

Nub Removal (or – How to keep this from happening to you!)

Helpful thread from the World of Woodturners family, Dec. 2004-12-29



Posted By: Mike Schwing

This one hurts, a lot. WAS a large, beautiful, damned near perfectly shaped cherry hollow form.

I need help please. This happens to me WAY too often. I get the entire form hollowed down to the very bottom and I get a catch that lifts the tool up and breaks the piece. It always hurts, but the best ones always hurt more.

What am I doing wrong? You can see the tool I'm using. But, it even happens if I switch to the straight tool. Not a catch anywhere in the whole hollowing and then at the bottom - BLAMO! I half think I should switch to my bowl gouge at this point. Many more like this and I'm a bowl turner.

Of course, this only happens on large forms. That is a 5/8" hollowing tool in the picture.

Please help. Tool angle, presentation? Speed? Wrong tool? I don't have the heart to experiment on many more of these dry roughs.

Date Taken: 12/26/4

Place Taken: Baltimore

Owner: the god of fire

Album: ["GOOF-UP" Gallery](#)

Bob Elliott - Dec 26, 2004

Mike, I feel your pain!

I know that the picture may not reflect a proper perspective, but could your tool rest be too low? The tip of the tool looks like it's way below center.

Dinyar Chavda - Dec 26, 2004

Mike, I'd suggest getting Lyle Jamieson's tape on "Hollow Forms the Easy way". He goes thru' the theory and practice of setting up to avoid catches. Well worth the price.

Dale Scott - Dec 26, 2004

If you are going to use the Kelton System the tool rest must be higher than usual so that you are barely shearing on the burr of the tool. You will however need to touch up that burr more often so that you keep the cut clean. Remember there is no such thing as a proper tool rest height. It is all based on the diameter of the tool itself. A larger diameter means the less you will have to raise this tool. It is a scraper so treat it as such and you should eliminate a lot of problems. Also remove the shavings more often the tip of the tool catches on it and it is like running up against a brick wall hence a catch!

John Williams - Dec 26, 2004

This "maybe" is what happening - as you are finishing off the bottom, you get the tip of the tool on the "wrong" (right) side of center which would push the tip up. It would be easier to use a straight tool, I think, so you get a better sense of where to tip is.

I started drilling to the finished depth using a rounded spade bit. You get a good shape at the center to begin with, and if you go past center there is no high spot to catch.

Mike Schwing - Dec 26, 2004

Thanks all. Bob, Dale, the tool is definitely below center line. I'll adjust and see what happens. Fortunately, I'm now not afraid to practice on this piece.

Dinyar - I'm willing to try anything!

And John - I drill to depth using a standard spade, but I like your idea - might have to take one to the grinder.

Ken Evans - Dec 26, 2004

Mike, it looks like it was going to be a very nice piece. Most have experienced this heartbreak.

On the lighter side, my friend Andy Barnum has a saying which goes like this, "Never try to make the inner wall diameter of a vessel greater than the outer wall diameter!"

On the serious side, I agree with Dale Scott regarding the shavings and cleaning them out. In the beginning, the space inside the vessel is small, but each revolution of cutting produces a very short shaving. As the interior volume increases, one tends to think there is more open space inside the vessel, but each revolution of a cut produces a much longer shaving to take up a great deal of space. When that mass and volume of shavings hit the tool they are compressed to the outer wall (centrifugal force) and therefore travelling at great speed in (feet per minute past the tool tip). At the same rpm these shavings are travelling far faster than similar shavings when the internal volume is small. They present themselves as a huge chunk of wood at tool tip level and can easily lift the tool resulting in what we see in the picture. Note the shavings in the bottom of the vessel. It took me awhile to learn to use an air hose to blow out the shavings "more and more often" as the internal volume of the vessel increased. My failure rate decreased greatly.

Joe Moran - Dec 26, 2004

Mike, looking at this piece, my best guess is in agreement with John. I think the nub at the bottom is the culprit. Using the straight tool would not be a guarantee that this would not happen it would lessen the possibility somewhat. Are you using a captured bar or is it handheld? The spade bit is a good idea and you may want to grid off the center point as well or use a Forstner bit with extension. The nub is difficult to handle in an enclosed form. You may have more success with your bowl gouge approach but this looks fairly deep. What size opening were you working with? Tough break as it looked like you were working on a winner.

John Williams - Dec 26, 2004

Mike, one of the things you can do with the pictured piece is experiment with tool angles etc. at the bottom. Cross over to the right side of center on the bottom to "see" what happens, then burn the edges, pierce, burn some more, dye it, finish the bottom etc. these are great pieces on which to try stuff.

(The point on my spade bit is ground off to make a rounded bottom. Keep the cutting angles the same on each side of center when shaping the bit on the grinder.)

Ken Grunke - Dec 26, 2004

Mike, you must not want to use a captured rest system, otherwise I'd think you would have by now.

I would use a Jamieson bar, or a heavy square shank tool holder like John Lea's "toothpicks" with a capture rest.

For finish-cutting the center area inside a hollow form with such a tool holder, I like to use a broad-edged cutter, slightly curved on the front edge, but also with a cutting edge on the side towards center so you can avoid the nubbin if the tool is set exactly on center.

David Wade - Dec 26, 2004

It sounds like you are below center and moving towards the spindle. When you get to the nub it grabs the tool, pulls it past the underside of the nub (levering your arm up with the tool rest as the fulcrum) and then past center it throws the tool up into free space where you no longer have control of it since it is not resting on the tool rest.

So go practice turning down nubs, you already have one there to start with. I'll bet you are trying to clean them up from the outside in. We all do. Clean them up from the center out. It's just like roughing the underside of a bowl. To cut downhill you have to go from the center out. It's a little bit of Turning 101 that took me a couple years to relearn.

Keep the scraper just fractionally "under an overhang" so the first hint of a catch throws it free instead of digging in. That means below center outside (a convex surface), above center on the inside walls (a concave surface), back below center cleaning up the nubbin (convex again, just like the outside) until it is concave. Mount up some scrap and practice scraping away nubbins in full view before you go back inside.

Lyn Mangiameli - Dec 26, 2004

Mike, as you have read, the common thread of most of the analysis and advice is that your tool is catching on the internal nub and being swept first down and then back up the other side. It is also quite possible that an additional build up of shavings is adding to this.

What I want to add to this discussion is the tool you are using, namely the Kelton Hollowers - some of my favorite hollowing tools, but not without their own idiosyncrasies. I think the greatest single factor leading to your problem is that the Kelton can cut on both sides and around the face of its tip. Each provides a somewhat different cutting surface, and those long sides can present quite a lot of contact area with the wood.

Your photo shows the tip rotated counter clockwise which gives a nice shearing cut off the left side of the tip against the left interior of the hollow form (looking from the Tailstock end). However, that same rotation of the tool angles the right side cutting edge upwards into the wood when the tip encounters the nub in the middle, making a catch very likely indeed. The tool then digs into the nub, is pulled down and around to the other side, and you know what happens on the way back up. Since you have the tool locked in a restrained hollowing rig (if I am recognizing that upright black bar correctly), you can't readily rotate the orientation of the tool tip back and forth to

achieve the optimal orientation for both the peripheral wall and the center nub. That is, however, what you need to do, whether or not you use a straight or a curved Kelton Hollower (though its not as much of an issue if you are using a small symmetrical tool bit).

Nubs are really not that hard to deal with if you apply special techniques for dealing with them. David Ellsworth offers a good approach in his videos (either Hollow Turning or Video #3). The essential thing is to get into the mind set of dealing with the nub as a separate project, rather than as part of sweeping down from the sides and across the bottom. If you do this, you will begin reducing the height from the center (which in itself will reduce the likelihood of catches), and will utilize tools, adjustments and techniques specific to the task. Frankly, the Kelton Hollowers are some of my favorite tools to use for this task, precisely because they can cut from both sides. However, I almost always do this freehand, which allows me to easily change orientation between forward and backward sweeps.

Feel free to get a hold of me directly if you'd like me to go into further detail on any of this.

Mike Schwing - Dec 26, 2004

Thank you guys again. What you all say makes sense. Without going into the particulars of the remaining messages since my first reply, I like the idea of free handing the nub.

Also, I am simply unaware of a captured tool rest system. As I don't have a hard time with hollowing anywhere except at the nub, I'm not sure why I'd want one, but it is an interesting concept. Sure is frustrating to have what occurred today. The only truly weird thing is that this never happened when I first started hollowing. Now that I'm pretty good at it I get the "nub problem"

Art Liestman - Dec 26, 2004

To add to the above, let me first say that I use the Kelton hollowers in a constrained (Jamieson) handle all the time. The reason I use a constrained system is to control exactly where the tip is at all times and what the tool angle is. This makes it a safe and predictable tool, but you do need to understand what's going on and pay attention. Lyle Jamieson's video explains the theory well, as Dinyar mentioned. It is well worth having.

Clearing the shavings often is a good idea.

As pointed out above, you should always be cutting either a bit above or exactly at the spindle height. It is also important to know which part of the tip you are cutting with, as Lyn said. If you have the tip angled to the left (as shown in the picture) and are cutting with the right side of the tip, chances are that the angle between the cutting edge and the wood is greater than 90 degrees. That is to be avoided as it will lead to catches.

I almost always cut with the cutter held flat - that is, with the top of the tool parallel with the tool rest. As long as you keep the tip above or at spindle height, it shouldn't cause problems.

To get rid of the nub at the bottom is simple. I always do that with the 'straight' Kelton cutter. Set the cutting tip height to be at the exact spindle height when it is at the bottom of the piece. To do that, WITH THE LATHE OFF, use the cutting tip to scribe a horizontal line to show where it is set. By adjusting the tool rest slightly and repeating the scribing (rotating the piece before scribing if needed to keep from being confused about which line is the current one), you can quickly bring tip to the right height - that is, right at the center of the nub. With the tool held flat, you can take light cuts in both directions and remove the nub. Practice on a couple of pieces and it becomes very easy.

Randy Hodge - Dec 26, 2004

Mike, you have been offered a wealth of information here. One suggestion I didn't see (and if it is here, my apologies) was about the nature of the wood itself. It's been my experience especially with Cherry, to have unforeseen wind and or ring shakes. These are basically hairline cracks caused by wind or abnormal growth, or even when the tree is felled. In Cherry a lot of the time they are almost invisible until it's too late. Sorry for the loss and hope this helps.

Mike Schwing - Dec 26, 2004

Art! You reminded me of something I used to but completely threw out of my repertoire, totally forgotten. Adjusting the height of the tool at the nub to ensure it is totally at centerline. Also, I have indeed, as all of this great response proved to me, gotten lazy in my hollowing technique. I only changed tool positions (and tools) once during the whole hollowing.

It is all coming back to me. Super support you guys showed me here today, I am immensely grateful.

Eugen Schlaak - Dec 26, 2004

Some of you are talking about the "Nub" in the center:

Frank Sudol said a long time ago: God put the nub there to test us and he is the only one who can remove it in a second.

Having made that "funny" observation he (Frank)suggested to use the exact method as Art mentions, to put the cutting edge of the tool at DEAD center of the rotation. It works!

Stuart Johnson - Dec 26, 2004

Herm, This would be a good piece to copy and place in the file section. I could be titled something like Hollow Form Nub Removal. I screwed it up the last time I tried to convert something like this to a pdf.

Jim Swank - Dec 27, 2004

The only thing I can add to the wealth of information here is the suggestion to turn some bowls as you said. Except do your hollowing with your hollowing tools instead of your bowl gouge. This will put the nub, tip, and all else in plain view and give you the chance to gain some experience and regain some confidence in using the hollowing tools.

Mike Kratky - Dec 27, 2004

Mike, three things that I found that work to overcome the problem:

1. I now use the Kelton Hollowing Gate to "stabilize" the hollowing tool.
2. I coat the entire turning with Waterlox or similar to penetrate and strengthen the wood fibres when the turning gets thin.
3. I found that Pro Forme tools by Woodcut work better. They fit the Kelton handles.

Herman de Vries - Dec 29, 2004

Mike, Dave Wade has the answer to cleaning up the nub. I use the Kelton straight tip exactly as he suggests, very light cuts, from the center out. Freehand.

At your suggestion, I will pdf this information and put it into a file in the File Section. This is good information, and worthy of a separate file. Thanks for all the comments, folks.