



# CARVEWRIGHT™

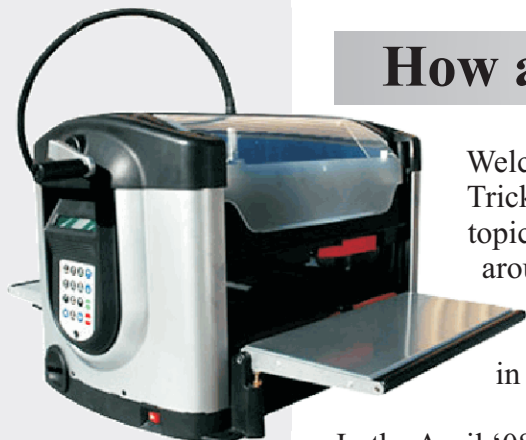
## WOODWORKING SYSTEM

# TIPS & TRICKS

May 2008

## How and Why To Make Manual Cut Paths

by Michael Tyler of [www.CarveBuddy.com](http://www.CarveBuddy.com)



Welcome to this month's Tips & Tricks! This issue will cover the topic of making manual outlines around objects to be cut out when the normal cut path feature cannot be applied in certain situations.

In the April '08 issue, Ken Johnson gave an excellent overview of the use of sleds/carrier boards and rails. One limitation of the use of a sled or carrier board is that you cannot use the built-in cut path feature (safely) in Designer if you lay out a project with cut outs when you are using a sled or carrier board.

To illustrate the problem, let's say you want to cut out simple silhouette shapes from 1/4" thick stock. The machine requires a minimum of 1/2" thick stock, so you already know you will have to secure the thin stock to a sled or carrier board in order to bring the total thickness to at least 1/2" or more.

Most sleds are 1/2" to 3/4" thick (thinner sleds might be too flimsy). Let's say you are using a 1/2" thick sled for this example. With that in mind, the total thickness of the 1/4" stock plus the 1/2" sled will be 3/4". That makes the machine happy.

Now, when you lay out a project in Designer, what do you specify for the board thickness? To make it simpler for "us humans", go ahead and make the layout board 1/4" thick. That makes the on-screen view easier to relate to.

You already know that the machine will actually think the stock is 3/4" thick because it will measure the thickness of both the stock and the sled and combine them (i.e., 1/4" + 1/2" = 3/4").

However, you want to be able to see your actual project board thickness as you lay out a design, thus, the 1/4" is what you want to specify in the Designer software.

If you used the normal cut path feature, the machine will not leave the safety tabs on the 1/4" stock. Since the machine thinks the stock is 3/4" thick, it will cut all the way through both the stock and the sled, leaving safety tabs on the bottom of the sled! That would leave your cutout pieces free to "fly around" the machine causing a potentially undesirable situation for you and the machine!

There are a couple of common "safe" methods to achieve cutouts on stock that is placed on a sled (or "carrier board" - I'm just going to refer to "sleds" so I don't have to type as much! - consider the methods applicable to either a sled or carrier board).

I'll show you two of the most common techniques. Choose which one best suits your particular task at hand. These techniques can also be applied to double-sided carvings that you want cut out, as well as irregular-shaped stock that requires the use of a sled.

Please visit the manufacturer's website for more information about the CarveWright machines and see the new Pattern Depot at: [www.carverwright.com](http://www.carverwright.com)

For Additional Patterns you can add to your Designer software library, please visit: [www.carvebuddy.com](http://www.carvebuddy.com)

# How and Why To Make Manual Cut Paths (cont.)

## METHOD 1 - Drawing Perimeter Outlines

Since you cannot use the normal cut path feature in Designer for the 1/4" stock cut outs, you will make manual outlines with the Line Drawing Tools in Designer, then assign a bit and a depth for the outlines. For my example, I'll drag a Dog silhouette onto the board, based on a simple solid black-filled clipart imported into Designer and saved as a pattern. (fig 1a).



fig. 1a

Set the pattern feather to "None" and turn *off* the "Perspective View" by clicking on "Toggle Perspective View" from the View Menu (fig. 1b)

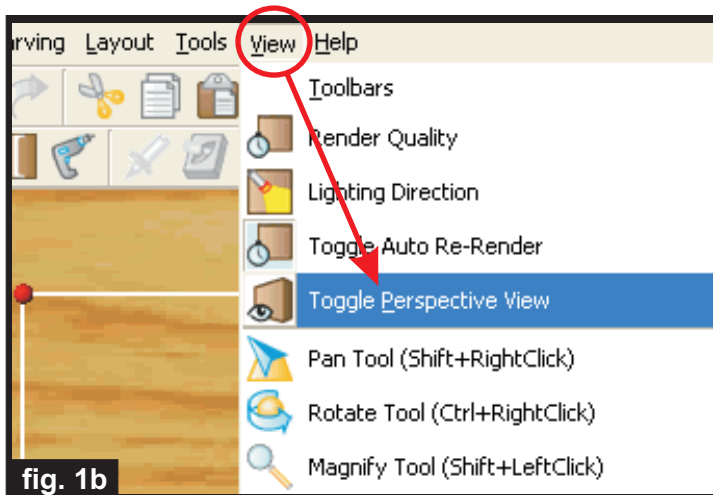


fig. 1b

Now, zoom in closely to your pattern on the board. The outlining technique is simple (albeit a tad tedious) - select the "Connected Line Tool", then click-click-click all around the perimeter of the object, stopping every so often leaving about a 1/8" gap between your "starts and stops" of the outline. Press the **Esc** key on your computer keypad to end the line - or you can double-click on the last dot to end the line. *The normal automatic cut path feature leaves at least 3 safety tabs - you can mimic this by the number of gaps you leave between the outlines. You can make more "tabs" if you like.* (fig. 2a, 2b and fig. 4)

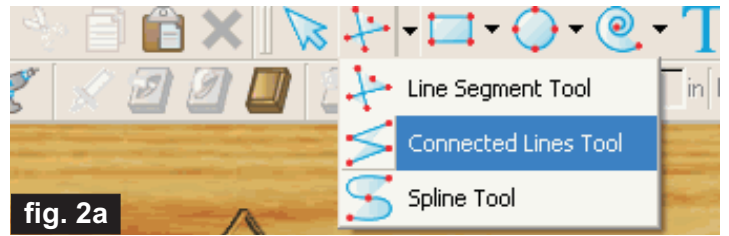


fig. 2a

By the way, if you lose track of your outlines (i.e., they will disappear from the screen if/when you click off of them), you can open your Carving List (from the View Menu) and you will be able to see and re-select any outlines you have already made. (fig. 2b)

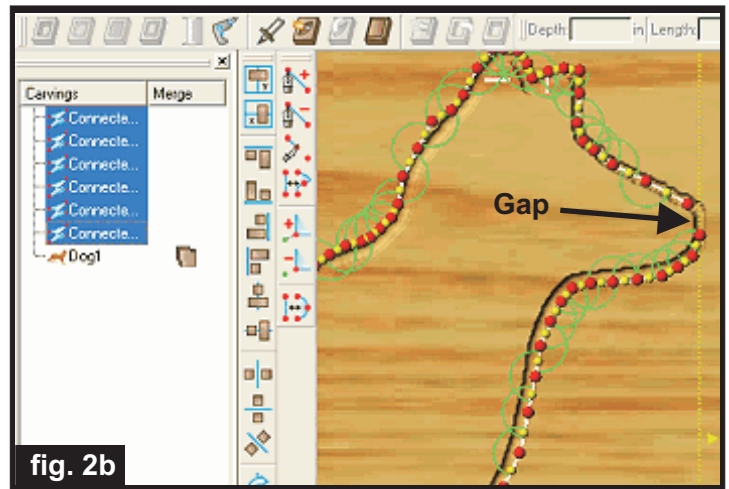


fig. 2b

Select all the outlines, then assign the 1/8" Straight Bit with a depth of .26 so it will go through our 1/4" stock. (fig. 3)

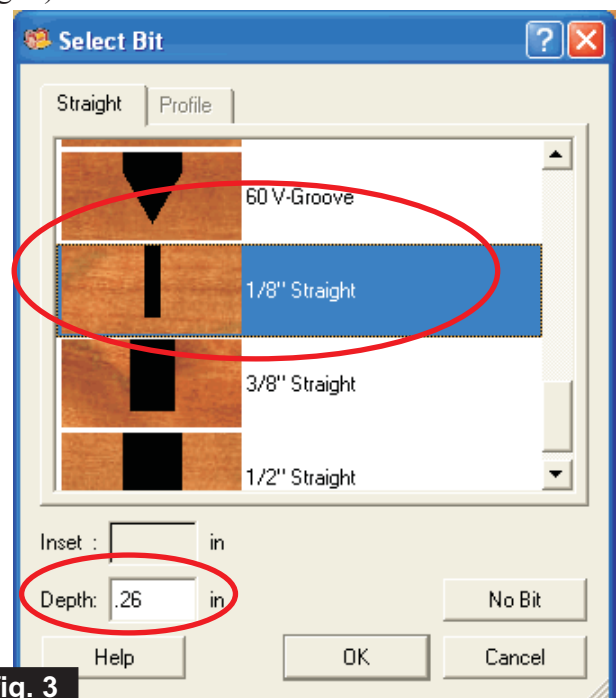
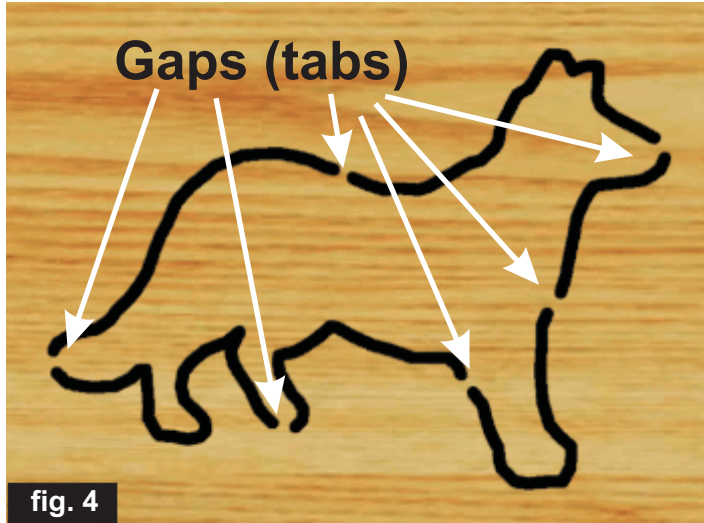


fig. 3

# How and Why To Make Manual Cut Paths (cont.)

The outlines will end up looking something like fig. 4. Notice that I made several gaps to serve as “tabs” to hold the piece in place during cutting in the machine. I deleted the pattern but left the outlines. Since this is a flat silhouette, it is not necessary to leave the original pattern in place.



If the dog was a relief carving, then we would certainly leave the pattern on the board. but in this case, you can simply use the outline alone to cut out your silhouette. In fact, you can copy/paste numerous copies and place several on a board for “mass production” if desired! (fig. 5)



You will need to manually saw through the tabs to separate the items from the stock after machine cutting is complete. This method also works well for thicker stock (without a sled) where a double-sided carving is to be cut out, because the normal cut path feature of Designer won't work for that. So outlining the object manually, leaving gaps in the lines periodically for tabs, and assigning the 1/8” bit to an appropriate depth will work the same way as it does for the silhouette example already presented. (fig. 6)

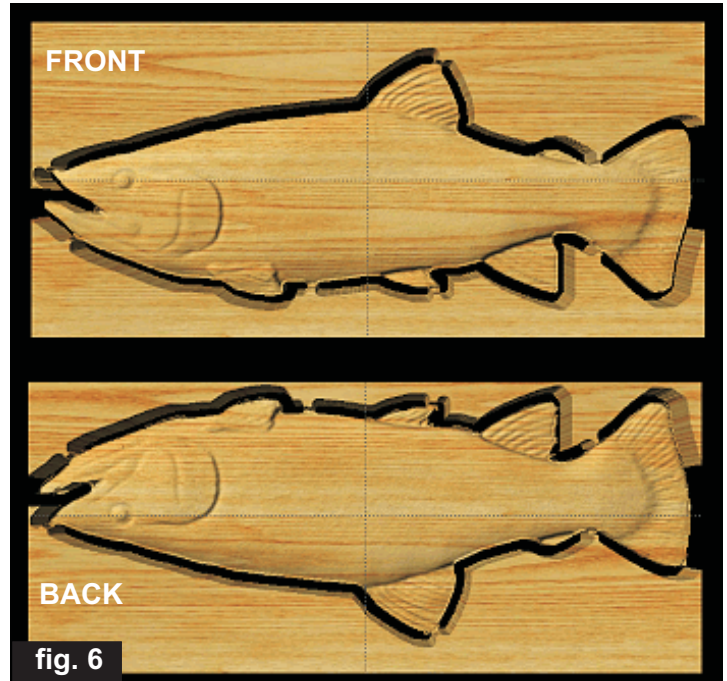


fig. 6

This is the front and back of a board with manual outlines drawn around the fish on the front of the board only. Gaps were left in the outlines and the 1/8” straight bit was assigned a depth that would go through the board to cut out the fish. This was a 3/4” thick board so the outline depths were set at .76”. The fish stays safely in place because the gaps between the outlines serve as holding tabs.

## METHOD 2 - “Pierced” Cutouts

The “pierced” cutout technique is often quicker to layout on a board, but may be slower at the machining stage, since “cutouts” are performed by carving away unwanted portions around the objects. Generally, cutting procedures (vector cuts) are faster than carving procedures (raster carves).

In any case, this is another way to accomplish “cutouts” on thin stock. Using the same example of the dog silhouette, this is the procedure for the pierced method... Put the dog pattern on the board, draw a connected freeform shape around the dog (with the Connected Line Tool), and let the edges touch the outermost parts of the dog pattern. By “connected shape”, I mean make sure ALL dots are connected to each other (a red X appears when lines are joined). Set the pattern depth to “0”. Make the shape a carve region (select the Carve Region Tool icon) and set it to a depth that is slightly more than the thickness of the stock (we're using 1/4” stock, so set the depth to .26” to make a void around the dog. (fig. 7)

# How and Why To Make Manual Cut Paths (cont.)



The black areas will be carved away, thus performing our “cutout”. Where the pattern touches the edges of the void, the pattern will be held in place by the simulated “tabs”.

A little different approach is sometimes needed for relief patterns that are going to be “cut out” using the pierced technique. Most relief patterns will be done on stock thicker than  $\frac{1}{4}$ ”, however that is not always the case. Let’s say you want to create bas relief appliques that will be glued to another surface. It may very well be that you want the appliques to be no more than  $\frac{1}{4}$ ” thick. So, let me show you an example of how that is done using the pierced technique.

Place a pattern on the board, set feather to “0”, set the depth to  $\frac{1}{4}$ ”, then draw a shape around it. Make the shape a carve region at .26” deep, and snug it up around the outermost parts of the pattern. (fig. 8)

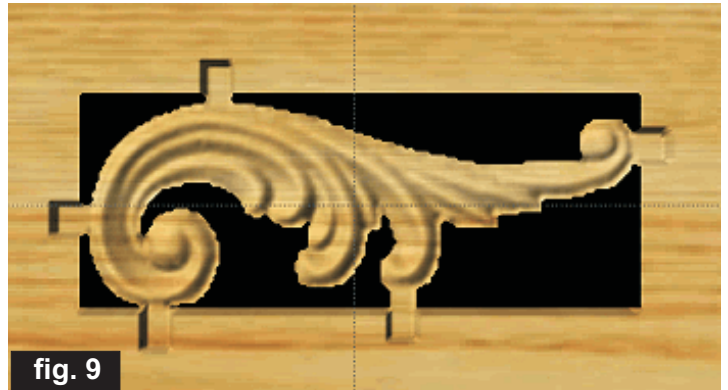
Front and back view, after snugging up the shape (a rectangle in this example) to the pattern.



Right-click the pattern and select “Clip Carving/Clip Carving: Inclusive” from the pop-up menu. This helps assure our relief carve won’t interfere with the safety tabs we will set up.

Now flip the layout to view the back side of the board. You will probably see areas that may need a reinforcement tab (safety tab). Make note of the “weak” areas and flip the board back to the front view.

Wherever you need a tab, draw a small rectangle, make it a carve region, set the depth at .125” ( $\frac{1}{8}$ ”). Then position your “tab” at those spots you think will need a little reinforcement. Usually three points of contact are enough, but put more if you need reassurance! (fig. 9)



As before, you will need to manually saw through the tabs to separate the items from the stock after the carving is complete. So there you have it... a couple ways to accomplish cutouts when using sleds or carrier boards. Of course, you should use the automated cut path feature whenever possible, but in special situations just described, you can still perform cutouts using the aforementioned techniques. I hope you’ll find this month’s tip useful!

Special thanks to Michael Tyler of  
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