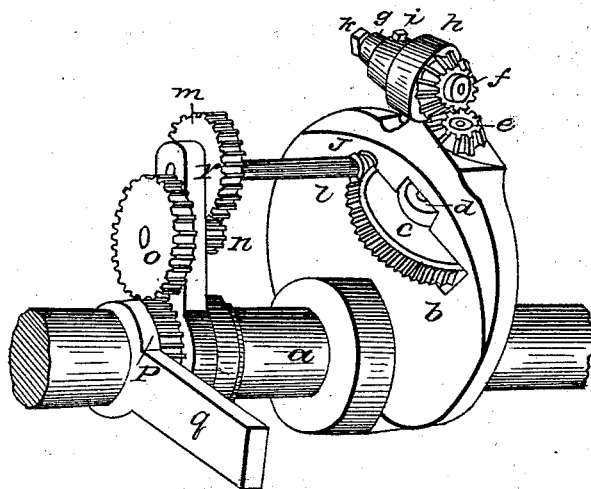


Boring Machine.

No. 4,076.

Patented June. 10, 1845.



UNITED STATES PATENT OFFICE.

WILLIAM WRIGHT, OF PROVIDENCE, RHODE ISLAND.

MACHINE FOR BORING CIRCULAR GROOVES.

Specification of Letters Patent No. 4,076, dated June 10, 1845.

To all whom it may concern:

Be it known that I, WILLIAM WRIGHT, formerly of Rochester, Monroe county, New York, now of Providence, Rhode Island, have invented a new and useful Machine for Boring Out the Cylinders of Rotary Steam-Engines, which I denominate the "Annular Borer," and that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of the same.

The nature of my invention consists in arranging a cutter which, as it rotates with the shaft to cut out the annular groove, receives a slow rotary motion on the arm or flanch which connects it with the shaft, to make the groove a true circle in its cross section. In the accompanying drawing *a*, is the shaft, represented as having the ends cut off, from which projects a flanch with an aperture for the reception of a spur wheel *C*, on a radial arbor *d*, having its bearings in the said flanch, and provided with a bevel cog wheel *e* on its outer end, the teeth of which take into the teeth of a corresponding bevel wheel *f*, on an arbor *g*, that passes through a projection *h* from the flanch *b*, the axis of this arbor being at right angles to the shaft, and at right angles to a radial line passing through the point of the cutter *i*, which is received in a socket in this arbor, and there held by a screw *k*.

Motion is communicated to the wheel *C*, by an endless screw *j* on one end of an arbor *l*, parallel with the shaft, there being a cog wheel *m*, on the other end of the said arbor, the teeth of which take into the teeth of a pinion *n*, on the arbor of another wheel *o*, that meshes into another wheel *p*, which is free to turn on the shaft *a*, and has a lever or dog *g*, projecting from it, by which it is held during the revolution of the shaft and cutter, to communicate the necessary motion to the cutter on its axis as it is carried around by the shaft.

The arbor *l*, has its bearings in the flanch *b*, and an arm *r*, which also sustains the arbor of the wheel *m*, the amount of motion

which is to be given to the cutter on its axis must be equal to the thickness of the shaving intended to be taken off at each revolution of the shaft, and corresponds to the amount of feed given in boring out straight cylinders, and this may be increased or diminished at pleasure by changing the relative proportions of the cog wheels.

In applying this machine or tool to bore the cylinder of a rotary steam engine, the shaft of the boring machine is placed in the boxes intended for the reception of the shaft of the piston of the engine to insure the accuracy of the bore. It is of course to be understood that these cylinders have a continuous slot for the passage of the flanch *b*, that carries the cutter, such a slot being indispensable in rotary steam engines.

The gearing to communicate motion from the wheel *p* that turns on the shaft, to the cutter, may be varied at pleasure so long as the object pointed out above, be retained; and the cutter may be of any kind suited to the nature of the operation. In some instances I dispense with the wheel *o*, pinion *n*, and wheel *p*, by substituting for the cog wheel *m*, a ratchet wheel the teeth of which are caught at each rotation of the shaft by a dog or hand attached to the frame to give the feed to the cutter at the same part of its circuit instead of making the feed continuous.

It is evident that many minor variations may be made in the arrangement of the mechanical means, employed to cause the cutter to rotate on its axis, as it is carried around by the shaft, without varying the principle or character of my invention.

I therefore claim as my invention—

The giving to the cutter a rotary feed motion on its axis as it is carried around by the main shaft as herein described; or in any manner substantially the same.

WILLIAM WRIGHT.

Witnesses:

J. J. GREENOUGH,
FREDK. S. CHURCH.