



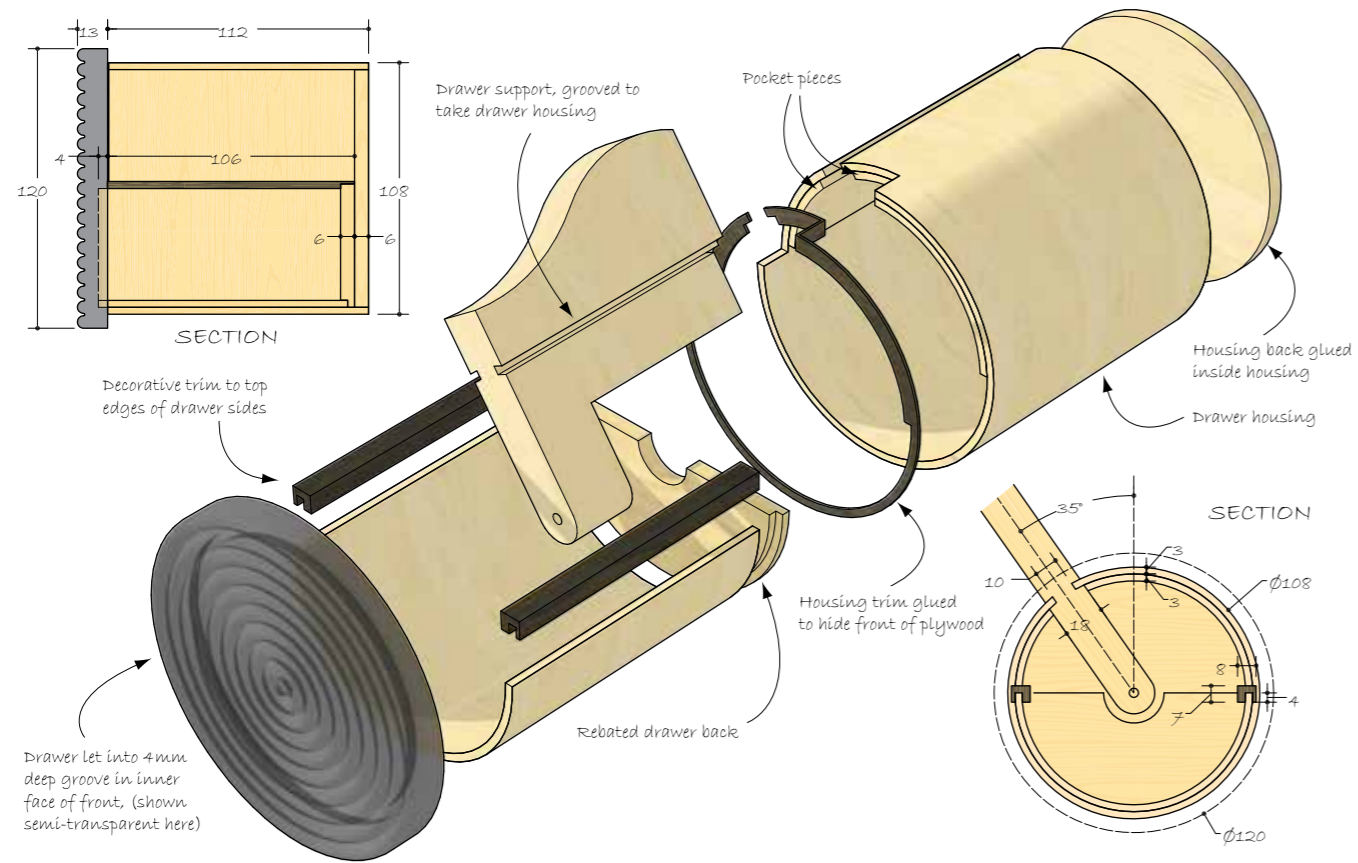
Turning the table on piston fit drawers

Karen McBride unlocks the secrets behind making these unique round drawers for the Patience cabinet

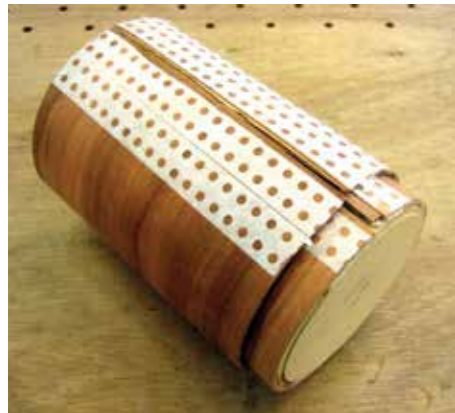
All my initial design work is done with paper and a 6B pencil. I draw with abandon, paying no heed to how my pencil marks will translate into furniture. Sometimes this design process gets me into trouble. In this instance, trouble came in the form of round drawers – but they won't trouble you. It may look complicated but like any other drawer the building process can easily be broken down into small, manageable tasks within any maker's reach. Unlike traditional drawers, a round drawer hangs

freely from a single support. This simple design opens up all sorts of creative possibilities.

A round drawer has four main components: a laminated drawer, a laminated outer housing, a drawer front and a support for the drawer assembly to hang on. For simplicity, the two laminated drawer parts are pressed around the same cylindrical former. To make the slightly larger diameter outer housing, the lamination was pressed over the drawer lamination while it is still on the former. ➤



Shaping up



A typical lamination of drawer box and housing created on a single former

The two laminations are made from five layers of commercial veneer. The cylindrical former must be perfectly flat with parallel sides. Any tapering or waviness to the shape may make it difficult for the finished drawer to open and close. The former can be turned on a metal or wood lathe. After turning on a wood lathe you can glue coarse sandpaper to a straight piece of wood that is longer than the former and sand the sides flat. Measure each end of the cylinder to check the sides are parallel.

Sizing the veneer sheets for the drawer parts is important. The laminations must wrap around the former in as close to a full 360° wrap as possible, without the ends of the laminations overlapping. Don't forget the veneer will expand when it comes into contact with glue so take this into account



Layer the veneers on top of each other in a sandwich as you work

when measuring the pieces.

To create the laminations, the veneer sheets are cross-oriented for stability and strength. The easiest way to spread the glue on the veneer is to make a veneer and glue sandwich, one sheet at a time. Select a first piece of veneer with a fine notched spreader or roller and place the next cross banded piece on top of the glue surface. Spread glue on the second sheet, while it is on the sandwich, and repeat the process with the remaining sheets, topping off the lamination with the last dry sheet. Aesthetically you may find it preferable to use an odd number of layers in the sandwich so the grain direction on the inside of the component matches that of the outside. Depending on the radius of your cylinder, timbers with an open grain



Use whatever means you have at your disposal to hold the veneers onto the former before it goes into the vacuum bag

structure such as oak (*Quercus* spp.) or ash (*Fraxinus* spp.), for example, may fracture along the grain.

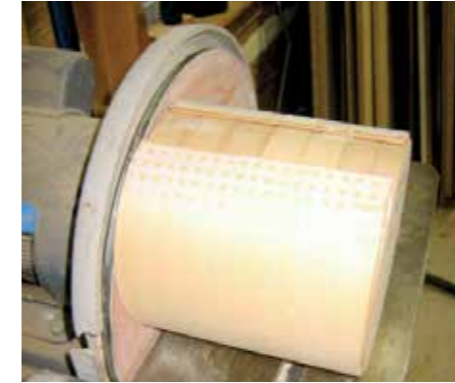
A strap clamp can be used to hold the laminations in place on the former while the ends are secured with plastic wrap. Once the plastic wrap is in place it is easy to cover the former with breather mesh, remove the strap and to place the first lamination into the vacuum bag. This lamination will be the drawer.

Create a second lamination for the housing using the same process but this time leave the first lamination on the former and press the second lamination directly over the top of it. Be sure to put a layer of packing tape or plastic wrap around the first lamination to prevent the two from sticking together in the event of glue squeeze out.

Trimming up

After both laminations have cured, square their ends with a sander or hand plane using the former as a guide. With the square ends of the laminations as a reference, clean up the split down the centre of each lamination. When trimming these pieces, be sure to cut away only the rough edges leaving as much material as possible.

From the smallest diameter lamination cut a semi-circle sized drawer. Save the offcuts from this procedure to be used later as part of the housing. To make the back



Use the former as a support for trimming

for the drawer, use the drawer as a pattern and transfer the shape onto a solid piece of wood. Cut and rebate the back to fit the drawer. It must be an exact fit without deflecting the profile of the cylinder. The back must also be flush to the sides of the drawer. Next, determine the total length needed for the drawer and cut it to length. Glue and clamp the back in place taking care not to distort the shape of the drawer.

The drawer side trim pieces are made from decorative solid wood. Use a large piece



Mount the drawer in a cradle jig to help attach the solid wood lippings

of stock and cut a groove for the trim that mates with the lamination thickness. Fit and plane the inside edge of the decorative trim now – it is difficult to work this edge once it is on the drawer. Cut the trim away from the larger piece of wood and leave excess material to the outside edge of the trim. Cut the trim to length leaving a tongue at the front of the drawer to attach the drawer front. Glue the trim in place using a jig as shown. Once the glue has cured, the decorative trim can be planed to a more delicate dimension.



A strap clamp works nicely when gluing the round backs in place

Putting it all together

The round drawer will be attached in a pendulum fashion on a cabinet drawer support that runs the entire length of the housing. Cut two small dados (grooves) into the cabinet support where the housing slides into place. Measure the distance between the bottoms of each dado to determine the size of the gap needed for the housing to fit to the support. After measuring twice, cut the split in the housing lamination. At this point err on making the housing large by cutting a small gap in it. Later when fitting the drawer, the housing can be made smaller, if needed, by increasing the gap.

As with all drawers, a bit of cutting and final fitting is required. The drawer must first be fit without a front to determine its size in relation to the drawer and the housing. Create a simple T-jig that fits inside the drawer to ensure that the drawer sides sit square and parallel. The jig is far better than a drawer front because it allows you to see

how the drawer fits. If necessary, tack the jig into the drawer with hot glue – my favourite shop assistant.

Mount the housing on the cabinet by sliding it into place from behind. Don't forget to plan for this rear mounting in your cabinet design and assembly process. Slip the drawer with the jig still in place for a test fit. This is only a rough fitting to determine the size of the housing. If necessary, modify the depth of the dados and the gap in the housing so the components mate nicely. You are looking for three points of contact – two at the sides and one at the bottom. The final fitting will happen later after the pocket is created for the drawer.

With the housing on the cabinet support, transfer the diameter from the inside of the housing to the wood for its back. The back is simply a round disc, of any thickness, glued to the inside of the housing. Without a rebate, the housing has a clean look when it is seen



This drawer sizing jig may appear crude but it's an essential part of the build process



Test fit the housing on the mounting arm and assess the need for any adjustments to the drawer and components

in full view. If the housing was made too small earlier, you can recover here by sizing the back to make the housing slightly larger. Test fit the drawer again with the housing back in place. Glue the back on the housing.



Grooves in the drawer support are used to locate the drawer housing



Trimming the housing to length while it hangs on the drawer support

Pocket housing



While you've got the drawer front on the lathe, cut the groove for the drawer box



Test fitting the drawer in its groove in the drawer front while the drawer front is still on the lathe

It is now time to create the pocket for the drawer using its cut-offs. These cut-offs serve two purposes when glued in place. The upper edges of the cut-offs create rebates where the housing sits in the drawer support dados, while the lower edges of the cut-off pieces create a pocket for the drawer. With the housing and drawer mounted on the cabinet, measure and trim the cut-offs to size. Test fit the drawer again with the cut-offs clamped in place. When gluing the cut-offs in place leave the housing and drawer mounted on the cabinet as a jig to position the pieces. Wax the drawer and the inside of the housing to control glue squeeze out. Glue the cut-offs in place.

With the fussy work out of the way, it is now time to have some

fun on the lathe. Turn the drawer front to size and add a flourish to its face. The drawer front can also be dished out on the inside if you wish. The only mandatory requirement is to create a groove to hold the drawer front on the drawer. I use a vacuum clamping chuck on my lathe to hold the work, eliminating the hassle of working around screw holes or chuck fittings. Test fit the drawer on the cabinet one last time with the drawer front on but not glued in place. Plane the drawer's decorative trim or adjust the drawer front groove so the drawer slides nicely. Glue the drawer front on the drawer and fill the remaining exposed groove with coloured epoxy or a scrap from the inner or outer laminations.

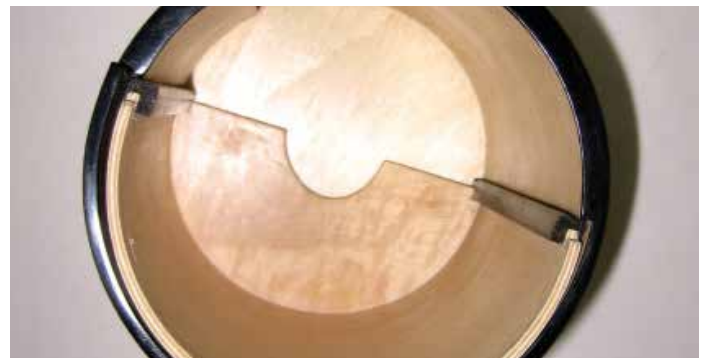
Finishing touches

Now all that remains is to hide the plywood look on the front of the laminated housing. Cut small, thin trim pieces to cover the exposed end of the lamination leaving excess overhang to be trimmed flush after the glue has cured. Glue the trim in place with epoxy as an adhesive and hot glue as a clamp. Be sure to wax the prefinished housing and don't clean up epoxy that oozes because it will simply pop off when the decorative trim is cleaned flush with a fine file.

The drawer assembly is ready for the final mounting on the cabinet. Spread a small amount of glue in the dados on the drawer support and on the tongue for the housing and slide the assembly on the cabinet for the last time. You may drive a screw through the back on the housing into the cabinet support for added strength. I'm excited about the unlimited creative possibilities that round drawers offer and I'm eager to see other furniture makers experiment with the concept.



Hot glue is the perfect third hand when conventional clamps don't work



Use off-cuts from the drawer to locate the position of the drawer box within the housing



The hinged drawer is held closed with a concealed magnet



On the Patience cabinet the drawer support also serves as the pivot point for the door