## Custom Pulls That Please the Eye



## Clever jigs create the curves and facets on these small parts

BYMICHAELC. FORTUNE

Door and drawer pulls are often the last detail we consider when building a piece of furniture. But a poorly chosen or placed pull can ruin a piece, while a well-designed, well-placed one can make the whole piece sing.
Don't limit yourself to off-the-shelf pulls. Custom pulls aren't difficult to make, and you don't need a lathe to do it.
When we look at a piece, our eyes are
drawn in different directions by the lines of its form. Custom pulls can encourage or discourage the eyes' movement and so emphasize different aspects of the form.

That said, a pull's function trumps its form. It should be comfortable, unobtrusive, and sized for easy use. And it should be removable, because finishing is easier without it. But don't simply screw it on. Cut a tenon on the pull and fit it into a mortise. That keeps
it from being split by the mounting screws, and from spinning loose later.
When making small knobs and pulls, I use jigs for accuracy and to keep fingers away from blades and bits. For the pulls, use a closed-grain hardwood. The ones in this article are ebony and rosewood.

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## Simple knob that sparkles

This knob can be mounted as either a diamond or a square. All four sides are tapered so that it's easier to grasp, and the face is beveled to create four facets that meet in the center. A small tenon routed onto the bottom and fit into a mortise in the door prevents the knob from spinning and the mounting screw from splitting the knob. A diamondmounted knob requires one more step than a square-mounted knob because its grain should run from corner to corner, rather than from side to side, so that no end grain is visible when the face is faceted.


## 1. CUT BLOCKS FROM STRIPS

The first step is to cut stock to the right width. Set the blade at $45^{\circ}$ for diamond-mounted knobs and at $90^{\circ}$ for squaremounted knobs. This gives the right grain orientation for each style.


START WITH A MITER CUT FOR DIAMOND KNOBS

Cut $11 / 8$-in.-wide strips at $45^{\circ}$ so the grain will run from corner to corner in the finished knobs. A mitered stop block that hooks around the end of the fence (at right in photo) ensures that all the strips are cut to the same width. It should be removable so that these small offcuts won't get trapped between it and the blade.




Cut 1118-in.-square blocks. With the blade set at $90^{\circ}$, cut square blanks for the knobs. Again, use a removable stop that hooks around the end of the fence so they're all the same size.
2. DRILL A PILOT HOLE


Drill pilot holes for mounting screws. Use a fence and a stop block so that the pilot hole is located precisely in the center of each blank.



## 4. CUT FACETS ON THE FACE

A jig holds the knobs in place as the tablesaw blade, set at $121^{1} 2^{\circ}$, cuts one facet at a time. The four facets will meet at a point centered on the face of the knob.

Hold-down
clamp
Cutout for knob, clamp


## 5. BANDSAW A BEVEL ON EACH OF THE SIDES

Another jig, akin to a tablesaw tapering jig, holds the knobs secure as the side bevel is cut. The front position cuts the taper on two adjacent sides. The second position cuts it on the last two sides.


1/2-in.-thick MDF base, 16 in . Iong



## Slender and strong pull

The slight bullnose softens this pull's look and feel, and beveled sides make it easier to grasp. The ends are also beveled, which helps to lighten the visual weight. It's best to mortise this pull into the door or drawer and secure it with screws.


1. FIRST ROUT A BULLNOSE

Use a $1 / 2$-in. roundover bit to put a slight radius on the two outside edges of the stock. Use a push stick as you near the end.


2. THEN BEVEL THE SIDES

With the table tilted $8^{\circ}$, cut a bevel on each side of the pull. The table doesn't need to be reset for the second cut, because the bottom of the pull remains flat on the table.

3. ROUT RABBETS TO FORM TWO SIDES OF THE TENON

Use a straight bit to cut a rabbet on each side of the stock. Run the stock against a fence whose working face is beveled $8^{\circ}$ so the workpiece stays perpendicular to the tabletop.

4. CUT TO

LENGTH AND FINISH THE TENON

Set the miter saw to $8^{\circ}$. Place a strip of wood tapered at $8^{\circ}$ under the stock to keep it square to the saw. Trim the ends. Then rout rabbets on either end to complete
the tenon.

5. DRILL PILOT HOLES AT THE DRILL PRESS


Set the pull against a fence tapered at $8^{\circ}$ (this can be the same fence you used at the router table) and drill two pilot holes into the tenon. Fortune uses two stops, each with an $8^{\circ}$ face, to create a precise distance between the holes.


The outer edge of these triangular pulls is beveled to provide secure purchase for your fingers. They're quickly made on the bandsaw and smoothed by rubbing them over sandpaper glued to a flat surface. Attach the pulls with two screws.

2. CUT THE OUTER EDGE

Set the bandsaw table to a $10^{\circ}$ angle. Then mark the front-view triangle on the stock and cut off the pulls. This creates a $30^{\circ}-60^{\circ}-90^{\circ}$ triangle, with the $30^{\circ}$ at the bottom. Because there is a left pull and a right pull, cut one from each end of the stock to create mirror images.

## Curve appeal

This pull is beveled for easy grasping, with a slightly rounded face that's pleasing to the touch. The pull stands proud on hollow posts made from $1 / 4$-in. brass tubing (available from hobby stores). Mounting screws pass through the posts and into the pull. Two simple jigs help you shape the arcs on the front and back, so it's critical that you make them well. If the jigs are not smooth, the arcs on the pulls won't be either.

## 1. USE A JIG TO ROUT THE ARCS

To make it safer to work on the pulls, Fortune keeps them together as long as possible and uses a simple jig for all the routing. The fence makes it easy to align the workpiece on the jig. Two small toggle clamps and some sandpaper glued to the fence and jig base hold it secure. After marking the front arcs and removing the waste at the bandsaw, use the jig and a bearing-guided straight bit to clean them up.

JIG MAKES REPEATABLE ARCS



2. FLIP THE JIG TO ROUT THE BULLNOSE

Use a $1 / 2$-in.-radius roundover bit to put a slight curve on the top and bottom edges of the arc. The bearing runs against the workpiece, not the jig, and the workpiece is flipped to round both edges.



## 4. DRAW IN THE SECOND ARC

Cutoff from inside curve,
inset $5 / 8 \mathrm{in}$. from edge


Cut a 10-in.-radius arc on the end of a small piece of Masonite. Register the front of each pull against an arced fence (just use one of your earlier offcuts). It should be glued on the Masonite so that the apex of the Masonite's arc just reaches the back of the pulls. Use the jig to mark the arc on the back of each pull. Cut the curves on the bandsaw, then clean and fair them with a file and card scraper.

First, drill the holes that will receive the hollow posts. The holes should be $3 / 16$ in. deep with a diameter that matches the posts. Next, drill the pilot holes for the mounting screws. These should be centered in the holes for the posts.


## 6. CUT TO LENGTH WITH A MATCHING BEVEL ANGLE

## Set the miter-saw

 blade at $10^{\circ}$ and cut the pulls to length ( $31 / 2 \mathrm{in}$.). Under the workpiece, use a ramp that is beveled $10^{\circ}$ on one side. This ramp guarantees that the sides will meet the top and bottom at $90^{\circ}$. Sand the pulls and break the sharp corners before finishing.


[^0]:    Michael Fortune designs and builds furniture near Peterborough, Ont., Canada.

