

T. GOLDWELL.

Machines for Cleaning Cog-Wheels.

No. 150,829.

Patented May 12, 1874.

Fig. 1.

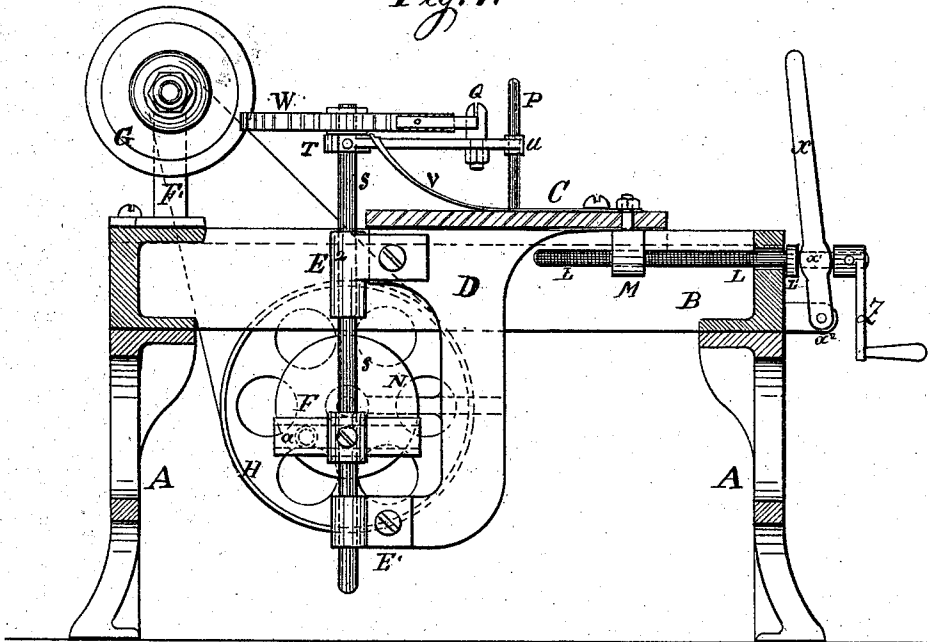
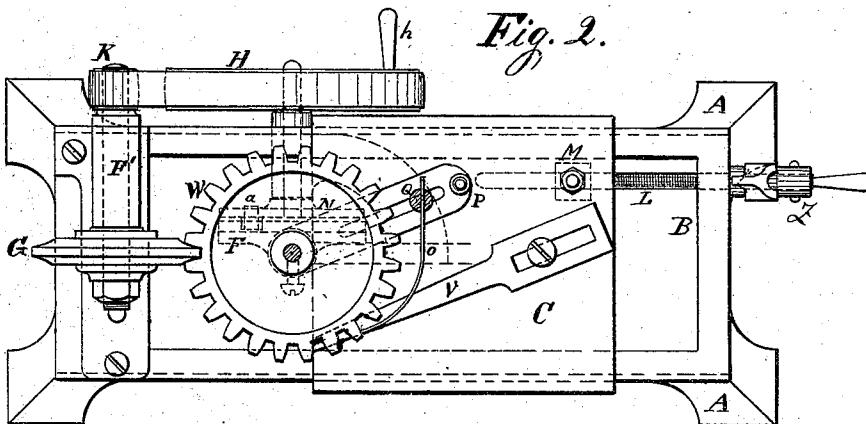


Fig. 2.



WITNESSES.

Edward P. Corbin
W. K. Hawks

INVENTOR.

Thomas Goldwell

UNITED STATES PATENT OFFICE.

THOMAS COLDWELL, OF NEWBURG, NEW YORK.

IMPROVEMENT IN MACHINES FOR CLEANING COG-WHEELS.

Specification forming part of Letters Patent No. **150,829**, dated May 12, 1874; application filed January 30, 1874.

To all whom it may concern:

Be it known that I, THOMAS COLDWELL, of Newburg, in the county of Orange and State of New York, have invented a certain machine for cleaning the spaces between the cogs of cast gears and truing the same, of which the following is a specification:

My invention relates to a machine designed to clean out the spaces between the cogs of cast gears by means of an emery-wheel rotating at high speed, the face of which has the shape of the space between the cogs. The wheel to be operated on is placed on a vertical mandrel, supported by an adjustable sliding table in suitable brackets, and is moved by a crank motion up and down in front of the emery-wheel. As the mandrel, with the attached gear, passes up in front of the emery-wheel the space is ground out. On the downward stroke the gear is slipped one tooth forward by an arrangement of adjustable springs, thus presenting a fresh space to be cleaned out, and so on until all spaces are cleaned, when the operator removes the finished gear and replaces it by a fresh one. The machine is adjustable to clean gears of different pitch and size. Gears with different pitch require separate emery-wheels.

To describe the machine more perfectly I refer to the annexed drawing, in which—

Figure 1 is a side view and partial section of the same. Fig. 2 represents a plan of the machine.

B B is an oblong bed-frame, supported by legs A A. A square table, C, can slide fore and aft on the bed-frame in guides, and it can be accurately adjusted by a screw, L, which is held in the side of the frame B, and which can move the table C by means of the nut M fastened to the table C. A hand-lever, X, straddles the screw L at X¹, between a collar, L', and the hand-crank, Z, and has a fulcrum at X². By this lever the table C, with all attachments, can be moved forward and backward, the forward movement being arrested by the collar L' on the bolt striking against the bed-frame B—a positive position which the table C shall have when the machine is in operation. To the table C is attached a strong bracket, D, with guide-sleeves E¹ E² for a vertical mandrel, S, the upper end of which reaches

above the table C, and carries a collar, T, with an arm and sleeve, U, attached. On the top of this collar T, and central with the spindle S, rests the spur-wheel W which is to be cleaned. The mandrel S is moved up and down by a crank-pin, a, of the crank-wheel N moving in a straight slot in the cross-head F, which is fastened to the mandrel S. The crank-pin a is adjustable, so that more or less throw can be got for the spindle S, and the cross-head F is movable to adjust the height of the collar T above the table C. To keep the spindle S from turning, the sleeve U on the collar T is moving up and down on the guide-pin P, which is fastened to the table C, parallel with the spindle S. The emery-wheel G is hung with its shaft in the bearing F', and is driven by pulley K. It is in line with the mandrel S, and its face is in conformity with the space between the cogs of the wheel to be cleaned. After the wheel W is put above the collar T on the spindle S the lever X is put in position, as drawn in Fig. 1, so that the collar L' rests against the frame B, and the table C is adjusted by the screw L, so that the emery-wheel G will grind to the bottom of the cogs, and by turning the crank-wheel N the mandrel S, with the wheel W, is lifted and lowered, so that the emery-wheel can grind across the whole width of the face of the wheel W. On the upward movement the space is cleaned by the wheel. An elliptic spring, O, acting as a pawl, is fastened to a small stud, Q, in the arm of the collar T, which moves with the mandrel S. The point of the spring rests against one of the cogs of the wheel W, to keep the wheel from turning one way. Another elliptic spring, V, is fastened to the top of the table C, and the point of the spring is turned upward and rests against the rim of the wheel with one-half of the face of the spring; the other half, being a little longer, reaches between the cogs. As soon as the wheel W is moving down it presses the spring V down, and elongates it, and the outside end of the spring resting against the cog turns the wheel W sufficiently on the spindle S to allow the spring O to slip over the next cog, so that when the wheel W moves up on its next motion it cannot turn back, and the point of the spring V is

forced to slip over the next cog into the next space, but it carries the wheel W so far back that the pawl-spring O rests against the same side of the cog as it did on the last one. In this way the wheel will be turned one cog after each revolution of the crank-wheel N, or after each up and down stroke of the wheel W or mandrel S.

As soon as the wheel is finished a pull on the handle X moves the table C, with wheel W, back far enough to take the wheel W off and to put a new one on, which is bored out before to fit exactly over the upper end of the spindle S, or over a bush put around the spindle. The lever X is pushed back until the collar L' strikes the bed, and the machine cleans the new wheel as it did the one before.

All wheels thus cleaned are perfectly alike, and are as good or even better than cut gears, as these gears keep the hard outside crust, which wears a great while longer than the inside softer iron of cut gears.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The vertical spindle S, with collar T and cross-head F, guided in sleeves E¹, E², and U, and moved by the crank-pin a in the crank-wheel N, and connected to the adjustable table C, in combination with the stationary emery-wheel G, substantially and for the purposes set forth.

2. The elliptic spring O and stationary elliptic spring V, in combination with the wheel W and spindle S, for the purpose of turning the wheel W one cog after each up and down stroke of the spindle S, substantially as specified.

3. The lever X in connection with the screw L, for the purpose of moving and adjusting the table C, substantially as specified.

THOMAS COLDWELL.

Witnesses:

E. P. CORWIN,

W. K. HAWKS.