

# DESIGNING AND MAKING CUSTOM FURNITURE – PART 4

**DENNIS ZONGKER** CONTINUES WORK ON HIS HALLWAY TABLE AS HE CARVES THE CABRIOLE LEGS WITH SCROLLS, GRAPES, LEAVES AND VINES

In the previous issues, I've described how I designed and began to make a hallway table with matching chairs for a client. After carving the table apron, I was now ready to carve the decorative details on the table legs.

Looking back through the history of furniture it always amazes me how craftsmen were so masterful with the execution of wonderful details, achieving a standard not often seen today. For me, carving a cabriole leg into a custom furniture piece adds both elegance and style.

The definition of a cabriole leg is either two or four vertical supports of a piece of furniture shaped in two curves; the upper arc is convex while the lower is concave. The upper curve always bows outwards, and the lower curve bows inwards, with the axes of the two curves in the same plane.

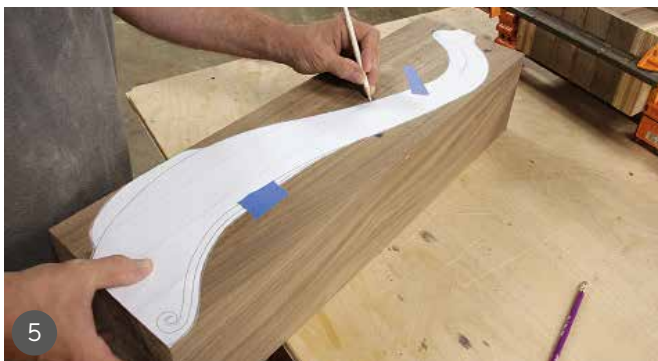
The design theme of this hallway table and two side chairs is to have grapes with leaves and vines as the main motif. The

marquetry on the top is the most striking visual aspect when looking at the entire piece of furniture; adding the grape design motif onto the fronts of the cabriole legs really helps blend the base with the top.

The shape of the legs needed to be simple, flowing lines to blend with the apron. Having a medium-sized foot with a front radius and back arch then, adding two fluted curves carved into the face of the leg that are continuous around the top edge of each foot. The last design concept was to add two small scrolls on both sides of the upper cabriole legs.

Carving scrolls into furniture is a technique that has been around for many centuries because of its simplistic beauty and accurate clean lines blending together several different radiuses. Scrolls can be incorporated into any style of furniture from complicated baroque to a simple modern-style table or chairs.





## GLUING UP THE CABRIOLE LEGS

1 I cut each leg out of the same larger board of 8/4in thick solid American black walnut to match up the grain and colour. This also means that, when I am carving, the cutting direction will be the same as I carve through each layer. It will take four pieces 1<sup>3</sup>/<sub>16</sub>in thick x 5in wide x 25<sup>3</sup>/<sub>4</sub>in long to equal the size of one leg. First, I planed the three 10ft long boards to 1<sup>3</sup>/<sub>16</sub>in thick. Then I jointed one long edge of all three pieces on the jointer. Next, on the tablesaw I ripped the walnut to 5in wide.

2 With a mitre saw I set up a stop block at 25<sup>3</sup>/<sub>4</sub>in long then cut to length. Once I had matched up the grain to each leg, I marked the side edges to keep track of the three legs for glue-up. For a better glue bond, I used a palm sander with 150-grit sandpaper to flatten any planer marks or imperfections. Plus, the 150-grit sandpaper opened up the pores for a better glue bond. It was important to remove all the sawdust with a rag and air hose. Then with a small paint roller, I applied glue to both surfaces being glued together.

3 When clamping the legs together I used cauls on the outside face to prevent any clamp marks. To keep the four layers from moving around I clamped the top and bottom edges then added a block of wood on both sides and clamped them to the sides before applying pressure to the larger bar clamps.

4 Here you can see a close-up of the end grain after removing the top and side clamps and glue. Notice how the wood grain arches match up in the same direction.

## BANDSAWING THE CABRIOLE LEG

5 From my AutoCAD drawing I printed out a full-scale drawing of the front and side view of the cabriole leg. Then I cut and taped the template to the walnut block. With a pencil I traced around my paper template of the side view.

6 To draw the face view onto the walnut I made sure that the top and bottom of the template was centred before I traced my lines.







**7** Once I had my lines all drawn onto both faces, I set up my bandsaw with a 1/2in wide blade 3-tpi positive claw to be able to cut through this walnut at 7/4in thick. I also used a bed extension to help support the cabriole legs as I fed it through the bandsaw blade. I started by cutting the face of the legs. It's important to check your blade and tabletop are square to each other by checking it with a square. Once I started feeding the leg into the blade, I just followed the pencil line. If it is cutting properly, it should be a nice, even flow.

**8** Once I was done cutting both sides of the face, I taped the cut-off wood back onto the block. This gave me a solid block and the side profile lines to be able to cut out the completed cabriole leg.

## TEMPLATE LAYOUT AND RASPING

**9** Using the same templates for cutting out the legs on the bandsaw, I used a scalpel to cut out the detail lines to be able to trace the lines onto the cabriole legs.

**10** I first bolted the top of the legs to a heavy-duty carving vice that has a ball that can swivel to provide any position needed for carving. Then I positioned the leg upside down and started to rasp the back edges of the leg to a round shape. I used a coarse rasp that is flat on one side and round on the other side. I can remove waste wood at a fairly fast pace this way.

**11** With a smaller coarse rasp I continued removing waste wood around the front and back of the bottom foot until the very bottom was completely round and balanced the entire foot front and back.

## CARVING THE CONTINUOUS FLUTES

**12** I began carving the top of the foot around the outside edges with a No. 9/7 carving gouge. I used a mallet to help remove the waste wood especially at the end of the foot where the end grain is very hard.

**13** To help with the pressure of carving with a mallet I made a block of wood that matched the back radius of the leg to rest on for extra support. With a few larger carving gouges, No. 9/10 and No. 9/13, I started carving from the top flutes to meet the lower section of the foot. The flutes taper outwards because the leg gets smaller as you carve towards the foot.

**14** The outside edges of the flutes are carved lower than the centre section between the two concave flutes. With a No. 2/20 carving

gouge and a mallet I removed the walnut continuing to the foot.

**15** Once I had lowered the flutes and the outside edges, I used several different carving gouges upside down to radius and bend the lower edges, also the raised centre section of the leg.

**16** To smooth out the carving gouge cuts I used an assortment of different rasps, from coarse to fine, to blend the concave and convex curves together.

## RASPING THE UPPER LEGS

**17** To rasp the upper leg, I first had to carve the outside profile of the grapes and leaves. I used my paper template to draw the grape design on to the face of the leg. I used several different sizes of carving gouges that match up to the shapes or radiuses. Then with the gouges at a straight 90° angle to the carving I used my mallet to tap the gouge three times to equal about 3/16in deep cuts. This is called a stab cut. I repeated this step all around the grapes and leaves, being consistent with the same amount of pressure applied when tapping the gouges.

**18** To remove the waste wood, I made relief cuts up to the stab cut at the outside edge of the entire grape design. I used my mallet to tap the gouge handle; this way I could control the amount of pressure applied to the outside edge of the grapes and leaves. I repeated the stab cut and relief cut until I reached 1/16in in depth around the entire design.

**19** With a coarse rasp I started to radius both sides of the upper leg. As I got closer to where the tips of the leaves almost disappear, I repeated the stab and relief cuts but only where needed. I continued rasping until the entire grape design was radiused to the shape of the leg.

## CARVING THE SCROLLS

**20** Starting at the centre of the scroll, I stab cut with my carving gouges at a 90° angle, working my way around the scroll and using a variety of different gouges that matched up to the radiuses. I tapped the mallet very lightly, only cutting about 1/16in deep, to prevent chips or cracks.

**21** I continued this stab cutting along the entire length of the scrolls. On the upper arches I used a No. 2/20 towards the middle, while to the end I used a flat 3/4in wide flat chisel to stab cut.







22 Leaving the centre of the scroll as the highest point, I then carved deeper outwards around the scroll. With No. 2/5 and No. 2/8 gouges I smooth cut, shaving off the walnut in small amounts. Once this met up with the depths of the stab cuts, I had to re-stab cut where necessary. I continued the smooth shaving cuts and stab cuts until I had a nice flowing spiral, higher to lower to the end of the scroll.

23 With a small No. 7/4 gouge, I cut at a 30° angle 1/8in away from the centre of the scroll to leave a reveal around the inside edge. This gave the scroll some depth and shadow.

## CARVING THE GRAPE DESIGN

24 I began by drawing all the lines onto the walnut using the original template cut into smaller pieces for drawing the inside detail lines.

25 To carve the small oval shape of the grape leaves, I used a small No. 9/2 gouge by cutting straight into the centre of the oval. I then carved outwards 3/16in and stopped and then carved from the opposite direction into the oval. Then, using several different sizes of carving gouges that matched up to the shapes or radiuses, I stab cut into the vines, leaves and grapes. The depth of the cut was only 1/8in deep.

26 Next, I relieved the inside edges of all the leaves and vines by repeating the stab and relief cuts close to their final depths.

27 Then I started on the leaves by cutting a concave centre circle approximately 1/4in deep with a No. 9/5 carving gouge.

28 To give the grape leaves a realistic appearance, I carved a gradual slope from the outside edges to the centre of the leaves. I used a few flatter gouges to shave off small amounts at a time until I achieved a smooth, natural flow on each grape leaf.

29 On the smaller leaves that just have the tips hanging out on the sides of the carving, I made them look like they are coming out from under the other leaves and grapes. Where the two leaves meet, I undercut by stab cutting at a 15° inward angle, then relief cut the waste wood to a sharp, clean inside corner edge.

30 The vines were shaped using a No. 2/5 carving gouge upside down rounding the edges by shaving off small amounts at a time. I made them look natural by just having high and low sections that blend together. I then undercut where two vines meet together, having the smaller one undercut to the bigger vine. To carve the grapes, I relief cut with a No. 3/5 carving gouge upside down and pushed into the stab cuts. I repeated the stab cut and relief cuts three times to get the grapes to be as round as possible.

31 The last carving step was to draw in with a pencil the veins of the leaves to where they look natural. Then with a No. 16/3 V tool carving gouge I freehand pushed into the wood following the pencil lines to carve in the veins.

## FINISHING

32 I like to use a round detail riffler file which is a very small, detailed file. These types of files are an excellent way to smooth out carving marks.

33 My last step was to sand the entire leg with 150-grit sandpaper. When I was completely done with all three legs, I bolted them onto the apron with 12in long, 1/2in diameter lag bolts.

## THE NEXT STAGE

In my next article I will be showing steps for making the marquetry veneered top with a grape, leaves and vine theme mixed with a medley of fruit.

You can also follow my progress on Instagram: [@denniszongker](https://www.instagram.com/denniszongker)

