





EARLY ELECTRONIC INSTRUMENTS

CYLINDER VS. DISC

(PHONOGRAPH VS. GRAMOPHONE)



JOHN CAGE



1939 Imaginary Landscape #1 - records of audio test tones played on two variable speed turntables, with percussion and piano.



GARRARD
SP 25 MK IV

SYNCHRONOUS MOTOR

MAN AUTO

GARRARD
SP 25 MK IV

SYNCHRONOUS MOTOR

MAN AUTO

Mic

Tape

Out

MONITOR

VOL

1 2 T

PHONES

MIC EQ

MIC

LEVEL

FADE

DISC 1

MOTOR

DISC 2

MOTOR

TAPE

BASS

TREBLE

FAL

SUPER DISCO

OFF

ON

DJ KOOL HERC

mid 70s: isolating the “break” and scratching techniques



ROCKIT

Herbie Hancock

DJ Grand Mixer D.ST



DIGITAL TURNTABLES

a turntable “controller”

some use ‘signal records’

scratching data



Myriam Bleau / Soft revolvers



CHRISTIAN MARCLAY





Christian Marclay

Maria Chavez

Book of Abstract Turntable Techniques

ON TURNTABLE OF TECHNIQUE: CHANCE PROCEDURES

A BOOK OF ESSAYS & ILLUSTRATIONS
BY MARIA CHAVEZ

Maria Chavez

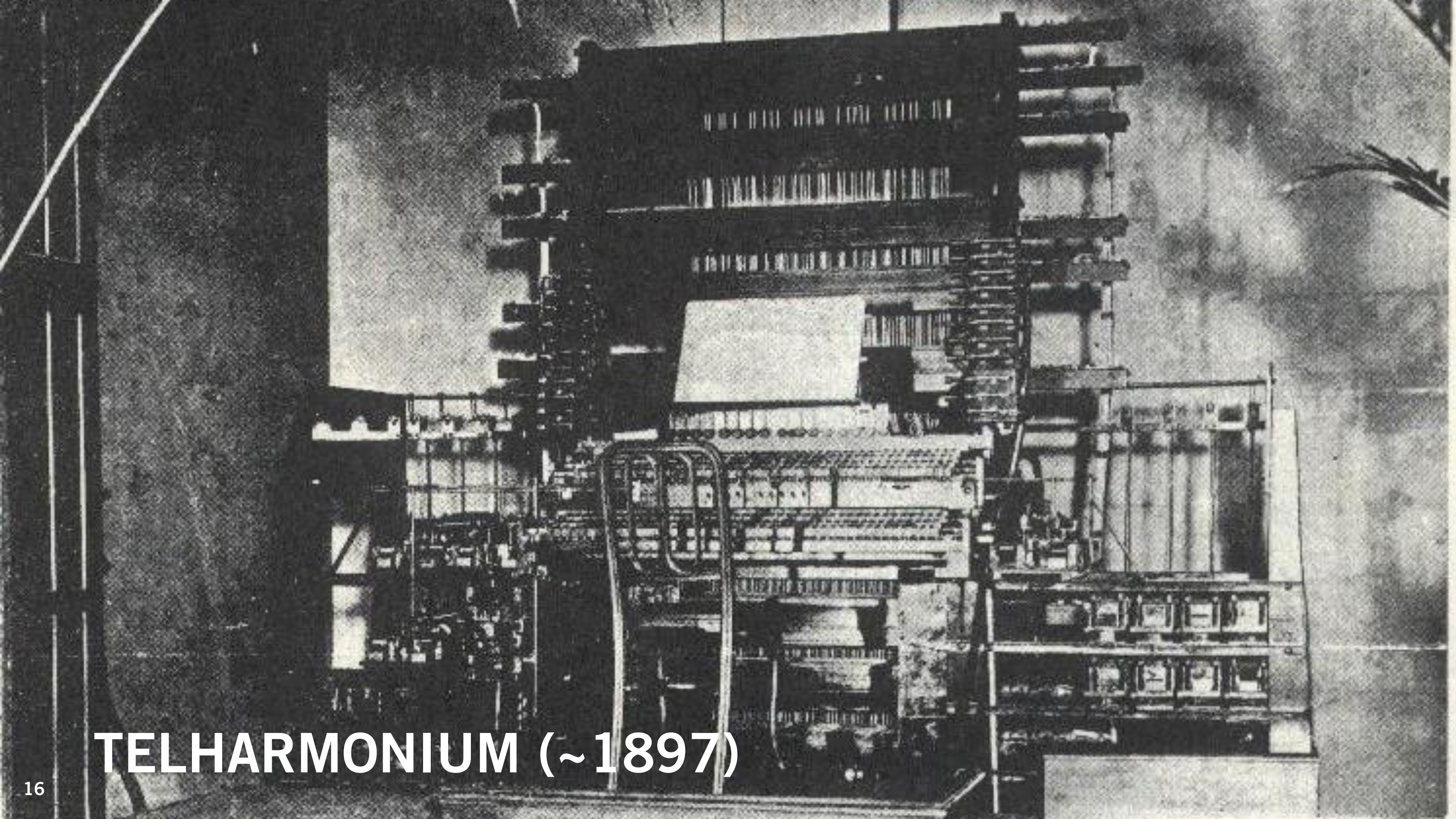


Electricity

Recording systems

Electronic Instruments





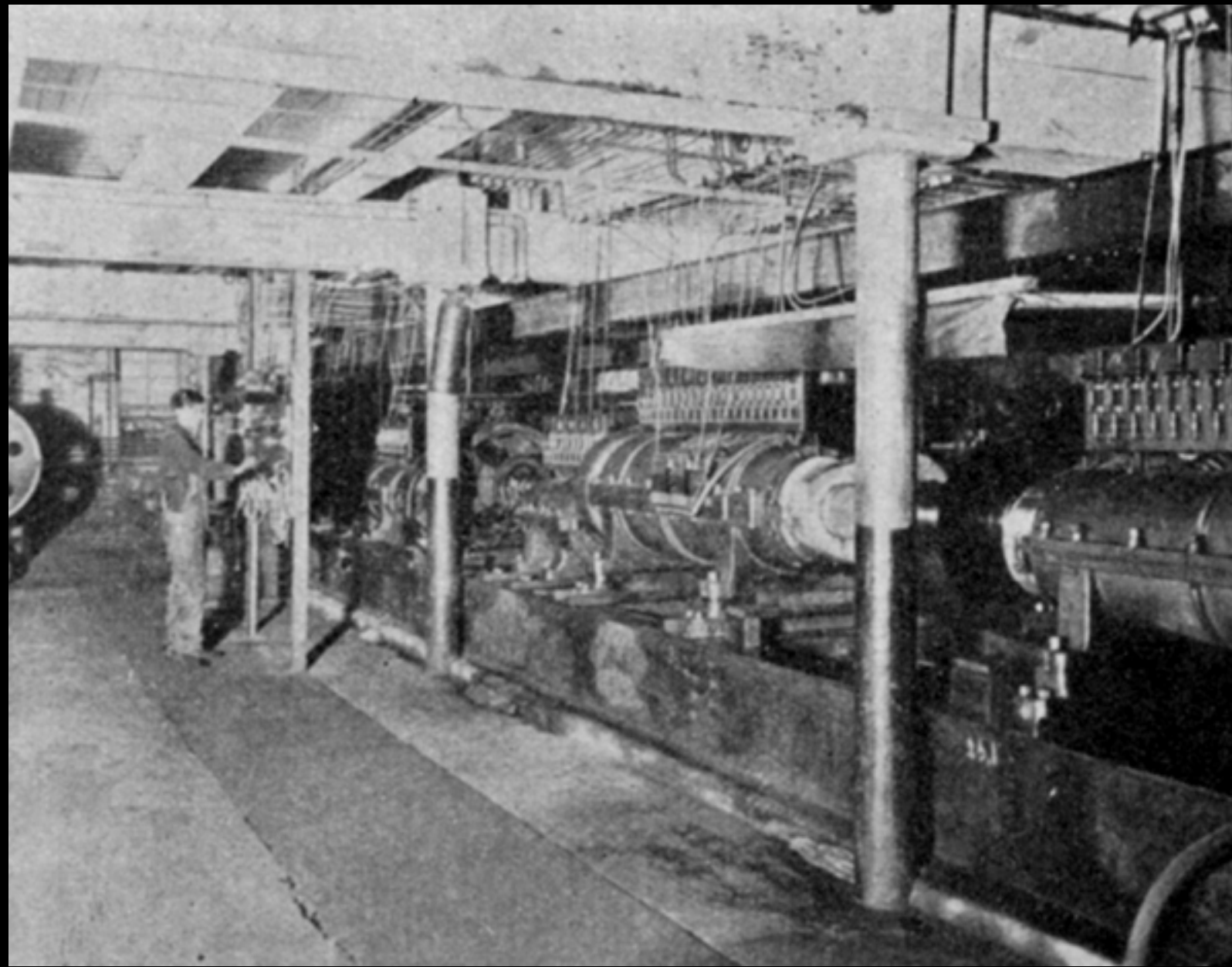
TELHARMONIUM (~1897)

Telharmonium (1897)

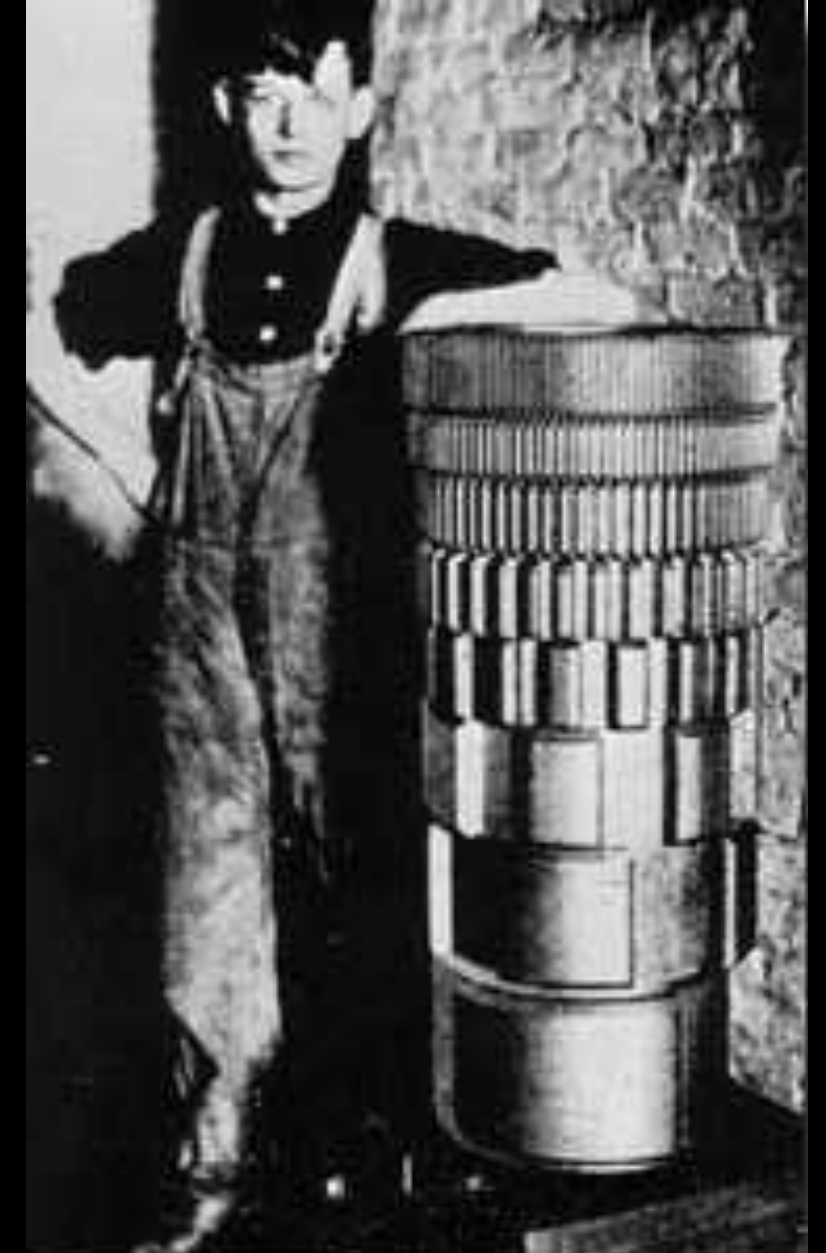
Thaddeus Cahill



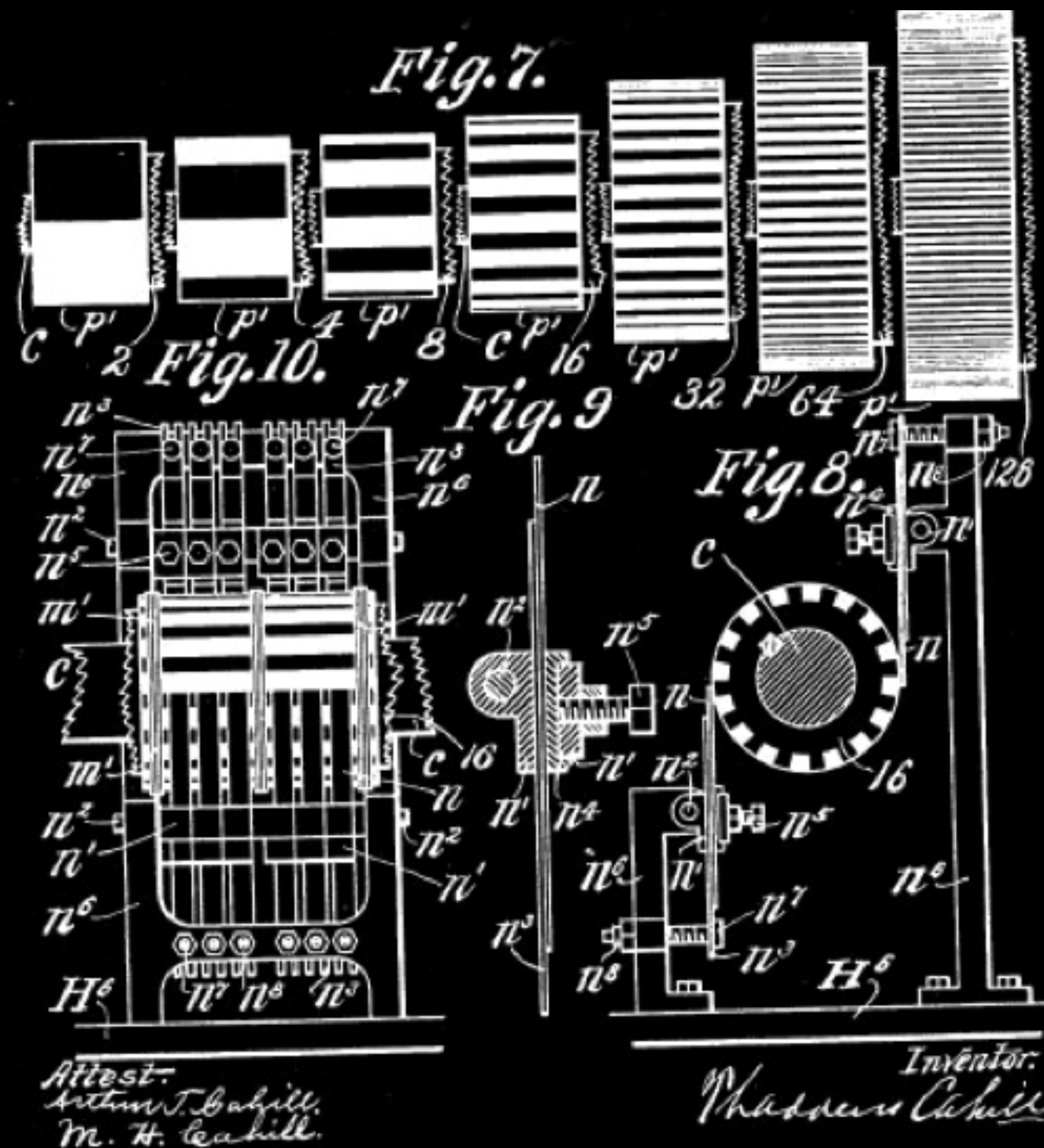
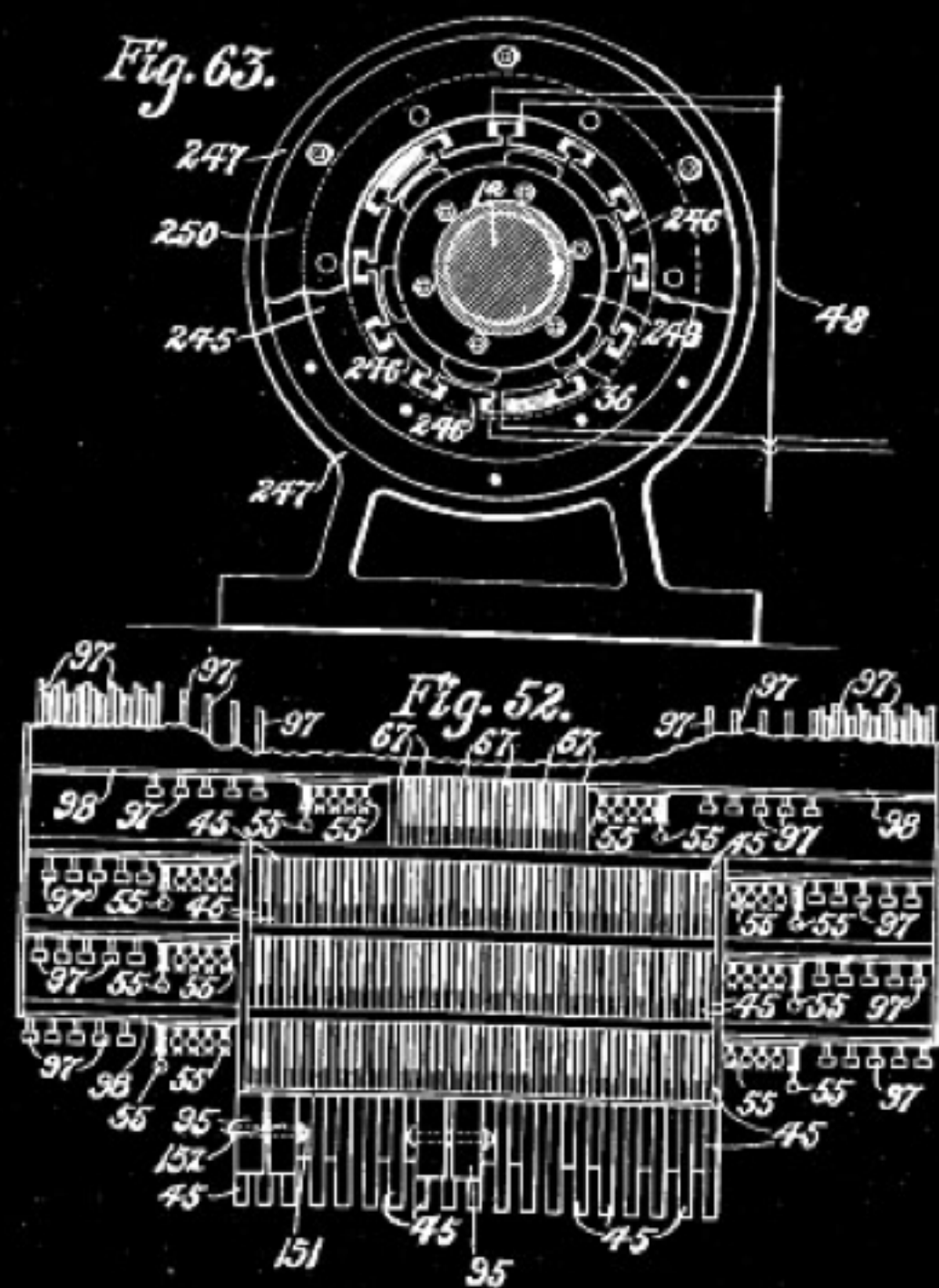
weighed 200 Tons and cost \$200,000 to make in 1897

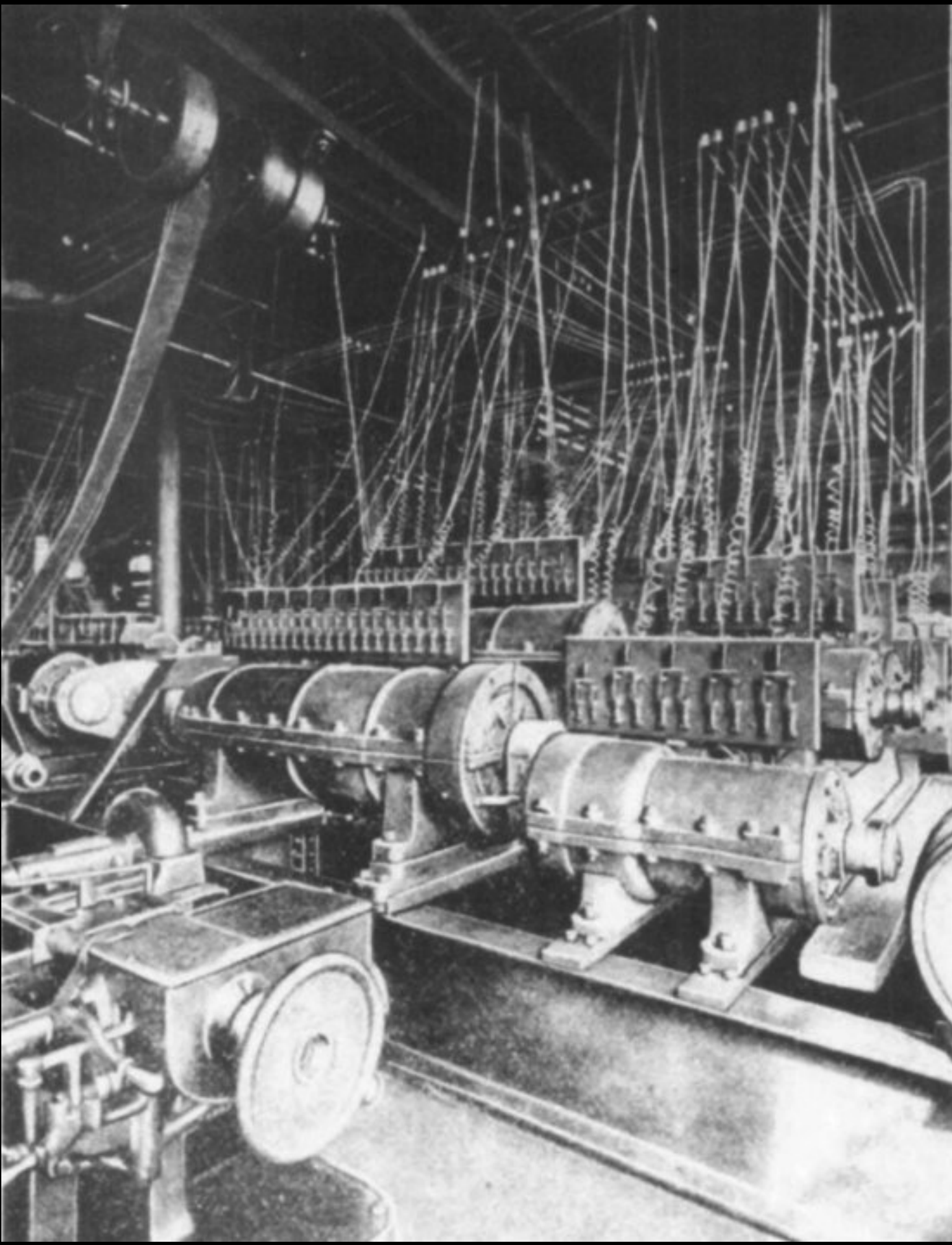


Additive Synthesis
rheotomes (later tone-wheels)



Telharmonium





Telharmonium

Additive Synthesis

Music transmitted over wires

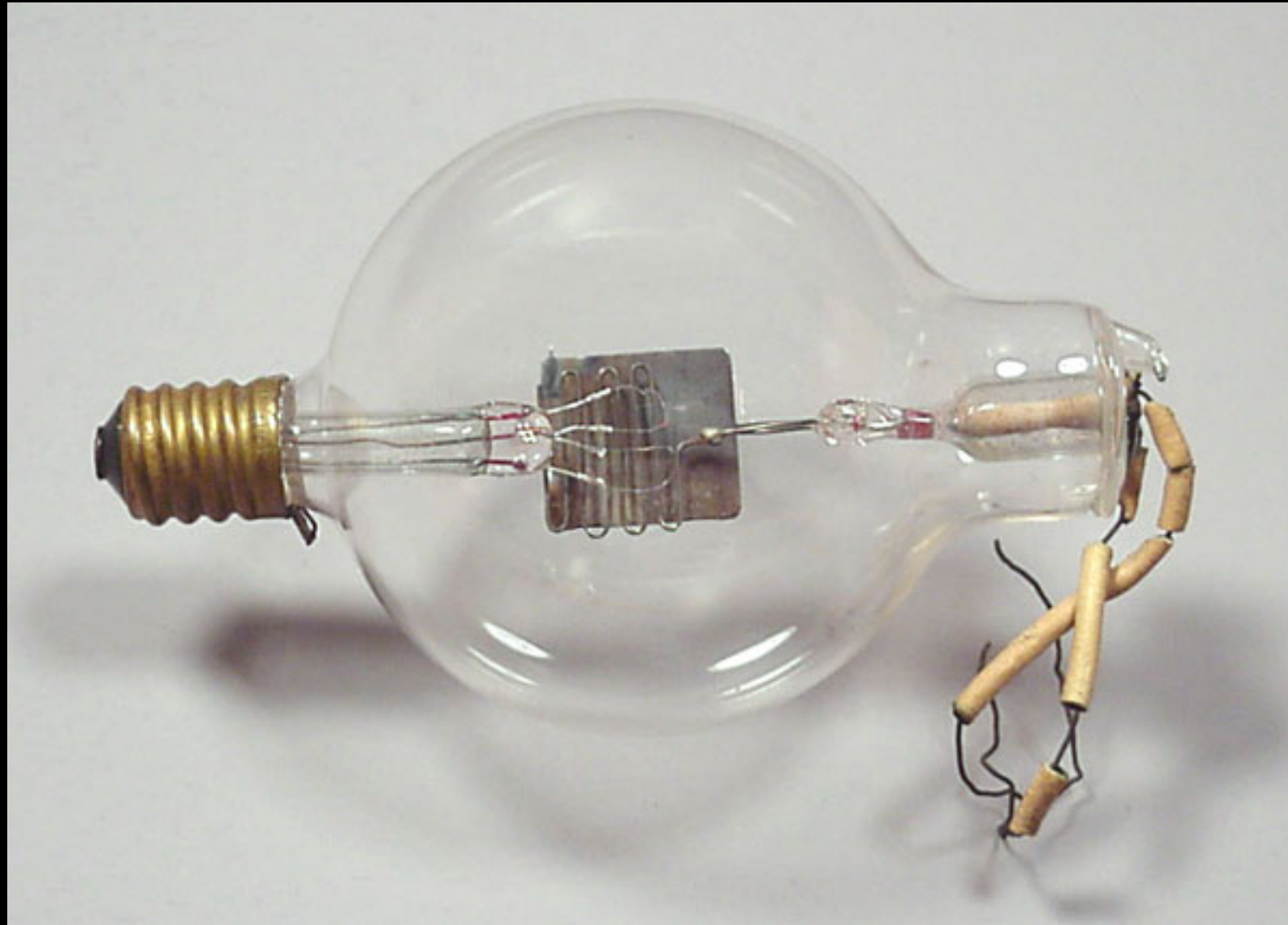
Rudimentary Loudspeakers

First use of the term “Synthesizing”

670 KW of power (a lot!)

Polyphonic vs. Monophonic

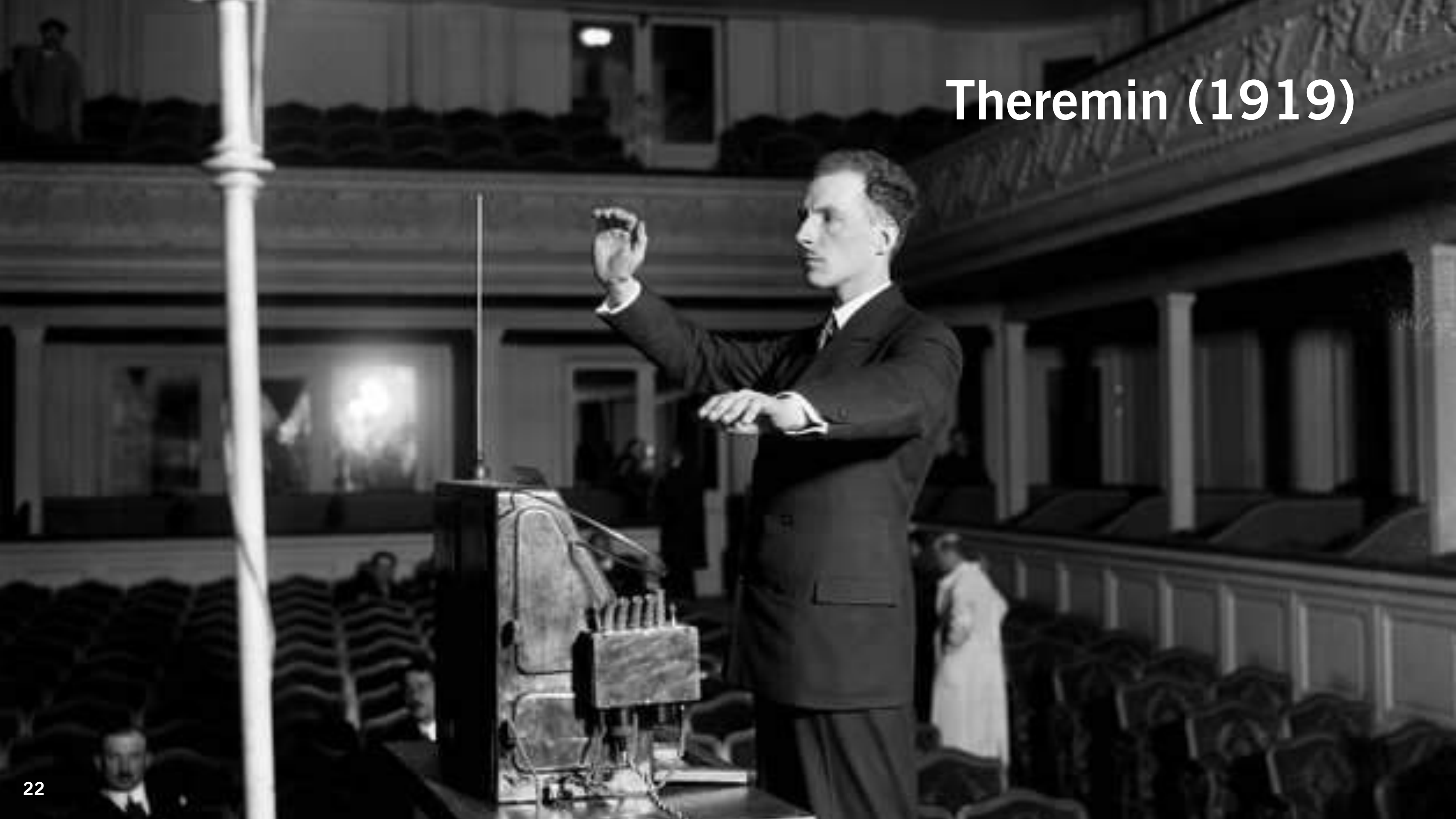
The Vacuum Tube



Lee De Forrest's developments of Ambrose Fleming's vacuum tube (1906), allowed for amplification of electronic signals.

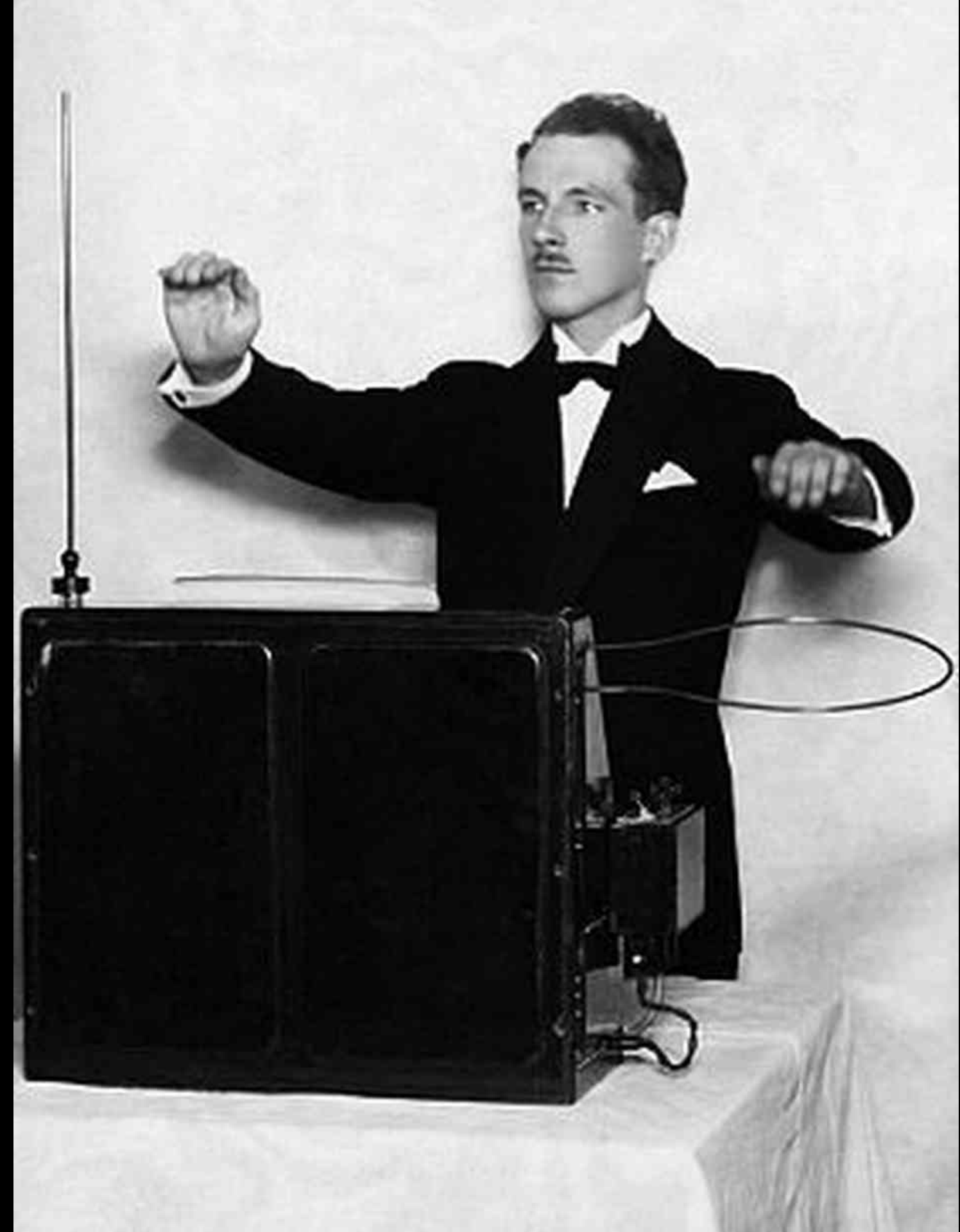
The device, called an Audion, enabled a new generation of electronic instruments.

Theremin (1919)



Léon Theremin

- 1896 - born
- 1922 - theremin demonstrated in Russia for Lenin
- 1927 - moved to NY
- 1928 - played theremin at Carnegie Hall
- 1929 - RCA manufactures 500 theremins
- 1938 - returned to the Russia, mysterious circumstances.
- 1947 - worked on espionage technologies
- 1954 - Bob Moog begins making theremin kits
- 1966 - taught Theremin at Moscow Conservatory.
- 1991 - Travelled to the US at age 95.





Theremin (2012)





Clara Rockmore



Ravel
"Habanera"