



THOMAS EDISON DEMONSTRATES HIS TINFOIL PHONOGRAPH. Location: The Washington, D.C., portrait studio of photographer Mathew Brady. Date: 4/18/1878. Visible: The phonograph's hand crank, cylinder, and recording stylus mechanism. © Bettmann/CORBIS

After Edison decided to invent the telephone answering machine, he began experimenting. In one of his experiments, he attached a paper-thin diaphragm to a small, blunt pin resting on paraffin paper. As he spoke into the diaphragm, he moved the pin across the paper. The vibrating pin produced faint indentations in the wax. Finding that the sound “vibrations were indented nicely” he concluded “there’s no doubt that I shall be able to store up & reproduce automatically at any future time the human voice perfectly.”<sup>2</sup>

In August 1877, Edison drew crude diagrams of his imagined telephone answering machine, and gave them to John Kruesi, a machinist in his Menlo Park, New Jersey, laboratory. Edison told Kruesi to build the machine, but he did not tell him what the machine was supposed to do. The machine’s purpose was Edison’s secret.

On December 4, Kruesi finished work on the machine. I was there, in Edison’s laboratory, with Billy Carman [Edison’s accountant], and Charles Batchelor [Edison’s assistant], when John Kruesi gave the machine to Thomas Edison. It had a long metal cylinder connected to a hand crank, a metal arm connected to a round diaphragm and a blunt needle, plus some other attached parts and gizmos that I couldn’t identify. We all stared at the machine with a big question in our minds. Then, John Kruesi finally asked Thomas Edison what we were all thinking: What is this odd-looking thing supposed to do?

“The machine must talk, Kruesi,” said Mr. Edison, laconically.<sup>3</sup>

*That solid piece of metal is going to talk?*

I laughed. Billy Carman bet Edison a handful of cigars that the machine certainly would not talk. Kruesi, the man who had built the machine, bet two dollars that it would not talk.

*Now, this should be good . . .*

Edison just smiled and proceeded to wrap some tinfoil carefully around the main cylinder of the machine. When he was finished, he gently lowered the machine’s metal arm so that the blunt needle rested lightly on one edge of the cylinder. Then, he slowly turned the machine’s crank, and the needle began to move laterally across the tinfoil, toward the other edge of the cylinder. Edison leaned toward the machine and spoke loudly into the diaphragm that was attached to the needle: “Mary had a little lamb, its fleece was white as snow, and everywhere that Mary went, the lamb was sure to go.”<sup>4</sup>

“Why are you reciting nursery rhymes?” I asked Edison.

Edison stopped cranking the machine. He pointed to the surface of the tinfoil. I took a closer look and I was amazed to see that the needle had etched small bumps and grooves in the tinfoil, as it had traveled across the cylinder.

“But what does it mean?” I asked.

Edison smiled. He lifted the arm with the needle and placed it back down at the beginning of the grooves. He attached a small funnel to the diaphragm. Then, he again turned the machine’s crank. I watched as the needle followed the grooves it had created only moments before. What a surprise! I heard a scratchy version of Edison’s voice come out of the funnel on top of the diaphragm and needle. The machine spoke the nursery rhyme in Edison’s own voice!

I didn’t know what to say! Neither did anyone else. Carman, Batchelor, Kruesi, and I just stood there for what seemed like the longest time, staring at each other. Finally, John Kruesi shouted, “Mein Gott in Himmel [My God in Heaven]!”<sup>5</sup>

The world would never be the same! The telephone answering machine might still be a few years away, but the phonograph was born!

We stayed up all night playing with the phonograph—the machine that could talk. We coughed, sneezed, sang, clanged bells, and whistled into Edison’s tinfoil phonograph. It was hilarious. I laughed out loud at one point, when I heard “bmal elttil a dah yram” coming from the machine. Edison had reversed the cylinder and had played his first recording backward!<sup>6</sup>

Of course, to me, recording and playing back sounds was nothing new. In my time, we commonly get music and video out of invisible “ones” and “zeros” on spinning plastic disks, or from solid-state computer memory with no moving parts at all. But that night, I just couldn’t get over that it all began with little grooves in common tinfoil, and a machine with a hand crank!

It took a few years, but Edison eventually replaced the tinfoil-covered cylinder with a flat circular plate, and the hand crank with an automatic clockwork mechanism. That’s when the phonograph started to look more like those I had seen in museums, and in my father’s childhood photographs.

I remember a day in early 1878 when a reporter from the *New York World* visited the Menlo Park laboratory and interviewed Edison about his plans for the phonograph. Edison was more than happy to talk with the reporter about his plan to build a whole business around the talking machine.

“We’re going to start a publication office in New York when the phonograph is ready.”

“What do you intend to publish?” asked the reporter.

“Music, novels, general literature and many other kinds of matter that are read by persons and reproduced by instruments or their