

Boule marquetry: Two panels for the price of one

BY SILAS KOPF

With most inlay or marquetry, you create one panel at a time. With boule work, you stack two contrasting materials together, cut a design in them on the scrollsaw, and then interchange the parts. The lighter parts go into the darker background, the darker parts go into the lighter background, and the thin sawkerf between the pieces is filled by dark glue. In the end, you get two panels from one cutting.

The process is named after André Charles Boulle, cabinetmaker to Louis XIV of France. He didn't invent the technique, but he popularized it 300 years ago by building very elaborate pieces for his aristocratic clientele. Boulle would often completely cover the surface of a piece with a dazzling interplay of light and dark material. But the technique also can be used in a more limited way to embellish a cabinet door or the back splat of a chair. These stylized flower panels could be used in a checkerboard pattern.

Create a design and prepare the materials

A successful boule design will clearly emphasize the shape of the pieces to maximize the contrast with the bordering part.

Once a design is made, you need to select the contrasting materials. Traditionally, a light-colored metal such as brass or pewter and a dark wood such as ebony were favored. However, you also could use light and dark woods. In this case, I used brass (www.onlinemetals.com) and katalox, a dark Mexican wood.

The standard metal thickness is either 0.032 in. or 0.040 in., but in either case the wood should be resawn slightly thicker. That way, when leveling the final panels, the softer wood is brought down to the harder metal and not the reverse, which would be much more work.

First, cut the brass and wood panels to the same width and length. The wood parts of the design may have short grain



Mix and match. Cut contrasting materials, switch the pieces, and create two panels.

that can shatter or fall apart during cutting. To hold it together, brush hide glue (hot or liquid) on one side of the wood and stick a piece of newsprint to it. Then, use an old hacksaw blade to rough up one side of the brass for a better glue bond.

Now prepare the package of wood and metal for scrollsawing (see facing page). On the drill press, make an entry hole into each section of the design to allow the sawblade access. The holes will be visible in the final product, so make them 1/32 in. to 3/64 in. diameter—only slightly larger than the blade—and placed on the line where they'll be least obvious, such as at a point.

Saw the center parts first

You want a sawblade that is strong enough to cut metal but small enough to leave a minimal kerf. I use a No. 3 metal-cutting blade made by Eberle (www.wildwooddesigns.com,



Matching masterpieces. Boulle work is often the dominant element on pieces that feature it. Kopf used a grapevine pattern on this pair of cabinets.

Prepare the materials for scrollsawing



Reinforce the wood. To prevent small parts of the design from breaking along the grain when they are sawn, attach a piece of newspaper to the wood with hide glue.



Abrade the metal. Use a piece of hacksaw blade inserted into a scrap of wood to scratch the glue face of the metal for a better bond with the substrate.



Attach the design. The last step before starting to saw is to attach the design to the wood-and-metal package with hide glue.

item No. 47425). The scrollsaw should be set at a slow speed of about 250 strokes per minute.

The cutting proceeds from the interior parts to the outer parts. In a design of concentric circles, for instance, the smallest diameter must be cut first. Because the package is held together only by tape at the edges, if you were to start from the outside, the pattern would fall apart. After a part is cut free, set it aside in a tray.

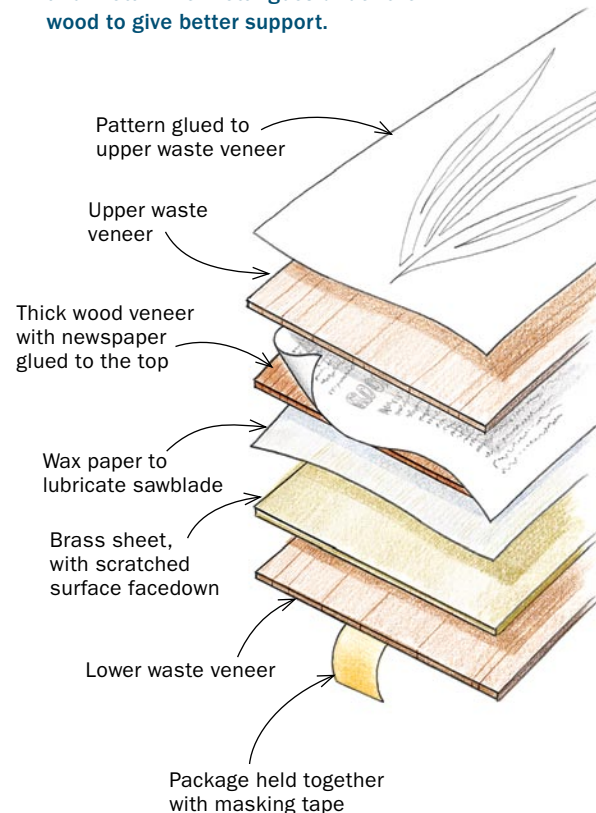
It can be a problem cutting very small parts, as these can fall through the hole in the table and be lost. To avoid this, slip a waste piece of veneer or cardboard under the packet partway through the cut, to create a kind of zero-clearance insert.

Assemble the parts into two panels

When everything has been cut, the two panels are ready to assemble. To prevent the small parts from dropping through the background panels, apply hide glue to the unscratched side of the metal and the newspaper side of the wood (these will be the show faces), and stick on a sheet of paper. Now take the individual parts from the tray and use hide glue to attach them

ANATOMY OF A PACKAGE

The outer pieces of waste veneer eliminate tearout when cutting the wood and metal. The metal goes under the wood to give better support.



TIP

Draw your design with a regular pen or pencil (left). Photocopy this at 200%, make a tracing, and reduce the tracing by 50% on the copier. This will yield a copy the same size as your original design but with much finer lines (right) that are easier to saw.



Two ways to saw the design

Drill holes first. No matter how you saw, each individual part of the design needs to have a hole drilled in it to allow the blade to be fed through.



1 BY MACHINE

Always work from inside to outside. Cut the innermost parts first (right). As you cut out the design, organize the parts in the same pattern on a nonslip surface (below).



into the proper spot. The sawkerf should evenly surround each part. Assemble the pictures from the outside in so the spaces shrink until the final piece is put in place.

The panels are now ready to be glued to a plywood substrate. Fish glue was the traditional choice, but I prefer epoxy for its better adherence to metal. To help the glue fill the sawkerf between the parts of the panel, mix in some sanding dust from the dark wood. Apply the epoxy liberally to the plywood and place it on top of the two panels. These in turn should have glossy paper under them to prevent the glue from bonding with a piece of 1/16-in.-thick neoprene rubber (www.closedcellfoams.com) on the bed of the clamping press or vacuum bag. This rubber gives just enough to press the thinner brass onto the substrate. I've also used sheet cardboard (not corrugated), but this should only be used

Online Extra

To watch a video of Kopf creating a boule panel, go to FineWoodworking.com/extras.

2 BY HAND



Deep-throated saw. You can buy a deep-throated fretsaw or coping saw at Woodcraft or Traditional Woodworker. Once you get used to the action, it is almost as quick as a powered scrollsaw, in part because the blade stroke is much longer with the handsaw.



Dedicated box for handsawing. Make a plywood cube roughly a foot in all dimensions but open on one side. Saw a V-notch or bird's mouth in one of the sides. Using the saw in this area allows the workpiece to be supported on both sides of the cut.

Assemble and press the panels



Fill in the blanks. After gluing paper to the show side of the panels, glue in the contrasting segments, working from the outside in.

Combination glue and filler. To fill the sawkerfs in the panels, Kopf mixes dark sawdust into the epoxy, applying it thickly to the plywood substrate using a notched spreader.



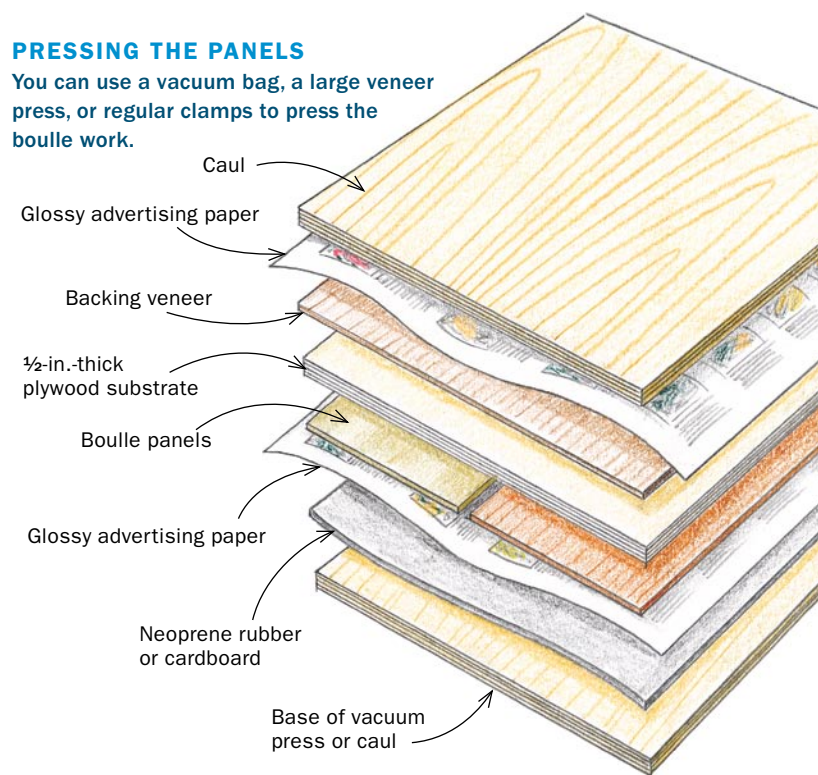
once because it doesn't spring back like the rubber. Now epoxy a piece of secondary veneer to the other side of the plywood to prevent it from warping. Clamp it overnight.

After unclamping the pair of panels, remove the two layers of paper and begin leveling them using a scraper. Continue bringing down the wood using a file and then sandpaper, starting at P60-grit and working up through the grits until you achieve the luster on the metal you desire.

It's important not to work too long in one area, or the friction can heat the metal and break the glue bond. For this reason, don't repeat a mistake I once made of using a random-orbit sander. The leveling was a breeze, but all the parts fell out when I was done! Boule work can be sprayed, brushed, or padded with shellac or lacquer to prevent the brass from tarnishing. □

PRESSING THE PANELS

You can use a vacuum bag, a large veneer press, or regular clamps to press the boule work.



Clean, level, and polish the panels



Start with a scraper. Use a cabinet scraper to remove the backing paper and begin bringing the wood flush with the brass.



Continue with filing. A double-cut bastard mill file, held on edge, helps flatten the wood without gouging the metal.



Sand by hand. Don't sand for too long in one place or use a powered sander. In either case you might heat the metal too much and break the glue bond.