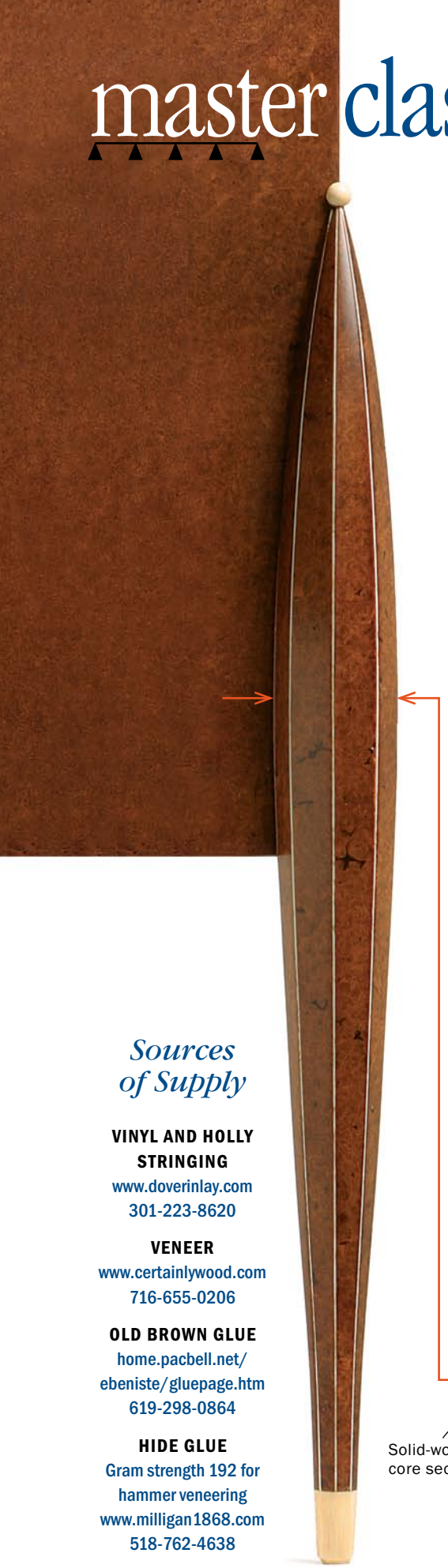


A faceted Ruhlmann leg

BY AARON RADELOW

In Paris during the early years of the last century, Emile-Jacques Ruhlmann was "it" when it came to Art Deco design. One of his signature designs was a torpedo-shaped, multisided leg that attached to the corners of tables or cabinets. While looking through a book on Ruhlmann furniture, one of these *fuseaux à facets,* or spindle legs with facets, caught my attention. I was lured by the simplicity of their graceful curves, but I was shocked to learn that it took Ruhlmann's top craftsman needed a week to create each leg.

Intrigued to discover their hidden complexity, I decided to take the plunge and to build a cabinet incorporating four of these legs. With the aid of various jigs, I broke down construction into manageable sections that, while still time-consuming, are not that difficult.

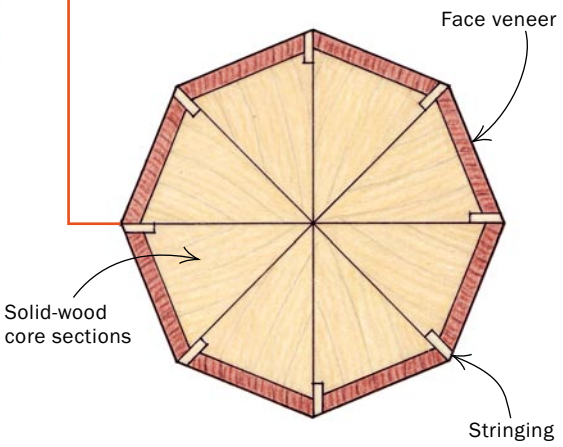
The leg's core consists of eight pieces

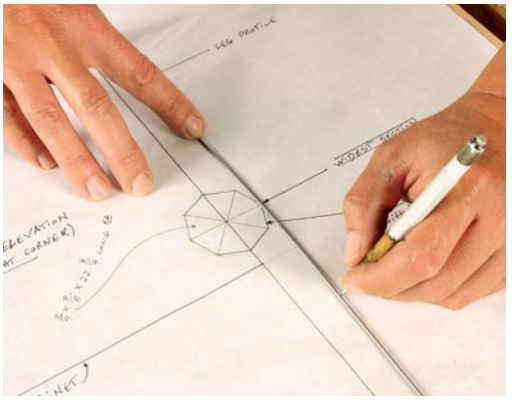
You'll need to create a full-scale drawing of the whole piece first. Use a thin strip of wood or metal to lay out the fair curve of the leg's profile. At the leg's widest point, draw a line perpendicular from the outside edge to the midpoint of the leg. Draw seven other lines of equal length radiating out from this midpoint and connect them at the ends to form an octagon. This will be your guide for making the eight sections of the leg.

Cut the leg components—Traditional Ruhlmann legs were veneered, so the core should be made from strips of stable and well-seasoned rift-sawn white oak or poplar. If you prefer a more contemporary look, use cherry or maple for the legs and skip the veneering. In either case, start by milling rectangular strips that are the same width as each segment in the octagon, slightly thicker than the outside edge of one facet, and about ¼ in. longer than the leg. Make parts for two extra legs to allow for testing and waste.

I make a jig or sled to run these strips through my planer to create isosceles triangles with two base angles of 67.5° and a top angle of 45° (see drawing, facing page). All eight triangles must be identical so that when dry-fitted together they create a solid leg that matches the cross-section drawing.

Lay out the leg





A full-size drawing. *Use a flexible guide to fair the leg's curve. Then draw the octagonal cross-section at the leg's widest point. This view is used to size the eight sections that form the core.*

Sources of Supply

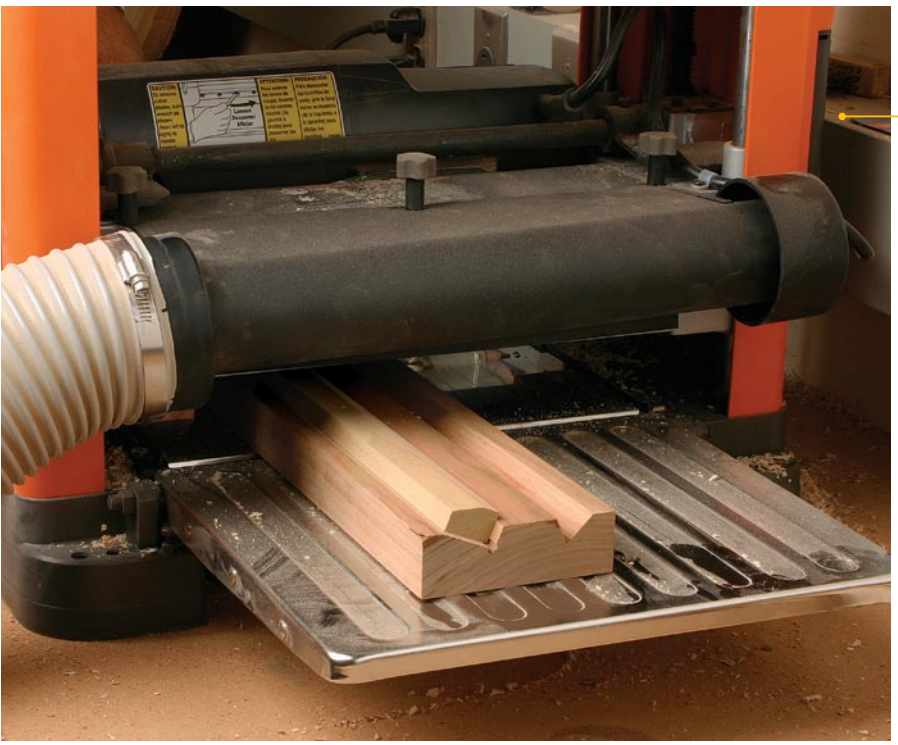
VINYL AND HOLLY STRINGING
www.doverinlay.com
301-223-8620

VENEER
www.certainlywood.com
716-655-0206

OLD BROWN GLUE
home.pacbell.net/ebeniste/gluepage.htm
619-298-0864

HIDE GLUE
Gram strength 192 for hammer veneering
www.milligan1868.com
518-762-4638

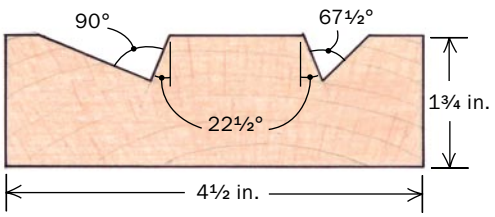
Photos: Mark Schofield; drawings: Vince Babak

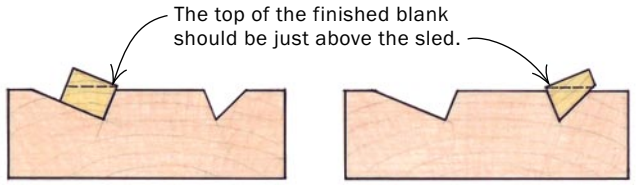


Make the leg segments

STEP 1: USE A SLED TO ANGLE THE SEGMENTS

To create the eight triangles that form an octagonal leg, place each rectangular blank on a sled and run it through the planer in two positions.

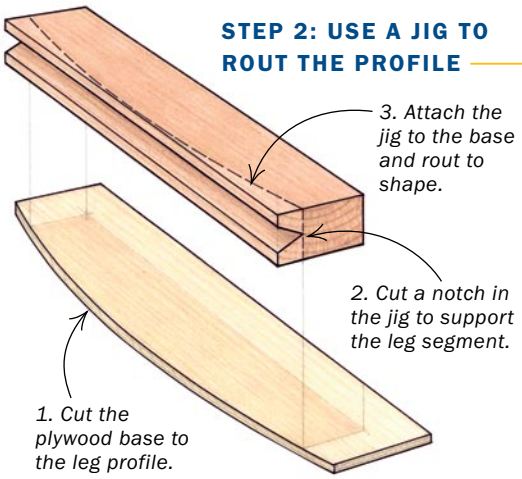




Place a rectangular blank in the first channel and run it through the planer until you create a single flat surface across the top of the blank.

Place the just-planed surface face down in the second channel and run it through the planer until you have created an isosceles triangle.

STEP 2: USE A JIG TO ROUT THE PROFILE



Into the router jig. *Use a pin nailer to secure each leg section. To make the pins easier to pull out, Radelow attached a binder clip as a pivot point for angling the gun away from the work.*

Work outward to the ends. *To avoid tearout on the top of the leg, begin in the middle and rout the bottom of the leg conventionally. Then profile the top of the leg, working away from the center, using a climb-cut and keeping a firm grasp on the jig.*

Form the leg's profile—To cut the curved profile of the leg on each triangle, you'll need a jig for the router table or shaper. The base of the jig can be made from ¼-in. or ⅜-in. plywood. It should be about 5 in. wide and 4 in. longer than the leg. Cut the leg's profile on the base's front edge; the bearing on the pattern-cutting bit will run against this edge. The jig's top section should be about 1 in. thick by 3 in. wide, slightly longer than the leg component, made from pine or some other softwood.

On the tablesaw, cut a 45° wedge into the edge of the jig so that a triangular leg section will fit snugly and will be flush with the outside edge of the jig. Glue the

Roll up the leg. *After shaping the eight sections for each leg, dry-fit them with masking tape to check for symmetry.*

Add veneer and stringing

Apply the veneer. *Because clamping the veneer to the triangular leg section would be very difficult, the easiest way to apply the veneer is with hide glue and hammer veneering.*

Trim the veneer. *Use a laminate trimmer with an adjustable base to remove most of the overhanging veneer.*

two parts of the jig together so that the top part is flush with the widest part of the base. On the bandsaw, cut the leg profile onto the top part of the jig, staying just outside the base line.

When you place the leg blank back into the jig, it should be flush only at the widest section of the jig. Secure the blank temporarily in the jig using a pin nailer. To make it easier to remove the pins later, the pins should only just penetrate the workpiece, and the front of the pin nailer should be propped to keep the heads of the pins exposed.

Remove the bulk of the wood on the bandsaw, and starting in the middle of the leg, run the right-hand or lower end of the leg past the router bit from right to left. If you try to run the top end of the leg into the bit in this direction, you will be going against the grain and almost certainly will get tearout. Instead, do a climb-cut on the top half, moving the jig from left to right. When done, remove the pins with pliers to release the shaped component and test it against your full-scale drawing.

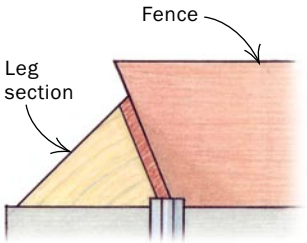
Veneer and inlay one section at a time

With the core components shaped, it's time to veneer them. Because you'll be gluing eight pieces together, there probably will be misalignment that must be corrected by sanding. Most burl veneers, such as this amboyna burl, are thick enough to allow for sanding, but standard veneers are too thin; use special 1/16-in.-thick veneer (see Sources of Supply, p. 106).

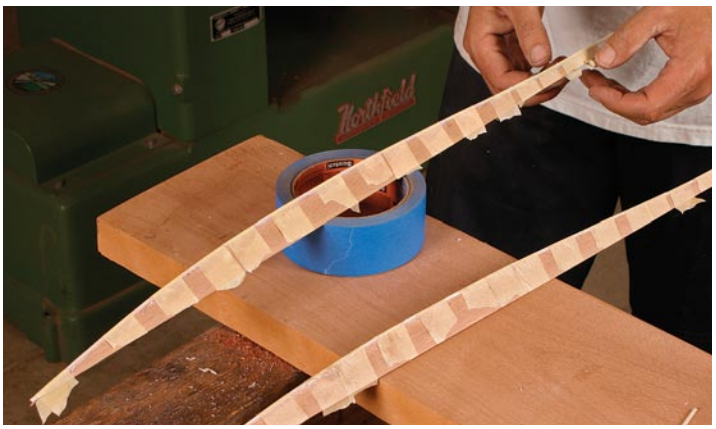
Make a pattern of the outside face of a leg section and cut out the veneer using either a veneer saw or a scrollsaw. The veneer should overhang the section about 1/8 in. all the way around.

I build a cradle with a 45° groove to hold each piece while I hammer-veneer it using hot hide glue. Once the veneer has dried, trim the overhanging edges flush. I use a laminate trimmer with a tilting base and a new flush-trimming bit. The tapered ends won't guide the bit's bearing, so I sand these sections and clean up the whole piece on P150-grit sandpaper glued to a flat surface. Don't sand too much or you'll spoil the alignment with the other pieces.

One side of each section gets stringing—To emphasize the octagonal shape, eight lines of stringing run down each leg. The

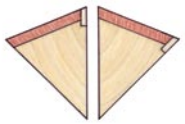


A groove for stringing. *Use a rabbeting bit in a router or laminate trimmer to create a small rabbet on one side of each leg section for the stringing.*

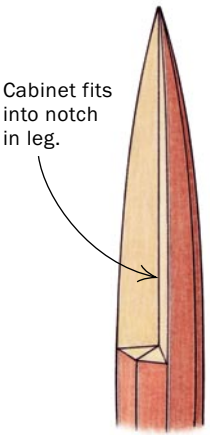


Apply the stringing. *A thin bead of glue and plenty of masking tape secures the ivory or holly stringing in each leg section (above). The rabbet should be very slightly shallower and narrower than the stringing so that the latter can be sanded to final size (left).*

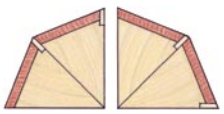
Assemble the leg



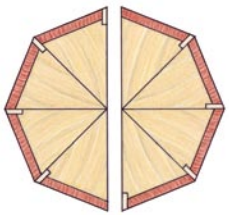
Assemble in pairs. *Glue two leg sections at a time into quarters.*



Each leg has a notch. *Cut off the top of one of the quarter sections to create the notch that receives the corner of the cabinet.*



Glue the quarters into halves.



Glue the halves together.

Assemble the sections. *Glue the quarter sections in pairs to form halves of the leg. When dry, glue the halves together to complete the leg.*

traditional material is ivory (you can buy certified legal ivory online at eBay), but holly or vinyl are acceptable and are easier to use because they typically come in longer lengths.

Run a rabbet slightly less than the thickness and width of the stringing into one outer corner of each leg section (see drawing, p. 108). To cement the stringing into the rabbets, I use Old Brown Glue, a liquid hide glue with extended work time. The next day, sand the inlay flush with the leg segment.

Assemble the legs and add the shoes

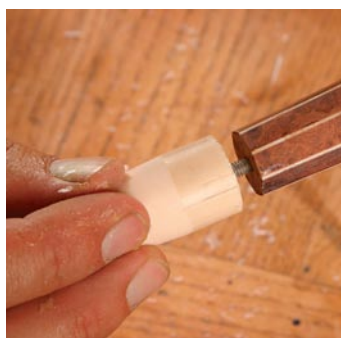
Gluing eight sections at once would be messy so I take two sections, apply hide glue sparingly to both joining faces, and tape them together with masking tape, making sure they are as flush as possible. Allow the quarters to dry overnight.

Take one quarter and cut away the top to form the notch for the cabinet's corner. Now glue the four sections into halves, and then the halves to form a whole. Cut the leg to length on the tablesaw, propping up the foot so the cut will be square.

To make the foot, take a ¾-in.-sq. by 2-in.-long piece of the material you used for the stringing. Turn it on the lathe to create a taper that will follow the shape of the leg, with the connecting end 1/64 in. larger in diameter than end of the leg. While at the lathe, drill a small hole in the foot for a dowel or a piece of threaded rod, and a matching hole in the end of the leg. Glue the foot in place.

Now extend the leg's octagonal flats onto the foot using a small sanding block. After everything is faired to your liking, sand the whole leg, one facet at a time, using P150-grit paper. This will also transfer the corners to the center of each inlay. With the cabinet upside down, attach the legs using Old Brown Glue and strap clamps.

The last step is to add the small ivory bead at the top of each leg. I use a ball burr bit in a handheld drill, but you could use a gouge to create a small crater that will enclose about a third of the bead. Apply a high-gloss traditional finish, and admire the results. □



A turned foot. *Turn the tapered foot until it is just larger than the bottom of the leg. Join the two with either a dowel or a threaded rod (above). Use a sanding block to extend the leg facets onto the foot (right).*