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Patent Models Record Inventions in Miniature

From 1790 until 1870, U.S. patent law required inventors to submit actual physical models of their novel machines along with their drawings and descriptions.

These miniature testaments to innovation — "not more than twelve inches square … neatly made" — are the subject of a new exhibition at Harvard University, Patent Republic. The display draws on the collection of Susan Glendening, a New York psychoanalyst by day and fervent collector by night. Seventy-five of her models are on display in Cambridge.

The patent models have taken a strange and winding path from their original creation to Glendening's collection. After the patent office stopped requiring models, it spent more than 50 years trying to figure out what to do with them. Before they were auctioned in 1925, mostly to Sir Henry Wellcome, a pharmaceuticals magnate, they had a variety of homes in the nation's capital. They were stuffed anywhere space could be found in the patent office building, but eventually lost their spots.

"Crowded out of the hallways, the models were put on display in a rented building. Early in the present century a wave of economy caused that practice to be abandoned," reads a 1925 *New York Times* article. "For a while the old models were stored in a leaky tunnel near the House of Representatives' office building."

Glendening wants to provide them with a much comfier home: her own. She plans to transform her mid-18th century house into a museum, as soon as she can round up some funding.

Collecting patent models is not for the faint of heart or thin of wallet. Most respectable models go for five figures. And the prize of her collection — the model of a "carbonizer" invented by Thomas Edison to create early electric light filaments — could fetch a much gaudier sum.

"I've been offered a million dollars for it and I refused it," Glendening said.

From the safety pin to a precursor to the Bowflex, dish washers to a machine for cutting lozenges, Glendening's collection reminds us that someone, at some time, had to dream up all the devices of modern life.

"What I normally get from people when they see the collection is, 'Oh, gosh! Everything had to be invented!'" Glendening said.

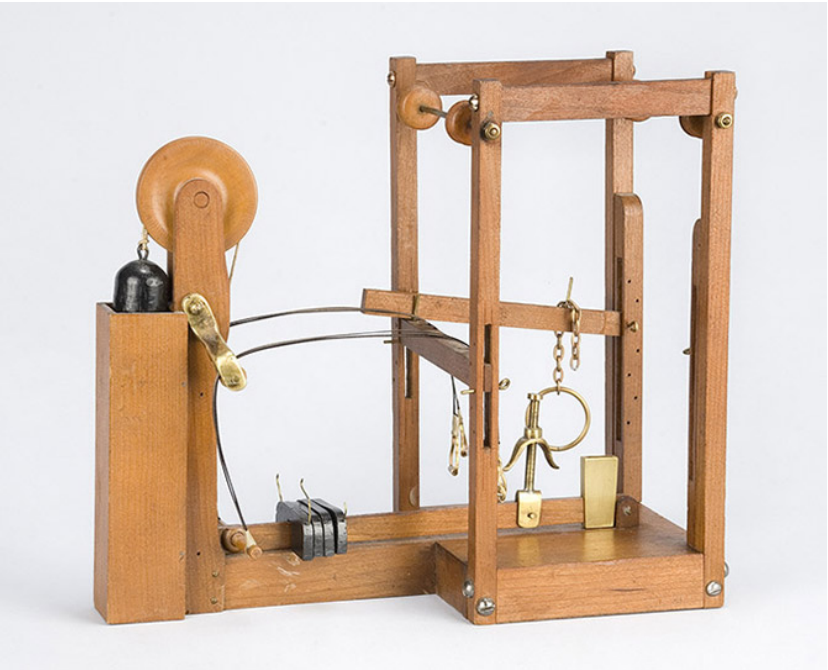
It's not just an item itself that has to be invented, but all the ancillary components and associated technologies. For example, the top photo shows the model for a "stop attachment for [the] roller skate." The invention isn't the skate itself, but the piece of metal at the back that allows you to slow down. Similar technology is still used today.

Images: Collection of Historical Scientific Instruments, Department of the History of Science, Harvard University

Susan M. E. Glendening is working toward establishing a museum as a permanent home for this model and her collection of over 250 patent models. The planned museum site is an 1844 federal house with a rich history, lush grounds and a breath taking view of the Hudson River. If you are interested in becoming involved in protecting these models, you can e-mail her at glendeningsusan@hotmail.com.

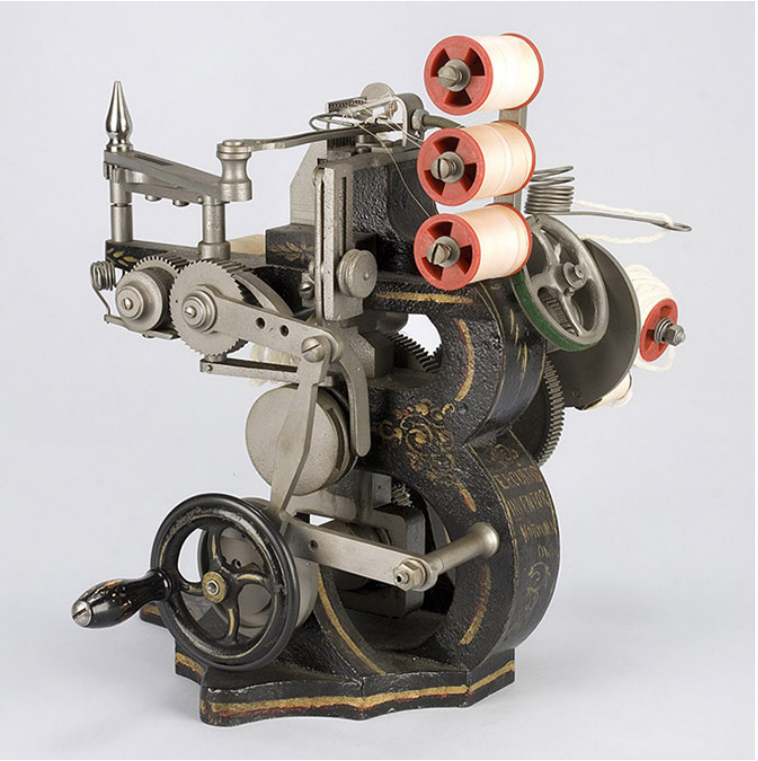
Above: This model shows some improvements to the "ruling pen," which was used to line paper.

Below: The wonderfully titled “apparatus for physical culture” was a predecessor to the Bowflex and pulley-driven weight lifting machines. It was designed by Harvard Medical School’s George Windship, who promoted the slogan that “Strength is Health.” Alas, he died at 42.



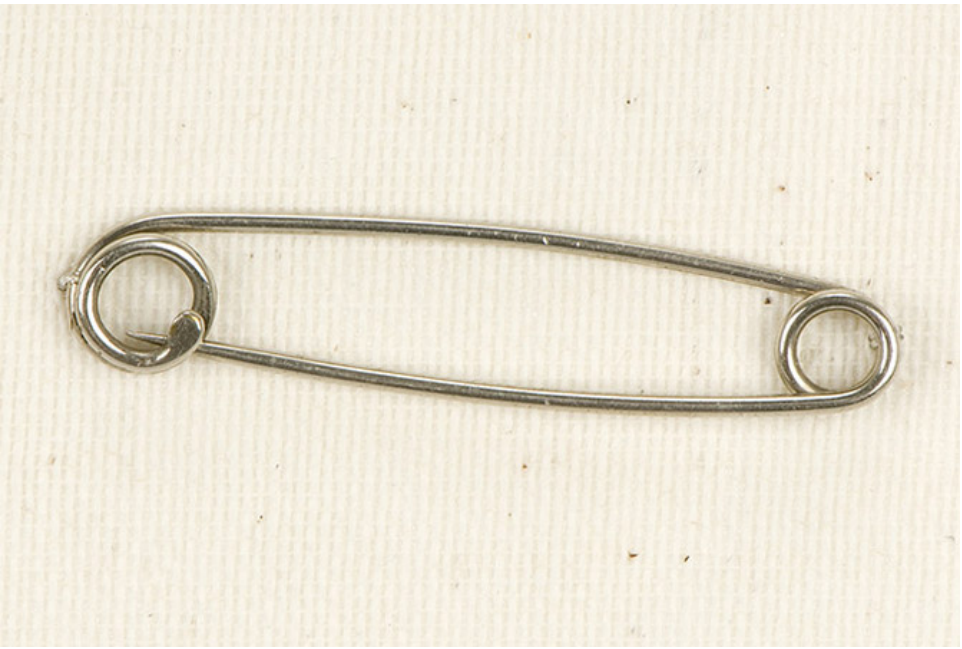
Above: Glendening maintains a special interest in patent models created by women. She notes that many women were confined to inventing in domestic realms, but some broke the mold. Clara A. Bartelett, who invented this improvement to the side saddle was such a woman. Yet, even Bartelett was a “product of her time,” Glendening said.“Here’s a woman who had the chutzpah to get a patent for an invention but she’s still a wearing a long skirt (while) inventing a side saddle,” she said.

Below: The dishwasher below had a novel piping system for getting water from the pump to the dishes.



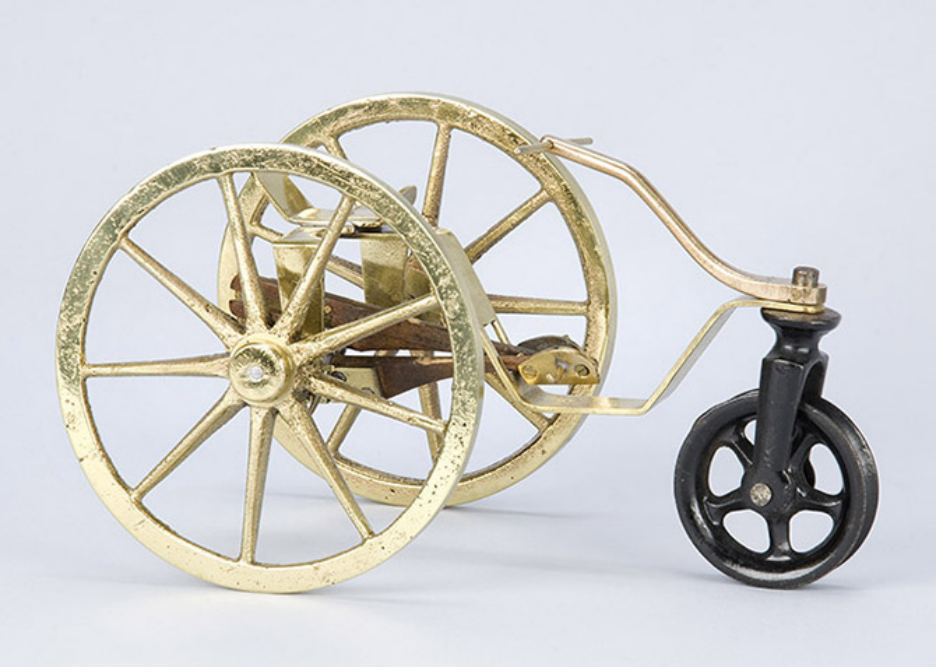
Above: The fringemaker pictured is rare among patent models in that it actually works. (The plastic spools are not from the original.)

Below: The safety pin pictured below is one of the smallest patent models made in the 19th century. It's just one centimeter tall and four-and-a-half centimeters long.



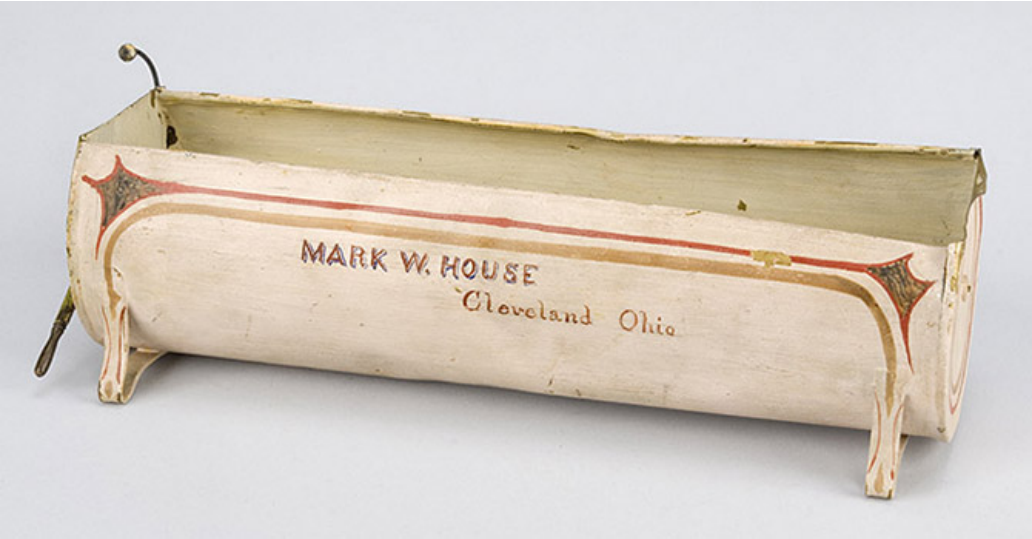
Above: This big wheel bicycle was patented in 1879 by Sylvester Sawyer. Sawyer had previously patented several machines for making hoops for the American Hoop Machine Company.

Below: Before the design of the bicycle settled into what we know today, all kinds of human-powered wheeled vehicles puttered along 19th century roads. Here we see a velocipede where you sat in-between the wheels.



Above: You couldn't always change the incline of your bed with a remote control. This pillow support was adjusted by a simple thumb screw.

Below: Nothing says 19th century medicine quite like this "electric bath," which ran a mild current through your water for "healing purposes."



Above: A simple charcoal-burning footstove that was used to warm the feet.

Below: The model for this machine for cutting lozenges is hand painted. According to the patent, the machine will allow for the manufacture of “the flat pieces of confectionery known in the trade as ‘lozenges,” with “exactness and rapidity.”


W E Damant Patentee
Lozenge Machine

Above: A beautiful windmill model from the forgotten Minnesota innovator, George Roland. Nineteenth-century wind machines like this were used to pump water, not generate electricity like modern turbines.

Below: This ice skate model was the evidence for a patent that improved the process of making a blade out of a steel plate. The fact that it looks like an elf's skate was purely coincidental.

Photos: Collection of Historical Scientific Instruments, Department of the History of Science, Harvard University.