

Allan Batty Thread Chasing

Sizes

Thread Chasers are to be found in a number of thread types, but wood turners usually use BSW in sizes ranging from 3 threads per inch up to 40tpi. The most common sizes are 16, 18, 20 and these are the best for the learner.

Handles

The chasing tools are fitted with short handles because they are used in front of the body. Typically, the blade may be 3 1/2" and the handle 5" making the tool 8 1/2" overall.

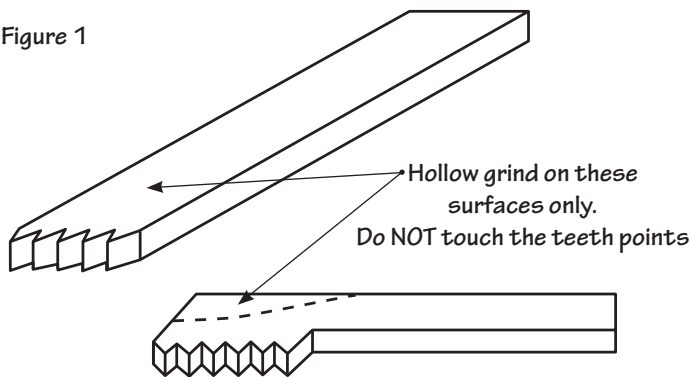
Woods

It is best to use hardwoods for screw thread work but not all of them are suitable. Wood should be close-grained such as boxwood, ligne vitea, cocobolo, blackwood, etc.. Some hardwoods have a tendency to crumble on the tooth edge, so experiment first. You may be surprised at what works and what doesn't! Soft woods are difficult for several reasons and are best avoided altogether.

Sharpening

Thread Chasers are sharpened by hollow grinding on the top faces. Never touch the teeth. Hollow grinding allows honing. It's a good idea to round slightly, the hard square bottom edge of the chaser to enable it to slide along the rest more easily. You may also want to grind the internal tool down on it's back edge to make it thinner. (Dotted line shown in Figure 1)

Figure 1



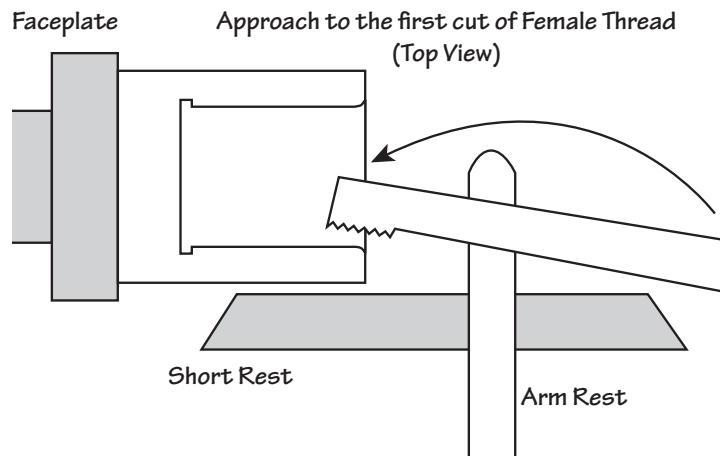
Prepare the Blank

1. Prepare a blank of hardwood which has already been parted to form the two halves which are to be threaded.

Work on the Female Blank

1. Hollow out the inside of the blank to the approximate depth required for the thread, being careful to keep the sides parallel. Then cut a rebate at the bottom of the hollowed out area, about 1/8" deeper than the area to be threaded (See Figure 2). Round the sharp square end slightly to make the start of the thread cutting easier.

Figure 2



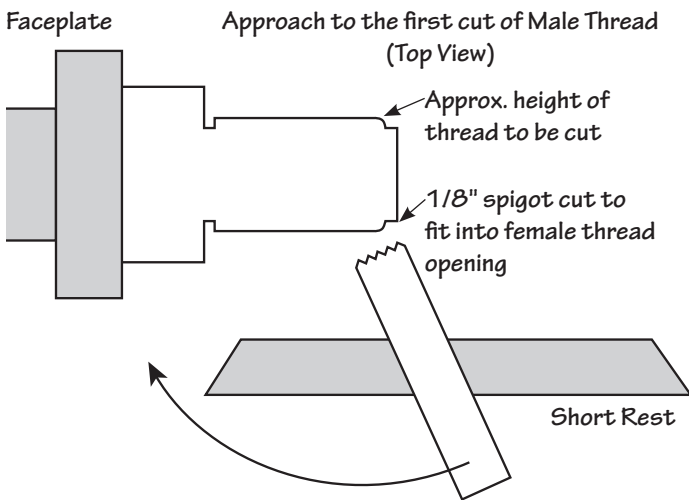
2. Set the lathe speed to between 150 and 500 rpm – (choose the speed with which you are comfortable. Allan was working at 300 rpm)
3. As indicated in the diagram, use a short rest on the lathe set at a height so as to enable the chasing tool to be working at the center axis of the work. Using the short rest allows the chasing tool to be brought round in front of your body to start the cut. Use an arm rest across the short rest to support the tool and give you control over your action. As the thread is cut, the hook on the end of the arm rest is used to pull the chasing tool gently towards you to maintain contact with thread. It's a good idea to have a dummy run and just go through the motions first, rather like a golfer practices his swing. The feel of the whole setup is important.
4. For the first part of the thread cutting, run the lathe and keeping the chasing tool at an angle, allow it to touch the work at the rounded entry point and up the curve a little way then lift the tool off the work. This will create the first shallow threads. By applying the tool again, picking up the same thread and at the same time gradually squaring it up with the work, a deeper cut will be taken and the tool will start to be drawn along into the opening. It is essential that you are in control of the tool and that you lift it off the working face as soon as it gets to the end - hence the rebate at the bottom of the opening. Without the rebate, the tool would be drawn hard up against the bottom and the threads would be stripped. There is no need to be aggressive with the tool! Gently does it! After just a few passes, the thread will be cut. Make sure that the thread shape is good and true and that it fits the profile of the cutting tool.
5. Rounding the outer edge at the beginning means that the thread has an easier entry for the male thread to screw into when cut.

6. You will note that no measuring or sizing has been required. You make the female opening to whatever suits the work piece and the number of threads cut depends on that too.
7. If you make a mistake with the female thread, all need not be lost! Providing you leave enough wood, you can start the process again.

Work on the Male Blank

1. In the blank which is to form the male thread, turn the end down forming a spigot about 1/8" deep which will just fit neatly into the threaded opening. This is the highest point of the female thread and establishes the lowest point of the male thread diameter. Then turn the rest of the material down along the appropriate length to a diameter which approximates the height of the thread to be cut (figure 3). It is essential to cut a rebate at the end of the area to be threaded as with the female thread.

Figure 3



2. Start the thread by applying the male chaser at an angle to the work and on the center axis. Gradually, bring the tool round to square on to the work piece. Again, only a few passes will be required to form the thread. As soon as there appears a thread mark on the spigot, you know that the thread is cut to the right depth. You can then try it against the female thread. If you find that the thread is too tight, just remove a fraction from the top of the threads and re-cut it. It is often better to just turn the lathe by hand at this point so that the fit can be exact. When you are satisfied that everything is right, you can remove the spigot.
3. You can see that by cutting the female thread first, there is no need for calipers or careful calculations when it comes to cutting the male thread and yet there is no room for errors to be corrected. It is so much easier to work on the male part to get that to fit the female than the other way around.
4. The gentle approach makes the whole operation look easy and I'm sure that with a little practice, thread chasing is another skill that any enthusiast can add to their repertoire.