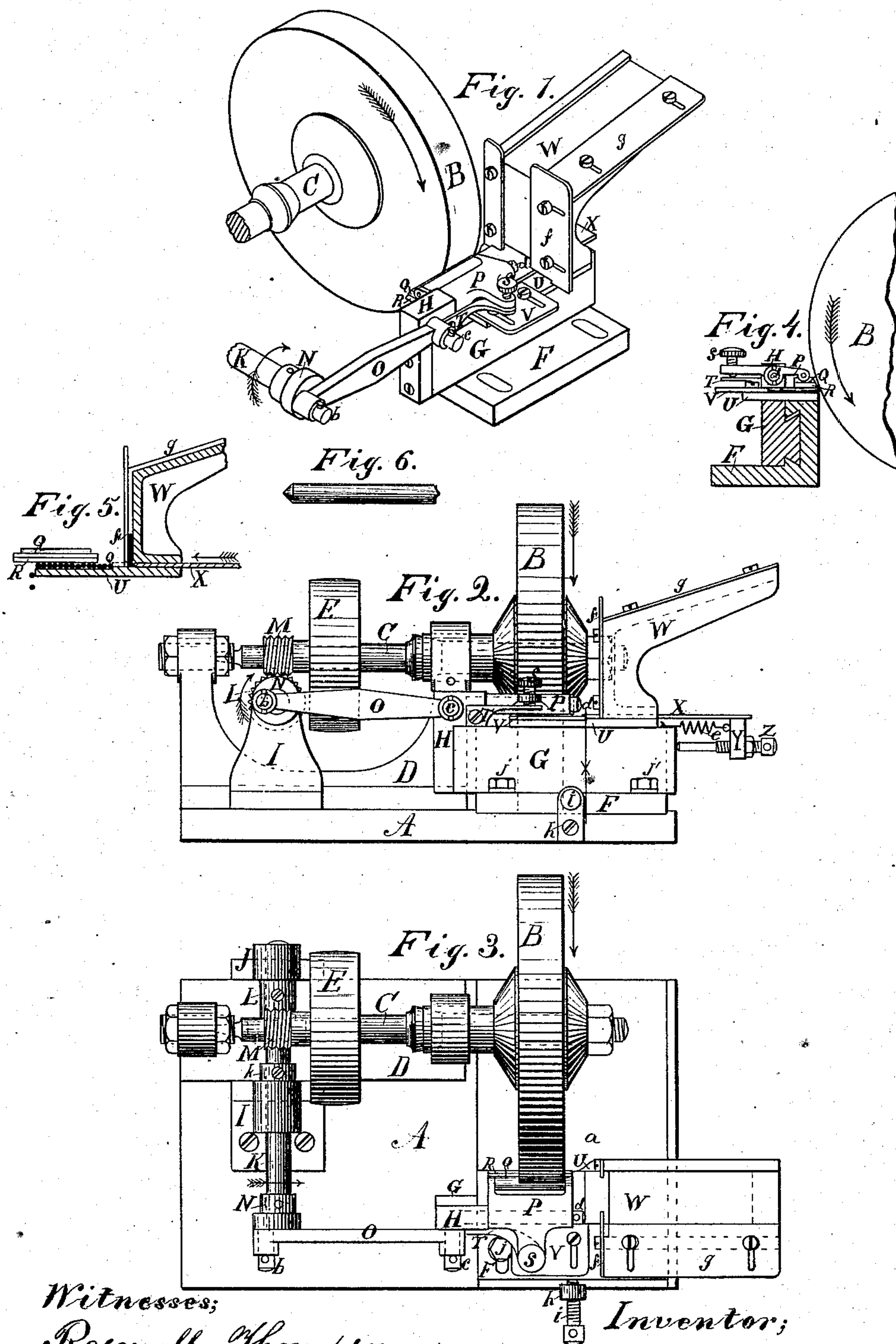


S. C. KINGMAN.

Machine for Beveling the Ends of Needle-Blanks.

No. 160,686.

Patented March 9, 1875.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR BEVELING THE ENDS OF NEEDLE-BLANKS.

Specification forming part of Letters Patent No. 160,686, dated March 9, 1875; application filed February 9, 1875.

To all whom it may concern:

Be it known that I, SAMUEL C. KINGMAN, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and Improved Machine for Beveling the Ends of Wire Blanks; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification.

In cutting the wire blanks used for making sewing-machine needles and similar articles a burr is thrown over the ends of the same by the cutting-tool, which must necessarily be removed from the ends designed for the shanks of said needles, not only to improve the appearance of the same, but to allow said shanks to enter the holes in the needle-bars or other receptacles, which are usually made the exact diameter of the wire from which said needles are made; and the usual manner of removing said burr has been to bevel the ends of the blanks at an angle of thirty degrees, more or less, by grinding the same upon an emery-wheel by holding said blanks between the thumb and forefinger of the right hand and revolving the same during the operation of grinding, or by milling the ends of said blanks by means of a revolving cutting-tool set at the required angle.

The first-mentioned system, though effectually removing the burr, has the disadvantage of depending entirely upon the judgment and skill of the operator for the perfection and uniformity of the angle produced, while the latter system, though producing a perfect and uniform angle, causes another burr to be thrown over the edge of the bevel in the act of milling the same by said revolving cutting-tool, which must necessarily be removed by some additional operation, for reasons before mentioned; and the object of my invention is to combine the advantages, and at the same time avoid the disadvantages, of both mentioned systems; and my improvement consists in mechanism for controlling and revolving the blanks in such a manner as to insure the removal of the burr from the ends of the same, and at the same time form a perfect, geometrical, and uniform angle to a large quantity of blanks.

I will now proceed to describe the construc-

tion and operation of my improved machine with reference to the accompanying drawings.

Similar letters of reference indicate corresponding parts.

Figure 1 is a perspective view of the working parts of my improved machine. Fig. 2 is a front elevation, and Fig. 3 is a plan, of the same. Fig. 4 is a sectional view of the slide and bearing for the same, through the line *x*, Fig. 2. Fig. 5 is a sectional view of the hopper and plates connected therewith. Fig. 6 is an enlarged view of a beveled wire blank.

A is the bed of the machine. B is the revolving emery-wheel. C is the emery-wheel spindle. D is the spindle-bearing secured to the bed A. E is a driving-pulley secured to the spindle C. F is an adjustable slide-bearing, fitted to a groove, *a*, on the top side of the bed. G is a slide fitted to a beveled groove in the side of the adjustable bearing F. H is an angle-block secured to the end of the slide G. I is a vertical bearing secured to the bed A. J is also a similar bearing secured to the bed. K is a shaft, fitted to revolve in bearings I and J. L is a worm-wheel secured to shaft K. M is an endless screw secured to the spindle C. N is a crank secured to the end of the shaft K. O is a connecting-rod, one end of which is attached to the crank-pin *b*, and the opposite end to the pin *c* in the angle-block H. P is a swinging lever, pivoted to a stud, *d*, in the side of the block H. Q is a bar fitted to swing between the ears of the lever P. R is a strip of leather secured to the bottom of the bar Q. S is a screw passing through the opposite end of lever P. T is a spring secured to the block H, the opposite end of which passes under the point of the screw S. U is a plate secured to the top side of the slide-bearing F. V is an adjustable plate, secured to the top of the plate U. W is a hopper secured to the top of plate U. X is a sliding plate, fitted to a groove on the under side of the hopper. Y is a block secured to the sliding plate X. Z is a screw passing through block Y, the point of which strikes the end of the slide G. *e* is a spiral spring, one end of which is attached to the top of the slide-bearing F, and the opposite end to the block Y. *f* is an adjustable plate, secured to the side of the hopper W. *g* is also an adjustable plate, secured to the top of the hopper. *h* is a vertical bar, secured to

the edge of the bed A. *i* is a screw passing through the bar *h*, the point of which strikes the bearing F. *j j'* are bolts passing through slots in the base of bearing F. *k* is a collar secured to the shaft K.

By referring to Fig. 4 it will be noticed that the ends of the blanks are presented to the face of the grinding-wheel at a point considerably below the horizontal center line of said wheel, the plate U, on which said blanks are placed, being secured at such a position with respect to the periphery of the grinding-wheel as to grind the ends of the blanks at the desired angle.

I will now describe the practical operation of my improved machine with reference to the accompanying drawings.

It is to be understood that the grinding-wheel B is to revolve in the direction indicated by the arrow drawn upon the same. Motion is now communicated to the shaft K by means of the endless screw M and worm-wheel L. A reciprocating motion is now imparted to the slide G, and mechanism connected therewith by means of the crank N and connecting-rod O. The hopper W is now to be filled with wire blanks cut to the proper length, said blanks to fill the opening at the right side of the hopper, in the manner shown in the drawing, Fig. 5. A considerable quantity of blanks can also be placed on the inclined portion of the hopper, above the vertical opening, to supply said opening as said blanks are automatically removed from the bottom of the same for the purpose of grinding. The end of the bottom blank is now brought in contact with the face of the grinding-wheel by means of the reciprocating plate X and friction-bar Q, the left end of the former being in such a position at its extreme right-hand stroke as to allow said blank to fall just to the left of said plate, in the manner shown in the drawing, Fig. 5, and, during the left-hand stroke of the same, to be pushed over the plate U until it arrives at the offset *o* on the top side of said plate, where the blank is retained by said offset, while the friction-bar Q is passed over said blank during its right-hand reciprocating movement; but upon the return motion of said bar the blank is rolled over the plate U, in consequence of the friction upon the blank by the leather R, bringing the end of said blank in contact with the face of the grinding-wheel and beveling it on all sides to the required angle. In the mean time another blank has been pushed from the hopper in the manner before described, which in turn is brought in contact with the grinding-wheel in the manner of the preceding one, and so repeating the above-described operations, automatically supplying the plate U with blanks which fall off the left end of said plate, in the manner shown in the drawing, Fig. 5, as a new blank is brought in position at the offset *o*, until the supply from the hopper is exhausted.

It will be noticed that, in consequence of the offset *o*, the blanks cannot roll to the right past this point, but, on account of the friction of the bar Q, will be rolled away from it to the left at each successive left-hand motion of said bar, leaving an unoccupied space at the point *o*, to be filled with another blank. Consequently, there is an over-supply of blanks on the plate U, which causes the surplus blanks to fall from the left end of said plate, as above described.

The screw S is for the purpose of regulating the amount of pressure upon the blanks by the bar Q.

The adjustable plates V, *f*, and *g* are designed to regulate the amount of space required for the blanks in the plate U and hopper W.

The screw *i* and bolts *j j'* are for the purpose of adjusting the position of the slide-bearing F with respect to the face of the grinding-wheel.

Thus I have a machine for beveling the ends of wire blanks which possesses all the advantages of the two mentioned systems hereinbefore described, and at the same time overcomes the objectional features referred to.

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

1. In combination with the revolving grinding-wheel B, spindle C, endless screw M, worm-wheel L, shaft K, crank N, and connecting-rod O, the angle-block H, reciprocating slide G, stud *d*, pivoted lever P, spring T, friction-bar Q, slide-bearing F, and stationary plate U, all constructed, arranged, and operated for the purpose of revolving the hereinbefore-described wire blanks and presenting the ends of the same to the face of said revolving grinding-wheel, substantially as and in the manner and for the object set forth.

2. In combination with the reciprocating slide G, angle-block H, stud *d*, pivoted lever P, friction-bar Q, and stationary plate U, the hopper W, reciprocating plate X, spring *e*, block Y, and screw Z, all constructed, arranged, and operated for the purpose of receiving and supplying blanks for and to the plate U, substantially as and in the manner and for the object set forth.

3. The combination of the hopper W, reciprocating plate X, block Y, spring *e*, screw Z, plate U, bearing F, reciprocating slide G, angle-block H, pivoted lever P, swinging bar Q, friction-surface leather R, spring T, screw S, connecting-rod O, crank N, shaft K, bearing I, bearing J, worm-wheel L, endless screw M, spindle C, bearing D, pulley E, with the revolving grinding-wheel B, all constructed, arranged, and operated substantially as and for the purpose specified.

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Witnesses:

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