Milling Machine Encyclopedia Article

Milling Machine

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Wheel-cutting machines, dating from the 1700s and used by clockmakers, were the precursors of industrial milling machines. Although it is unclear who invented the first actual milling machine--a device similar to the lathe that features a rotating cutting tool rather than a rotating workpiece--evidence supports its existence by 1818 in the United States. Eli Whitney is most often mentioned as the first to design and construct a milling machine that was dependable and which served as a prototype for later, improved cutting machines.

Whitney produced the machine, along with several others, with an eye toward originating mass production of gun parts. In 1798 he contracted with the federal government to produce a large order of muskets. All guns, at the time, were hand-crafted, and so gun parts were not interchangeable. Whitney remedied this with his construction of a semi-automated, machine tool factory.

In 1867, American engineer Joseph R. Brown (1805-1870) introduced his universal milling machine at the Paris Exhibition. Brown's machine arose following the testing in 1861 of one designed to solve the problem of producing spiral flutes for twist drills. This machine proved amazingly versatile, and led to Brown's significant addition in 1864 of a formed cutter. Ever since, milling machines have vied with lathes as the most employed industrial machine tool. Their high adaptability is demonstrated by the numerous cutting jobs they perform, including flat surfaces, grooves, shoulders, inclined surfaces, slots, and dovetails. A turret milling machine is an example of a miller used in conjunction with a related machine tool, the drill. Another specialized miller is the hobbing machine, used to make gears. Perhaps the milling machine's greatest distinction is that in 1954 it became the first machine tool to be controlled numerically, thereby representing one of the greatest industrial advances of the twentieth century.