instructables Laser Cut Featherboard for Table Saw or Router Instruction Manual

Contents

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In this Instructable, I'll show you how to make a featherboard (and knobs) using a laser cutter. If you don't know, a featherboard holds your workpiece safely up against the fence of the table saw or router reducing the chances of the wood binding in the blade or kicking back. My laser cut version simplifies the process of making one from scratch, assuming you have a laser cutter at your disposal, making one out of 3/4" pine board in about 12 minutes.

If you don't own your own laser cutter, many local maker spaces have them that you can use as part of your membership with them, usually a small monthly fee.
Supplies:

For Tthe Featherboard

- A pine board, measuring approximately 9″ x 5″ x 0.75″
- My vector PDF template (available below) or Lightburn template (available from my website.).

For the knob:

- 2x premade threaded knob with rubber handle
- 2x threaded machine screw
- 4x fender washers
- 6x hex bolts
- 5 minute epoxy **https://www.youtube.com/watch?v=pmfa0bVf89Q**.

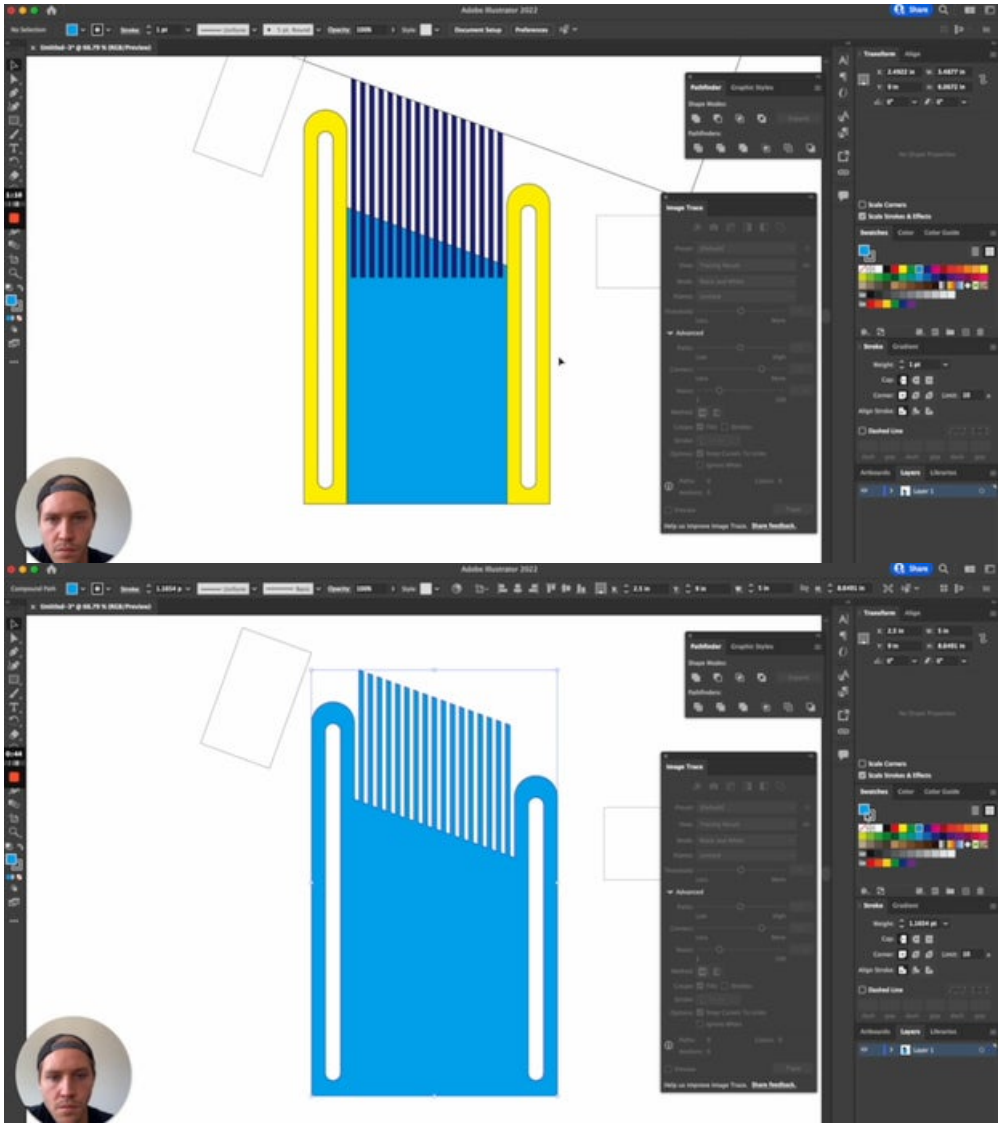
Design Featherboard Template

The first step with any laser project, creative or not, is coming up with your cut files. In my research, I found that many woodworkers have designed DIY featherboards in the past, however, all of their plans intended on you cutting it with traditional woodworking tools, so none of them were available in vector format. Hence needing to create the cut files! One of my favorite parts of building or recreating something like this in Adobe Illustrator is how powerful booleans, or as Laser Cut Featherboard for Table Saw or Router: Page 1.

Illustrator calls them – pathfinder operations – can be to design something complex. If you look at a design like this and think – how can I get the shape I'm looking for by removing one shape from another shape – or by adding multiple shapes together – or by capturing only the area where two shapes intersect – you can get some really

complex shapes with relatively little work. At the end of the day, the featherboard is just a rectangle that has a 20-degree cut made at the top, with a bunch of thin, equally-spaced rectangles “added on” for fins that have that same 20-degree cut. The two side rails that we’ll use to slide the featherboard closer and further away from the table saw blade? That’s just two rounded rectangles with a smaller rounded rectangle cut out of the center.

Merge all those pieces together and boom, featherboard!



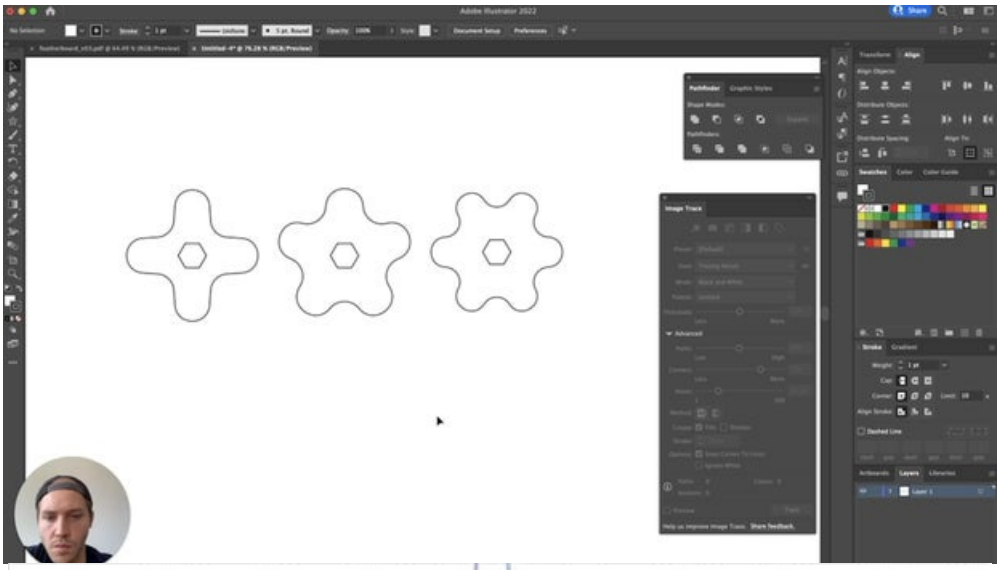
Cut Featherboard on Laser Cutter

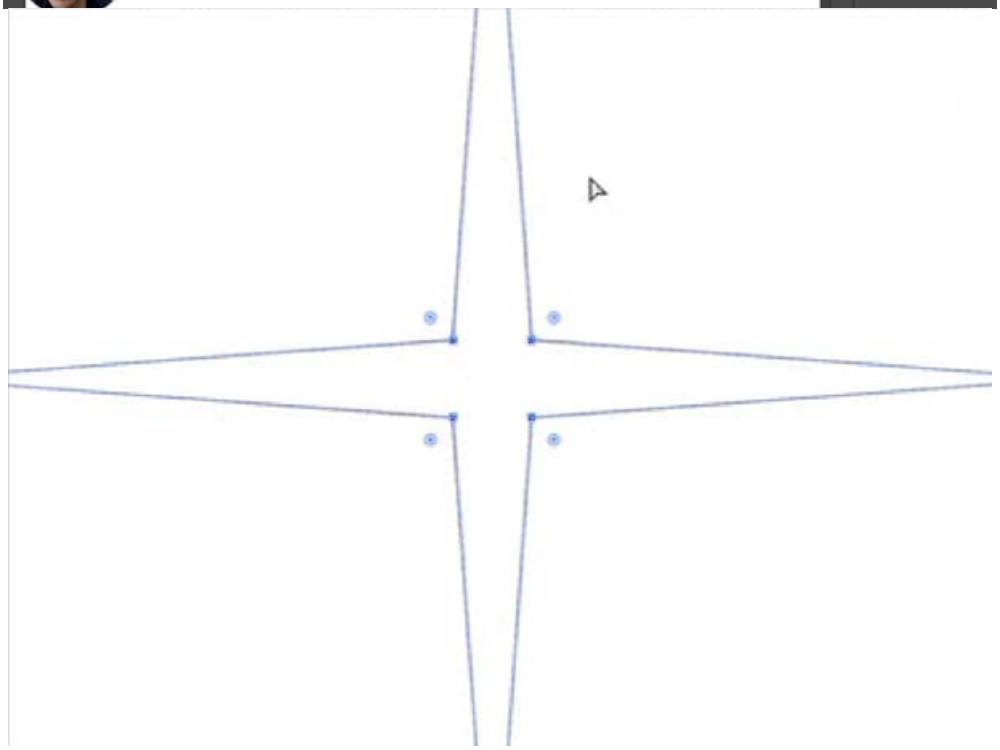
With the outlines created, next up, head to the laser. I used the 4-inch focal length lens for my laser, as it’s better at cutting through thicker stock than the 2-inch lens is. If your laser can’t go through 3/4 inch pine, use a thinner board and just make a less-thick featherboard, or, cut multiple copies and glue them together afterward. As for settings, I took it slow at 5 millimeters per second with the power at 85%. This was on my 80 Watt Thunder Nova 35; your settings will obviously vary depending on your machine. It may not look like it, but this shape has a large perimeter length because of all the fins/blades/teeth – whatever you want to call them. Because of how slow I was going, not counting the logo etch, it took about 12 minutes. But that’s still way faster than it would take me to make one in the manual fashion. Plus as long as you don’t abandon the machine entirely, it can be going while you are working on other things in the shop!

Design Knobs

Now I could have bought knobs and t-rail bolts for this project, but I figured I'd make it as DIY as I could and make the knobs from laser-cut parts as well. I've found the best way to make them is by using the Star tool in Adobe Illustrator. While dragging out a star, hold the "Command" key on a Mac (Control key on Windows) and as you move your cursor, instead of the Star center getting bigger, the points themselves will get longer. Once you're done drawing it, changing to the Direct Select Tool will show all the corner points on the star that can be made rounded. Pulling any one of them as far as it will go will force all the points to round over and meet at the half-way points between them. The reason we want a really pointy star to start out with is so that the "nubs" of the handle are more pronounced once we round them over.

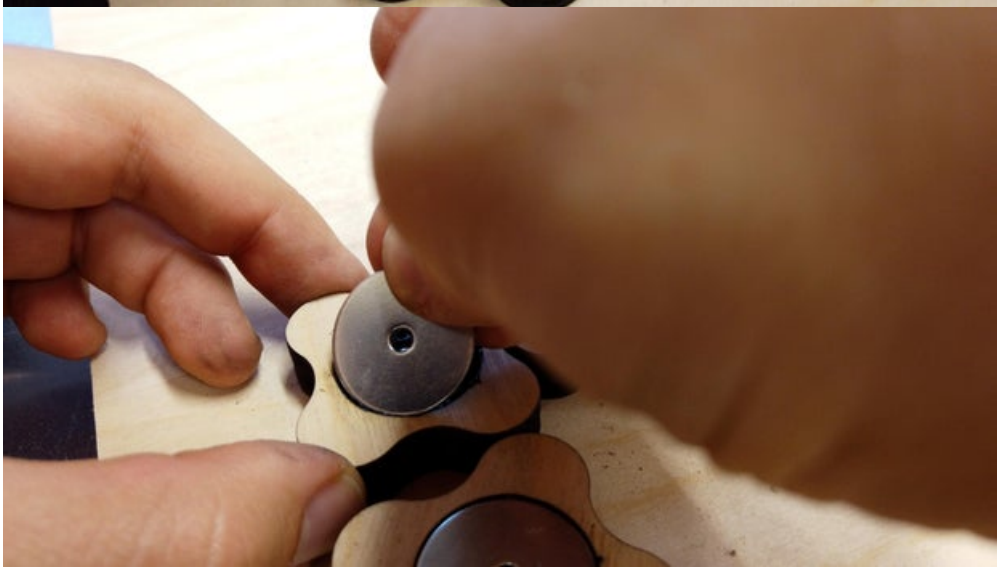
You can use this technique to make stars with any number of points!





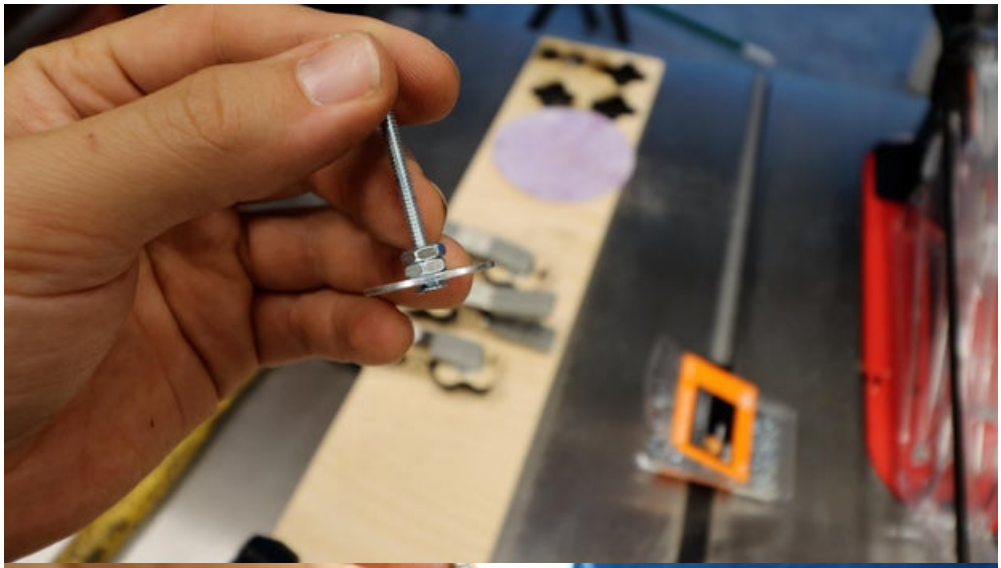
Cut Knobs

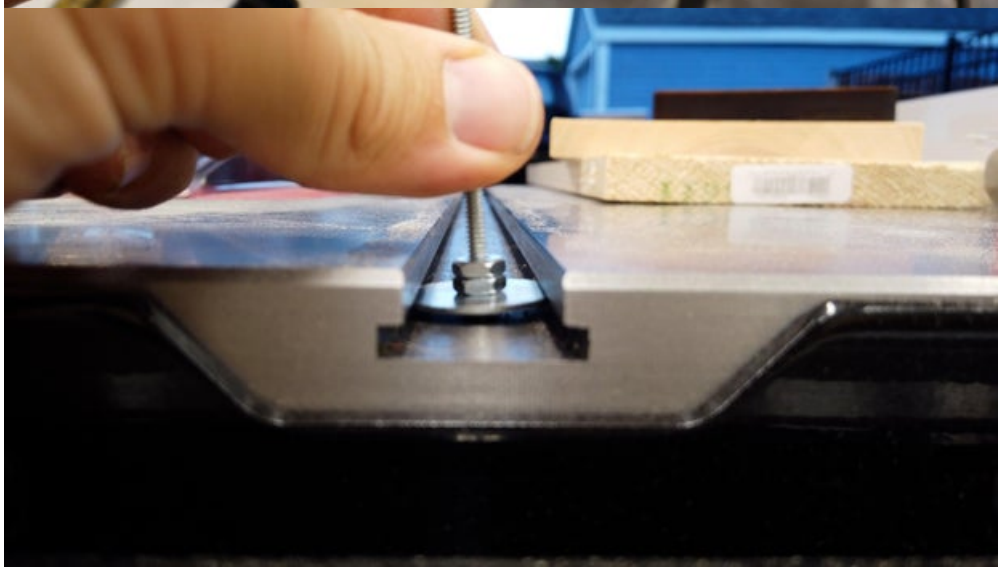
To make the stem portions of the hold downs, for each one we'll use one flat head machine screws, a washer that fit perfectly within your table saw slot, and a few hex screws to hold the washer down. But they needed a handle, too. Using my knob design from the previous step, I added a laser etched circle area (for the washer) and a hexagon-shaped area (for the hex bold I would inset) and laser etched that area too. Once out of the laser, I could hammer an additional hex bolt into place, and sandwich it in with a washer and some five-minute epoxy.



Assemble Knobs

Once the epoxy cures, the hold downs are ready to use and as such, your feather board is complete. To mount it to the table saw, it's simply a matter of putting one of the T-track washer contraptions in the bottom of each of the weatherboard slots, followed by one of the knobs and twisting it on a majority of the way, only doing the final tightening once it's slid into place and placed to fit the board you plan to cut.



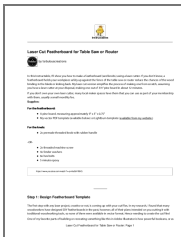


Make Safer Cuts

I decided to put mine to the test by cutting the factory-rounded edges off of a long length of 1 by 4 I had sitting around, and it worked like a charm! Nice and secure on the saw, and the fins were nice and stiff with plenty of flexibility to adapt to minor fluctuations in the width of the board.

I hope you liked this Instructable! If you liked this project, please consider subscribing to my YouTube channel so that you don't miss future laser cut shop-jig projects from me! Finally, I would greatly appreciate your vote in the Build aa Tool Contest! You can place your vote for this project below! Thanks for your consideration!

Documents / Resources

	instructables Laser Cut Featherboard for Table Saw or Router [pdf] Instruction Manual Laser Cut Featherboard, Laser Cut Featherboard for Table Saw or Router

References

- Yours for the making - Instructables
- Laser Cut Featherboard for Table Saw or Router : 6 Steps (with Pictures) - Instructables
- Farbulouscreations's Activity - Instructables
- Laser Cut Featherboard for Table Saw or Router | Farbulous Creations