The inlay process is not difficult but it does require a steady hand and persistence. If you enjoy intricate work, you will love creating inlay.

There are many inlay methods, but I chose to follow a technique used by guitar makers outlined in the book *The Art of Inlay* by Larry Robinson. Each inlay piece is cut separately and pieced together like a puzzle; it is then glued and inset into the wood’s surface.

To cut inlay, you need a small- to medium-sized fretsaw with a 3/0 size blade. Make a bird’s mouth support to hold the pieces for sawing and clamp it to a worktable at just below your chest height when sitting. You also need a hand plane to dimension small pieces of wood. To facilitate the hand-planing process, use a small flat board with a 1/16” lip to hold thin pieces of wood. Other essential tools include a craft knife, tweezers, good task lights and a selection of small files. A small pair of vise grips will come in handy for holding the wood while filing tiny inlay pieces. Finally, you need a router or Dremel® with a router base to rout the inlay recess.

First choose a drawing for your pattern. Tape a piece of paper to a light table or a window and trace the image using a hard 8H or 9H pencil (sharpen it often for a fine line). Next, trace a copy of your tracing to clean up the lines. To make your pencil lines even finer, enlarge your second tracing on a photocopier, trace it and then shrink it back to the original size. The goal is to make the pencil lines as fine and clean as possible so that they are the same size as your saw kerf. Finally, number each piece and make many photocopies of your master.
Inlay should not be more than 1/16" thick, so start with 1/8" thick wood. To ensure it will be flush with the surrounding wood, use only inlay pieces that are a minimum of 1/16" thick. The depth for the inlay recess must be less than your thinnest piece of wood. The safest and least wasteful way to saw 1/8" thick strips from larger pieces of wood is on the bandsaw equipped with a sharp blade. A simple method to create a zero-clearance insert for your bandsaw is to set your fence for a 1/8" cut, push a piece of plywood (roughly the size of your bandsaw table) against the fence and into the blade and cut a slot in the plywood just until it covers the bandsaw table. For safety, clamp the plywood to the bandsaw tabletop, taking care not to obstruct the cutting path with the clamps. Cut the inlay woods on the plywood tabletop using the eraser end of a pencil for a push stick and keeping your fingers well away from the blade at all times.

Next, select the wood. Use grain direction to enhance your inlay image. For example, the grain for the bobolink wing followed the bird's feather lines. Also, keep in mind that most woods change color over time. Purpleheart eventually turns brown and cherry and walnut darken and fade respectively to the same color in the end. Holly stays white, while most other light woods darken.

Cut the numbered pattern into pieces. Cut around the outside of each piece leaving the line intact so that the cut-line is clearly visible. When cutting a piece, you will inevitably destroy surrounding pieces, so you'll need many photocopies of your pattern. Glue the paper pieces to the wood using modern hide glue. I then cover the wood with clear packing tape, which protects it while sawing by keeping the dark sawdust from smudging the lines. For safety, mount a vacuum on your bird's mouth support to minimize the dust and to provide a clear, clean sightline.
Next cut each inlay piece. Turn on the vacuum, hold the wood at the V in the bird’s mouth using two fingers and cut down the middle of the line, eliminating the line as you cut. Keep your saw blade exactly vertical and move the wood with your fingers to change the direction of the cut. Keep your saw moving up and down at all times to avoid catching and breaking the blade. The process is less taxing if you have a light grip on the saw; I pinch the handle between my thumb and a couple of fingers rather than using a pistol grip. If you look slightly ahead of the cut rather than watching the saw, it’s easier to follow the line. To saw a 90° inside corner, saw to the corner and gradually turn the wood, sawing in place until the blade is oriented to cut down the next side. To saw an outside 90° corner, saw just past the corner and continue to saw in place while turning the wood away from the side you want to cut. The wood will rotate through 270° before your blade is oriented to the new side to be cut. To cut a piece from the interior of another piece, drill a small hole in it, undo your saw blade and thread it through the hole. Reattach the blade and saw out the piece. Don’t forget to keep your saw absolutely vertical at all times, as this will save hours of filing when fitting your wood pieces together later.

After cutting each piece, lay it on a copy of the drawing to keep track of the pieces. Wet the paper on each puzzle piece to soften the glue, then remove it. Use fine files to smooth any rough edges. Hold two adjacent inlay pieces up to the light to see if there is a gap between them. Mark the high spots with a pencil and file them for a tight fit. Use a small set of vise-grip jaws to grip tiny inlay pieces and to ease filing. Keep filing and fitting until the inlay image looks tight and sharp.

To glue the inlay together, tape a piece of waxed paper on top of your pattern and lay it on a flat surface. Place two inlay pieces on the waxed-paper-topped pattern in their correct orientations and apply a small amount of cyanoacrylate (CA) glue, such as Hot Stuff, where the two inlay pieces meet. Hold the pieces together until they have bonded and the glue is dry. Be careful not to glue your fingers to the pieces and always work in a well-ventilated area when using CA glue. Use toothpicks or tweezers to move or hold glue-soaked pieces of inlay. Continue adding pieces until the inlay image is complete. If during the gluing process you find a piece that doesn’t fit well, either file it or file the partially completed inlay to ensure a good fit.
Next comes the hair-raising work of gluing the inlay into your furniture. The surface to be inlaid should be hand planed or sanded smooth, and your furniture should be ready to be assembled. Don’t assemble it before the inlay is done. Drop a little CA glue on the back of the inlay to tack it in position on the piece of furniture. When the glue is dry, trace around the inlay with a craft knife. After tracing the outline, carefully pop the inlay free using a single-sided razor blade.

If the knife outline is difficult to see, try rubbing a little white chalk into it. Fit a 1/8" or 1/4" bit in a laminate trimmer or Dremel® tool with a router base and rout out the center of the inlay cavity. Stay about 1/8" away from the outline; it will be cleaned up later. The router should be set to cut a depth slightly less than the thinnest piece of wood used for the inlay but not greater than 1/16". This will ensure that all pieces can be sanded flush with the surface later. Once the center of the cavity is clean, use a 1/16" or 1/32" bit and rout to the line, just cutting it away. Several task lights focused on the router base will highlight the cutting area. Last, test fit the inlay but do not force it into the recess. Your craft knife can be used to remove small slivers of wood from the sides of the cavity to fit the inlay in place.

For the final glue up, work in a well-ventilated area. Cover the bottom of the recess with CA glue and place the inlay in it. Flood the inlay with the glue while tapping it to ensure the glue fills the cavity. Clamp it and let it dry overnight and then scrape or sand it flush. Hand planing the inlay can be difficult, since inlay wood grain is often oriented in many different directions. I recommend using a card scraper or a random orbital sander with a vacuum pick up, which will immediately remove the dust. Hand sanding the inlay is not recommended – without a vacuum, the darker colored wood dust will contaminate lighter woods in the inlay. If any pinholes or gaps appear when sanding the inlay flush, flood with glue again, let dry and sand once more. Apply finish to your project and sit back and admire the image that you have brought to life.

Karen McBride

Karen McBride designs and makes contemporary furniture in her heritage log house studio just outside of Ottawa, Ontario, Canada. Like a moth drawn to a flame, she never misses the chance to take on complex, intricate work.