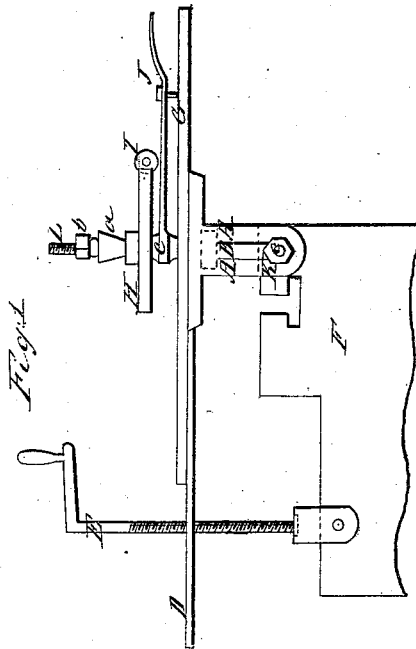
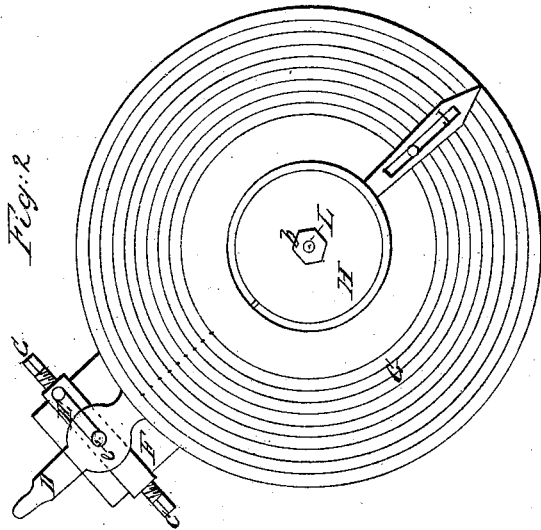


*A. T. Boon,*

*Gear Cutting,*

*N<sup>o</sup> 4,550.*

*Patented Nov. 10, 1863.*



*Witnesses.*  
*J. P. Bonn*  
*Albert R. Lombs*

*Inventor*  
*Alvyn J. Boon*

# UNITED STATES PATENT OFFICE.

ALONZO T. BOON, OF GALESBURG, ILLINOIS.

## IMPROVEMENT IN GEAR-CUTTING.

Specification forming part of Letters Patent No. 40,550, dated November 10, 1863.

*To all whom it may concern:*

Be it known that I, ALONZO T. BOON, of Galesburg, in the county of Knox, in the State of Illinois, have invented a new and useful Improvement in Gear-Cutting; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and of which—

Figure 1 is a side view of my gear-cutting apparatus; Fig. 2, a plan view.

Similar letters indicate like parts in each figure of the drawings.

The nature of my improvement consists in having a gear-cutting apparatus, complete and simple in its construction and operation, by which it may be easily attached to a common or engine lathe for the purpose of cutting teeth on straight and ratchet wheels, thereby bringing it within the scope of those tools which are used with facility and convenience on the lathe.

There are gear cutting machines worked by hand and used independently of the lathe, but they are generally of a complicated nature. Therefore it may be said this apparatus will obviate to a great extent the use of an independent gear-cutting machine.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I use an ordinary index, G, placed in a flat or horizontal position. Secured to it underneath in a diametrical line are two standards, A A', each of them being near the periphery of the index, with slots B B', in Fig. 1, through which pass the screws C C', and clinch or clamp the tool-block F of the lathe, in Fig. 1, partly between the standards. On the inner and outer side of the standards are nuts K K' K K', which fit the screws and serve to adjust the straight or ratchet wheel on the central fixed shaft of the index in its relation to the cutter I, as seen in Fig. 1. In the center of the

index, and perpendicular to its plane, is a fixed shaft, L, having on it the finger J, whose conical-shaped top surface, C, around the shaft receives the straight or ratchet wheel H to be cut. A conical-shaped washer, a, above it keeps it steady and permanent to the finger by means of a nut, b, on the screw end of the shaft. The finger then may be passed around, carrying the wheel with it, to any given point on the index. Secured to the index, and directly opposite the standards, is the elongated bar D. Near the periphery of the index is a vertical set-handle screw, E, passing through this bar and secured at the bottom end to a screw-clamp, c, fixed to the tool-block F of the lathe. This set-handle screw serves to depress or elevate the straight or ratchet wheel on the central fixed shaft of the index, by its movement giving a rocking motion to the dial-plate and fixed shaft L, and facilitating the cutting of a ratchet-wheel, particularly in a perfectly straight manner.

Having thus fully described my improvement in a gear-cutting apparatus, what I claim therein as new, and desire to secure by Letters Patent is—

1. The combination of the slotted standards B B', screws C C', and nuts K K' K K', or their equivalents, when attached to the index G, for the purpose of adjusting the wheel to be cut at the proper height in relation to the cutter and the arrangement of the elongated bar D, set-handle screw E, for the purpose of regulating the depth of the cut, substantially in the manner and for the purposes herein set forth.

2. In combination with the above, the attachment of my gear-cutting apparatus to a common or engine lathe, substantially in the manner and for the purpose herein set forth.

ALONZO T. BOON.

Witnesses:

WM. SHERWIN RANSOM,  
J. P. DORMAN.