



PHOTOGRAPHS BY JOHN LLOYD

With its carcass already in place, **John Lloyd** completes his wall-hung tool cabinet

All hinges on the doors...

Above **The front face of the cabinet – now just the fittings and a coat of Danish oil**

Having created veneered panels for the doors in last month's *F&C*, it's now time to give the panels some frames. The doors, in addition to the main carcass of the tool cabinet, provide tool storage, so the frames need some depth and take the form of two hinged boxes that are each half

the size of the main carcass box. Construction of these door boxes is the same as the main box and the corners are jointed with biscuits, the only real trick is to ensure that they have a matching degree of squareness to the big box, so that they fit it exactly when closed. The next bit was the point at which

I questioned the wisdom of lipping all the edges with cherry to create a nice feature.

This is not the most challenging piece of cabinetmaking that I have ever had to undertake, but it does require an unwelcome degree of precision for what is essentially several plywood boxes joined

1 Ply door frames are biscuited, like the rest of the cabinet

2 One frame set up on the cabinet

3 Lipping the panel on the door

4 Lammello's natty hinges

5 It can't get any easier than this, both set of hinges recesses are cut at the same time for each door. Note the fence



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together with hinges. Having made the basic door boxes, the veneered panels are trimmed to fit exactly into them, the cherry lipping is then added to the edges of the panels, and just to nudge the degree of difficulty a little higher, the corners are mitred.

Dry-assembling

Having lipped them, the panels need to be attached to the plywood box 'frames', but even with glue being pretty

sophisticated and very strong these days, the frame/panel joint needs a mechanical joint of some sort, after all the panel is destined to have a collection of heavy tools added to it. It would be embarrassing if panels and tools parted company from the rest of the doors.

Having just used the biscuit jointer for the boxes, it is close at hand, and it would seem sensible to continue the theme and joint the panel to the door box with a few more biscuits. If the lipping is made a little too wide so that it overlaps the frame ply by about 1mm ($\frac{1}{64}$ in) it gives the opportunity to trim the edge's flush with the Cantex once it is all glued-up.

The Lamello Top 20 'step memory' system can be successfully brought into play again with this bit, the jointer is set to centre plus 1mm for the panel lipping on two adjacent edges, and to dead centre for the corresponding ply box edges. Using a few biscuits, the panel is dry-assembled on the two edges and then by measuring the exact

amount of overhang on the other two edges, the step memory system can be adjusted as necessary to get the biscuits on these two edges lining up. A relatively straightforward process with the Lamello, but rather more of a challenge without the step system for blade height adjustment.

Lipping

To complete the doors just requires some more lipping on the inside face of the door boxes, and once again these lippings need to be securely fixed to the ply, particularly because one edge is destined to have hinges attached to it, and a good deal of weight hanging from it. More biscuits, but this time the smallest ones, the same ones that were used on the main carcass lipping.

With the doors finished, it is a good time to add some hinges to see if the whole thing actually works in the way intended! For a job like this my natural inclination would normally be to order some piano hinges.

Up until now I wasn't even aware



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that Lamello made hinges, but they do, and the chances are that if they are made to the same standard as all the other bits and pieces that I've tried on this project, they should be nicely engineered. Surely there's not much that can be done with a hinge to make it very different or, indeed, much better than any other. The Lamello hinges are actually rather cunning, well what would you expect from this company?

The first thing that is striking about these hinges is their shape which is, perhaps unsurprisingly, remarkably similar to the shape of a biscuit. Well, in fact, exactly the shape of a biscuit when they are opened out, the only difference is that they are made from metal, have a lift-off hinged bit and several holes for screws.

Biscuit jointer

Maybe square hinges are destined to be a thing of the past, well probably not actually, but these are rather cunning. Being biscuit shaped would seem to point to the fact that a



biscuit jointer might be utilised in their installation, which could potentially make installing a hinge a pretty swift and painless affair. I've seen jigs for fitting hinges using a router, but how can a hinge be fitted using a biscuit jointer?

Firstly the door needs to be positioned in its closed position, either in its frame, or, as in this case, sitting on top of the main box. With the two halves held securely in position, the theory is that the biscuit jointer is plunged into the centre of the door/carcass joint line at the points where hinges are required.

The only challenge with this particular application is due to the depth of the door, which means that the biscuit jointer's fence can't be used to position the cut in the middle of the door joint. However, a temporary MDF fence can be used without too much difficulty, and as long as it's parallel with the door joint, any minor positioning adjustments can be made using the Top 20's step memory dial.

Drawers

Because of the weight of the door, several hinges are required, a benefit of these hinges being 'lift-off' is that it makes hanging the cabinet on the wall easier without the weight of the doors to contend with. Of course, it also makes hanging the doors easier as it's just a question of slotting the hinges together.

The main internal fittings for the cabinet are the drawers and the lifting plane-storage rack.

6 Hinge fitted

7 First door fitted

8 Marking out the dovetails



9 Pencil lines applied ready for bandsawing the tails out

10 Cutting the tails on the bandsaw

11 The MDF dovetail jig



The drawers are the first chance to do some real cabinetmaking, with a few hand-cut dovetails. Well, I say 'hand-cut', they are pretty much cut by hand. With the addition of a bandsaw at a strategic point this bit could be cut by hand quite successfully, but a bandsaw can save a little time, and as I'm sure someone once said, 'time is money'!

Dovetails

Marking out dovetails is no great mystery, and all marking-out is done with either a cutting gauge or a scalpel, apart from the initial marking of the shape of the dovetails on the drawer sides. This doesn't need to be particularly accurate as the side will be used as a template, so it is just marked out with a sharp pencil. Positioning and spacing of dovetails doesn't need to be terribly scientific. I usually mark the half pins 6mm ($\frac{1}{4}$ in) in from the edges of the drawer sides, and use an even spacing for the rest of the pins, but as long as there are enough pins and tails to make it structurally sound, why be a slave to convention?

Fineness of pins is partly an aesthetic thing, but is also partly a showing-off thing. On many antiques, the pins are definitely on the showing-off side, although this does make them rather fragile. Antique dovetails would often have been cut by eye – if you have a look at the dovetails on an antique drawer you will often notice slightly haphazard spacing and a bit of careless over-sawing on the drawer sides. Marking out and careful sawing takes a bit longer, and a piece-work rate made speed a very important issue. These days to speed things up a bit I often use a bandsaw combined with an angle jig to cut the pins.

The drawer fronts are made from cherry, because they need to look pretty, and they'll match the lippings on the rest of the cabinet giving continuity and the illusion that some thought has gone into the design of the piece.

The joint for the drawer fronts is a lapped dovetail and the drawer backs, through dovetails. Through dovetails look as if they are simpler than lapped, but have two faces that are open to inspection whereas the lapped dovetail only has one, so a greater degree of accuracy is required for first-class through dovetails.

Finishing touches

The angle jig is just a piece of MDF cut at the desired pitch for the dovetails, which should be somewhere in the region of 1:6 – 1:8. To increase the chance of success, I always check that the bandsaw blade is exactly at right angles to the table, and fit a sharp blade with a few more teeth than my usual 4tpi general-purpose blade. To speed things up further, several of the drawer sides can be taped together into a packet and cut as one, four sides in a packet is my usual maximum, any more and things tend to have a habit of getting a little out of control.

The drawer sides are set against the angle jig, which is set against the fence. Lining up each cut is just a question of sliding the drawer sides up and down the jig, and having lined the blade up with each pencil mark, holding the sides firmly against the jig and sliding the jig along the fence to make the cut. Having removed the



waste, the drawer sides are used as templates for the fronts and backs, scribing with a knife and completing the joints with nice sharp chisels.

The plane storage rack is another exercise in using a biscuit jointer to join the two triangular sides and shelves together, and also to joint it all to the carcass. The lifting lid is hinged along its top edge and has cherry dividing strips to suit the planes that are going to live there, and a cut-out on the left-hand edge to make lifting possible.

Other fitting-out for chisels etc is just a question of making up appropriately shaped racks and perches, and fitting a flat bolt to the inside edge of one door and a hasp and staple.

A padlock will keep unwelcome little fingers safe from injury and sacred chisels from being borrowed by spouses to open tins of paint!

Finishing will consist of a coat or two of Danish oil, which can always be added to at a later date if it starts to look a little tired. **F&C**

