

Using

Router

Bits

To

Make

Moulding

by Stuart M. Altschuler, CPF, GCF

The sample wall in virtually any frame shop contains many differently shaped frame mouldings. Some have a contemporary look, while others are more traditional. There are a few that we have seen for

many, many years. These few profiles seem to have been around forever and several have even been named for the artisans who created them. The most prominent of these is the Whistler profile, a half round reeded frame, named

after the American artist James Abbott McNeill Whistler who made many frames for his own artwork.

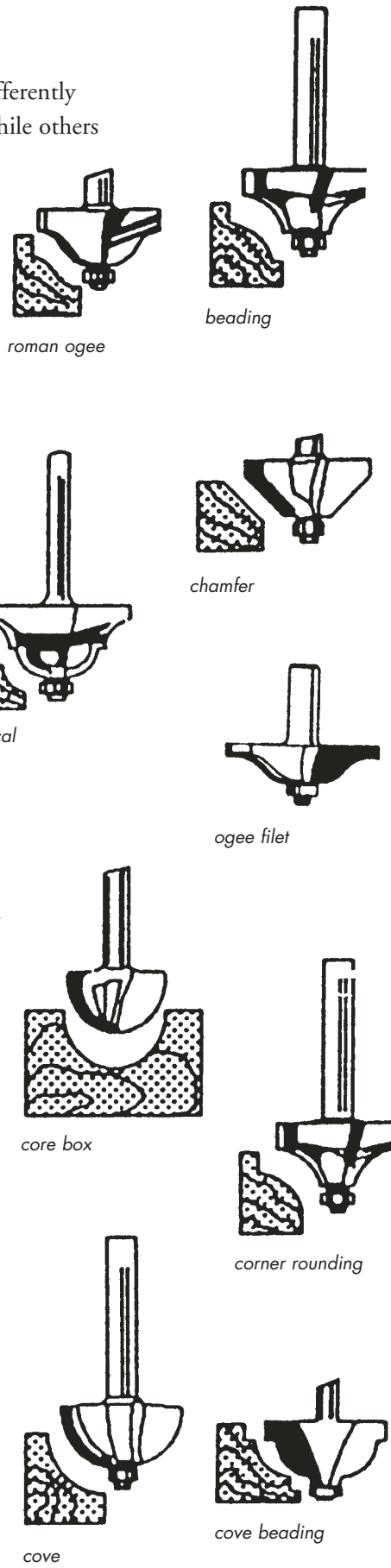
Have you ever wondered how these shapes are made and whether you could create them yourself? Anyone with rudimentary woodworking skills who is comfortable using a router can make these frames. In the following diagrams, six shapes are constructed using readily available router bits.

Note: Before starting any project that requires power tools, always read and understand the manufacturer's safety instructions. The use of eye and ear protection is necessary. A router can cause extreme harm if used improperly. If you are uncertain how to make a particular cut you must work it out before you start the tool.

This entire article focuses on a step-by-step approach to making standard picture framing mouldings using a router. While there are some situations

where a router alone would be enough to do the job, it would be a dangerous situation.

In order to safely mill these mouldings, the router should be mounted in a table. With the router so mounted, the stock is advanced through the bit while the router remains stationary, which is a much safer procedure. The table supports the stock and also provides a fence for the stock to ride against as it passes by the router. Fingerboards, a spring-like clamp, should be used to help keep the stock in place along the fence.



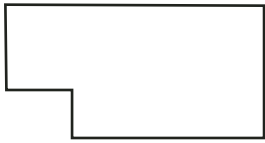


Figure 1

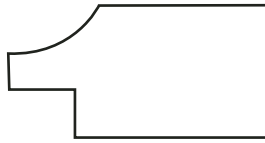


Figure 2

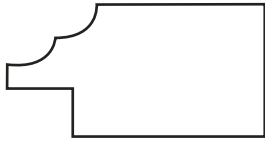


Figure 3

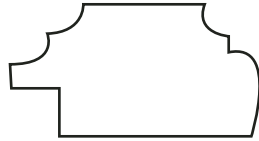


Figure 4

Figure 3: The same shaped bit is used a second time to make the next cut. This will be done by choosing a smaller diameter bit and setting the bit lower in the router. *Note: Whenever you mill moulding using a router, most of your time will be in setting the bit so that the cut you make is exactly what you want. Set the bit and make a trial cut. Adjust as necessary and retry. Professional woodworkers use the same trial and error method.*

Figure 4: A classical ogee shaped bit completes the profile. The ogee is a very popular bit for use in architectural moulding.

Eastlake Profile

Figure 1: As with all of the profiles we will assume that you are starting with a moulding that already has the rabbet cut.

Figure 2: The first cut to make the Eastlake style is done with a cove bit. A cove bit has a bearing that rides along the edge of the stock and removes a rounded area as shown in the diagram.

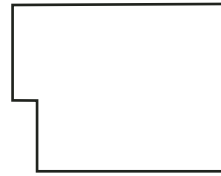


Figure 5

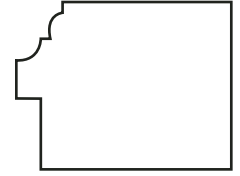


Figure 6



Figure 7

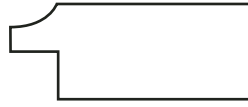


Figure 8



Figure 9



Figure 10



Figure 11

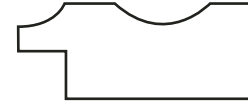


Figure 12

Miniature Profile

Figure 5: The profile to make a frame for a miniature.

Figure 6: Some manufacturers make combination router bits such as the cove and bead. Using this bit to create this profile can make the woodworker's job much easier.

English Print Profile

Figure 7: To make the English print frame two mouldings are milled and then fit together.

Figure 8: The first cut is made using a cove bit in the same fashion as the Eastlake.

Figure 9: A v-groove bit cuts the vein in the top of the moulding.

Figure 10: A uncut moulding for the second part of this design.

Figure 11: Once again we start with a simple cove cut.

Figure 12: A round nose cuts a complete round profile. This bit has no bearing to guide it as it doesn't usually cut along an edge. The round nose bit is sometimes referred to as a core box bit.

In order to complete the English print profile you merely fit the two molded pieces together.

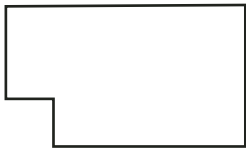


Figure 13

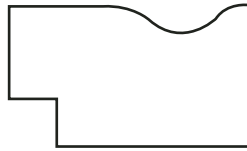


Figure 14

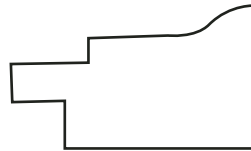


Figure 15

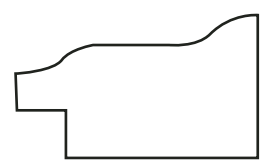


Figure 16

Faux Bois Profile

Figure 13: For the Faux Bois shape, there is more work to be done. Illustrated here is the easiest (although not least expensive) way to approach this shape.

Figure 14: The first cut is done using a multi-profile bit called a no drip bit. This bit is usually used to put an edge on a countertop so that water and other liquids will not run off. Here we use it to create the sweep at the back of the moulding. As an alternative we could cut this using two less expensive and more common bits. First, we would make the deep round cut using a core box bit. Then we would round over the back edge using a round over bit.

Figure 15: In this step we are lowering the top of the

front half of the moulding. In the next step we will complete the front edge.

Figure 16: To finish the front edge rout the moulding with a cove bit.

Ogee Profile

Figure 17: The ogee profile appears to be more complex, yet it is made in the same way as the other profiles. The only change is that we will be routing an additional surface.

Figure 18: Turn the moulding on its side and rout the back edge using a round nose or core box bit. This operation should be done first because you will have a solid edge to run along the router fence.

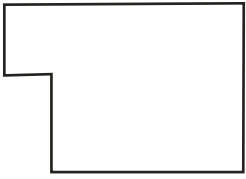


Figure 17

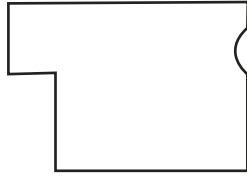


Figure 18

Figure 19: A bull nose bit is usually used to create a completely rounded edge on a shelf or table top. Here, we use the bit to create the high round ridge at the back top of the moulding. Bull nose bits, like many other simple bits, come in different sizes. Your choice of size will determine the width of the raised round area of the moulding.

Figure 20: Back to the round nose or core box bit to make the half round recess in the top of the moulding.

Figure 21: As with the Faux Bois moulding, we use a straight cutting bit to remove stock and lower the surface of the moulding.

Fig. 22. The final two steps in creating this profile are done with the cove bit. We create a two stepped cove along the inside edge.

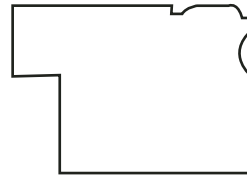


Figure 19

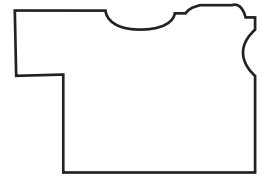


Figure 20

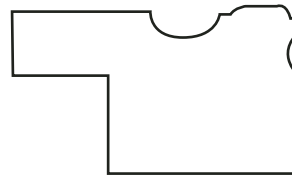


Figure 21

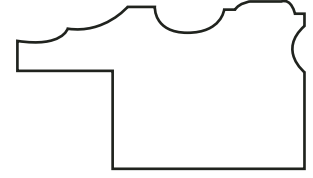


Figure 22



Figure 23

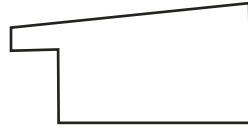


Figure 24

Chamfer Bit

Figure 23: This shape can be created using a chamfer bit.

Figure 24: The chamfer bit cuts a perfect angle. While we will always think in terms of 45°, other angles are available. In truth, most woodworkers would not create this shape using a router. Most of the time this shape would be done by tilting the fence on the jointer and making several light passes. Alternatively, this could also be made at the table saw by tilting the blade.

Expand Your Repertoire

This article is intended to start you thinking about milling your own moulding. Use them as is or modify them using these and other router bits.

Many of you may already own a router, while others will want to buy one. What type of router is necessary for this job? There are many issues when selecting a router. The first is the collet size. The collet is the piece that holds the router bit in place. Routers are available with ¼" and ½" collets. All routers that will accept a ½" collet can

accept a ¼" collet. However the reverse is not true so you will want a router that will accept ½" bits. The more material a bit is intended to remove the better it is to have a larger shank (that part of the bit that goes into the collet.) In fact, many of the larger bits are only made with a ½" shank.

The next consideration for a router would be the motor. There are those who feel the more horsepower (HP) the better. If the router will always be mounted in a table, high HP is fine. However, if you wanted to use the router free hand, you would find a three or more HP router difficult to control. Nowadays, some routers come with a variable speed motor. This can be very helpful in eliminating tear-out when using larger bits.

Finally, there is the question of the router base. Many people think that you should always buy a plunge-based router. This would be a good rule for all routers that you will use free hand. Here we are going to be using the router in a table and it is not necessary to pay the extra money for this feature.

Router bits are made of either high speed steel or carbide. Never use high speed steel bits. They simply won't do the job. Router bits are available in all different price ranges and in many different sets. While some of the sets are good buys, remember if you don't use many of the bits, they have no value to you. ■

For more information and a demonstration of these techniques look for my new video "Milling Your Own Moulding" published by Taunton Press Fine Woodworking available this November.

The profile designs in this article were taken from Bill Adair's "Frame In America 1700-1900" exhibit.