Restoring Wooden Spoke Wheels

By Arend Stolte – Reprinted from the Running Board, Edmonton Antique Car Club Newsletter, Edmonton, Alberta, Canada by permission of the author/editor

As promised, here is my "how I did it" article on restoring the wooden wheels on my 1926 Chevrolet Touring. As I mentioned at the meeting, this car is a real basket case and needs pretty much everything done to it. I chose this car because I thought I needed a challenge to help convince myself to retire from teaching! I also enjoy woodworking (I am the current president and a charter member of the Northern Alberta Woodcrafters Guild) and I thought I could also use those skills on this project.

I love the look of the wooden artillery spoke wheels, especially when they are finished with a natural finish. My goals for refinishing these wheels were to produce wheels that were not only beautiful to look at, but were at least as strong and tight as the originals.

The wooden spokes on my car were really bad. The only good wheel was from a 1928 and the wrong size. I got a replacement from Reynolds.

I cut the angles on the table saw.

To make the spokes you start by sawing the ends to an arrow shape. All the experts told me to cut these at an angle so that they could be easily assembled. However, the originals were square and I decided to make mine the same, theorizing that the original factory must have pressed them in. I did a few practice runs with poplar spokes to make sure my method would work before cutting up my expensive hickory. It worked fine.

I talked to a number of people and checked the Internet on how to replace wooden spokes and bought a hickory plank with a nice mixture of heartwood and sapwood from W.G. Channin Hardwoods. I cut out 48 blanks and brought them into the house to season for a month or so.

I took the old wheels apart, wire brushed, sandblasted, and welded up the felloes (rims). I cleaned up the hubs in my wood lathe. Using an angle grinder on a turning hub will give you an almost perfectly smooth polished surface. I primed and painted all the steel parts.

Each spoke was turned on the lathe. I made a block with a slot on the headstock to save time. I took about 2 minutes to turn each.

I trial assembled 12 cut blanks at a time and made adjustments to eliminate cracks and to get a pleasing pattern match on the grain. I then turned each spoke in the lathe and sanded smooth with 280 grit paper. I did not turn the tendon at the end at this point.
The spokes assembled with a strap so they can be marked for length. The tendons will then be turned.

I assembled the set of spokes to form a circle with a band clamp. I cut a perfect circle out of Masonite to fit exactly inside the fellow. I placed that on top of the assembled spokes and marked the end of each spoke. I then cut the tendons on the lathe allowing about 1/16" extra length.

I tapered the ends of the tendons so they would start into the holes.

I constructed a hydraulic press out of scrap steel and a 6 ton jack. I carefully set up the spokes like a teepee and pressed them into the fellow using this press. They are in such tight that it takes a press to pop them back out. I used my carving tools to match where the spokes meet.

I used a router to cut the hole for the hub in the exact centre of the assembled wheel. I pressed in the hubs with my hydraulic press and it took all 6 tons of pressure to get them in, scraping the paint off in the process. I finished the spokes with five coats of gloss exterior oil based urethane which brings out the color and has UV protection in it.

I looked on the Internet for appropriate bolts to bolt the hubs together but was unable to find any.

The twelve spokes were set up like a teepee and pressed down for a very snug fit.

A ground down bolt and normal carriage bolt.

I therefore made my own by chucking ordinary carriage bolts in my trusty wood lathe and grinding the heads to the proper shape. I finished the wheels by repainting the hubs.

Not too bad for a first try - I think.

Myth? Many people told me that this task can only be done in the winter in Saskatchewan. Think about it. Our climate is very similar but the original wheels were made year-round in Ontario and the Midwest USA where the climate gets pretty humid.