Fretwork Program Detailed Instructions

Fretwork is an art form whereby the artist produces a piece by cutting numerous holes (or frets) in a medium in order to produce a picture or design. In woodworking, that medium is normally wood, but other types of media can be used as well.

Equipment

The best tool for fretwork is a good-quality scroll saw, one that produces little vibration, and has more vertical motion of the saw blade. This is especially important for delicate pieces, as excessive vibration or blade friction on the wood can cause fragile pieces to break. Since fretwork involves threading a blade through a small hole to cut the frets, a saw that makes this process easier would be ideal. Excaliber and RBI are excellent choices, and I have had good luck with the DeWalt 780 I've owned for about 15 years, in spite of its limitations.

Supplies

Good quality blades are essential to good fretwork results. I have used Olsen blades in the past, which are probably marginal at best. I really like the Flying Dutchman blades, in particular the #1 Ultra Reverse. The blade is quite thin (one of the thinnest in their line), but I have no problems using it to cut material up to 1" thick. The reverse teeth on the bottom of the blade help to minimize "fuzzies" that you'll get on the bottom of the piece as you're cutting.

For safety, of course safety glasses are a must, and some kind of dust mask for respiratory protection.

Other things you'll need (aside of the wood of choice and backer material)

- A photocopier, or access to one (for producing patterns)
- Spray adhesive
- Paste wax
- Mineral spirits
- Sandpaper
- Jointer and planer (if you'll be preparing your own stock from rough cut)
- Random orbit sander or drum sander (also for stock prep)
- Drill press or hand drill
- Small drill bits
- Finishes

Wood to use

For fretwork in wood, the best results can be obtained by using close-grained hardwood, such as maple or German beech. Softwoods, or hardwoods with open grain (like red oak or ash), will be very fragile when your design calls for a very thin sliver, and the grain runs perpendicular to that piece. Note, it can be done, but extra precautions must be observed with dealing with those parts of your project. I would also not advise using MDF, also due to fragility of thin pieces. Good quality hardwood plywood can also

be used, if you are OK with the look. Cheaper plywood can have voids that will appear unexpectedly, and can disintegrate at most inopportune times.

Wood preparation

Use a jointer to get your wood blank flat, then use a thickness planer to get it down to the thickness you want. You can also resaw the wood using a band saw or table saw, then get down to your final thickness with the planer. Note that planers can produce shallow "scallops" in the surface of your wood that are barely perceptible to vision, but will appear quite readily when you apply finish. If your planeing equipment does this, be sure to use a random orbit sander with a progression of grits to smooth these out before you start using the wood. Or, if you have a drum sander, use that as your last step to get to your desired thickness.

The thickness of stock is a personal choice. Consider the project as a whole – do the frets produce a very delicate piece, something with very little detail, or something in between? Would a very delicate-looking piece look right in ¾" thick material? Probably not. In my opinion, very delicate pieces call for material between 1/8" and ¼", moderate pieces say 3/8" to ½", and heavy pieces 5/8" and up.

Patterns

Patterns can be found in many places on the Internet, as well as magazine publications. Pattern quality varies – some produce very good detail and narrow pattern lines to follow, others are less crisp and have thicker lines. I certainly prefer crisper lines, as I feel more assured that I'll get the desired outcome. Thicker lines are hard to follow cleanly – you could choose to cut to the outside of the line, or the inside of the line, but you have to be consistent in your choice.

Adhering Patterns

Be sure to make photocopies of your pattern, so that you can preserve the original for future projects. Use a very healthy spray of spray adhesive on your pattern, let it dry for a few seconds to get tacky, then place it on the wood. Don't skimp on the amount of adhesive you use. There is nothing worse than getting part of the way through your project, then the pattern starts coming loose in the middle of your cutting, and starts flapping up in down in rhythm with your saw blade. The pattern probably won't peel off very readily after you finish, but that's OK – I'll show you how to remove it later.

Drill holes for the frets

Using a drill press or hand drill, drill holes inside the frets that will allow you to thread the blade into the wood. Use the smallest bit necessary to allow the blade to be threaded, while staying within the confines of the fret. Use a backer board to minimize tear out. I recommend a drill press for this operation, as this will ensure the hole is perpendicular to the work. This is especially important if you are stack cutting (explained later).

Look for weak points

Depending on your project, there may be a number of potential weak points that you need to be conscious of as you are cutting. Look for places where the wood that will be remaining is very narrow, and highlight those with a highlighter or circle with a pen. Points that are weak need to be separated from the main body of the piece very carefully, as excess stress due to blade friction could cause the piece to break off. If it does snap, don't "fret" (ha ha) – if you have a clean break, it can usually be reattached with CA glue.

Prepping your saw table

I like to prep my table with an application of paste wax. Once it dries and you buff it off, it leaves behind a nice slick surface that allows the wood to glide easily.

Blade/cutting speed

Setting your blade speed is a very difficult topic to discuss, as every situation is different, and every piece of wood is different. You want to set your blade speed so that cutting is efficient, but not so fast that you burn the wood, as burn marks are almost impossible to get out of a delicate project. If you're not sure what will be best for your project, make an extra copy of your pattern, adhere it to a piece of wood similar to what you'll use for your final, and make some practice cuts.

Cutting sequence

I find it a good idea to cut the smallest frets first, then work up to the bigger ones. This helps maintain the integrity of the wood for as long as possible, and minimizes flexing while you're working in the most delicate areas. If you have some really large cutouts, save the pieces, put them back into the project and tape them in place temporarily with packaging tape. This can help by minimizing flex in the project as you cut other parts. Complete all the internal frets before continuing the project.

Backers

Most fretwork projects that will hang on a wall will have some kind of backer, in order to help accentuate the frets that you so painstakingly cut. Some projects call for a backer that is exactly the same size and shape as the fretwork, so that you can't see it when you're looking at the piece head on. For other projects, you might want to have the backer dictate the complete dimension of the hanging, and the fretwork is the highlight.

If the backer is intended to "disappear" behind the fretwork, temporarily attach the project to the backer material. I like to use small pieces of double-stick tape for this. Use small pieces, as larger pieces may be too aggressive, and you'll have a hard time getting them apart without damaging your hard work. Then, cut the outside line, and the project and backer will be exactly the same size.

If the backer will determine the size of the piece, then the backer and project should be cut out separately.

Many different kinds of materials can be used as backers, such as old cabinet doors, or reclaimed wood from old houses.

Finishing

Be sure to clean up any “fuzzies” left behind by your cutting. The majority of these will be on the back side of the project, but some may be visible from the front once the project is mounted, so it’s a good idea to carefully sand these off. Decide what color you want your backer to be, and use an appropriate finishing medium to achieve the look you want. This can be as simple as spray paint, acrylic craft paint, or dyes. The sea-themed fretwork with the sea color backers were done with a 1:1 ratio of acrylic craft paint and staining medium - wipe on with a paper towel, then wipe off the excess after a few minutes. Once the finish is dry, attach the project to the backer. I like to use gel CA glue – drops strategically placed on the project so as to minimize it leaking out and being visible on the backer, but it also dries clear. Finally, I apply several coats of a clear semi-gloss lacquer (Deft). I spray from several different angles to try to get finish into the frets as well as possible.