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The linenfold effect on the finished chest

Blanket coverage

Cheating is fine when the result is a beautiful copy of an early oak chest

I jumped at the chance when I was asked to make a blanket chest based on one featured in Ralph Fastnedge's book *English Furniture Styles*. Although I have made many pieces in English oak, the disciplines of hand carving involved in achieving linenfold panelling always put me off.

But thanks to Wealden Cutters' new linenfold cutter set my excuses have run out. Its cutter profiles produce a convincingly effective substitute for the real thing.

My own substantial collection of cutters has been almost exclusively Wealden from the year dot, so I have no hesitation in recommending them. Equivalent cutters made by other companies can be used for all the operations in this project except, of course, the linenfold work.

Flighty oak

Because oak is a wasteful timber with a flighty nature, purchase double the amount of timber required for the chest, to allow for wastage.

For the dimensions of the chest I scaled off the drawing in the book, but it could be made to any size, remembering to keep it in proportion.

I used some thick, air-dried, hurricane-felled oak and cut all the components oversize, planed them over-thickness and left the timber for some weeks to acclimatise before re-machining the pieces to the finished size.

Because this is meant to emulate an early piece of furniture with linenfold detail, the stock thickness needs to be 25mm for the stiles and rails and about 16-18mm for the panels. The legs are made of two pieces of 25mm oak to give the required thickness. I reserved the ray-figured boards for the linenfold panels. To make construction easier treat each face of the chest as one complete item. The front and back and the lid comprise complete 'units', and the ends and bottom are fitted afterwards.

T&G cutters

Wealden's Shaker-style large tongue-and-groove (T&G) cutter set allows neat jointing and panelling without having to resort to mortice and tenons. A router table and a large router will be needed for this operation.

Calculation of component sizes is all important. Mark the square face sides and edges of the components when planing to size and work to these marks as a datum throughout the project to ensure flush joint faces.

Cut the stock for the legs and stiles somewhat overlength, ready to be cut to size later on, but cut the rails and muntins exactly 24mm longer than the distance between the stiles or legs. This is to allow for a 12mm tongue each end to fit the depth of groove created by the T&G set.

The panels need to be about 2mm shorter than the rail, including tongue, so that when slid into the groove there is enough free play to allow for assembly.

The T&G set comes with shims to get the right fit, so it is sensible to make several trial joints first and mark the correct shim with a felt-tip pen so that the right one is used.

English oak selected and machined ready for use

Rout the scribing cuts first (the tongue) and then the profile (groove). I did some of the grooves at full cut depth but found the 'ragging' of the edges unacceptable and swapped to 'pre-scoring' – this means a first cut at about 2mm deep to give nice, clean edges followed by a full 12mm pass which should remove the bulk of the material without disturbing those edges.

Because the panels need a slightly looser tongue, a different shim is needed.

Wealden linenfold cutters and others used in the project

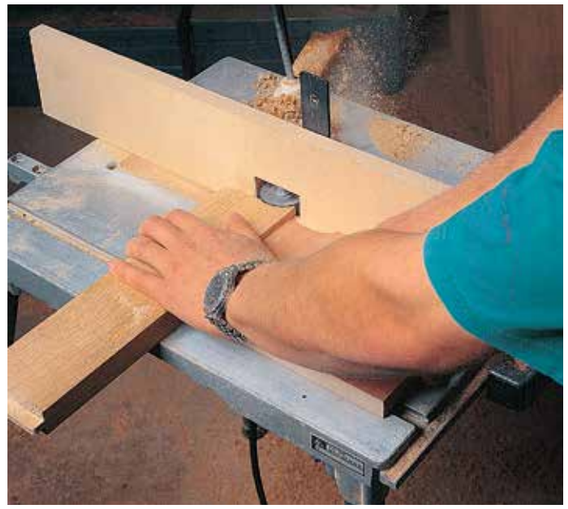
Router cutters used in this project

Wealden Tool Co: linenfold set, large tongue and groove set, chamfer T916B ¼ shank, V-groove T128 ¼ shank, hinge morticing T310 ¼ shank, panel trim T8018B ½ shank, beaded edge T2503B ¼ shank, T2504B ½ shank, classic panel guided T1622B ¼ shank.

All the components for the end and base can be cut at the same time as the main ones, but on final assembly they might need slight re-machining.

Chamfers, grooves

The stopped chamfers on the lid frame are applied with a 45° cutter, either using a fence on a router table or with the router hand-held working off the side fence. Ensure you have made pencil marks for the start and stop points and don't hold the wood in one place on the spinning cutter too long as doing so would result in a burn mark. ➤



Cutting tongues on stiles

Bottom piece showing tongues, leg cutout and groove

The panels are butt-glued together, then machined and sanded to a finish before assembly takes place. They are flat on the outside but project slightly on the inside of the chest due to their thickness. Use the same 45° chamfer cutter to put a bevel on after tonguing their inside face.

Also before assembly rout large edge beads on the front of the lower rails and a groove on the reverse to take the chest bottom panel. To avoid breaking through the wood, the groove should be higher than the bead.

The large chamfer running down the inside corner of the legs can either be done now or after the first glue-up.

To make the routed small stopped edge bead look as if it has been achieved with scratchstock, whittle each end of the cut with a chisel, and sand lightly.

Stopped chamfers and cutter

Fitting frame

All of the frame parts should be sanded before assembly.

After a dry-fit trial run, glue up the front, back and lid items separately with PVA or cascamite and cramp up using sash cramps. Place paper between the cramps and the timber to avoid staining from the metal.

Leave to dry then trim the legs to finished length.

Lay the back of the chest down and dry-fit the end parts and the front on top of it.

The base, consisting of a series of planks, tongue-and-grooved all round and with the grain running from back to front, can then be cut to size.

'Don't bother to glue the base strips in place, as they must be allowed to shrink'

Make cutouts on the two end planks to fit around the legs; place them in their groove each end of the chest. Then fill in between them with the rest of the planks, using a square and a scribe to mark the size.

Mark and cut each one individually until there is a small gap. Trim the last plank to a snug fit when the last tongue is machined.

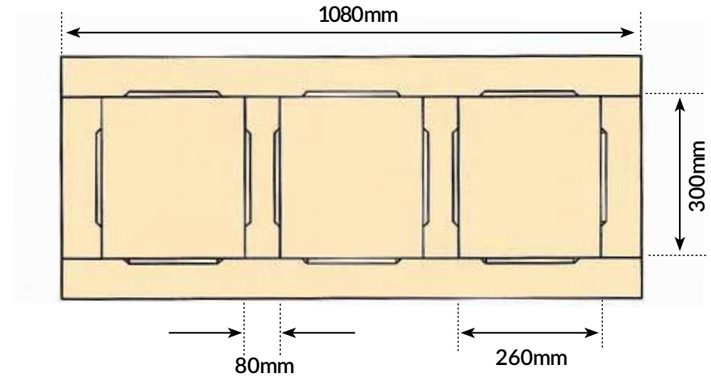
Routing internal chamfer on leg

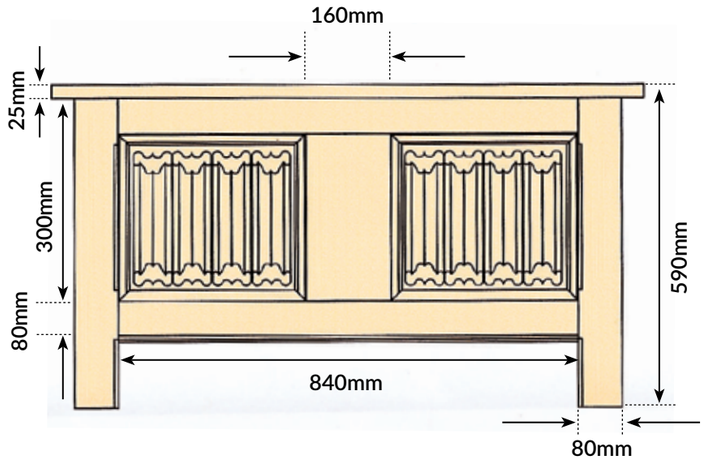
Gluing, sanding

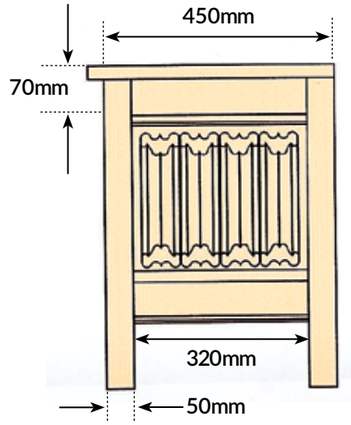
Now glue the whole chest together. Don't bother to glue the base strips in place as they must be allowed to shrink. Use protective pads and sit the cramped up chest on a flat surface to make sure it is square – sight across the top to check if it is 'in wind' (twisted). If both ends are exactly in line there is no wind. If they are not, adjust by placing a small packer under one leg, then leave the glue to set overnight.

The 'horns' on the lid stiles can be trimmed to length then sanded all round. Then, with the box open in front of you, check that the lid fits and overhangs the front and sides correctly.

There may be a slight step where the frames are joined. This will need sanding flush, taking care to avoid the projecting bevelled panels. I worked over all outside frame surfaces and top edges with my 4in belt sander and sharp 120 grit. ➤







Fitting bottom pieces

Main carcass glued up

Linenfold strips in their various stages

Moulding frames

The front and back feature a plain bevel along and a classic profile panel moulding around the other three sides. The ends of the chest also have the bevel on the top of the bottom rail, but the moulding is applied only across the top. A narrow border will separate the linenfold plaques and panel mouldings.

Cut the mouldings with a mitre saw, then glue them into place, holding with masking tape until dry. Note that the vertical pieces on the front and back are next to the edge bead so need to be rounded over with abrasive paper until they look right.

Lastly, remove sander scratches by running an orbital sander and 180 grit over the whole chest.

All arises (sharp edges) need to be taken off by hand with a quick flick of fine abrasive and the ends of the legs chamfered to reduce any carpet damage.

Routing hinge sockets – note bar clamped to chest to provide router with a running surface

Linenfold process

Unlike the woodworkers who made early oak chests and panelling, thanks to Wealden we need only give passing concern to the linenfolding as it is machined as plaques and applied afterwards.

The plaques are made from stock 75mm (3in) wide and 10mm (3⁄8in) thick. When calculating the size of the chest, make sure the panel sizes measure in multiples of 75mm (3in) plus the size of the border you need.

The prepared stock must be profiled in two passes as the cutter does one half of the width. Adjust the fence so that the second cut cleans up and the 'folding' needs only limited sanding.

Next, carefully cut the pieces to length using a table or radial arm saw; make sure more lengths than you need are cut in case some are imperfect. Unusually, the scribing cuts are done after the profiling.

Then make a jig which clamps the plaques and has a special profile at the end. In combination with the relevant cutters, this produces the full effect of the scribing cut. Wealden provides a full-size template for the jig which is transferred to the MDF or Tufnol jig material.

First, set the inverted plaque to one line and, using a straight profiling cutter with a bottom bearing, run along the shaped edge of the jig to scribe one half the width of the plaque.

Tips

- Leaving glue to become congealed – but not set – makes cleaning up neater as it can be done with the second-best chisel rather than by wiping and washing off the surplus, which raises the grain and can push glue into the pores of the wood. To get the amount of glue right, I favour using a slim wedge cut on the bandsaw as an applicator, or a dispenser with a spout.

- When preparing the small mouldings use a wide board of the right thickness and machine one edge, cut it off on the saw and repeat as necessary – then sand carefully.

- To avoid kickback when doing stopped cuts on the fence, apply the far end of the work against the fence, slowly swing the front end against it and feed the wood over the cutter.

Invert the plaque to shape the other half, then pull it back to the second marked line on the jig. With the small bearing-guided cutter provided, move the router across the jig and clean off the top of the exposed area of the plaque, so producing a 'carved' effect at the end of each strip.

After a light sanding the plaques can be applied to the panels on the chest. I put an even layer of glue on the backs of four linenfold plaques, placed them on a blank panel and rubbed them gently into place – though a bit of gentle weighting down would be a good idea.

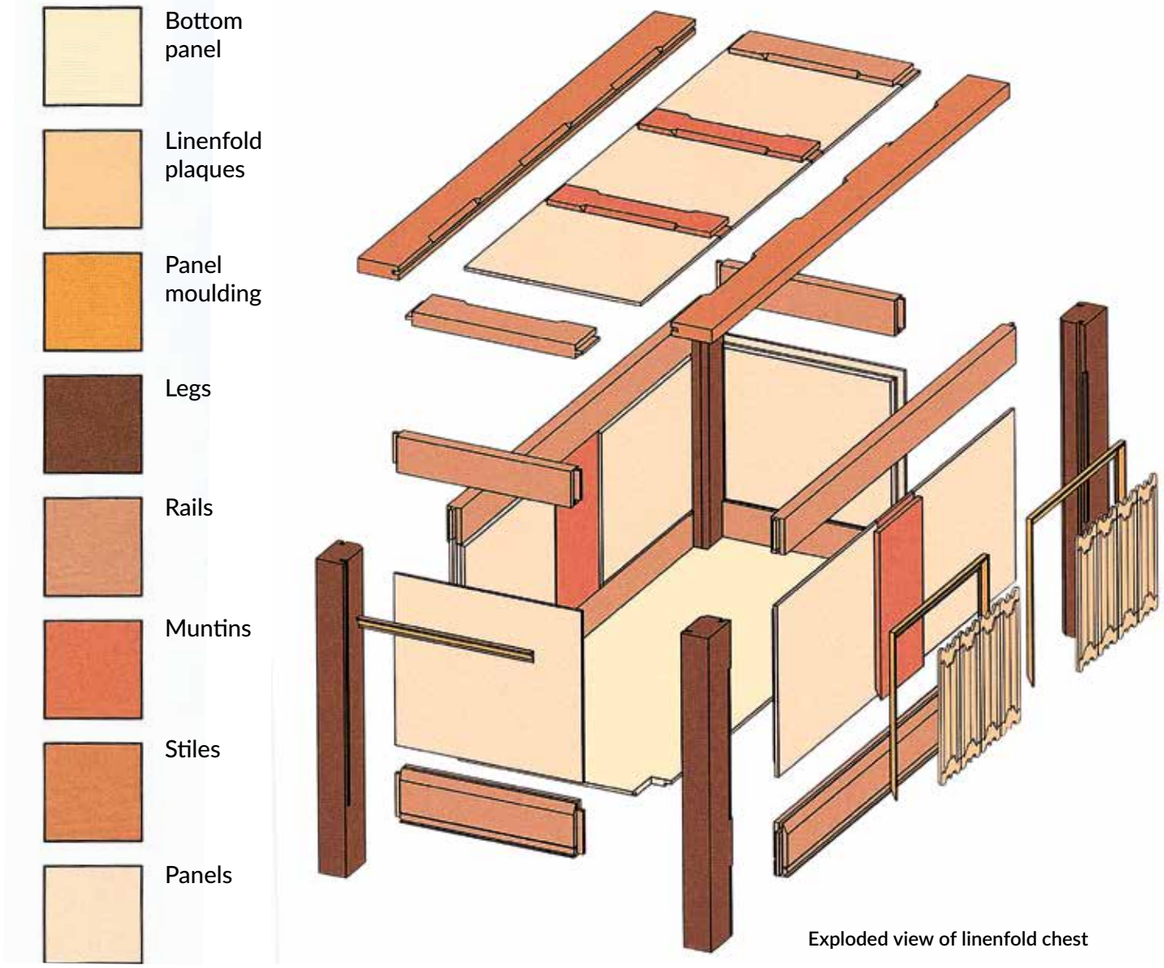
If you don't put glue near the edges, it shouldn't ooze out when the plaques are in place.

Sinking hinges

Mark positions on the back top rail for three 2½in brass butts. They will be sunk into the rail but not into the lid using the router with a 12 or 16mm diameter hinge mortice bit.

With the router stationary, plunge it so the hinge mortice bit just touches a flat surface. Then place the thinnest part of the folded hinge between the depth stop and turret and lock the stop at that depth, lowering the stop a little more if the cut appears to be too deep.

Clamp a board against the top rail to give a larger surface and set the side fence on the router so the hinges will



Exploded view of linenfold chest

have half the 'knuckle' projecting from the rail. Now machine out the hinge slot, starting along the edge to avoid tear-out.

Cut carefully up to the end marks, then square out the corners with a sharp chisel. Screw on the lid then take it off again to apply the finish before replacing it.

Finishing

Apply by brush two coats of Liberon finishing oil to reach all the in-between bits, wait a short while and rub off to produce a gentle sheen. Then apply a coat of Liberon Black Bison clear wax for a soft feel and a pleasant smell. Finally, rub down the hinges and screws with fine abrasive to get rid of the factory 'drawn' finish. ■