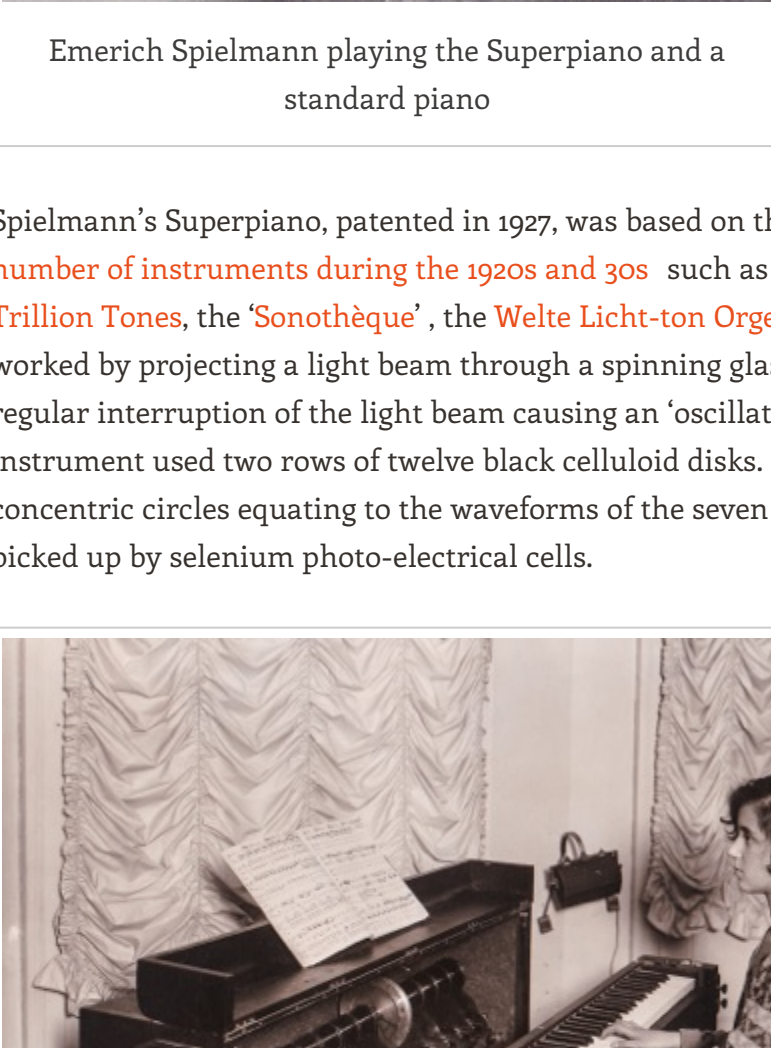
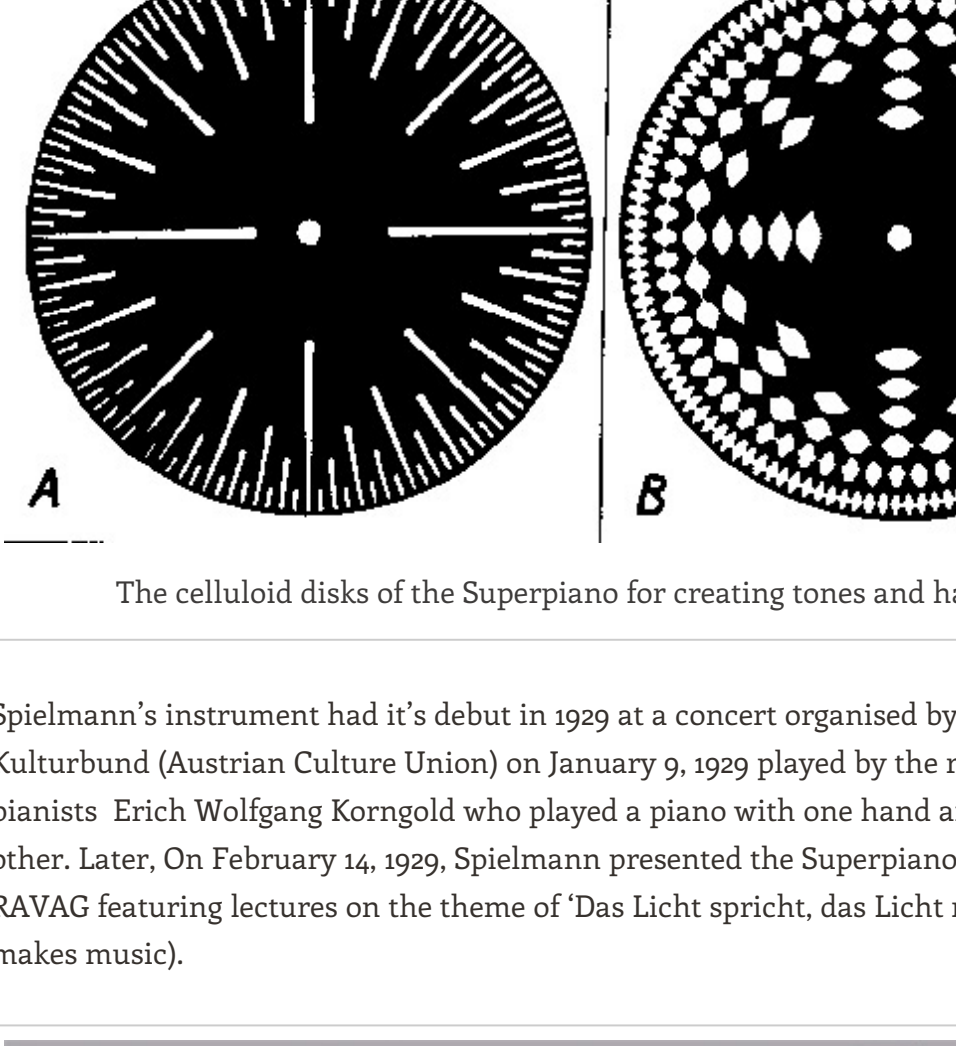


# The 'Superpiano' and 'Symphonium'. Emeric Spielmann, Austria, 1928



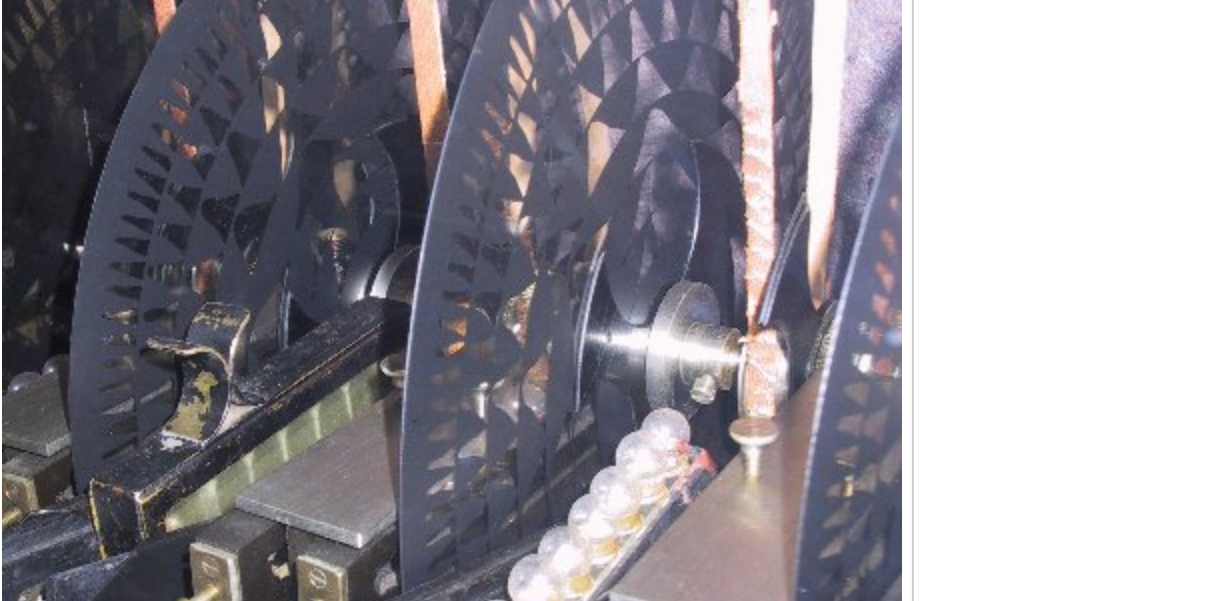
Emeric Spielmann playing the Superpiano and a standard piano

Spielmann's Superpiano, patented in 1927, was based on the photo-optical principle used in a number of instruments during the 1920s and 30s such as the **Cellulophone**, the **Radio Organ of a Trillion Tones**, the **'Sonothèque'**, the **Wette Licht-ton Orgel** and others. In general this principle worked by projecting a light beam through a spinning glass disk onto a photo-electrical cell. The regular interruption of the light beam causing an 'oscillating' voltage tone. Spielmann's innovative instrument used two rows of twelve black celluloid disks. Each disk had a series of holes cut in seven concentric circles equating to the waveforms of the seven octaves of a note – the light beam being picked up by selenium photo-electrical cells.



Anni Spielmann (Emeric's daughter) playing the Superpiano

The Superpiano created complex tones by allowing a combination of 'pure' and harmonic sound waves of the same note; each note was duplicated with contrasting sound wave and harmonics – hence two rows of twelve disks – allowing the player to mix the sound waves of each note with a knee lever. Volume control was achieved by variable pressure on the manual keyboard via variable resistors dimming and increasing the lightbulb brightness – and therefore the note volume. The instrument's overall pitch could also be altered while playing, by adjusting the speed of the rotating disks. Spielmann intended the Superpiano to be used as an affordable (\$300) home keyboard which could be played like a piano but also a type of early sampling keyboard – 'drawings' of different instrument's waveforms could be made on the celluloid disks, allowing the player to reproduce the "entire instrumental range of an orchestra" – or so the advertising claimed.

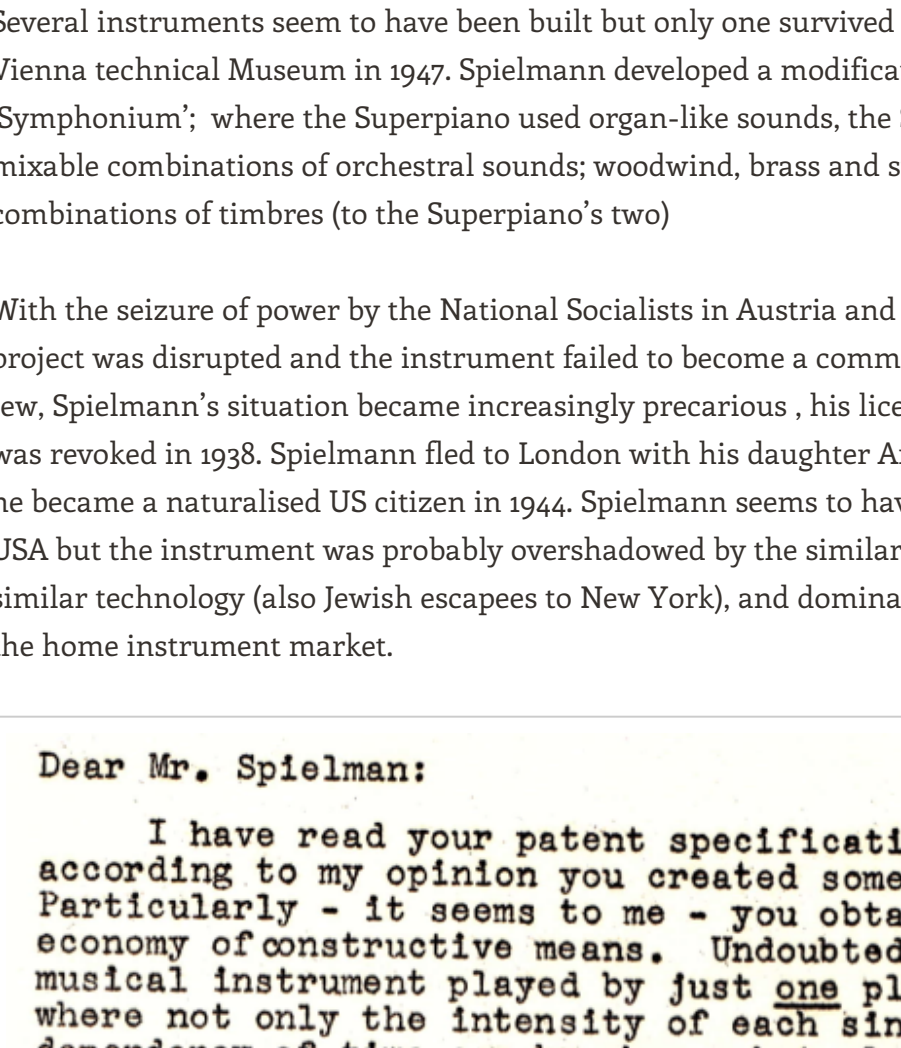


The celluloid disks of the Superpiano for creating tones and harmonics

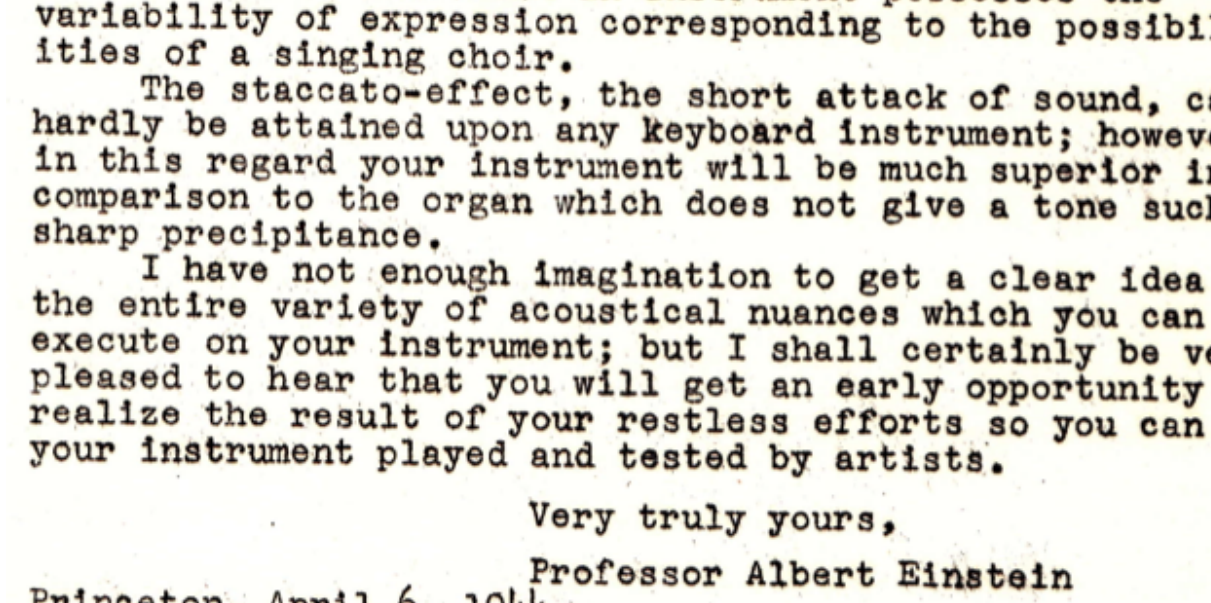
Spielmann's instrument had its debut in 1929 at a concert organised by the Österreichische Kulturbund (Austrian Culture Union) on January 9, 1929 played by the renowned composer and pianist Erich Wolfgang Korngold who played a piano with one hand and the Superpiano with the other. Later, On February 14, 1929, Spielmann presented the Superpiano on the Vienna radio station RAVAG featuring lectures on the theme of 'Das Licht spricht, das Licht musiziert' (Light speaks, light makes music).



Spielmann's Superpiano 1927 the Museum of Technology, Vienna, Austria



The last Superpiano at the Vienna Technical Museum, Austria showing the celluloid disks and light bulbs



The last Superpiano at the Vienna Technical Museum, Austria

Several instruments seem to have been built but only one survived the ravages of WW2, sold to the Vienna technical Museum in 1947. Spielmann developed a modification of the Superpiano called the 'Symphonium': where the Superpiano used organ-like sounds, the Symphonium was based on mixable combinations of orchestral sounds; woodwind, brass and strings allowing fifteen possible combinations of timbres (to the Superpiano's two)

With the seizure of power by the National Socialists in Austria and Germany in 1933 the Superpiano project was disrupted and the instrument failed to become a commercial proposition; As an Austrian Jew, Spielmann's situation became increasingly precarious , his license to practice as an architect was revoked in 1938. Spielmann fled to London with his daughter Anni, and then to New York where he became a naturalised US citizen in 1944. Spielmann seems to have continued the project in the USA but the instrument was probably overshadowed by the similar **'Wette LichttonOrgel'** using similar technology (also Jewish escapes to New York), and dominance of the **Hammond Organ** in the home instrument market.

Dear Mr. Spielman:

I have read your patent specification with interest; according to my opinion you created something really new. Particularly it seems to me - you obtained remarkably economy constructive means. Undoubtedly hearing a musical instrument played by just one player in a way where not only the intensity of each single tone in dependency of time can be chosen but also the timbre of any number of tone groups will arouse thrilling expectations.

I believe that such an instrument possesses the variability of expression corresponding to the possibilities of a singing choir.

The staccato-effect, the short attack of sound, can hardly be attained upon any keyboard instrument; however in this regard your instrument will be much superior in comparison to the organ which does not give a tone such sharp precipitance.

I have not enough imagination to get a clear idea of the entire variety of acoustical nuances which you can execute on your instrument; but I shall certainly be very pleased to hear that you will get an early opportunity to realize the result of your restless efforts so you can have your instrument played and tested by artists.

Very truly yours,  
Professor Albert Einstein

Princeton, April 6, 1944.

Letter to Spielmann advocating the Superpiano from Albert Einstein. USA 1944

Video of Peter Donhauser - Head of Division Fundamentals of Technology & Science at the Vienna Technical Museum - with the Superpiano <http://klangmaschinen.ima.or.at/db/pv.php?id=2013&lang=en&table=Object>



Spielmann's 1928 patent for the photo-electrical sound generator

Video of Peter Donhauser - Head of Division Fundamentals of Technology & Science at the Vienna Technical Museum - with the Superpiano <http://klangmaschinen.ima.or.at/db/pv.php?id=2013&lang=en&table=Object>

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VERBAND FÜR KULTURELLE ZUSAMMENARBEIT  
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Mittwoch, den 9. Jänner 1929

**Erste Vorführung des neuen Tasteninstrumentes „SUPERPIANO“**

durch den Erfinder, Architekt E. SPIELMANN

Mitwirkende:  
Frau EMILIE BITTNER  
Frau LOUISE HELLETSGRUBER (Staatsoper)  
ERICH WOLFGANG KORNGOLD

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## Austrian Invents a "Super-Piano" Having Neither Strings Nor Hammers

Vienna, June 7.—Dr. Emeric Spielmann, architect and engineer, attracted the attention of the musical world here recently, when he announced his new invention, a super-piano. It is an instrument a little larger than a harmonium, with a keyboard like an ordinary piano; but there the resemblance ceases. It has no strings and no hammers, and is controlled by electricity. After two and a half years' unremitting work, Dr. Spielmann told the representative of The Christian Science Monitor, the instrument has proved itself, not only workable, but capable of interpreting all works written for the piano and organ. Naturally this is only a beginning, and the inventor sees almost unlimited possibilities of perfection and adaptation in this, the first super-piano to be patented. In January of this year, Dr. Spielmann lectured on his invention at the Kulturbund here, with the eminent composer, Erich Wolfgang Korngold at the instrument, and in the following February he gave a concert, which was radiocast by the Vienna radio station.

On the super-piano there is a properly gauged tachometer, showing by means of an indicator whether the instrument is playing at a pitch coinciding with the key. This arrangement makes transposition into different keys for different voices unnecessary, since the required change of pitch can be made automatically.

The individual tones of the piano is incapable of modulation, whereas that of the super-piano has a wide possibility of alteration from the softest pianissimo fortissimo exceeding that of a

powerful organ. By means of a amplifier necessary to strengthen the selenium current, the tone may be modulated at will. A knee pedal corresponding to that on a harmonium, enables the player to sustain a tone or melody at will, even though the tones is continued.

The super-piano in its present single keyboard form is, because of its comparative simplicity of construction, being sold at \$300. Patents are pending in Germany, England and the United States, in which latter country the inventor intends to make a lecture tour. In the autumn of this year an additional electrical adjustment added to the single keyboard super-piano will make it possible for violin scores, or those of flutes or other instruments to be played in addition to the usual piano music.

It is an easy matter, says the inventor, to construct the super-piano with multiple keyboards, each with a specific tone color, one that of the piano, another that of stringed instruments, another woodwinds, another brass and so on, so that one super-piano, with a few players, or in some cases with one expert musician, could replace an orchestra.

One of the Vienna papers, describing the tone of the new instrument, could find no better phrase to sum up its quality than that of Liszt, when he said of the Lohengrin overture that it was "a fragrant ether."

For over 20 years "Old Faithful," a keyser in Yellowstone National Park, has spouted at average intervals of 65 minutes.

Superpiano editorial in the Southeast Missourian Newspaper. 1929

**THE "SUPER-PIANO."**

**A Vienna Architect's Invention.**

The Vienna architect, Emmerich Spielmann, has invented a new musical instrument, which he calls a "Super-Piano." It looks like an ordinary piano, but its sounds are produced by light and electricity.

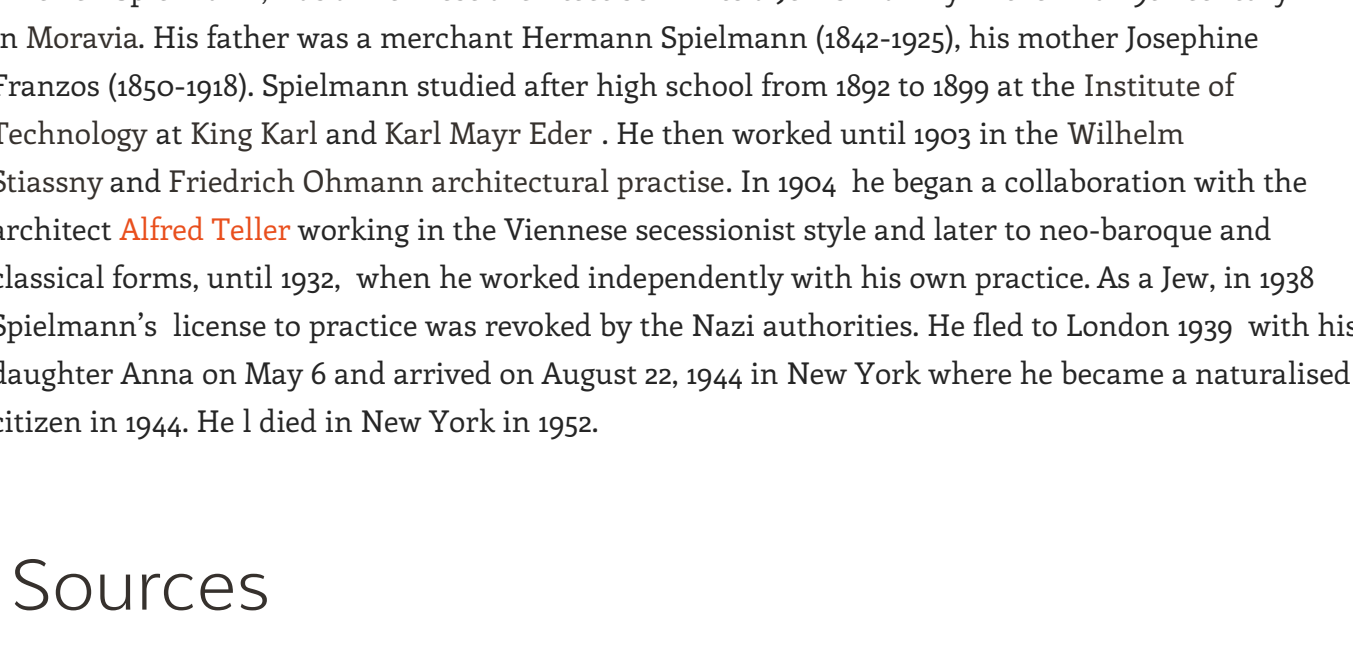
The sound-producing element is a ray of light interrupted rhythmically by vibrations of sound and falling on a selenium cell. In this cell currents of electric light originate, which are transmitted as sound by way of a loud-speaker. The rays of light issue from small incandescent lamps, which are formed in groups of seven, corresponding to the octaves. By varying the pressure on the keys, the sounds swell and ebb, and by means of a knee-jointed lever any number of keys may be kept sounding without a break.

It is possible to produce quarter-tones and quavers by calculation, and mixtures of sound which so far no other instrument can produce. Further, it is possible to transpose everything mechanically into any key without altering the mode of playing. One may also capture the sounds of a string or brass band, or the human voice on the revolving discs, in a manner similar to that of the tone-film.

Anyone may play the "super-piano." If the player uses headphones the piano produces no external sound, so that one may play throughout the night without disturbing one's neighbours.

Erich Wolfgang Korngold, the well-known Austrian composer, has introduced the new instrument to the public.

Contemporary newspaper clippings. Straights Times, Singapore 1929



Front view of the Superpiano showing tone-mixing knee lever, pedals and loudspeaker



U.S. naturalisation papers of Emeric Spielmann. 1944

## Emeric(Ernst) Moses Spielmann – 23.06.1873 Vienna, Austria – 1952 Elmhurst, Queens, New York USA. Biographical notes

Emeric Spielmann, was a Viennese architect born into a Jewish family in the mid-19th century in Moravia. His father was a merchant Armand Spielmann (1842-1925), his mother Josephine Franzos (1850-1918). Spielmann studied after high school from 1892 to 1899 at the Institute of Technology at King Karl and Karl Mayr Eder. He then worked until 1903 in the Wilhelm Stiassny and Friedrich Ohmann architectural practice. In 1904, he began a collaboration with the architect Alfred Teller working in the Viennese secessionist style and later to neo-baroque and classical forms, until 1932, when he worked independently with his own practice. As a Jew, in 1938 Spielmann's license to practice was revoked by the Nazi authorities. He fled to London 1939 with his daughter Anna on May 6 and arrived on August 22, 1944 in New York where he became a naturalised citizen in 1944. He died in New York in 1952.

## Sources

Peter Donhauser, Elektrische Klangmaschinen, Vienna 2007.

The archive of Regina Spelman, Deborah Lucas, Dan Lucas