

The Armstrong Superheterodyne amplifier

The word heterodyne describes a technique in which alternating currents of different frequencies are mixed so that they modulate each other, (similar to two guitar strings that are slightly out of tune) and produce in the output components with frequencies equal to the sum and difference of the original frequencies.

During W.W.I. the Germans had the capability of transmitting signals higher than the US could receive. Armstrong developed a radio amplifier that used an intermediate frequency (455kHz) to "beat" against the higher incoming signal. This resulted in a lower frequency that could be amplified. The amplitude modulation radio.

Armstrong also invented FM radio in 1933. David Sarnoff was the president of RCA; he met Armstrong in 1930. Armstrong explained his idea of Frequency modulation.

Sarnoff set him up a radio lab in the Empire State building to develop the system. At the same time RCA engineers were working on the new concept of television. By the mid 30's Sarnoff abandoned the whole FM radio project, feeling that television was the future, and shut down Armstrong's lab.

RCA's goal was a working television displayed at the 1939 Worlds Fair in New York City.

The only problem the RCA engineers had was the audio; AM radio was too noisy. Sarnoff decided that Armstrong's FM system was the solution. Unfortunately for him Armstrong had the patent. RCA was one of the largest manufacturers in the country, and had more resources and money than Armstrong. Sarnoff tied Armstrong up in court over the patent rights for years, Sarnoff argued that he had financed the whole FM project and should own the patent.

Armstrong clearly invented it.

RCA had their new television, with FM as the audio carrier, at the Worlds Fair.

Edwin Armstrong gave up his fight to keep the rights to his patent. On February 3rd, 1954 he sent his wife to her sister's, put on his hat and overcoat, and walked out of their 13th story apartment window.