Plane Encyclopedia Article

Plane

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Hand planes used by carpenters date back at least to the time of the Roman Empire. Made of iron, these planes were used to shape, edge, and smooth wooden surfaces. The origin of industrial planing machines, for cutting metal, may be traced to these tools as well as to the first sophisticated cutting machine, the lathe.

A direct forerunner of metal-cutting planes was constructed by Nicolas Focq in 1751. Operated by hand crank, Focq's machine allowed the cutting tool to travel across the surface to be planed--later planing machines reversed this process. Despite Focq's early experimentation, planes did not begin to make their mark in the machine tool industry until the 1810s and 1820s. Among the most prominent inventors associated with the plane are Matthew Murray, Joseph Clement, James Fox, and Richard Roberts, each of whom had by 1820 produced at least one machine that significantly advanced the precise manufacture of other specialized machines, particularly the lathe, as well as engine parts. Like their successors, these planing machines featured a reciprocating table, upon which the workpiece could be clamped and then passed beneath a stationary cutting tool.

One outstanding exception of a plane featuring a movable tool was that produced by Joseph Whitworth in 1835. The tool rest on Whitworth's machine pivoted automatically at the end of each cutting stroke to enable the tool to work in both directions. However, the demand for greater cutting power and increased stability led ultimately to the standard design in which the cutting tool is kept stationary.

Today planing machines can cut surfaces up to 50 feet long. Shaping machines represent a continuation of the movable tool concept and are employed for finer work, accommodating pieces up to 36 inches long. Hand-held metal planes complement these two industrial machines as a standard carpentry tool. Leonard Bailey, who sold his patent rights to the Stanley Rule and Level Company, is credited with the basic design, featuring an adjustable cutting angle and sturdy planing surface.