

C. E. ROPER.
Cutting Bevel Gears.

No. 67,587.

Patented Aug. 6, 1867.

Fig. 1

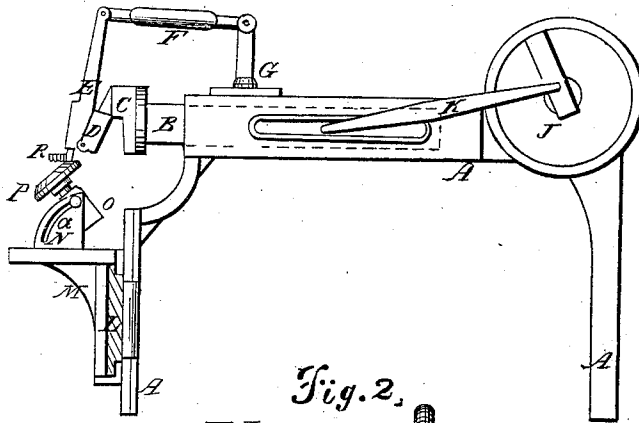


Fig. 2.

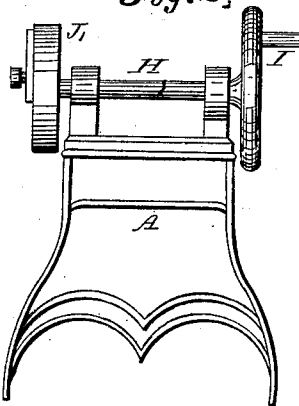


Fig. 3



Fig. 4



Witnesses

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per
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att'y*

United States Patent Office.

CHARLES E. ROPER, OF CANTON, OHIO.

Letters Patent No. 67,587, dated August 6, 1867.

IMPROVEMENT IN MACHINERY FOR CUTTING BEVEL-GEARS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES E. ROPER, of Canton, in the county of Stark, and in the State of Ohio, have invented certain new and useful Improvements in Machine for Cutting Bevel Gear-Wheels; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon. In the annexed drawings, making part of this specification—

A represents a horizontal frame, which is supported upon the legs A' A''. Within an opening made longitudinally of the frame A is placed a square piston, B. A long slot is made in the side of the frame, in order that a pitman, K, may be connected to said piston. A shaft, H, lies and has its bearings upon the rear of the frame, and this shaft is provided at one end with a wheel, I, to which a handle is attached, and at the other end with a wheel, J, to which the pitman K is connected. By revolving wheel I, a reciprocating movement is communicated to the piston B. Pivoted at its upper end and to the upper end of a suitable box, C, on the outer end of this piston, is a plate, D. Between two ears, near the lower end of plate D, is pivoted the lower end of a swinging-arm, E. The upper end of the arm E is pivoted to one end of a bar, F, which said bar has its other end pivoted to a stationary standard, G, which is erected upon the frame A. The tool R for cutting the teeth in the wheels is secured in the lower end of arm E. The piston imparts a reciprocating movement to the tool R, while the arm E gives it by means of its connections a partially rotary motion. L represents a vertical slide connected to the broad leg A' by means of dove-tailed cleats upon its back, which embrace the edges of said leg. This slide moves vertically against the leg. Embracing the upper and lower edges of the slide L is a sliding platform, M, which moves horizontally upon said slide L. Secured upon this platform is a box, N, and between the sides of this box is a swivel-block, O, said swivel being secured to the box by means of a bolt which passes through it and through the curved slot *a* in the sides of the box. Upon the upper end of swivel is formed an axle which passes through the eye or hub of the wheel upon which the gearing is to be this cut. When the wheel P, on which teeth are to be cut, is placed upon the axle of swivel O, it lies in an inclined position beneath the tool R. The wheel P is moved up to the tool vertically by means of the slide L, while it is adjusted horizontally under the tool by the sliding platform M. Any desired inclination can be given to the wheel P for the cutting of teeth upon it with more or less bevel. When motion is imparted to the tool, which is V-shaped and serrated, the operator revolves the wheel P partially as fast as one tooth has been cut, so that teeth are cut regularly upon the bevelled face of the wheel.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the slide L, the sliding platform M, the box N, and the swivel-block O, constructed and used in the manner and for the purpose set forth.
2. The combination of the piston B, box C, plate D, arm E provided with the tool R, the bar F, and standard G, constructed and arranged substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of May, 1867.

CHAS. E. ROPER.

Witnesses:

HENRY FISHER,
GEO. W. RAFF.