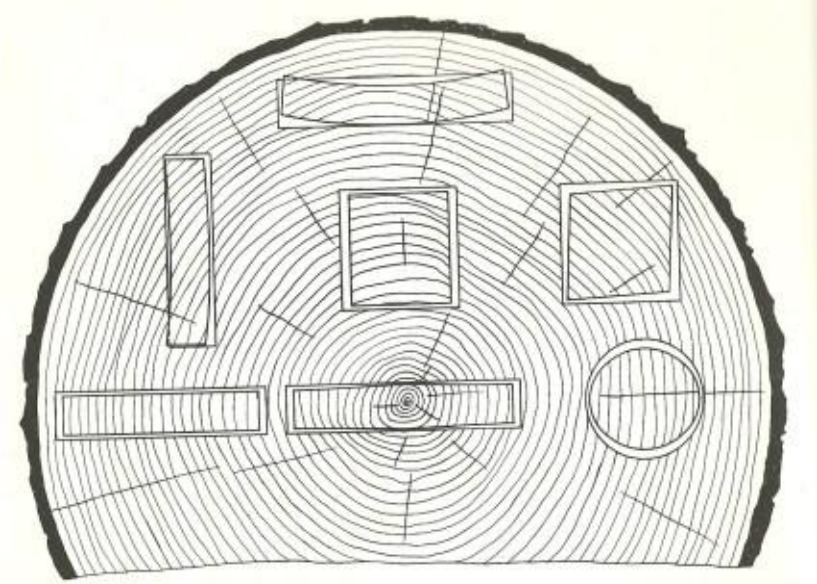
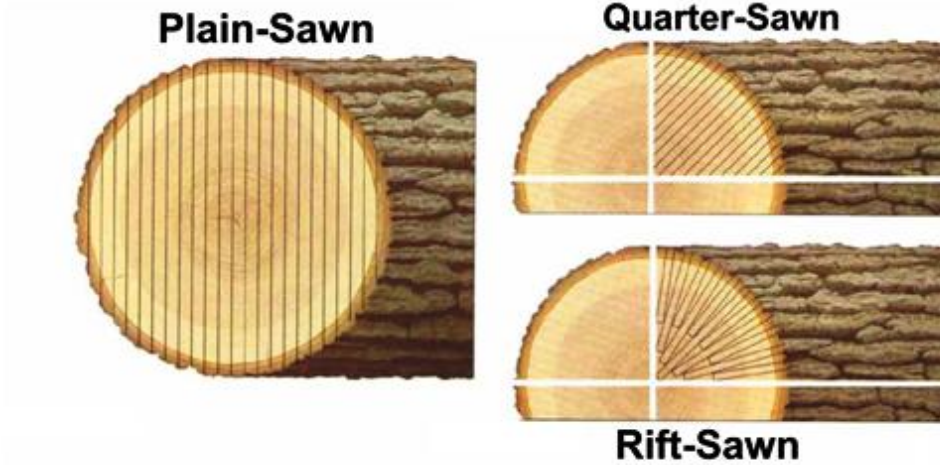


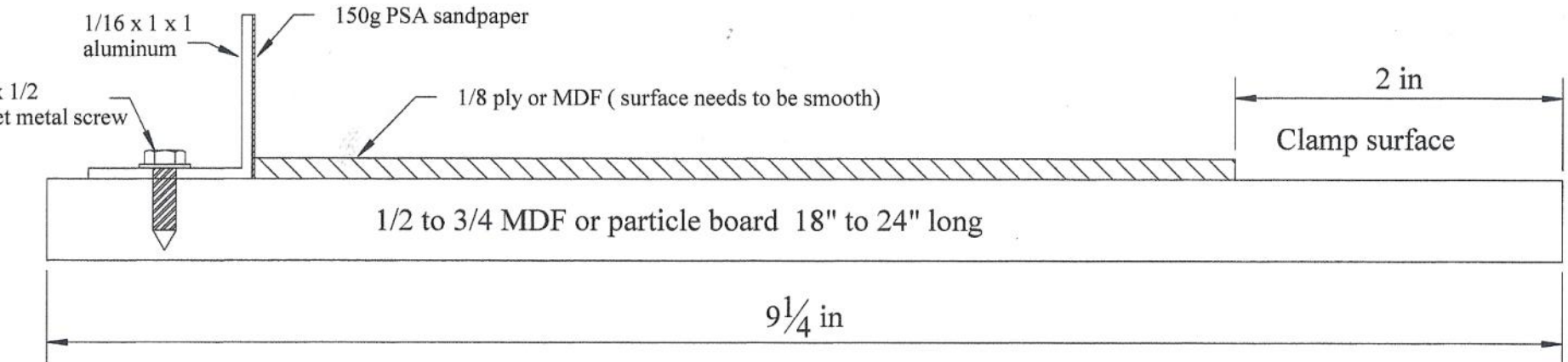
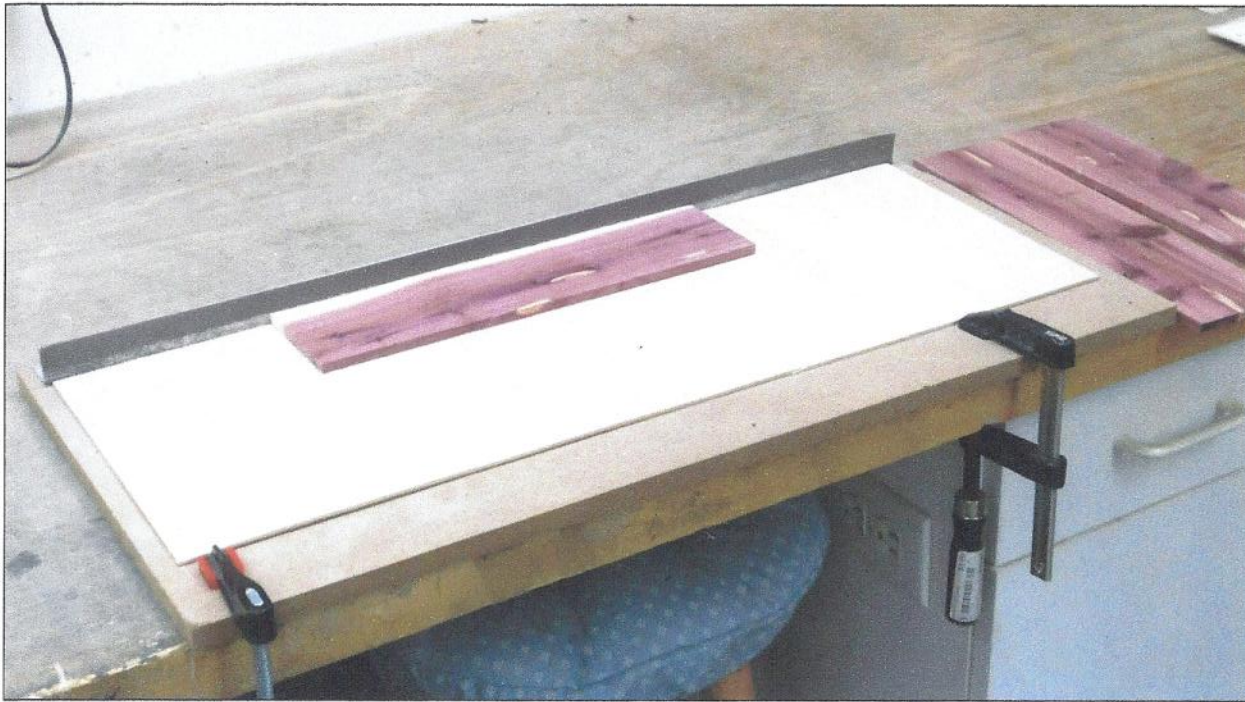
How wood is cut and what you need to know about it!



XM 12454 F
Figure 3-2.—Characteristic shrinkage and distortion of flats, squares, and rounds as affected by the direction of the annual rings. Tangential shrinkage is about twice as great as radial.



It almost always warps!



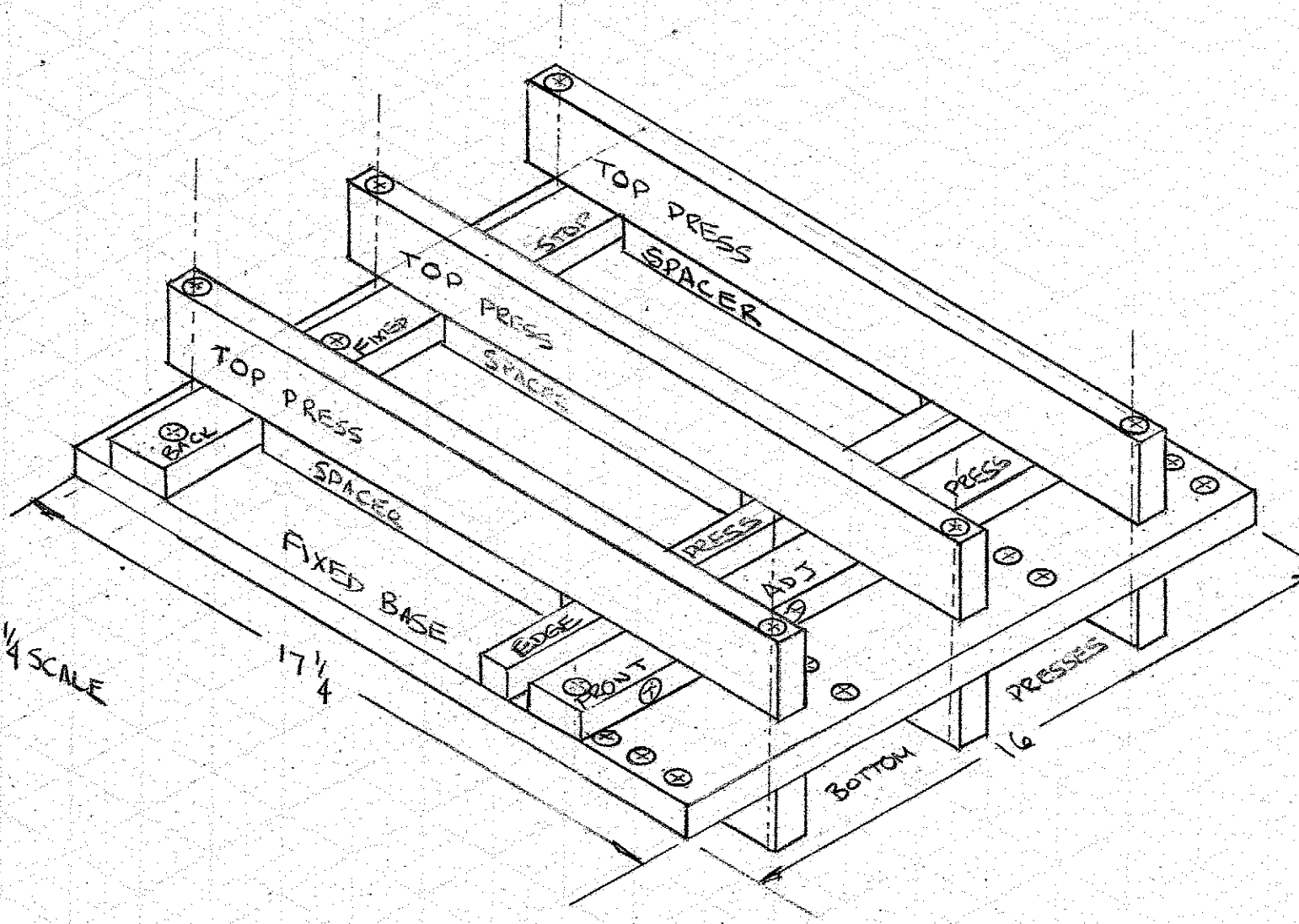
"Shooting Board" to straighten edges for glue-up

Dick Wiley 16 Mar 14

From the workbench of: Dick Wiley
Date: 26 FEB 14

THIN BOARD EDGE GLUE JIG

- BASE 3/4 X 16 X 17 1/2 MDF OR PARTICLE BOARD
- TOP PRESS 3/4 X 2 X 16 HARDWOOD
- SPACERS 3/4 X 3/4 HARDWOOD LENGTH = GLUE UP DIMENSION = 1/2"
- FRONT ADJUSTABLE PRESS 3/4 X 1/2 X 16 HARDWOOD
- EDGE PRESS 3/4 X 3/4 X 16 HARDWOOD
- BACK FIXED STOP 3/4 X 1/2 X 16 HARDWOOD
- BOTTOM PRESS 3/4 X 1/2 X 16 HARDWOOD



- TOP/BOTTOM PRESS 'CLAMPS' (6) 1/4 X 6 CARRIAGE BOLTS, WASHERS + NUTS
- FRONT ADJ PRESS HOLD DOWN BOLTS (4) 1/4 X 2 CARRIAGE BOLTS, WASHERS + NUTS
- FRONT 'CLAMP' (4) 1/4 X 2 1/2 HEX HEAD BOLTS, 1/4" TEE NUTS
- USE 1/8 X 3/4 X 16 STEEL BETWEEN CLAMPING BOLTS + SIDE PRESS

Edge glue jig



Line the bottom with waxed paper
Add the glue up blanks



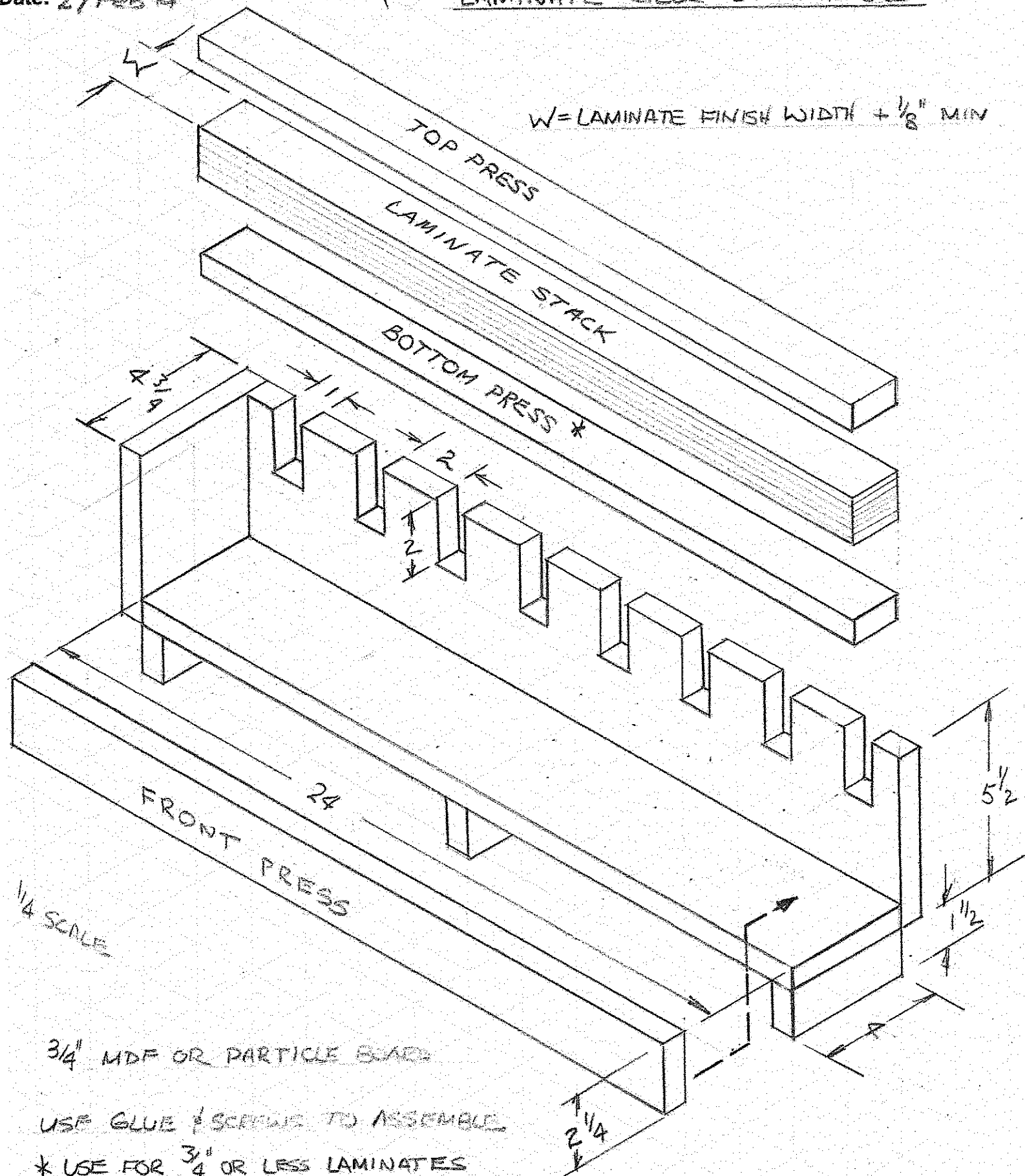
Add another layer of wax paper on top
Add the top hold downs and finger tighten
Tighten the front press
Continue to tighten, alternating top
And front screws until glue presses out
Let it sit!



From the workbench of: Dick Wiley
Date: 27 Feb 14

LAMINATE GLUE-UP FIXTURE

$W = \text{LAMINATE FINISH WIDTH} + \frac{1}{8}'' \text{ MIN}$



FRONT PRESS 24

1/4 SCALE

3/4" MDF OR PARTICLE BOARD

USE GLUE & SCREWS TO ASSEMBLE

* USE FOR 3/4" OR LESS LAMINATES

1 1/4

5 1/2

1 1/2

TOP PRESS

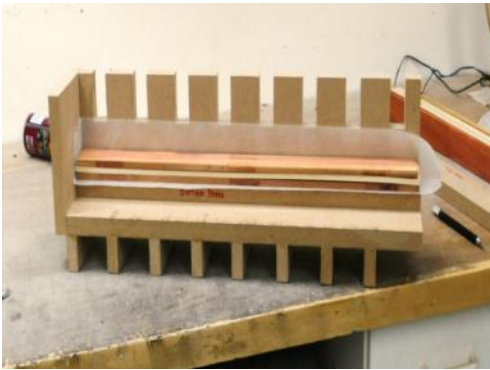
LAMINATE STACK

BOTTOM PRESS *

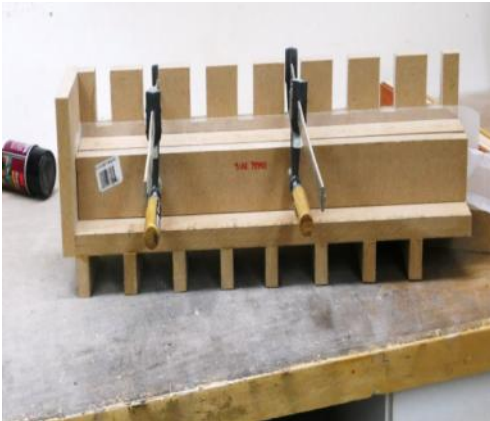




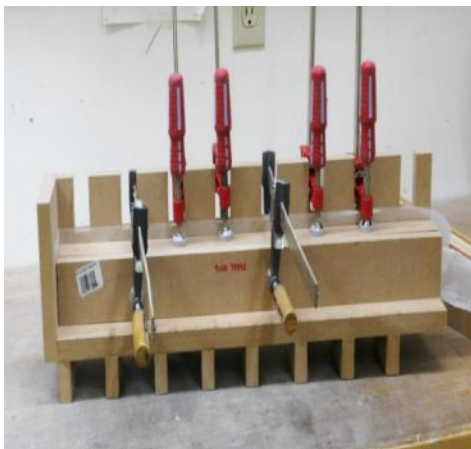
Laminate Glue Jig



Line the corner with wax paper
Add the laminate stack



More wax paper on top & front
Add the top & side plates
Clamp side plate



Start adding top clamps

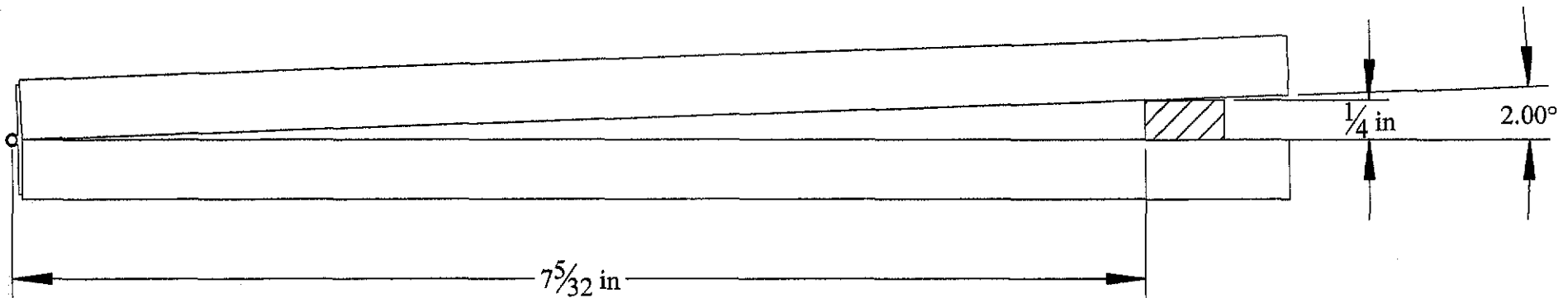


Remove side plate
Add all the top clamps
Leave clamped overnight

Small angle drilling jig

Use the table at right to set the angle
2 degrees shown

Small angle layout			
Baseline	7 5/32		
Height	Theoretical Angle	Actual Angle	Difference
1/16	0.5	0.50	0.00
1/8	1	1.00	0.00
3/16	1.5	1.50	0.00
1/4	2	2.00	0.00
5/16	2.5	2.50	0.00
3/8	3	3.00	0.00
7/16	3.5	3.50	0.00
1/2	4	4.00	0.00
9/16	4.5	4.49	-0.01
5/8	5	4.99	-0.01
11/16	5.5	5.49	-0.01
3/4	6	5.98	-0.02
13/16	6.5	6.48	-0.02
7/8	7	6.97	-0.03
15/16	7.5	7.46	-0.04
1	8	7.95	-0.05
1 1/16	8.5	8.45	-0.05
1 1/8	9	8.93	-0.07
1 3/16	9.5	9.42	-0.08
1 1/4	10	9.91	-0.09



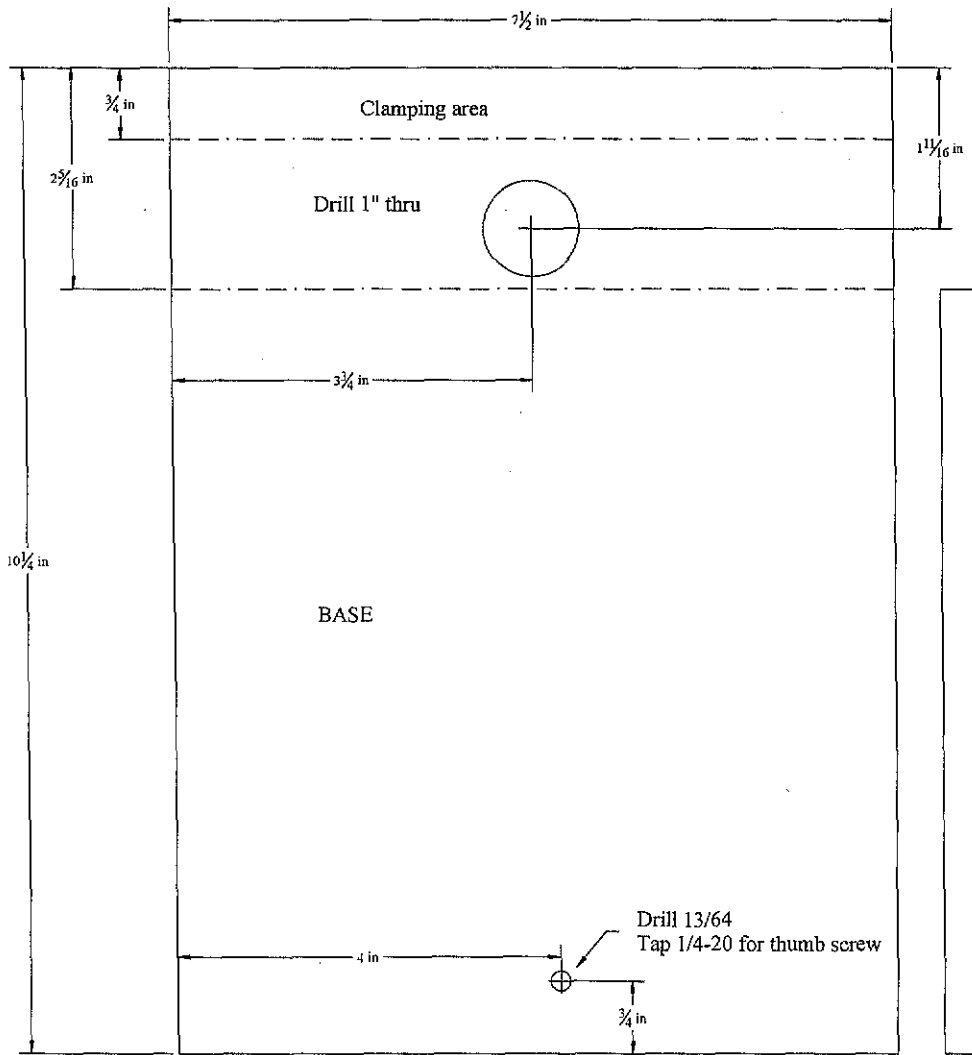
Note: Distance is measured from center of the hinge to the edge of the support block

scroll saw table tilt angle for inlay

$$\sin(\text{tilt angle}) = (k/t) \text{ (exactly)}$$

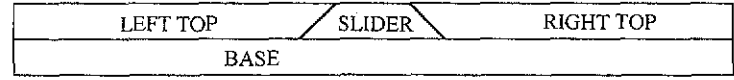
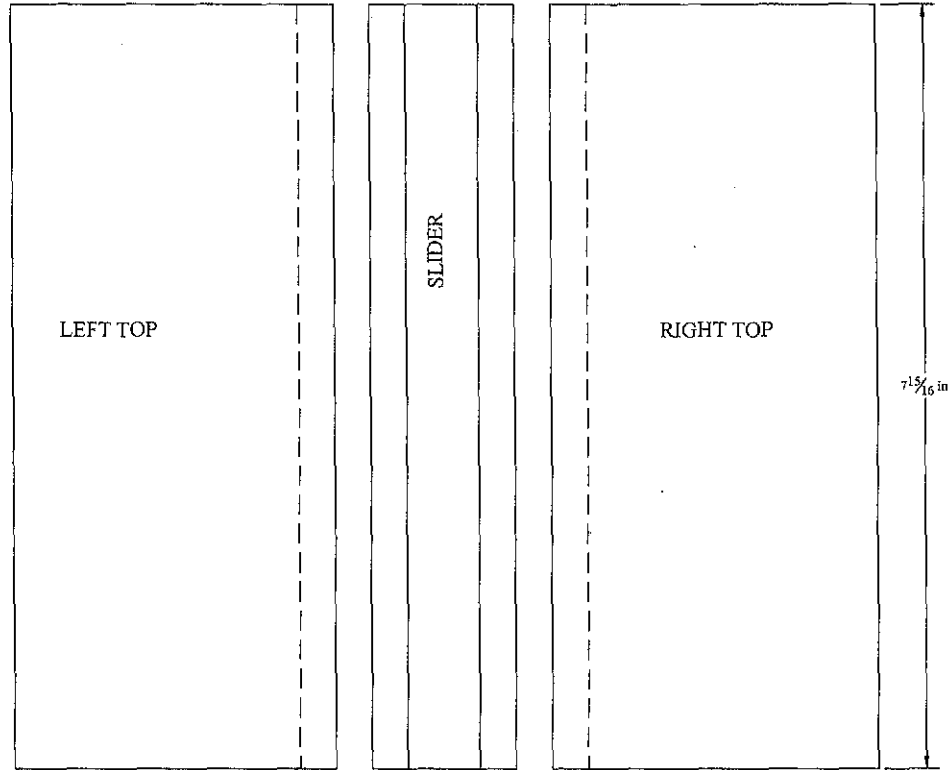
$$\text{tilt angle} = 57.296 * (k/t) \text{ (accurate to 0.05° up to 8°)}$$

recess 1 piece this amount or inlay two pieces of same thickness (t)	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	
saw kerf, k													
0.008	7.4	3.7	2.4	1.8	1.5	1.2	1.0	0.9	0.8	0.7	0.7	0.6	
0.009	8.3	4.1	2.8	2.1	1.7	1.4	1.2	1.0	0.9	0.8	0.8	0.7	
0.010	9.2	4.6	3.1	2.3	1.8	1.5	1.3	1.1	1.0	0.9	0.8	0.8	
0.011	10.1	5.0	3.4	2.5	2.0	1.7	1.4	1.3	1.1	1.0	0.9	0.8	
0.012	11.1	5.5	3.7	2.8	2.2	1.8	1.6	1.4	1.2	1.1	1.0	0.9	
0.013	12.0	6.0	4.0	3.0	2.4	2.0	1.7	1.5	1.3	1.2	1.1	1.0	
0.014	12.9	6.4	4.3	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.2	1.1	
0.015	13.9	6.9	4.6	3.4	2.8	2.3	2.0	1.7	1.5	1.4	1.3	1.1	
0.016	14.8	7.4	4.9	3.7	2.9	2.4	2.1	1.8	1.6	1.5	1.3	1.2	
0.017	15.8	7.8	5.2	3.9	3.1	2.6	2.2	1.9	1.7	1.6	1.4	1.3	
0.018	16.7	8.3	5.5	4.1	3.3	2.8	2.4	2.1	1.8	1.7	1.5	1.4	
0.019	17.7	8.7	5.8	4.4	3.5	2.9	2.5	2.2	1.9	1.7	1.6	1.5	
0.020	18.7	9.2	6.1	4.6	3.7	3.1	2.6	2.3	2.0	1.8	1.7	1.5	
0.021	19.6	9.7	6.4	4.8	3.9	3.2	2.8	2.4	2.1	1.9	1.8	1.6	
0.022	20.6	10.1	6.7	5.0	4.0	3.4	2.9	2.5	2.2	2.0	1.8	1.7	
0.023	21.6	10.6	7.0	5.3	4.2	3.5	3.0	2.6	2.3	2.1	1.9	1.8	
0.024	22.6	11.1	7.4	5.5	4.4	3.7	3.1	2.8	2.4	2.2	2.0	1.8	
		Recess for tilt angle											
	tilt angle	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
saw kerf, k													
0.008		0.92	0.46	0.31	0.23	0.18	0.15	0.13	0.11	0.10	0.09	0.08	0.08
0.009		1.03	0.52	0.34	0.26	0.21	0.17	0.15	0.13	0.11	0.10	0.09	0.09
0.010		1.15	0.57	0.38	0.29	0.23	0.19	0.16	0.14	0.13	0.11	0.10	0.10
0.011		1.26	0.63	0.42	0.32	0.25	0.21	0.18	0.16	0.14	0.13	0.11	0.11
0.012		1.38	0.69	0.46	0.34	0.28	0.23	0.20	0.17	0.15	0.14	0.13	0.11
0.013		1.49	0.74	0.50	0.37	0.30	0.25	0.21	0.19	0.17	0.15	0.14	0.12
0.014		1.60	0.80	0.53	0.40	0.32	0.27	0.23	0.20	0.18	0.16	0.15	0.13
0.015		1.72	0.86	0.57	0.43	0.34	0.29	0.25	0.22	0.19	0.17	0.16	0.14
0.016		1.83	0.92	0.61	0.46	0.37	0.31	0.26	0.23	0.20	0.18	0.17	0.15
0.017		1.95	0.97	0.65	0.49	0.39	0.32	0.28	0.24	0.22	0.20	0.18	0.16
0.018		2.06	1.03	0.69	0.52	0.41	0.34	0.29	0.26	0.23	0.21	0.19	0.17
0.019		2.18	1.09	0.73	0.54	0.44	0.36	0.31	0.27	0.24	0.22	0.20	0.18
0.020		2.29	1.15	0.76	0.57	0.46	0.38	0.33	0.29	0.25	0.23	0.21	0.19
0.021		2.41	1.20	0.80	0.60	0.48	0.40	0.34	0.30	0.27	0.24	0.22	0.20
0.022		2.52	1.26	0.84	0.63	0.50	0.42	0.36	0.32	0.28	0.25	0.23	0.21
0.023		2.64	1.32	0.88	0.66	0.53	0.44	0.38	0.33	0.29	0.26	0.24	0.22
0.024		2.75	1.38	0.92	0.69	0.55	0.46	0.39	0.34	0.31	0.28	0.25	0.23

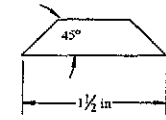


"Bolt Circle" Drilling Jig
3/8" ply construction

"Sacrificial" backer board for drilling 3/8 stock x 1 1/2" wide x any length



Assembled section
Note: Adjust gap between slider & tops at assembly for close fit

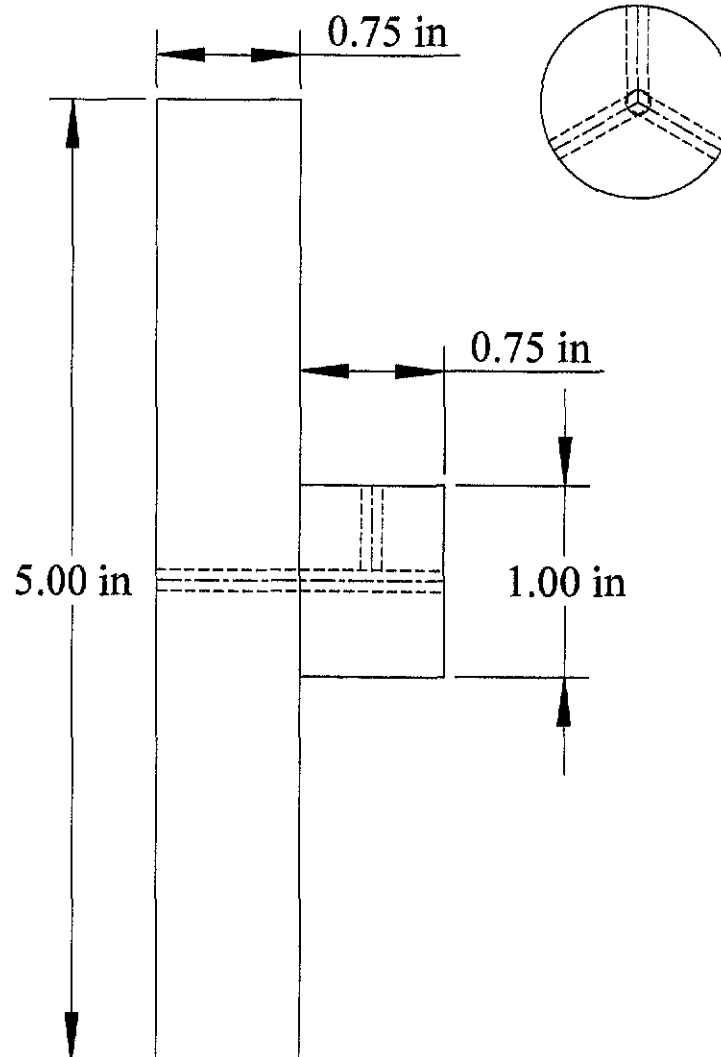
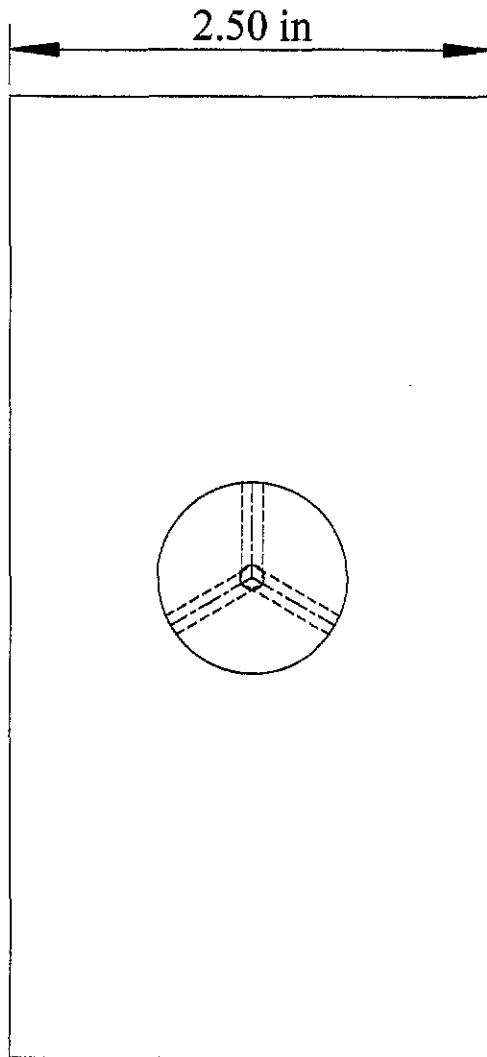


Dick Wiley 16 Mar 14
1/2 scale



Rough cut the dowel so that a minimum of 1" can be locked in the drill chuck.

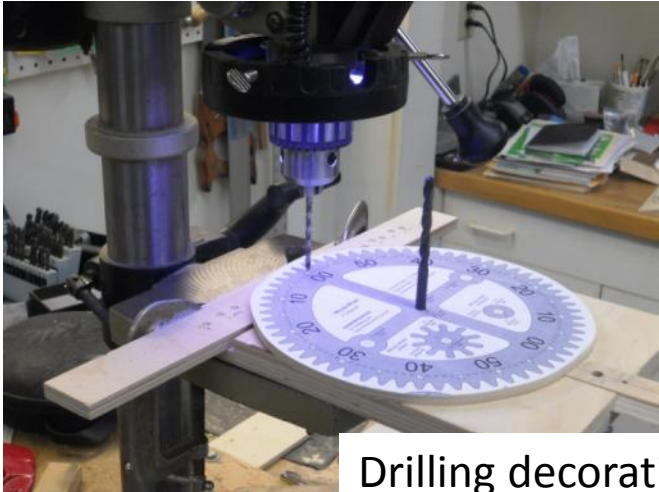
7/64 drill 6-32 tap
6-32 x 3/4 socket head cap screw
3 places



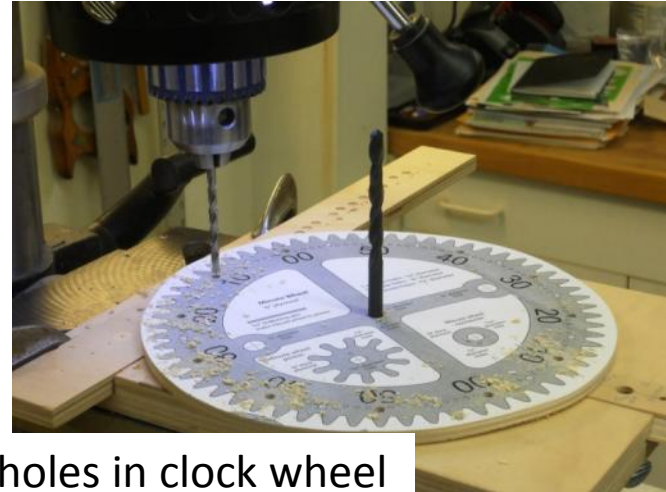
Center the jig using a piece of 5/32 OD brass tube in the chuck
"Knock" into place until the tube moves freely over the length of the exposed drill. Clamp the jig firmly into place; make sure all of the drill locking set screws are tightened securely to prevent rotation

Dowel drilling jig for 1/8 " diameter through hole
DickWiley 11 Feb 2013

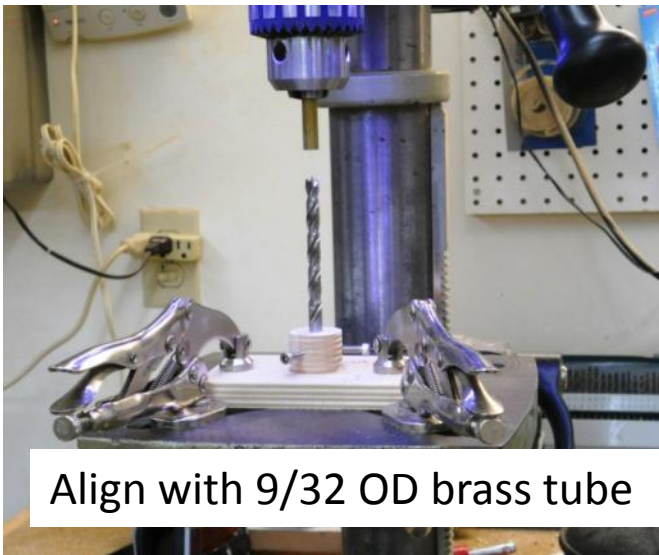
Drill Press Jigs



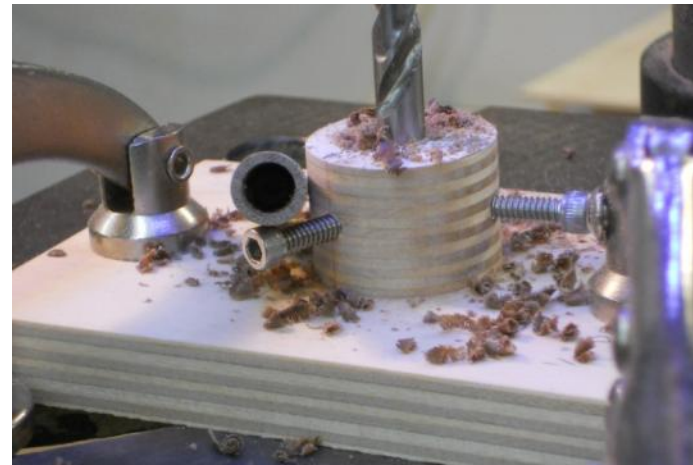
Drilling decorative holes in clock wheel



Center drilling 3/8" dowel with 1/4" drill

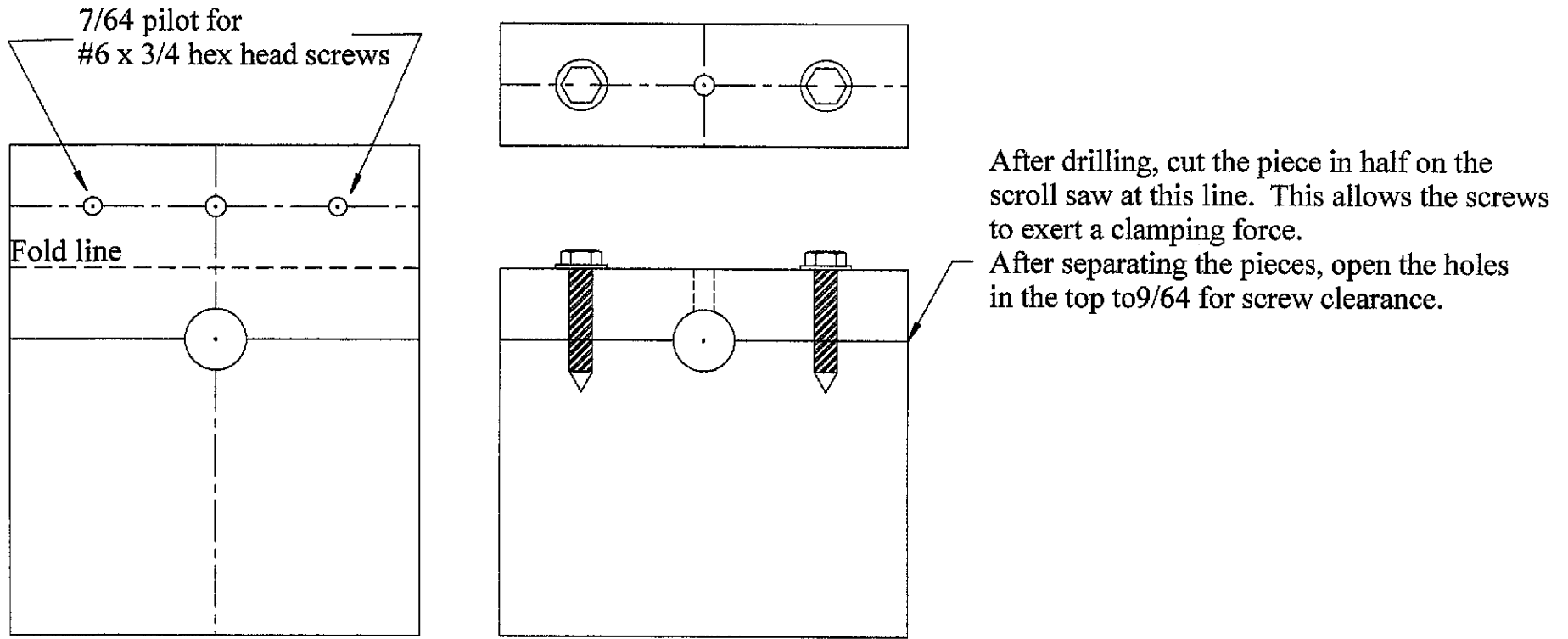


Align with 9/32 OD brass tube



Walnut dowel drilled to 1/4" center

Dowel cross drill jig

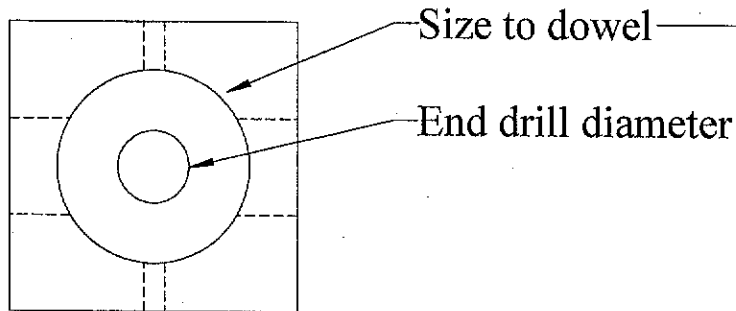


Flat pattern for 3/8" dowel
with 1/8" cross drill
Nominal 1 x 3 stock

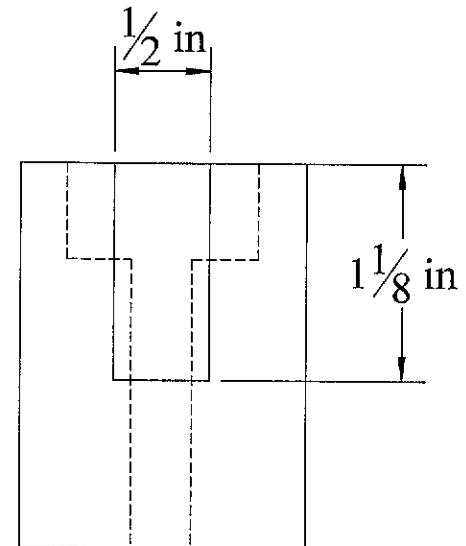
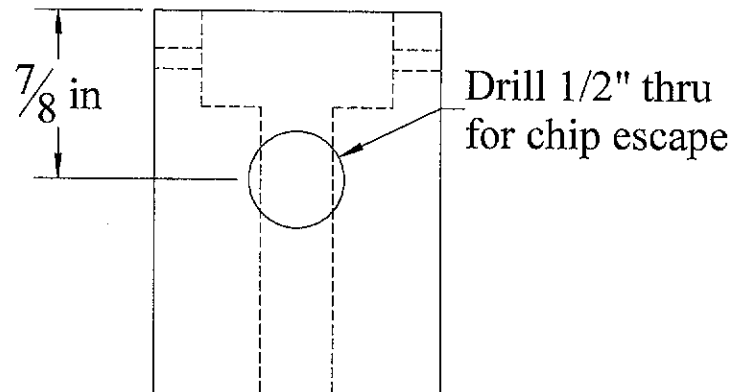
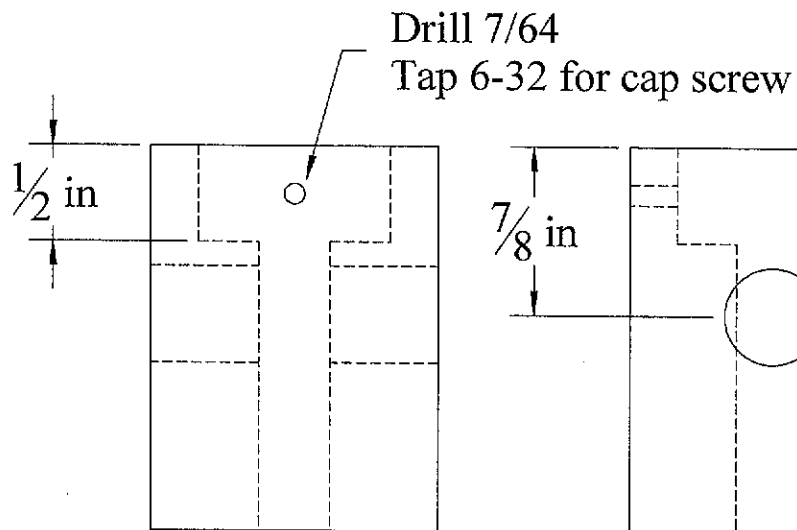
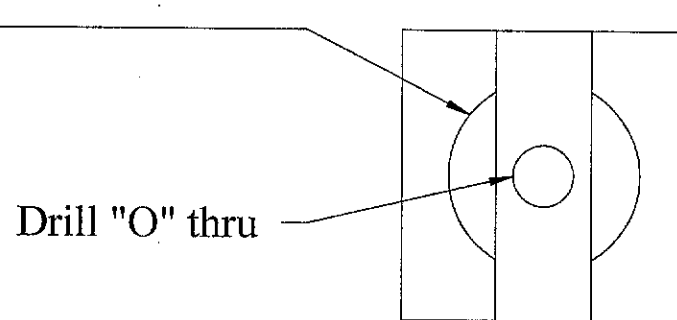
Dick Wiley 18 Mar 2014

Threaded Insert Dimensions			
Insert size	Pilot hole	Length	Outer diameter
6-32	1/4	3/8	21/64
8-32	1/4	3/8	21/64
10-24	3/8	1/2	29/64
1/4-20	3/8	1/2	29/64

Dowel End Drill Jig

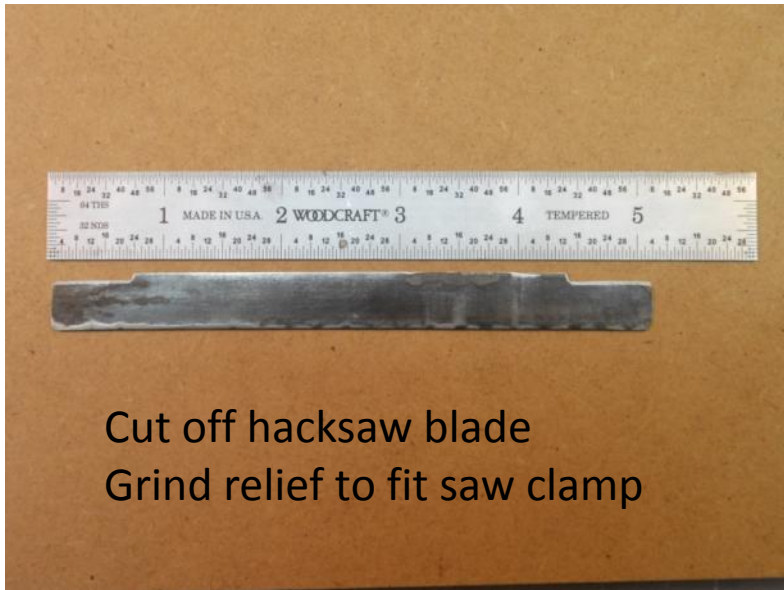


Threaded Insert Guide Jig

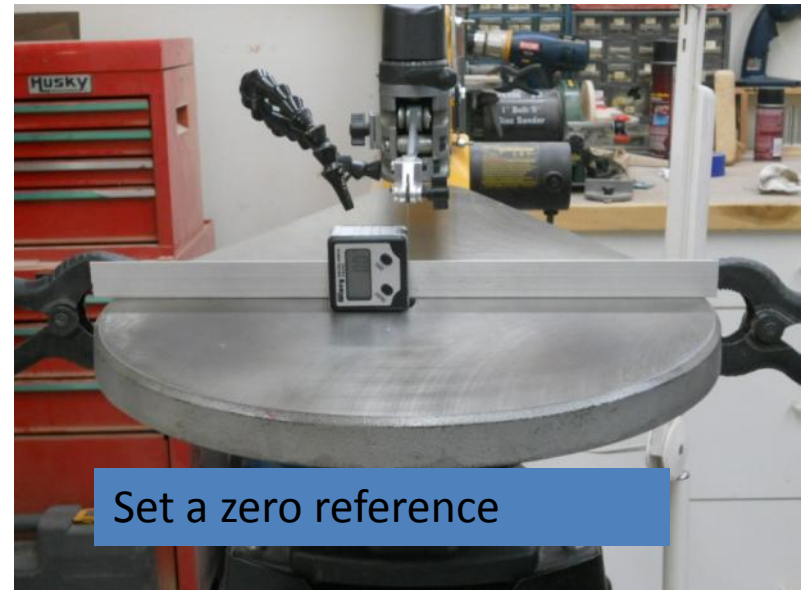


Material: 1 1/2" square x 2" long
Hardwood recommended

Scroll saw set up with a hacksaw blade and a digital angle gauge



Cut off hacksaw blade
Grind relief to fit saw clamp



Set a zero reference

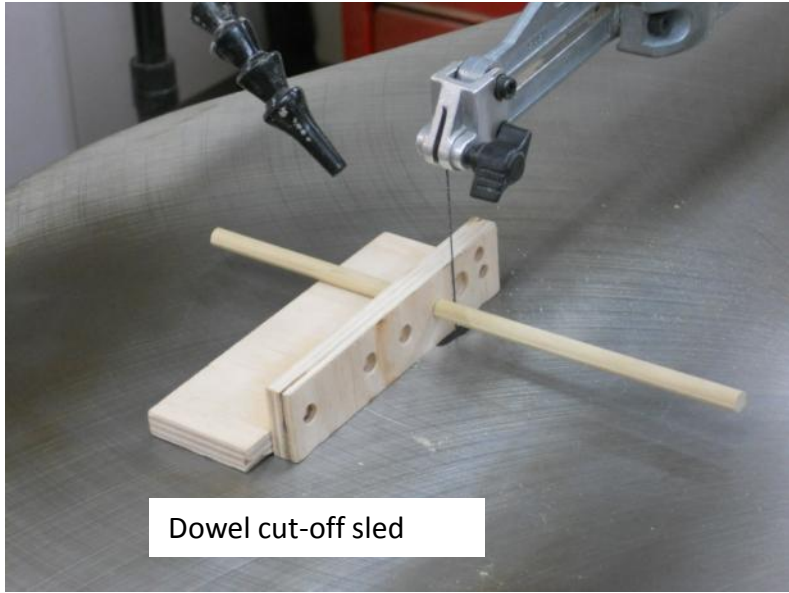


Adjust table to 90°

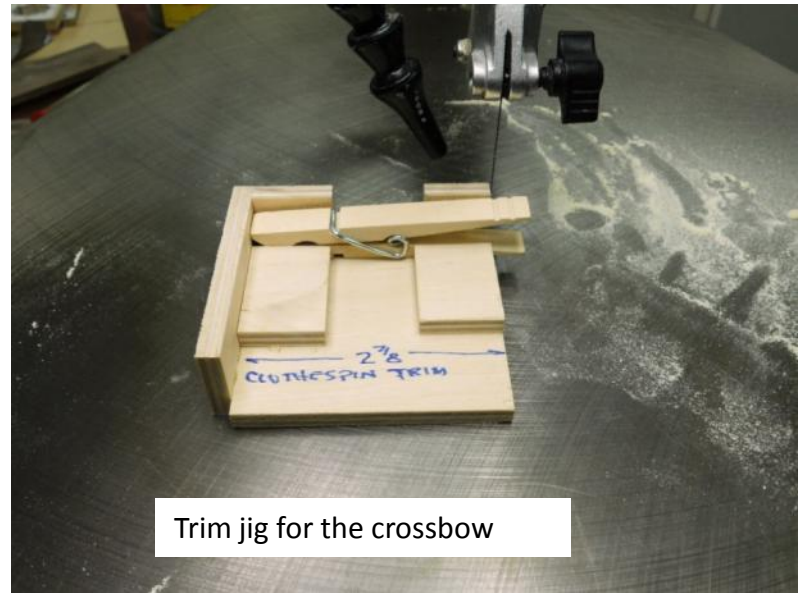


3° tilt angle for inlay work

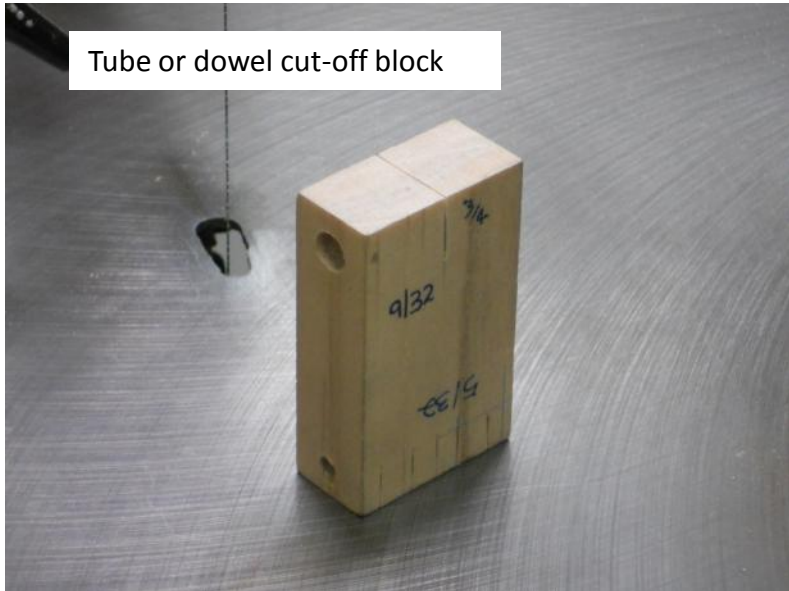
Cut off tools



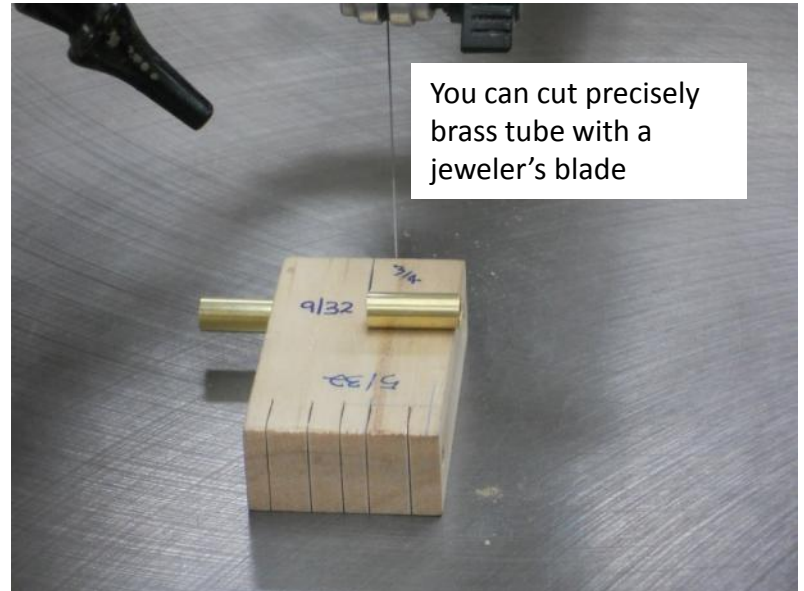
Dowel cut-off sled



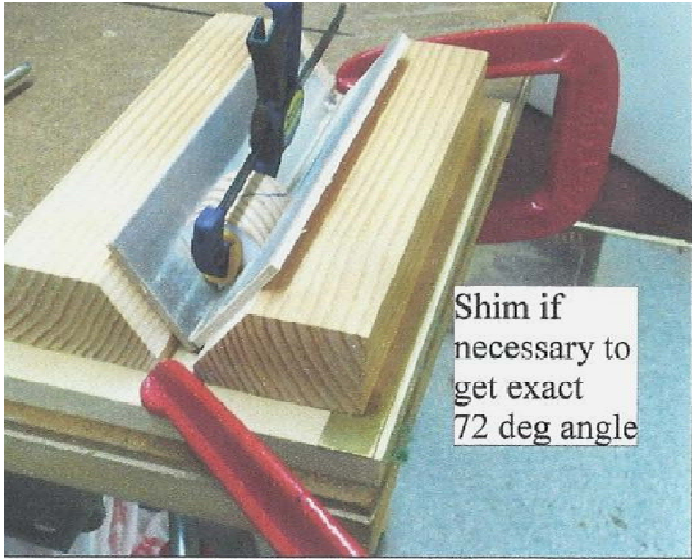
Trim jig for the crossbow



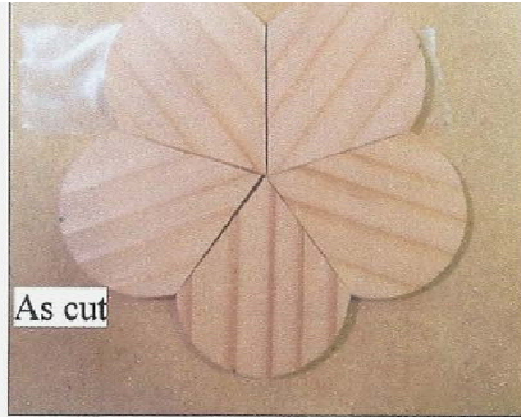
Tube or dowel cut-off block



You can cut precisely
brass tube with a
jeweler's blade



Shim if necessary to get exact 72 deg angle

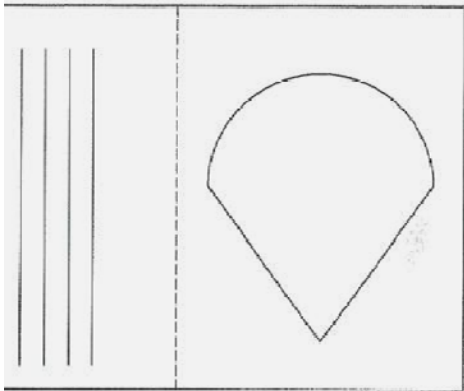


As cut

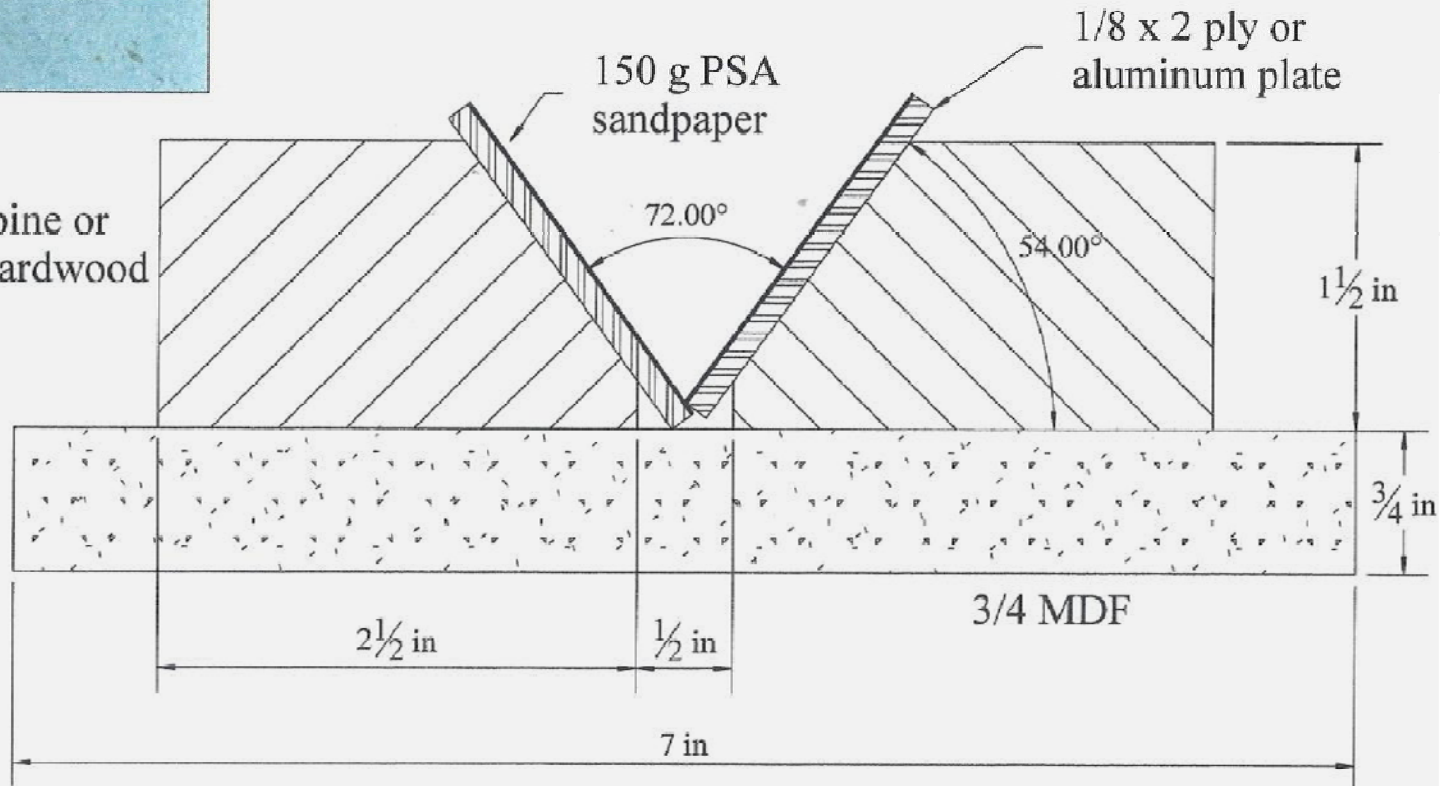


Sanded

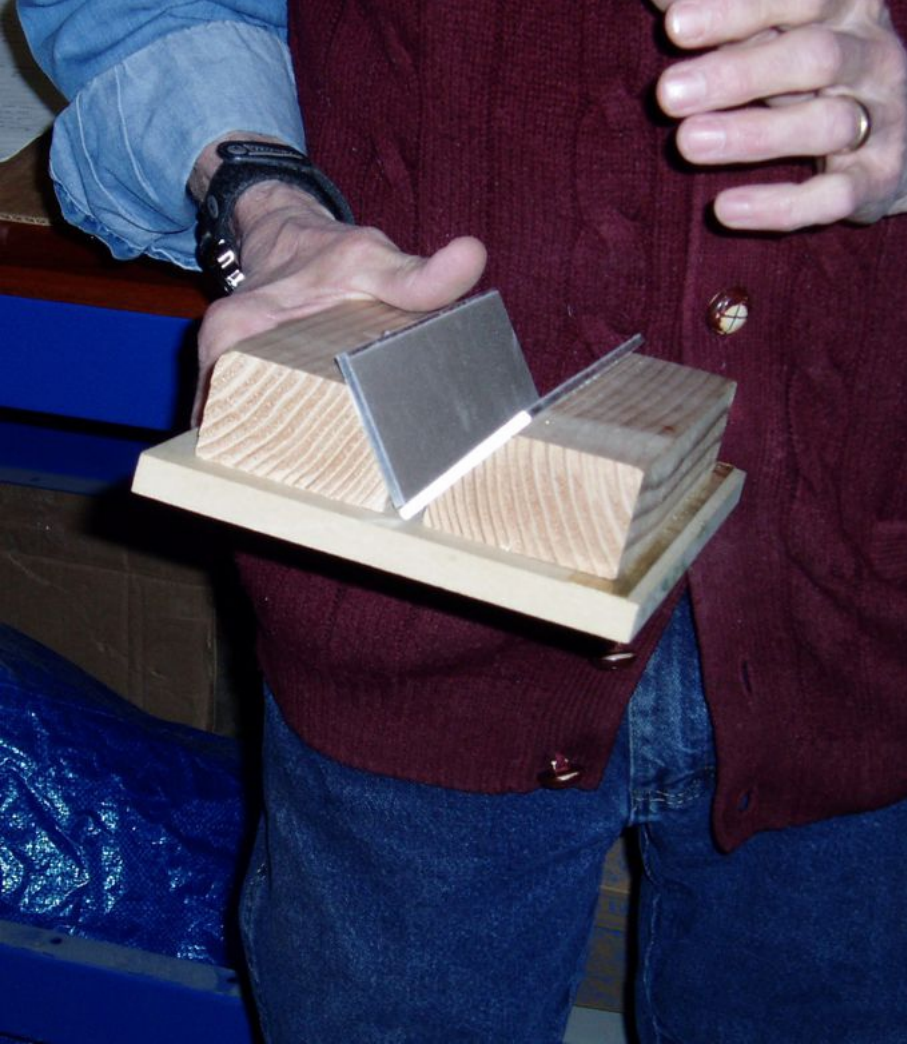
Pattern for test piece



pine or hardwood

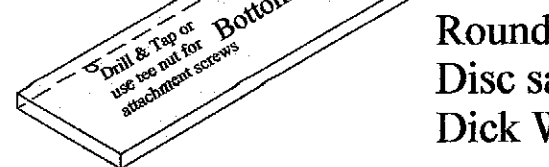
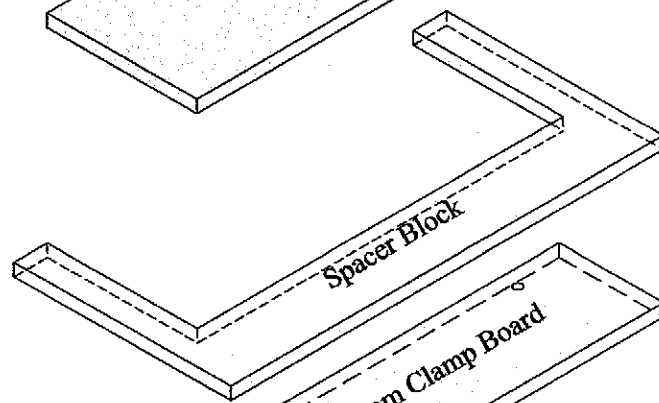
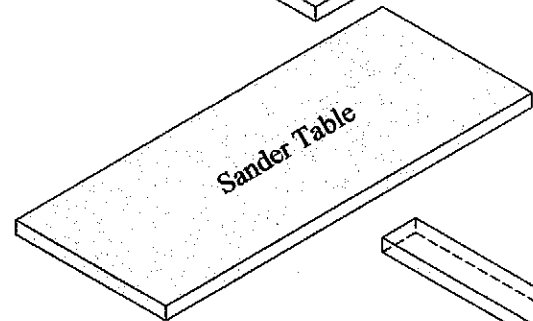
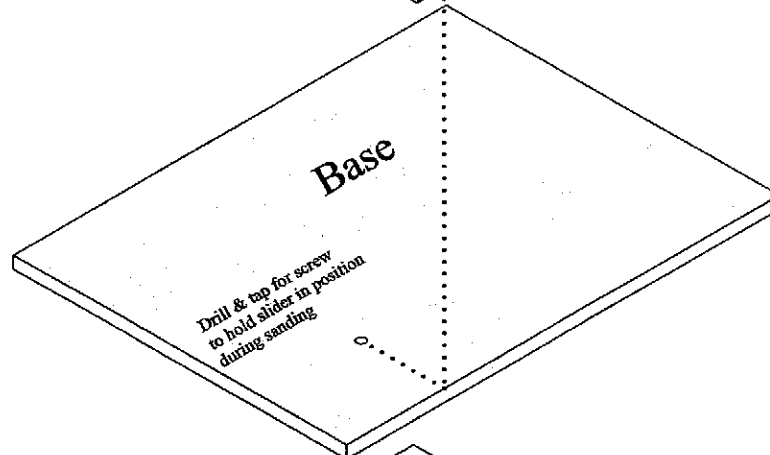
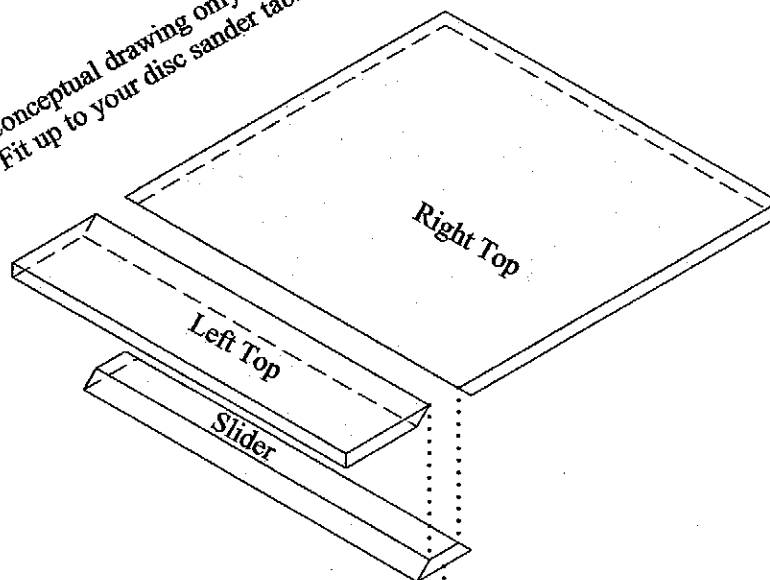


Sanding jig for 5 sided compound cut
Dick Wiley 29 Mar 14



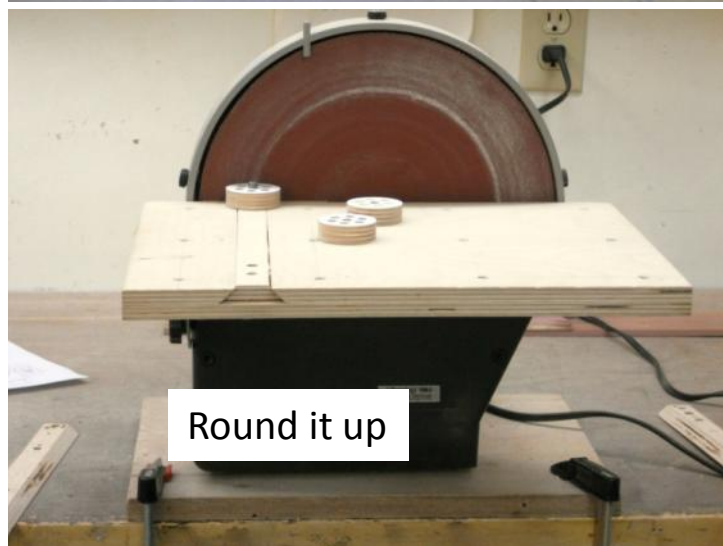
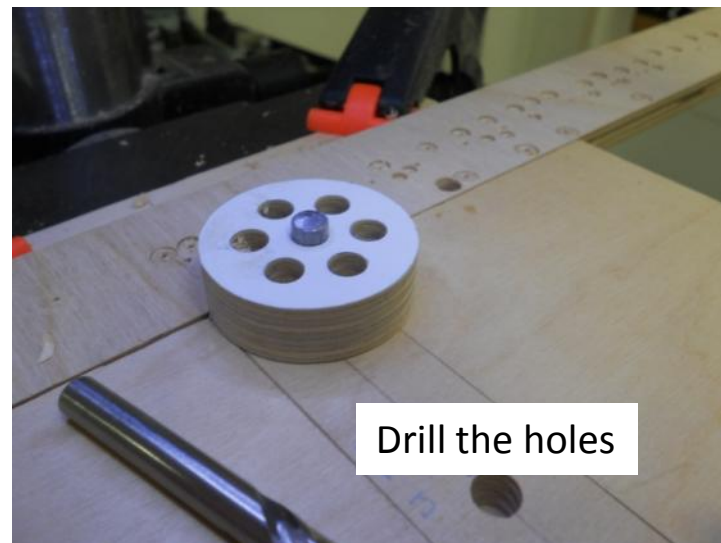
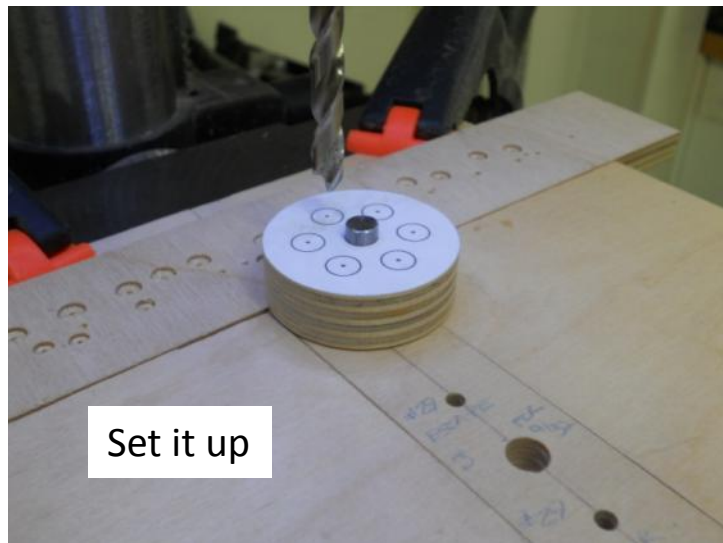


Conceptual drawing only
Fit up to your disc sander table

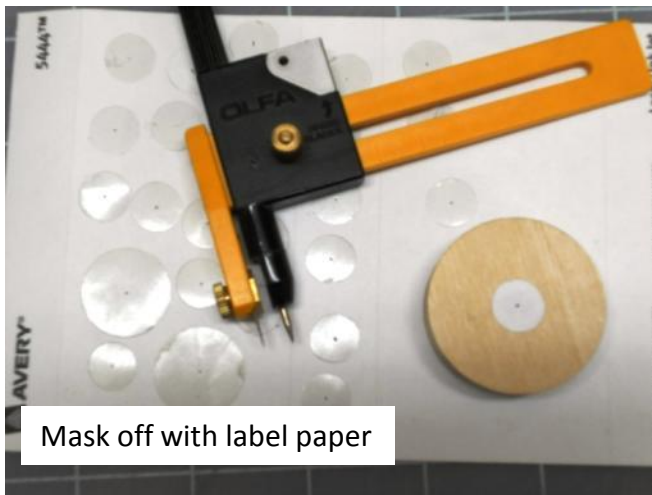
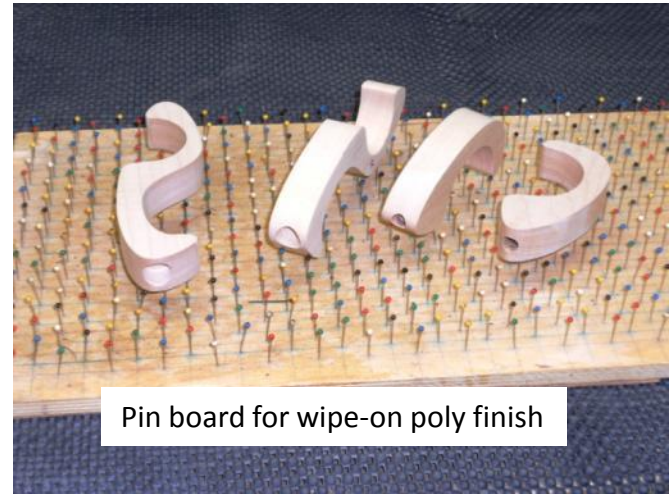
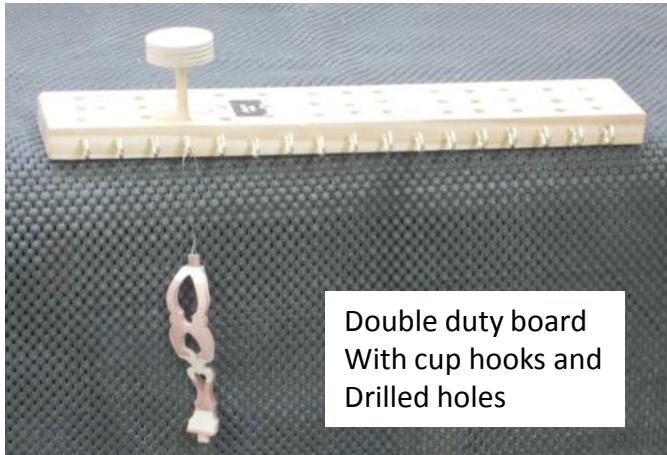


Round up table for
Disc sander
Dick Wiley 1 Apr 14

Use the circle drill jig & the round up sander to make a cool car wheel

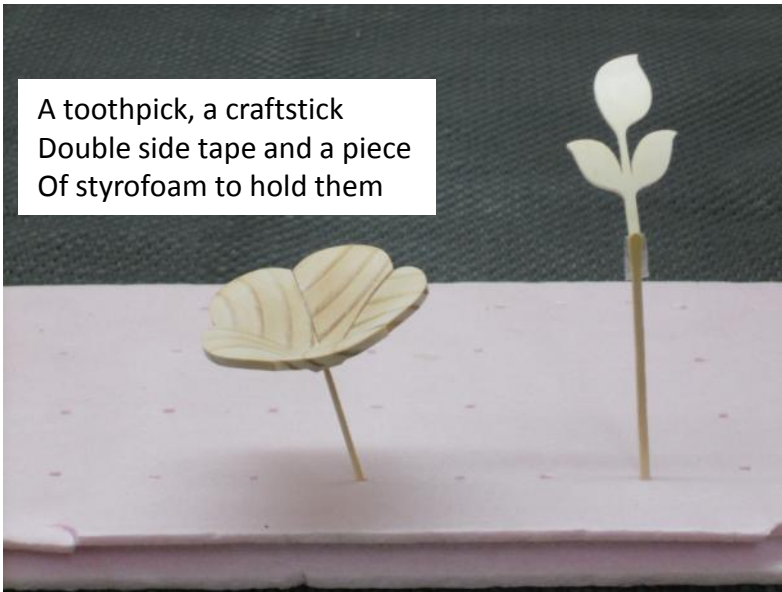


Finishing up





Finishing up



And, when you've got a whole bunch,
Hang it up!

