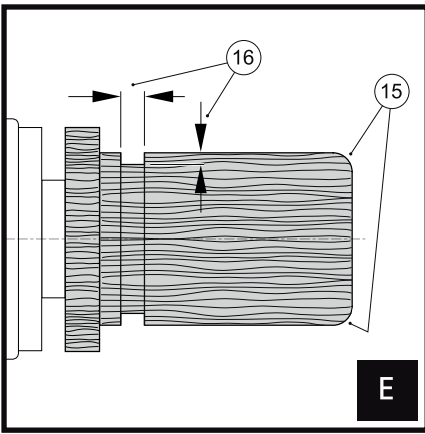
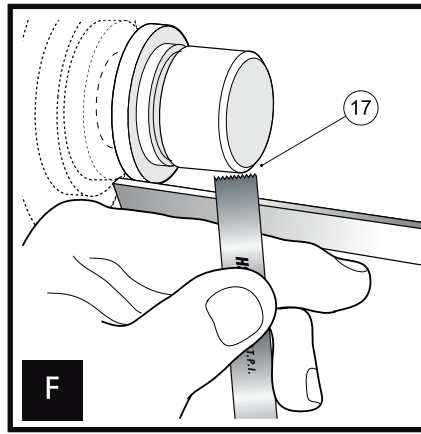


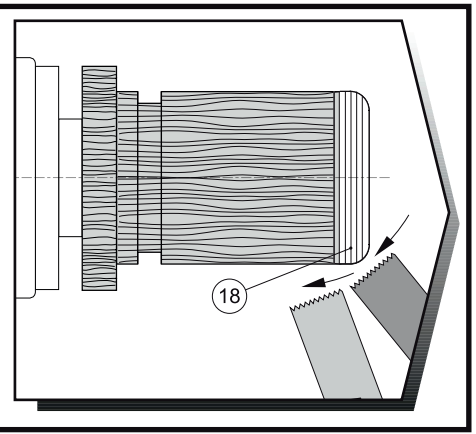
CUTTING EXTERNAL THREADS



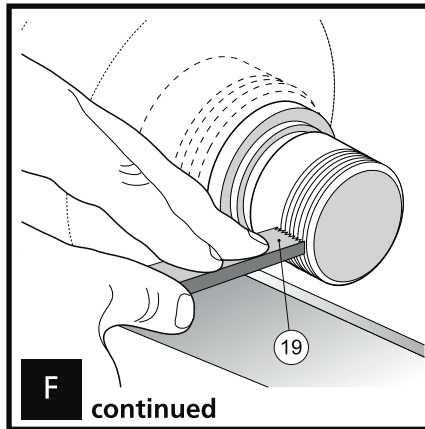
- 15. Round the sharp ends of the block, and lightly sand.
- 16. Cut a rebate with a parting tool, and turn the block diameter to a suitable size



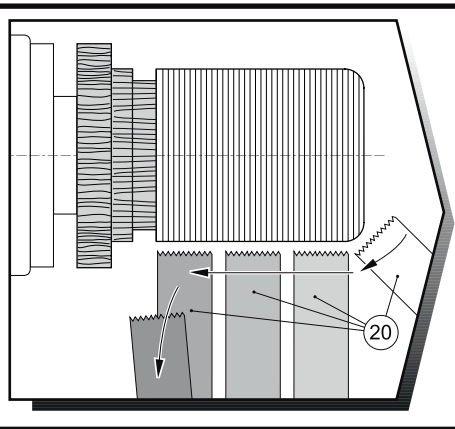
- 17. Start the thread by applying the External Cutter at an angle to the work on the rounded edge.
- 18. Gently touch the work with the cutter and run round the curve, lift the tool off, and repeat, to create the first shallow lead threads.



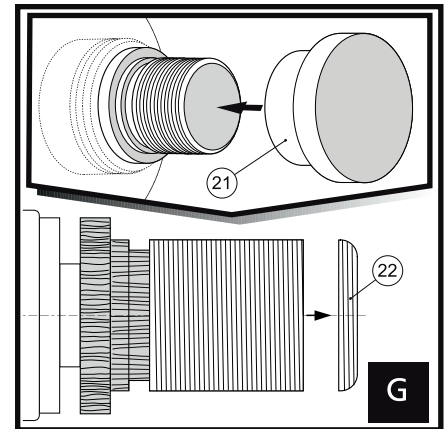
**NOTE: when cutting the newly formed thread, only extended by only one or two new threads with each pass.**



- 19. Gradually bring the cutter round to square onto the workpiece.

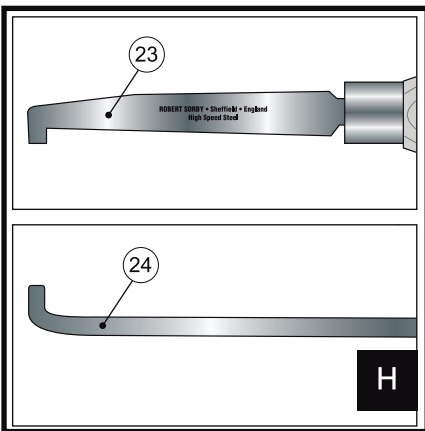


- 20. Apply the tool again by picking up the thread and following through to make a deeper cut. Repeat the process gently picking up the thread and transverse the spigot, remembering to lift off the cutter at the rebate. After a few passes the thread will be cut.



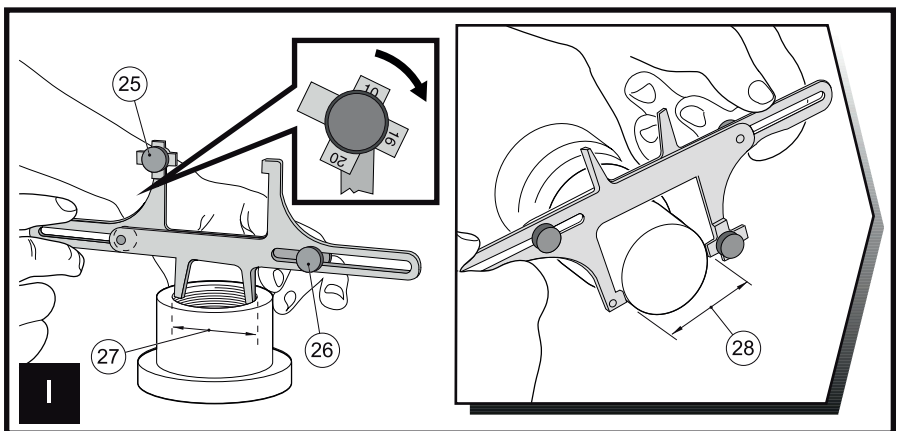
- 21. Offer up the finished Internal Thread, if you find the thread too tight, skim a fraction from the tops of the external threads and re-cut the thread.
- 22. When you are satisfied that the External thread fits the Internal, the curved waste can be removed. **We cannot stress enough, the importance of practice to arrive at perfect thread cutting.**

Optional Relief Tool & Support Rest



- 23. Robert Sorby Relief Tool - used for cutting rebates (or relief cuts), prior to commencing thread cutting.
- 24. Robert Sorby Tool Support Rest - can be used with a Scraper, Internal Thread Cutter or a Relief Tool, for better control and support.

Optional sizing gauge for external thread diameters

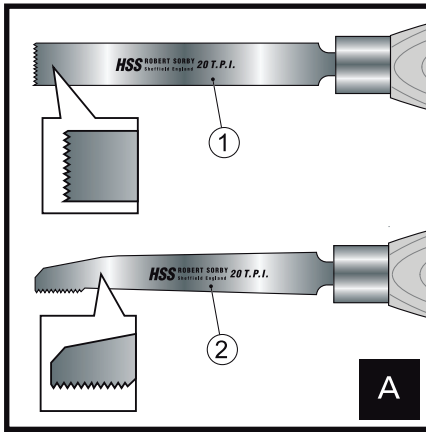


- 25. The Robert Sorby sizing gauge can be set using the 28. anvil adjusting screw to the correct thread size (10, 16 or 20 TPI) depending on the cutter used for your internal and external threads.
- 26. Slacken the two slider adjustment screws.
- 27. Adjust the internal jaws inside the finished internal thread, to fit snugly, and tighten the screws.

Transfer the external jaws dimension from the sizing gauge, to the workpiece. **Carefully remove any excess material until the jaws are a good snug fit.**

You can now proceed with cutting your external thread as described from Item 'E' above.

## THREAD CUTTER TYPES



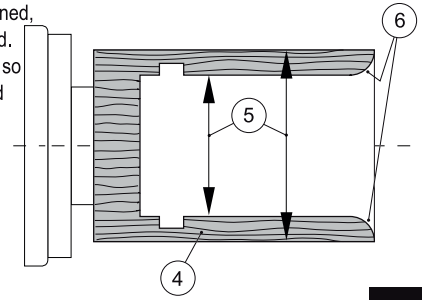
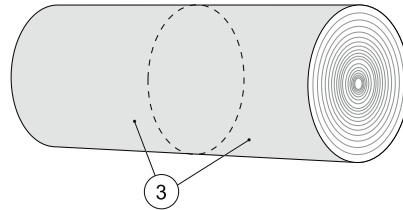
1. External Cutter
2. Internal Cutter

Robert Sorby Thread Cutters are available in 3 sizes, 10, 16 & 20 TPI (threads per inch).

## PREPARATION OF TIMBER

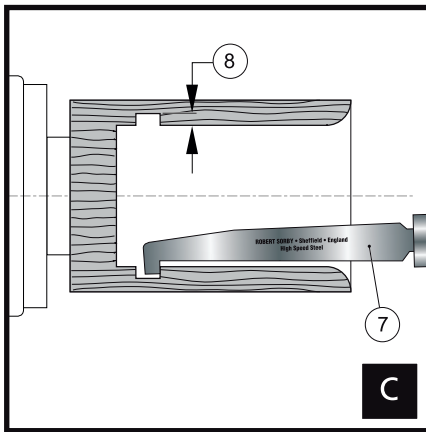
### IMPORTANT!

It is best to use hardwoods for screw thread work but not all are suitable. The wood should be close grained, such as boxwood, lignum vitae, cocobolo or blackwood. Some hardwoods tend to crumble on the tooth edges, so experiment first. All wood must be dry and stable, and softwoods should be avoided.

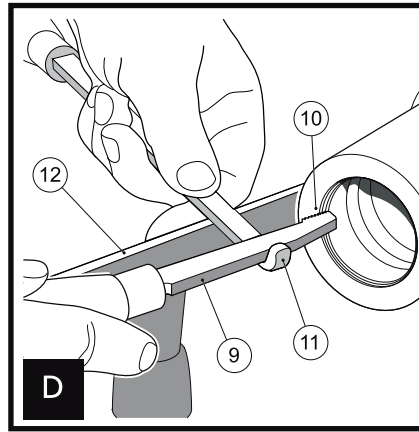


3. Prepare a blank of hardwood and part to form the two halves to be threaded.
4. Always work on the Internal thread first and commence by following the blank to approximate depth required for the thread.
5. It is very important to ensure the sides of the hole are kept parallel at all times
6. Round sharp ends to avoid the cutter digging in.

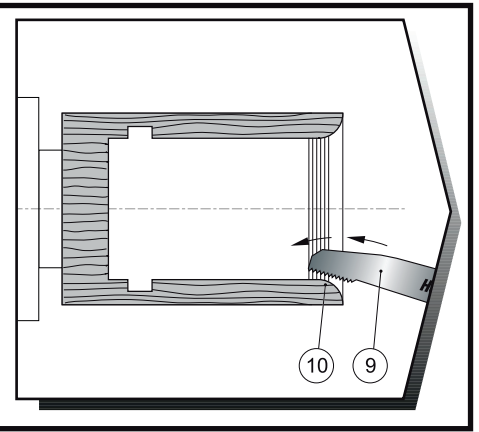
## CUTTING INTERNAL THREADS



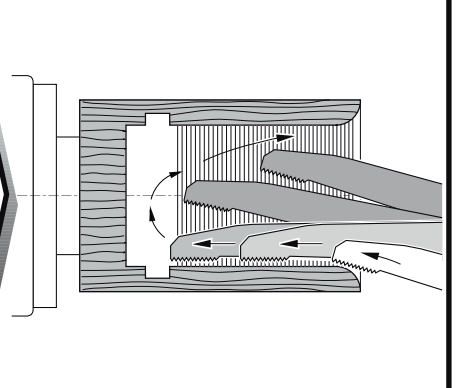
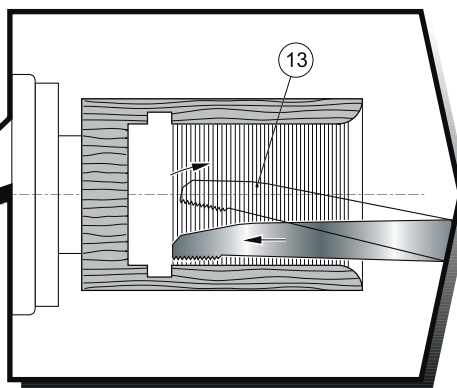
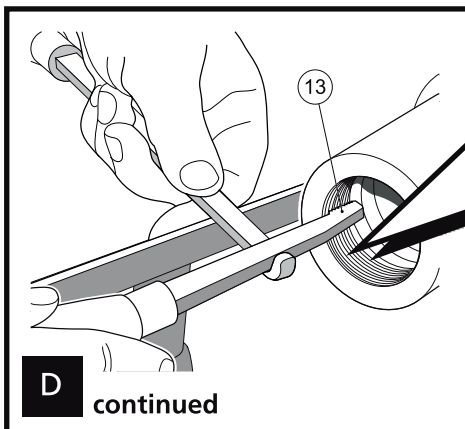
7. Cut a rebate with a suitable relief tool.
8. Depth of rebate must be deeper than thread and of a suitable width to allow for safe removal of cutting tool. The rebate is to prevent cutter hitting bottom of hole, and subsequently stripping the thread.



9. Keep the Internal Cutter horizontal, and angle to cut across the face of the rounded entry point and run the lathe at the lowest available speed (between 250 - 350rpm if possible).
10. Gently let the cutter touch the work at the rounded entry point, and run across the curve a little way



If possible, use a tool support rest (11) across the lathe rest (12) to support the cutter and give you better control. As the thread begins to cut you can use the hook on the rest (11) to pull the cutter gently towards you to maintain contact with the thread.



13. It is essential to be in control of the cutter, and to lift it from the work face as soon as it gets to the end, **remember do not be aggressive with the cutter be gentle.** Take multiple passes extending the thread only by one or two new grooves with each pass.
14. After a few passes the thread will be cut, make sure that it is true and fits the profile of the cutter teeth, you are now ready to cut the male thread.

**NOTE: Instructions continued on side 2.**

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