

(No Model.)

J. GARDNER, Sr. & J. A. COBURN.

MECHANISM FOR GRINDING AND POLISHING GEAR WHEELS.

No. 468,400.

Patented Feb. 9, 1892.

Fig. 2.

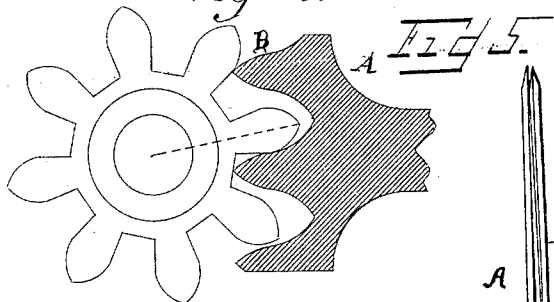


Fig. 3.

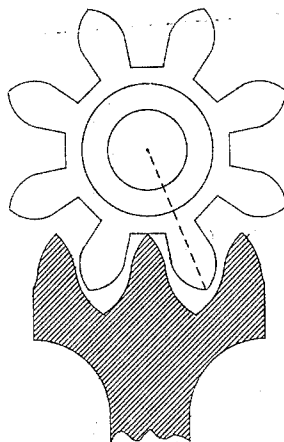
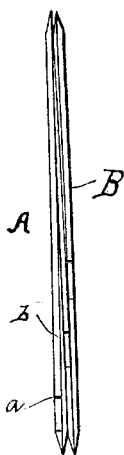
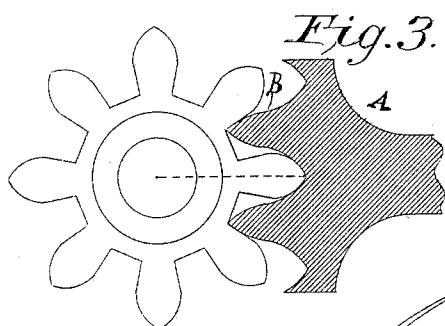
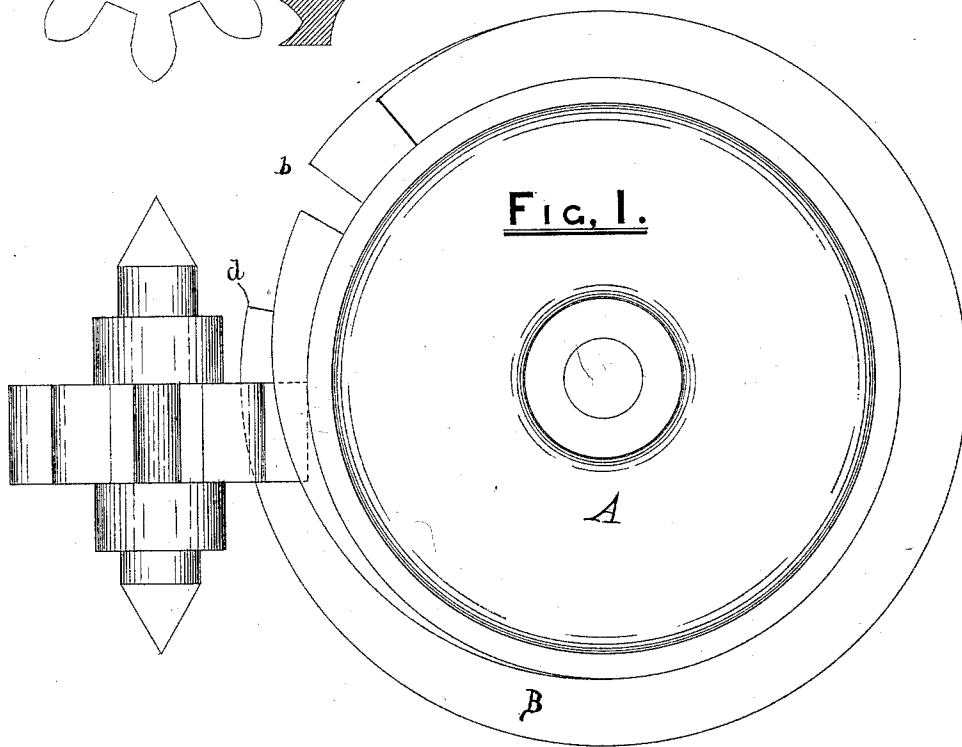


FIG. 4.

FIG. 1.



WITNESSES.

Frederick George Myers
F. J. Myers

INVENTORS.

John Gardner Sr.
John A. Coburn

UNITED STATES PATENT OFFICE.

JOHN GARDNER, SR., AND JOHN A. COBURN, OF CANTON, OHIO.

MECHANISM FOR GRINDING AND POLISHING GEAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 468,400, dated February 9, 1892.

Application filed June 5, 1890. Serial No. 354,397. (No model.)

To all whom it may concern:

Be it known that we, JOHN GARDNER, Sr., and JOHN A. COBURN, citizens of the United States, and residents of Canton, county of Stark, State of Ohio, have invented a new and useful Improvement in Mechanism for Grinding and Polishing Gear-Wheels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

This invention relates to an improved mechanism to automatically grind and polish the teeth of gear-wheels, more especially for grinding teeth on watch and clock wheels or other wheels where a high degree of accuracy is required; and it consists in providing a grinding-lap having about its periphery a helical form of worm having a pitch line and radials to correspond with the pitch and radial lines of the teeth to be ground or polished.

With these ends in view this invention consists in certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claim.

Figure 1 of the accompanying drawings is a plan view of a lap-wheel, illustrating our invention. Fig. 2 is an end view or elevation of a toothed wheel and a transverse section of the peripheral worm and a fragment of the lap, showing the short radials in engagement on both sides of the pitch lines. Fig. 3 is a similar view showing the worm and teeth engaged on the pitch lines; Fig. 4, a similar view showing the worm and teeth disengaged. Fig. 5 is an edge or face view of the lap.

Similar letters of reference indicate corresponding parts in all of the figures of the drawings.

A represents a lap or grinding wheel hav-

ing about its periphery an annular tangential tooth or worm B, having radial and pitch lines to correspond with similar lines of the teeth to be ground or polished.

The lap and worm may be made of any suitable material, preferably of tin, or, when preferred, the continuity of the worm portion B of the lap may be interrupted or divided into spiral ribs of such length as may be best adapted to the work to be done, as shown at *a* and *b*, Fig. 1. The shoulders formed thereby will carry the grinding powder—such as emery—across the face of the tooth being ground.

The utility of this invention will be fully appreciated by those familiar with the art of making such gear-wheels, for however perfect the cutting machinery the teeth of such wheels are liable to have more or less of imperfections on their working faces. By the use of this invention these imperfections may be removed, the teeth ground to their proper working lines with a degree of accuracy not accomplished by the consecutive methods now in use, and their relative accuracy to the axis preserved.

Having thus fully described the nature and object of our invention, what we claim as new, and desire to secure by Letters Patent, is—

A grinding or polishing lap having on its periphery an annular spiral worm, portions of which are cut away to form shoulders.

In testimony whereof we have hereunto set our hands this 26th day of May, A. D. 1890.

JOHN GARDNER, SR.
JOHN A. COBURN.

Witnesses:

CHAS. R. MILLER,
W. K. MILLER.