

Carved cabriole leg

Dennis Zongker shows you how to carve an 18th-century-style ball-and-claw foot

Looking back through the history of furniture, it always amazes me how the craftsmen were so masterful with the execution of wonderful details, achieving a standard not often seen today. For me, carving a cabriole leg onto a custom furniture piece adds both elegance and style. The carving design on this coffee table is based on a lion's front foot, with some similarities to the 18th-century ball-and-claw style.

To begin the design process I researched the bone and muscle structures of a lion's foot. The front foot has five toes, of which one toe is smaller, like the thumb on a human hand. This toe is set back and is used mostly for grabbing prey and while eating. When the lion is walking or running this toe doesn't show up in the footprint.

When designing the lion's foot I wanted the claws to sit above the ball to show that the whole foot was gripping the ball. This would also give the heel of the foot a more lifelike appearance by setting it below the arch of the foot and having the weight of the lion standing on the ball.

Before carving into wood my first step was to make a full-scale clay model to help me visualise

the dimensions of the carving piece. I made an armature similar to the shape and size I was looking for using wood and aluminium sculpture wire. Then, using clay, I shaped the complete cabriole leg with the lion's foot and acanthus leaf. It is a good idea to make a clay model before you start cutting the wood on

furniture where you will be making four matching legs. It is also very important to use templates and measurements to keep the correct size and proportion.



PHOTOGRAPHS BY DENNIS ZONGKER

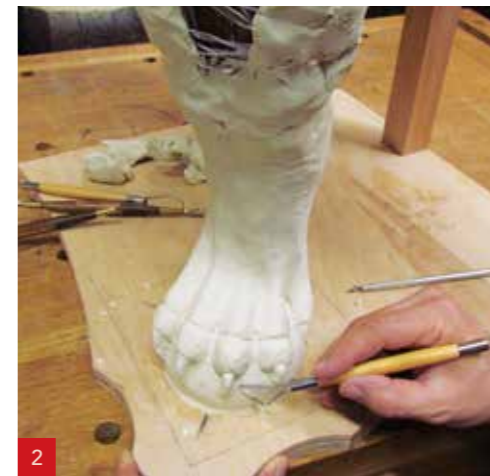
Things you will need...

Gouges:
No.2, 5mm
No.2, 8mm
No.2, 12mm
No.2, 20mm
No.2, 22mm
No.3, 5mm
No.3, 8mm
No.3, 12mm
No.3, 16mm
No.5, 8mm
No.5, 12mm
No.5, 16mm
No.8, 4mm
No.9, 3mm
No.9, 10mm

General tools:
Plywood for armature
Sculpture wire
Modelling clay and modelling tools
Mahogany (*Khaya ivorensis*)
19mm thick x 405mm square for top and bottom plates,
55mm wide x 466mm tall for the armature
Paper/cardboard and pencil
80 grit sanding block
Glue and bar clamps
Bandsaw
Medium wood rasp
Pair of compasses
Hand saw and mallet

ABOUT THE AUTHOR

Dennis Zongker has been a professional custom furniture maker for over 28 years and is co-owner of Zongkers Custom Furniture in Omaha, Nebraska. He teaches woodcarving and marquetry classes at Midwest Woodworkers. To see more of Dennis work visit www.zongkers.com



1 To make the armature out of wood and wire, cut two pieces of plywood to represent where the top will be placed to the leg. Draw a 170mm square for the location to screw the wooden armature and placement of the sculpture wire; this is the size of the glued up mahogany (*Khaya ivorensis*) block before cutting and carving

2 Oil-based modelling clays stay soft and workable: they never harden or dry. Start applying the clay onto your armature and use modelling tools to shape the location of the claws and the radius of the ball. Using clay for the winged acanthus leaf will also help you to proportion its size to the cabriole leg

3 After completing the clay model of the cabriole leg, place a piece of thick paper or cardboard at 170 x 466mm tall just behind one side. Then, using a pencil trace around the outside edges, extending outwards by approximately 12mm. This will leave the extra wood needed for carving the foot and acanthus leaf. This template will be used to trace the cut lines on the glued up block of wood

4 Each leg will need to be glued up into equal 170mm square x 466mm tall blocks. Use kiln-dried 8/4-in mahogany – four pieces for each leg at 36mm thick x 170mm wide x 466mm tall. It is best to cut each leg out of the same larger board in order to match up the wood grain direction. To get a better glue bond, scratch up each surface being glued with 80-grit sanding block. Roll yellow glue onto each face that is being glued together, then use several bar clamps and smaller wood blocks on the ends and corners



5 The best time to cut the mortise into each leg is now because the leg is square. I use a router table and bit but any method you prefer will work, such as a mallet and a chisel



6 Place the paper template on top of one face of your block of wood and trace a pencil line following the edges. Then roll your block over once and draw in the next pattern. Make sure that the foot and upper arch meet together at the front corner



7 Use a bandsaw to cut out the back and front lines of the leg. After you have cut out one side, tape back on the waste material to give you back the pencil line



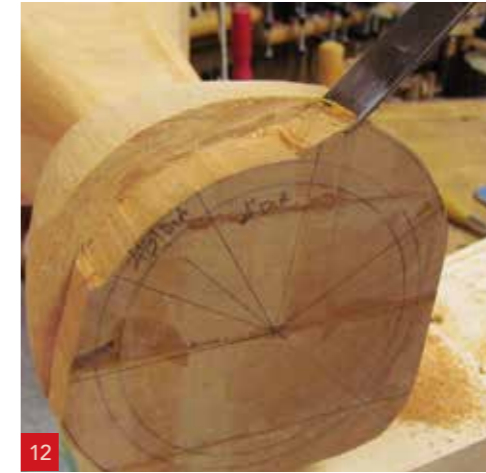
8 Mount the leg to your carving bench using a carver's vice and screwing to the top of the leg. Then, to support the foot, place blocks of wood for it to rest on and clamp down where needed



9 To shape the leg, use a medium wood rasp to round the front corner and blend it into the sides with approximately a 38mm radius from the top of the left corner to the foot. For the two inside corners of the leg, shape approximately a 25mm radius starting right under the apron section and blend it down the foot



10 One of the most important steps for carving the foot is to set out the spacing between the toes. First, draw in three different circles on the bottom of the leg using a compass. The centre point of the compass is centred to the 170mm square or 85mm in from both front edges. Note: for the outside circle set your compass at 70mm radius to equal the 140mm diameter. This circle is the outside face of the toes. The middle circle at 115mm diameter is where the widest section of the ball and the



tip of the claw will start. The inner circle at 100mm diameter will be the smallest diameter of the ball at the bottom of the foot. For setting out the distance between each toe and thumb, see the layout drawing. Make two left and two right feet, with two where the thumb faces inwards and two where they face outwards. Finish rasping the foot following the 140mm diameter circle on the sides and front. Measure 20mm up from the bottom of the foot, then with a pencil draw a line around the front of the foot. This line is where the claw nail point begins

11 Next, use a hand saw with a piece of tape stuck to the side of the saw to cut into the foot 12mm deep. Cut around the outside following the pencil line

12 Using a mallet and a No.2, 22mm carving gouge, you can now cut down to the 115mm diameter pencil line around the circumference of the foot

13 Extend the pencil lines from the bottom of the foot to the front face of the foot to where the claws will be located. Next, using the templates of the claw toe and thumb as guides, draw a pencil line following the template edge

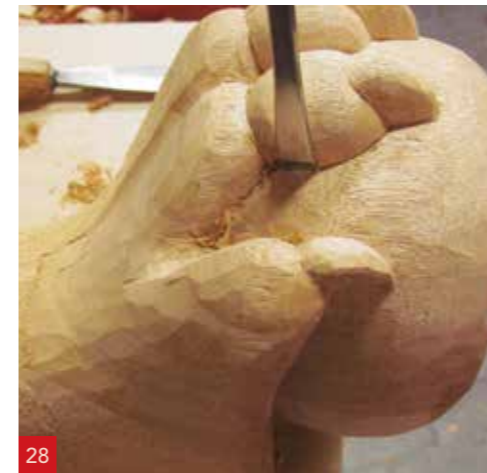
14 To create the knuckle of the toe, freehand draw in the upper section of the lion's foot, making it slightly wider at the section by the toe with a slightly thinner space closer to the ankle of the leg

15 Using a mallet and No.2, 12mm and No.5, 8mm carving gouges, stab cut around the claws and toes. Angle the gouge slightly outward around the toe section – this will make the toe a little larger, giving some extra room

16 To remove the waste wood at the heel of the foot, draw a line 50mm up from the bottom of the foot. This is approximately where the heel will rest. Use a No.2, 20mm carving gouge with a mallet cut straight into the heel, then remove the waste by carving up with the gouge flipped over to match the arch of the ball

17 Once you have the ball and heel close to its final depth use a No.2, 20mm gouge upside down to shape the bottom of the ball by following along the 100mm diameter circle. It is important to leave the centre of the ball at its widest 115mm diameter

➔ **18** On the side of the foot where the thumb claw is located, draw in the arch of the thumb approximately 12mm higher than the heel. Then use No.3, 16mm and No.5, 16mm carving gouges to remove the waste wood. Shape the ball by using a No.2, 12mm upside down and carving in deeper into the ball up by the foot. On the opposite side of the thumb there is more open space with a larger arch. Again, here you will need to draw in the arch freehand. Try to blend the front toe into the heel. Leave the heel lower to give the appearance that the lion's weight is resting on his heel. Use a No.3, 16mm and a No.2, 20mm to remove the waste wood by stab cutting along the pencil line. Then relief cut up to the stab cut



19 To carve the toes and claws of the lion's foot, keep stab cutting into the ball around each toe, knuckle and claw, and shape them by using the gouges upside down. It is very important to carve deeper into the ball by the knuckle giving it its rounded shape and at the tip of the claw leaving the largest diameter

20 Use a No.9, 3mm carving gouge to begin shaping the knuckles and carve a small radius between each knuckle down into the ball

21 Use a No.3, 12mm and a No.5, 12mm carving gouge upside down to round and shape the radius corners of each knuckle

22 When carving the claw, keep in mind that the shape is wider at the top and thinner towards the tip. There is also an arch on the front of the claw which helps give the appearance that it is grabbing the ball. Use a No.3, 8mm carving gouge to carve close to the claw's finished size

23 Use a No.2, 5mm gouge to shape the tip of each claw, carving them so that it looks like the claws are gripping the ball

24 To start shaping the upper section, use a No.9, 10mm gouge with a wider cut at the knuckle, changing to a narrower cut as you carve up the ankle section

25 To give the claws clean, sharp details, you need to stab cut into each toe at the upper radius of the claw using a No.2, 5mm and a No.3, 5mm gouge

26 Then with a No.2, 8mm gouge cut a clean line between the claw and toe and shape the lower section of the toe by cleaning and blending up the carving gouge marks. You now need to repeat step 25 on all five claws, toes and knuckles

27 Use a No.2, 20mm carving gouge upside down to shape the round part of the ball. Also at this time I round over both sides of the thumb and the opposing toe and knuckle back towards the heel using No.3, 16mm and No.5, 16mm gouges

28 To clean up the detailing of the lion's foot, stab cut around each toe and claw. Lightly tap the gouge with a mallet

29 Then, using No.2, 8mm; No.2, 10mm; No.2, 12mm and No.2, 20mm carving gouges upside down, carve up to the stab cuts all around the lion's foot. You will need to rotate the carving gouges to match up to the profiles

30 The thumb arch of the lion's foot is set back with a larger spacing. Use a No.8, 4mm gouge to carve into the arch to get the shape between the thumb and toe. Then, with a No.3, 12mm gouge, smooth carve out all the gouge cuts and marks

31 Use a No.9, 3mm carving gouge to clean up between the knuckles of the foot section, making sure the ball and knuckle are cut clean to each other

32 To do the very last touch ups to the carved cabriole leg, shape and clean up any gouge marks using all the gouges used throughout this section

33 Once all the carving and finishing is done, the carved cabriole leg should look like this ▶

Top tips

1. The cabriole leg sits at a 45° angle facing outwards to the corner of the table top. Adding 12mm to your template will give the extra wood needed for carving in the details. The side profile can be misleading to what the actual size needs to be
2. Mark on one side of the long edges with a 'V'; this will allow you to keep track of matching up the grain