Making closed end pens

Carrying on with his series, in this issue, **Walter Hall** looks at tips for making closed end pens

PHOTOGRAPHS BY WALTER HALL

WALTER HALL

Walter Hall is a woodturner who has specialised in making pens and pencils for more than 20 years. Based on the beautiful Northumberland coast in the UK, Walter sells his bespoke pens and pencils through local craft centres and via his website.

walter@walterspens.co.uk
www.walterspens.co.uk

Not everyone will be familiar with the term 'closed end' to describe a pen, so before I begin to describe the tools and techniques, I shall explain what is meant by it. Depending upon the type of pen you are making, all kits come supplied with components that form the nib assembly, centre band, couplers, clip, finial and endcap. A closed end pen is one that has been modified to do away with the need for a metal finial and perhaps also the clip and endcap. This frees the maker from the constraints imposed by the components and allows a more personal interpretation of the design. In pen making circles, a pen that has been modified in this way is referred to as 'closed end'. I will be looking at closed end barrels in this article, dealing with caps and clips will be covered in more detail in another article.

Different types of mandrel

If you have only ever made pens using a standard mandrel and bushes, or turned between centres, you may now be wondering how this can be achieved when it will not be possible for the mandrel to go all the way through the blank. As with all forms of woodturning, the way in which the work is mounted on the lathe is the first consideration and many ways have been devised of supporting closed end pens, ranging from comparatively expensive expanding mandrels, purpose designed for a particular kit or tube size through pin chuck mandrels, to home-made jam chucks. My personal preference is to make closed end pens using my own jam chucks so I do not own any proprietary mandrels; however, I am grateful to my friend and fellow pen maker Ray Fowler who kindly lent me his expanding mandrel and pin mandrel for this article.

Let's look first of all at how these different types of mandrel work:

Expanding mandrel

The expanding mandrel consists of a hollow tube through which a rod passes that is threaded to take a nut and this assembly is mounted through a Morse taper fitting. The mandrel is shaped to take a silicone rubber tube, which is compressed in length when the nut is tightened, causing it to expand in width to grip the inside of a 7mm or 8mm pen tube. This type of mandrel is readily available from UK suppliers for about £20 or so. Metal expanding mandrels are also available in the USA to fit specific pen kits but, unfortunately are not so easy to find in the UK.

A 'Grabber' expanding closed end mandrel

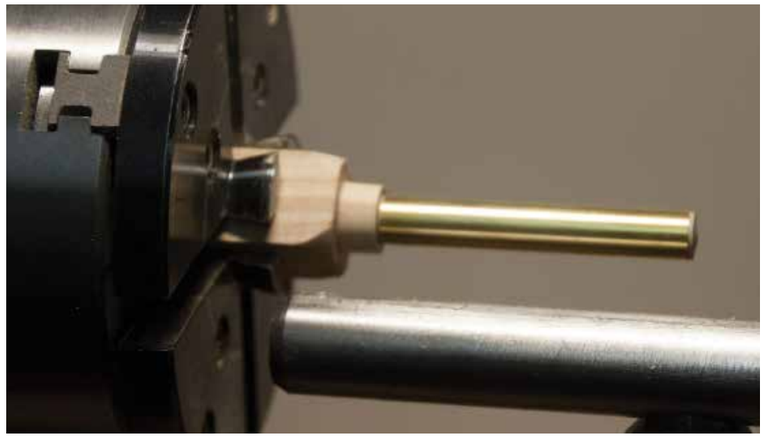
Pin chuck mandrels

Pin chuck mandrels are more normally made by users, or their metal working friends, in their own workshops and consist of a metal or acrylic rod turned down to fit the internal diameter of a specific sized pen tube. A flat is then filed on one side of the rod to take a pin which, when the blank is fitted and turned, jams the tube in place until it is turned back in the opposite direction.

A home-made pin mandrel

Wooden jam chuck

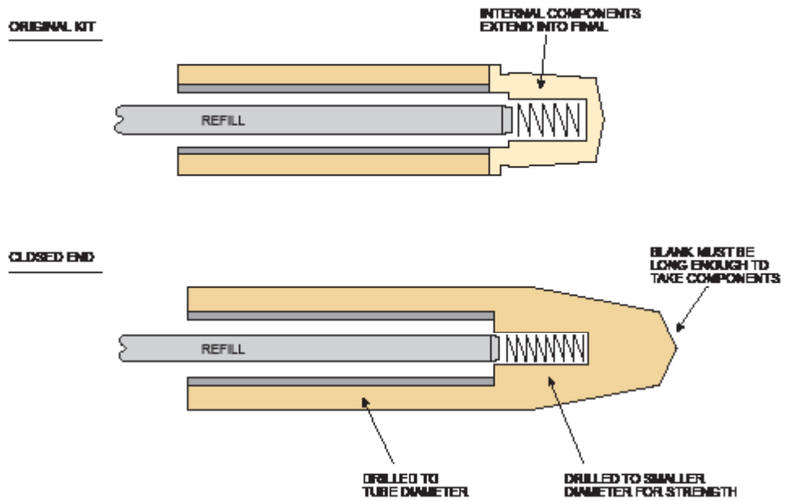
A wooden jam chuck is simply made by placing a suitable offcut of wood in a chuck and turning it down until it is a friction fit in the pen tube. A slight taper – which is wider at the chuck end – will ensure that once it is pressed into place, the blank will not slip on the jam chuck but can be easily removed when the work is complete.



A wooden jam chuck mandrel

Making a closed end pen

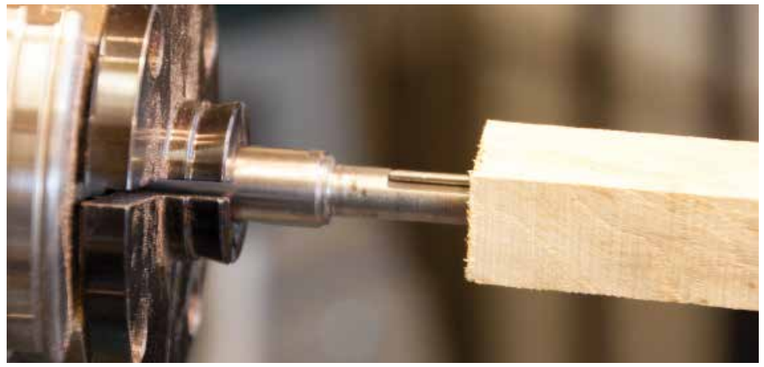
The method of making a closed end pen does not vary much from one type of mandrel to another so, over the next few pages, I will explain the method I use and some of the important factors to consider in the design and making.



Length of blank

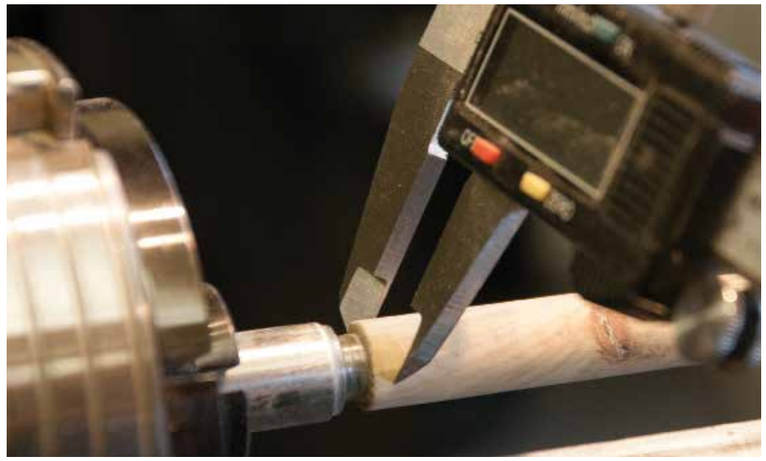
The very first consideration is the length of blank required. This will need to be long enough to accommodate the cartridge, ink pump or rollerball refill – and spring – and will need to be as long as the original brass tube, plus an amount to accommodate any part of the internals that extended into the original finial fitting as shown in the drawings. Don't make the mistake I did of just making the blank slightly longer than the brass tube and hoping for the best as you will inevitably find that the parts will not fit. Measure carefully and design accordingly. While an over-long bore is not a problem for fountain pens, rollerball internal length is particularly critical if the correct writing pressure is to be achieved.

Mark the drilling depth with tape around the bit



Mounting the blank on the pin mandrel

Blank mounted on the 'Grabber' mandrel



If you cannot use bushes, then measure with callipers

Drill the brass tube

Once you have measured and cut the blank to length, the next step is to drill it for the brass tube. This is no different to drilling for any other kind of pen kit except that you need to drill to the specific depth required and is easily achieved by marking the depth on the drill bit with tape.

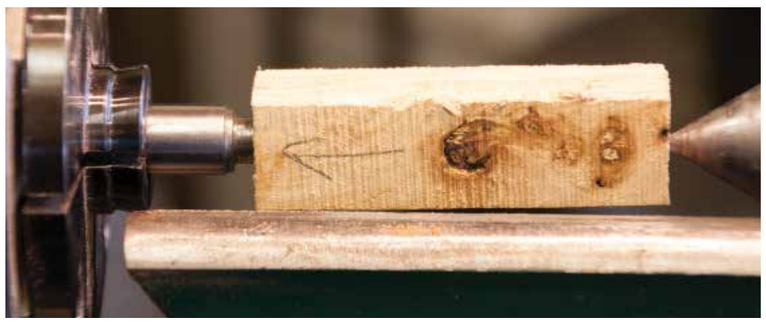
Preparing the blank

The tube must then be glued in place in the normal way and the end of the blank squared to the tube. Using a jig and disc sander is not an option here as the jig cannot pass through the blank so a barrel trimmer is perhaps the best way. Do not make the mistake of thinking that the blank can just be squared off using the mitre fence on a disc sander. Unless the hole for the tube is absolutely true to the sides of the blank, which is almost impossible to achieve, then squaring off in this way will not result in a truly square end leaving a gap when the pen is assembled.

Another option is to turn the barrel to a cylinder on the closed end mandrel before squaring off, in which case, the end can then be squared on a disc sander or mounted in a collet chuck or a scroll chuck with pin jaws and trued up with a skew chisel or parting tool.

Mount on mandrel

The prepared blank is now mounted on whatever mandrel you have chosen and tightened in place as appropriate. An expanding or pin-chuck mandrel may be designed to allow the use of bushes but if you are using a homemade jam chuck you will need to measure the diameter of the open



The blank mounted on the lathe and supported by the tailstock

Supporting the blank

Using a suitable revolving centre in the tailstock, support can be provided for the outboard end of the blank right up to the point at which it is parted off. With the lathe turned on and running at a slow speed, bring up the tailstock and engage the revolving centre with the work. Do not expect the point of the centre to align exactly with the centre of the blank; it must align with the axis of the tube, which, as I have already explained, may not be exactly in line with the sides of the blank. You can turn the barrel to whatever shape you wish, but take care not to cut too deeply and break into the bore of the blank or cut too short leaving an open end. The latter is of course recoverable by reverting to the original fitting but still rather frustrating.

Potential weakness

Another matter to consider is not to create excessively thin walled sections of blank beyond the end of the brass tube as this may cause a weakness that will manifest itself with a catastrophic collapse when you attempt to press the centre band components into place. It is worth considering at the drilling stage whether to drill first for the length of the tube and then to a smaller diameter to accommodate the end of the pump or refill, thus leaving more wood and a stronger blank.

Finishing your pen

Once the desired shape is achieved the end may be parted off and finishing can begin. You may wish to do any heavier sanding before parting off while the blank is still supported by the tailstock, but this is not strictly necessary as the mandrel should grip the blank adequately for all finishing operations. You can apply any finish you choose just as you would on a normal mandrel and then press the components together in a pen press, or by whatever means you normally use. The cap end is turned in the normal way on a standard mandrel or between centres.

Cleaning up the parted off end with a skew chisel

All finishing work can be completed on the mandrel

A closed end slimline pen with beads and texturing

An Omega fountain pen in Midnight Reef acrylic

A modified slimline desk pen in red malee *(Eucalyptus oleosa)* burr on mahogany *(Khaya ivorensis)* stand

An Omega rollerball pen in English plane *(Platanus hybrida)*

A closed end 'Baron' rollerball pen