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My first attempt at tool organization was the fabrication of a floor stand adapted to a tilting, open-faced tool holder. It had slots for each tool and a locking bar to hold the tools in place. (A photo and detailed plan can be seen on the North Coast Woodturner's website at www.ncwt.org in the May



This tool holder proved to be useful and filled most of my needs. However, it soon became obvious that the stand was too heavy and really not necessary; most



Fig. 2

Fig. 3

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SUPPLIES

Wood: maple or poplar – two pieces 8 feet x 3/4" x 1-1/2" for parts F, L, E, and M; 1/8" thick masonite – one piece 30" x 18" for parts H, K, and D; oak – one piece 1-1/4" x 1-1/4" x 12" long for part P; oak – one piece 3/4" x 8" x 14" for part A; oak – one piece 1/2" x 4" x 13" for parts K and X; oak – one piece 3/8" x 8" x 13" for parts B and C; oak – one piece 1/4" x 1-3/4" x 50" for parts G, J, O, and N; dowel – one 5/16" x 5" long for part Q

Tools: mini lathe, small chuck and basic turning tools (including 1" spindle gouge), table saw, bandsaw, drill press and drills, miter gauge, hammer, clamps, compass, vise

Hardware: two 4" T-hinges; two 4" strap hinges; one 1" x 1" piece of inner tube or thin rubber; twenty-four 3/4" brads; two 2" x No. 6 drywall screws; thirty-seven 1-1/2" x No. 6 drywall screws; twenty-eight 1/2" x No. 6 flathead screws; twenty-seven 1/2" x No. 8 flathead screws; twelve 1/2" x No. 10 oval head screws

No. 12 copper wire

Socket or small jar lid

Assorted grits of abrasive paper

Krylon paint of choice

Yellow and epoxy glue

High-gloss lacquer or finish of choice

1/8" or 1/4" PVC (optional)

Ruler

Pencils

Please refer to all manufacturers' labels for proper product usage.

places at which I'd done demonstrations had a workbench or table near the lathe. In addition, while in the traveling position, this tool holder exposed the sharp tool ends and created a very dangerous situation at times. With all these factors in mind, I decided to design a custom tool case to suit these specific needs.

Since I was about to design the "ultimate" in tool cases, I decided it should contain the "ultimate" in turning tools. My personal choice was a matching set of Crown

M2, high-speed steel tools made in Sheffield, England. These tools have always worked well for me and I think are a good value for the price. The Crown chisels are all about 16" long and the tool case described in this article is designed around these tools. If you are making the case for another brand of tools, adjustment in length will be required. Most tools are similar in width, but the width of all of them laid side-by-side should be checked. Don't forget—if you make the back wider or taller, the two doors have to be adjusted accordingly. Dimensions given here are for this tool case made to house Crown tools.

BUILD THE TOOL CASE

Fabricating the tool case body is similar to building three small doors. **Stiles** are the vertical sides of the frame and **rails** are the horizontal members. Begin by blanking out the six stiles 3/4" x 1-1/2" x 18" on a table saw. Mark two of the stiles with an "L" (see **Diagram D**). Cut a 15° bevel on one long side of the other four stiles (see **Fig. 1**) and mark them with an "F" (see **Diagram C**)

(Note: The guard on the table saw has been removed for clarity; you should always use the guard.)

Next, cut three rails 3/4" x 1-1/2" x 10-1/2", using a stop block on the miter gauge (see **Fig. 2**); mark them with an "E." Similarly, cut six rails 3/4" x 1-1/2" x 4-1/2" and mark them with an "M." Lay out the pieces, as if ready to assemble (see **Fig. 3**).

Chips are flying when this tool case is in use in the open position, and many of the chips seem to collect in the bottom of the tool holder. Notching out the three bottom rails (**Diagram E**: 2-M, 1-E) allows most of the dust and smaller chips to fall through. A socket or small jar lid is helpful to make the curves (see **Fig. 4**). Notch the three bottom rails on a bandsaw, then drill and countersink the ends of all the stiles. Glue and screw the four sides of all three frames (center panel and the left and right wings) together with 1-1/2" x No. 6 drywall screws.

Lay the center rail, which holds the tools, inside each frame and set the tools into each frame in the desired position (see **Fig. 5**). Mark the width of the slot required for each tool, and lay out the depth and configuration of each slot. Remove each tool and lay it on a table. Cut out each slot on the bandsaw and try each tool in its slot (see **Fig. 6**). (Later I realized it was necessary to remove about 1/4" of the dividers between the tools to allow for holding tabs.) Leave the ends that attach to the stiles long except

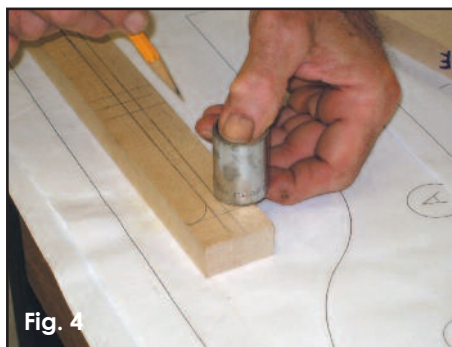


Fig. 4

A socket makes a good radius template.



Fig. 5

Arrange the tools in the order desired and mark their location.



Fig. 6

Be sure to check that the tools slide easily from their positions.

Diagram A

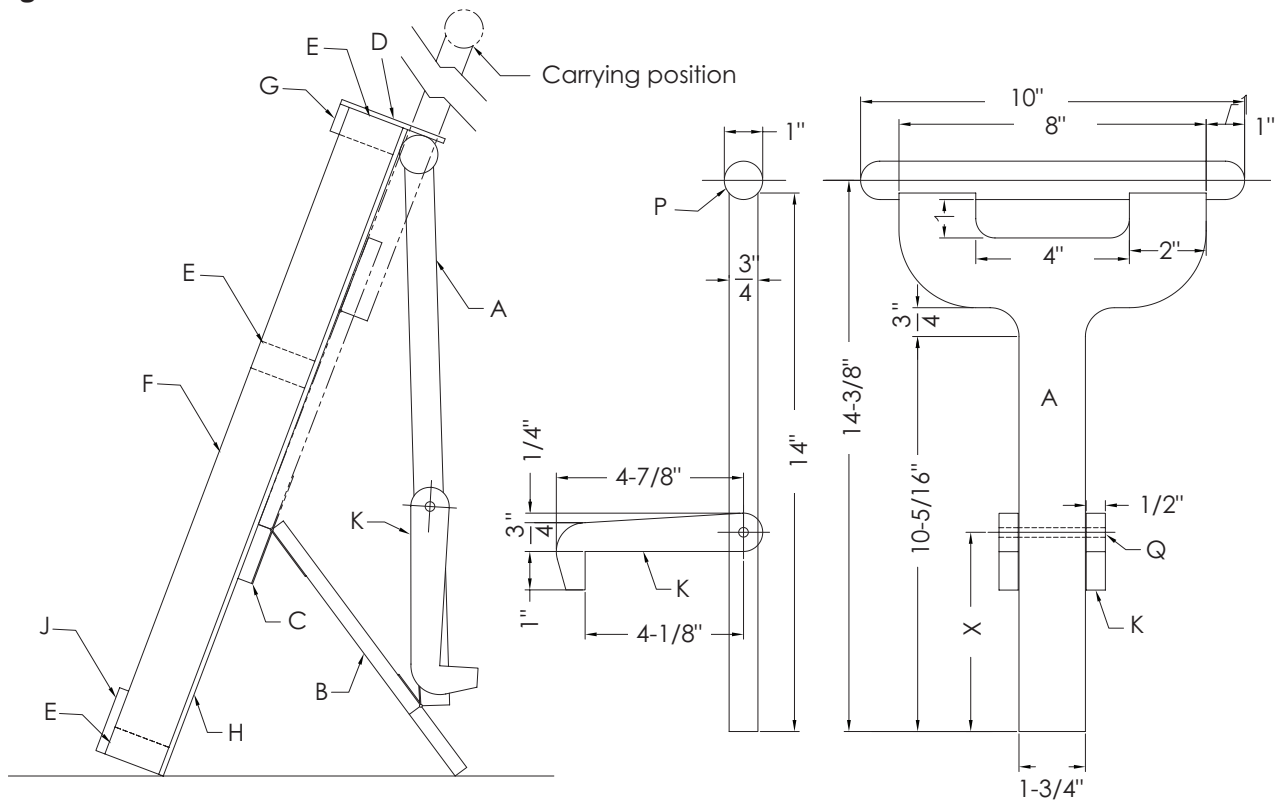


Diagram B

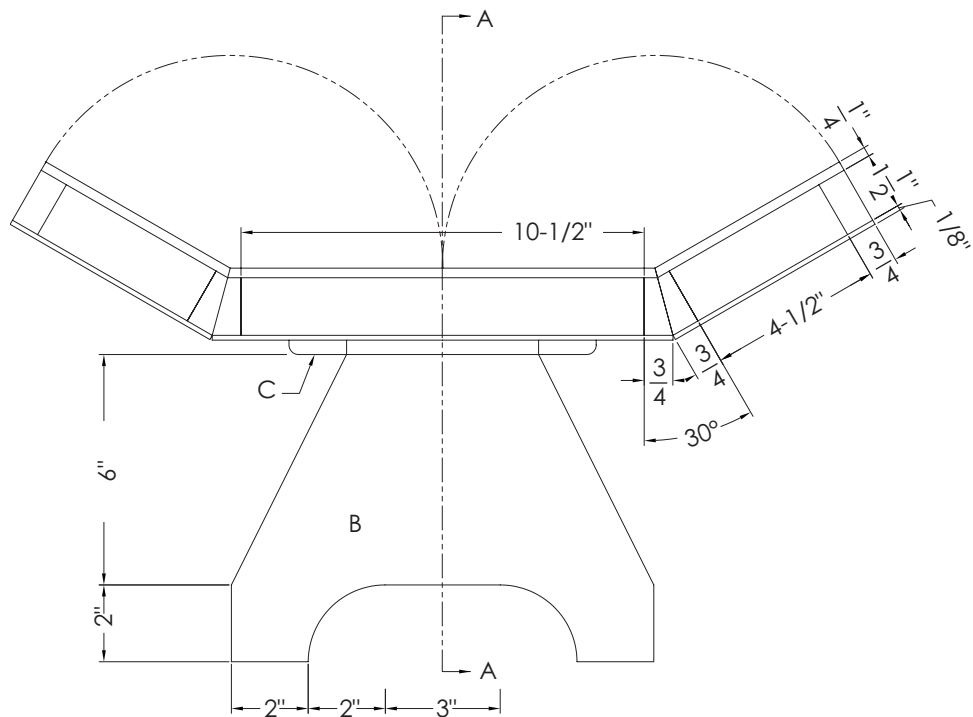




Fig. 7
Trim the tail on the right side of part "E" and leave the others long.



Fig. 8
Do not glue these parts in position.

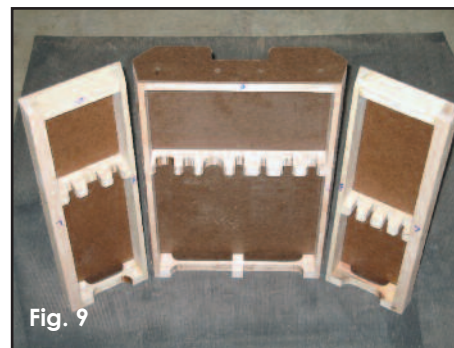


Fig. 9
Attach the top with glue and screws.



Fig. 10
Turn the handle from a piece of 1-1/4" (5/4) oak.



Fig. 11
Add the details and round over the ends.

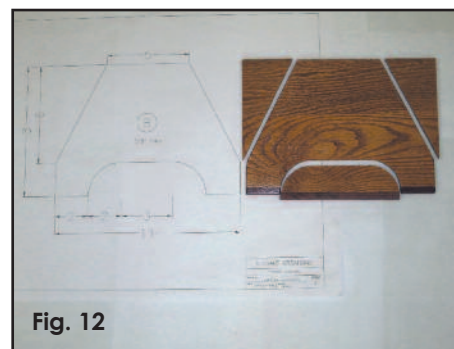


Fig. 12
Lay out and cut part "B."



Fig. 13
Bend the hinge to a 30° angle so it fits part "B."



Fig. 14
Mount the hinge in the center of "C."



Fig. 15
Mount the remaining hinges.

for the right side of "E" (see **Fig. 7**). Once these three rails have been cut and located, drill and countersink the stiles and screw them in place (see **Fig. 8**). Do not use glue; the rails may have to be altered or replaced should a different tool be substituted. Cut off the screws or use shorter ones if the tool notches are too close to the stiles.

Cut two pieces 6" x 18" ("K") and one piece 12" x 18" ("H") from 1/8" masonite. After drilling and countersinking the screw holes, glue and screw to the backs of the three frames with 1/2" x No. 8 flathead wood screws. I used six screws in each wing and nine screws in the center panel.

Cut another piece of 1/8" masonite, 3" x 12", lay it out, and cut it on a bandsaw to fashion part "D" (see **Diagram E**). Drill and countersink for the screws, and attach "D" to

the top rail with glue and four 1/2" x No. 8 flathead wood screws (see **Fig. 9**). Paint the entire assembly inside and out; I used Krylon's Smoke Gray, but use whatever color you wish.

And finally, some turning. Set the lathe to about 2000 RPM, and with a 1" spindle gouge, turn a 12" piece of 1-1/4" square oak ("P") to 1" diameter (see **Fig. 10**). Burn five rings about 3/4" apart with No. 12 copper wire. Then round the ends, sand, and part off to make the 10" long handle (see **Fig. 11**). Cut two 2"-wide flat surfaces 1/8" deep on handle "P" to accept the yoke ("A") (see **Diagram A**). (I did this with a series of table saw cuts, but it could also be done on a router table or even by hand with a chisel and mallet.) Drill a screw hole in the center of each flat, and

Diagram C

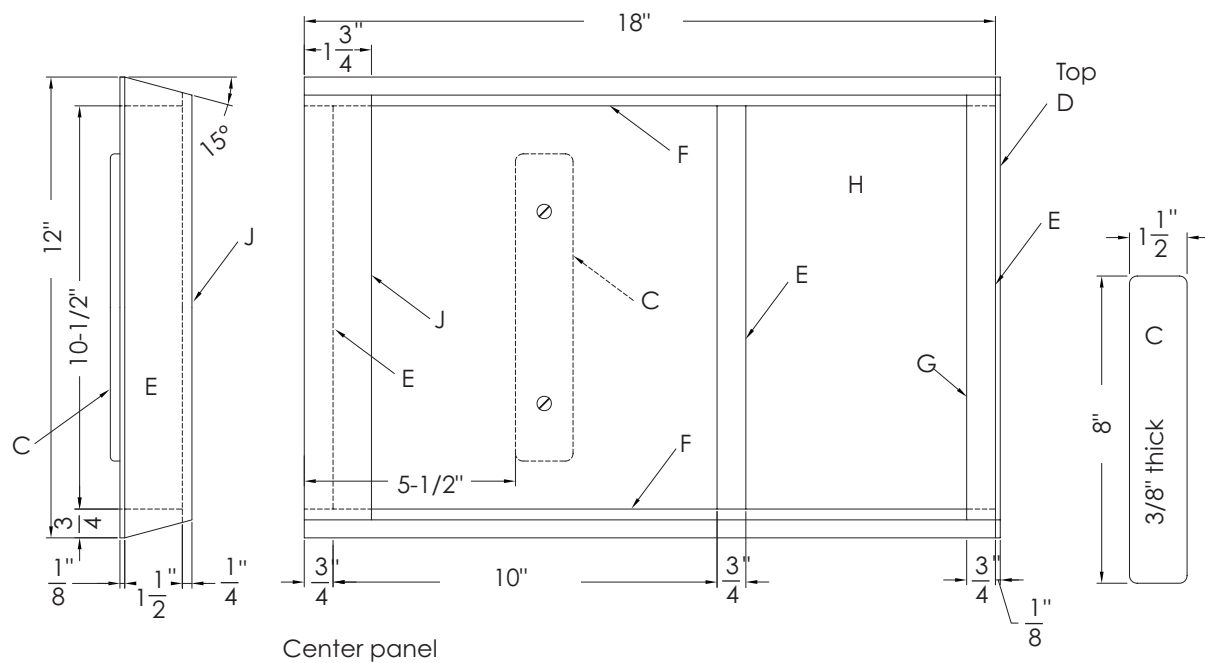


Diagram D

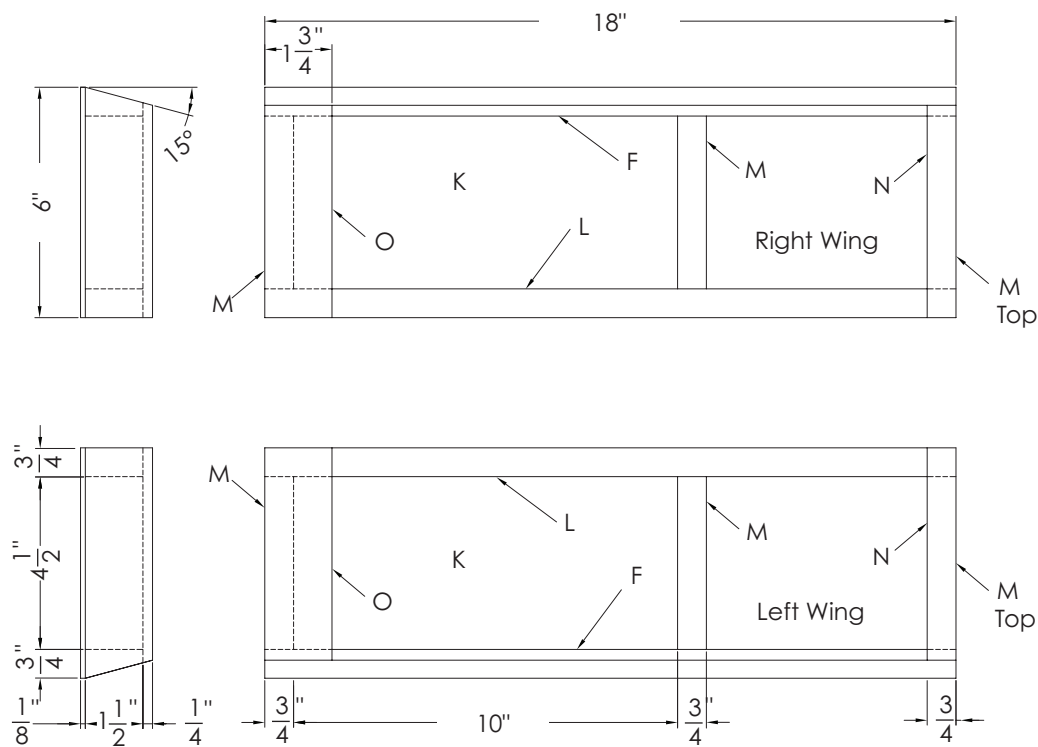




Fig. 16

Add the trim strips.



Fig. 17

Clamp the two parts together and attach the hinges about 2-1/4" from each end.

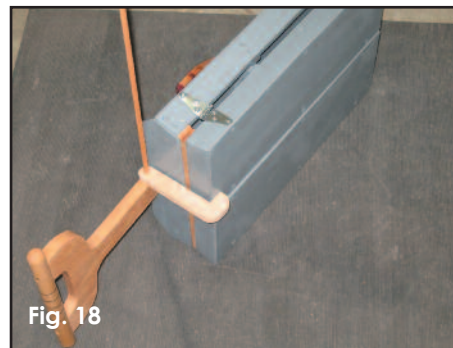


Fig. 18

The location of the dowel hole is determined by trial and error.



Fig. 19

Leave the case closed while the glue cures.



Fig. 20

A small piece of rubber serves as a pad to prevent marring and ensures a tight fit.

Be sure the case works in the traveling position.



Fig. 21



Fig. 22

The case should also operate smoothly in the tilt position.



Fig. 23

Mount the holding tabs that secure the tools in each wing.



Fig. 24

A notch must be cut in "E" for the holding bar so the wing will close properly.

countersink it on the round or top side.

Next, lay out the yoke from a piece of 3/4" x 8" x 14" oak, but do not drill a hole for the dowel ("Q") (see **Diagram A**). The dowel placement is critical and should be determined by test fitting. This will be detailed later. Cut out the yoke on the bandsaw, round over the edges, and sand smooth. Glue the yoke and handle together, and secure with 2" x No. 6 drywall screws.

Lay out part "B" from a piece of 3/8" x 8" x 11" oak (see **Diagram E**). Cut it out on the bandsaw, round over the edges, and sand smooth (see **Fig. 12**).

On the table saw, cut a piece of 3/8" x 1-1/2" x 8" and mark it part "C" (see **Diagram C**).

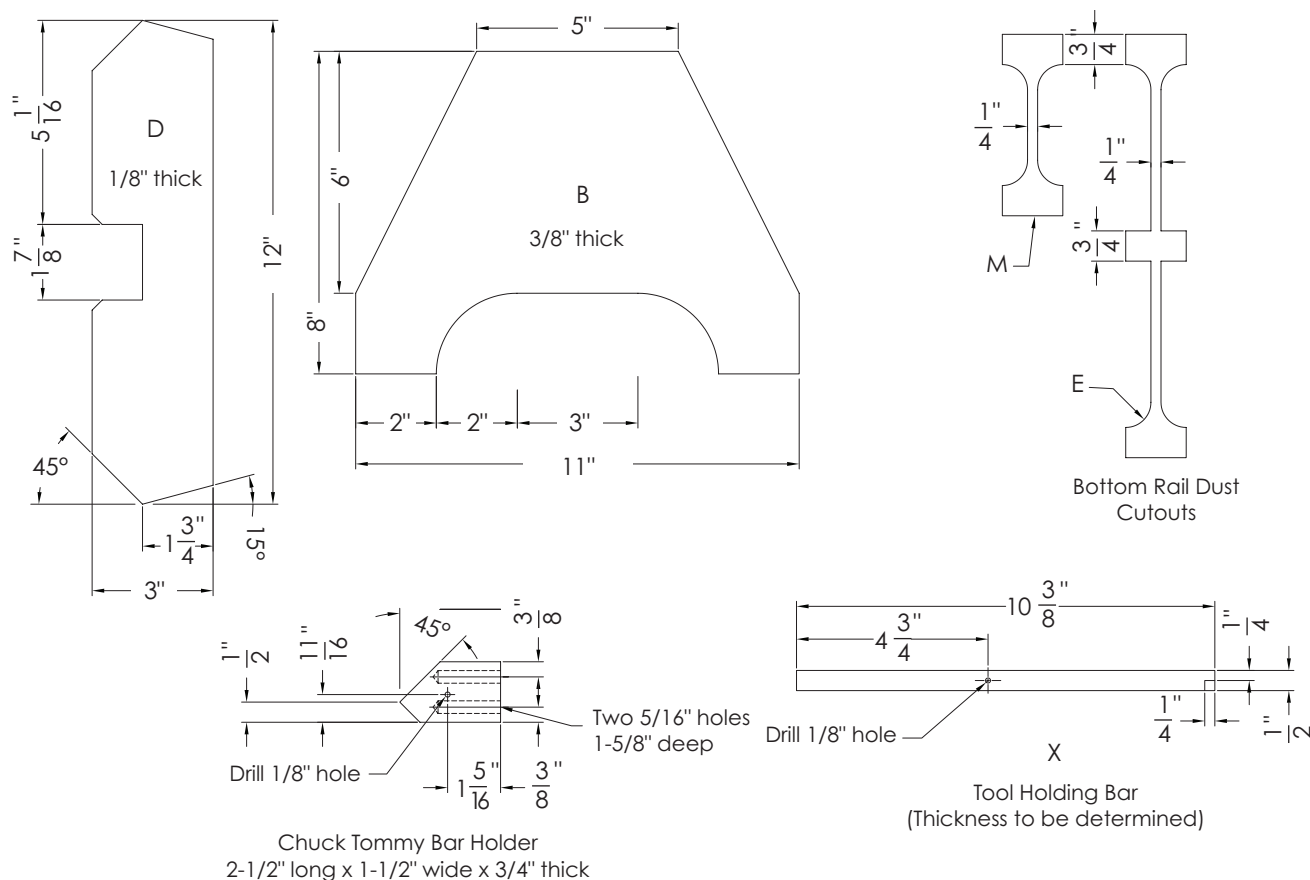
On the table saw, cut two pieces of oak 1/4" x 1-3/4"

wide x about 6" long and mark them parts "O." Next, cut one piece of oak 1/4" x 1-3/4" wide x about 12" long and mark it part "J." Cut two more pieces of 1/4" oak 1" wide x about 6" long and mark those parts "N." Cut one piece of 1/4" oak 1" wide x about 12" long and mark it part "G." Hold these six pieces in position on the painted tool case, mark and trim off each piece at a 15° angle (see **Diagrams C and D**). Round over the exposed edges, and sand smooth.

Cut two pieces of 1/2" oak 2" wide x about 6" long and mark those parts "K" (see **Diagram A**). Lay out, cut on the bandsaw, round over the edges, sand, and drill a 5/16" hole in each piece.

Check each oak part, final sand, and spray with at

Diagram E



least two coats of high-gloss lacquer.

Bend one leaf of a T-hinge about 30° by placing the leaf to be bent in a vise, leaving about 1/4" of the leaf above the jaws. Place a block of wood against the hinge barrel and give it a blow or two with a hammer (see **Fig. 13**). Attach the hinge to "B" with three 1/2" x No. 10 oval head screws.

Locate part "C" on the back of the center panel (see **Diagrams B and C**). Drill two 1/8" holes in the masonite and countersink inside. Glue and screw "C" to the back of "H" with two 1/2" x No. 8 flathead wood screws. Then mount the T-hinge in the center of "C" with three 1/2" x No. 10 oval head screws (see **Fig. 14**). Next, mount both hinges with 1/2" x No. 10 oval head screws (see **Fig. 15** and **Diagram A**).

The trim strips ("J" and "G") (see **Diagram C**) and strips "N" and "O" (see **Diagram D**) can now be installed with glue and 3/4" brads (see **Fig. 16**).

Clamp each wing to the center panel, position 4" strap hinges about 2-1/4" from each end, and screw in place with 1/2" x No. 6 flathead screws (see **Fig. 17**). If screw points stick through, grind or file them off and touch up.

Close the case, put the yoke ("A") tight to the case, and hold one part "K" in position. Mark the hole location and drill for a loose fit on the 5/16" dowel "Q" (see **Fig. 18**

and **Diagram A**). Carefully glue both parts "K" to dowel "Q" and trim off any excess dowel. Be sure to leave the case in a closed position for the glue to dry (see **Fig. 19**). When the glue is dry, epoxy two 1/2" x 1" rubber pads, made from an inner tube, to the clamping surfaces of "K" (see **Fig. 20**). Be sure to check to see if the operation works in both the traveling position (see **Fig. 21**) and in the tilt position (see **Fig. 22**).

The next steps could vary for your tool holder depending on which tools you select. Open the wings and insert the center panel tools. Close the right wing and measure the distance between the notched tool rail ("E") and stile "F." Use this dimension to make the oak tool holding bar ("X") (see **Diagram E**). Fabricate this oak bar, countersink the 1/8" hole on one side, and on the same side with a sharp chisel, cut the 1/4" x 1/4" x 1/4" deep notch in the end. Sand smooth, finish, and mount the bar centered on the stile and rail with a 1-1/2" drywall screw (see **Fig. 23**). Turn the holding bar ("X") to a horizontal position and close this wing until it touches rail "E." Now mark "E" and cut a complementary notch with a chisel into "E" to receive the holding bar and touch up (see **Fig. 24**).

Holding tabs for the tools in each wing are made from 1/8"-thick oak about 1/2" wide, and should be cut to the length required. Drill and countersink the center of each

for a 1/2" x No. 6 flathead screw. Round the ends, sand smooth, finish, and screw each one in position (see Fig. 23).

Space has been left on the left wing for other small items like chuck keys, Allen wrenches, etc. I like to use a lightweight scroll chuck when traveling around. **Diagram E** has a detail of a flip-out tommy bar holder, which is working well. To hold Allen wrenches or other small implements, 1/8" or 1/4" PVC tubing can be used.

The tool case provides portability and organization, and allows you to easily transport your chisels with confidence. The time and effort it takes to make this tool case will quickly be recovered by having your tools exactly where you want them when you need them. With the ability to simply close the case quickly and having each tool held securely in its own slot, nothing is left behind. Each turner should customize this design to fit his or her own personal needs.



James Duxbury

James Duxbury, woodturner and inventor, is the kind of guy who thinks and creates "outside the box." His turnings are unique and he seldom turns the same thing twice. With the help of his pet parrotlet, Bean, creativity abounds—all sorts of fine turnings are made from small bottle stoppers to bowls, and

even a working Foucault Pendulum.

Jim's kaleidoscopes are a signature item, custom designed, and have been the recipient of numerous blue ribbons. Although Jim quit working in 1996 and has claimed to be retired, he has since obtained two U.S. patents and has a third one in progress.

The inventor of particulate dust respirators, his company, Duxterity LLC, markets the Resp-O-Rator™ and Resp-O-Rator Jr™, while Elegant Creations markets his gallery of fine wooden objects, including Kaleidoscope Plans, Kaleidoscope Building DVD, and custom wooden Kaleidoscopes. Details can be seen at www.duxterity.com.

Jim welcomes your questions and comments, and can be reached by e-mail at cyberdux@bellsouth.net.



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