tools, gadgets, gizmos & work spaces of fighter kite makers

When I talk with a fighter kite maker about how they deal with solving a specific issue in the kite making process I'm always amazed at how ingenious they are. Their solutions are creative, direct and clever…..sometimes ingenious! Discovering such things is part of the beauty of sharing information. It helps all of us progress in our kite making skills and so this article.

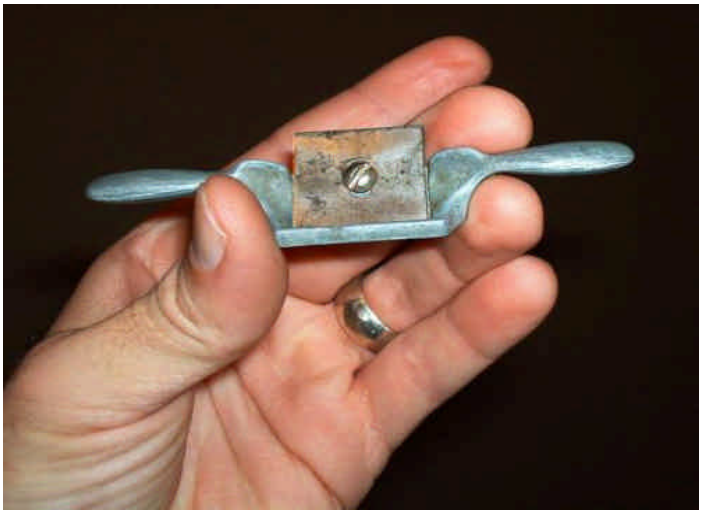
The information for this article is the result of email requests I made to all fighter kite makers who wanted to share with the rest of us what tools and gadgets they use for making and decorating kites. Each fighter kite maker has submitted either photos or a description or both about the tools they use and any special jigs, gadgets or gizmos they find especially useful. And if they made a gizmo or gadget, some have shared how they did it and why. **I thank each of them for sharing their information and for taking the time to email me the information so I could include it here.**

The email address of each contributor is included so you can contact them directly if you have further questions of them.

CUTIS BIAS otterbean@hotmail.com

Hey Bruce- Here is my building table. Nothing fancy here. I got a piece of Formica counter top from a work crew that was building a house. This was the cut out for a double sink. Makes a nice table. I can sit it on my lap and roam from room to room if I feel like it.- I have a vice attached to the top of the table. This allows me to shape spines and finish out kites on the spot.

Next up is a miniature spoke shave. This one belonged to my grandfather. I have no idea about where to get another one. This tool is kept super sharp. It is perfect for shaping spines efficiently and quickly. I split the



spine. Angle the spoke shave to the spine and carve two passes to bevel the edge of the spine while pulling the spine straight. Split-Zip-Zip-Zip Zip- Done

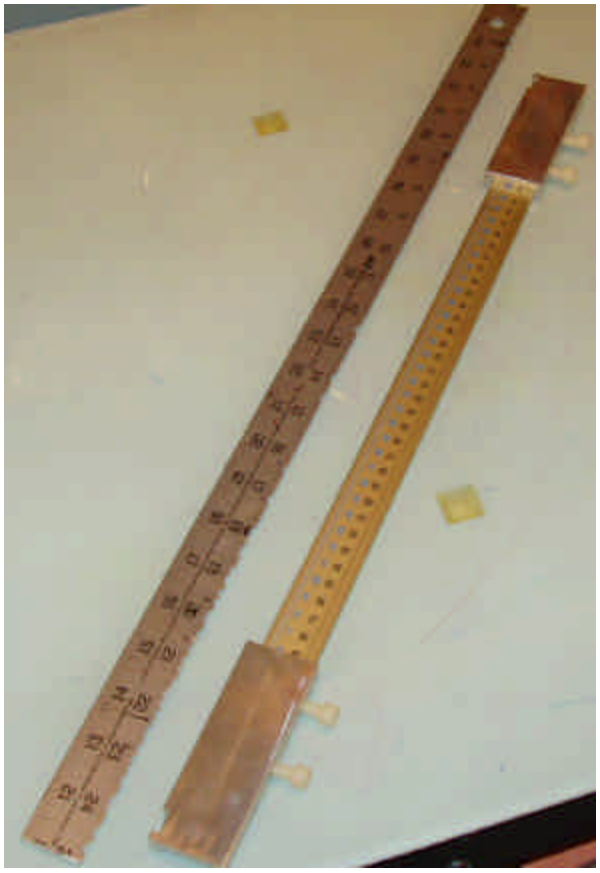
Last, I have a portable or lap board that I use for a cutting table for sails. It is made of Masonite. It has a handle for carrying, and two clips that can hold patterns when the board is not in use. When it gets a little rough, I sand the surface slightly to restore its smooth surface.

Just wait till I show the jigs used for wood reel building .- Curtis Bias

BRUCE LAMBERT kitefighter@nwinfo.net

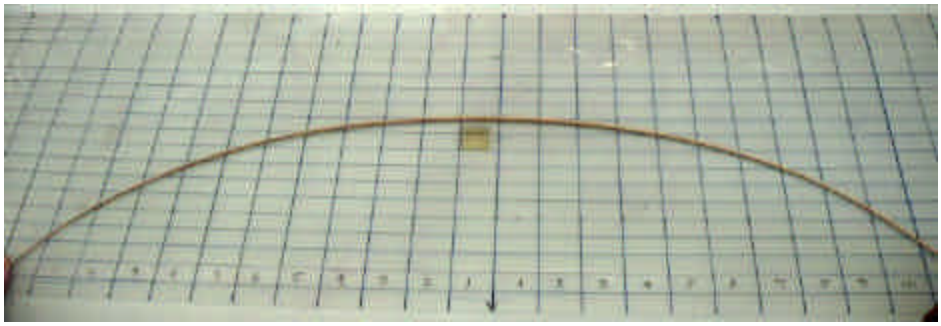
The tools listed here are ones I use all the time. However, I don't use every tool, gadget or gizmo on every kite. Of the hot cutters I have, this 23 watt soldering iron/wood burner style one is my favorite and the one I use most. It easily cuts any skin material I've used and it easily makes small holes in the skin where the bridle lines penetrate the skin. I use it also for melting the ends of synthetic bridle and tension lines to prevent fraying.

Created by Bruce Lambert 2/2005



These are two different styles of bow setters I use. The one on the right is one that Manny Alves developed and made; it's adjustable. The other is an aluminum yardstick with notches filed along one edge that correspond to the wingtip locations of various kite plans I make.

I use a grid when making bamboo bows to check the uniformity of the bend. I also use the grid when I make multi-piece carbon fiber bows to verify the uniformity of the bow's bend on either side of center.



To use the grid I lay my bow setter at the bottom and insert the bow ends into the bow setter so the bow is stationary. Then I check it's curve on the right vs the left of the bow's center line and make adjustments in the bow as needed to make its bend uniform. This requires removing the bow from the bow setter to make an adjustment and returning it to the bow setter to see what change has occurred, and repeat until the bow is the way you want it.

Bamboo working tools:
I enjoy working with bamboo. I feel bamboo is the very best material for making a fighter kite spine and that bamboo contributes to a kite's performance. In working with bamboo, depending on what I am making and the degree of perfection I'm interested in achieving, I split it, shape it with a knife, plane it, and use shapers on it.

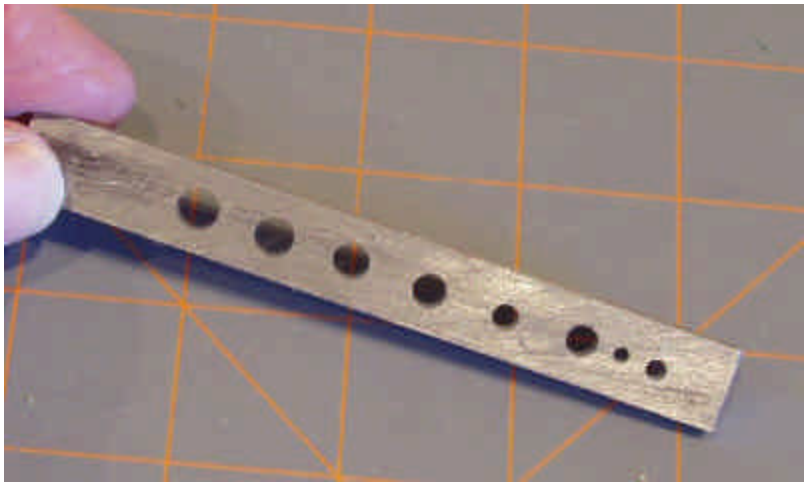
Most of the time, I shape bamboo using only a knife. The knives I prefer are the short bladed wood carving knife second on the left in the photo below and the utility knife on the left. However, depending on what I am trying to accomplish, I may use all the knives shown in the photo to make one bow or spine.

Created by Bruce Lambert 2/2005

The most important aspect of working with bamboo is that the knife or tool you use, whatever type it is, is extremely sharp! Dull tools make working with bamboo very difficult to impossible.

I occasionally use this little plane; it does a very nice job of making the bamboo smooth. However, I find that after shaping with a knife, the bamboo is usually smooth enough for me.

When planning bamboo, the blade in the plane must be extra super sharp!



This special tool or gadget was made by Terry McPherson. It is a really neat bamboo shaper.

You insert the bamboo into one of the holes that is just slightly smaller in diameter than the bamboo and force the bamboo through the hole, I usually pull it through. The tool shaves 3 sides of the bamboo at the same time and makes it uniform in cross section. If you want the bamboo smaller yet, force it though the next smaller hole, etc until it is the size you want.

This is also a bamboo shaper I use sometimes, but much less sophisticated than the one Terry made. I made this before I got the one from Terry.

It is made from part of an old hacksaw blade. I filed different shaped and sized groves in it. When using it, I hold it in a vice.

After shaving the bamboo with a knife to get the cross sectional size of the bamboo close to the size I want, I press bamboo into one of the grooves. I press down on the skin side of the bamboo, forcing the other tree sides into the groove. While pressing down and forcing the bamboo into the groove, I pull the bamboo through the grove. As a result the bamboo has the same cross sectional shape as the groove with the skin on the top untouched. To protect myself from splinters, I use a small piece of leather laid on the skin side of the bamboo.

This is a wire cutter/stripper I bought for about $9 at Home Depot. I removed the stop and filed off the teeth on the ends of the pliers so it would cut a 0.02" diameter rod in the 'V' cutter portion.

The 'V' cutter is the part I use for cutting carbon fiber rods. It makes a reasonably clean cut without smashing the end of the rod much. I still have to sand the ends, but it is the best tool I've found for cutting carbon fiber rods. The straight cutting area, toward the hinge point, I use for cutting flat carbon.

This is a less expensive wire cutter/stripper and works very well for cutting carbon fiber rods also. To make work for cutting carbon I removed the 'stop' so the 'V' cutting blade would cut small diameter rods.

These are two different glues I use for making my kites. Both work well; the Weldwood glue has a stronger bond. Both stink and need to be used in a well ventilated area

Created by Bruce Lambert 2/2005

To apply glue, I use a syringe with the needle removed. To spread the glue, after I squirt a small bead of it from the syringe, I use a piece of foam cut from a slice of pipe insulation.

The template on the left is a typical template I make from kitchen counter top laminate. As you can see I doodle a lot on the templates as I think of ideas I want to test.

Below are some additional templates I have made for various parts of a kite. I use laminate and sometimes stiff cardboard or mat board.

A plastic artists' palette knife I use for manipulating glued portions of the skin and to burnish glued and taped areas. In addition it is a great help in placing small pieces of tape.

Toothpicks: I don't have a photo of toothpicks, but I use them often. They are great for placing small pieces of tape, especially in difficult locations to access. I stick an edge of the piece of tape to the end of a toothpick and use the toothpick as a handle for manipulating and placing the tape. I also use toothpicks for applying and controlling the size of small drops of CA glue (superglue).

My kite making area includes a work bench that is about 48"x24". I bought it at Home Depot; it's one you assemble.

I put a piece of tempered glass on top of it that is 36"x24". I got the glass from a fireplace shop, it was an unpopular size of fireplace door and was only about $10. I've been using it for more than 5 years.

Created by Bruce Lambert 2/2005

CARL ANDERSON gumbyoh@yahoo.com

Here is some of the stuff that I use in building fighter kites.

The magnets are used to hold the pattern down while cutting the sail and holding the sail while putting on the spine.

The knife is a shoe knife cut down to about an inch and a half and the handle make it easy to maneuver.

The photo corners are used to hold the bow on extended tabs and the bees wax I melted out of bees combs.

The cutting board (which I have two sizes of) is the kind you get at Jo-Anne Fabric. I have a piece of sheet metal between for the magnets.

I use package tape and strapping tape in making my kites.

The tubing is from my stints in the hospital. I use these for small stops on the bow. The contact cement is Elmers.

This second picture is some of my mylar supply, spines and cabon rod.
Hope this will help someone.

TERRY MC PHERSON tmckite@triton.net

Hi Bruce, Great idea to share our building tools and gadgets!

Being a retired tool & die maker. I use a lot of little jigs & fixtures, too bad I don't have pictures of them to send to you, and I did not bring any to Florida with me. I only brought kites that I need to tune.

Gigs that I use:
A spine and batten gage:
(a narrow strip of wood with a stop on one end with the lengths of the spine & battens marked on it, just line up and cut)

A bow length gage:
(a piece of carbon tube with a stop in it. The tube length lets me cut the bows the same each time)

A Bamboo sizer:
(Like the one I sent you.)(don't do a lot with bamboo anymore)

A drill gig:
(this is a 1/4 thick block of aluminum 1-1/4 square with a slot milled into it to allow it to fit over the flat carbon spine, and a #60 dill guide hole in the center of the slot)

A spine hole location gage:
(a piece of light aluminum which is made to fit up against the drill jig, and locate the holes for the LB point & the 2 tension line holes)
A hole gage for the UB point holes:
(a piece of light aluminum with a 1/4 diameter hole punched in it)

Sail patterns:
(I use salvaged light weight aluminum sheets from the news paper printing business approx 24 x 48, line up 2 pieces on top of one another, make 1/2 pattern, open up and tape them on the center line)(also make patterns for other requirements, inserts, centers, trailing edges, etc.)

Handy tools:
Fly tying tool, with a bodkin on one end and long threader wire loop on the other, approx $2.00
1/8 wide dbl face craft tape 15' $1.98 can't remember mfg.

A pr. of wire strippers with "V" notch cutters, with stop removed, used to cut bows & battens. (cuts to center of rod)

Small drills from McMaster/Carr Supply.

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