ZIGZAG CUTTING

by Jim MacKeracher

Zigzag cutting is a specialized technique using a knife. The process involves joining small pieces of straight grain veneer in a series of jagged saw tooth joints. There are several advantages to this technique:

1. The spikiness of the joint creates a hairy or furry effect.
2. Colour changes between adjacent veneers is more subtle and blended. The longer and narrower the points, the more gradual the change.
3. Straight grain pieces of the same veneer can be arranged to produce a curved effect without having to search for the perfect piece.

Knife Sharpening

Zigzag cutting requires an extremely sharp knife. I use an

"Xacto" knife with #11 blades. A newly purchased blade has a steep bevel angle. I found a lower bevel angle gives a finer and an easier cut. Therefore I customize the blade by rebevelling the edges.

Refer to **Diagram B1**.

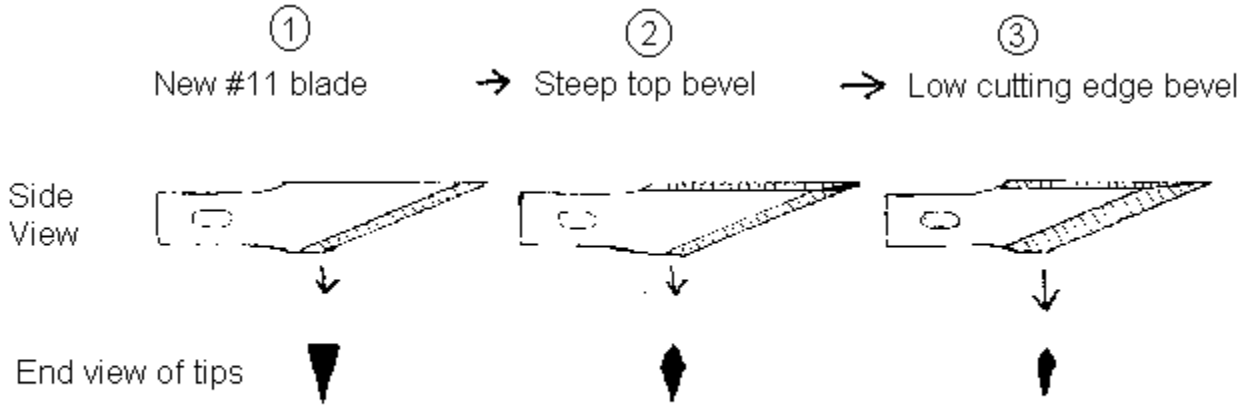


DIAGRAM B1

The first step is to bevel the unbevelled flat top of the blade at a steep angle (about 30 degrees). This new top bevel produces a diamond shaped tip, which is thinner and sharper for cutting and stabbing than a conventional blade. The top of the blade is placed against a sharpening stone. Tilt the blade to the desired angle and hone the edge. Make sure to hone both sides evenly. I use a coarse diamond stone with water to do the bulk of the bevelling and change to a fine diamond stone with water to put on the final edge.

The next step is to reduce the bevel of the original cutting edge. The blade is placed flat on a sharpening stone. Tilt the blade slightly (a few degrees) and hone the edge. This will thin down the blade and produce a lower bevel angle. The cutting edge of the blade is passed over a piece of leather to polish it.

PATTERN

The best material on which to draw a pattern is Mylar or clear acetate because they are durable and translucent. To reduce the complexity of the pattern, do not draw the individual zigzag pieces on it. It is much easier to make up the pieces as you go. The pattern should have lines for colour and veneer type changes as well as grain direction indicators.

REFERENCE MARKS

I use reference marks to accurately position the pattern repeatedly on the front and back of the background veneer. The marks consist of crosses drawn on the pattern and corresponding crosses on the front and back of the background veneer.

Punch ¼" circular holes in at least two corners of the pattern. Attach the top of the pattern in its preferred location on the front of the background veneer with masking tape. Place cellophane tape under the holes in the pattern on the front surface of the background veneer. Draw cross hair lines, centred in the holes, on the cellophane tape and extended onto the pattern. I like to use a drafting pen because the ink dries quickly and does not smudge on the pattern and tape. Remove the masking tape and pattern, and place pieces of cellophane tape over the crosses on the front of the background veneer to prevent them from wearing off. Push the tip of a sewing needle through the centre of the crosses, piercing the veneer completely. Place pieces of cellophane tape on the back of the background veneer where the needle comes through. Tape the upside-down pattern on the back of the background veneer using the needle holes and cross marked holes on the pattern to orient it. Draw the same cross marks on the tape to match up with those on the pattern. Remove the pattern and place pieces of tape to cover the crosses on the back of the background veneer. (**Diagram B2**)

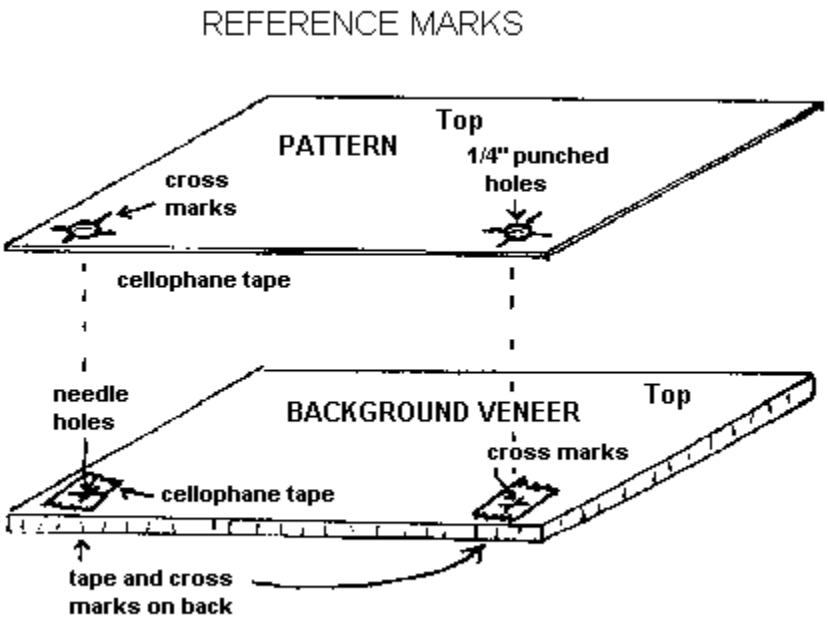


DIAGRAM B2

CUTTING

The order of piece cutting is similar to conventional cutting techniques. First cut the pieces that appear dimensionally behind others. In the case of an animal or flower start at the outside edges and work inwards.

Place the pattern on the front of the background veneer. Draw, with transfer paper, a zigzag piece onto the veneer making sure to use the lines on the pattern and grain direction indicators as a guide. The inside of this piece is waste to be replaced. The saw tooth edge is the finished visible joint. Make the piece slightly wider and longer than necessary. The extra will be removed when the adjacent pieces are cut in.

Move the pattern to the back of the background veneer and draw a similar outline on the back. Add lines to indicate the direction the grain is to follow. Cellophane tape both sides of the background veneer and replacement veneer in the areas to be cut. This gives the veneer more strength and prevents glue staining. Attach the replacement veneer on the back of the background veneer with masking tape, using the grain direction lines and piece outline as a guide.

With the front of the background veneer up, cut all the points starting at the crests of the points and pulling the knife towards the troughs. Stop the knife just as it enters the waste at the troughs. I initially stab the tip of the knife vertically in the veneer at the crest of the point. As the knife is drawn to the trough the blade is lowered so more of the knife's edge does the cutting. Several

lighter passes with the knife are better than one heavy cut. This prevents the knife from being lead off its course by the grain of the veneer. The idea is to cut out the waste from the background veneer and just score the replacement veneer attached underneath. Finish cutting out the waste in the background veneer. (**Diagram B3**)

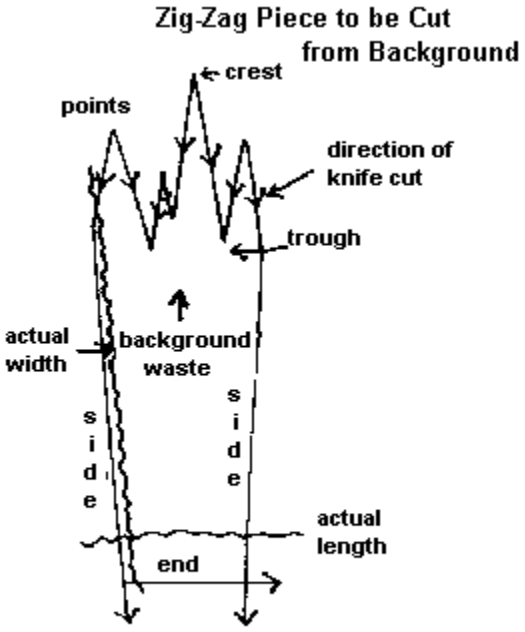
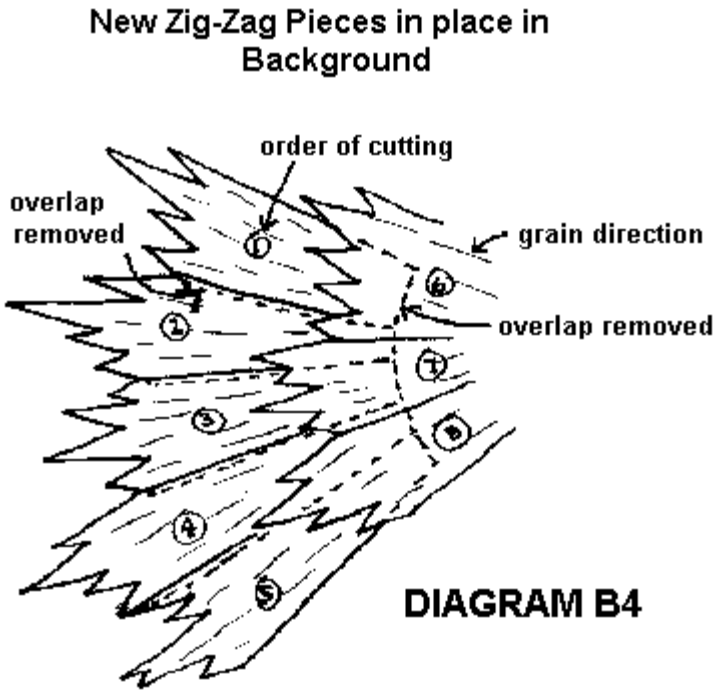


DIAGRAM B3

Detach the replacement veneer and cut out the piece marked by the score marks. Place white glue along the edges of the window in the background veneer. Insert the saw tooth tips at a slight angle and lower the rest of the piece into the window pushing it towards the tips. Spread some glue along the outline of the piece and work it into the joint with a finger. Wipe off any excess glue with a paper towel. Remove all cellophane tape from the front and back of the background veneer and zigzag piece.

Follow the same procedure for the next piece making sure to slightly overlap the edge with piece already in place. If the grain changes direction from the previous piece place the joint between them so the grain reflects from the joint at the same angle in both pieces. (**Diagram B4**)

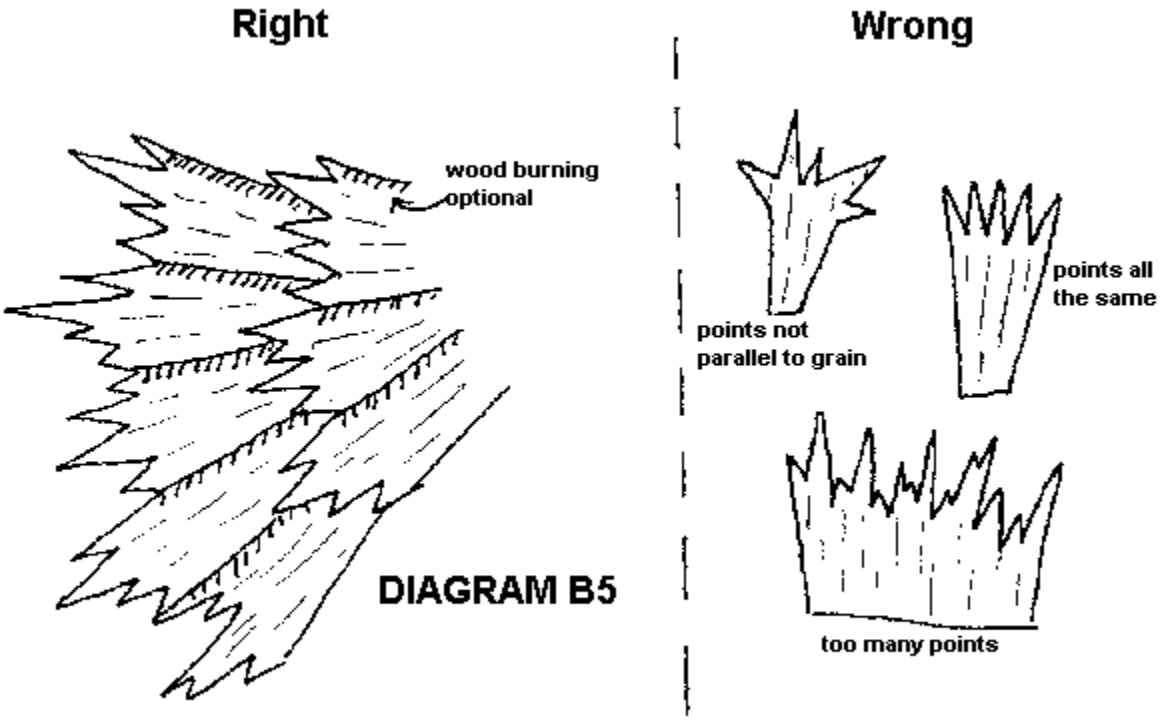


ALTERNATIVE METHOD

An alternative method is to cut out the waste in the background veneer and create a window without attaching and scoring the replacement veneer. The window is positioned over the replacement veneer and the edges of the window used as a guide for the knife as it cuts through the replacement veneer. I use this method only when it is too hard to see the score marks produced in the first method. The fit with this second method is less precise. Very long thin points can move as the knife cuts along side of them even when pressed down creating an inaccurate piece.

ODDS AND ENDS

Zigzag pieces are easier to work with if limited in size to five or so points. All points should be cut parallel to the grain. An irregular pattern of point widths and lengths is much more natural looking. A shadowed picture with more depth can be made by consistently wood burning one side of each piece. (**Diagram B5**)


Right
Wrong
wood burning
optional
points not
parallel to grain
points all
the same
too many points
DIAGRAM B5