



SILK LINE MAKING

by Daniel Klepac

The bits and pieces of "how to" were gathered from the web, nothing copyrighted or proprietary. I think most folks avoid silk lines due to cost of commercial lines, upkeep, and lack of DIY.

I'm going to do my best to explain the process, if anything doesn't make sense or you have any questions...let me know!

Before fishing lines were braided, they were furled. Horse hair, some sort of grass and silk were the materials of the day.

The difference between the silk line I made and how most furled leaders are made is the number of legs. Most furled leaders have two legs (strands). My silk line has three, this results in a more round shape. It looks like a hemp rope.



The biggest hurdle I had to deal with was something to twist the silk thread with. The three legs have to be twisted the same amount at the same time. A Walton's Engine is what was used in the past. Since I'm cheap, I didn't want to buy one of the repo's or spend a lot of money to build one. Lucky for me, we had an older Zorex printer die at work. While I was watching our IT guy mess with it, I noticed gears! I adopted the dead printer so that it could live on in a new form.



(the small one with the black tubing) can be smaller, larger, or the same size as the output gears. After stripping the printer for gears, shafts, and bushings, the Mad Garage Genius took over and I had to figure out how to make them work together. I had our machinist cut down the shafts to the proper length and drill holes so I could solder hooks on the ends of the output shafts. This is when I discovered that everything I had was metric! I had to modify the retaining collars to fit the shafts. These collar are R/C aircraft wheel retainers. Had to bore them out to make them fit the shafts properly. There isn't any load on these collars, they simply hold the shafts in place. I used E-clips behind the gears, these press against the bronze bushings and carry all of the load during the furling process.





Now that I had the parts modified, assembly went together easy enough. You do not have to use gears. Pulleys with a small belt, anything that will ensure that the three output shafts turn at the same rate will work. I tend to over engineer when I build a project, this could be built much simpler. I used the bushings that were in the copier to support the shafts since I planned on using this setup to make furlled leaders, the bushings should extend the life of the setup. I would have preferred ball bearings but those can get pricey!

If you use gears, you must get the spacing correct for the drilled holes. If not, the gears will not mate correctly! It took two tries to get it right, but your mileage may vary! I used pressed board that I found at Home depot to build the housing. I chose it because it should not warp like wood and cause the gears to be out of alignment.

Here we see everything put together. I use a variable speed drill so I can control the speed of the furling. The black tube between the drill and the Walton's engine is fuel line. I use it as a universal joint, I do not have to worry about the alignment of the drill since the fuel line flexes.

You will also need a hook at the other end of your line. This hook needs to be able to move, yet hold tension on the line during the furling process. I made as simple a sled as possible. Two wheels from an R/C plane I never finished and some scrap wood from target stands is all I needed! The white cord you see was attached to a 4 lb lead ingot (yup, I make my own bullets too). The long tail acts like a

rudder and keeps the whole sled going straight.

I wish I had taken photos of the furling, but let's be honest...it would have been boring! The hardest info to find was how to make a particular weight of fly line. I found an article online from a gentleman in Europe who was furling his lines. He stated that the number of loops per leg determined line weight, i.e. 4 loops per leg equals a 4 wt. I figured what the heck, I'll try it! I made a 30" test line and the o.d. was within .002" of the normal diameter of 4 wt silk line!

So, since this test run was a success, I decided to make the line. On my first line, I used YLI 100 silk. It worked out ok, but when I started making the second line with the Kimono thread ([Available in 1090 yard Mini-Cones from GoldenWitch.com](http://www.GoldenWitch.com)), I noticed that the thread's diameter was more uniform and did not have any knots where the thread was joined when it was spooled. It took two tries, but with the Kimono thread, I was able to reduce the length of the line 15% which resulted in a tighter furl. The Kimono thread is "the bomb" for furlled silk lines! While most folks probably would not notice the uniform diameter, when you run 2400 feet through your fingers making a line...you notice! In any case, my 4 wt line used 2400 feet of line, at a cost of less than \$20.00!!! (Not including the cost of the thread that was lost due to breakage of foul ups—more on that later).

Ready to make your own line? Well, here we go!

You want to reduce the length of the legs by 10%. So to make a 90 ft line, you start with 100 ft loops. I used a 4 lb weight attached to the sled. The sled was on a small card table while the weight was hanging over the edge. Start your drill/motor, as the line is spun it will pull the sled forward. I had to move the table forward a few times! Once the total length is reduce 10%, you must move two of the legs on the Walton engine to one hook so that all three legs are on the safe output hook. Reverse the rotation of the drill/motor. As you do this, your line will lengthen and then start to



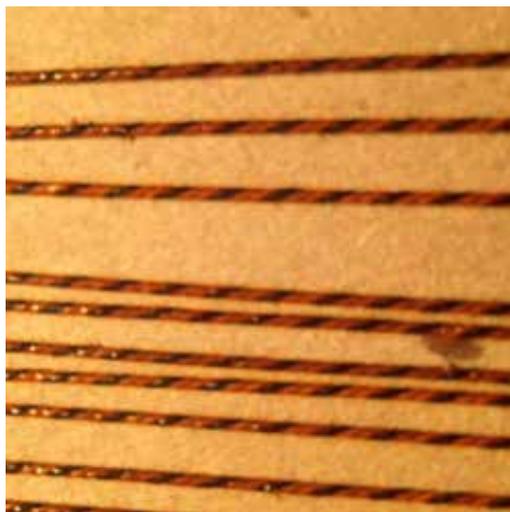
shrink. When your line is reduced to the 90 ft mark, stop. At this point, I connected a ball bearing swivel to the line and allowed the extra twist in the line to relax. You must be careful during the next step, otherwise, all your hard work will come undone. I carefully removed the legs from the hooks and tied a knot on each end to keep the furled line from untwisting. Congratulations, you now have a level line! I tied a Perfection Loop on one end. This is the end that will attach to my backing line. Once I'm finished with the line, I will whip a loop on the other end. Since I am not going to worry about flipping the line around, this set up is perfect for me.



Now that we have a line, we have to finish it. I used boiled linseed oil to add weight and stiffness to the line. The linseed oil adds about 40% to the weight of the line. Here is where you will learn from my mistakes. I coiled the line, put it into hot oil, and ended up with a knotted mess! The second line worked out MUCH better. I used a tapered pint glass and rolled the line onto it. Since the glass is tapered, you can slide the coiled line off. Take a few pieces of light wire and tie them around the coiled line. Heat up some linseed oil. I used a jar with a screw on lid placed into a pot of oil. Once the oil hits 170 deg, remove the jar. Drop the line into the oil and screw on the lid. As the oil cools, it creates a vacuum. If you did not tie the wire in at least four places around the coiled line, the line will twist in the oil and you will not undo the tangled line. Let the line sit in the oil overnight. I stretched the line out and wiped off the excess oil and allowed the line to dry overnight. It should be sticky in the morning.



I coil it and remove it from sunlight for 2 to 3 days. Do another hot oil application. After the second hot oil application, I did 4 more applications of linseed oil, wiping excess oil off each time. These applications were at room temperature, soaking the line for about 1 hour. Each application was done every two days. Boiled linseed oil cures slowly. Once the sixth coating was applied, allow the line to cure for 6 weeks or better. You do not want to coil the line tightly. I lucked out and found a spool at work that fiber optic comes on. Once the line is dry, I'll use 0000 steel wool to smooth the line. Several coats of Mucline will be worked into the line. Just like furled leaders, the line will have to be broken in to soften it and make it perform at its best. When I made my line, I used two legs of yellow thread and one leg of green. But when the oil was applied to the line the color changed. At first, I was disappointed. But, now I am happy with it as is very hard to see. Next time, I'll try reducing the length by 15% and see if I can get the twist a little tighter. I'll also experiment with mixing spar varnish with the boiled linseed oil. I don't know that this finish is any better, but you'll never know until you try!



I hope this made sense. This may seem like a long process, but the actual furling process only took about 45 minutes.