

# THE MILLS VIOLANO-VIRTUOSO

## A VIOLIN THAT PLAYS ITSELF

BY ROGER GOODMAN

I grew up in Los Angeles before there was a Disneyland or a Magic Mountain. I still have fond memories of the local attractions that I visited with my family. Most of these attractions are gone now with the notable exception of Knott's Berry Farm. Back then the park was not fenced off and you could saunter in and spend the day wandering around Ghost Town, which was like a living museum of the Old West. They had people working the concessions that had actually been part of the Old West. Some friends of my sister spent an entire day talking with the old timers who worked at the Pan-for-Gold concession and learned enough to go out to the desert and pan for gold at played-out abandoned mines. Gold was still fixed at \$35 an ounce and many of the mines were abandoned when it was no longer profitable to work them at that price. The park was also host to a collection of nickelodeon music boxes and I had been told that there was one that actually played the violin. Every time I asked about it I was told that it was out for repair and I never got to see it — but my interest was peaked and I continued to ask.

Continuing my quest to see a mechanical vio-

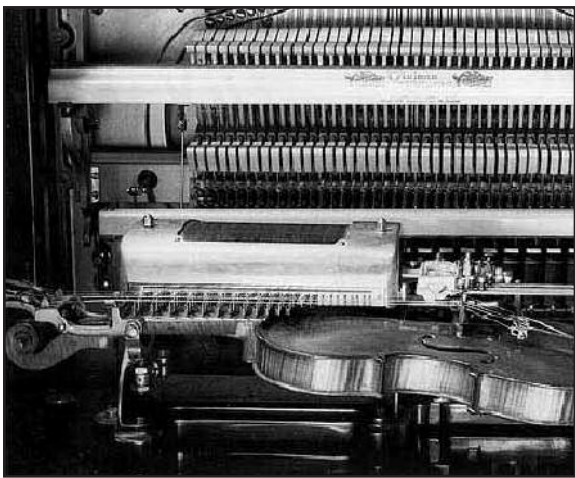


Fig. 2 The mechanical 'fingering' system.

lin in action I eventually found that the Merle Norman Cosmetics Company had a Museum of Beauty in San Sylmar, California. The museum had nothing to do with their line of cosmetics, instead it housed restored classic cars on the first floor and the entire second floor was music boxes — from tiny ones inside of pocket watches all the way up to a huge Wurlitzer Organ. It was here that I finally saw the Violano-Virtuoso that played one or more violins with piano accompaniment. It was a mechanical wonder that represented the height of the coin-operated mechanized music machines that were so popular up until the advent of recorded sound (the record player and the jukebox). The museum had a free two-hour docent led tour of their spectacular collection in a truly magnificent building made in old world style by all local artisans. I believe the collection is still intact but is now part of the Nethercutt Collection in Sylmar, California (see the **ON-THE-WEB** information below).

The Violano-Virtuoso was a product of the Mills Novelty Company. The forerunner model, known as the Automatic Virtuoso, was first marketed in 1905 and played only the violin. In 1912 they added a 44-note piano (half of the 88 notes on a standard piano) and this violin-piano combination was sold as the Violano-Virtuoso.



Fig. 2 The 'bowling' wheel.

Machines with two violins were known as the De Luxe Model Violano-Virtuoso, or more familiarly as the "Double Mills", and are now quite rare. Eventually there were models with up to three violins. Production continued until 1929.

There are some clever differences as to how the instruments are played by the mechanical device rather than by a person.

First, there is no violin fingerboard; instead a chromatic set of small metal "fingers" activated by electromagnets lift the string up into "V" shaped grooves to stop the string at the proper length. Nor is there the usual bow made of horsehair; instead the strings are "bowed" by four small self-rosining wheels composed of disks made of cellulose nitrate and driven by variable speed motors, which act as a volume control. Vibrato is produced (on all strings at once) by the tailpiece being shaken by an electromagnet. The Mills Violano-Virtuoso can do some things that could not be done by its human counterpart. For example, since all four strings can be played simultaneously, four-part independent counterpoint is possible.

The hidden hero of this story is Henry Konrad Sandell who was the main inventor of the Mills Violano-Virtuoso. Unlike the player pianos of the day, which operated pneumatically, Sandell's device was all-electric using an electro-mechanical system of solenoids and motors and was designed to operate on 110 Volts D.C. Consequently he had to invent many of his own devices winding up with well over 300 patents. He imbued the machines with a number of fascinating devices that still amaze those who study them even to this day. These include: the rotating bow wheels, a five-speed digital motor, a pulse-modulated feeder governor, the staccato coil that cause the "bows" to leave the string a fraction of a second before the "fingers," a sophisticated array of tuning arms and weights to keep the violin strings in tune, and a unique symmetrically strung piano frame, with the bass strings at the center and the treble strings radiating out to the edges. This distributed the string pressure more evenly across the frame and made the piano stay remarkably in tune.

The Violano-Virtuoso used punched paper rolls to store the tunes, usually five tunes to a roll. The coin operated machines could accept up to fifteen coins in a group which would play the roll of five tunes three times providing about an hour's worth of continuous music. Coins could be added at any time even from remote boxes, but individual tunes could not be selected. Over time, the Mills Novelty Company produced approximately 3,121 different rolls.

The Mills Novelty Company produced between 4 and 5 thousand instruments. Today, some sources estimate that only about 750 of the single machines and fewer than 100 of the Double Mills still exist, while other sources estimate that several thousand machines may have survived. The Violano-Virtuoso has the highest survival rate of any type of player piano requiring as little mainte-



Fig. 1 - The Mills Violano-Virtuosos



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nance today as when they were first installed. The remaining instruments are highly sought after commanding prices in the \$20,000 to \$40,000 range. The name "Mills Novelty Company" still survives today in the form of a business that installs digital player systems in the Mills Violano-Virtuoso — sort of the anti-

iPod approach to MP3 players.

Now you may wish to visit the web sites listed below so you can see and hear this amazing musical artifact. I hope that you enjoyed this as much as I did and, until next time, please stay tuned.

Roger Goodman is a musician, mathematician, punster, reader of esoteric books and sometime writer, none of which pays the mortgage. For that, he is a computer network guy for a law firm. He has been part of the Los Angeles old-time & contra-dance music community for over thirty years. While not a dancer, he does play fiddle, guitar, harmonica, mandolin, banjo & spoons. Roger has a penchant for trivia and obscure and sometimes tries to explain how the clock works when asked only for the time. He lives with his wife, Monika White, in Santa Monica.

### VIOLANO-VIRTUOSO ON-THE-WEB

#### Pictures:

[www.musicalmuseum.co.uk/mw/Thumbnails.html](http://www.musicalmuseum.co.uk/mw/Thumbnails.html)

#### Video clip:

[www.collectorsworldinc.com/lookup.php?id=66](http://www.collectorsworldinc.com/lookup.php?id=66)  
Nethercutt Collection (formerly Merle Norman Cosmetics museum):

[www.nethercuttcollection.org](http://www.nethercuttcollection.org)

Knott's Berry Farm & Ghost Town, Buena Park, California: [www.knotts.com](http://www.knotts.com)

### UNRELATED TRIVIA:

#### WHY IS AN AMUSEMENT PARK NAMED AFTER A BERRY FARM?

Knott's Berry Farm might just be the first ever theme park in this country and the story of how it came to be has always fascinated me. John Lennon once said, "Life is what happens while you're making other plans," and that was certainly true for Walter Knott. He was the first farmer to cultivate the boysenberries which he then sold from his roadside stand. His wife, Cordelia, made and sold berry pies and was coaxed by her customers into opening a restaurant where they served chicken dinners to go along with the pies. The restaurant was so successful that there was often a two-hour wait. Walter Knott wanted his wife's customers to have a distraction to make their wait time seem less. So, in 1940, he started moving the abandoned mining town of Calico board-by-board and reassembling it next to the restaurant. This became the Ghost Town part of Knott's Berry Farm and took on a life of its own eventually growing into a 160-acre theme park.