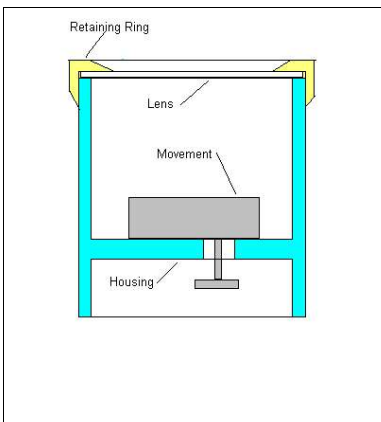




MAKE A MUSIC BOX

Music boxes are relatively easy to make, are a good gift item for young people, and for any one who enjoys music. Here's one design you might try – or make a variation of your own.



The illustration shows a cross section of the music box. You will need the following:

- Housing wood, turned approximately 4" diameter x 6" to 6 1/2 " long,
- A piece of 3/4" hardwood 4" square for the retaining ring.
- A piece of 1/8" Lucite or Plexiglass plastic 4" square for the lens.
- A small 18 note music box movement.
- A 1/2" round nose scraper for roughing out the interior recesses.
- A 1" square end box scraper, sharpened on both the end and left hand side for finishing the interior.
- A caliper for checking the lens diameter during turning.

The plastic sheet material is carried by most hardware stores. If you don't have the round nose scraper, a 1/2" carpenter's chisel works well when reshaped and ground as a scraper at 45 to 60 degrees. Likewise, the box scraper can

easily be made from a 1" carpenter's chisel. This works best with a more shallow grind, say 10 to 15 degrees. The **Klockit** company carries a large selection of melodies in a simple, reasonably priced 18 note music box movement design (www.klockit.com , or call 1-800-556-2548 for a catalog).

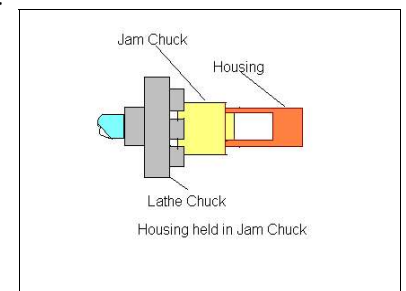
Turn your housing stock to a 4" diameter cylinder between centers, and cut a shoulder to a smaller diameter on one side for mounting in your chuck. Remove from the lathe, install the chuck and remount the piece in the chuck jaws.

Reduce the diameter to about 3 1/4 " for a length of 3 1/4 " on the right hand side. Leave a square cut where you finish. The remaining part to the left will be used later as a jam chuck.

Hollow out to a depth of about 1 1/2 " with the 1/2 " scraper, leaving a wall thickness of about 3/8 ". Now, using the 1" box scraper, and starting at the top of the recess, work your way down to the bottom, leaving 1/4 " wall thickness. The sharpened left hand side and the face of the cutter will be doing the work. Square off the bottom with the end of the cutter to a finished depth of 1 3/4 ".

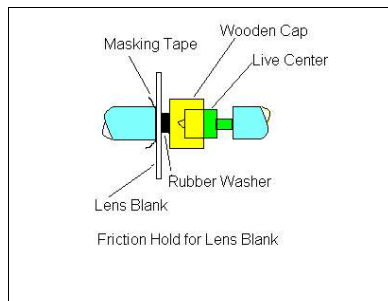
Sand down inside and out. If you are going to use a fast drying finish such as laquer, you could apply it to the inside and outside at this time, and continue when dried. Part off the piece so that it will be 3" long. Towards the end, hold the parting tool in your left hand and surround the piece with your right so that you can catch it as it falls off.

Now, make a jam chuck from the remaining piece by turning a shoulder with a parting tool about 1/2 " long to a diameter equal to the interior of the recess in the housing. Take off small amounts at a time and frequently check against the housing for a really tight fit. When you achieve this, push the housing on as shown in the sketch to the right. Hollow out the end with the 1/2 " scraper and the box scraper, as before, to 1" depth. This leaves you with a 1/4 " wall



between the two chambers. Sand the interior, and finish if using a fast dry finish. Pry the housing off with the back of a knife blade; put aside. Remove the chuck from the lathe and save the remaining piece.

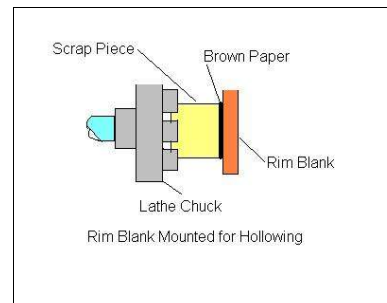
To make the lens, first saw your plastic piece into a 4" circle with a band saw or jig saw. Lacking either of these, cut off the corners to make an octagon. Leave the protective paper coating on each side until finished. The lens will be turned to a diameter 1/16" less than that of the outside of the housing.



The lens blank has to be held in place for turning with a friction hold against the headstock. One way to do this is shown at left. The headstock face is covered with masking tape. A wooden cap with a rubber washer fastened to its face has been made to fit over the live tail center. The blank is placed in, centered, and the tailstock is then snugged up to hold the piece securely. Any other method you can come up with which has a resilient material against the blank face will do. Set your caliper to the desired dimension (above), and turn the blank down with the 1/2" scraper, taking light cuts and checking regularly with the caliper. When you have reached the desired size, remove

and set aside.

Your labors are now approaching an end – there is one more piece to be made – the retaining ring. Turn a piece of scrap for mounting in the chuck, about 2 1/2" diameter. Mount in the chuck, and face this off square with your box scraper. Cut a piece of heavy brown paper from a shopping bag into a 2 1/2" circle and glue this with carpenter's glue to the face of the piece just made.



Cut your 3/4" hardwood piece into a 4" circle. With a compass, draw a circle on the face equal in diameter to the outside diameter of the housing. Indent the compass center point with a center punch or scribe. Apply glue to the other side of the paper on the piece in the chuck. Center the tailstock center into the indent you have made in the hardwood blank, and bring up against the glued face. Clamp and hold for 20 minutes to 1/2 hour. Take a break and have a cup of coffee or a beer. (See drawing at above right).

Using the same method as before, cut a square recess into the face of the hardwood blank 1/2" deep, working your way outward towards the circle you have drawn. Take small cuts towards the end and regularly check, using the housing, until you have reached a snug fit, then stop. Turn down the outside of the blank so that it is 1/2" larger than the inside. Place a sharp knife blade on the paper spacer, and lightly tap down against it with a small hammer or mallet. The paper will part and the piece will come off.

Remove the scrap piece from the chuck, and remount the remaining piece of the housing stock. Make a jam chuck of this again. First, square off the end. With a parting tool, cut back 9/16" long to the diameter of the hollow just made in the rim blank. As before, take small cuts and check against the rim piece frequently for a real tight fit. Push the rim piece on when this is achieved. It will bottom on the square face you have made. Beginning in the center, cut in with your 1/2" scraper until you have reached the face of the jam chuck. Continue outward with this hole until you are left with a rim 1/2" + wide. Square off the inner edge of the hole with the box scraper. Finish the top and sides of the rim to a shape of your liking. Sand and finish. Carefully pry off the rim with the back side of a knife blade as before.

All that is left to do now is to mount the music box movement and install the top pieces. Cut out a circle of paper the same diameter as the inside of the housing. Place the music box movement on this, centered, and press against the bottom to get the impression of the mounting holes and the winder shaft on the paper – you'll have to punch a hole through for the shaft. Mark the hole locations with a pen. Place the paper into the top housing recess and push through the pattern with the point of a compass at the locations of the holes. Remove the paper pattern and deepen the hole marks with a center punch or scribe point. Drill 1/16" mounting holes and a 3/8" clearance hole for the winder shaft. Mount the unit with #2 wood screws.

Peel off the paper from the lens, and place on top of the housing. Mix some epoxy and apply 3 or 4 dabs sparingly with a toothpick around the inside of the rim. Press the rim on, and you're done! Did I say in the beginning that it was relatively easy to make? Well, the second one is much easier, the third one a cinch!

Have fun always, and no matter what, keep on turning. Sy P.