Cutting, Scraping & Catches

Don't let fear of a "catch" stop you from learning good technique. The recurring theme of Frank Pain's classic book *The Practical Woodturner* is, "Cut the wood as it prefers to be cut." By this he means shearing down grain with a cutting tool guided by its bevel. He also writes about scrapers, and how to use them in their proper place. "Many like this tool as it has no funny ways, and requires little skill in its use."

The Cut vs Scrape Dilemma

If you have read some of my previous articles, you already know the difference between cutting and scraping, and that scraping is almost never used in spindle turning. You also know that I pursued the scraping method first, had to unlearn that, and start over. If I can do anything to help you in your learning process, it would be to save you from that mistake.

I see many beginners who scrape most of the details, because they have experienced too many ruined pieces caused by the "catch" of a cutting chisel. After this has happened a few times, it is possible to fall back into the habit of scraping.

Sometimes I get a catch. For decades I've been trying to eliminate this error, but I can't. This is the downside to cutting chisels, but I think that whatever your level, your goal should be to reduce the number of catches and not retreat to inferior methods just because it seems safe.

What is a Catch?

A tool out of control. A spiral cut. A tool sucked in. A chisel suddenly thrown in the wrong direction. A ruined piece. A frantic search for plan B. A lot of time wasted starting over. A nightmare.

What Causes a Catch?

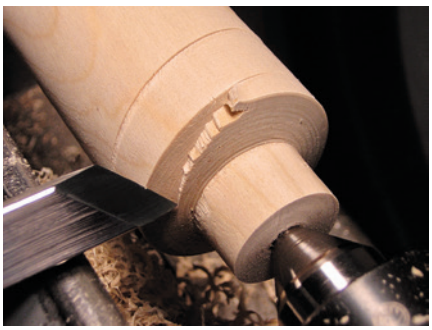
The shear angle of the cut causes sideways force on the chisel. This works against the force from the bevel riding the wood and the blade riding on the tool rest. These three forces must be in balance. When they are, the tool rest does all the work, and you can hold the chisel very lightly in the tips of your fingers. Catches occur when the forces go out of balance beyond the ability of your hand to control the chisel. Usually a catch is over in less than ¼ of a second (two or three revolutions) so you don't have time to react. Occasionally you can feel it coming and recover.

The four photos below show typical kinds of catches. For each photo I stopped the lathe and placed the chisel in the same position it was when the catch was initiated. These are some of the positions that you must learn to avoid – more on this later.

A catch can be more or less dramatic, but if your chisel runs aground, it can dig-in, and something has to give. The amount of energy which is released at the moment of a dig-in depends on many factors. Light weight workpieces may slip and stay in place, but heavy pieces possess considerable kinetic energy, and a catch which leads to a full dig-in can be dangerous. We hope the chisel is not wrenched from your hands, as we don't like flying objects with razor edges. Other dangers induced by a catch include workpieces dislodged from their mounting, or pieces of the turning breaking off.

Why Scraping Should Not be Used in Spindle Turning

Scraping is a process that works quite well with the grain direction, but very poorly across the grain. The photographs show the effects on flat pieces of wood. Pairs of mahogany blocks are arranged with the grain crossed. The first two photos show the application of the tools, and the third shows the results. A cutting tool (carving gouge) produces almost as good a finish across the grain as with the grain, but a scraper (convex card scraper) produces a decidedly poor finish across the grain. In spindle turning, the tool is *always moving across the grain*, therefore scraping is the wrong choice.



Catch with the toe of the skew

Catch with the heel of the skew

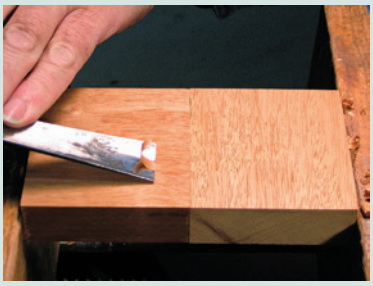
Catch with the nose of the gouge

Catch with the side of the gouge

Benefits of the Cutting Method

- Cutting results in a better finish than scraping and therefore requires less sanding. This is how the old timers got a perfect finish before sandpaper was invented.
- Cutting chisels stay sharp longer than scrapers.
- Cutting chisels produce less force on the tool edge because of the high positive rake angle. This results in less vibration.
- The rubbing of the bevel is a fundamental part of the cutting method. This dampens vibration of the workpiece.

Learning to use cutting tools, requires practice of specific skills that will help you avoid catches and develop confidence. This will be the topic of my next few articles. For now I will simply leave you with one final quote from Frank Pain. "I am anxious that you should enjoy the sense of achievement that comes when you master the action of wood-turning tools." ■



Test cut with the carving chisel

Test cut with the scraper

Test results