Joseph Bramah Biography

Joseph Bramah

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Biography

Joseph Bramah, son of a Yorkshire farmer, was one of the fathers of the machine tool industry whose inventions greatly contributed to the development of the Industrial Revolution. Born Joe Brammer in Stainborough, Yorkshire, England, Bramah was seriously injured in an accident at the age of sixteen, and so turned from his family profession of farming to become a cabinetmaker's apprentice. After completing his apprenticeship, Bramah set up his own carpentry and cabinet-making shop in London. Alexander Cumming had recently patented a water-closet valve system, which Bramah found unsatisfactory while installing water closets for his customers.

In 1778 Bramah patented his own, improved flushing system, changing his name on the patent to the more elegant sounding Bramah. In 1784 the inventor patented his burglar-proof Bramah lock. He exhibited the lock in his Piccadilly shop window with a notice offering a two hundred-guinea award to anyone who could pick it. All attempts failed until, sixty-seven years later in 1851, an American mechanic named Alfred Hobbs succeeded in opening the lock--after fifty-one hours.

Bramah's lock was effective because it was intricate. In order to manufacture it economically, Bramah realized he needed finely-designed machine tools capable of turning out precisely-made parts. To help with this, he hired a young blacksmith named Henry Maudslay, who became superintendent of Bramah's shop the following year at the age of nineteen. Together, around 1794, the two men made a crucial improvement to the crude lathes of the day: the slide rest. Instead of holding the cutting tool by hand against the metal to be cut, the iron fist of the slide rest held the tool firmly and rigidly against the metal and moved the tool uniformly along a carriage. The slide rest permitted much greater accuracy and output in metal working.

Another very important Bramah invention was the *hydraulic press* of 1795. This was the first practical application of hydraulic principles and opened a tremendous new source of power to the manufacturers and builders of the Industrial Revolution.

Bramah was a marvelously inventive man who secured a total of 18 patents. His other inventions included a machine for numbering bank notes, a wood-planing machine, a device to make quill nibs for pens, a beer pump, and paper-making and soda-water machines. He was the first to suggest using a screw propeller to drive ships rather than a paddle wheel. Bramah died in London in 1814.