

LESSON 13

Acoustic Keyboard Instruments

The Piano

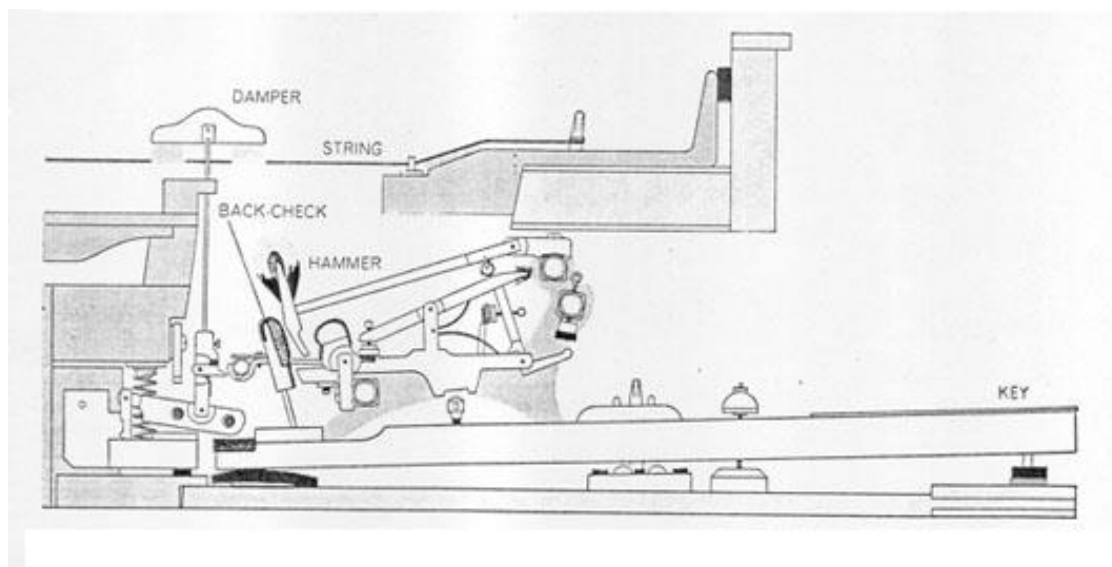
The piano is a musical instrument played using a keyboard. The word piano is a shortened form of pianoforte, the Italian word for the instrument. The Italian musical terms piano and forte indicate "soft" and "strong". The greater the velocity of a key press, the greater the force of the hammer hitting the strings, and the louder the sound of the note produced. Even though a piano has strings, it is usually classified as a percussion instrument because the strings are struck rather than plucked (as with a harpsichord or spinet). Modern pianos have two basic configurations (with subcategories): the grand piano and the upright piano. However, despite their differences, they all share the same basic anatomy:

keyboard, action, case, soundboard, frame, strings and structure.



The Action

- The key is pressed and rises at the back
- The hammer moves toward the string releasing the damper
- When the hammer is almost to the string, the jack engages pushing the hammer quickly to strike the string
- The back check catches the hammer on the rebound and holds it as long as the key is depressed allowing the string to continue vibrating
- When the key is released, the damper returns to the string, the jack resets and the hammer is returned to its resting position

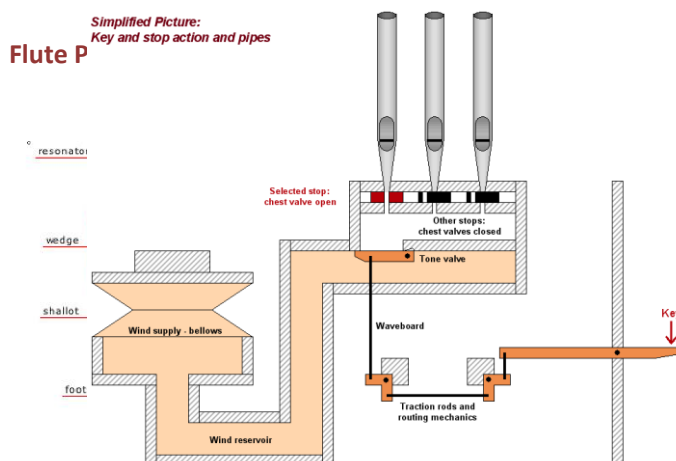


The Pipe Organ

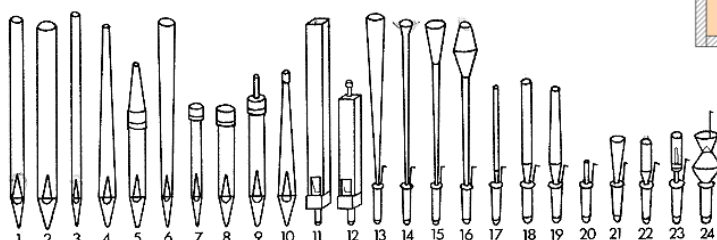


The pipe organ is a musical instrument commonly used in churches or cathedrals that produces sound by driving pressurized air (called wind) through pipes selected via a keyboard. The smallest portable pipe organs may have only one or two dozen pipes and one manual; the largest may have over 20,000 pipes and seven manuals.

Key and Stop Action and Pipes



Pipe Shapes and Families



Flue pipes:

- 1 Principal
- 2 Flute
- 3 Viole
- 4 Spitzflute
- 5 Koppelflute
- 6 Trichterflute

Reed pipes:

- 7 Quintaton
- 8 Gedeckt / Bourdon
- 9 Rohrflute
- 10 Spitzgedeckt
- 11 Open Wood
- 12 Stopped Wood
- 13 Trumpet
- 14 Schalmel
- 15 Oboe
- 16 English Horn
- 17 Krummhorn
- 18 Dulcian
- 19 Musette
- 20 Regale
- 21 Trichter Regale
- 22 Vox humana
- 23 Rankett
- 24 Baerpfeife

The Console

The console is the control center of the whole instrument. It contains the keyboards (manuals and the pedalboard). Draw knobs are arranged to the left and right of the manuals. They serve to pick the rows of pipes / stops (and consequently timbres) that are going to be used. Finally the console includes some special aids for playing, such as couplers, swell pedals, etc.



The Harpsichord



The harpsichord is a keyboard instrument played by means of a keyboard in which the strings are plucked. It became enormously popular throughout Europe. The instruments could vary significantly from each other, with different configurations for keyboards, foot pedals, and hand stops. The cases housing the mechanisms were often exquisite works in themselves, featuring inlays, paintings, and other fine surface decorations.

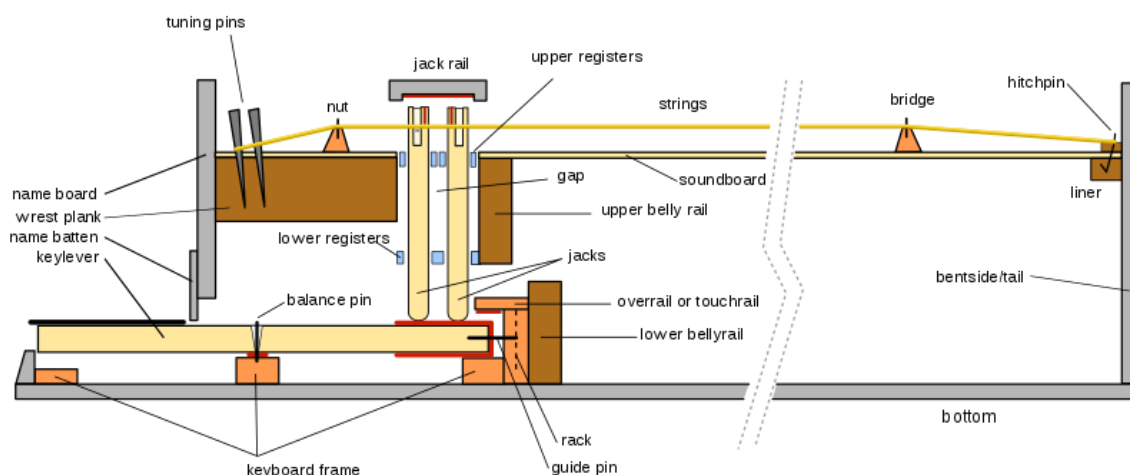
The earliest references to such instruments date to about 1400. The oldest surviving harpsichords date from the 1500s, by which time the instrument's complex mechanism had been perfected.

The plucked strings of the harpsichord have a rich sound whose clarity informs the complex contrapuntal melodies of baroque music. Almost every baroque composer wrote for the harpsichord, as either a solo or a continuo instrument. It was one of the most important keyboard

instruments in European music from the 16th through the first half of the 18th century. The term harpsichord denotes the whole family of similar plucked-keyboard instruments, including the smaller virginals, cembalo, and spinet.

The Action

The player depresses a key that rocks over a pivot in the middle of its length. The other end of the key lifts a jack (a long strip of wood) that holds a small plectrum (a wedge-shaped piece of quill), which plucks the string. When the player releases the key, the far end returns to its rest position, and the jack falls back; the plectrum, mounted on a tongue mechanism that can swivel backwards away from the string, passes the string without plucking it again. As the key reaches its rest position, a felt damper atop the jack stops the string's vibrations. These basic principles are explained in detail below.



The Case

The wooden case holds in position all the important structural members: pin block, soundboard, hitch pins, keyboard, and the jack action. It usually includes a solid bottom, and internal bracing to maintain its form without warping under the tension of the strings. Cases vary greatly in weight and sturdiness: Italian harpsichords are often of light construction; heavier construction is found in the later Flemish instruments and those derived from them.

The Harmonium

The pump organ or harmonium is a type of reed organ that generates sound with bellows.



More portable than pipe organs, reed organs were widely used in smaller churches and in private homes in the 19th century, but their volume and tonal range are limited, and they generally had one or sometimes two manuals, with pedal-boards being rare. The finer instruments have a unique tone, and the cabinets of those intended for churches and affluent homes were often excellent pieces of furniture. Several million reed organs and melodeons were made in the U.S. between the 1850s and the 1920s. During this time Estey Organ and Mason & Hamlin were popular manufacturers.

The melodeon is another reed keyboard instrument, usually housed in a table-like casing, that predates the pump organ. In reference to the music of India, melodeon usually refers to a concertina accordion, while harmonium means the smaller hand-pumped variety.

The Accordeon

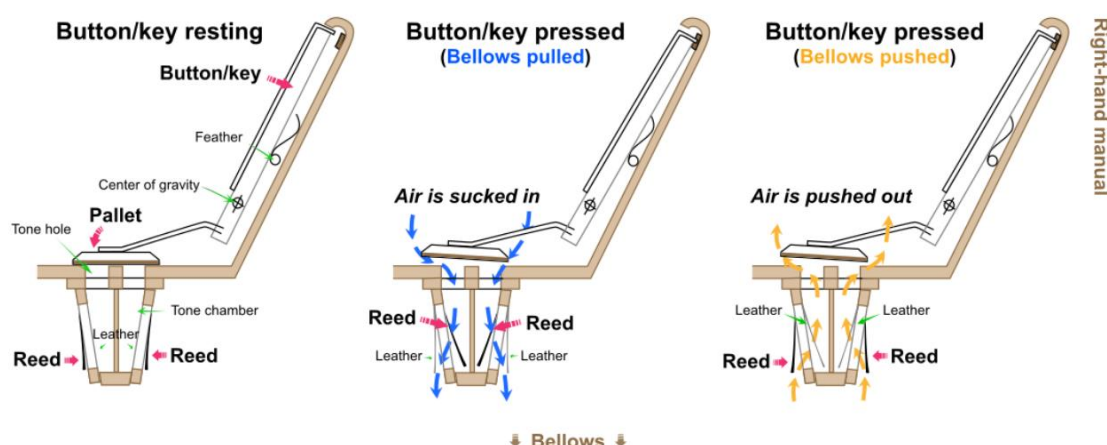


Accordions (from 19th-century German Akkordion, from Akkord - "musical chord, concord of sounds") are a family of box-shaped musical instruments of the bellows-driven free-reed aerophone type, colloquially referred to as a squeezebox. A person who plays the accordion is called an accordionist. The concertina and bandoneón are related; the harmonium and American reed organ are in the same family.

The instrument is played by compressing or expanding the bellows while pressing buttons or keys, causing valves, called pallets, to open, which allow air to flow across strips of brass or steel, called reeds, that vibrate to produce sound inside the body.

The performer normally plays the melody on buttons or keys on the right-hand manual, and the accompaniment, consisting of bass and pre-set chord buttons, on the left-hand manual.

An illustration of the pallet mechanism in Piano Accordions. As the key is pressed down the pallet is lifted, allowing for air to enter the tone chamber in either direction and excite the reeds; air flow direction depends on the direction of bellows movement. Note that this is a side view of a piano accordion keyboard, so a similar effective mechanical pallet movement is used for buttons, both on button accordions and bass mechanisms, including the *Stradella machine*



The accordion is widely spread across the world. In some countries (for example Brazil, Colombia and Mexico) it is used in popular music (for example Sertanejo and B-Pop in Brazil), whereas in other regions (such as Europe, North America and other countries in South America) it tends to be more restricted to folk music and as well as in regional and is often used in folk music in Europe, North America and South America. Nevertheless, in Europe and North America, some popular music acts also make use of the instrument. Additionally, the accordion is also used in zydeco, jazz music and in both solo and orchestra performances of classical music. The piano accordion is the official city instrument of San Francisco, California.

The oldest name for this group of instruments is harmonika, from the Greek harmonikos, meaning harmonic, musical. Today, native versions of the name accordion are more common. These names refer to the type of accordion patented by Cyrill Demian, which concerned "automatically coupled chords on the bass side".