## James Oliver

*By Patrick J. Furlong*

Why would nineteenth-century farmers want to use a "chilled plow"? Were they supposed to keep their plows in the icehouse with their butter? In fact, the "chilled" referred only to the process of manufacturing the plow patented and promoted by James Oliver of South Bend, Indiana.

James Oliver was born in Scotland in 1823, and moved with his family to Saint Joseph County, Indiana, when he was thirteen. As a boy he worked as a farmhand, a riverboat crewman, and a cooper, but as a young man he discovered a liking for foundry work at the Saint Joseph Iron Works in Mishawaka. He learned the iron business in the heat of the blast furnace and the pounding of the forge, and he learned it well. In 1855 he invested his savings of $88.96 to purchase a quarter interest in the South Bend Foundry, a small firm located on the west race of the Saint Joseph River in downtown South Bend, which made a wide variety of iron products for builders and hardware dealers. The following year Oliver and his friend Harvey Little, who had also invested in the firm, bought out the other owners of the foundry, which became known as Oliver and Little.

At the time Oliver and Little started their business, frontier plows were usually crude wooden devices with an iron plowshare at the cutting edge of the plow blade. Improved models offered an iron moldboard as well, a curved piece of metal that turned the earth in the furrow. Farmers frequently cursed their plows when they broke against a stone and cursed them even more often when the damp earth stuck to the moldboard and forced them to stop their teams and scrape away the mud with a wooden paddle.

Oliver experimented with building a better plow, and in 1857 he received a patent for "An Improvement in Chilling Plowshares." A chill is a metal mold or portion of a mold in which molten metal is cooled rapidly and the surface of the metal is hardened. By using an iron "chill" in a portion of the sand mold, Oliver produced a hard surface on the cast-iron plowshare, the cutting edge of the plow blade. The resulting plowshare retained its sharp cutting edge much better than traditional plows, and the cast iron was less brittle than usual because the interior portion of the iron cooled slowly.

During the recession year of 1857 Oliver and Little sold only about fifty of the improved plows. Most of the firm's business was still in general foundry work. James Oliver entered several plows at the Saint Joseph County Fair and took two first prizes in competition with larger firms, leading to gradually increasing sales throughout northern Indiana. The "Indiana Plow" of 1858 was an improved model, and it triumphed over the competition at the Elkhart County Fair of 1859. The Model No. 40 reached the market in 1860 and remained Oliver's best-selling walking plow into the early years of the twentieth century. On 16 August 1860 machinist T. M. Bissell bought into the growing company, now known as Oliver, Little and Company.

A devastating fire on Christmas Eve in 1860 destroyed the foundry, but the company began to rebuild within twenty-four hours. As the firm's only traveling salesman, Oliver traveled widely demonstrating his improved plows. Harvey Little left the partnership in 1863 and the company became known as Oliver and Bissell. Bissell increased production while Oliver concentrated his efforts on improving his plows in both design and composition. 1864 was the first big year for the business, and the workforce increased to twenty-five men and boys; previously the company had employed no more than six. That same year, George Milburn, a Mishawaka wagon manufacturer, bought into the company and the name was changed to Oliver, Bissell and Company.

In 1868 Oliver received a patent for "Improvements in Mold-Boards for Ploughs." After eleven years of experimenting, he had perfected a much larger chilled mold, which allowed Oliver to cast the entire moldboard of the plow. His process used large iron chills that were cooled by hot water, reducing the temperature differential when the molten cast iron came into contact with the chill. His process also provided for the escape of hot gasses, which eliminated the tiny bubbles that usually marred the surface of castings. The resulting plow blades were polished to a very smooth finish, producing plows with smooth and durable cutting and turning surfaces made of a resilient cast iron that resisted cracking and breaking when the plow struck a stone in the fields. Oliver now had a plow that was clearly superior to others on the market.

In July 1868 Oliver, Bissell, and Milburn joined with Clement Studebaker, a South Bend wagon manufacturer, and John Brownfield, a South Bend merchant, to incorporate the South Bend Iron Works, makers of the Oliver Chilled Plow. The firm was initially capitalized at $100,000, and its sales increased rapidly. Oliver was the guiding genius of the company and eventually acquired full control. He advertised his "chilled plows" to farmers throughout the United States and developed an extensive export business as well. By 1874 South Bend Iron Works turned exclusively to the manufacture of plows and other farm implements, opening sales and distribution centers from New York City to San Francisco, although chiefly in the Middle West and the South.

By the turn of the century Oliver employed more than a thousand men and boys at one of the nation's largest agricultural equipment factories. In prosperous years it could turn out as many as 300,000 plows, with specialized models for every purpose from breaking the thick prairie sod of Nebraska to cultivating the cotton fields of Alabama or the sugar plantations of Cuba. There was even a model for use in the steep hillside vineyards of the Rhineland, designed to throw the earth to the uphill side whichever direction the plow was moving. "Plowmakers for the World" was the company's proud advertising slogan, and Oliver jealously guarded his chilled plow trademark, warning farmers against imitations and filing suit against anyone who infringed his design patents. One style of plow Oliver resisted manufacturing for years, though, was the riding plow, insisting that farmers preferred to walk. He was even more stubborn in resisting the use of steel for plow blades, despite the growing competition from John Deere, and he flatly refused to join the "plow trust" that became International Harvester.

The plows were always known as Oliver Chilled Plows, but the corporate name was not changed to Oliver Chilled Plow Works until 1901, becoming the Oliver Corporation when the family firm went public just before the Great Crash in 1929. The Oliver Chilled Plow was one of the most successful agricultural implements of the nineteenth century, and the firm remained an important manufacturer of farm equipment into the 1970s, when it disappeared into a succession of mergers and plant closings. Today the company is only a fading memory in South Bend.

"I was classed with the fools who pursue the fallacy of perpetual motion," Oliver once said of his quest to invent a completely chilled plow. "Although feeling keenly the cuts of former friends, I determined to succeed." As a result of Oliver's determination, farmers around the world plowed their fields with Oliver Chilled Plows.

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