**Hans Weissflog Inspired Box Lid**

1. **Design:**
2. Draw design on paper. Mark center and the center of each off-center design (circles.)
3. Use compass and protractor to position off center designs.
4. When Satisfied with design, draw on some thicker paper. Use push pins/thumb tacks to make a hole in the center and in the center of each of the off center designs. This will be used to transfer the position of the holes to be drilled in the back side of the top blank and the jam chuck for the dowel pins which position and hold the top blank to the jam chuck.
5. **JAM CHUCK**

1) Round blank 3” diameter x 2” long.

2) Make tenon to fit your chuck at 2” diameter (+ or -)

3) Chuck blank onto tenon.

4) Flatten end.

5) Mark center.

6) Mark distance from center 1” or whatever your design dictates for the off center turning.

7) Mark all off-center turning points if they are different distance from the center. Us drawn pattern to mark drilling hole positions.

8) Drill 5/16“hole ½“ deep in center and all off-center points. Drill on drill press and blank on chuck. (Brad Point bit makes best accuracy.)

9) Place 5/16“dowel pins into center hole and one off center hole. Cut to stick out 3/8” or slightly less so lid piece is flat against the jam chuck.

1. **LID OF BOX**

1) Top blank 3-4” square.

2) Mark center.

3) Round to 3” with live center holding against chuck face.

4) Mount in chuck (one way strong hold and #2 Jaws) with **inside (top) of lid-out**.

5) Flatten surface, mark center with tail stock live center.

6) Mark 1” from center and draw circle on blank. This 1” from center should be same distance from center as your design for the off- center design.

7) Drill 5/16” hold 3/8” deep in the center and the other marks on the 1” line where you will make the off-center design (s) on the top. Drill off-center hold(s) on the drill press and blank still on chuck.

8) Reverse blank into chuck with **outside (bottom) of lid out**.

9) Flatten face if necessary.

10) Make tenon 3/32”deep x 1/ 8”wide on top edge. This will be used as a depth gauge for your circle cuts.

11) Mount blank onto the jam chuck off-center on the chuck. With the lathe **on slow** mark off-center with pencil. Move blank to other off center locations and mark center of location with pencil. For the Smiley face design: place thin wood piece on off-center mark area with double sided tape and mark center on the wood piece.

12) Draw as many concentric circles as you designed at equal distance apart or whatever distance you made in your design on each off-center mark.

13) Hot glue blank to chuck at off-center location and cut circles. **Sand circles** on edges as drawn on blank. Fold sandpaper.

14) Sand rings/circles with folded sandpaper into cut groove and wiggle back and front to round rings. **If making multiple designs, sand design before removing** **from jam chuck to cut next design**.

15) Move blank to next off -center location. Glue to chuck and cut design **(sand circles**). Repeat for all off-center locations.

16) Remove blank from jam chuck and place into one way chuck with **outside design on inside of chuck.**

17) Hollow out blank lid so side walls are 3/16 – ¼” thick. Make walls straight/perpendicular to top surface. Depth should be about 1/8” – 3/32” below design cuts on the top.

18) Cut concentric circles starting in the center until you can see light through the top design. As you cut, you should feel as slight tug on the cutter as you break through the top design or a change in cutting pitch.

19) Sand rings with folded sandpaper in grooves. Clean up any fuzz between rings, top and inside. X-acto knife.

20) Finish- whatever- Dr.’s Woodshop Bowl/Pen Finish, shellac, lacquer, wipe-on, tung oil, Danish oil,? Mount on chuck expanding into the inside of the lid.

1. **Material/Tool list:**
2. Blanks – 3” diameter x ¾ - 1.5” thick; fine, tight grain; (Boxwood/Maple/Cherry) any hardwood with tight, consistent grain.
3. Compass and protractor
4. Pencil
5. Ruler
6. 5/16” drill bit (Brad Point Bit); 5/16” dowel pins x 2
7. Jam chuck 3” diameter x 2”
8. Chuck and Live center – chuck to hold 3” diameter blank.
9. Drill press
10. Flat ruler at least 6” long
11. Bowl gouge
12. Easywood round and square carbide
13. X-acto knife and #11 blades
14. Weissflog special ring cutting parting tool.
15. Sandpaper 120-220
16. ½ chisel
17. Pliers to remove dowel pins
18. Glue gun; hot melt glue sticks
19. Paper, scissors, and heavy paper
20. Push pins/thumb tacks
21. Parting tool
22. **What Can Go Wrong?**
23. Drill holes in lid for dowel pins too deep. (Will show and weaken circles on inside of lid.)
24. Make width of circles to narrow on outside and/or inside or both. Will break easily!
25. Circle grooves to shallow. Not strong enough, will break easily when cutting inside grooves.
26. Cut inside bottom of lid too thin, will blow up when cutting grooves!