



# BAILEY'S ROUTER CLASS

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# Display cabinet



**Anthony Bailey** makes a cabinet to display your precious goodies

## THE PROJECT

Many of us are collectors of all sorts of unusual things: from porcelain figures to tunbridgeware boxes, model trains shaped from coal and paperweights. You name it and many of us have it. So, we know that these goods are vulnerable to dust and knocks. A display cabinet is an obvious way to protect these precious things and show them off properly. You can make your own, but it does pose a few problems as it needs to be largely clear so that the contents can be viewed. The woodwork needs to be discreet and strong at the same time. So, to overcome the design and building difficulties, you need to know about sub beds, sub fences and tunnels - these are the methods we can use to make small awkward shaped mouldings successfully.



The display cabinet even looks great with no contents

**T**he router is still the most versatile power tool there is. Along with a vast range of cutters, jigs and gadgets - many of which you can also make for yourself - it can help produce high-quality woodwork.

This series is intended to show you what the router can do, while assuming the reader has a general level of woodworking knowledge. We hope to show you the aspects of each project that specifically involve the router and how this great bit of kit can expand your woodworking skills.

Each month we will highlight the jigs, cutters and gadgets you will need to help you get more from this incredible machine. Feel free to send us pictures of your routing endeavours, or post them on the WPP forum at: [www.woodworkersinstitute.com](http://www.woodworkersinstitute.com)

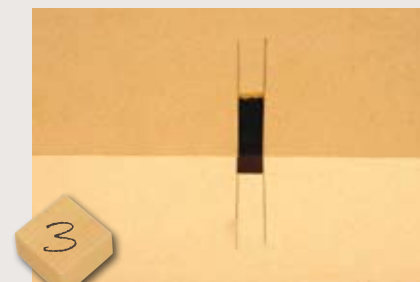
## THE JIG



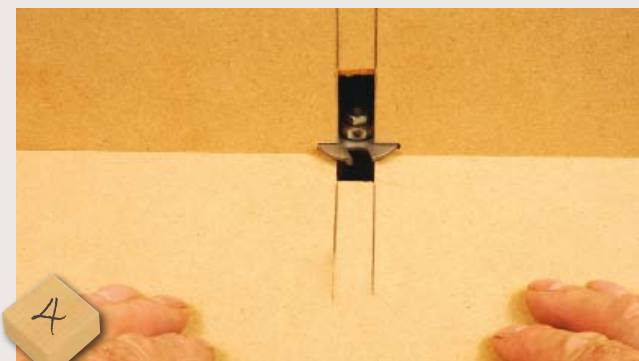
**1** The awkward-to-make items are the L-profile mouldings that will hold the glass or, in this case, polycarbonate sheet. You can see that it isn't just an L profile, but also incorporates grooves to take the glazing. This renders the wood vulnerable to chattering and breaking up. Note: all blank stock will need to be exactly the same dimensions to make this work



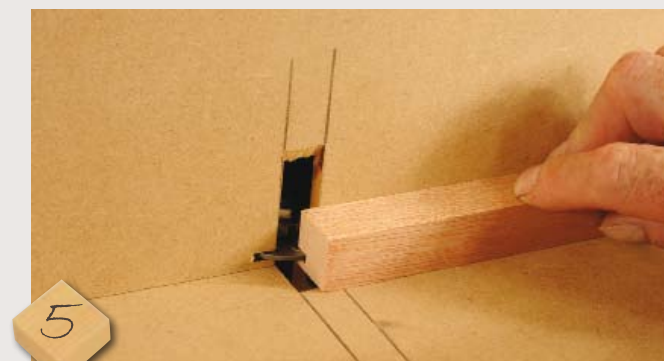
**2** Let us consider the router table and what it needs for any small or awkward moulding work. The first problem is this table lacks a close fitting insert around the cutter. Often this wouldn't matter but without it, small sections won't get good support and chippings can fall into the motor vents and clog it, even causing damage to motor windings when the router is running. The answer is to fit a sub bed that sits around the cutter or its shank



**3** The fence has too large a gap around the cutter also, again this gives insufficient support to a moulded face which may also catch on the outfeed side, in any case. So, again, a sub fence - also known as a through fence if it runs right across the cutter opening - is required as it gives proper support and avoids the workpiece catching on the outfeed fence, as could happen if it wasn't present. Cut a slot to accept any bearing or shank, the cutter will take care of the rest



**4** The last part of the equation is a tunnel to enclose the workpiece. This holds narrow stock square as it runs through the cutter. The tunnel prevents vibration and therefore improves the quality of finish, and prevents small moulded sections breaking up as they are fed through. After fitting your through fence with its shank holes, push the fence back onto the rotating cutter, so it breaks through the fence. Clamp the fence in place and switch off - you may need to trim any fluff away at the outfeed side that might catch on the workpiece as it travels through



**5** Push a piece of stock onto the running cutter to check the slot height and depth are correct. Do not be tempted to machine the whole length, the cut quality may not be consistent, and more importantly, it places your fingers at risk



**6** Fit a backboard to the fence with a strip of board or batten on the underside. Press it down on a couple of sections of the prepared stock. Clamp it firmly in position. Next, screw two pieces of board either side of the backboard to help support it

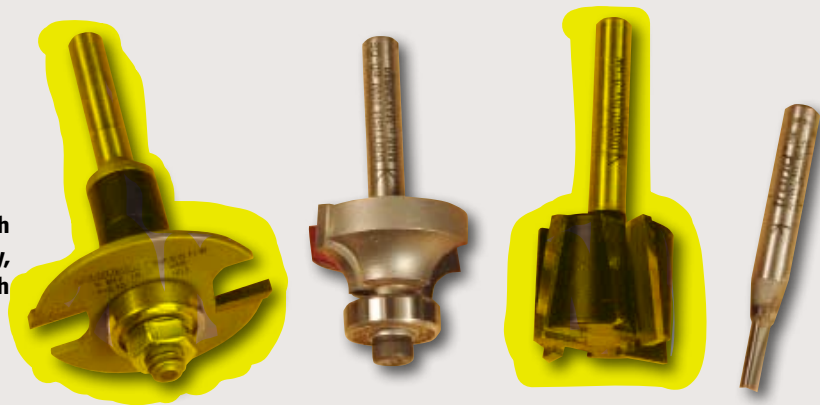


**7** Place a spare piece of stock at the front pressed against the pieces of stock from step six, and glue and pin it in place and remove the spare stock. You have now created a completely safe, enclosed method of machining small sections. You will notice that extraction isn't possible with this kind of total enclosure in place. But, as the chippings produced are much looser than the original dense solid material, in my experience this doesn't prove to be a problem, as long as the cut you are making is not too deep. If you can't get adequate extraction in instances like this, make sure you wear a personal respirator

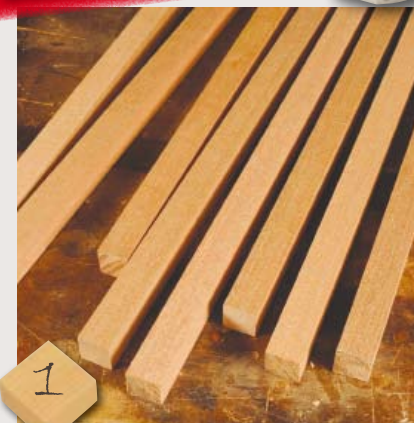


## THE CUTTERS

Four cutters were used for this project, starting with a narrow-kerf Wealden groover for creating the glazing slots. Next was a Titman 6.4mm roundover for making the corner profile of the glazing bars. A small Wealden tenoning cutter created the internal profile in two passes from each direction, leaving an internal square corner. Lastly, a Trend 3.2mm cutter used with a router fitted with a straightedge created the grooves in the base of the showcase for the glazing to drop into – this is the way the glazed top is lifted on and off



## MAKING IT



Prepare all the stock to size using a thicknesser, leaving the glazing bars over-length. It should be exactly square so it can be turned over and still fit correctly in the tunnel



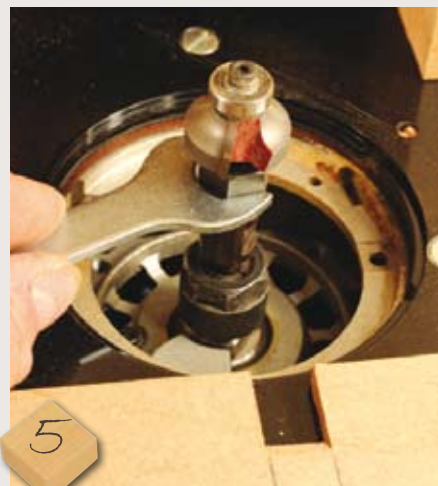
The first cut will be done using a groover to make the slots for the polycarbonate sheet, which is slightly under 2mm in thickness, so the groover needs to be slightly thicker than that. Raise the groover to the correct position without the fence or tunnel in place. Replace the sub fence, and then you may need to switch on so the cutter can cut its own new path in the sub fence. Re-fit the tunnel, ready to start machining



Now proceed to machine one slot, pushing the workpiece through using the next blank section as a pushstick. Turn the workpiece over and machine the other slot. Note the slots are in adjacent faces and at the farthest edge away from each other. Take your time to get this right



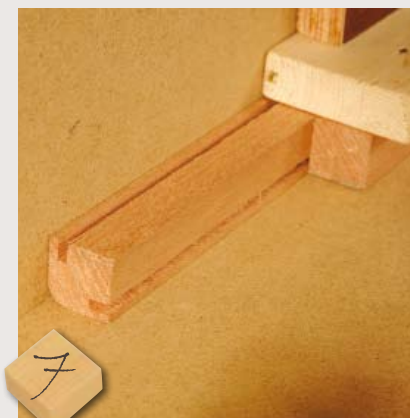
Next, a roundover cutter is required. The table opening here is so big that the spanner can be used from above the table without fouling on the cutter



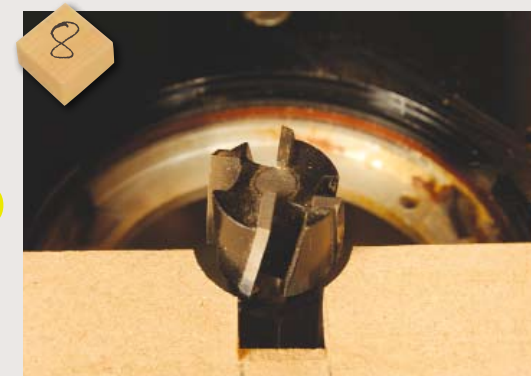
A difficulty with using a sub bed or having a thick tabletop is the lack of projection of the cutter. A way around this is to use an extension piece which is safe, so long as you aren't using too big a cutter



In the same way that we used a breakthrough slot in the fence, you can get a sub bed to fit around the cutter. Just hold on to the sub bed and push into the cutter from the side. Then switch the router off

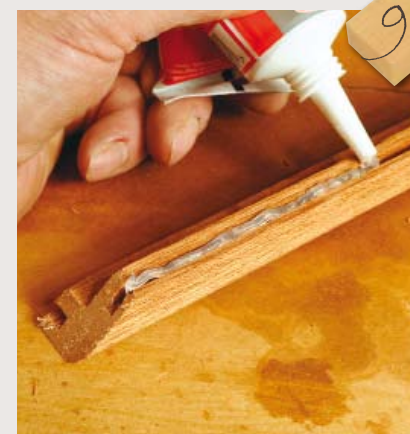


The showcase moulding is beginning to take shape with a roundover on the outside and the glazing grooves already formed



The centre portion between the two slots needs to be removed so we end up with lightweight, L-shaped sections that are aesthetically pleasing and not clumpy looking. I used a small version of the Wealden tenoning cutter, because it has a shearing action and therefore cuts more cleanly, but a simple straight cutter would do. I chose not to machine right into the corner but do a pass in either direction, so a square shape remains for strength, as shown in the Jigs section, previously.

Mitre the pieces accurately so they fit together correctly and according to the intended showcase size. On a mitre saw you need a fine tooth blade to avoid torn fibres and, similarly, by hand you need a fine tooth saw such as a Japanese pullsaw



Cut all the polycarbonate sheet to size and use silicone to fix it into the mouldings, which are glued together at the mitred corners. The glazing extends below the ends of the upright framing as it will locate in the baseboard



The top is held together with masking tape and left to set, then any surplus silicone can be carefully knifed away



The showcase top is inverted and the other glazing and bars fitted with silicone and PVA for the woodwork. The vertical bars simply butt cut and glue to the top. Note – no special joints are used as the silicone does such a good job holding everything together. The glazed sides extend down slightly so they can locate in a slot routed in the baseboard of the cabinet

## Router torque

**Q** I looked in a cutter catalogue recently and, apart from the rather scary prices, there seemed to be not just lots of straight cutters but different kinds of straight cutters. You often say straight cutters are the most important to own, do I need all these different types?

**A** It's horses for courses when it comes to cutter selection. Recently I was drilling

holes with a router and got a lot of burning and a dirty, gummed-up cutter. Why? I didn't have a spiral drilling cutter of the right size when I needed it. So I think the answer is, if you are serious about routing, work out what you need for a job and see if you can stretch the budget to get the cutters. I suspect most router users like yourself stick with standard straight cutters and wonder why they don't work so well when trying to do things like drill, machine plastics, or trim edges of veneered boards, for example. ■



Sometimes, you really need a spiral straight cutter

Email your router questions to: [anthonyb@thegmcgroup.com](mailto:anthonyb@thegmcgroup.com)