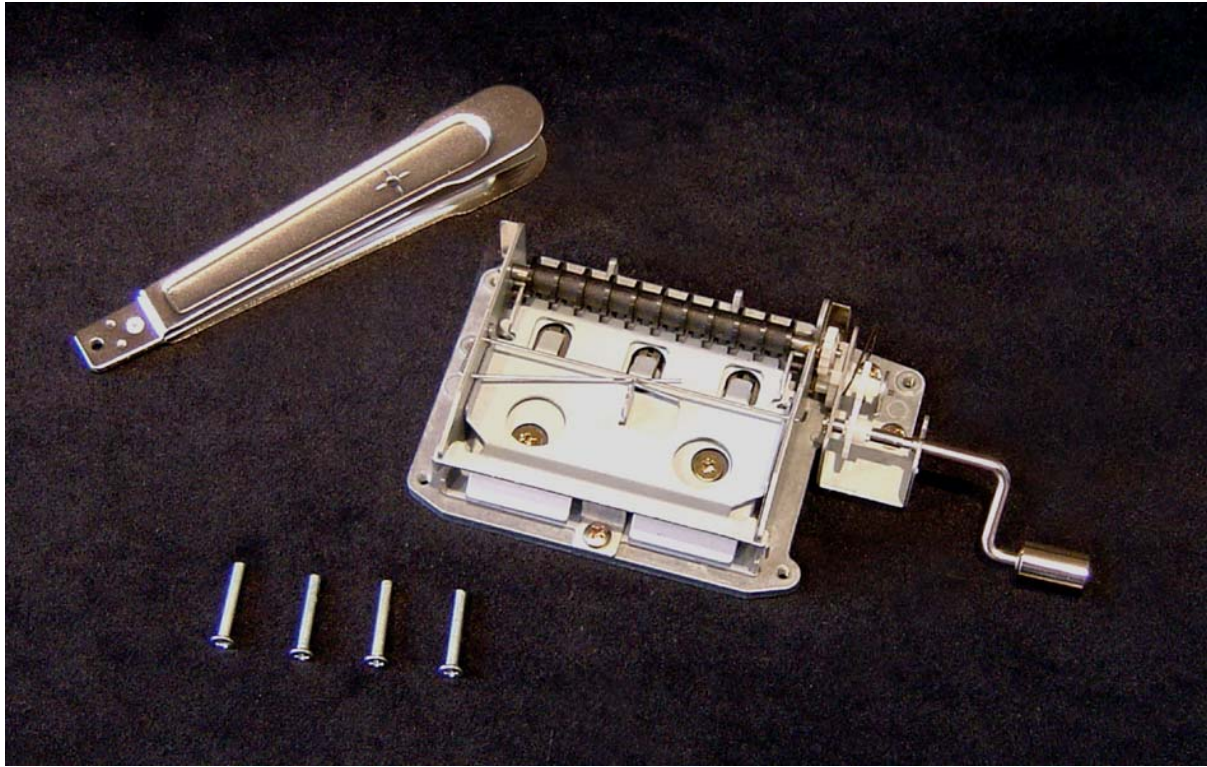


HAND-CRANK MUSIC BOX MOVEMENT



MUSICMAKER'S KITS, INC

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PARTS LIST

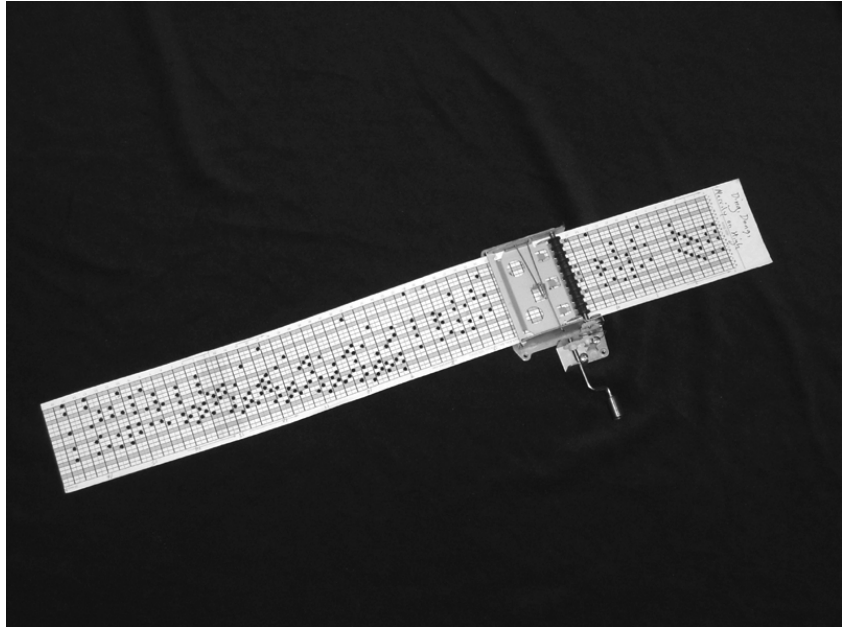
Musical Movement
4 Mounting Screws, M3 X 20mm
Hole Punch
1 Pre-Punched Music Strip (heavy paper)
3 Sheets Blank Colored Strips (11 x 17 heavy paper)
3 Sample Song Arrangements (heavy paper)
4 Rubber Feet, with screws
Kit Instructions



PREPARING THE BOX

____1) Please check over the parts of this kit to make sure you received everything listed. Test the operation of the movement using the pre-punched strip enclosed. With the crank handle at your right, insert the strip into the slot facing you. The song starts where the title is printed. Feed the strip all the way into the slot as you turn the crank clockwise.

DO NOT TRY TO PULL THE PAPER STRIP OUT. Just keep turning the crank to feed it all the way through. The crank only works one direction (clockwise) – it does not work in reverse.



____2) You may use the musical movement without a box, but it will sound best when mounted into an enclosed container of some sort. You might make a box of your own or adapt an existing box or compartment of some other piece of furniture or toy for mounting the movement. You could, for example, mount it into a doll house, a cigar box, the drawer of a cabinet, a building in your miniature Christmas Village, a crèche, etc. Do not try to put it into a stuffed animal though – the movement cannot be wrapped in fabric and stuffing!

____3) If your box is not already pre-drilled for the movement, use the paper templates on the next page of these instructions for preparing your box for mounting the movement.

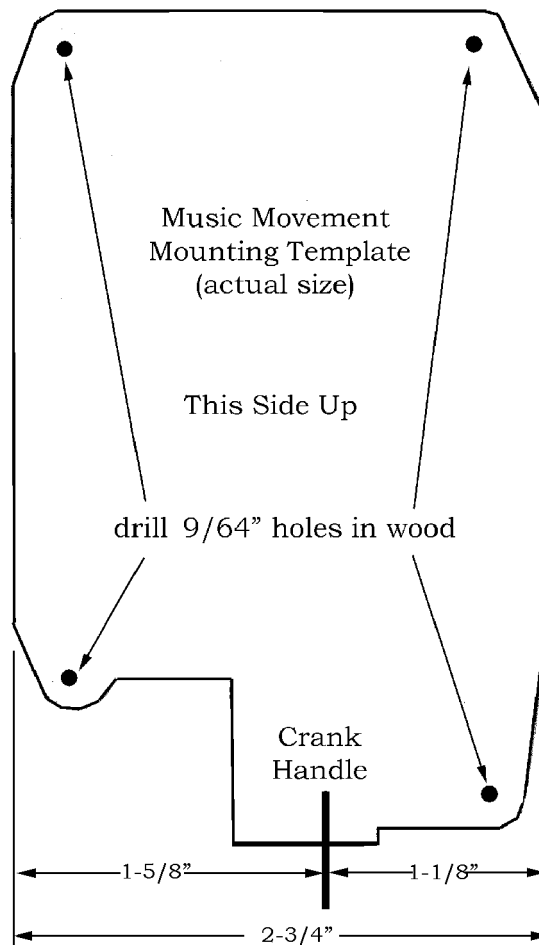
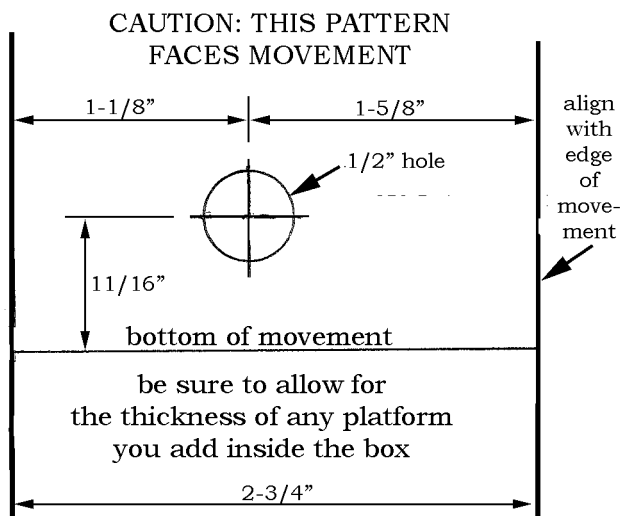
____4) If you are using a cigar box and want to cover over the tobacco company decorations, we recommend a decoupage system. You can paste all sorts of fun things onto the box to create an artistic piece or to establish a theme for the musical strips you intend to punch. Take a look at the color photos on the back page of these instructions for the “before” and “after” shots of a cigar box we decorated.

Start by peeling off as many of the paper labels as you can so the surface to be decorated won't peel or blister later. Some cigar boxes will look great as just plain wood. A little sanding and light varnishing might give you a very nice looking box. Once you get the old labels off, you can decide whether to keep the box natural or add decorations.

Decoupage is very easy. If you have not tried it, we recommend searching the Internet for ideas and instructions. When we Googled the word “decoupage”, we found all sorts of great information. It is worth watching some YouTube video demonstrations to see how the experts do it. You'll be able to find all the materials you need at an art supply or craft store (like Michael's).

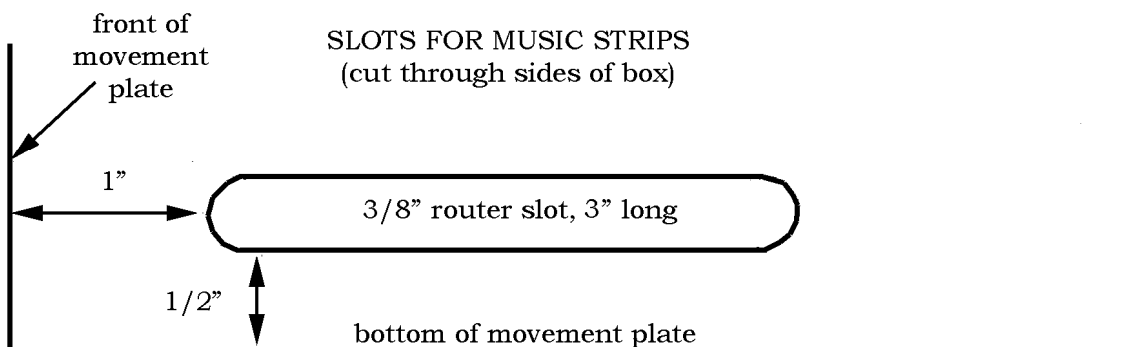
Use the following templates for preparing the space for the movement.

Use this template inside the box to locate the hole for the crank handle. We drill $\frac{1}{2}$ " diameter hole here so we can fit the handle through the box.



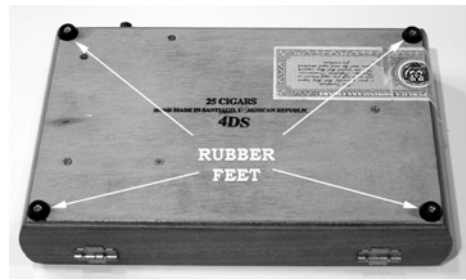
HINT: When using the paper templates for locating the hole for the crank and the slots for the music strips, you might find it easier to place the paper patterns on the outside of the box. To do this accurately, you'll need to measure the distance from the outside corner of the box to the edge of the movement and from the bottom of the box to the bottom of the movement. Add those measurements to the drawing to show new boundaries for the template. Cut the paper on those new lines. Remember, however, to face the template toward the movement (yes, you'll need to trace the positions on the back side of the paper).

NOTE: Mounting screws are long enough to go through the bottom of the box and the plywood platform.



You can cut this page out and use the patterns as templates. Hold the paper up against a window (facing out) if you need to trace the patterns to the backside of the paper to reverse the templates.

____5) We recommend adding four rubber feet to the bottom of the box. This lifts the bottom off the table so it vibrates better, and the rubber pads keep the box from sliding as you turn the crank of the musical movement. If the screws for the feet are so long that they might poke through the bottom of the box, you can glue the rubber pads in place with Superglue or 5-minute epoxy.



____6) Sometimes we add a knob to the lid for a handle, depending on what sort of lid the box has. A large bead or colored marble might make a nice knob (use Superglue to hold it in place), or you could look for something at a craft store that suits your fancy.



____7) The paper music strips can be loosely coiled for storage, but we like to cut them into about 9” lengths and tape them back together end-to-end, placing tape alternately on the front and back of the joints so the strip will fold like an accordion into a compact stack about 9” long. This makes it easy to store the songs in a smaller space.

____8) If you purchase song sheets from Musicmakers web site (www.harokit.com/musicbox), they will be formatted to print on heavy 8-1/2” X 11” sheets of paper, so you will need to tape the sections together to play the entire song.

CREATING THE PAPER STRIPS

____9) Punching pre-printed notes on the strips is fun and easy enough for a 5-year-old. Just use the punching tool provided with the movement.

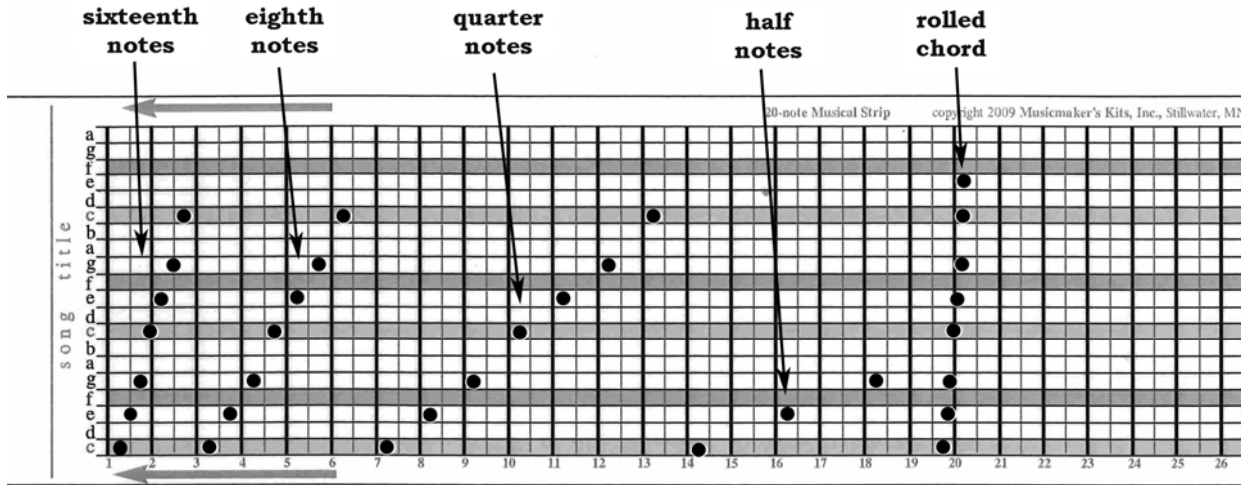
____10) Planning out new songs on blank paper strips, however, will be difficult for a non-musician, or a fun challenge for a seasoned musician. We think it would be a wonderful exercise for music students because it requires you to deal with both notation and rhythm, and it allows you to be creative with harmonies, grace notes, and other variations.

There is a nifty software program available (www.ktabs.theirhouse.org) for doing this arranging on your computer if you like. With that software, you can play the song on the computer before printing it out, so you know how it sounds before printing and punching.

Or you can work out your arrangements on paper strips with colored lines identifying the notes. Here are some hints for that:

- A) First, and most importantly, you CAN make corrections to the paper strips!
- You can fill a punched hole with one of your punches by simply taping it back into place, putting tape on both sides (Scotch invisible tape is best).
 - You can cut the paper strip apart and splice in another section, using tape on both sides of the seams (don't overlap the paper). We forgot a pause in the middle of one piece, so we simply spliced in a short blank section where the pause needed to be.
 - You can add more length to the strip in the same way, creating a very long song sheet if you like.
- B) Always mark your paper strip in pencil first so you can erase mistakes before punching the holes.

C) You will usually consider the space to the right of every dark vertical line to be a quarter note. That makes the other spaces eighth notes and the lines themselves sixteenth notes. A half note will span two dark lines (or the equivalent distance).



D) It is best to plan your punching carefully. If you are copying from a songbook or piece of sheet music, number all the measures on the music first, and then place numbers on your paper strip to mark the measures. Otherwise you will likely lose track of the beat.

- For 2/4 time, number the measures on every other dark line of the paper strip
- For 3/4 or 6/8 time, number the measures on every third dark line.
- For 4/4 time, number the measures on every fourth dark line.

E) All “C” notes are colored red, and “F” notes are colored blue on the paper strips. We use these colors because they match the colored strings on a harp. It is quite easy to find your way up and down the scale using these colors as markers.*

F) The bottom red horizontal line is the C in the bass clef, one octave below Middle C. The next red line up from the bottom is Middle C, and the next one is the C in the treble clef, one octave above Middle C.

*NOTE: This musical movement only plays the C major scale. It has no sharps or flats. If you need to copy a song from sheet music in a different key, you’ll need to transpose the notes to the key of C. Though we cannot teach that skill in these kit instructions, you can either consult a seasoned musician for assistance, or go on-line and learn how to do it by reading tutorials (search Google for the words “transpose keys”).

Sometimes you’ll encounter a song in the key of C that has what is called an “accidental note”, which is a sharp or flat that does not belong to that key, you can often just punch a harmony note in place of the accidental and people will not notice that you have altered the melody. Again, a seasoned musician can help you understand this tactic and make suggestions for a suitable alternate note.

Please realize that some music will be impossible to play on this movement. Complex jazz and Classical pieces simply have too many accidental notes to allow you to capture the essence of the music without having sharps and flats. There is, however, an extensive variety of music that will work very well for your music box.

G) Begin with the basic melody. We like to mark and punch the melody line first and try it in the movement before proceeding with harmonies and embellishments. Be sure to center each punch in a horizontal space. Otherwise the note will not play.

H) CAUTION: Each note can only be repeated as often as the distance between two dark lines on the paper strip. This is because the cog wheel needs to move that far before it can engage another hole. So if you have a song that repeats a note more frequently, such as several eighth notes in a row on the same note, you will need to improvise. Notice how we did this in the song, "Row your Boat". Where the melody would have multiple notes for the phrase, "merrily, merrily, merrily, merrily", we just put a quarter note at each position.**

I) If your melody line needs to go higher or lower than the range available on the paper strip, you can usually just shift one octave up or down to maintain the integrity of the song.

J) Once the melody is punched and tested, you can add harmonies, grace notes, full chords, rolled chords, and other embellishments to suit your fancy. It can be fun to see how complex and rich the arrangement can be. We often start simply and build to a big climax at the end.***

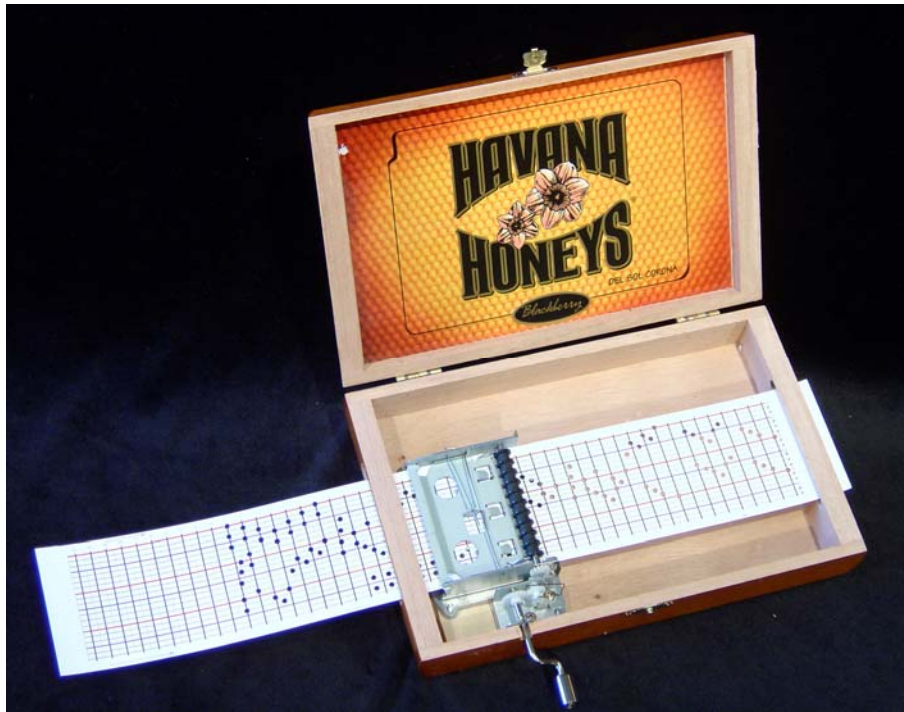
Row Your Boat

JHB

The image displays a musical score for the song "Row Your Boat" in 3/4 time. The top part is a piano accompaniment with a treble and bass clef. The melody is written in the treble clef, and the bass line is in the bass clef. Below the piano score is a 20-note musical strip, which is a grid with 20 columns (numbered 1-20) and 10 rows (labeled a through c). The strip shows the notes for the melody, with arrows indicating the sequence of notes. The notes are: 1: C4, 2: D4, 3: E4, 4: F4, 5: G4, 6: A4, 7: B4, 8: C5, 9: B4, 8: G4, 7: F4, 6: E4, 5: D4, 4: C4, 3: B3, 2: A3, 1: G3. The strip is labeled "20-note Musical Strip 10" and "Copyright 2009 MusicMaker's Kits, Inc., Stillwater, MI".

****SUGGESTION:** Another way to get around this limitation is to punch the quick succession of notes on different pitches, using neighboring notes or notes that harmonize with the main note. That way you keep the rhythmic pattern of the song by adapting the melody line slightly.

*****ANOTHER SUGGESTION:** A great way to get started is to choose a melody that works as a round. "Row Your Boat" is the example above. Other good rounds are "White Coral Bells", "Frere Jacques (Brother John)", "Alouette", etc.



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