

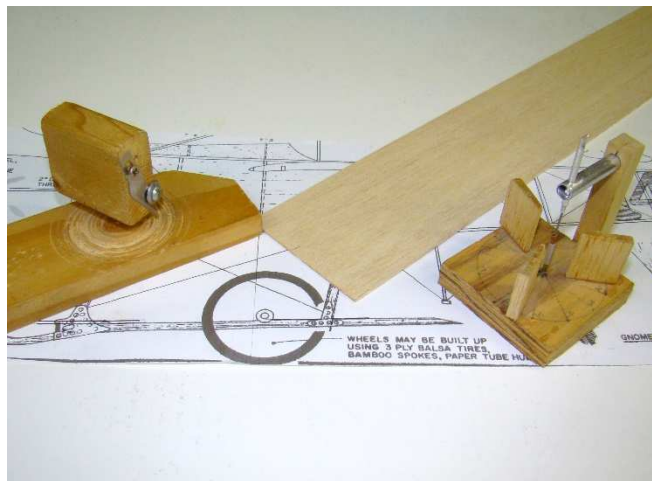
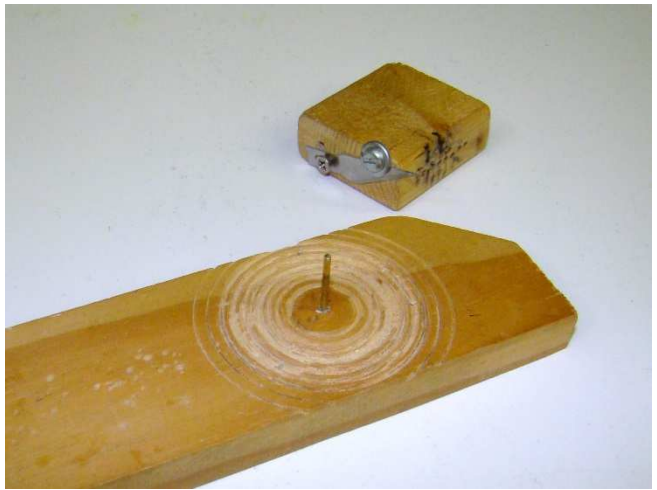


### Pseudo Wire Wheels

By Steve Sweeney

2019

Many have inquired on how I build my wire wheels so I figured it's time I put my method into a document to share with my fellow modelers. My way is a mixture of different approaches that I've seen (and stolen) over the years by other and more talented builders than I.

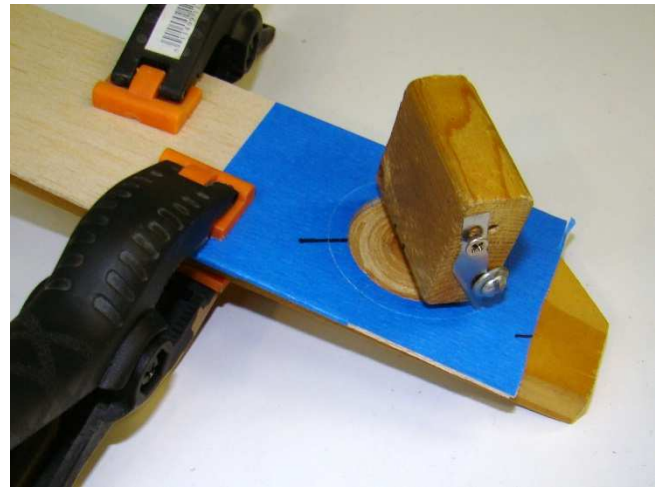


No fancy tools are needed. A jig to hold the balsa rim while lacing and a way to cut rings out of balsa. Both easily made from scrap wood.

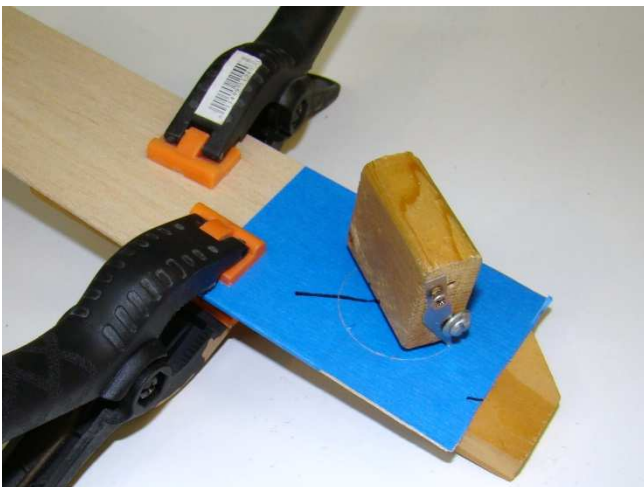
After wasting lots of time, money, and precious balsa trying commercial circle cutters that never fully fit my needs or worked well enough for me, I made my own out of sheer desperation. They work so well that I see no need to make nicer looking ones. My homemade circle cutter is nothing more than a hardwood block that rotates on a brass post. A #11 Xacto blade is screwed to the edge of a second block. Holes drilled in the bottom of the block ride on the pin and will give you different diameter rings. I do have a larger one that will cut rings as large as 4 inches.



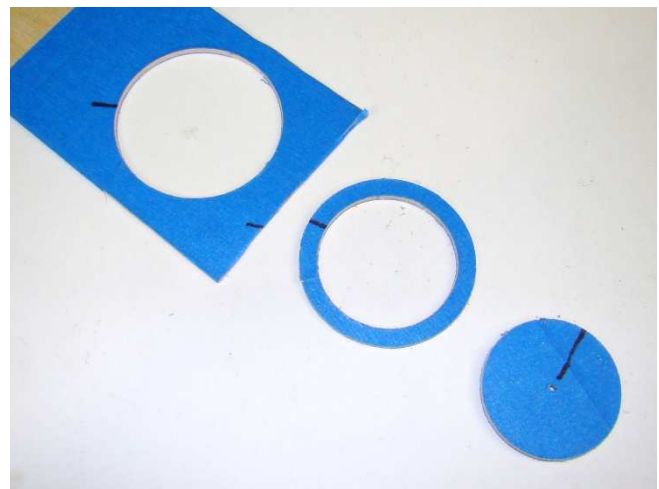
You will need a jig to hold the center rim while lacing. Once again just some scrap wood with some aileron stock to support the rim. Draw a clock face on the base numbering the segments from 1-12. Drill a hole in the center of the "clock" and install a wire to support the axle while lacing. I added a post with a removable support for the top of the wire, but it's not really needed.



Cut the inside diameter of the ring out first. Then cut the outside diameter. A line drawn across the cut makes it easy to know when the balsa is fully cut. Rotating the cutter slowly and without much pressure works best.

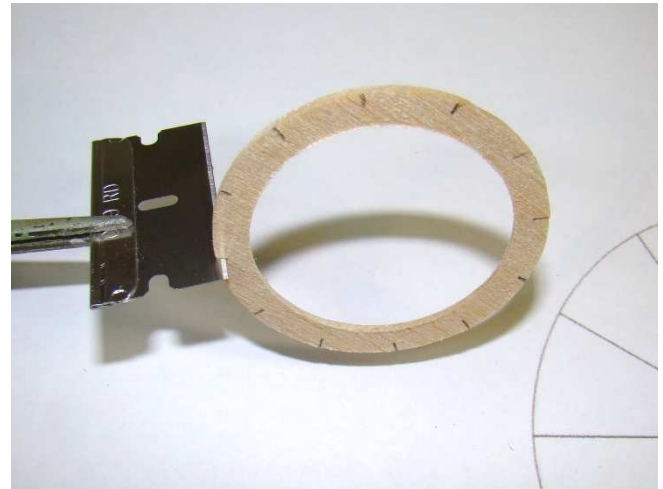


On to cutting the balsa rings. After determining what size wheel you want, drill a hole in the approximate center of the balsa sheet and slide it over the pin. Covering the balsa sheet with tape will help prevent splintered edges. The wood must be clamped securely to prevent movement! If the wood moves even a smidge, your wheels will be out of round.



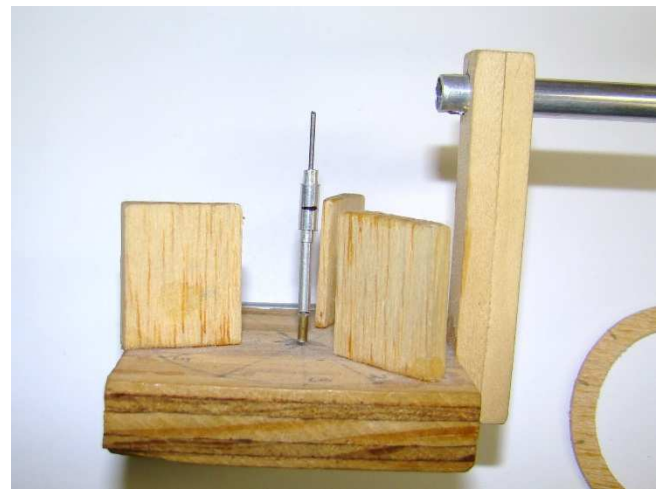
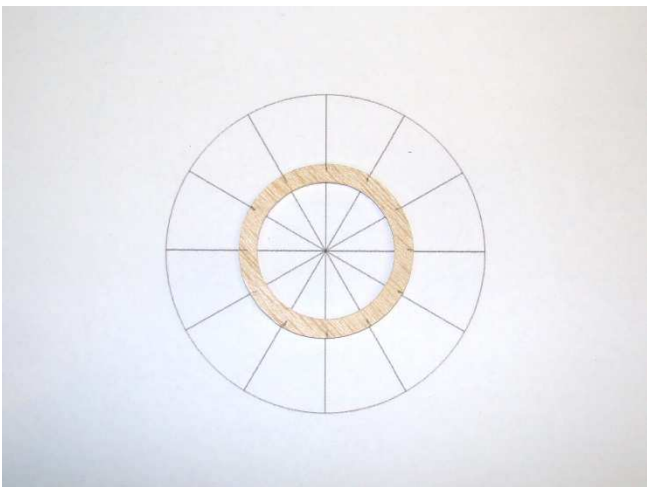
This cutter also works great for making perfectly round rings for cowls.

As I waste nothing, the unused inner discs will be saved for smaller wheels or noseblocks and the sheet edges into spars, trailing edges, and sticks.



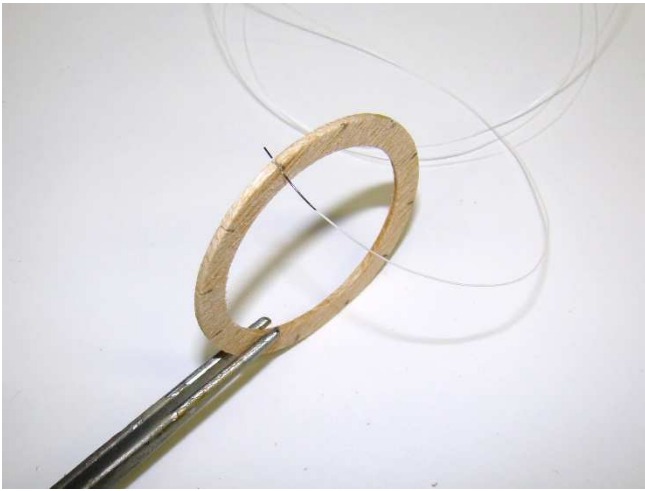
To make the hubs, cut a piece of aluminum tubing to fit the size axle your using. I usually make the length a bit wider than the width of the wheel I'm making. Then cut a piece the next size up, but a bit shorter as shown above. Slip the larger one over the smaller, center it, and let a drop of CA run in between to secure them together.

Cut a small notch at each mark to accept the "spokes"



Slip one of your axles over the center locating pin. Shim it up with some scrap tubing so that it is centered across the top of the three rim supports.

Lay the ring that you intend to use as your center and make 12 equal marks on its edge using a simple diagram as shown above.



I use 8 lb. monofilament for my spokes, but silk thread works great too. Slide one end into a notch of the rim and glue. Cut the short end off flush with the face of the rim.



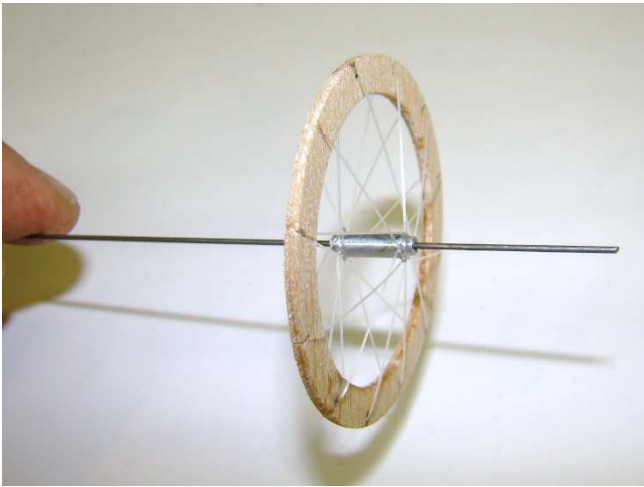
Now the fun starts. Lace the wheel using the following chart.



Center the rim over the supports and pin in place with the glued monofilament at the 12 o'clock position protruding out the top edge of the ring.

From	To	On
12	7	top
7	2	bot.
2	9	top
9	4	bot.
4	11	top
11	6	bot.
6	1	top
1	8	bot.
8	3	top
3	10	bot.
10	5	top
5	12	bot.

Each spoke should go **around** the axle and rest on the edge of the outer tubing as it travels to the next notch on the list. The line will also alternate from top to bottom ending back at the 12 o'clock position and glued in place. Remove the now laced rim from your jig and put a small amount of CA at each notch to secure the line. Don't glue the monofilament at the center hub just yet.



Slide your rim onto a piece of wire and spin it. You will find that you can true up the rim by gently twisting the outer part of the rim. When you are satisfied, a drop of CA on each side of the hub will secure the line and keep your setting. Don't worry if your spokes are a bit loose. That will be fixed soon.

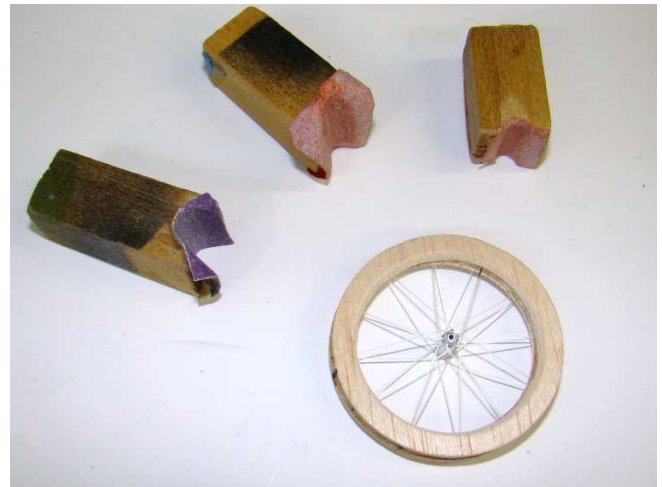


I find the easiest way to assemble the rim and outer halves is to compress them, and run a bead of CA on the outside of the assembly.

When unclamped, you will find that the spokes are now taut, and the assembly is very strong.



Before gluing the outer halves to the rim, round one inner edge of each outer half to give the tire a more rounded look.

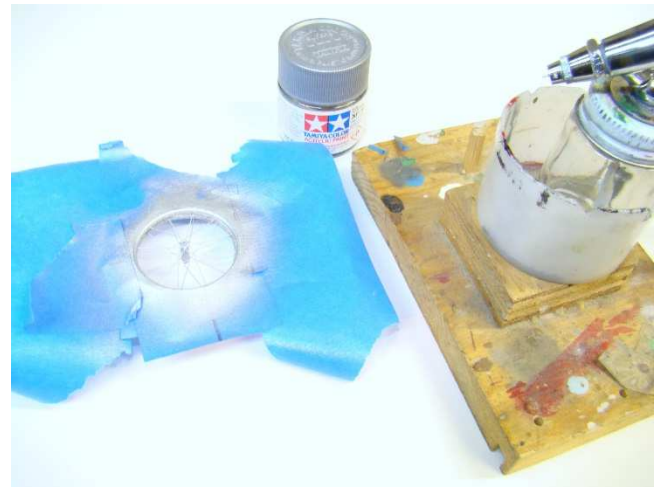


Finish the outer edge of the tire by sanding. A couple of homemade sanders makes quick work of it. A coat of lightweight spackle on the edge will hide any imperfections. Afterwards, I usually give them a coat of dope to seal the wood.



One gram! Not bad for a 1 7/8" wheel.

At this point, you may leave them bare or finish them to your liking.



After masking off the tires, dull aluminum paint was sprayed to paint the spokes and give the illusion of a metal rim.



For these I elected to go with silver colored spokes and black tires. I gave the tires a coat of scale black paint.



And here is the finished product.

Want more spokes? Simply add a second set of notches in your center ring in between the first set and follow the lacing chart again to make a 48 spoke rim.

Not hard to make, and once you do a set or two you will be surprised how fast they really are to make.

Good luck and I would love to see your efforts!