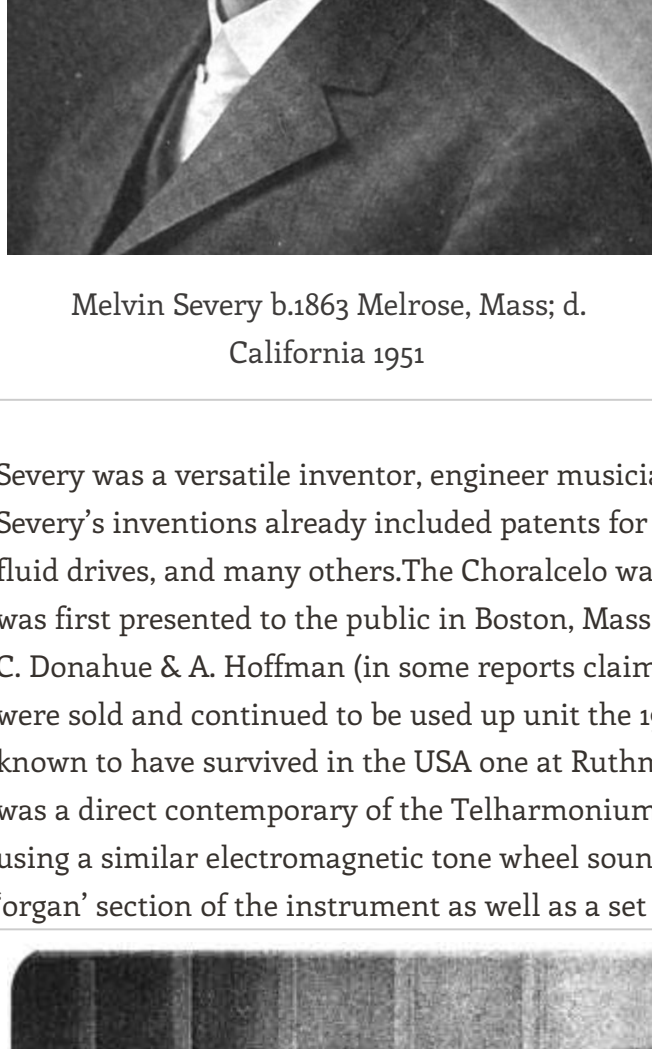


# The 'Choralcelo' Melvin Severy & George.B. Sinclair. USA, 1909

The Choralcelo ("heavenly Voices") was a hybrid electronic and electro-acoustic instrument conceived as a commercial high-end domestic organ, sold to wealthy owners of large country houses in the USA. The Choralcelo was designed and developed by Melvin Severy with the assistance of his brother-in-law George B. Sinclair and manufactured by the 'Choralcelo Manufacturing Co' in Boston, Massachusetts.



Melvin Severy b.1863 Melrose, Mass; d. California 1951

Severy was a versatile inventor, engineer musician, composer and author. Before the Choralcelo, Severy's inventions already included patents for printing presses, solar heating systems, a camera, fluid drives, and many others. The Choralcelo was developed by Severy from 1888 until 1909 when it was first presented to the public in Boston, Mass. The company was taken over in 1918 by Farrington. C. Donahue & A. Hoffman (in some reports claims as its inventor). At least six of the instruments were sold and continued to be used up until the 1950 s. Two working examples of the instruments are known to have survived in the USA one at Ruthmere Mansion in Elkhart, Indiana. The Choralcelo was a direct contemporary of the Telharmonium, though not as big, was still a huge instrument using a similar electromagnetic tone wheel sound generation to the Telharmonium used in the 'organ' section of the instrument as well as a set of electromagnetically operated piano strings.

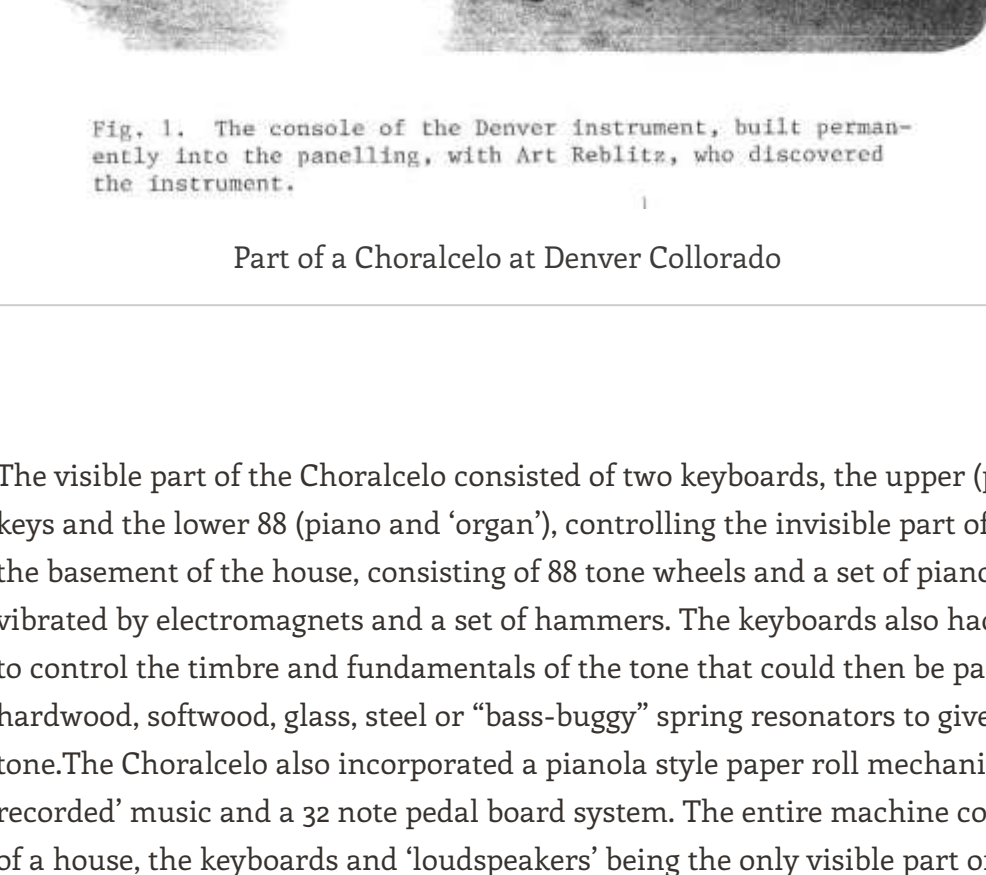
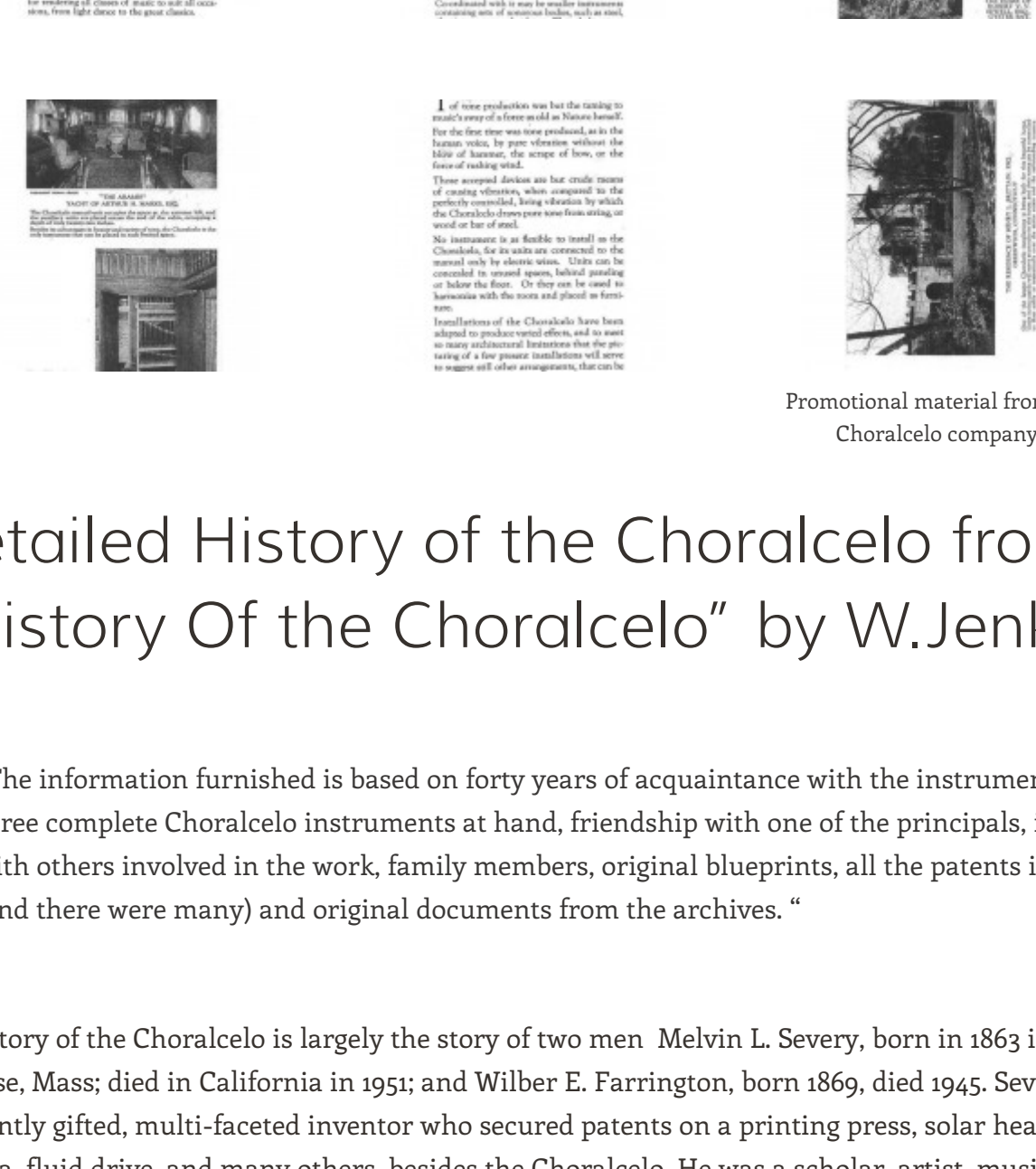


Fig. 1. The console of the Denver instrument, built permanently into the panelling, with Art Reblitz, who discovered the instrument.

Part of a Choralcelo at Denver Colorado

The visible part of the Choralcelo consisted of two keyboards, the upper (piano) keyboard having 64 keys and the lower 88 (piano and 'organ'), controlling the invisible part of the instrument, usually in the basement of the house, consisting of 88 tone wheels and a set of piano strings and bells that were vibrated by electromagnets and a set of hammers. The keyboards also had a set of organ style stops to control the timbre and fundamentals of the tone that could then be passed through cardboard, hardwood, softwood, glass, steel or "bass-buggy" spring resonators to give the sound a particular tone. The Choralcelo also incorporated a pianola style paper roll mechanism for playing 'pre-recorded' music and a 32 note pedal board system. The entire machine could occupy two basements of a house, the keyboards and 'loudspeakers' being the only visible part of the instrument.

## Promotional brochure from the Choralcelo Manufacturing Co

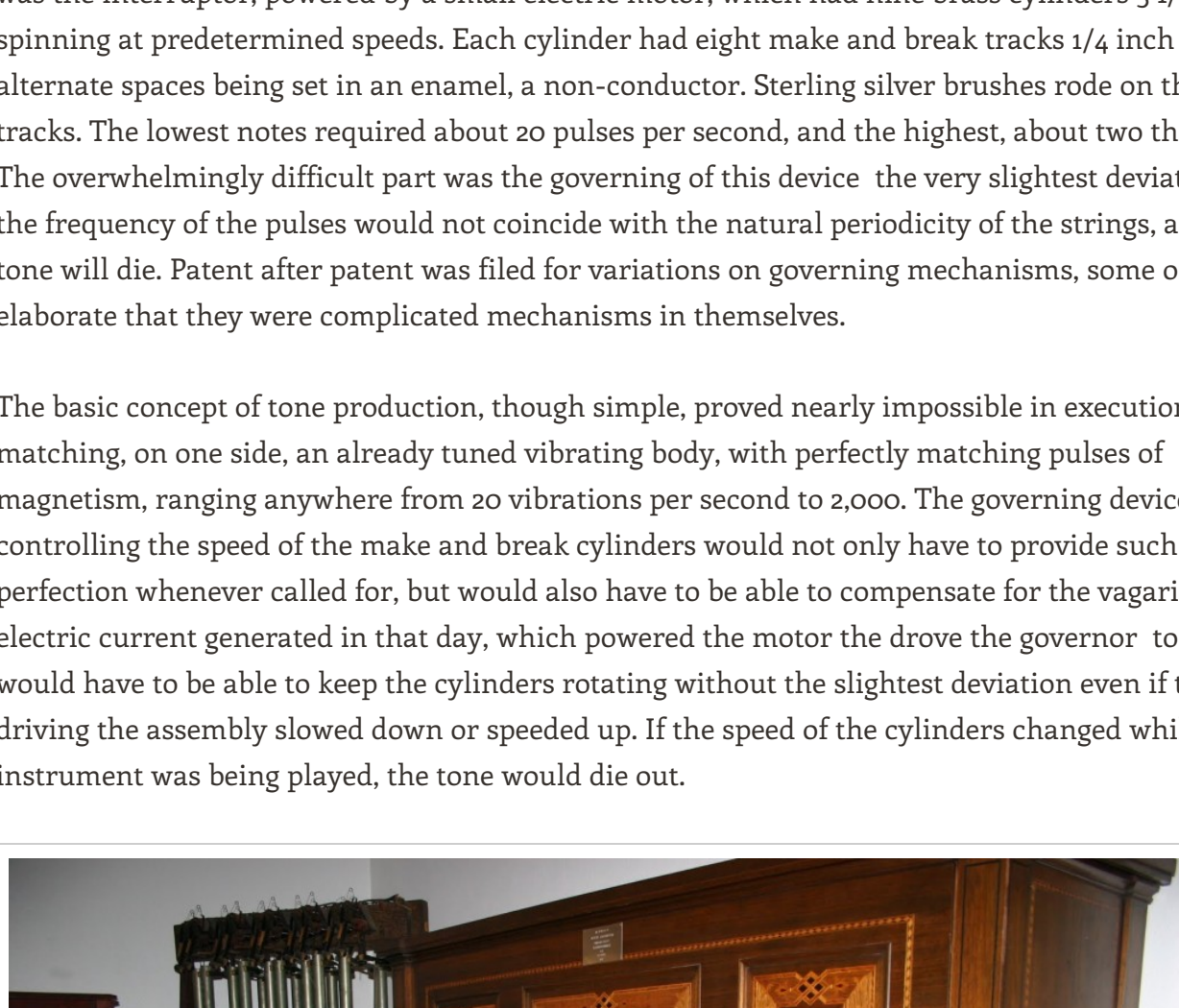


Promotional material from the Choralcelo company

## Detailed History of the Choralcelo from "History Of the Choralcelo" by W.Jenkins

"The information furnished is based on forty years of acquaintance with the instrument, and on three complete Choralcelo instruments at hand, friendship with one of the principals, interviews with others involved in the work, family members, original blueprints, all the patents issued, (and there were many) and original documents from the archives. "

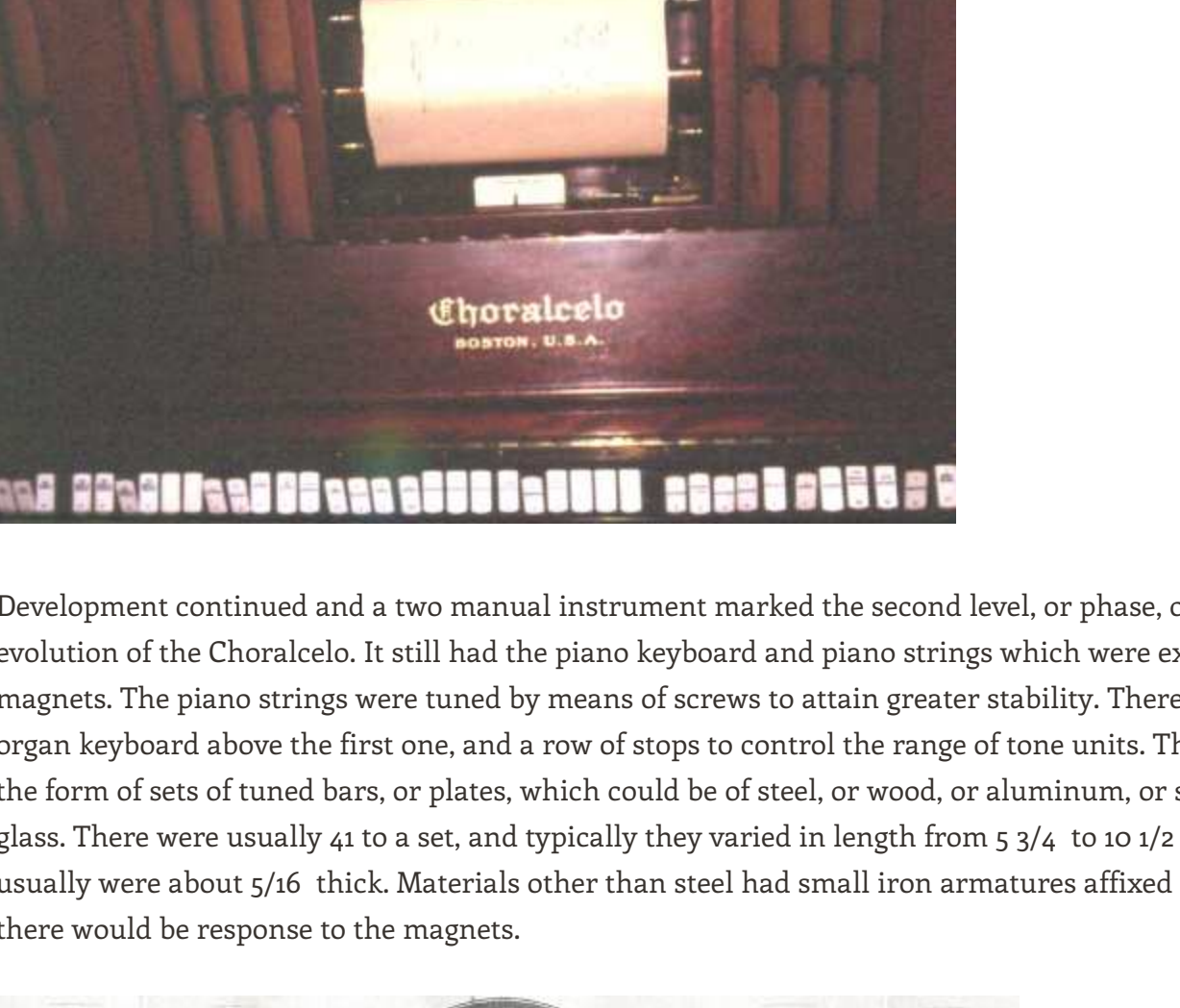
"The story of the Choralcelo is largely the story of two men Melvin L. Severy, born in 1863 in Melrose, Mass; died in California in 1951; and Wilber E. Farrington, born 1869, died 1945. Severy was a brilliant gifted, multi-faceted inventor who secured patents on a printing press, solar heating, a camera, fluid drive, and many others, besides the Choralcelo. He was a scholar, artist, musical composer, and author. His grandson recalls that he was interested in secret passages in the pyramids, to name one of his many interests. Severy was assisted in his experimentation by his brother-in-law, George B. Sinclair. They had married Flint sisters. Wilber Farrington was an idealistic, philosophic visionary who devoted the majority of his life to his love of the unique tone of the novel instrument and his determination to see it successfully developed and manufactured. He was a charismatic and effective fund raiser and invested his own fortune in the work. There had been many efforts at strengthening or lengthening the tone of piano strings electrically.



Remains of a Choralcelo at the National Music Museum, Vermilion Sands, South Dakota

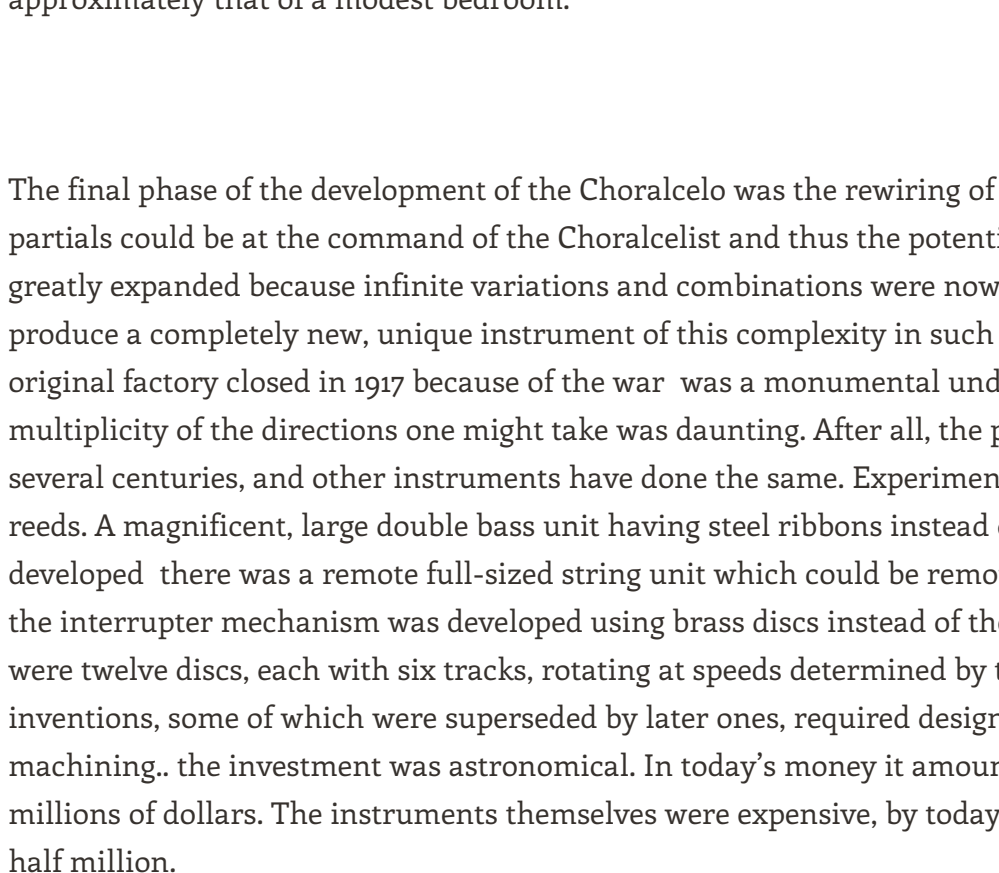
As early as 1876, Elisha Gray had patented a single note oscillator; and in 1890 Eli C. Ohm filed a patent on prolonging the tone of piano strings electromagnetically the patent was assigned to Melvin Severy. The principle being worked on was simple magnets were placed behind the strings of the piano, and accurately timed pulses of DC current were fed to the magnets coinciding with the natural periodicity of the strings. for example, if note A vibrated at 440 vibrations per second, then 440 pulses of current per second would be fed to the magnets for that note, and sustained organ-like tone would be produced without the use of the hammers. The mechanism which accomplished this was the interruptor, powered by a small electric motor, which had nine brass cylinders 3 1/2 long spinning at predetermined speeds. Each cylinder had eight make and break tracks 1/4 inch wide, alternate spaces being set in an enamel, a non-conductor. Sterling silver brushes rode on these tracks. The lowest notes required about 20 pulses per second, and the highest, about two thousand. The overwhelmingly difficult part was the governing of this device the very slightest deviation and the frequency of the pulses would not coincide with the natural periodicity of the strings, and the tone will die. Patent after patent was filed for variations on governing mechanisms, some of them so elaborate that they were complicated mechanisms in themselves.

The basic concept of tone production, though simple, proved nearly impossible in execution matching, on one side, an already tuned vibrating body, with perfectly matching pulses of magnetism, ranging anywhere from 20 vibrations per second to 2,000. The governing device controlling the speed of the make and break cylinders would not only have to provide such absolute perfection whenever called for, but would also have to be able to compensate for the vagaries of the electric current generated in that day, which powered the motor the drove the governor to do this, it would have to be able to keep the cylinders rotating without the slightest deviation even if the motor driving the assembly slowed down or speeded up. If the speed of the cylinders changed while the instrument was being played, the tone would die out.

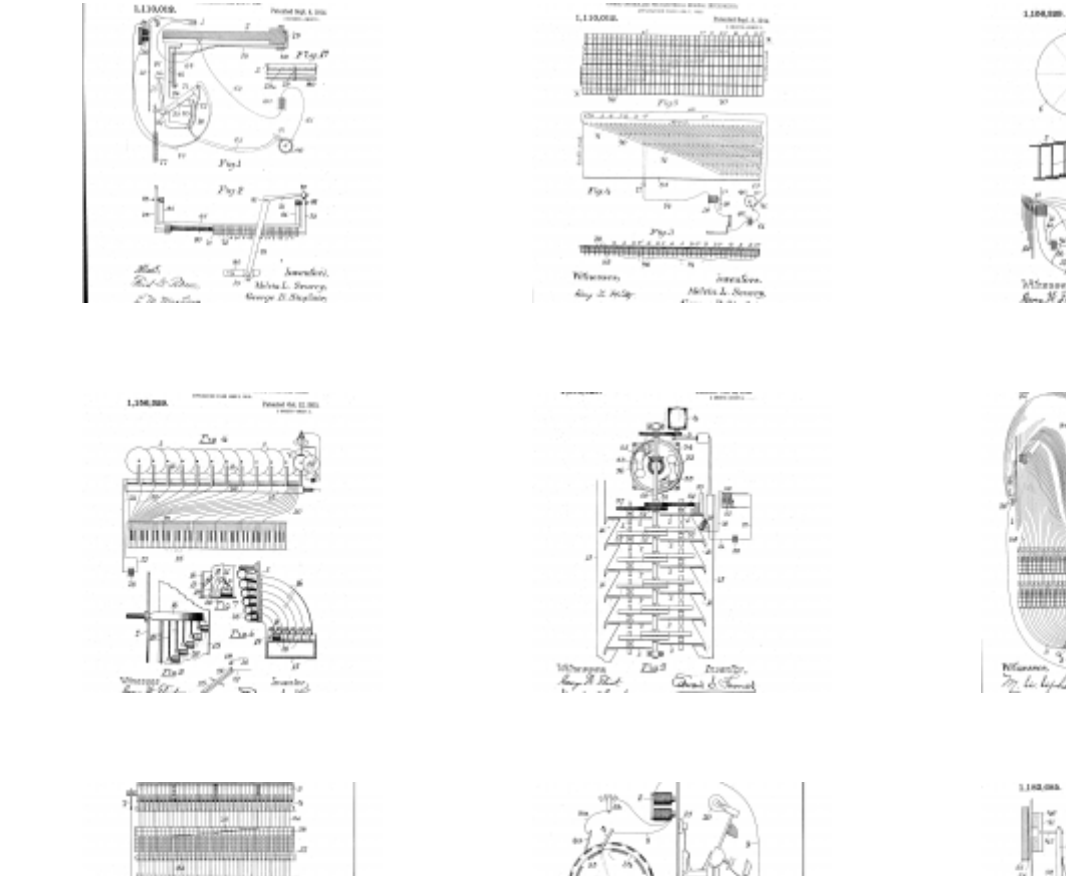


Remains of a Choralcelo at the National Music Museum, Vermilion Sands, South Dakota

An elegantly simple, brilliant magnetic combination governor and clutch evolved, which performed perfectly without physical contact, so there could be no overheating, and there were no clutch pads or other friction assemblies to wear out. Even today it is a marvel of brilliant application of principles of physics, and a marvel at least to those who are aware of what they are seeing to watch the spinning copper band drive the heavy flywheel merely by cutting through the invisible magnetic force. It is so disarmingly simple one could have no inkling of the years of labor which preceded it. Appreciating what it represents, I still have a feeling of awe. I doubt there has ever been anything like it, before or since. It was through the many mechanisms Severy labored over and patented in his determination to solve the problem that fluid drive evolved. The first concert was given in 1905, and was by invitation. The Choralcelo of that first phase of development was an impressive upright piano with one keyboard, usually with a roll player; the case of the finest grain mahogany with beautifully hand-carved openwork scroll panels. The tone could be varied by means of a slider near the left hand. It was the first tone produced without physical contact of some kind, and the tones produced invoked orchestral instruments minus the sound of the bow on the string or the breath of the flutist.



Development continued and a two manual instrument marked the second level, or phase, of the evolution of the Choralcelo. It still had the piano keyboard and piano strings which were excited by magnets. The piano strings were tuned by means of screws to attain greater stability. There was an organ keyboard above the first one, and a row of stops to control the range of tone units. These took the form of sets of tuned bars, or plates, which could be of steel, or wood, or aluminum, or sometimes glass. There were usually 41 to a set, and typically they varied in length from 5 3/4 to 10 1/2, and usually were about 5/16 thick. Materials other than steel had small iron armatures affixed so that there would be response to the magnets.



Installed directly over these bars were resonating chambers, usually cylindrical fiber tubes, open at each end, which reinforced the tone, just as one sees in marimbas and vibraharp. The tone production was entirely acoustic; there was nothing electronic about the Choralcelo no amplifiers, no loud speakers, no tubes nothing of the sort. These sets of bars were remote from the main console and could be placed anywhere. The switching and control devices were remote from the main console and could be contained in two cabinets, each about 5 1/2 high, and installed in the basement, along with the interruptor mechanism and motor-governor which delivered 30 volts of DC. The bar units could also be installed in the basement if desired, in which case grillwork was installed in the floor above them to transmit the sound; or they could be installed in the music room where the console was and concealed behind panelling or whatever was desired. The units were all connected by cables, usually armored with interwoven wire strands to protect them from damage. If all the machinery and also the bar units were to be placed in the basement, the space required would be approximately that of a modest bedroom.

The final phase of the development of the Choralcelo was the rewiring of the controls so that upper partials could be at the command of the Choralcelist and thus the potential of the instrument was greatly expanded because infinite variations and combinations were now available. The attempt to produce a completely new, unique instrument of this complexity in such a short period of time the original factory closed in 1917 because of the war was a monumental undertaking, and the multiplicity of the directions one might take was daunting. After all, the piano metamorphosed over several centuries, and other instruments have done the same. Experiments were conducted with reeds. A magnificent, large double bass unit having steel ribbons instead of individual strings was developed there was a remote full-sized string unit which could be remotely placed. A variation of the interruptor mechanism was developed using brass discs instead of the earlier cylinders. There were twelve discs, each with six tracks, rotating at speeds determined by the gearing. All of these inventions, some of which were superseded by later ones, required designing, engineering, machining, the investment was astronomical. In today's money it amounted to many hundreds of millions of dollars. The instruments themselves were expensive, by today's standards costing about a half million.

There were about one hundred built, many of them being installed in the music rooms of the wealthy. There were some that were in theatres to accompany silent films Filene's in Boston had two, one in the restaurant, Lord and Taylor in New York, and Marshall Field in Chicago, among others, featured Choralcelos, as did several hotels. There were even two on yachts.

The effort was a daunting task but great strides had been made by the time WWI broke out materials were no longer available and as a result, the factory closed. Farrington and several of the most devoted men involved remained active in several locations, Cleveland, Chicago, Port Chester, Connecticut, and New York among them. The last activity was a demonstration studio in New York City, but another world war broke out and the studio closed in 1942."

## Choralcelo Patent Files



Choralcelo patent files

## Sources

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[http://www.amica.org/Live/Publications/Past-Bulletin-Articles/Choralcelo/cc\\_61.htm](http://www.amica.org/Live/Publications/Past-Bulletin-Articles/Choralcelo/cc_61.htm)