Salt and Pepper Grinder using the Crushgrind mechanism.

By Steve Ackmann 11/6/2024 for the Water Gap Woodturners

One of my favorite projects is making salt and pepper grinders. In my mind, it combines the use of our turning skills to reveal the beauty of wood from our woodlands, and turning it into a useful and functional object. They also make great gifts. I've made quite a few for friends and family and I get repeated thanks.

My first grinder was made at a class at Woodcraft in Allentown. They used the *Wood River grinding mechanism*. Wood River has separate packages for salt and pepper. The pepper grinder has a stainless-steel grinding head, while the salt grinder uses a ceramic grinder. Both kits have multiple small parts, and the device is held in the body on a recessed internal edge by a couple of very small screws that must be drilled very close to the inside edge of the chamber. Additionally, the metal shaft needs to protrude roughly ¼" above the cap to allow the adjustment knob enough room to screw in to hold to top on and to allow the grind to be adjusted.

I also attended a pepper grinder demo at a Totally Turning seminar a couple of years ago, and the instructor at that demo lamented the quality of the mechanisms that were available. He had previously used a very well-built mechanism that he was no longer able to find. He didn't seem to think much of the Wood River mechanism, feeling that it was flimsy.

Reading the American Woodturner magazine a year or so ago, I saw a new grinding mechanism. It was the Crushgrind device and was made in Denmark. The nice feature is that their device is for both salt and pepper, and the shaft does not protrude through the cap. You fill the body with salt or pepper by simply pulling off the cap, and you adjust the grind by a knob at the bottom. A picture is above.

The design I chose is one that I saw on the Crushgrind website. Obviously, the design of the grinder is your chance to express your creativity and to create something that is pleasing to your eye. Searching for grinders on-line will lead you to hundreds of different shapes and ideas.

My Process of making a grinder

1. I begin with a spindle that's about 2-1/4" in diameter and ~15" long. I have been using white or red oak because that seems to be what the example in my picture used, plus it looks nice.
2. I mount the spindle between centers and clean up the ends and add a tenon to what will be the top end of the grinder.
3. Next, I remount the spindle with the chuck and tenon, and support the other end with the tail stock and start to shape the bottom of the grinder. I use roughing gouge, skew chisel, and bowl gouge to get the bottom exterior into shape with a smooth finish.
4. The grinder is then drilled through the bottom with a 1-16" forstner bit. I stop where the bottom will be parted off, about 150mm in.
5. Next, I use the woodcut shaft to bore out the space for the mechanism. (picture on the right). After the hole is bored, I cut a small groove at the top of the area just bored out to allow the mechanism to snap in place. There is a special Sorby tool that I use to cut the groove. The Sorby tool, the Woodcut tool and the mechanisms are all available from Crushgrind.

6. Once the bottom is bored out, I sand it and then part it off and remount it using a jam chuck to drill a larger hole about 3/8" deep with a 1-3/8 forstner bit. This will allow the top to recess into the bottom for better alignment and a more pleasing appearance.
7. The top is turned from the remaining piece left after the bottom is removed. The top is not tapered like the bottom and has a couple of step downs on its bottom for a reveal and a portion to fit into the 1-3/8" hole that I earlier bored into the top of the bottom portion. Once the shape and the fit are finalized, I bore out the top using a

7/8” forstner to accept the top of the mechanism. Then using the same Sorby top, I cut a groove at the top of the hole to accept the top portion of the mechanism. I also use a 7/16” brad point drill to make room for the shaft to protrude into the top.

8. ***It’s important to know that the grooves must be precisely positioned so the top and bottom mechanisms fit tightly into their respective positions. The final page of this presentation has the Crushgrind spec page that shows all these measurements***.
9. The top is then sanded. I then part off the top and turn it around using a jam chuck to smooth and sand the top piece.
10. Finally, I push the top and bottom pieces into the bottom and top. You may need to cut the metal spindle to fit.
11. I generally use GOAT wax from Craft supply to finish the outside.
12. The I fill with salt and pepper and grind away!

Website for Crushgrind.

Crushgrind is a Danish company. Parts are available from the Crushgrind Nort America site and its website is:

https://www.crushgrind.ca

Crushgrind also sells completed grinders on their home website and it has a number of examples of shapes and sizes:

https://www.crushgrind.com

Steve Ackmann
sackm@mac.com
973-307-5252

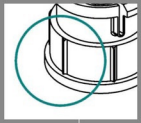
November 5, 2024

Feature details

1. Stopper fixture

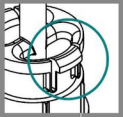
We developed this stopper fixture to avoid the need for a 'nut' on our mechanisms that use shafts. This stopper fixture easily integrates into the 'head' section of grinders. Simply pull off the 'head' to refill a mill - with no need to unscrew any bolt. The stopper fixture can securely hold 3Kg (min).

2. Ribs



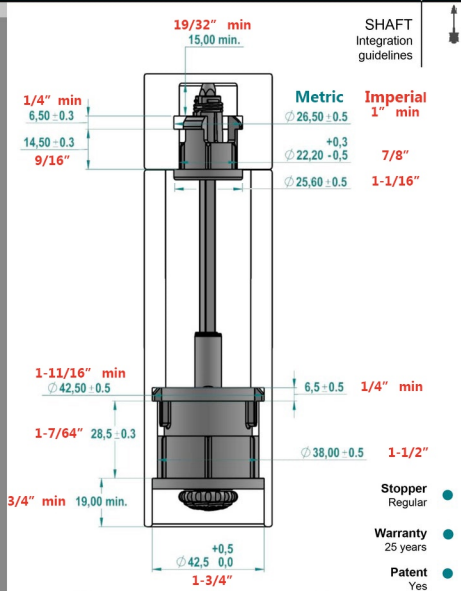
These carefully designed ribs penetrate into wood in order to prevent rotation of the mechanism without the use of screws. When using this mechanism in plastic materials the purpose of the ribs is the same. However, the geometry of the ribs must be allowed for when designing the inner construction.

3. Snap-hooks



This mechanism uses snap hooks to mount inside the body easily without the need to use screws.

SHAFT
Integration guidelines



Stopper
Regular

Warranty
25 years

Patent
Yes

All measurements in mm. Tolerances shown are for mounting into wooden products. Minimum 6mm wall thickness around ribs recommended for wooden products.