

Craft a Cryptex

John I. Giem

When I read Dan Brown's novel *The Da Vinci Code*, I was intrigued by his description of a *cryptex*, described as a cylindrical enclosure containing a secret message. It consisted of five stone cylinders marked with letters of the alphabet and a brass framework to hold everything together. In order to access the contents, one must align the letters to spell out a secret word. This would be similar to opening a combination lock by turning the rings to line up the correct number sequence.

My interest in building my own cryptex was revived when I read the article "Wooden Puzzle Vault" by Donald Horgan in the Summer 2007 issue of *ScrollSaw* magazine. The article showed the basic principles required to implement the combination lock needed to make a cryptex. In Horgan's article, he shaped the parts using a scroll saw, router, chop saw, and drillpress. Being a woodturner, I recognized that the cylindrical parts could be easily turned on a lathe. (See *Secret Box*, by Pierre Delétraz, vol 24, no 1, back cover.)

The first cryptex I created was a slightly modified version of Horgan's design and it helped me understand the operation of the locking rings, as well as the overall assembly and operation. I further refined the design to move the structural

support inside, thus hiding it. I simplified the shaping of the rings and merged several parts into one.

Whether you call it a treasure box, a puzzle box, or a cryptex, it makes a unique gift box, a container for gifts, or a secret compartment for keeping small treasures. A cryptex can be customized by creating a shape based on a particular interest or personality, with a code word unique to that shape or personality. The treasure within can be a gift certificate or a surprise befitting the recipient and the occasion. This distinctive gift box will be treasured every bit as much as the contents.

The various parts

The easiest way to visualize the cryptex design is to think of it as three



concentric cylinders. From outer to inner: the code rings, the backbone tube, and the box tube. The top is a cap. The box tube includes the base as part of its construction. When assembled, the backbone tube is glued to the top, while the code rings are left free to rotate. There are locking pins inserted in the box tube, which pass through a slot in the backbone tube and interlock with the code rings (*Figure A*).

My cryptex is configured to stand on one end, thus the ends are named *top* and *base*. In your design, you are free to change this configuration. ▶

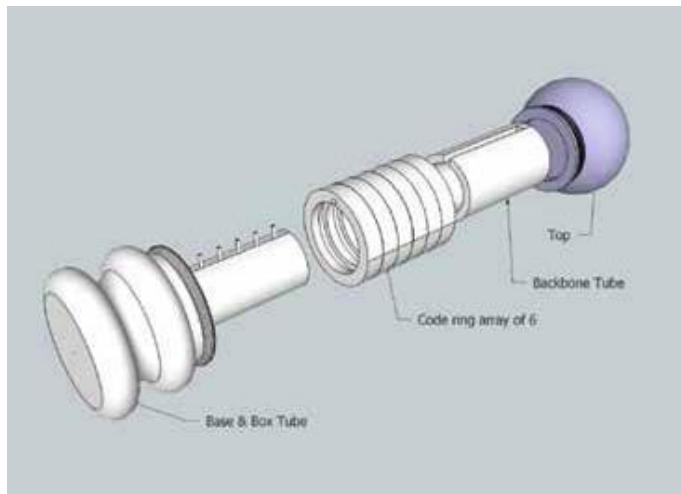


Figure A Exploded view of cryptex parts

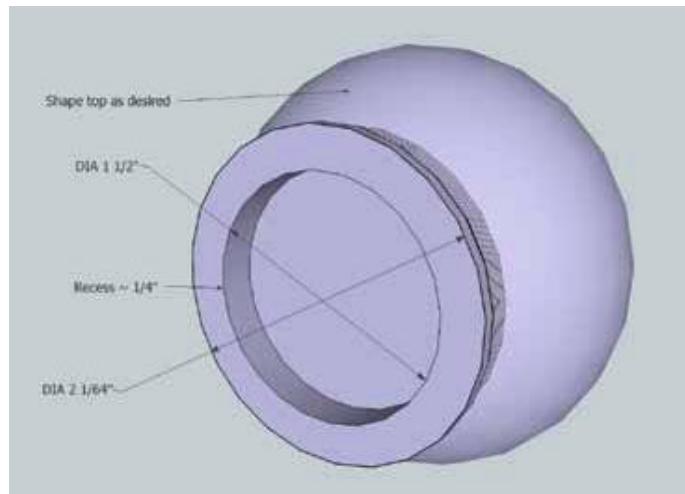


Figure B Top

Design and construction considerations

When designing an object such as a cryptex, which has a lot of mating parts, the fabrication is simplified by taking into consideration the equipment you have on hand. For example, by selecting hole sizes that match the drill bits you have, you will reduce or eliminate the need for purchasing new tools and will improve the accuracy and speed of fabrication.

The wood you use for the backbone and tube box should be square. The square ends on both sections allow you to align the sections for drilling the locking pin holes. You will need four squared-up turning blanks: $2\frac{1}{2}'' \times 2\frac{1}{2}'' \times 3''$ (65mm \times 65mm \times 76mm) for the top; $2\frac{1}{2}'' \times 2\frac{1}{2}'' \times 4''$ (65mm \times 65mm \times 102mm) for the backbone; $2\frac{1}{2}'' \times 2\frac{1}{2}'' \times 5''$ (65mm \times 65mm \times 127mm) for the code rings; and $2\frac{1}{2}'' \times 2\frac{1}{2}'' \times 5''$ (65mm \times 65mm \times 127mm) for the box tube with base.

Top

Except for one surface where it interfaces with the code rings, the top can take on any shape desired (Figure

B). That particular interface surface must be flat and have a minimum diameter of 2" (50mm). Additionally, the top will have a flat-bottomed recess cut into its underside where the backbone will be glued.

Backbone

As the name implies, the backbone (Figure C) is the structural element around which the cryptex is built. The box tube is captured within it when the cryptex is closed and locked. A slot cut down the length of one side of the backbone allows passage of the locking pins, which are embedded in the box tube. The code rings are mounted onto and rotate around the backbone. The top is glued to one end of the backbone and one of the code rings is glued to the other end, with the five other code rings left to rotate freely in between.

Code rings

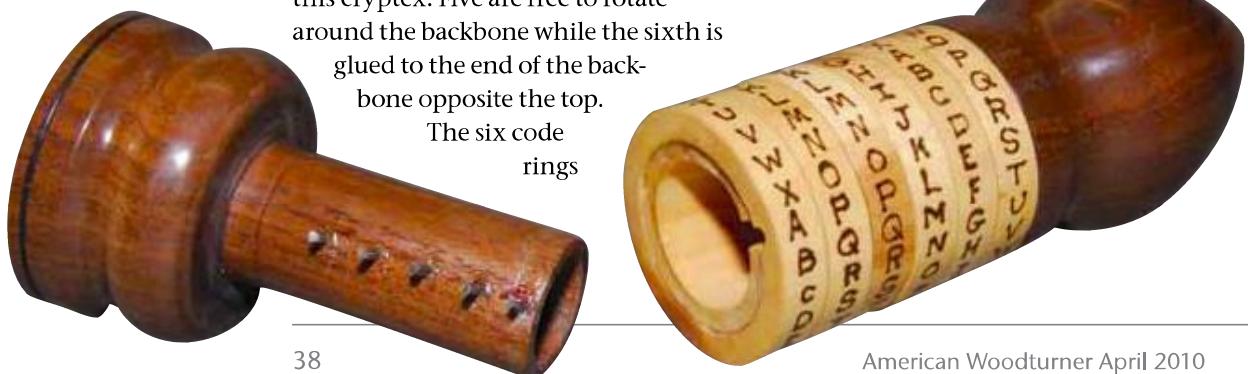
There are six code rings designed into this cryptex. Five are free to rotate around the backbone while the sixth is glued to the end of the backbone opposite the top.

The six code rings

are identical in size and markings with the exception of the notch cut for the passage of the locking pins. The location of each notch corresponds with its letter in the code word (Figure D). Each ring has a rabbet cut into the interior surface that allows it to be rotated around the locking pins when the cryptex is closed.

Box tube with base

A box tube and its base are turned from one piece of wood, left connected (Figure E). Square sides on the base end (to be shaped later) help provide alignment when drilling holes for the locking pins. The box tube will contain your secret message or treasure. The surface where the box tube and the base join together must be flat in order for the backbone to meet it at 90° when the cryptex is assembled.



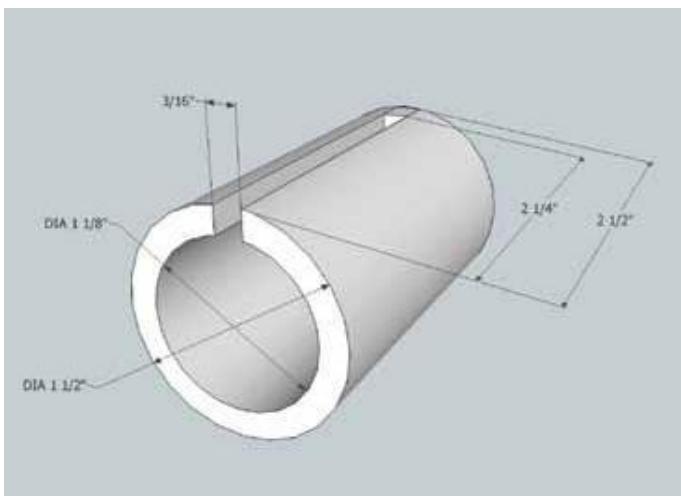


Figure C Backbone

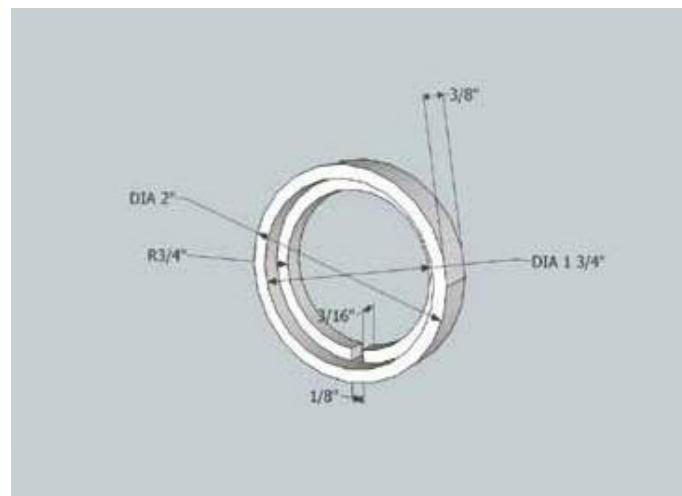


Figure D Code Rings

Code word

To begin, select a five- or six-letter code word. Although there are six rings, your code word can contain either five or six letters or symbols. When using six letters, the first letter is on the fixed ring and the other five align to it. When using five letters, leave the fixed ring blank, except for an index mark for aligning the remaining letters.

On a piece of paper, print the six letters of the code word on a line. If using a five-letter code word, use a hyphen (or other figure) for the first letter, thus making it six letters long. On the line under the code word, place the numbers one through six, aligning them with the letters above them. The numbers represent the number of the code ring; the corresponding letter is assigned to that ring. For this design, when the cryptex is held horizontally with the base to the left, the left-most ring is number one and its letter or symbol is the index. Each ring to the right is placed in numerical sequence ending with the sixth ring. During final assembly, ring one will be glued to the backbone tube, making it the index for aligning the other rings. Rings two through six will be free to rotate.

Fabricate the parts

Code rings

1. Mount your code ring blank on the lathe between centers and turn a tenon on the tailstock end for mounting into a chuck. Do not rough turn the rest of the blank at this time.
2. Reverse the blank and mount it into your chuck, being careful to align the right end with the live center in the tailstock. Turn on the lathe and verify proper centering and balance.
3. Move the tailstock out of the way and face off the right end of the blank. Using the sharp point of a skew chisel, make a small cone-shaped indentation at the center of the end of the blank. This hole will help in the drilling process.
4. Insert a Jacobs chuck into the tailstock. Secure a 1½" (40mm) Forstner bit in the chuck. This will be used to bore out the center of the stock (*Photo 1*).

5. Running the lathe slowly to avoid burning the wood, drill out the center of the code ring blank as deep as your bit will reach, not to exceed 4" (100mm). Be sure to clean out the chips frequently to avoid trapping your bit in the hole.
6. Remove the chuck and bit and replace them with a live center equipped with a large cone center (*Photo 2*). The cone center provides two functions: the first is to minimize flexing and vibration and the other is to help compensate for any off-set errors created in the drilling process.
7. Using the cone center for support, turn the blank down to a cylinder, ►

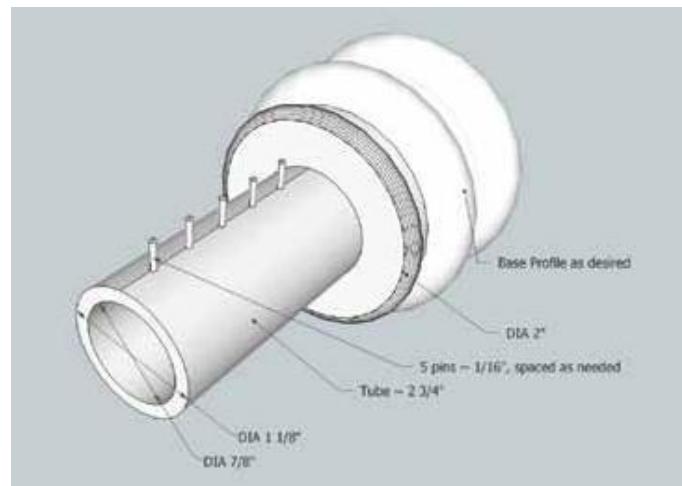


Figure E Box Tube with Base

**1**

With the blank for the code rings mounted into a chuck and a Forstner bit mounted in a Jacobs chuck, drill out the inside of the wood to form the code rings.

**2**

Use a cone center to help minimize flexing and vibration and to help compensate for any offset errors created in the drilling process.

**3**

The wood is drilled, turned, and sanded and is ready for laying out the segments.

2" (50mm) in diameter. You should be able to make your cylinder at least 4" (100mm) long. Sand it to its final finish (*Photo 3*). Note: Using a sanding block with your sandpaper helps to make the surface of your cylinder uniform.

8. Divide the cylinder into segments.

Method A. If your lathe has an indexing feature, that is most helpful. A typical lathe provides indexing every 15°, yielding twenty-four segments (a – x of the alphabet). Set your toolrest close to the cylinder near center height.

Applying the markings

Applying the letters or symbols onto the code rings sounds simple but this procedure can make or break your project. These markings on the code rings are highly visible and make a strong first impression.

The markings must be neat and easily read (shape and contrast), evenly spaced around the circumference, and durable—the cryptex will be handled a lot.

The processes for applying the markings can be separated into two categories: manually formed and machine formed. My personal preference is to hand letter the code rings with a pencil and then use a pyrography pen to make them more visible and permanent. Another option would be to first mark the letters or code, and then use an engraver or rotary cutter for highlighting. Use your imagination to create your own individual look.

Lock your spindle using the index. Using a soft pencil, draw a line the length of the cylinder (*Photo 4*). Rotate the spindle to the next index position and repeat until all segment lines have been drawn. *Method B.* If your lathe does not have an index function or if you want different increments than are available from your lathe's index, use the following steps. Cut a $\frac{1}{2}$ " (13mm) wide strip of paper long enough to wrap around the cylinder. Wrap it around the cylinder and cut the ends so that they just meet. Place a pencil mark at that point on the cylinder. Fold your strip of paper in half and make a pencil mark on the paper at that point. Fold each half in half and mark each fold. Wrap the paper around the cylinder aligning the ends with the previous mark. Now mark the cylinder at the fold marks in the paper. This divides the cylinder's circumference into four equal segments. Using one of the segments of the strip that is $\frac{1}{4}$ of the circumference, proceed to fold and mark it as before to get smaller segments. Be sure to use the same strip of paper to mark all segments to minimize layout error. After the segments are defined around the circumference of the cylinder, use the

toolrest to extend these marks the length of the cylinder (*Photo 5*).

9. After verifying that the right end of the cylinder is smooth and free of torn grain, use a pair of dividers to make a mark every $\frac{1}{2}$ " (12mm) starting from the tailstock end (*Photo 6*). You should be able to mark off six or more rings. The extra rings are in case something goes wrong.
10. Using a soft pencil, lightly number the rings from left to right starting with the number one.
11. Remount the Jacobs chuck in the tailstock and equip it with a $1\frac{3}{4}$ " (45mm) Forstner bit.
12. Drill $\frac{1}{8}$ " (3mm) into the end of the cylinder using the $1\frac{3}{4}$ " (45mm) Forstner bit. This forms a rabbet, which allows the ring to rotate over a locking pin (*Photo 7*).
13. Clean up and sand the end of the cylinder.
14. Using a thin, $\frac{1}{8}$ " (3mm) thick parting tool, part off the ring at the previously marked point (*Photo 8*). You should end up with a ring that is about $\frac{3}{8}$ " (10mm) wide.
15. Repeat Steps 12, 13, and 14 until you have all of your rings, plus extras, cut (*Photo 9*).
16. Using fine sandpaper, clean up your rings.
17. Relabel each ring by placing its number inside where it will not be obliterated by later processing. (Note: The labeling of the code

- rings will be done now, although it can be delayed until later.)
18. If there are not enough segments around the rings for all twenty-six letters of the alphabet (in the current example there are twenty-four segments), check to be sure that all the letters in your chosen code word will be included on the marked rings. Make adjustments as needed.
 19. Mark the segments on your code rings with the letters (or symbols) from your table (see sidebar for possible methods of marking code rings). When applying the letter, face the rabbet toward your right. This will help avoid putting the letters on upside down.
 20. Line up your code rings in numerical order from 1 to 6 with ring 1 on the left. Have the rabbets facing to the right (refer to Step 17). Line up the rings in the order they were originally

turned; this will avoid size differences created during turning and will keep the wood grain aligned. For each ring, place a pencil mark inside the rabbet and directly under the letter that corresponds to its letter in the code word. The notches may be cut now or delayed until later.

21. Erase all pencil marks on the outside of the rings and set the rings aside until later.

Backbone tube

1. Mount the backbone tube blank between centers and turn a tenon on the end. Leave the rest of the blank square.
2. Reverse the blank and mount it into your chuck using the tenon.
3. Face off the right end to prepare it for drilling out the center.
4. Using a $1\frac{1}{8}$ " (30mm) Forstner bit, drill out the center to a depth of $3\frac{1}{2}$ " (90mm). ▶

**4**

With the lathe's index pin engaged, draw the lines for the segments. Use a soft-lead pencil and run it along the toolrest.

**5**

The wood is ready to mark for the code rings.

**6**

Starting from the tailstock end and using dividers, make a mark every $\frac{1}{2}$ ". You should be able to mark off six or more rings.

**7**

With a $1\frac{3}{4}$ " (45mm) Forstner bit mounted in a Jacobs chuck, drill $\frac{1}{8}$ " (3mm) deep into the end of the tube to form a rabbet.

**8**

Using a thin parting tool, part off the first ring at the previously marked point. You should end up with a ring that is about $\frac{3}{8}$ " (10mm) wide.

**9**

This complete set of code rings with notches is not yet labeled. (Notching will be done later.)



10

Using one of the code rings as a gauge, slip it over the end of the backbone tube and make sure it moves freely along the entire length. Adjust as necessary. (Note that the ring in this photo is unlabeled and the notch has already been cut.)



11

Using the backbone tube as a gauge, slip it over the end of the box tube to make sure it moves freely along the entire length. Adjust if necessary.

5. Mount your cone center in the tailstock and stabilize the end of the blank.
6. Turn the outside of the cylinder to $1\frac{1}{2}$ " (40mm) diameter by 3" (75mm) long. Be sure to leave the blank square next to the tenon.
7. Using one of the code rings as a gauge, slip it over the end of the backbone tube (*Photo 10*) and verify that it moves freely along the entire length. Adjust the backbone as necessary.

8. Finish sanding the surface of the backbone tube.
9. Using the toolrest as a guide, draw a pencil line the full length of the backbone tube through the center of one of the flat surfaces. This line will be used for positioning the holes for the locking pins. This line will pass through the center of one of the flat surfaces of the square end so that when the backbone tube is placed on the drillpress table, the holes for the locking pins

can be aligned properly. (The line will be 90° to the drill bit.)

10. Set the backbone tube aside until later.

Box tube with base

1. Mount the box tube/base blank between centers and turn a tenon on the end. Leave the rest of the blank square.
2. Reverse the blank and mount it into your chuck using the tenon.
3. Face off the tailstock end and prepare it for drilling it out.
4. Using a $\frac{3}{8}$ " Forstner bit, drill out the center to a depth of $2\frac{3}{4}$ " (70mm).
5. Mount your cone center in the tailstock to stabilize the end of the blank.
6. Turn the outside of the cylinder to $1\frac{1}{8}$ " (30mm) diameter by $2\frac{3}{4}$ " (70mm) long; however, for now leave the base next to the tenon square. The most critical surface of the box tube/base is the surface between the tube and the base. That surface should be flat and square to the tube.



12

Move the rings to make room to insert a pencil between them. Mark a line on the backbone tube that corresponds with the edge of each of the rings. The marks should fall across the line drawn the length of the tube.



13

Use a center punch to mark the location of the locking pins.



14

The backbone is marked with the positions where each hole will be drilled for the locking pins. Note that a pin is not provided for ring 1 since ring 1 will be glued in place and cannot rotate.



15

Drill holes through the walls of the backbone and box tube. Make sure this assembly remains lined up properly.



16

The backbone tube has a slot cut out of it, along where the holes had been drilled.



17

The completed backbone tube is ready for fitting into the recess in the top.

7. Using the backbone tube as a gauge, slip it over the end of the box tube to make sure it moves freely along the entire length. Adjust the box tube as necessary (*Photo 11*).
8. Finish sanding the surface of the box tube.

Fit the locking pins

At this point, you should have six code rings, one backbone tube with a $2\frac{1}{2}$ " (64mm) square end, and a box tube also with a $2\frac{1}{2}$ " (64mm) square end. These square ends will help you align and drill the holes for the locking pins without the need for elaborate external fixturing. The challenge is to accurately mark and drill the locking pin holes. Keeping them in a straight line is very important, so the line drawn in Step 9 (for the backbone tube) is essential to a successful outcome. Along this straight line, you will place a vertical mark to create a "+" for each of the six locking pin holes.

1. Place your six code rings onto the backbone tube in numerical order. The index ring (ring 1) should be at the end away from the square end. The rabbets cut into the rings should be toward the square end. These rabbets form hollows that allow the rings to rotate without hitting the locking pins (which will be added later).
2. With the first ring flush against the end, move the other rings to make room to insert a pencil next to the first ring (*Photo 12*). Mark a line on the backbone tube that corresponds with the edge of that ring; do the same for each of the other rings. The marks should fall across the line drawn the length of the tube. Be sure that the first ring is flush with the end of the backbone when marking and that each subsequent ring is also pushed tight to its neighbor. When finished, you will have six sets of "+" marks. These marks will be used to locate the locking pins.

3. The vertical line of each "+" mark indicates the edge of each of the rings; however, the hole for the locking pins must be located $\frac{1}{16}$ " (2mm) from the "+" mark, offset toward the square end (top). Use a center punch (*Photo 13*) to mark the locations of the locking pins. *Photo 14* shows the backbone marked with the positions where each hole will be drilled for the locking pins.

4. With the code rings removed, insert the box tube into the backbone tube. The square elements on the ends of each section hold the backbone tube and box tube aligned and stable when placing the assembly on the flat surface of the drillpress table (*Photo 15*).

5. Select a drill bit that will provide a friction fit when the locking pin (nail) is inserted into a hole created by the drill. (Locking pins can be made from 4d nails. A $\frac{1}{16}$ " drill bit was used in this example for the 4d pins.) Test the fit in a piece of scrap wood. Note: When you use a twist drill to make a hole in wood, the hole becomes a little undersized because the wood fibers spring back into the hole, so take that into consideration.

6. Clamp a straight piece of wood onto your drillpress table to use as an alignment guide against which you can place the square sections of your turnings. At each marked location on the backbone tube, drill the hole through both the backbone tube and the box tube. Stop when the drill bit advances into the center of the box tube. Keep the tubes and holes aligned as straight as possible. Any misalignment will show up later in the ease or difficulty of opening the cryptex.

7. Set the box tube aside. Place all six of the code rings back onto the backbone tube with the first ring flush with the end (*away* from



18

Remount the box tube/base into the chuck and face off the tailstock end. Drill a $\frac{1}{4}$ " (6mm) deep hole. Select a Forstner bit that is one size smaller than the nominal diameter of the backbone tube. If needed, enlarge the diameter of the hole using a turning tool.



19

Test fit the backbone in the recess. The goal is to achieve a light friction fit to prevent squeezing out all of the glue.



20

Reverse the top and remount it into the chuck and shape the rest of its profile.

the square section this time). To determine the final length of the backbone tube, mark a line about $\frac{3}{8}$ " (10mm) longer than the total length of the stacked code rings.

8. Referring to *Figure C* and using the drilled holes as a guide, lay out the lines for cutting a slot on the backbone tube. Center the slot on the row of holes. With the backbone tube clamped in a vise (use the square end), carefully cut into the wood using a small handsaw or a rotary carving tool (*Photo 16*). (You will be cutting away the row of holes you just drilled.)
9. Remount the backbone tube onto the lathe and cut it off at the length you marked in Step 7. Be sure to make your cut square; any off-square cuts will cause problems later when gluing into the top. Set aside until later (*Photo 17*). ▶



21

Test fit the backbone tube into the top. (All the parts in this photo are ready for assembly.)



22

Verify that the backbone tube is long enough to come out even with the stacked rings. Use one of the wedges to expand the backbone to make sure that the ring 1 can be successfully glued onto the backbone tube.



23

Remount the box tube/base onto the chuck and turn the base to its final shape.

Shape the top

1. Mount the blank for the top between centers and turn a tenon on the tailstock end.
2. Reverse the blank and remount it into a chuck using the tenon.
3. Use the tailstock for support and finish roughing the top down to round. Move the tailstock out of the way.
4. Face off the right end, making it flat and smooth. This surface should be at least 2" (50mm) in diameter.
5. Drill a $\frac{1}{4}$ " (6mm) deep hole using a Forstner bit. This hole will receive the backbone tube (Photo 18). The nominal diameter of the backbone tube is $1\frac{1}{2}$ " (38mm). It is possible

that your backbone ended up slightly undersized. If that is the case, select a Forstner bit that is the next size smaller than $1\frac{1}{2}$ " (38mm).

6. Using a turning tool, enlarge the hole until a light friction fit is obtained for the top end of the backbone tube (Photo 19). Test the fit of the backbone tube into the socket.
7. Reverse the top and remount it into the chuck using expanding jaws to grip the inside of the recess. Finish profiling the top (Photo 20).

Glue the top and backbone together

Using some scrap wood, cut a couple of small wedges that will fit within the slot of the backbone tube. Be sure that the wedges are not too long and will not bottom out when inserted into the slot. These wedges will be used to help wedge the first ring in place during the gluing process.

Test fit the parts by placing the top end of the backbone tube into the recess in the top (Photo 21), then place all six of the code rings, in sequence, on the backbone tube (Photo 22). Verify that backbone tube is long enough to come out even with the end of the stack of code rings. It is okay if it is a little long at this point. Use one of the wedges to expand the backbone tube to verify that the first ring can be successfully glued to the backbone tube. The other five code rings should rotate freely.

Remove the top and apply glue sparingly to the recess. Insert the backbone tube. Verify that the backbone tube is fully seated, square to the top, and that the joint is tight. Set aside and let the glue cure.

Finish turning the base

Retrieve the box tube/base, mount it onto the lathe and turn the base to its final shape. Sand (Photo 23).

Locking pins

The locking pins are made from 4d nails (read as 4 penny). For each of the

five locking pins, remove the point from the nail using diagonal cutters. It may be necessary to remove burrs from the cut end of the nail. A file or a sharpening stone will work for this task.

Insert the remainder of the nail into the first hole drilled into the box tube, which is the hole that is closest to the base. The end of the nail should be flush with the inside surface of the wall of the box tube. Obtaining a flush fit of the nail can be accomplished by using the $\frac{7}{8}$ " (22mm) Forstner bit as a back-stop. Insert the Forstner bit into the box tube and position it so that the side of the bit is under the first nail hole. (The Forstner bit also helps reduce splitting.) After inserting the pin, apply thin CA glue to each pin where it enters into the wood (Photo 24). After the glue has set, cut off each nail leaving it approximately $\frac{5}{16}$ " (8mm) long.

Test fit the box tube by sliding it into the backbone tube. If there is any misalignment of the pins, the slot in the backbone may need to be widened to allow the box tube to be freely inserted (Photo 25).

Cut notches in the code rings

Retrieve the code rings. Make sure that each ring is properly marked as to

Finishing tips

With all of those moving parts, you need to be careful when applying the finish to avoid causing problems.

Consider finishing all parts before the final assembly and glue-up. Stray finish can cause the parts to stick together. Also, do not get finish on any area to be used as a glue joint.

Waxing the surfaces of the backbone tube, the box tube and the sides and insides of the code rings before assembly will help with smooth operation; however, do not wax any area that will become a glue joint.

If you prefer to apply the finish after final assembly, consider using an oil finish like Tung oil or Danish oil.

its position 1 through 6 and that the notch position is properly marked in the rabbets.

Cut the notches on the inside of each code ring. The depth of the notch is such that the bottom of the notch is flush with the surface of the rabbet. The width of the notch controls how sensitive the cryptex is to precise alignment of the rings. Wider notches compensate for misalignment of the locking pins and reduce sensitivity to the alignment of the code rings. Placing small incomplete notches around the ring to simulate normal notches will help fool a “safe cracker.”

Final adjustment of locking pins

Place one of the notched rings on the backbone and use it as a gauge for any final adjustment needed for the length of the locking pins. Slide the box tube into the backbone tube, and if needed shorten the length of each pin so that the ring will easily slide over it (*Photo 26*). To adjust the length of the pin, hold the pin with a pair of long-nose pliers next to the tube and remove metal from the end using a file or hand grinder. Holding the pin with pliers will minimize the stress on the glue joint while filing.

Test fit the parts

Place all six rings onto the backbone and test the fit of the rings and pins. The rabbets on the rings should be toward the top of the cryptex. If the backbone tube extends more than $\frac{1}{16}$ " (2mm) beyond the stacked rings, shorten it. The rings should turn freely around the backbone and not bind on the pins. Binding problems and possible adjustments follow:

- Box tube binds sliding in and out of backbone: widen slot in backbone
- Pins bind on rings: shorten pins and/or widen the notches
- Rings bind on pins when rotated: use a file and remove a small



24

The first pin is fitted into the box tube. The code ring on the adjacent backbone tube is used to gauge how long to cut the pin.



25

Trial fit the box tube, backbone tube, and code ring to verify the correct lengths of the locking pins. Check for binding of the pins within the slot.



26

Stack multiple code rings on the box tube and backbone tube to verify that the parts will work together when assembled. For clarity, the top is not shown.



27

Use one of the wedges to expand the backbone so that the ring 1 will be successfully glued onto the backbone tube.

length of the pin where it is rubbing on the ring

Glue ring 1 to backbone

Place the six rings onto the backbone and make sure they are in their correct positions. Remove ring 1, the index ring. Place a small amount of glue on the inside of ring 1 where it will contact the backbone and place the ring back on the backbone. Align the notch in ring 1 with the slot in the backbone. (The remaining five rings are *not* glued and are free to rotate.) Do not jam the rings tightly together; they need room to rotate. Insert a small wedge into the slot in the end of the backbone tube. Press it in tightly enough to force the backbone tube out against ring 1, in effect clamping the glue joint (*Photo 27*).

After the glue has set up, rotate each of the other five rings to make sure glue did not get in the wrong place. Sand the end of the backbone tube flush with the edge of ring 1.

Insert the box tube into the cryptex and check for length. There should not be a wide gap between the base and the rings. Shorten the end of the box tube as needed until the gap is gone.

Insert the box tube into the cryptex and test for proper operation. Note that when you insert the box tube, the code rings must be properly aligned using the code word. At this point, if there is any binding, the only adjustment available is to file off small amounts of the locking pins from the top or sides.

Apply finish as desired.

Place your secret treasure or gift certificate within the box tube, close the cryptex, and spin the rings.

Present your work of art to that special someone.

John Giem is the secretary and newsletter editor for the Rocky Mountain Woodturners in northern Colorado. He lives and teaches woodworking in Fort Collins. Contact him at jgiem@comcast.net

Cryptex Gallery

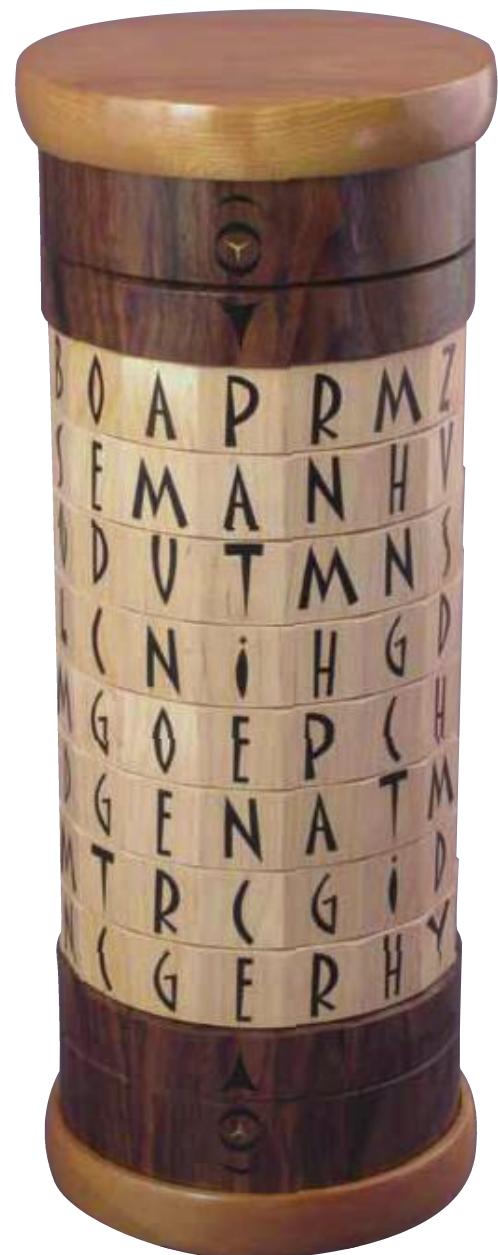
David Belser, *Cryptex Tantalus*, 2007, Cherry, walnut, maple, 14" x 5½" (36cm x 14cm)

After reading *The Da Vinci Code*, I became obsessed with the idea of making a cryptex, an object that would last for centuries in contrast to the short-lived creations of my professional software career. My wife suggested that if I was going to expend the effort, I should make it useful and large enough to hold a bottle, thus the origin of *Cryptex Tantalus*.

After a year of development, I completed the first two *Cryptex Tantalus* in May 2006, just in time for the AAW symposium in Louisville, my first symposium. Since then, I have made over thirty *Cryptex Tantalus*.

—David Belser

More of David's creations can be viewed on his website davidbelser.com.





Pierre Delétraz, Just Married, 2009, Sycamore maple, crackle varnish, 14" x 2¾" (360mm x 70mm).

This is a secrets container for a married couple. The husband and wife each have a box inside the container that can only be opened using his or her personal code. Enclosed can be first loving recollections about each other. The symbols and colors are based on the Chinese philosophical concept of yin and yang, which are represented as female and male or dark and light.



AAW Albuquerque Symposium, 2009, Sycamore maple, crackle varnish, 7" x 2 3/4" (180mm x 70mm).

The word *Albuquerque* is engraved on the box inside the container.

Collection of Barbara Crockett

Pierre Delétraz, *Cryptex Syringe*, 2009,
Sycamore maple, crackle varnish,

13½" x 2⅓" (34

Collection of Jacques Vesery

