Salt & Pepper Grinders

Using the

Crushgrind® Mechanism

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1. Introduction

Today I will be going through the steps to produce a salt & pepper mill to house a CrushGrind® mechanism. (see **website:** www.crushgrind.com)

My presentation today will not primarily focus on turning as most of you in the audience are more proficient in turning skills than I and further this has been demonstrated previously by Michael Bell and myself so I direct you to the Library if you would like to review the content.

Why Crushgrind Mechanism
Easy to install - press fit/ no screws
Long Lasting Ceramic Cutters
Can grind salt without corroding

The skills I have learned and being presented here today have been principally informed by the following:-

1. Grinder Mechanism Plan	Andrew Harrison
2. Australian Woodworker Article March/April 2009	Brendan Stemp
3. General woodturning and tool making Skills	Herbert & Friedel
4. Experience through many failures	

Today's presentation will cover the following topics: -

Tools

Timber

Production of the "Shell" Spindle Turning

Note: Fitting the Mechanism will be covered at another session

2. Tools

45mm dia. Carbide Forstner bit	OR	Woodcut Mill Drill designed as a JV between Brendan Stemp and Woodcut
38mm dia. Carbide Forstner bit		
35mm dia. Carbide Forstner bit		
25mm dia. Carbide Forstner bit		
22mm dia. Carbide Forstner bit		
25mm HSS Auger Bit 300mm long		
Special Slot cutting Tool	OR	Brendan Stemp Tool

- The Woodcut Mill is available from our sponsors Pops Shed and CWS (Carrols)
- I have specified carbide Forstner bits as they cut more accurately and at higher speed
- Slot Cutting Tool – (Show both types and differences)
- Auger – Buy a good quality auger, I use one with Carbide cutting faces.

Crushgrind® Mechanism come in different shaft lengths the one used today has a shaft length of 250mm.

Half a Job – Pass around the cut away version showing the product (see photos)

3. Timber

70 x 70 x 360 long	The size designated suits the 250mm shaft can be shorter or longer.
Soft Timbers	Easier to drill & work than the hard timbers
Cut timber into two lengths	240mm and 120mm
Using the same mark	Mark top of Body and bottom of Knob To ensure the grain matches when finished

4. Production of the "Shell" (Turning"

BODY

- Place Body (240mm piece) between Centers
- Turn round
- Place body in Shark jaws with base facing tailstock (user center to maximise alignment)
- Drill 25mm hole with forstner bit (this is to give well centered lead in for auger bit)
- Using 25mm Auger bit drill full length of Body
- Next use the woodcut Mill Drill to bore the cavity for the Crushgrind mechanism
- Clear swarth half way to stop jamming
- Use the slot cutting tool to cut the slot that will hold the mechanism tab
- Finish the end to finished standard

KNOB

- Place the Knob blank into a scroll chuck with the "drive' end facing the tailstock.
- Turn about ½ of the block round
- Form a 35mm Tennon about 25mm in length (this should be a 'loose" fit into the body)
- Using a 22mm Forstner bit drill a hole into the Tennon of at least 50mm
- Cut 4mm recesses into the face of the Tennon to allow the drive piece to sit flush when inserted.
- Cut a slot into the inside of the 22mm hole to allow the Lugs of the drive piece to expand into using the "special" tool
- Sand & Clean up

5. Final Shape & Finishing

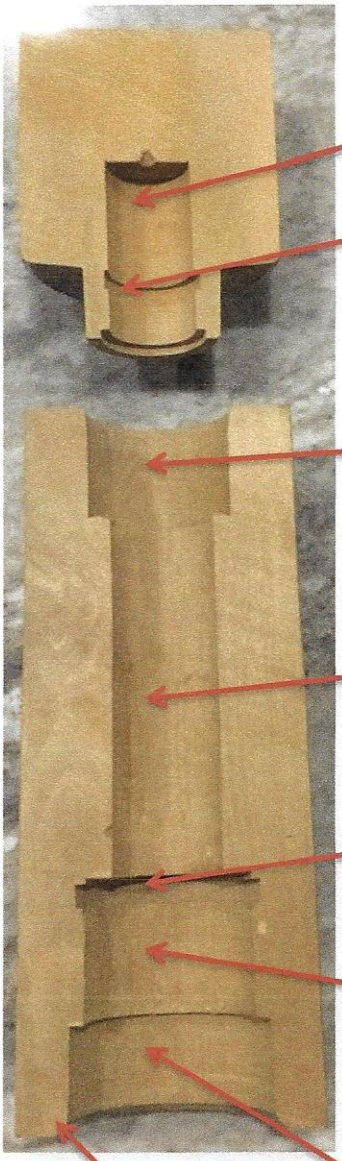
Once all the internal drilling and turning has been done turn between centre's to create the required shape the sand to about 600 grit. Some creativity is required to make a pait subtly different so the contents can be easily determined by the user.

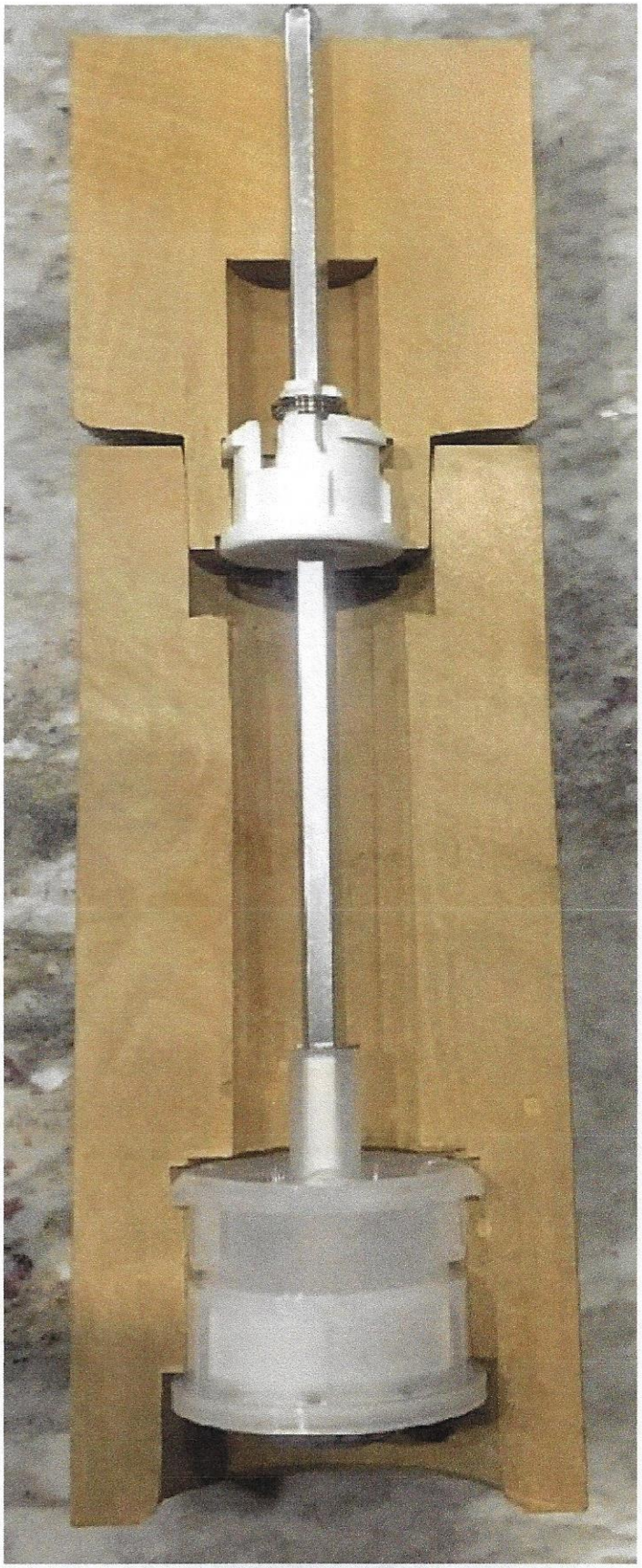
I use about 7 fine coats of Mirror Tone spray, however there are many choices to finish your grinder.

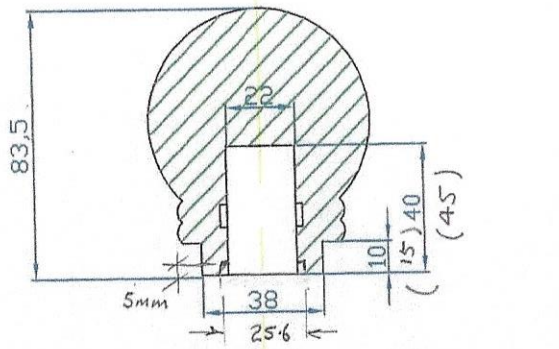
6. Fitting the Mechanism

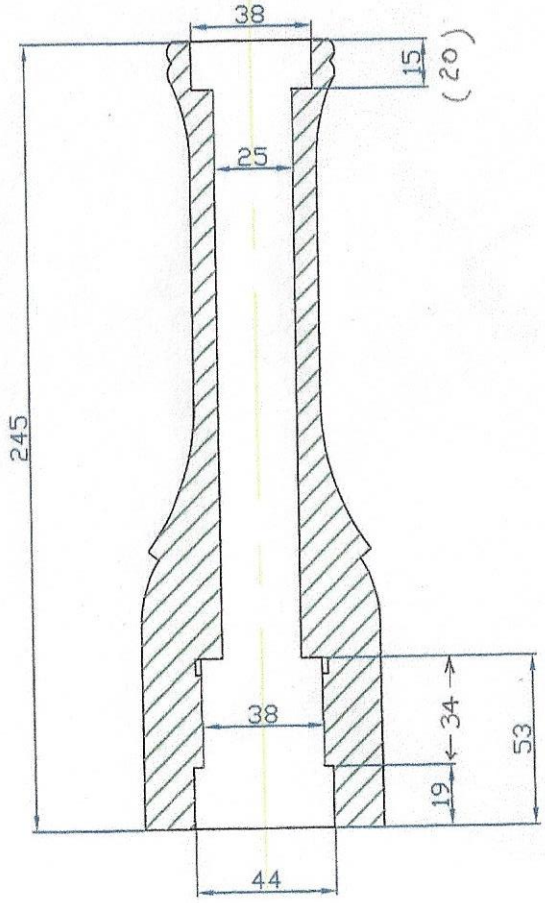
This will be demonstrated and Notes can be made at the session if required.

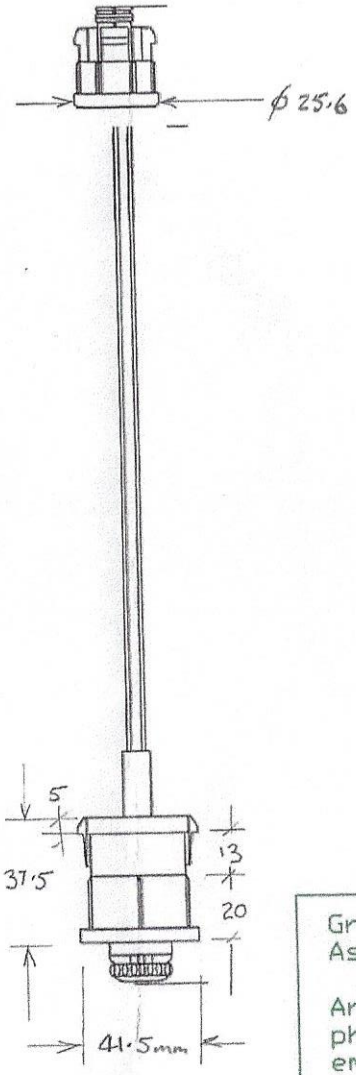
7. Photos


22mm to a depth of at least 50mm
Slot for driver tabs cut with special tool
35mm Hole to a depth of circa 30mm
25mm Hole
Slot for grinder base tabs cut with special tool
38mm Hole for grinder mechanism
45mm hole to allow the grinds out.
Note: the inside edge is chamfered to allow ease od finger access to adjust the grind









Grinder Mechanism
Assembly plan.

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