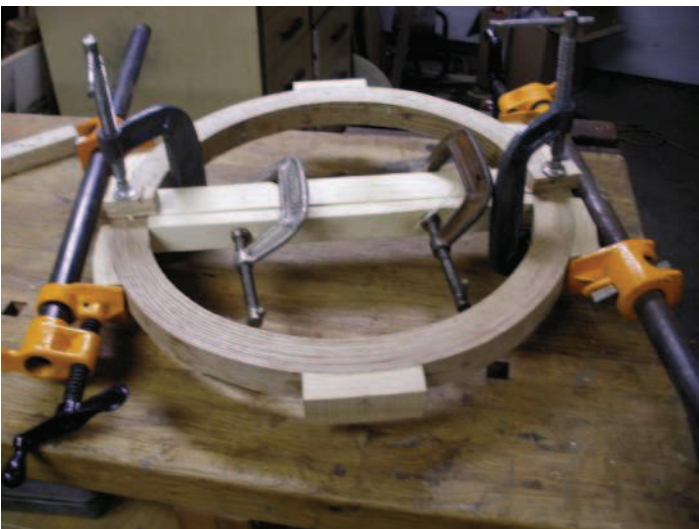
Cutting the finger-joints on the table saw

around my forms which I securely bolted to my work bench. I needed two forms, the outside piece needed to be a bit bigger than the inside. When they were done I laminated the inside and outside pieces together with urethane glue. You have to be really careful when you use this stuff since it's impossible to get off your hands.

When that was cured I cleaned them up and thickened them by running them through my thickness planer.

The next challenge was to finger-joint the two halves together to form the rim. The original finger-joints would have been cut on a big commercial shaper in the factory. I of course don't own such a machine. It is possible to buy finger-joint router bits but these are only half the size they need to be. That left me the choice of either doing it by hand or on the table saw.

I decided on the table saw which I had used successfully on my Chevy steering wheel. I needed a way to run the half rims through the saw safely and accurately. To that end I glue a piece of scrap wood between the ends of the half-rims. This also stabilized these pieces. Measuring the originals I determined that the fingers were cut at 4° so that is what I set my saw blade at. I used some scrap pieces of the same thickness to test each cut. A mistake at this point would mean starting all over or some dubious patching. I ran the pieces through alternately each way to make the fingers.



Clamping the two halves together.



Turning the rim on the lathe.

With the finger-joints cut, the two halves were glued together. Glue blocks were glued to the half-rims so that they could be clamped securely.

When the glue was dry, it was time to turn them on the outboard of my lathe to get the rim perfectly round. The glue blocks again served to attach them without drilling any screw holes in the rim. On the lathe, I turned the inside, the two faces, and partway through the outside. I need these so that the outside glue block would still be attached so I could fasten on the template for routing the finger holds.

The next challenge was to make the finger holds on the inside of the rim. To do this I made a template out of 1/4 masonite to cut one fourth of the finger holds with my router with a flush trim bit.

When the finger hold were cut it was a simple task to make the rim round with a router and a 1/2" round over bit. After some sanding I finished the rim with stain and urethane. I had hoped my fancy finger-joints would be more visible on the finished product when I was done. Still I was happy with the way it turned out.

The metal spider only needed some cleaning up with 0000 steel wool. I attached the rim to the spider with the original screws.

See <http://www.youtube.com/watch?v=8mgM9wBKyU8> for my You Tube video on this project.



The finished steering wheel.