# Making a Veneer Sand Shaded Fan
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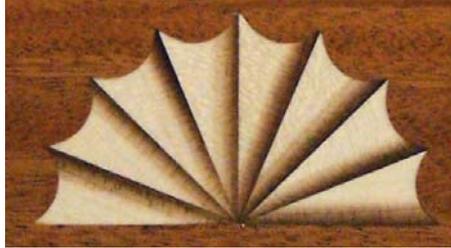
There are many decorative elements for furniture that you can make using veneer – in fact, the possibilities are limited only by the imagination of the veneer worker. In this tutorial I'm going to build on some of the techniques I covered in the compass rose tutorial and show you how to make a sand shaded fan.

We'll use that same 16 segment template that I described making in another tutorial and we'll add the technique of sand shading.

Sand shading is used to add a third dimension to your veneer work by suggesting shadow in your designs. In this design we're going to try to suggest a three dimensional fan with ribs coming upward toward you. Sand shading can also be used to suggest interweaving in a design – to make it look like some elements of the design go underneath some other elements. For example, the next picture shows a Celtic design with elements crossing above and below other elements in the design.

I'll remind you of the two rules of veneer work here:

1. Always work (cut) from the glue face, and
2. Veneer tape only goes on the show face.

Tools and Equipment

The tools needed are similar to the ones we used to make the compass rose, with the addition of a few items for the shading.

The items we have in the picture are as follows. On the left we have the 16 segment template. At the top and just to the right of the template we have the veneer tape and the blue tape. Just below that is the Japanese marking knives used for cutting the veneer, and a 16mm #7 carving gouge. Above that is the container with a sponge and water for use with the veneer tape, and a straightedge lying on the container. Below that is a sanding block, a veneer saw, and a brass

brush used to smooth the veneer tape. Moving right, we have some maple veneer, and the components for sand shading – a pan, sand, and a hot plate. [Update 3/5/2012: I've found that the electric hot plate just doesn't get hot enough and now use a Coleman white gas two burner camp stove. The main burner will get hotter than the secondary burner and that's the one I use.]

When you go looking for sand, be warned that the sand you will find in the craft shops has color added to it. The only problem is that when you heat it the first time, the color agent burns off with a noxious smell. After a couple of uses, the color burns off completely and the sand is back to normal sand color and the odor disappears.

Someone suggested using aluminum oxide instead of sand. I haven't tried it yet but it seems reasonable. You can find bulk aluminum oxide at http://www.abrasivedepot.com/ad/mss/mss-pc.nsf/WebEngine?OpenAgent&cmd=category&category=JSTD-5WNSX6. If you try it, let me know how it works.

Sand Shade Fan

Let's start by looking at what we're going to make.

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This is a traditional design element used in Early American Furniture, and it can be used to good effect in contemporary furniture. We're going to make the fan from maple, with a field of mahogany. You should pick the lightest veneer you have – holly would be excellent if you can find it.

Making the fan

The fan we're going to make will consist of eight elements to make up a half circle. We start by cutting more than eight pieces of maple, each about three inches long and about an inch and a half wide. In the next picture, you see that I cut two strips of veneer about an inch and a half wide.

You can barely see it in the picture but I've marked the strips with pencil to indicate the "up" side and the same direction. This is so that when I put the pieces together none of the pieces are turned over. This is important because veneer reflects light differently on different sides.

Then we cut the strips into pieces about three inches long.
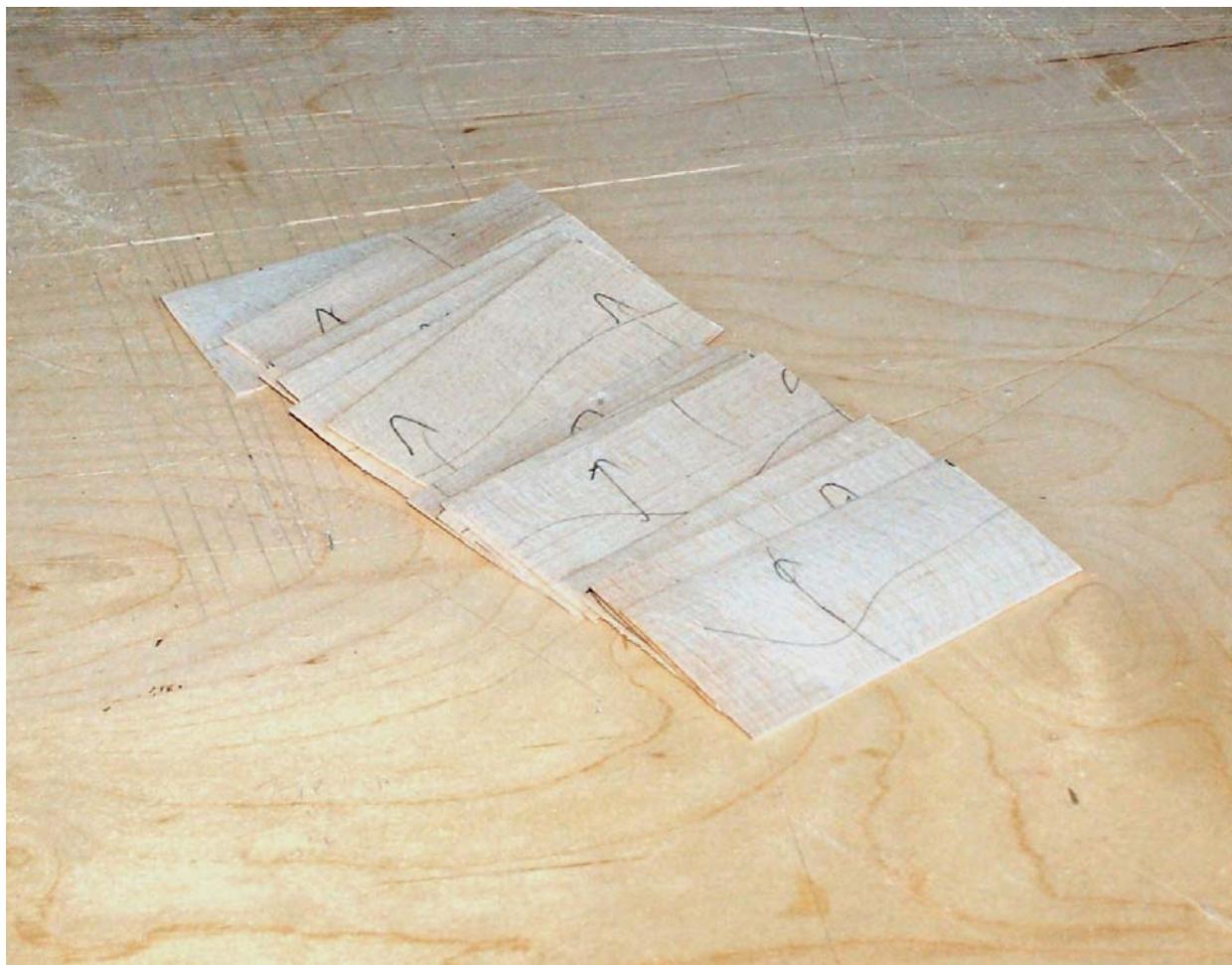
We now need to prepare for the shading. The shading is actually the charring of the veneer to change the color of a part of the veneer. We'll char the veneer with hot sand.

We start by putting some of the sand into the pan and putting the pan on the hot plate. The amount of sand is not critical but you don't want too much – maybe a quarter of an inch deep. It takes a lot of heat to heat the sand and the top won't get hot if you put too much.

You want to smooth the top of the sand so that when you put the veneer into it, the line of shading is smooth and not "lumpy". You can use a spoon to smooth the sand out or just take a piece of scrap veneer and use that to smooth it out.

Use your piece of scrap veneer to test when the sand is hot. Just stick the veneer into the sand a bit – not all the way that it hits the bottom of the pan. When the veneer will shade in 15 to 20 seconds, the sand is hot enough. This is about what you're looking for (next picture). [Update 3/5/2012: I now expect the veneer to shade quicker, between 5 and 10 seconds.]

One safety note. Sometimes you drop a piece of veneer on the sand. You could just use your fingers to pick it up, but you risk burning yourself. A better approach is to have a set of long nose pliers or tweezers on hand and use that to pick up the piece of veneer.
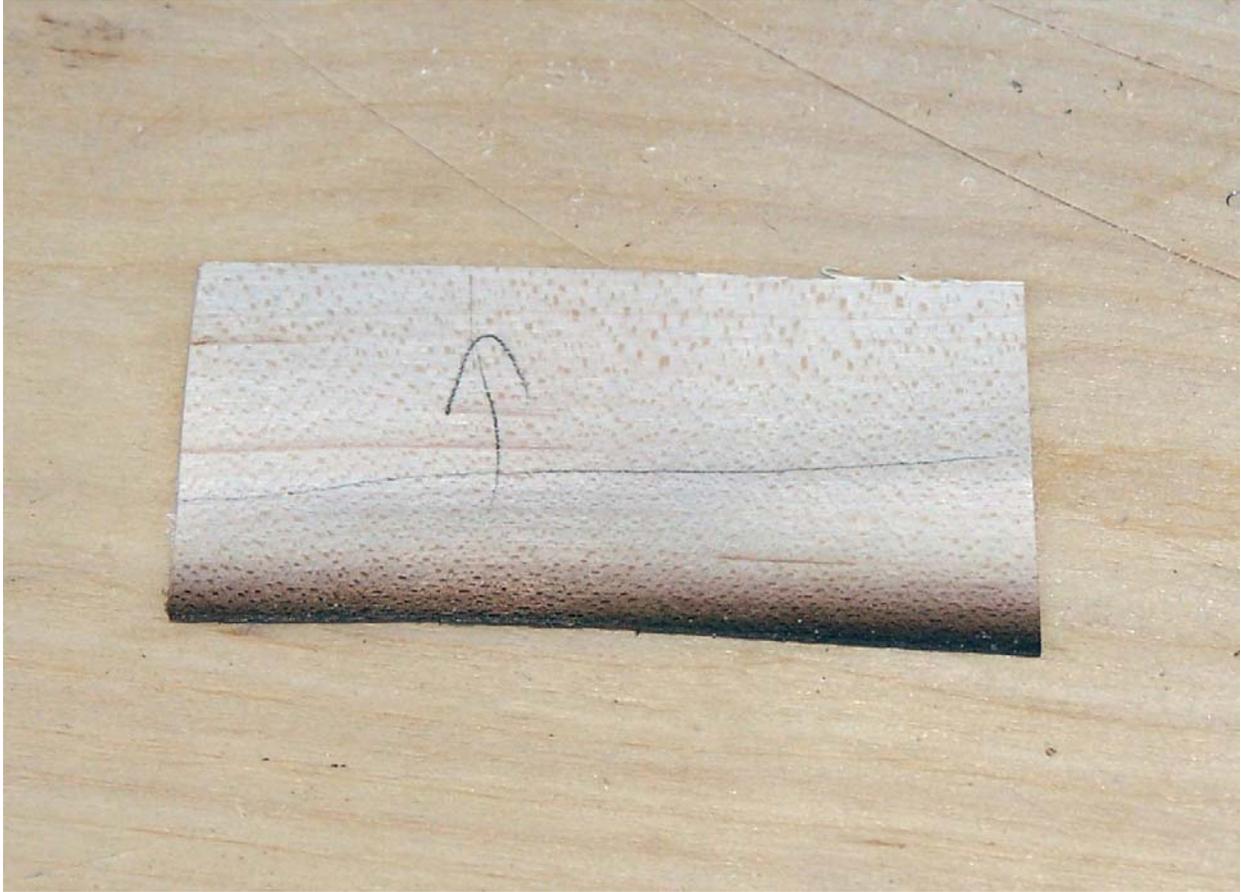
Now, start shading your non-scrap pieces of veneer. You can do several at a time. The number you do depends upon how many you can handle without burning them too much.

Since we made more than eight pieces of veneer, we now have more than eight shaded pieces.

These were shaded fairly evenly across the pieces of veneer. However, I want less shading at the bottom of the fan because the piece is quite narrow there. If I don't do anything, the bottom of the fan will be nothing but shading – you won't be able to see any of the original maple color there. To achieve this, I cut the veneer along the shaded side so that there is less shading on the end that will become the bottom of the fan.
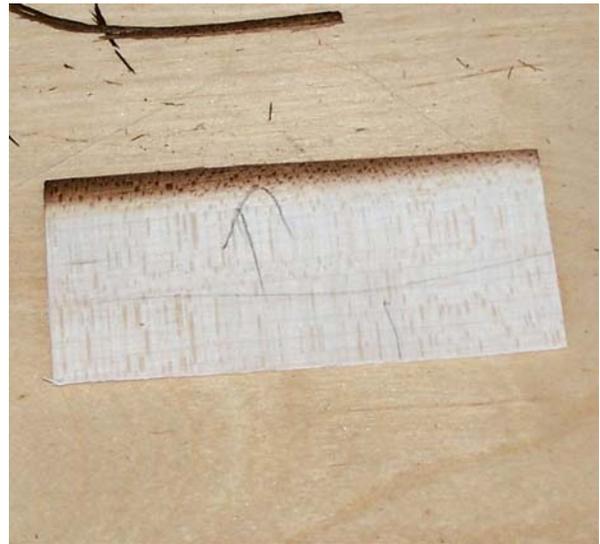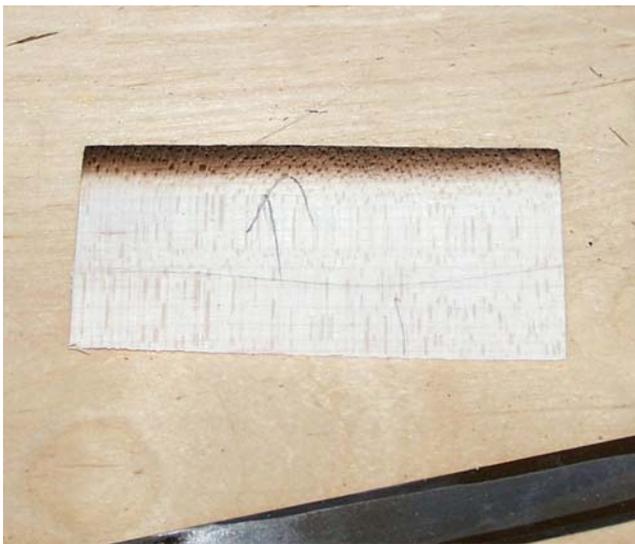
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The picture on the left is "before" and the picture on the right is "after" I trim the shaded portion to reduce the amount of shading on the end that will become the bottom of the fan. How much shading to leave is a matter of personal preference. Some people want just a hint of shading along the edge, while others leave more shading (as I do). Make a couple of fans with different amounts of shading and see what you like.

From those, I select eight or nine pieces that I feel look the best and set them aside for use in the next steps.

You can see that all of them have had their shading trimmed. The cut edge of each piece is now sanded to make sure that it is straight.
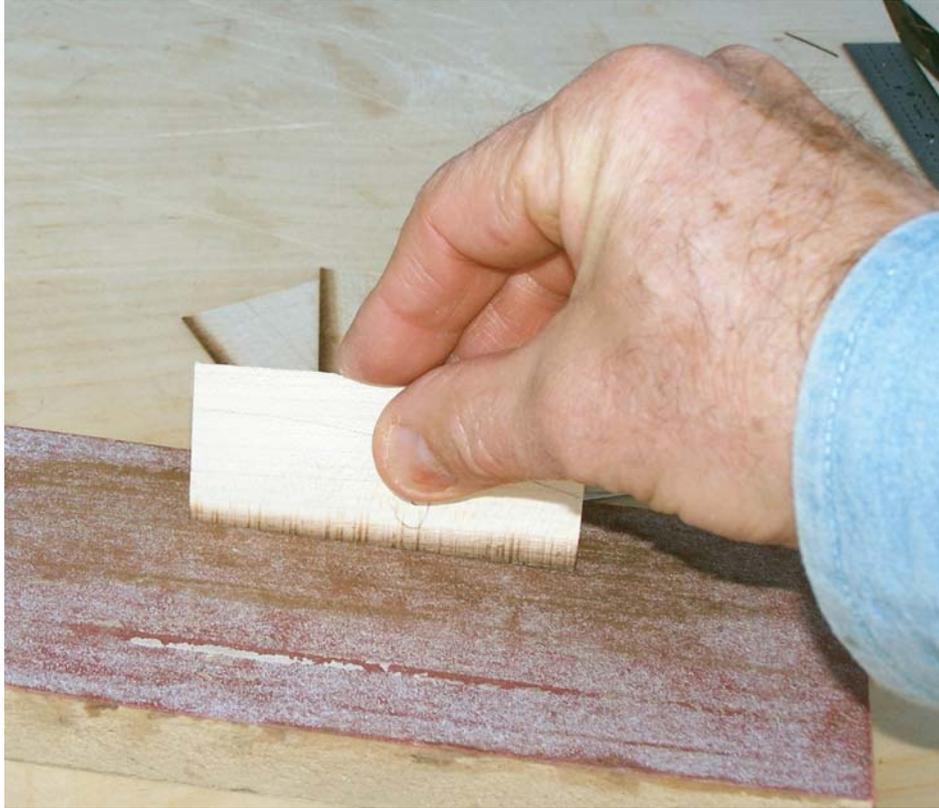
We're next going to cut the pieces into wedges, just like we did with the compass rose, remembering to position the pieces so that the narrow shading is towards the point of the wedge.

We wind up with eight or more pieces now cut into a wedge shape.

Each piece should be sanded along the edge we just cut to make sure it is flat and straight. Now we can begin assembling the fan which we do by putting the wedges together with their points aligned.
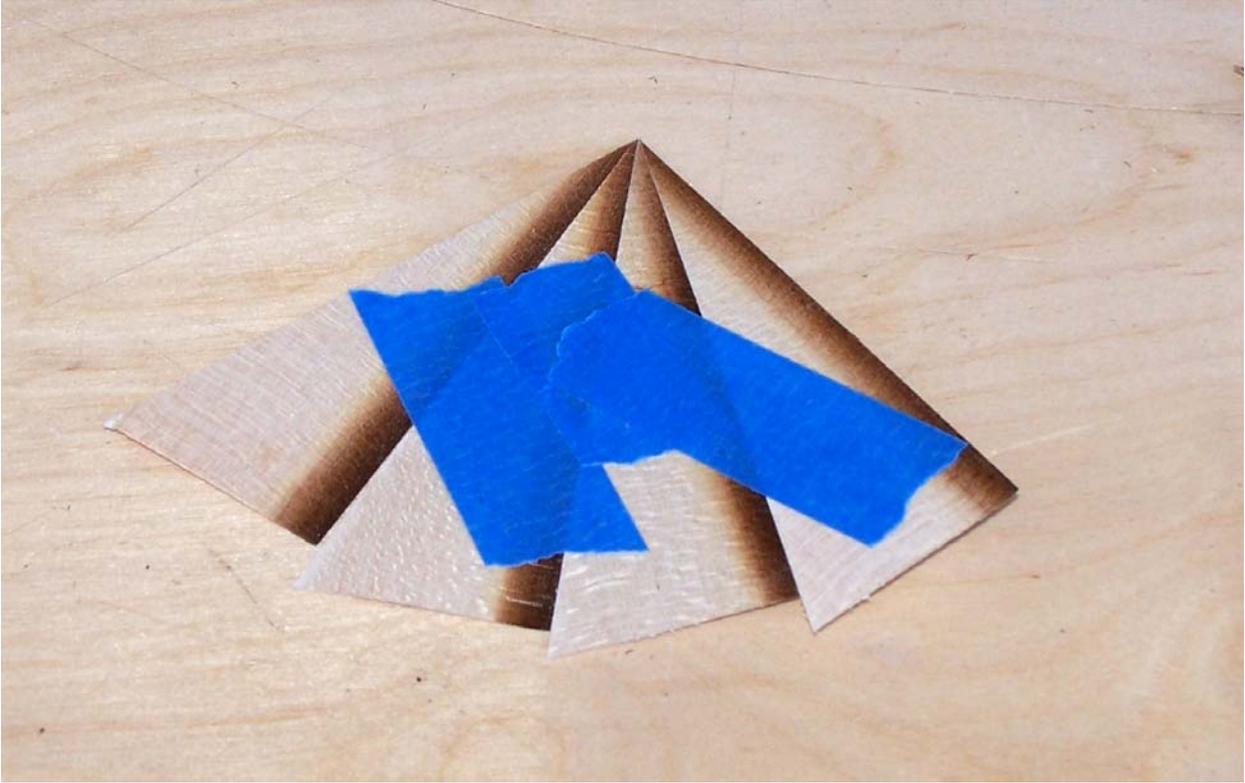
Once we put eight of them together, we have the basic shape of our fan.
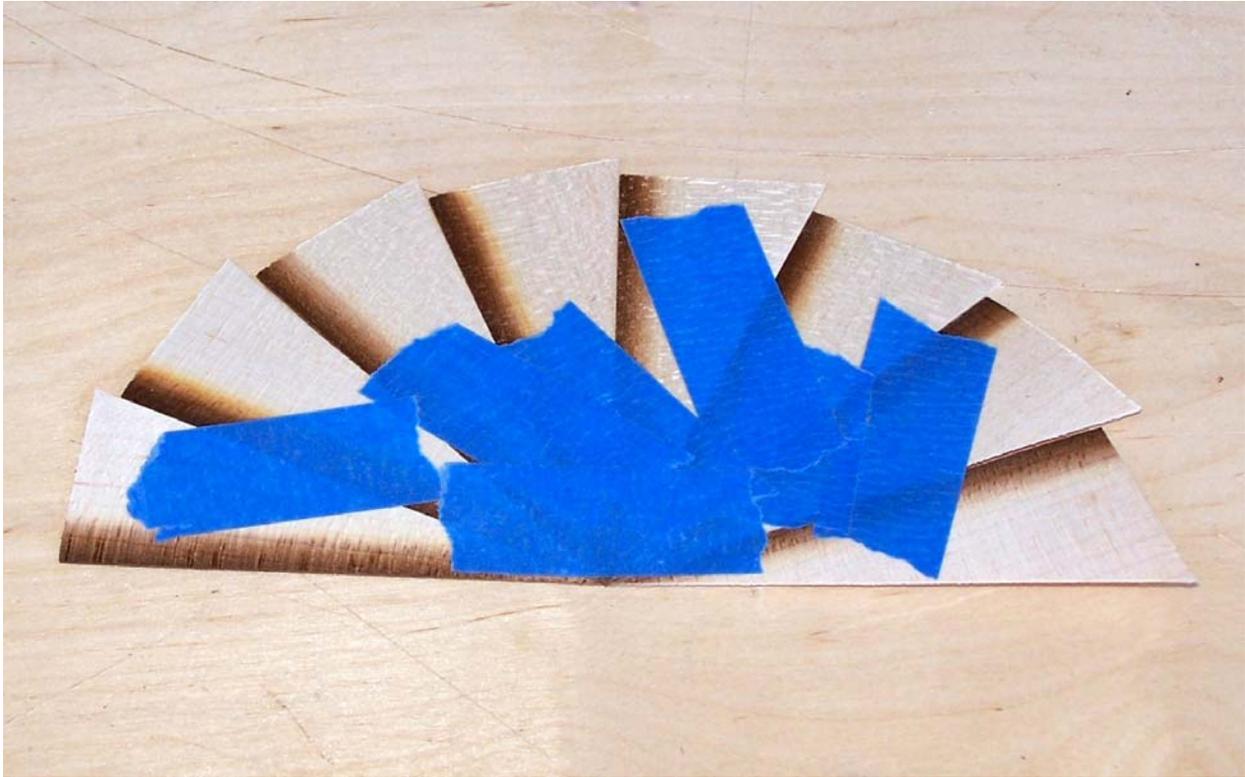
Now, turn the fan over so that the show face is up and tape the seams with veneer tape. We do not want more than four layers of veneer tape so plan your taping to minimize overlap.

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Let the tape dry well – set the piece aside for some time, and press it between two pieces of wood to keep it flat while it is drying. Once it's dry, turn the fan over and remove all the blue tape from the glue face.

Your fan should be slightly more than a half circle. While you don't have to do this, it's nice to flatten the bottom before going on. Do this on the sanding block.


The next step determines the size of the fan. Choose a carving gouge and see where it comes to when you position it so that it will cut across a wedge. The gouge shown is a #7 gouge, 16mm wide. A wider gouge will give a larger fan while a narrower gouge will give a smaller fan. I find that a #7 gouge has a pleasing arc for the fan but you may prefer

a different arc – just use a different gouge. A #5 gouge will give a flatter arc, while a #9 gouge will give a more pronounced arc.

Mark the location on the fan where the gouge fits. Then take a compass and draw an arc through that mark, using the points of the fan as the center of the arc. DO NOT cut the arcs on the fan yet.
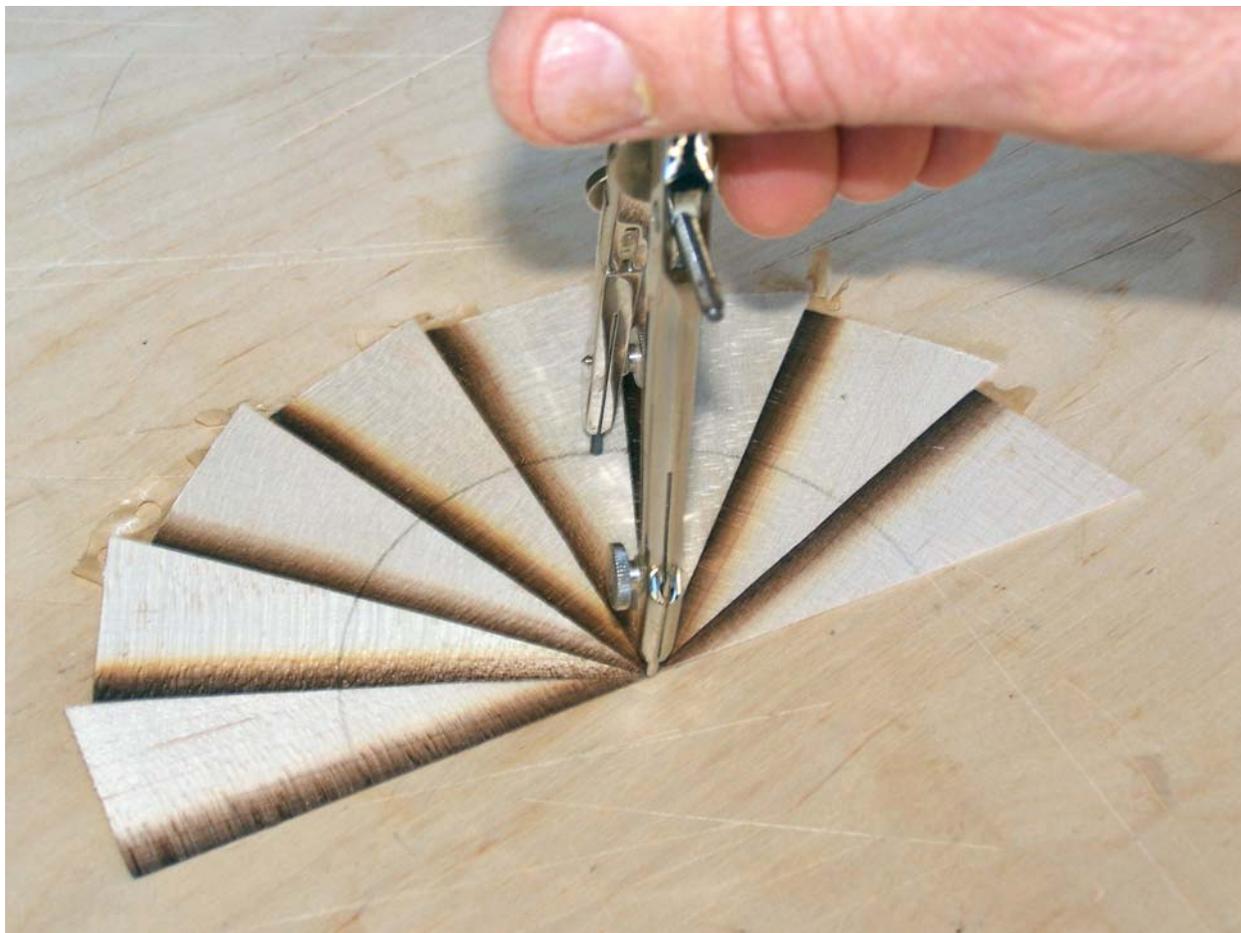
Setting the fan into the field

Our next step is to position the fan on the field veneer – that is, place it into the position where you want it to finally be. You may want to put some alignment lines on the field veneer to align the fan. Tape the fan into position on the field.

We're now going to cut the arcs, and will cut both the fan and the field at the same time. Using the pencil arc we drew earlier, position the gouge on one of the wedges as shown in the next picture.

Rap the gouge with a mallet, cutting through both pieces of veneer in one stroke. Once you cut all eight arcs, your veneer will look like this.
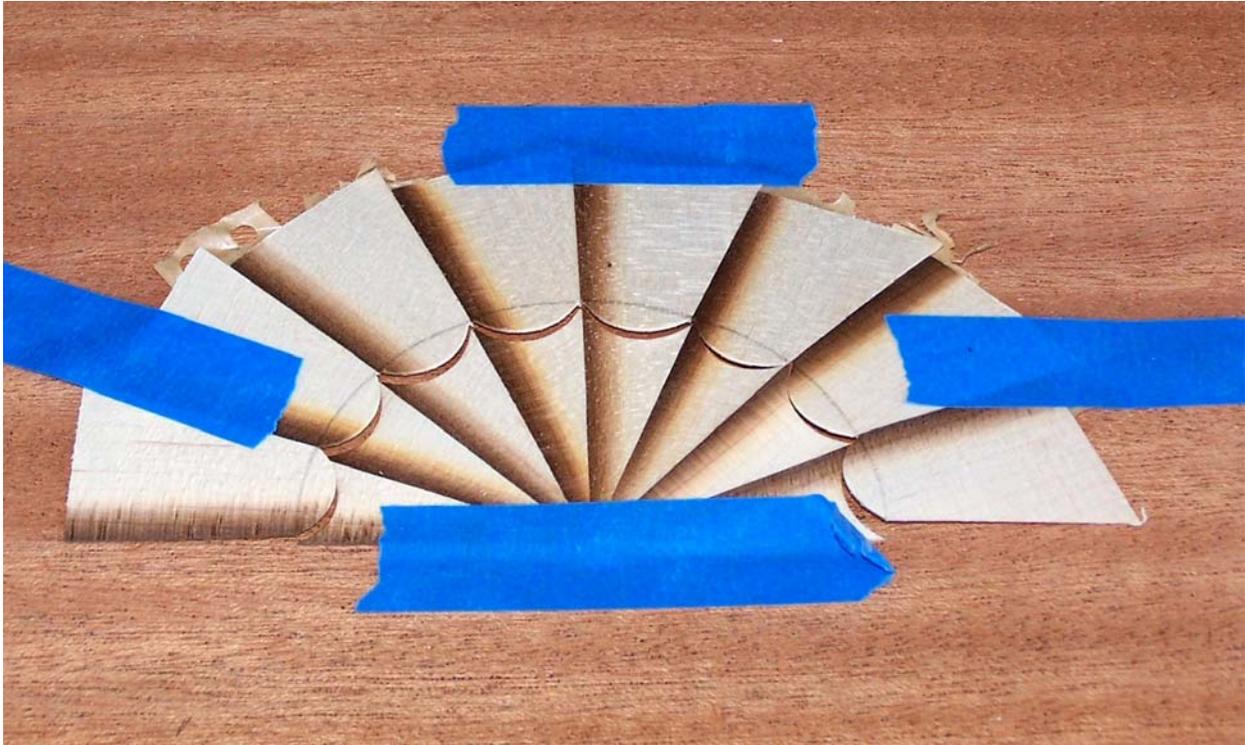
Remove the waste veneer from the fan and tape the top of the fan aligned with the cuts you just made. Cut the field veneer using the bottom of the fan as a guide. Once you complete the cut, remove the fan and snap out the waste from the field. You'll have a fan shaped hole in the field like the following.

Put the fan into the cutout and tape it with blue tape.
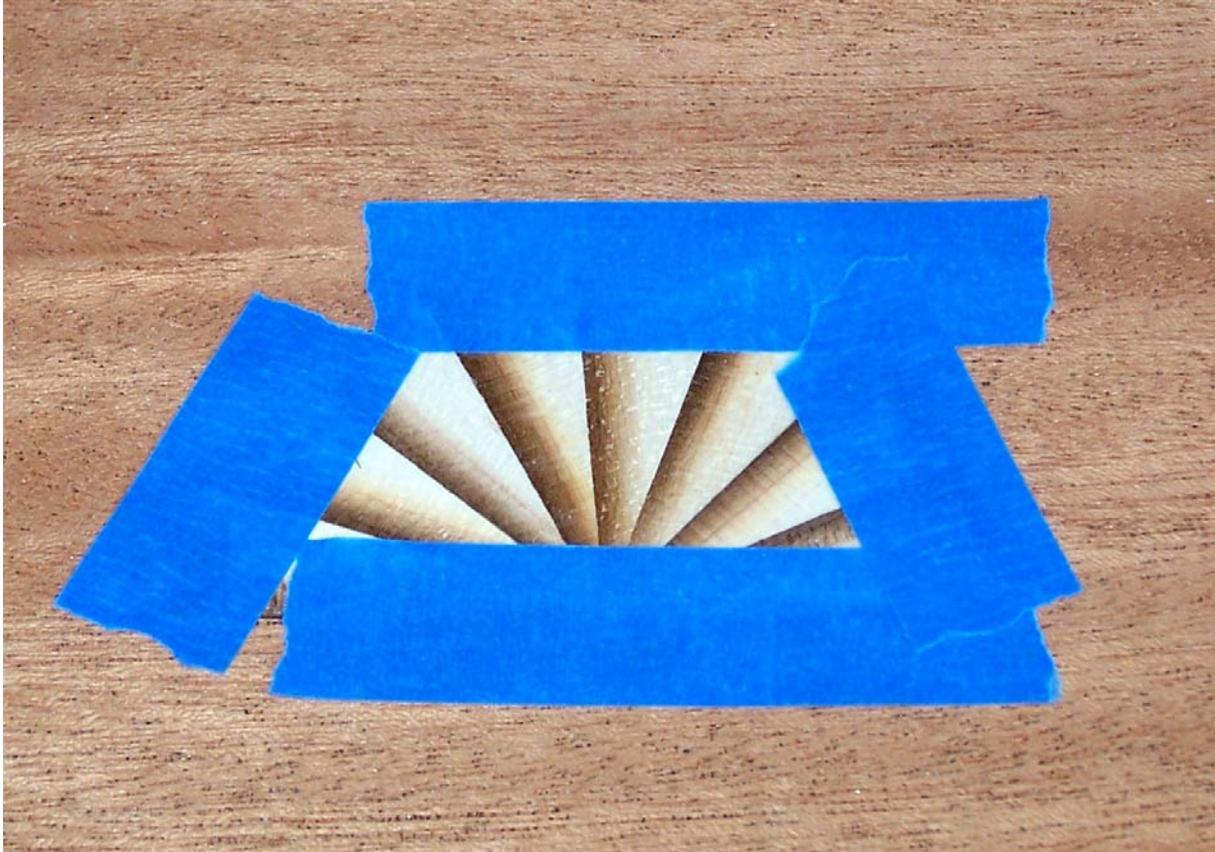
Turn the veneer over so that the show face is up and tape the fan in with veneer tape.
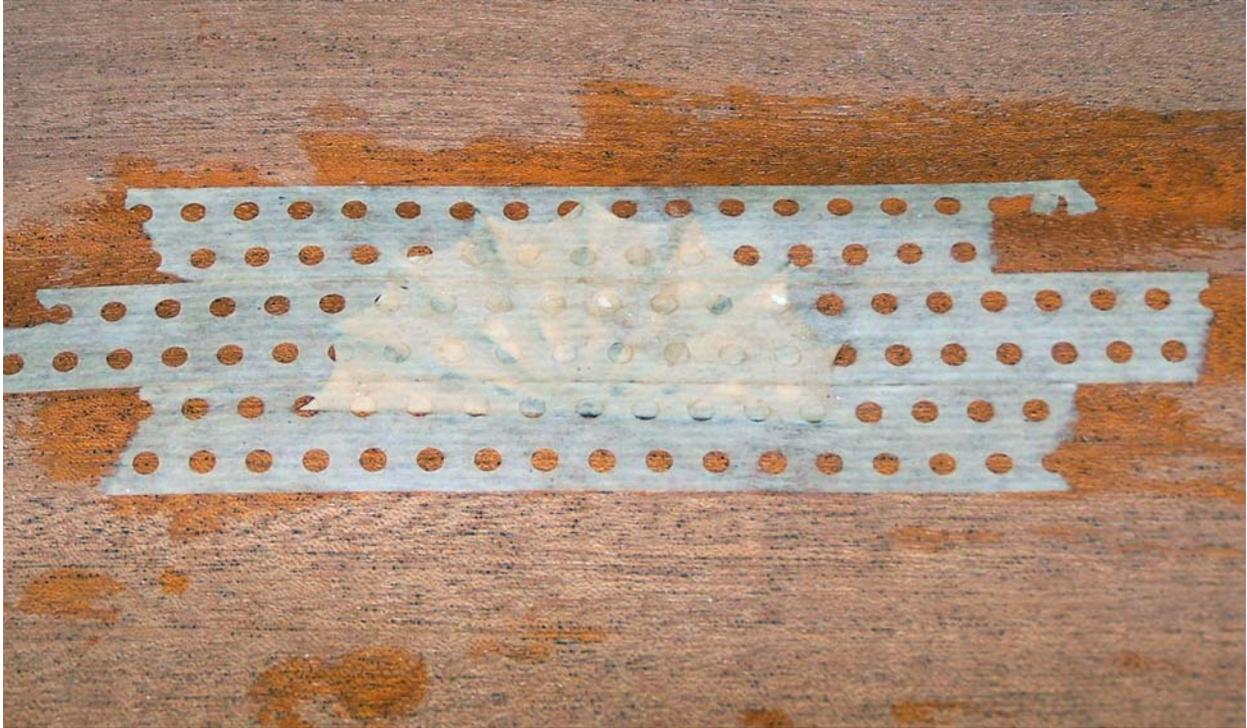
Once the veneer tape is quite dry, turn the veneer over and remove the blue tape. You're now ready to glue the veneer to a substrate. I glued this one to a piece of scrap MDF just to show what it will look like finished.

This completes the tutorial. I hope you were able to follow it well and that you use a sand shaded fan on some of your furniture soon.

Good luck!

Other notes and comments

A variation of the sand shaded fan is the half fan used in the corners of a square design. For example, here's a panel I made some time back.

It has a central design element and an interior border but the corners are somewhat bare. I could have used a "half fan" in each corner to add some additional design elements to the panel. See the next couple of pictures where I've laid a half fan in one corner.
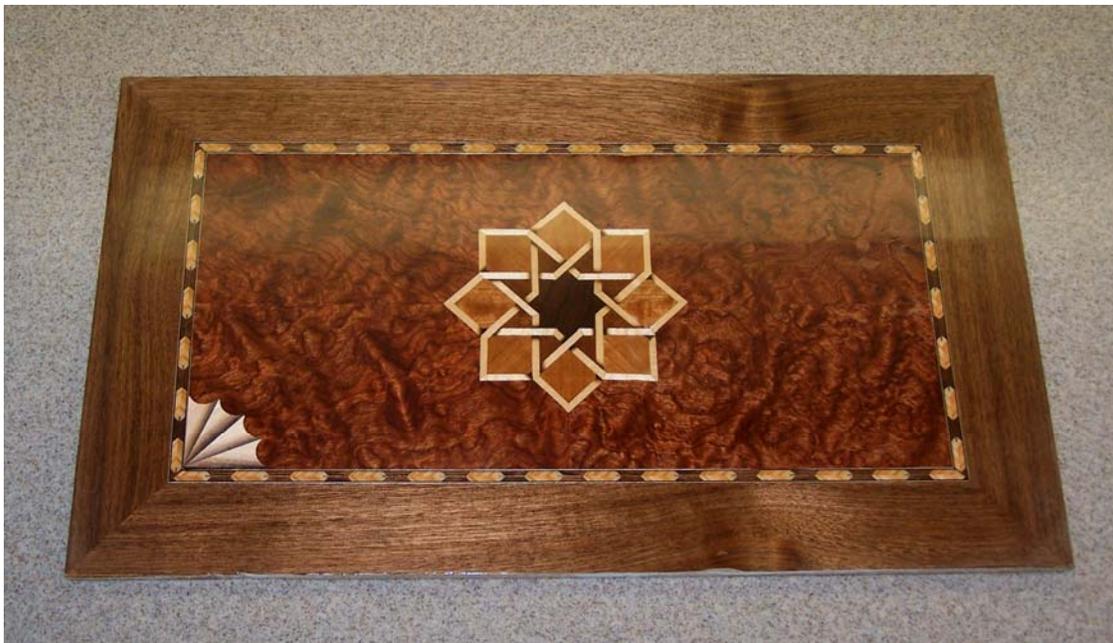
When setting in a half fan, first make sure that the angle of the fan is 90 degrees. You can adjust the angle by sanding as long as it's larger to begin with. Next, carefully align it with the edges of the field and tape it into position (remember, you're working from the glue face). Then cut the arcs the same way as we did in the full fan above. Blue tape it, veneer tape it, and then continue making the rest of your panel.
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Occasionally, someone will suggest cutting the wedges prior to shading them. I do not recommend this approach for a couple of reasons.

First, as you've seen here, it's very difficult to control the amount of shading that occurs on the veneer. If you've already cut the wedges, you cannot adjust the amount of shading by trimming some off.

Second, the point of the wedge is small and easily burned when sand shading. Unless you're extremely careful, you'll wind up burning the point off – so that what you'll wind up with is a rounded black nub instead of a sharp point. The fan will not look good with a bunch of nubs put together at the center.