



## PAD FOOT

The most familiar foot of the three, the pad foot has plenty of variations. In the simplest and most common version the rim of the foot is  $\frac{3}{4}$  in. to 1 in. off the floor and its diameter is just under the size of the leg blank. A competent 18th-century turner easily could have produced it in less than 5 minutes, perhaps explaining its prevalence. This is my interpretation of a typical New England pad foot.



## SLIPPER FOOT

To me, the slipper foot is the most successful design for the bottom of a cabriole leg, especially when the arrises on the leg are retained and gracefully end at the point of the foot. There's a blend of soft curves and defined edges that just works. This particular foot design was taken from a Newport tea table in the Pendleton House collection at the Rhode Island School of Design Museum.



# A step-by-step guide to creating three distinct period feet for the cabriole leg

BY STEVE BROWN

## One Leg, Three Feet

### TRIFID FOOT

The trifid foot is similar to the slipper foot in the way the back line sweeps inward from the ankle to the floor. And like the other feet, the trifid's plan-view pattern consists of an outer line indicating the edge at the top of the foot, and an inner line indicating the footprint where it meets the floor. This trifid design is based on an 18th-century Philadelphia Queen Anne side chair. It is one of the most elegant trifid foot designs on an American piece.

In the furniture making program at North Bennet Street School, students usually find inspiration for their projects in books from our extensive library. They'll find many examples of period pieces, but they'll also find more contemporary work. What they won't find is any lack of possibilities. Sometimes limiting their options is the hard part. If a furniture maker is inspired by the cabriole leg, for example, they still have to decide what kind of foot to put on it. There are a lot of options.

To clarify a few of them, I will focus here on three common feet for the cabriole leg: a turned pad foot, a slipper foot, and a trifid foot. All three share some basic steps in layout and execution. For each I've provided a side-profile pattern of the whole leg and a plan-view pattern of the foot, which you can trace onto the bottom of the blank. These two patterns, which embody the sophistication of 18th-century furniture design, are used to create three-dimensional sculptural feet in a way that is surprisingly simple.

The turned pad foot is essentially a flattened oval-shaped block of wood that rests on a disk or pad. The pad foot is sometimes referred to as a Dutch foot or spoon foot.

The slipper foot, which was popular in the Queen Anne period, is aesthetically spare and a very elegant solution to the cabriole leg.

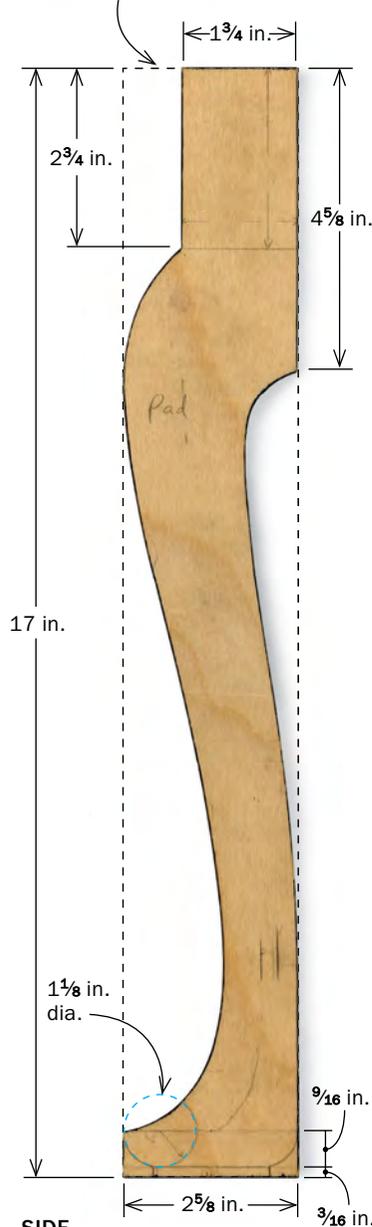
The three-toed paw or trifid foot has animal-like toes and is found on many traditional furniture pieces. I refer to its three divided or cleft elements as toes because the other name for the trifid is a Drake's foot, suggesting that it resembles a duck's three toes.

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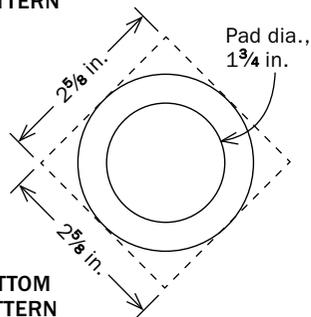
*Steve Brown is an instructor at North Bennet Street School in Boston.*



Blank,  $2\frac{5}{8}$  in. square by 17 in. long



SIDE PATTERN



BOTTOM PATTERN

This leg and foot can be sawn first and then turned, or vice versa. I think it's easier to turn first. To begin, trace the side pattern on the blank and mark the elevation of the pad and the top of the foot. Also make a chamfer mark at the thinnest part of the ankle. The blank should be overlong, giving you a way out if the first attempt at turning the pad foot doesn't go well.

The first thing to be turned is the pad under the foot. Using a parting tool, give it a cylindrical shape. Next, turn a cylinder for the foot itself. Then, using the long point of the skew, scribe a firm line to define the top of the foot. This cut must be deep enough to accept the edge of a chisel when you pare the top of the foot later.

Use the parting tool to cut to the chamfer mark, then continue this chamfer down to the foot. Now, to create the inward sweep of the

back of the ankle, turn a fair curve with the skew from the top end of the chamfer down to the scribe line at the top of the foot. Once the back of the ankle is formed, turn the foot with the skew or with a small spindle gouge or scraper.

Next saw out the leg on the bandsaw and clean up the sawn surfaces. Retrace the side pattern on the turned surfaces, and draw chamfer lines to guide the rough shaping. As you take the leg and foot from square to round you'll remove 80% to 90% of the wood by chamfering before blending the facets into a smoothly curved surface. I use a 1-in. chisel to remove the bulk of each chamfer and switch to a rasp to fine-tune them. Then I knock off the peaks between chamfers and shape the final curves with a rasp. Finally, I use a half-round file and card scraper to refine the surface.

### 1. TURN FIRST



**Leg layout.** After tracing the side pattern onto the blank, mark the ankle for a chamfer. Mark the leg's center by eye, then mark a little less than halfway to the back edge.



**Turn the pad first.** With a parting tool and calipers, turn the pad to a cylinder the same diameter as the inner line on the bottom pattern.



**Scribe with a skew.** After turning the foot to a cylinder, use a skew to make a deep scribe line at the top of the foot. This will help as you carve the top of the foot.



**Define the chamfer.** Use a parting tool to cut to the depth of the chamfer mark, then carry that chamfer down the rest of the leg.



**Turn the heel.** The inward sweep at the back of the ankle is created by turning a fair curve with a skew chisel. It begins at the chamfer mark and sweeps right down to the scribe line at the top of the foot.



**The foot curves under.** With the heel curve shaped, you now have access to turn the underside of the foot to its curved profile. You can make this cut with a skew, a spindle gouge, or a scraper.

## 2. THEN SHAPE

**Creating the cabriole.** With the foot turned, reapply the side pattern lines and saw out the leg. Bandsaw one side, tape the cutoff back on, rotate the blank, and saw again. At the foot, cut close to the skew line but don't hit it. Then fair the sawn surfaces with a rasp or spokeshave.



**Freehand layout lines guide the shaping.** To lay out chamfers, Brown eyeballs the space in half, then draws his chamfer line a little more than halfway from the edge to the center.



**Chamfers take the leg from square to round.** For the major leg chamfers, Brown often uses a 1-in. chisel and a drawknife to remove the bulk of the wood. Then he switches to a rasp to fine-tune the surface.



**Chamfers shape the top of the foot.** To finish shaping the foot, draw layout lines for chamfers from the foot up to the ankle. Use a chisel and rasp to cut the chamfers and then to create narrower chamfers. Work carefully near the skew line, and when there is very little wood above it, use a chisel to pare to the line. Once the shape is fair in all directions, file away the rasp marks.

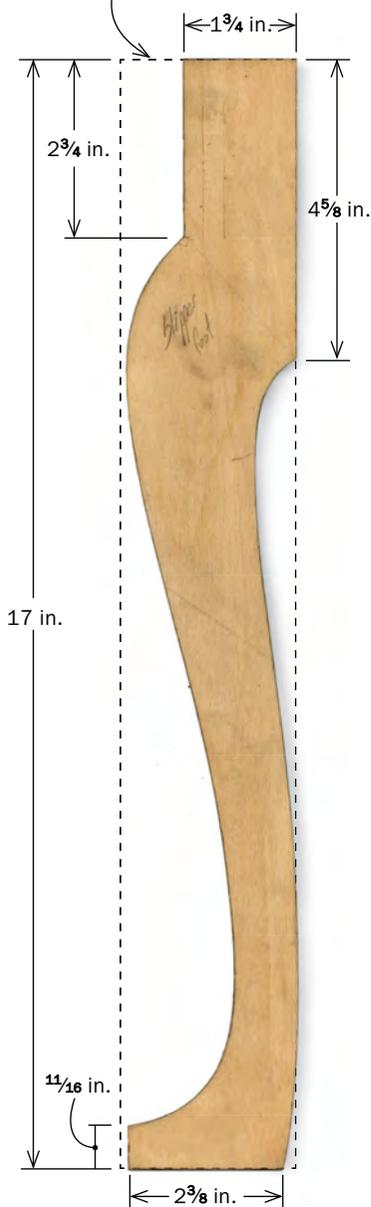


# SLIPPER

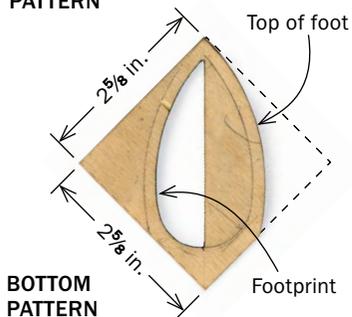
## THE ELEGANT SLIPPER FOOT



Blank,  $2\frac{5}{8}$  in. square by 17 in. long



SIDE PATTERN



BOTTOM PATTERN

**S**haping the slipper foot begins once you've sawn out the rest of the leg. Start the foot by tracing the bottom pattern onto the bottom of the leg. This is a hybrid pattern, which includes a half-pattern for the shape at the top of the foot and a half-pattern for the footprint; flip it and trace it twice to complete the layout. Then remove all the wood outside the outer foot line with a chisel, first chopping, then paring to create a plumb surface. Next, bevel the sides of the foot from the top edge you've just created to the inner line for the footprint. The last task in forming the sides and back of the foot is to blend off the corner that the first steps have left at the heel. Now the bevel will be continuous from the tip of the toe right around the back of the heel.

With all else finished, you'll crown the top surfaces of the foot up to the ankle. The table that this foot design was taken from had a very subtle crowning on all four faces of the leg from

the knee down to the foot. It is so subtle that it's hard to make out when the leg has no finish on it. But once finished it softens the look of the leg, creating a blend of softness and crispness between the leg face and the arrises.

Before you begin the crowning, be sure that the arrises are fair curves from the top of the foot up the ankle. I use a round-bottom spokeshave to do the crowning. Because of the grain direction, I work from the edge of the toe up to the ankle, creating a very slight bevel on either side of a given surface. This is repeated on all four faces up to the ankle. On the back surfaces, the crowning will blend into the curving bevel that runs around the heel. The foot bevel itself does not get crowned. Now the foot can be cleaned up and sanded to 220 grit.



**Trace the bottom pattern twice.** The outside curve of the pattern represents the top of the foot; the curve of the cutout is for the footprint. Set the pattern on the bottom of the blank and trace both curves. Then flip the pattern, leaving the toe at the same corner, and trace both curves again. Use a chisel and mallet to knock off a lot of the waste outside the layout lines.





**Pare to the outer line.** Using a 1-in. chisel, pare to the outer pattern line on both sides of the foot, creating a surface perpendicular to the bottom of the blank. In doing so, you transfer the outline to the top of the foot.



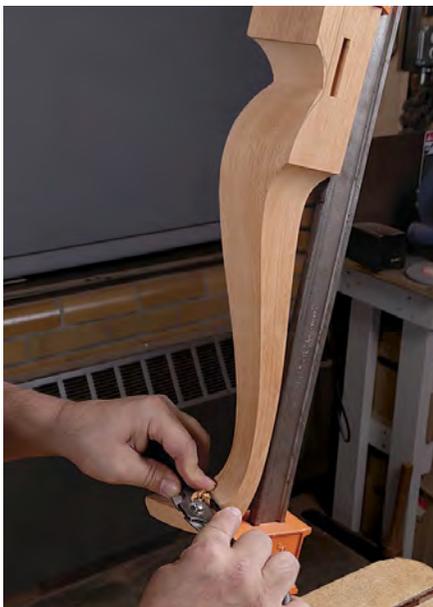
**Bevel to the footprint.** With a chisel, bevel the surface you've just created. The bevel will connect the outline at the top of the foot with the outline of the footprint. Then use a rasp to blend the bevel fair to the back section of the foot.



**Shape the heel and back of the ankle.** The previous steps leave a triangular chunk to be removed at the heel. Draw the layout lines so they meet where the ankle becomes vertical. Then use a chisel, rasp, and file to remove the waste and fair the heel into the bevels on either side.



**Crowning moment.** The final step in forming the foot involves crowning the top surfaces from the edges up to the ankle. A round-bottom spokeshave works well here. You can use a series of slight bevels to create the crown.



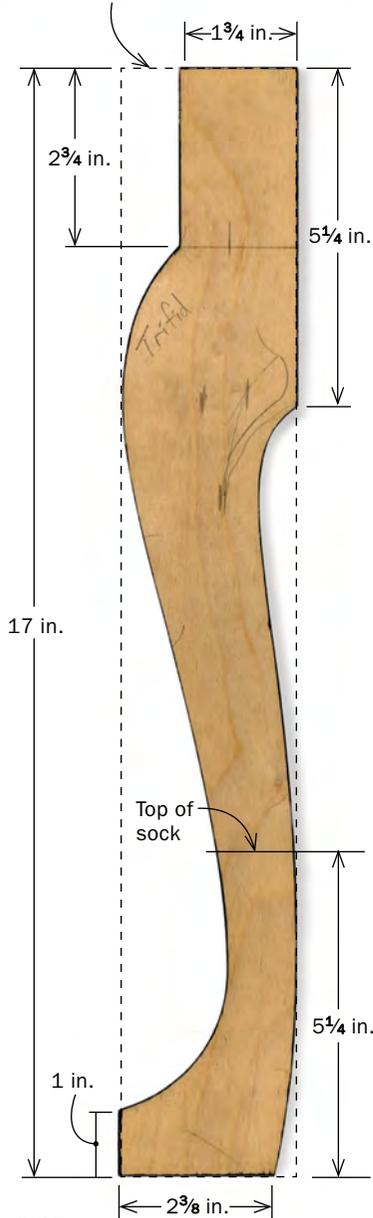
**Clean up on top.** Use a file to smooth the crowning on the top of the foot, but keep the arrises sharp. The foot can now be sanded to 220 grit.

# TRIFID

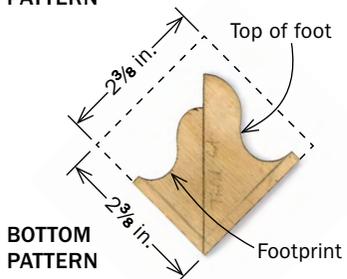
## TRIFID FOOT HAS PIZZAZZ



Blank, 2<sup>5</sup>/<sub>8</sub> in. square by 17 in. long



SIDE PATTERN



BOTTOM PATTERN

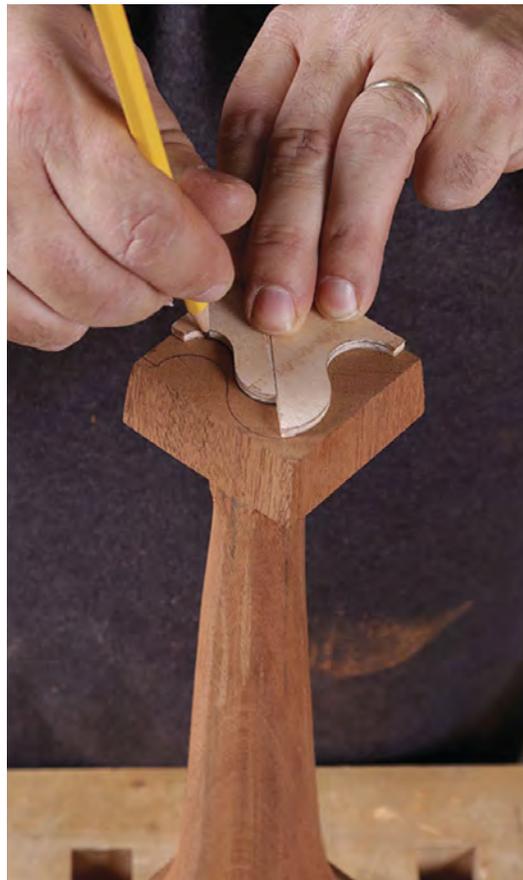
The first couple steps to shaping the trifid foot are similar to those on the slipper foot. After sawing out the leg and tracing the bottom pattern, start shaping to the outside line of the foot, creating a surface perpendicular to the bottom of the blank. I rough out the shape with a saw and use a chisel and rasp to finish as much of the surface as I can. Where I can't reach with the rasp I use a #11–10mm veiner gouge. Once those curving surfaces are established, use the same tools to bevel down to the footprint line. A rat-tail rasp works well for the inside curves.

Next, with a veiner, carve the tapering coves from the toes up the ankle to the top of the sock. Start with penciled layout lines, drawn by eye and flowing from the toes. Mark the top of the sock 5<sup>1</sup>/<sub>4</sub> in. up from the bottom of the foot. The cove doesn't need to be more than <sup>1</sup>/<sub>8</sub> in. to <sup>3</sup>/<sub>16</sub> in. deep. To deal with changing grain you

may want to carve part of the cove from top to bottom; for the transition area, a small round scraper is handy.

The three elements that form the sock terminate at the top in shallow arcs, which can be made with a #5 or #7 sweep, 20mm gouge. The arcs should be set in about <sup>1</sup>/<sub>4</sub> in. Once those set-ins are created, the surface of the leg above the sock can be relieved down to the depth of the coves using a 1-in. chisel, a half-round file, and a scraper.

The last step in forming the foot is to shape the tops of the toes up the ankle. The middle toe will have a slight crown that blends to a quarter-round up at the ankle. All the toes can be shaped with a chisel, rasp, file, and scraper. I have no qualms about using sandpaper to improve the surfaces of the coves, though I wouldn't use anything coarser than 220 grit.



**Begin at the bottom.** Trace the bottom pattern on the bottom of the blank. Like the pattern for the slipper foot, the trifid pattern generates perimeter lines for both the top of the foot and the footprint. And it also must be traced on both sides, flipped, and then traced again on both sides.



**Saw it off.** As much as possible, rough out the shapes with a dovetail saw, being careful not to cut past the outer lines. Diagonal cuts remove the front and side corners. Two angled cuts meet at the deepest part of the cove between the toes.



**Work to the lines.** Using a paring chisel, work carefully to the outer line of the pattern, keeping the surface perpendicular to the bottom of the blank. This will establish the perimeter at the top of the foot. Then with chisel, gouge, and rasp, create a beveled surface from the top line down to the footprint line. For shaping the heel, a spokeshave works well.



**Coves between the toes.** To define the area between the toes, draw layout lines from the sides of the toes up the leg. Cut narrow channels to the inside of the lines and widen them into shallow coves that run up the ankle to the top of the sock.



**Reverse engines.** You may need to carve from the ankle toward the foot when working at the top of the sock. Brown's tool of choice for carving the coves is a #11-10mm veiner gouge. The coves needn't be more than  $\frac{1}{8}$  in. or  $\frac{3}{16}$  in. deep.

**A sock for the trifold foot.** The sock is a feature typical on trifold feet. The tops of the sock elements end in arched cuts made with a shallow gouge pushed in at  $90^\circ$ . Then the arches are defined, or set in, from above with a chisel. The surface of the leg is then relieved to the depth of the coves, leaving the sock proud of the surface.