



AMICA International

Automatic Musical Instrument Collectors' Association

AMICA Articles

A History of the Player Piano

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Part 1. What are music boxes?

Webster's defines "music box" as a case containing an apparatus for producing music mechanically, as by means of a comb-like steel plate with tuned teeth. Pins set in the surface of a revolving cylinder or disk sound the teeth.

Over a century ago, more people owned music boxes than any other type of automatic musical instrument. The mechanisms were put in jewelry boxes, windup toys, holiday novelties and clocks. Music boxes come in several types. Pinned brass cylinders lead, followed by disc. Punched metal discs and the rare pinned discs, tapered metal "cuffs" with plucking projections, even paper rolls and punched cardboard "books", all play using plucking action applied to the teeth of the comb.

Today's music box mechanisms come inside many different packages. Designs range from children's motifs to cheeseburgers. They can be hand cranked, contain clock works and a cylinder or perforated disc. Music boxes are snuffbox sized to console scale. New music box prices vary from a few dollars to over forty thousand dollars. There are music box clocks, pocket watches, jewelry cases, water globes, miniature pianos, and humidors. Almost anything imaginable can be a music box. Where did the music box get its start?

Part 2. Before the music box

Some say that the Ancient Greeks were obsessed with creating mechanical living beings. So automata were invented. These classes of mechanical toy copied in metal, wood and stone the likeness of birds, gods and moving objects.

In 400 B.C., Archytas of Tarentum made a wooden pigeon suspended from the end of a pivot, which rotates by water or steam acting upon it. The pigeon simulated flight long before Wilbur and Orville came along.

The 15th Century carillon is the entire musical entertainment for a Flanders town (straddles Belgium and France). The carillon player or "ringer" relieves his tedium and develops a wood cylinder with pins on it that controlled cogs linked to the hammers striking the bells. How the pins were spaced on the cylinder determined the rhythm produced. The pins' horizontal position hits the cog(s) to sound the appropriate bell(s). Combining both axes created chords. New compositions mean changing the cylinders or repositioning the pins.

Carillon design was adapted, much reduced in size, and brought inside the home as the music box. Out of that, the miniaturizing proceeded to comb mechanisms. The "comb" is a strip of metal containing individual strips or teeth tuned to a precise range of notes. The pins on the cylinder pluck the comb edge to sound the individual notes to make a song. From such a pinned cylinder came the barrel organ, a "piano mecanique", the handle piano, the music box and the player piano (where paper roll and tracker bar replaced pinned cylinder and comb).

The long transition to shrinking this mechanism took a lot of time. As the town clock was downsized to become the pocket watch, the carillon shrank to become the music box.

In the 1400's a German Medieval wall clock driven by iron weights and gears played glass bells struck by tiny metal hammers. Mechanical music came indoors.

In the 16th Century, Gianello della Tour of Cremona, Italy alleviated the boredom of emperor Charles the V with a mechanical lute player that either walked in a straight line or circle while plucking the strings and turned its head from side to side. Articulated soldiers blew trumpets, beat drums and fought on tabletops. Miniaturized mechanical sound and movement had arrived.

In the 18th century, Jacques de Vaucanson built a mechanical duck of gilded copper that drank, ate, quacked, splashed around in water and digested its "food" like a duck! Still no music box. By the 1760's bellows were added to drive drum and flute.

Part 3. Early music boxes

The highest music box form of that time was expressed in an elaborate French mantle clock that plays five songs especially composed by the likes of Hayden and Mozart. Beethoven was thrilled by the coming of the mechanical era. He once wrote, "Let us thank God for the promised steam cannons and for the already realized steam navigation." He became fascinated by the inventions of Johann Maelzel (an ear trumpet, automatic chess player, mechanical trumpeter and, by stealing from another, the metronome.) Beethoven agreed to compose a piece for Maelzel. It was "Wellington's Victory", created for Maelzel's Panharmonicon, a glorified kind of music box that combined military band instruments with a powerful bellows, all enclosed in a case. The piece was on an 1813 charity concert program, along with marches tooted by Maelzel's mechanical trumpeter.

Flanders music box makers developed the brass barrel, added dulcimer and refined weight operation, bellows and hand crank. Such automata marked the passing hours as a singing bird in a cage with clock on the bottom of the base.

Around 1780, Jaquet-Droz of La Chaux-de-Fonds, Switzerland, invented the mechanical singing bird. Sixty years later, its operation was perfected at the Blaise Bontems workshop in Paris, France, later in 1960 called Reuge S.A.

In 1792, a rudimentary organ was placed inside "Tipoo's Tiger". It was made of wood and moved the soldier's arms as the Tiger lunged and "growled".

Part 4. Music box advances

In 1796, Antoine Favre of Geneva, Switzerland made the key breakthrough. He replaced bells with pre-tuned metal strips that made possible a broader scale and more precise sound. Plucked teeth arrive! This advanced miniaturization further. Music is married to the pocket watch. Adding a clock-like spring driven mechanism, an on/off switch and removable cylinders provided control and variety to music boxes and pocket watches.

Like the old German wall clock with glass bell chimes, some music boxes had tuned bells struck by hammers that are driven by the pinned cylinder, to accompany the music provided by the plucked metal comb. The tie back to the 14th Century carillon was reestablished in miniature.

Design evolution continued with the musical pocket watch. Both the box and watch rapidly developed in Geneva; and after 1811 in Sainte-Croix (L'Auberson), Switzerland. There, Alix Gueissaz made music boxes. His son Jules-Louis was the firm's salesman and started selling abroad, notably to Ismail, shah of Persia (Iran).

Other advances included the "sectional comb", which allowed a greatly expanded number of notes and octaves. The one-piece comb replaced the 1 through 6 teeth per section combs. This improvement grew the single piece comb to 290-325 teeth. Three hundred plus teeth offered a much greater note scale than the 88-note piano keyboard.

Boxes became more ornate. Musical arrangements were limited only by the tune arranger's imagination. Musical sounds expanded with harmony, mandolin, guitar, piano, drum, bells, expression changes and triangle.

By the 1850's key wind was replaced by the lever spring winder. The box cylinder now contained six to twelve tunes. Uninterrupted play was achieved.

As the Civil War raged in the U.S., the 1860's also saw some music boxes combined with organ pipes and triangle. In other designs, a clock could activate the music box cylinder to play a different tune on the hour. That took a lot of spring winding. In 1877, Edison's talking machine came along but remained for decades, a comparatively primitive recording device.

In the later 19th Century, music boxes were also married to moveable figures, both human and animal. Birds sing in cages and feed their young. Ballerinas pirouette. Japanese geishas flirted to music and animals both wild and domestic moved to music, all before movies, phonograph or radio. Toiling by sunlight and whale oil lamps, workers fitting pins, one-by-one, into brass cylinders were being replaced by factory mass production of stamped metal discs. Electricity, the food of radio and later electronics was beginning to grow across America.

Part 5. Changeable disc music boxes

Symphonion boxes were originally made in Leipzig, Germany during the late 1880's. These excellent machines accepted different, individual tune discs, allowing one box to play many tunes. Polyphone and Regina followed soon after.

In the 1890's the disc-operated music box came to displace much of the established cylinder box market. The principle was the same: pluck a tuned comb to make music. What differed was the way the comb was plucked. Discs were made of zinc or steel. They differed in hub diameter and tooth size. This was done to evade patent laws and prevent interchangeability from one maker's machine to another's. Much later, disk-type phonograph records avoided this mistake.

Disc makers like Myra, Regina, Porter and Symphonion are joined by F. G. Otto Company of New Jersey (Criterion, Olympiad, Sterling, Euphonia the cuff cylinder box). Germany's Imperator and Polyphone Company also made them. Hundreds of different size discs were made. Then, the Great War came in 1914.

As robust as the music box industry was in 19th Century Sainte-Croix, it ended in the ruin following World War I and World Wide Depression of the 1920's. The same economic catastrophe that killed player pianos in 1931 arrived a decade earlier in Western Europe. In 1900, a 15 ½" Regina Disc music box cost around \$75. This was four months' wages for an average American worker. Much cheaper and affordable wind-up gramophone/phonograph machines started to become available.

Part 6. 20th Century music boxes

After the hard times of The Great Depression and World War II, interest in music boxes revived slowly. In the 1960's, there were still around thirty manufacturers, both Swiss and other. Europe and U.S. makers were confronted by the problems of shrinking markets, old, expensive factory technology and the prospect of going out of business.

Reuge S.A. rose to dominate European manufacture thanks to diversifying into its production of Kandahar ski bindings and revival of interest in large luxury music boxes. Also, returning G.I.'s passing through Europe, re-discovered "miniature music" and brought it home to America. New competition was generated in Japan and China.

An initial benefit for Japan after their defeat in World War II was being able to invest in state of the art, sophisticated production lines. That advantage defeated most Switzerland based companies, except for Reuge and two others.

However, the Chinese music box industry grew so fast that by 1994, they succeeded in taking a third of the Japanese business for themselves. The Japanese started moving their production to China. This is reminiscent of piano manufacture centering first in Europe and the U.S. and today gravitating toward the Pearl River plants in China.

If you would like to learn more about music boxes, please contact one of our AMICA Chapters and join us for a meeting, where you can meet others who share your interests. Visit our Links page to find other relevant sites on the Internet. You may also wish to use your favorite search engine to look for information on specific music box manufacturers. Some, including Regina and Porter in the US, Reuge Music, Sankyo and Jeorg Wendel are actively producing music boxes today.

- 1. "Webster's Encyclopedic, Unabridged Dictionary of the English Language"
- 2. Music box maker's list: <http://www.www.mmdigest.com/archives/digests>
- 3. Music box history: <http://www.bettermusicboxes.com>; Sunroamer.com (<http://208.56.38.371>)
- 4. Video Tape, "Music in Time" produced by Music Box Society International 1991.
- 5. "Golden Age of Automatic Musical Instruments" by Arthur A. Reblitz, Page 9. : "Chapter 2 - Music Boxes."
- 6. "The Volume Library", Vol. 2, Page1,772 - "Mechanical Instruments."

What is a player piano?

This is a player piano. It is a regular acoustic piano, with a special mechanism which allows the piano to play all by itself.



Mechanism of the player piano

The doors open to reveal a part of the player piano mechanism - you can see the tracker bar, a piece of metal with holes in it. There is a hole for each note on the player piano.



Player piano roll

A roll of paper with punched holes is inserted in the mechanism of the player. Piano rolls, spools of paper with punched holes representing notes, provide the piano with the same kind of information that a musician gets from sheet music. Holes in the paper match with holes in the tracker bar to play notes. Many piano rolls also have printed song lyrics - so you can sing along.



Powered by feet

The player piano was very popular in the early 20th century, and many people felt a proper home had to have a player piano. Most pianos in that era were powered by pumping pedals with the feet. Foot pedaling can also be used to add expression to the musical notes as they play.



Photos: George Wilder; Instrument: Tom and Norma Everett