

Making A Grooving Tool, Version 1.1

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I was making a groove in a piece of aluminum rod on my lathe when my tool broke.



This may not look like a tragedy to you, but it crushed me. I had spent a very long time grinding this slug of 1/4" by 1/4" High Speed Steel to have a nice 0.05" wide cutter on the end. In an instant, it was an ugly stub.

I didn't have the heart to return to the grinder. But then I remembered the amazing words of one of my college professors: "If you can't solve the problem, change the problem." Rather than grind a new cutter just to have it snap off again, why not build a new grooving tool?

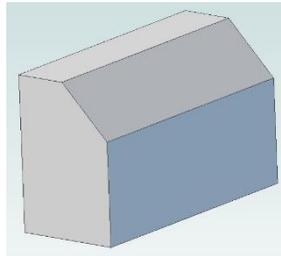
A common trick is to use a piece of hacksaw blade as a grooving tool. Holding it could be tricky and my excitement started to fade. Gotta be a simple way to do this.

I put the problem aside to let it cook in the back of my head.

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The answer came all at once.



Take a piece of aluminum² bar stock and cut a 45° bevel³ on my belt sander.



Then lop off a length of hacksaw blade⁴ and put some relief on the end. The piece on the right will be my grooving tool.



Then I placed the piece of hacksaw blade into my BX A tool holder and tilted it so the back top edge touches the top of the side slot

and

the front bottom edge touches the bottom of the side slot.

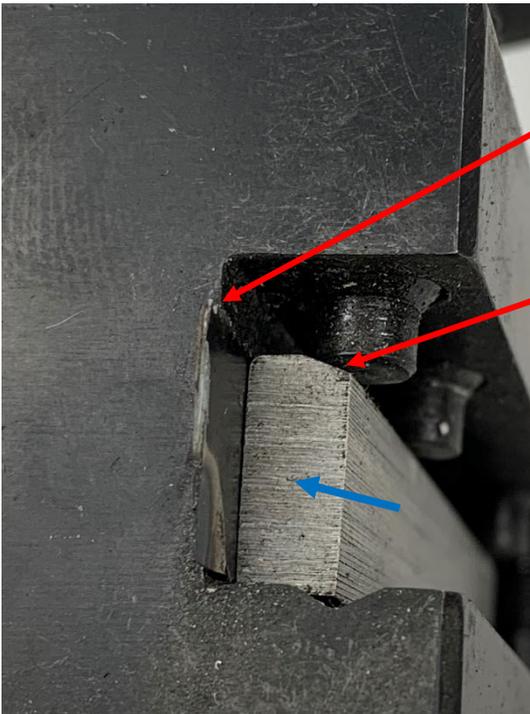
² All of these footnotes are in response to great questions from Dave Kellogg. I chose aluminum because it was possible to abrade that bevel on my belt sander. Steel would deform less but I would have needed to either grind the bevel or fire up my mill to cut it. Since I didn't know if my idea would work, I wanted to go down the easiest path.

³ 60° would likely provide a tighter wedging action but I did not try it.

⁴ I chose to have the teeth facing up but didn't give it any thought. Maybe someone can tell me if this was a good or bad choice and, equally important, why they feel that way.



The beveled aluminum bar goes in next with the bevel facing out. As the screws are tightened, the bar is pushed both down and deeper into the slot. This securely clamps the blade.

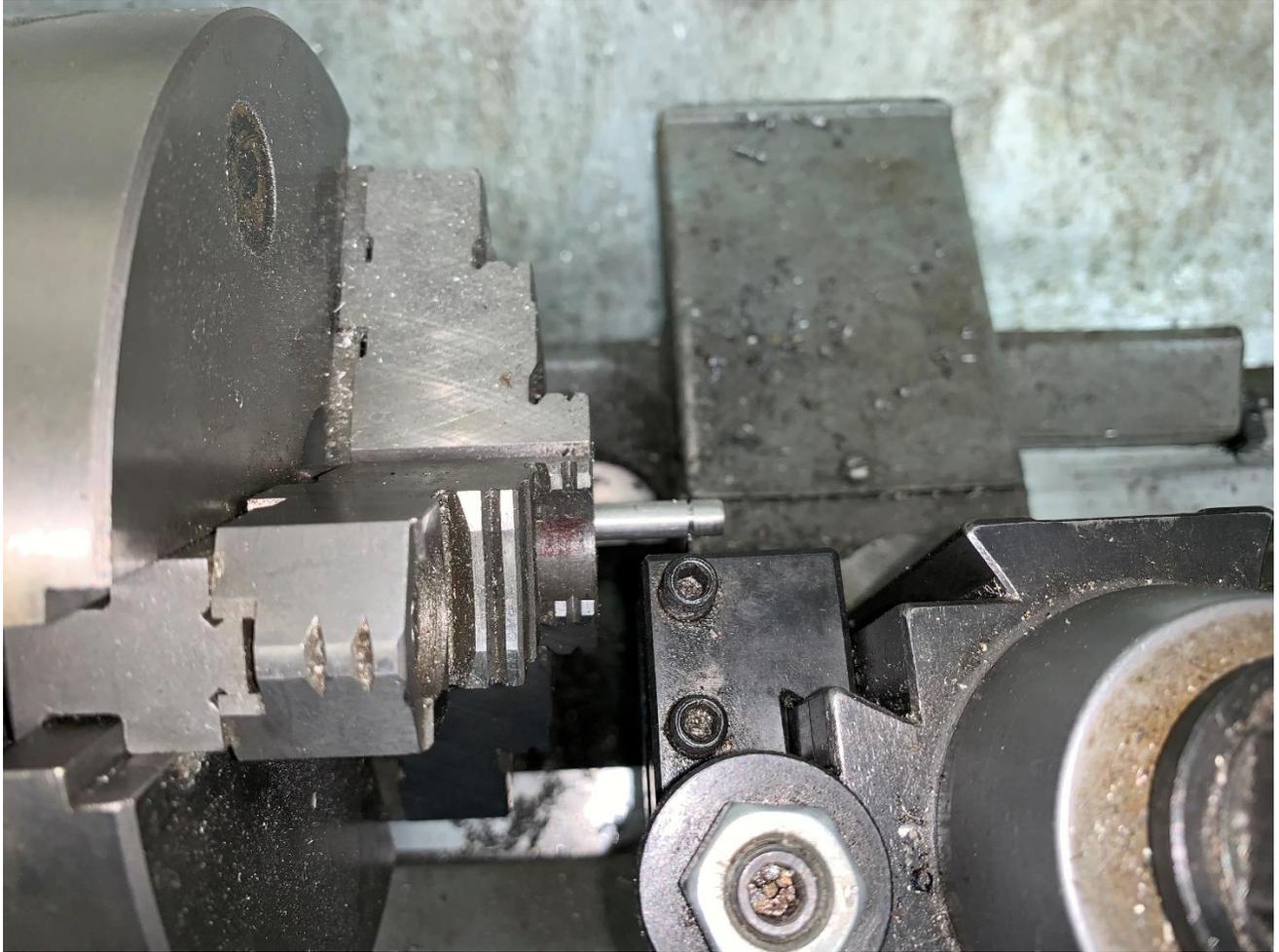


The side slot on the BXA tool holder contains the piece of hacksaw blade,

the beveled aluminum bar (blue arrow),

and the screws pressing down on the bevel.

In looking at this close-up, I can see that my 45° bevel is not that steep. Yet the clamping action is adequate. Remember that the cutting force is countered by the blade contacting the top and bottom of the side slot. The beveled bar prevents the blade from pulling in or out plus stops any tendency to tip over.



My new grooving tool works just fine. And if I need to replace the cutter, I have plenty of worn out hacksaw blades in my junk drawer.

Acknowledgment

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If you wish to be contacted each time I publish an article, email me with just "Article Alias" in the subject line.

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