James Oliver Biography

James Oliver

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Biography

The American inventor and manufacturer James Oliver (1823-1908) is noted for the invention of a cast-iron implement known as the Oliver chilled plow.

James Oliver was born in Liddesdale, Roxburghshire, Scotland, on Aug. 28, 1823. The family emigrated to the United States in 1835, settling first in New York and then in Indiana. Oliver's father died in 1837, and the boy held a succession of jobs in the Mishawaka-South Bend area, working on a river barge, in a distillery, as a cooper, and, most importantly for his subsequent career, in a number of iron foundries. He learned the molder's trade and was employed at the St. Joseph Iron Company in Mishawaka from 1847 until he and two partners went into business for themselves in 1855 in South Bend.

Oliver and his associates determined to produce the best plow in the world and to this end experimented incessantly to turn out a hard-faced plow of chilled iron. In 1869 Oliver made his initial important discovery in the process of chilling. He learned that circulating hot water through the chills (or molds) would prevent the castings from cooling too rapidly or unevenly. He next developed a way to bring the liquid metal into direct contact with the face of the chill, thereby removing all of the soft spots in the cast moldboards and leaving the surface smooth and flawless. He did this by introducing grooves into the chill so as to permit the gases which formed during the pouring to escape. Finally, he developed an improved annealing process so that the strains from shrinkage in the cooling process would not affect the hardness of the chilled faces. By the time all of these basic improvements were patented (1873), Oliver's product was much in demand. The chilled plows were inexpensive, efficient, durable, and adaptable to use in any soil, producing a smooth furrow at a reduced draft.

The Oliver Chilled Plow Works was moved to a new and larger site in South Bend in 1875, where it eventually became the largest plow manufactory in the world. Oliver remained president of his company until his death. He was a civic-minded man, and the development of South Bend was greatly affected by him: he built the Oliver Hotel and the Oliver Opera House and advanced money to the city for a new city hall. He died in South Bend on March 2, 1908.