

BUILDING THE CLASSIC WORKBENCH

THE TRADITIONAL WORKBENCH IS DESIGNED WITH THE HAND TOOL USER IN MIND. AS THE UNIVERSAL JIG, POWER TOOLS USERS WILL ALSO FIND THEIR WORK ENHANCED GREATLY. SAY THE OLD TIMERS; "A GOOD WORKBENCH DOES NOT MAKE YOU A BETTER WOODWORKER, BUT IT SURE DOES HELP."

THE WORKBENCH IS THE TRADITIONAL PROJECT THAT EVERY WOODWORKER SHOULD UNDERTAKE. THE IDEAS PRESENTED ON THIS PLAN ARE MERE SUGGESTIONS; THE WAY YOU WORK AS A WOODWORKER IS THE FINAL DETERMINATION OF HOW TO BUILD A WORKBENCH.

SOME OF THE JOINERY COULD BE SIMPLER; HOWEVER, THE ADDITIONAL COMPLEXITY WILL PAY OFF IN THE EXPERIENCE GAINED IN EXECUTION. THE DESIGN IS BUILT AROUND USING 8/4 LUMBER FOR THE MAJORITY OF THE BILL OF MATERIALS. 8/4 LUMBER IS NOT MAGICAL, 4/4 OR 10/4 WOULD BE FINE. 8/4 IS SIMPLER, AND RELATIVELY EASY TO FIND.

PRECIOUS LITTLE OF THIS PLAN IS MY OWN ORIGINAL IDEA. THE VAST MAJORITY HAS BEEN PASSED DOWN OVER THE CENTURIES. I AM ONLY THE INTERPRETER OF A GREAT DEAL OF INFORMATION, THE BEST OF WHICH IS ON THIS PLAN. ENJOY!

Recommended Order

- 1 Buy vise hardware
- 2 Determine dog layout based on vise choice
- 3 Rip stock for top, and stretchers
- 4 Construct trestles from step three fall off
- 5 Make keys for tusk tenon
- 6 Finish out stretchers
- 7 Laminate top
- 8 Install face vise
- 9 Install endcaps and tool tray
- 10 Drill bullet holes to attach top
- 11 Carefully craft tail vise
- 12 Finish with Galoot Wax Formula
- 13 Use the scrap rock maple to make a spiffy end-grain cutting board

Bill of Materials

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| 20 | B.F. | 12/4 Maple 1 Common s2s (or birch) |
| 120 | B.F. | 8/4 Maple 1 Common s2s (or birch) |
| 6 | B.F. | 4/4 Maple 1 Common s2s (or birch) |
| 4 | B.F. | 4/4 Walnut (or whatever) |
- 2 3/8" X 8" bolts (with nuts & washers)
Tail vise hardware
Face vise hardware
Plenty of time and patience.

DOG LAYOUT ON THE PLAN IS ONLY TOKEN. THEY PURPOSELY DO NOT WORK! LAYOUT IS DEPENDENT UPON FACE VISE HARDWARE CHOICE. FOUR TO SIX INCHES ON CENTER IS A GOOD SPACING THAT WILL FIT JUST ABOUT ANY CHOICE OF TAIL VISE HARDWARE. SQUARE DOG HOLES ARE CUT INTO THE FINAL LAMINATION BY HAND. THE FINAL LAMINATION IS THEN GLUED TO THE FRONT OF THE LAMINATION.

BUY FACE VISE HARDWARE FIRST! THE GEBRUDER BUSCH HARDWARE CHOSEN FOR THIS PLAN ARE OFFERED BY WOODCRAFT. THIS HARDWARE IS EXPENSIVE. TWO LAMINATED 8/4 PIECES SEVEN INCHES WIDE WILL SUFFICE FOR THIS HARDWARE CHOICE, DUE TO THE LACK OF TOP SUPPORT IN THIS GERMAN HARDWARE.

OTHER VISES, I.E., RECORD 52-53, WHICH HAVE GOOD TOP SUPPORT, WILL NOT REQUIRE SUCH A THICK FACE VISE. THE VISE SHOWN HERE IS NOT THE ONLY GOOD CHOICE. MANY OTHERS WILL DO A SUPERB JOB - EMMERT, FOR EXAMPLE. REMEMBER TO TAKE YOUR TIME, LAY OUT THE HOLES ACCURATELY, AND DRILL ACCURATELY.

TOOL TRAY CONSTRUCTION IS A SIMPLE PANEL OF MAPLE RABBETED INTO THE BACK RAIL AND MAIN LAMINATION. THE WIDTH OF THE TOOL TRAY IS WHATEVER IS LEFT OVER TO MAKE THE WHOLE THING COME OUT RIGHT. THE TOOL TRAY LEAVES A MARGIN FOR ERROR. THAT WAY, IF YOU HAPPEN TO RUN INTO A PILE OF REALLY CHEAP 12/4 MAPLE, THE BENCH DIMENSIONS WILL NOT BE TOO ODD.

THE DEPTH IS SET A TWO INCHES OR SO - THIS PREVENTS TOOLS BEING COVERED UP BY LARGE PIECES OF WOOD, OR PROJECTS. THE TOOLS FIT IN THE TRAY BUT WILL GET IN THE WAY OF A PROJECT, AND DON'T GET COVERED UP. BEAR IN MIND, THIS IS A GOOD THING TO CHANGE, IF NEEDED.

THE RAMPS ON THE END OF THE TRAY ARE THERE SO YOU CAN DRAG THE MOUNTAIN OF SHAVINGS AND SAWDUST OUT WITHOUT TOO MUCH TROUBLE. THEY CAN BE EITHER PLYWOOD OR SOLID. IF SOLID, AN EXPANSION GAP IS NEEDED BETWEEN THE RAMP AND MAIN LAMINATION. THE GRAIN ORIENTATION SHOULD BE IN LINE WITH THE ENDCAPS.

ENDCAPS ARE SPLINED AND BOLTED TO THE BENCH WITH NO GLUE. DON'T FORGET TO ORIENT THE SPLINE GRAIN IN LINE WITH THE MAIN LAMINATION GRAIN DIRECTION. IF YOU'RE GOOD, THE SPLINE CAN ACTUALLY BE MAIN LAMINATION STOCK WITH THE ENDCAP FITTING AROUND THAT. NOTICE HOW THE HOLE IN THE ENDCAPS FOR THE BOLTS ARE 7/8 INCH LONG. THIS ALLOWS FOR EXPANSION OR CONTRACTION OF THE TOP. NOTICE HOW THE DRY DOVETAILS ON THE ENDCAPS ARE IN LINE WITH THIS EXPANSION.

BACK RAIL SUPPORT IS ACCOMPLISHED BY SETTING THE RAIL ON THE SLEEPERS OF THE TRESTLE. THE DOVETAILS IN THE ENDCAPS COULD DO THAT, BUT IT'S MORE SOLID THIS WAY. PLACING THE BENCH IN THE MIDDLE OF THE SHOP IS PART OF GETTING THE MOST OUT OF IT. THE ADDED STRENGTH OF THE 12/4 BEAM COMBINED WITH THE DIRECT TRESTLE SUPPORT MAKES THIS VERY STRONG AND USABLE. IF YOU DON'T WANT TO BUY THAT HUGE CHUNK OF 12/4, THE 8/4 OPTION IS ALWAYS THERE AND WILL DO FINE.

DOGS - "WHATEVER WORKS" - THE ONLY MEASURE OF A GOOD DOG. THE PLAN ONLY GIVES AN IDEA OF THE BASIC SHAPE. THE WOODEN "SPRING" ON THE DOG

NEARS AGAINST THE HOLE AND ITS FRICTION CAN HOLD THE DOG ELEVATED ABOVE THE SURFACE OF THE BENCH.

THE EDGE DOGS ON THE PLAN ENABLE THE VERTICAL CLAMPING OF WIDE STOCK. CUTTING THE TAILS ON A DOVETAILED CHEST WOULD BE A GOOD USE FOR THE EDGE DOGS.

STRETCHERS BULGE AT THE ENDS FOR A GENEROUS SIX INCH BEARING SURFACE. THE BULGE IS BEST ACCOMPLISHED THROUGH LAMINATION, INSTEAD OF THE ALTERNATIVE

HOGGING OF THE STRETCHER'S CENTRAL REGION. DRILL OUT THE KEY HOLE AND SQUARE WITH A CHISEL. I CUT SHOULDERS ON THE SIDE OF THE TENON, BUT JUST HAVING SHOULDERS ON THE TOPS IS JUST FINE. SOMEHOW, I RAN ACROSS "FULL CUT" 8/4, AND HAD THE LUXURY OF ADDING SHOULDERS TO THE SIDES. IF YOU ARE NOT SO FORTUNATE, JUST REMEMBER TO KEEP THE WIDTH OF THE TENON TO 1 - 5/8. THE KEYS FOR THE TUSK TENON ARE PRETTY ARBITRARY. SHAPE THE TOP OF THE KEY HOWEVER YOU WISH. YOUR FAVORITE MOULDING PLANE IS A GOOD REFERENCE. THE SLOPE OF THE WEDGE SHOULD BE ABOUT 16:1.

TRESTLE DESIGN IS BUILT AROUND LAMINATING FALL OFF SCRAPS OF 8/4 FROM THE TOP. CUTTING THE MORTISES ON THE SLEEPER AND FOOT PRIOR TO THE LAMINATION CREATES THEM MUCH EASIER THAN CHOPPING. BUT, THE MORTISES FOR THE STRETCHERS SHOULD BE CHOPPED OUT WITH A ROBERT SORBY 3/4" REGISTERED CHISEL (OR SIMILAR) AND A MALLET OF YOUR OWN MAKING. WONDERFUL EXPERIENCE. JUST BEAT THE HELL OUT OF IT UNTIL YOU HAVE A NICE, SQUARE IN THE LEG OF THE TRESTLE. NO DRILLING, JUST CHOPPING.

THE TOP AND TRESTLE ARE JOINED VIA A BULLET SHAPED DOWEL. SOMETHING CLOSE TO ONE INCH DOES THE JOB. ONE DOWEL IN THE CENTER OF EACH SLEEPER WILL ALLOW FOR EXPANSION.

IF YOU ARE NOT INTERESTED IN THE TUSK TENON, CAPTURED NUTS ARE RECOMMENDED FOR QUICKER, ALTERNATIVE JOINERY. THE STUB TENON SHOULD BE 1.5 INCHES LONG. THEN TWO BOLTS (1/4 X 8), TOP AND BOTTOM, WILL DO THE TRICK.

LAMINATION DOES NOT REQUIRE SPLINES OR DOWELS FOR STRENGTH. ADDED ALIGNMENT IS REALLY THE ONLY GAIN. TITEBOND AND OTHERS SHOULD LAST AT LEAST 100+ YEARS. SEVEN BAR CLAMPS IS ABOUT THE MINIMUM FOR THE LAMINATION ON THIS PLAN. THE MORE THE BETTER.

AFTER LAMINATING, THE TOP SHOULD BE SMOOTHED WITH A SCRUB PLANE, AND LATER WITH A FORE OR JOINTER PLANE. NORMITES MAY WANT TO USE A "BELT SANDAH," BUT I WOULD SERIOUSLY RECOMMEND THE ZEN ACTIVITY OF FLATTENING YOUR OWN BENCHTOP WITH A HANDPLANE. TO ALL NORMITES: HAND PLANING IS THE MOST REDEEMING OF THE NEANDERTHAL WOODWORKING EXPERIENCES, AND THE MOST RECOMMENDED BY ANYONE I HAVE HEARD FROM. THE SIMPLEST METHOD TO CUT THE END OF THE LAMINATION SQUARE IS TO USE A HANDSAW AND BLOCK PLANE.

BELT SANDING AND THEN PLANING IS NOT AN OPTION! SANDING WILL IMBEDD GRIT IN THE WOOD WHICH WILL DULL THE PLANE BLADES IN A HURRY AND MAKE THE FLATTENING PROCESS A DRUDGERY AT BEST.

BUY TAIL VISE HARDWARE BEFORE STARTING WORKBENCH! THE SIZE OF THE TAIL VISE VOID IN THE TOP IS DEPENDENT UPON YOUR CHOICE OF HARDWARE, BUT THE SIZE CALLED OUT ON THE PLANS WILL BE REASONABLY CLOSE TO WHAT YOU WILL NEED. A SIMPLE BENCHSCREW AND NUT WILL SUFFICE. FULL KITS, INCLUDING MOUNT HARDWARE AND TRACKS FOR THE HARDWARE TO RIDE ON CAN BE FOUND. THESE WORK VERY WELL, TAKE LESS TIME, AND COST A LITTLE MORE.

NOTICE THE CENTER, FIXED GUIDE BAR ON THE PLAN. ITS EXACT LOCATION IS NOT ESSENTIAL TO SUCCESSFUL OPERATION; HOWEVER, IT SHOULD BE FAIRLY CLOSE TO THE SCREW.

MAKE A FULL SCALE DRAWING OF EXACTLY WHAT YOU WILL BUILD FOR THE TAIL VISE BEFORE BEGINNING. THIS IS THE PART THAT IS EASY TO SCREW UP. TAKE YOUR TIME, AND TRY TO LOSE AS LITTLE PATIENCE. RE-DOING ANY PART IS O.K.. THIS PORTION MUST BE PRETTY ACCURATE. DO A DRY FIT BEFORE GLUING.

FINISH WITH THE GALOOT WAX FORMULA, OR BRIWAX. BREW UP A BATCH IN A DOUBLE-BOILER ARRANGEMENT OR OLD SAUCEPAN. THE GALOOT WAX IS CREATED FROM ONE CAKE OF PARAFFIN (OR BEESWAX) MELTED OVER LOW HEAT OR IN THE DOUBLE-BOILER SETUP. AS THE PARAFFIN IS MELTING, ADD A SIMILAR VOLUME OF LINSEED OIL. REMOVE FROM HEAT AND ADD MINERAL SPIRITS TO A CONSISTENCY YOU PREFER. MINERAL SPIRITS CAN BE ADDED AT ANY TIME. WATCH OUT FOR THE FUMES HERE. USE IN A WELL VENTILATED AREA, AND MAKE SURE THE BREEZE IS BLOWING AWAY FROM YOU AND TOWARD THE POT.

USE THIS WAX FINISH TO FINISH YOUR BENCH. THE CLASSIC FORMULA IS TO POUR AND RUB ON A GENEROUS COAT. LET IT STAND FOR TEN MINUTES, OR UNTIL IT BEGINS TO DRY. RUB AND BUFF WITH A DRY CLOTH. THIS IS TO BE DONE TWO TIMES DAILY FOR TWO WEEKS, TWICE WEEKLY FOR TWO MONTHS, TWICE MONTHLY FOR TWO YEARS, AND AS NEEDED FOR LIFE.

GLUE WILL NOT STICK, SCRATCHES WILL NOT SHOW, AND THE THING WILL HAVE A SLIGHT WARM GLOW. THE FINISH IS ACTUALLY VERY IMPORTANT. SEALED WOOD CAN LAST CENTURIES, WHILE UNFINISHED WOOD WILL BEGIN TO DECOMPOSE AND SPLIT SOON. GRANTED, IT'LL TAKE AT LEAST TEN YEARS, OR SO, BUT THE FINISHED SURFACE WILL WORK MUCH BETTER THAN THE ALTERNATIVE.

A BATCH OF THIS WAX TYPICALLY LASTS FOR TWO TO THREE WEEKS, OR EVEN LONGER. SEAL THE WAX WELL IN A JAR, AND ADD MINERAL SPIRITS AFTER IT BEGINS TO HARDEN A LITTLE.

SEAL THE BOTTOM OF THE LAMINATION, TOO! WELL, UNLESS YOU WOULD LIKE TO DO AN EXPERIMENT ON WARPED BENCHTOPS. :)

GOOD LUCK ON A VERY IMPORTANT PROJECT. IF YOU HAVE ANY QUESTIONS, SUGGESTIONS, OR COMMENTS, PLEASE DO NOT HESITATE TO CONTACT ME.

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THANK YOU,