



North Wiltshire Woodturners Association

Holding Work in the Lathe

Presented by Richard Branscombe – 12th June 2013

When I started my Patternmaker Apprenticeship in 1951 the workshop was equipped with several woodturning lathes with either 3 or 4 fixed speeds and it was considered a modern workshop because each lathe had its own individual electric motor. Nonetheless there were really only just two ways in which to hold work in the lathe:-

1. Between Centres with a **2/4 pronged drive** and a **non-rotating tailstock centre**. The type of work I did consisted mainly of parallel and tapered cylinders, although I did make a table lamp on one occasion. Woodturning as a hobby did not exist due to the expensive cost of the equipment.
2. A **metal faceplate** with a series of holes for screwing the workpiece to. My faceplate turning consisted of flanges which were used as wooden patterns from which cast pipe fittings were made. There was never much time for any 'decorative' turning.

Although there was a third option of using a 4 jaw chuck from a metal turning lathe, this was considered far too dangerous and of limited capability.

I understand that some woodturning lathes were able to use a **Coronet Collet Chuck** system which had only about ¼" movement on them. However, I have never seen one so am unable to comment about their effectiveness.

These, then, were the traditional ways of holding work in the lathe until the early 1980's when a number of Self Centring Chucks (based on the 4 Jaw Chucks used for turning metal) were developed to be used on the woodturning lathe.

BETWEEN CENTRES

As noted earlier, the traditional method was to use either a 2 or 4 prong drive with a non-revolving tailstock centre. This sometimes led to some high-pitched squealing until a drop of oil was applied.

Over recent years there has been a significant number of variations introduced into the market to both the 2/ 4 pronged drive centre and the non-rotating tailstock centre including:-

DRIVE CENTRES

Steb Centres which enables the work to be driven from both ends if need be.

The **Ring Drive Centre** which doesn't leave an ugly mark on the finished article.

Counterbore/ Light Pull Drive Centre you can buy these from tooling suppliers such as Axminster; but I made one from a piece of ¼" diameter Silver Steel and filing 4 prongs on the end. You must be careful not to put too much pressure on - otherwise it will drill into the wood!

REVOLVING TAILSTOCK CENTRES

Ring Centre – these are available in several sizes.

Single or Multi-Head Live Revolving Centre – these have a roller bearing included which allows a number of different size and shape tips to be used for holding the work.

FACEPLATE TURNING

The old way of attaching the work piece to the faceplate was to use either:-

Several **screws** driven into the workpiece from the back of the faceplate. The screw holes were then turned out when the workpiece was reversed.

Or - A **single screw** attachment for a workpiece that was only turned on one side.

Using a **glued paper joint** to attach a temporary drive plate to hold the work in place until the turning was complete. It was then an easy task to release the work/ separate it from the temporary drive plate with a chisel.

Where it was impossible to find a flat surface to match up to the faceplate i.e. work with an uneven surface, there was also a device available called a **Pin Chuck** - which is basically a way of jamming the work on to a plain turned spindle and inserting a small diameter pin on the circumference to jam the workpiece.

This has now been superseded by the small gripper jaws for use with the **Self Centring Jaw Chuck**.

THE SELF CENTRING 4 JAW CHUCK

In the 1980's the **4 Jaw Self Centring Chuck** became available to woodturners and has been developed in several forms and with a number of different screw threads (for mounting purposes) to fit all makes of woodturning lathe that are available on the market today. The majority rely on using a single chuck-key to move the 4 separate jaws in such a way as to keep them concentric.

In association with this development, you can get a wide range of **chuck jaws** each designed to carry out a particular function. Also available are several accessories to go with these chucks that will enable you to do, among other things, Eccentric turning, turning Spheres, Light Pulls etc. If you wish to see a few examples of these - take a look in the Axminster catalogue.

COLLET CHUCKS

The most common of the Collet Chucks is the **Jacobs Chuck** and this is mainly used as a drilling aid when mounted in either the headstock or tailstock to drill the workpiece. It can also be used to hold smaller pieces of wood in the headstock to turn between 1/16" and say, 1/2" diameters e.g. finials, pins, dowels etc.

Make your own **homemade Collet Chucks** to hold larger diameter work using a shaped cylinder of wood and an adjustable (worm drive) clip.

OTHER WORK HOLDING DEVICES

The **Jam Chuck** is perhaps the most common of the additional work holding devices used today and can be made from cheap off-cuts of plywood or MDF.

The way it works is to turn a recess into a temporary faceplate, just slightly smaller than the workpiece diameter. Jam the workpiece into the recess - is then held sufficiently firmly to enable further turning to take place.

A **Lace Bobbin drive** is easily made by turning a Morse taper (to fit the lathe headstock) and chiselling a square recess into it - which the lace bobbin blanks will fit.

Another common method is to use a **Hot Melt Glue Gun** to hold the wood as a secure way of holding the workpiece whilst carrying out the work – a modern alternative to the glued paper joint. You must be careful not to take too heavy a cut or the work will fly out of the lathe.

There are a large number of different ways you can hold the workpiece in place including:-

A **Tailstock Dolly** – used when a long item is held in a self centring chuck and a Dolly is used in the tailstock to stop the work from wobbling.

An intermediate **Lathe Steady** used when work is driven by a self centring chuck and you need to turn out the inside of the workpiece from the tailstock end – think of a goblet!

A **Button Jaw** faceplate chuck used to hold large platters or bowls in place during the finishing stages of turning.

Use '**Dogs**' screwed to a temporary Faceplate for large diameter flat items.

Use a **Friction** drive to rotate the work when both ends of the workpiece have been finished. Obviously you can only make light cuts with this type of drive.

Use an **Eccentric Spiralling** chuck (which is held in the 4 jaw self centring chuck) to turn off centre box lids, goblets etc.

You can make a **Ring Chuck** to help when working on off-centre turning as well. The chuck comprises a back plate attached to the lathe, a wooden ring and 4 long screwed bolts. The workpiece is held in place between them. This is simple to make and at little cost.

Double-Sided Carpet Laying Tape to hold an item in place when one side has been finished and you need to complete the other side without leaving any visible holding marks that you would get from a metal chuck etc.

Temporary **Jigs** can also be attached to the faceplate to allow an awkward shaped work piece to be turned as necessary.

A recent addition to hold work is a **Vacuum Chuck** but I have no experience of this device and I understand another Club Member will be giving us a talk at a future date.

Another useful addition to the woodturners list of equipment is a **Faceplate Ring** which will allow large bowls etc. to be held more securely on the lathe but can also be used to make a Sanding Attachment, which is a good accessory to have in the workshop.

SUMMARY

In summary I have tried to describe many different ways of holding work in the lathe safely - but I am sure that many of you will be aware of other work holding devices that are available to assist woodturners in holding the work and getting the desired result.

Addresses for various items shown during the work holding demonstration (correct as of 18th June 2013):

Item 1 – for the Lathe Steady - Roller Bearings 6003ZZ

Available from:

Swindon Bearings, Unit 60, BSS House, Cheyney Manor Industrial Estate, Swindon

Phone: 01793 615171



Alternatively:

Simply Bearings

http://simplybearings.co.uk/shop/advanced_search_result.php?osCsid=9bb7124b97e79ee6073c24c3146ffcac&sort=2a&search_in_description=0&keywords=6003ZZ&osCsid=9bb7124b97e79ee6073c24c3146ffcac&x=29&y=7

Cost: £3.84 each plus P&P: £1.50

Item 2 – for the Button Jaws - M8 x 13mm Hex Drive Screw in Threaded Wood Insert

http://www.ebay.co.uk/itm/M8-x-13mm-Hex-Drive-Screw-In-Threaded-Insert-Wood-Type-D-20-pieces-/281065092667?pt=UK_BOI_Building_Materials_Supplies_Carpentry_Woodwork_ET&hash=item4170c8f63b

Cost: £4.00 per 20 P&P: Free



This Company also supplied the 8mm x 40mm Bolts for attaching the Rubber Buttons

Item 3 - Rubber Bung with Hole

http://www.the-home-brew-shop.co.uk/acatalog/Rubber_Bung_for_Demijohn_Bored_WITH_HOLE_.html

Cost: £0.54 each plus P&P: £3.12

