PantoRouter™ Cart

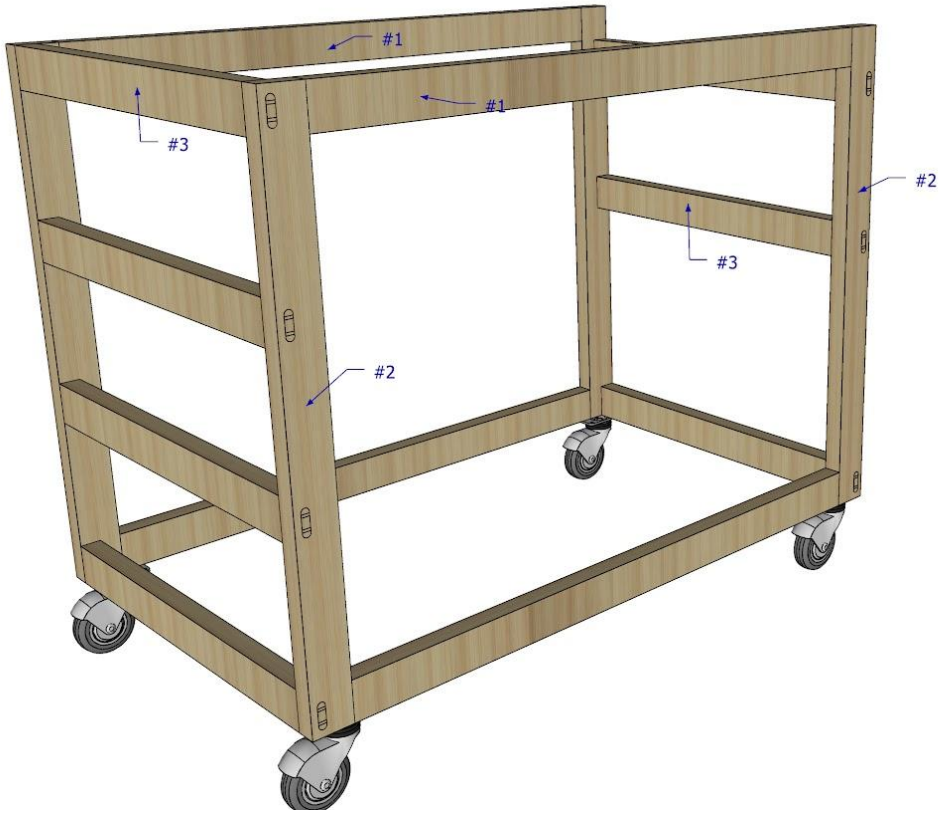
Hello and thank you for purchasing the plans for our latest PantoRouter™cart design! Our goal when creating this cart was to make something highly functional, sturdy, and conducive to the use of the machine while also being a versatile and attractive fixture in the shop. All of the hardwood joinery was cut using the PantoRouter™ and features wedged through tenons, one of many incredibly strong and decorative joints that can be cut using this machine. After using the PantoRouter™ for a number of years we have designed several features into this cart to facilitate the most efficient use of the machine and all of its accessories. We have found that having drawers to either side of the operator instead of directly in front makes it much easier to access bits, templates, and accessories.

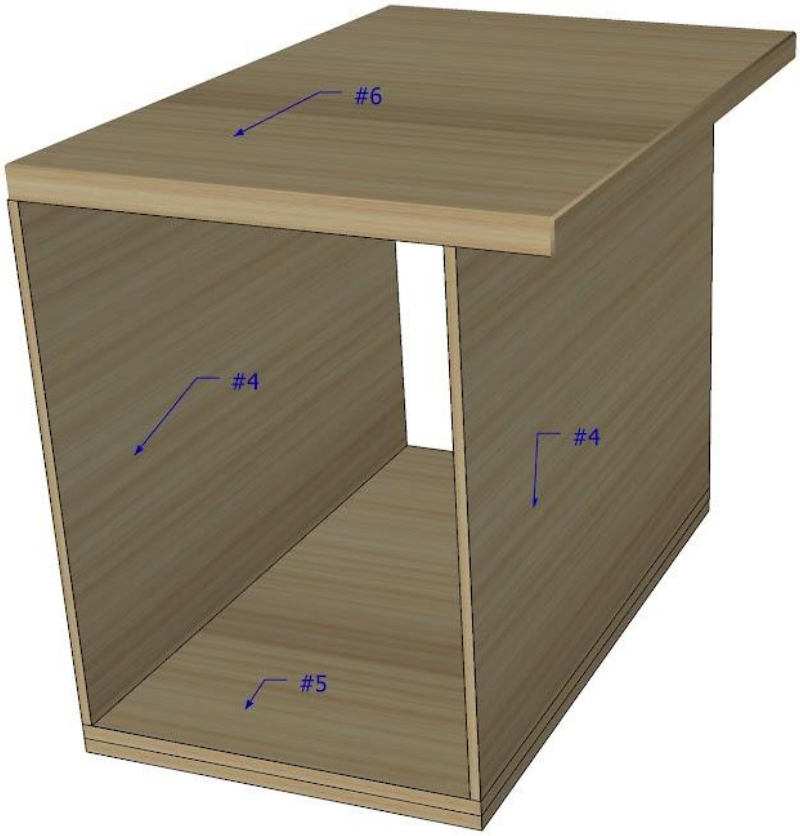
This cart features an auxiliary table surface that pulls out on heavy duty drawer slides to the operators right, this can be used to support long work pieces or stack parts as they are being run through the machine.The drawer sizes have been designed to

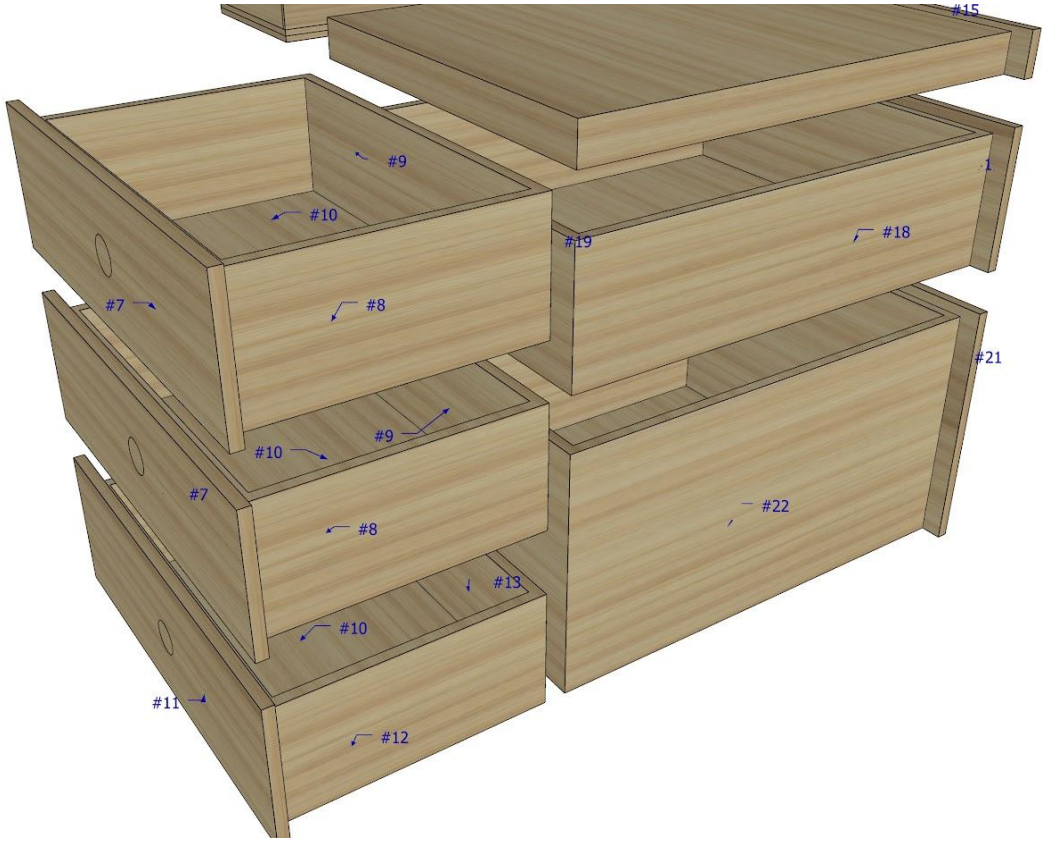
make bit and template changes quick, having everything you need close at hand. The top drawer to the operator's left is meant to hold all of the router bits and guide bearings for your machine making it simple to swap them between operations without having to reach under the auxiliary table. The top right hand drawer is about twice the size and is meant to hold all of the templates and accessories for the machine. M&T template sets, slot mortising set, segmented mortise and tenon, auxiliary fence, dovetail and box joint templates can all fit in this drawer comfortably when using the original high quality packaging that many of the templates come in. The bottom right drawer is tall enough to accommodate a template holder standing up with dovetail or box joint templates mounted on them. We have found some users prefer to leave these mounted to a template holder for easier access instead of loading each template on when they want to use them. The remaining space in the large drawer and the two lower drawers on the left can be used to store various jigs and fixtures you can make for your machine, or as miscellaneous storage depending on the type of work you do. Drawer space in a shop will never go to waste! These plans can be used as a jumping-off point to customize the cart to your personal preferences and needs. The comprehensive cut list and step-by-step drawings and images will help you put this simple cart together, if you have any further questions or would like the SketchUp file sent to you in addition to the plans feel free to reach out using the contact information provided at the end of these plans. We would love to see your version and interpretation of the cart, please send us some photos of what you make. Thanks again and have fun with the build!

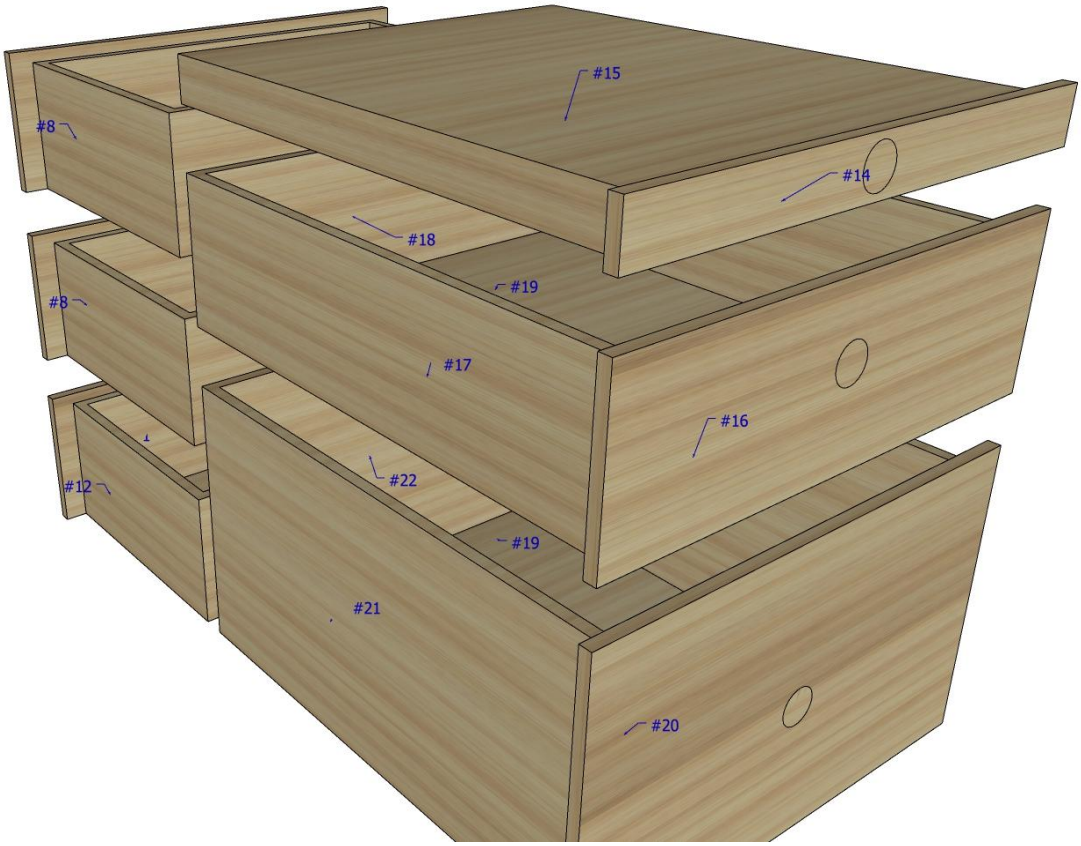
Cut List

Part name	Part number	Quantity	Total Length	Width	Thickness	Tenon length	Shoulder-to-shoulder
Frame Rail	#1	4	34"	2"	1"	1"	32"
Frame Stile	#2	4	26.5"	2"	1"	N/A	N/A
Divider Rail	#3	7	22 1/16"	2"	1"	1 1/32"	20"
Plywood Side	#4	2	34"	25"	1/2"	N/A	N/A
Plywood Bottom	#5	2	34"	20"	3/4"	N/A	N/A
Hardwood Top	#6	1	36"	24"	1 1/2"	N/A	N/A
Drawer Face	#7	2	20"	6"	1/2"	N/A	N/A
Drawer sides	#8	4	11 1/2"	5 1/2"	1/2"	N/A	N/A
Drawer Front/back	#9	4	18"	5 1/2"	1/2"	N/A	N/A
Drawer Bottom	#10	3	17 1/2"	11 1/2"	1/4"	N/A	N/A
Drawer Face	#11	1	20"	6 1/2"	1/2"	N/A	N/A
Drawer sides	#12	2	11 1/2"	6"	1/2"	N/A	N/A
Drawer Front/Back	#13	2	18"	6"	1/2"	N/A	N/A
Drawer Face	#14	1	20"	2"	1/2"	N/A	N/A
Aux. Table Top	#15	1	22"	18"	1.5"	N/A	N/A
Drawer Face	#16	1	20"	6 1/2"	1/2"	N/A	N/A
Drawer Sides	#17	2	21"	6"	1/2"	N/A	N/A
Drawer Front/back	#18	2	18"	6"	1/2"	N/A	N/A
Drawer Bottom	#19	2	21 1/2"	17 1/2"	1/4"	N/A	N/A
Drawer Face	#20	1	20"	12"	1/2"	N/A	N/A
Drawer Sides	#21	2	21"	11 1/2"	1/2"	N/A	N/A
Drawer Front/back	#22	2	18"	11/1/2"	1/2"	N/A	N/A



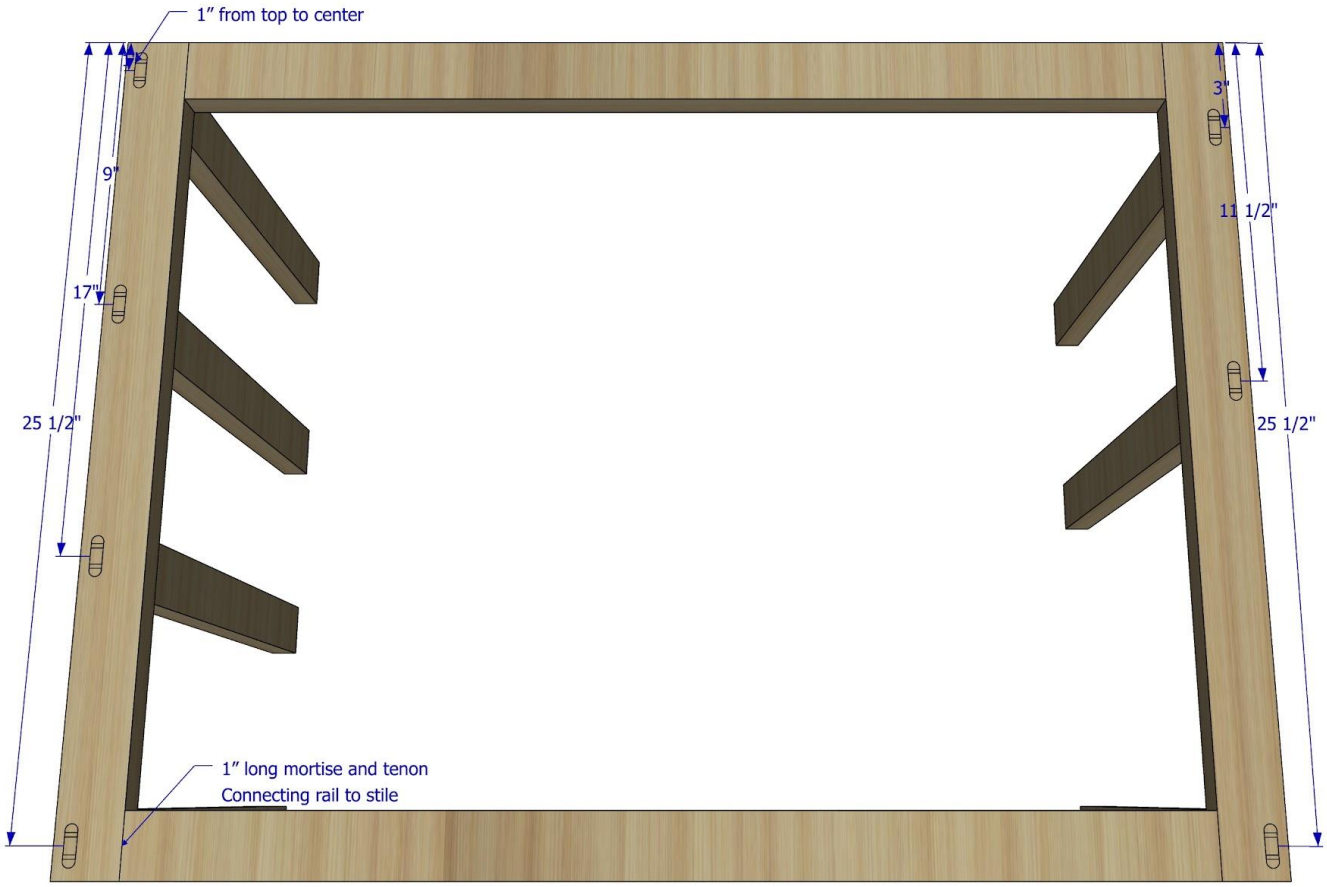






Order of Operations

1. After all the cabinet carcass pieces have been milled and cut to size according to the cut list, begin by cutting all the joinery for the cabinet frames, and divider rails. The locations for the divider rails dictate the size of each drawer opening so if you wish to change the size or quantity of the drawers, lay out your mortises accordingly. All of the mortise and tenons are ⅜” thick by 1 ¼” using the PantoRouter segmented mortise and tenon templates. For the divider rails, the “shoulder to shoulder” dimension on the cut list is the critical one, it is good to have the tenons protrude from the face slightly when assembled so they can be flushed up at the same time as the wedges.



2. Using the bandsaw, cut kerfs for wedges in the ends of all of the divider rail tenons. Also cut wedges out of a contrasting wood. You can make these hidden tenons if you would like to skip the wedge step entirely.
3. In the bottom rails of the frame and the piece of plywood that will be used as the bottom, cut corresponding mortises to accept floating tenons to hold the bottom in place. Alternatively, pocket screws or Dominos™ can be used for this step.
4. Glue the side frames together and ensure they are square.
5. Once the frames are out of the clamps, glue the divider rails and bottom plywood to the frames creating the cart carcass. Wedge all through-tenons and ensure everything is square, this will make life a lot easier during drawer installation.

6. When the glue is dry, trim all protruding tenons and wedges with a flush cut saw and sand the cart carcass. The bottom is comprised of two pieces of ¾” plywood, which adds some extra weight and stability to the bottom of the cart and gives the casters something very solid to attach to. At this time, the second piece of ¾” plywood can be attached to the first one using screws.
7. Cut the plywood sides to fit snugly on the back side of the frames. Drill some pocket holes on the top edge of the plywood to later attach the top of the cart to the base from the inside. Sand the show face of the plywood
8. Install the plywood sides to the back of the frames using a thin bead of glue and brad nails
9. Once the glue is dry, the carcass is ready for finish.


10. Mill and glue the wood for the top of the cart. We used scrap that we had around the shop leftover from previous projects. We decided to cut 3 mortises in the top's overhang to hold the PantoRouter clamps as well as router collet wrench(es) in order to keep these close by.

11. Measure all drawer openings and drawer slides to determine actual drawer box sizes and construct all drawer boxes. ½” baltic birch was used on this project for all the drawer boxes.

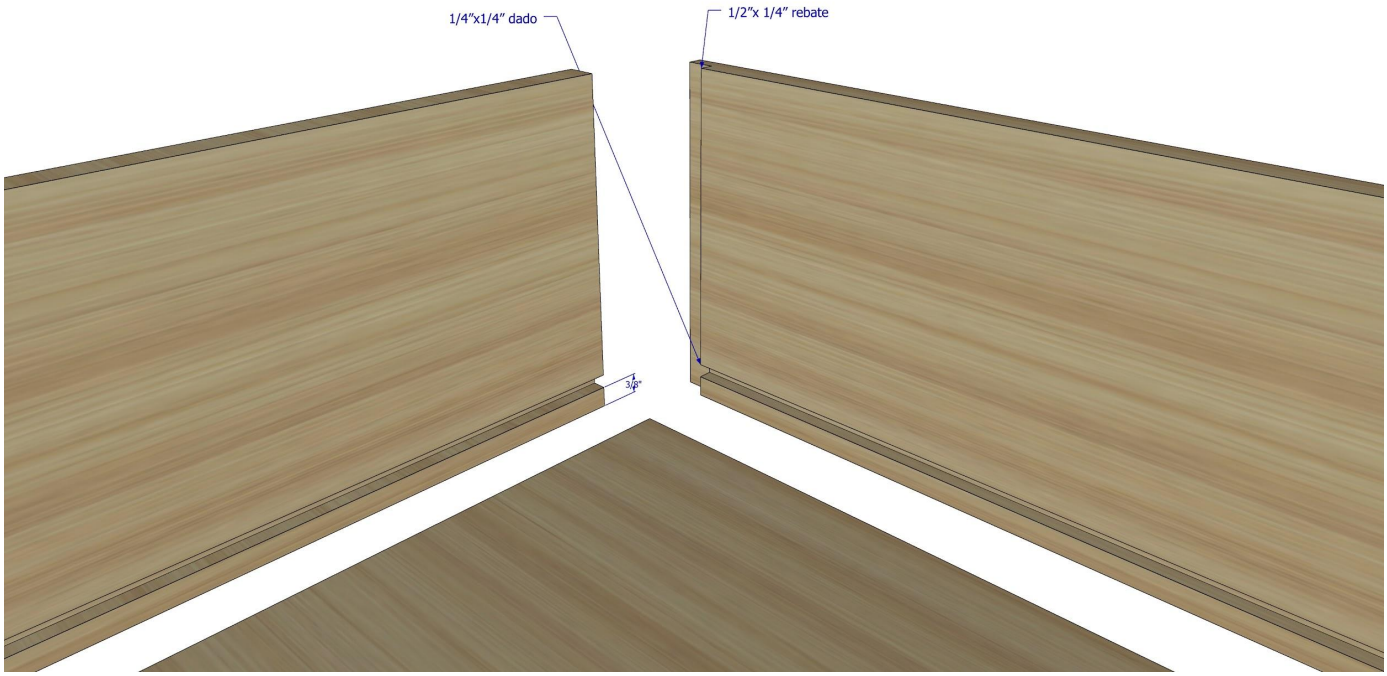
12. Glue up the auxiliary table top or cut a piece of plywood to size
13. Attach the finished top to the cart using the pocket holes that were previously drilled in the plywood sides.
14. Install all drawer slides, drawer boxes, and auxiliary table top into the cabinet.
15. Cut all of the inset drawer faces and install them using playing cards or business cards around the perimeter to create an even reveal.
16. There are a lot of options for drawer pulls, on this project we opted to make drawer pulls using the PantoRouter™ then mortise them into the drawer face. It can be fun to play with different drawer pull profiles simply by experimenting with different bits on the PantoRouter™! There is a more detailed description of our drawer pull process at the end of these plans.

17. Apply finish to drawer faces and installed handles, then re-assemble the completed cart.

18. The cart is now ready for a safety switch and any sort of customized drawer inserts to accommodate all of your PantoRouter™ accessories. Happy PantoRouting!

Drawer Construction Detail

There are many ways to construct drawer boxes, this simple rebated drawer box held together with glue and 18guage brad nails is a go-to for our shop projects since it is fast and strong, many other construction techniques work but you may have to alter the cut list slightly. Be sure to cut all drawer components after the case has been built in order to account for any discrepancies in dimensions.



Caster recommendations:
On all of our mobile shop carts we use 3” double locking casters. There are several manufacturers but we’ve had good luck with Everbilt from Home Depot. They are relatively affordable and when the lock is applied, both the swivel and wheel are locked in place making a very sturdy work surface.

Contact Info:
My name is John Henry Souza and I build custom furniture in Oregon as well as working for PantoRouter USA. Feel free to reach out with any questions
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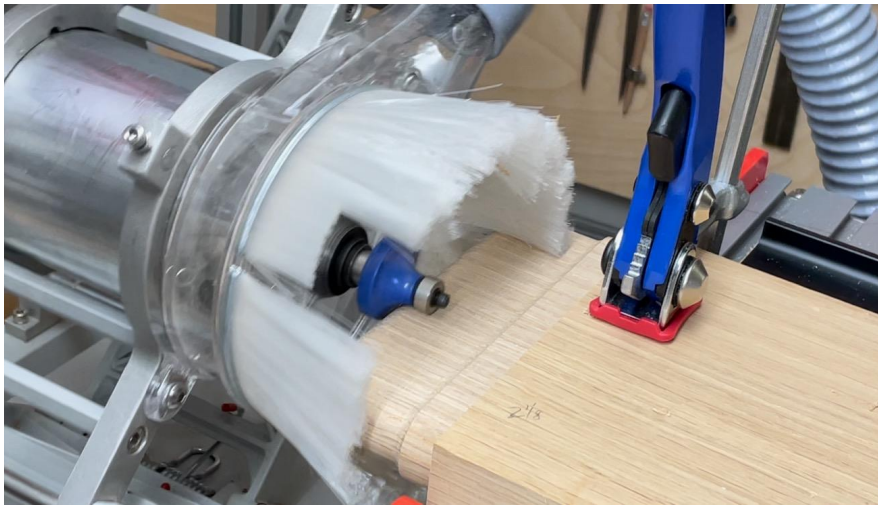
Drawer Pull Detail

This is one example of a fun and creative way to make profiled drawer pulls using the PantoRouter™ by combining different bits, angles, and templates.

1. First, we milled a piece of white oak to match our drawer fronts. Using the 6” configuration on the segmented M&tT set, a tenon was cut for the drawer pull to be able to inset into the drawer face. Then, using a bull nose bit, that tenon was made smaller by reducing the guide bearing size to create the profile you see below.

2. Leaving the work piece in place, we then used a ⅜” bearing-guided roundover bit to go around the front edge to soften it



3. The piece was then placed on the tilted table to cut the finger pull on the underside using a box core bit. This slight angle makes a really comfortable hand hold. This cut goes across the entire bottom on the tenon. The Slot Mortising template was used for this operation

4. Next the profiled piece was cut off of our longer piece of wood. It was sanded and the edges were softened by hand.

5. Lastly, a corresponding mortise was cut in the drawer faces to accept the tenon of the drawer pull. The drawer pull was then installed into the drawer face and the whole thing got a couple coats of finish. The result is a really clean look that adds a nice level of detail to the cart and it's easy to do using the PantoRouter™.