

## AFD Ep 470 Links and Notes - Barbed Wire [Bill/Rachel] - Recording May 14, 2023

- [Bill] As agriculture entered modernity and grew to industrial scales and production methodologies, it became increasingly important for herders to be able to contain and manage their livestock in large numbers and for crop farmers to protect their crops from livestock and other animals trampling their fields or sneaking a snack. Already the process of Enclosure, with walls and fences, had been rippling across the world from places like England for a long time. But in the 19th century, farms and herds were going to keep growing to bigger and bigger scales, both in terms of production volumes and geographic areas needing to be enclosed. Moreover, some terrains and climates had different requirements that were harder to fence with traditional materials, which also weren't even available everywhere. Therefore, various people in France and the US since at least the beginning of the 1860s had been trying to design something for cheap, mass-produced livestock fencing, and by the early 1870s there were already some patents that might be considered barbed wire. None of them were particularly successful, either because the design wasn't very effective or they were not efficient to produce at scale, even though generic wire-making mills had been around since the 1500s. Hand-made barbed wire might technically be able to contain or deter a wandering cow, but it wasn't going to replace simple, tried-and-true wooden fence construction, for example.
- [Rachel] However, **in May 1873**, an Illinois farmer (Henry B. Rose) happened to show off a design, which wasn't actually very good, at a fair in DeKalb. His concept was basically fastening "metallic points" to strips of wood. Local politician, businessman, and farmer Joseph Glidden was at the fair and spotted Rose's exhibit and showed it to hardware dealer Isaac L. Ellwood and lumber merchant/carpenter Jacob Haish. The three of them already had some interest in the idea of mass-production livestock fencing, but they figured they could do better than what they were looking at. Glidden and Haish ended up designing and patenting competing concepts within the year, and this resulted in a decades-long legal battle, which Haish ultimately lost. Glidden's design was two strands of stretched out metal wire wrapped around each other using a twist key, with metal barbs (also cut from wire) looped around one of the wires and held in place by the other wire, such that there were sharp spikes pointing in opposite directions about every inch or two. Haish's design was similar but featured as the barb a *"single piece of wire bent into the form of the letter S" so that both strands are clasped*. Ellwood had sensibly opted to team up with Glidden immediately. Charles Francis Washburn, an executive of a regular wire manufacturing company, bought out Glidden for the use of his patents and mass-production barbed wire began.
- [Bill] Social and economic consequences:
  - The result was that by the mid-1870s, it was now possible to very inexpensively erect cattle pasture fencing over huge areas of the Great Plains, where soil conditions and lack of forests did not make it cost-effective to build complete wooden fences or to plant hedges.
  - Open range ranchers did not like barbed wire, but more traditional farmers were relatively quick adopters, and this did lead to significant friction and conflict between these factions. (However, later, some ranchers used barbed wire to try to enclose land tracts, sometimes illegally if the land was public, against settler smallholders setting up homesteads.) By the 1890s, the open range days were over and cowboys were largely unneeded to contain and direct herds over long distances.
  - Barbed wire is most appropriate for containing cows and sheep, who don't panic if they bump into it and prick themselves, but it is not appropriate for horses who

freak out and hurt themselves. It is also a hazard for many wild animals, especially migratory animals.

- *Glidden's was by no means the first barbed wire; he only came up with his design after seeing an exhibit of Henry Rose's single-stranded barbed wire at the De Kalb county fair. But Glidden's design significantly improved on Rose's by using two strands of wire twisted together to hold the barbed spur wires firmly in place. Glidden's wire also soon proved to be well suited to mass production techniques, and by 1880 more than 80 million pounds of inexpensive Glidden-style barbed wire was sold, making it the most popular wire in the nation. Prairie and plains farmers quickly discovered that Glidden's wire was the cheapest, strongest, and most durable way to fence their property. As one fan wrote, "it takes no room, exhausts no soil, shades no vegetation, is proof against high winds, makes no snowdrifts, and is both durable and cheap."*

<https://www.history.com/this-day-in-history/joseph-glidden-applies-for-a-patent-on-his-barbed-wire-design>

- [Rachel] Ellwood and Washburn would go on to become founders of the American Steel and Wire Company – a firm we discussed in [episode 438 from August 2022](#) in our episode on the rise of mass-produced wire nails in the 1880s and 1890s, because it ended up being the near-monopoly producer of wire nails in the US briefly. This company, or at least its antecedent companies that made up the merger, was among the ranks of the steel product makers that found success with the Bessemer process innovation in steel mass production after it started to become widely adopted in the 1870s United States. But the merger of many of these companies became necessary as over-production and economic recessions kept threatening the viability of smaller firms. American Wire and Steel itself soon folded into US Steel, an even larger mega-merger of 5 major producers in 1901, and served as its lucrative barbed wire production division (among other things).
- John Warne Gates was a barbed wire demonstrator for Washburn who went rogue and began manufacturing his own bootleg unlicensed barbed wire out of St Louis, eventually building quite a large operation. By the end of the 1890s, Gates ended up being part of the acquisition of Washburn and Ellwood's operations that led to the formation of American Steel and Wire and a few years later US Steel.
- Glidden became very rich from royalties from his original buyout deal.
- [Bill] Barbed wire and state power:
  - The first use of barbed wire for military functions was by the Portuguese armies in colonial Africa in 1895, followed by the British Army in the Second Boer War in 1899 (including to fence their concentration camps), and then in the Russo-Japanese War in 1904-05 in Manchuria.
  - Infamously of course it became a signature of the first World War in 1914. It was effective at blocking infantry and cavalry, not affected by machine gun fire, but cheap enough to be replaced easily after artillery bombardment. Its big weakness was being rolled over by a tank.
  - The US began using barbed wire for border fencing in 1909 to block cattle from leaving California for Mexico on their own. After WWI, in the 1920s, the US began using barbed wire at the borders for the purpose of blocking people from coming in.
  - Military and border uses have replaced anti-cattle barbed wire – which is relatively easy for people to avoid if they're not in a hurry – with razor wire, which

is specifically meant to hurt people who touch it or try to move it. Razor wire is also more intentionally tangled up, instead of stretched taut.

[https://en.wikipedia.org/wiki/Barbed\\_wire#History](https://en.wikipedia.org/wiki/Barbed_wire#History)

[https://en.wikipedia.org/wiki/Joseph\\_Glidden](https://en.wikipedia.org/wiki/Joseph_Glidden)

[https://en.wikipedia.org/wiki/Jacob\\_Haish](https://en.wikipedia.org/wiki/Jacob_Haish) (esp. Note 7 "U.S. Patent 167,240")

[https://en.wikipedia.org/wiki/Open\\_range](https://en.wikipedia.org/wiki/Open_range)

[https://en.wikipedia.org/wiki/Fence\\_Cutting\\_Wars](https://en.wikipedia.org/wiki/Fence_Cutting_Wars)

[https://en.wikipedia.org/wiki/Range\\_war](https://en.wikipedia.org/wiki/Range_war)

<https://en.wikipedia.org/wiki/Enclosure>

[https://en.wikipedia.org/wiki/Bessemer\\_process#Industrial\\_revolution\\_in\\_the\\_United\\_States](https://en.wikipedia.org/wiki/Bessemer_process#Industrial_revolution_in_the_United_States)

[https://en.wikipedia.org/wiki/History\\_of\\_the\\_steel\\_industry\\_\(1850%E2%80%931970\)](https://en.wikipedia.org/wiki/History_of_the_steel_industry_(1850%E2%80%931970))

[https://en.wikipedia.org/wiki/U.S.\\_Steel](https://en.wikipedia.org/wiki/U.S._Steel)

<http://arsenalfordemocracy.com/2022/08/21/aug-21-2022-industrial-nails-and-nail-guns-arsenal-ford-democracy-ep-438/> (This one had tons of extra source materials on wire and nails.)

<https://rodgersandhammerstein.com/song/oklahoma/the-farmer-and-the-cowman/>