

2 Sheets—Sheet 1.

MACHINE FOR GRINDING AND POLISHING CUTLERY.

Patented Sept. 3, 1889.



INVENTOR
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(No Model.)

2 Sheets—Sheet 2.

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No. 410,259.

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Fig. 3.

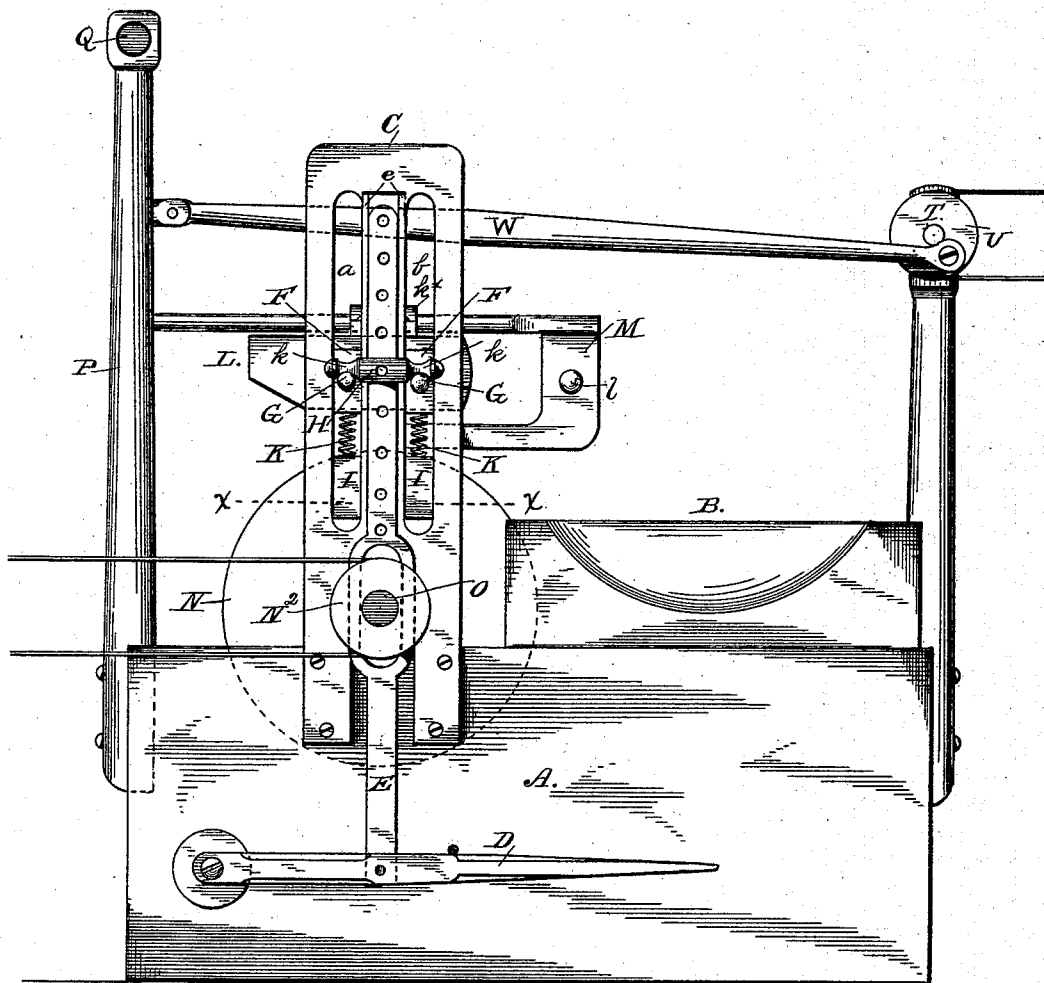
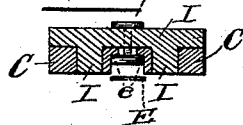


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY A. AXTELL, OF TURNER'S FALLS, MASSACHUSETTS.

MACHINE FOR GRINDING AND POLISHING CUTLERY.

SPECIFICATION forming part of Letters Patent No. 410,259, dated September 3, 1889.

Application filed December 19, 1888. Serial No. 294,086. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. AXTELL, a citizen of the United States, residing at Turner's Falls, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Machines for Grinding and Polishing Cutlery; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention is an improvement in means for grinding and polishing cutlery; and it has for its object to provide a grinding-machine in which both hand and foot power is used to keep the cutlery article bearing on the stone as the latter is moving about its axis in a direction from rather than toward the operator, while reciprocating motion is imparted through mechanical means solely.

In the drawings illustrating my invention, Figure 1 is a plan or top view of the machine. Fig. 2 is a side elevation. Fig. 3 is a vertical longitudinal section of the same. Fig. 4 is a horizontal section on line *xx* of Fig. 2.

Similar letters of reference refer to like parts in all of the figures.

Referring to the drawings, A is the box or base, provided with a saddle B, fixed upon its rear as a seat for the operator, and extending upward in rear of the saddle is a post, through which passes horizontally a shaft T, which carries a pulley V on one end and a crank-wheel U on the other end. The forward end of the box or base A has secured to it two uprights P P, and connecting these two uprights at their upper ends is a shaft Q, which latter has extending downward from it a tongue R. Connecting the tongue R and the crank-wheel U is a pitman W, which is moved by said crank-wheel to vibrate the tongue R for a purpose hereinafter to be set forth.

N is the grindstone, fixed on a shaft O, which is journaled in suitable bearings arranged on opposite edges of the box A, and upon one end of said shaft O is fixed a pulley N², to be connected by a belt (not shown) to a pulley fixed upon the driving-shaft of a motor.

C C are uprights fixed to the outsides of the long vertical walls of the box A. These

uprights have each vertical slots *a b* and vertical rabbeted ways *e*.

I I are blocks provided with tongues adapted to fit into the vertical slots *a b*, which are adjustably fixed to given position by means of bolts and nuts, the latter of which rest in the recesses of the rabbeted slots *e*.

F F F F represent four independent blocks of T form, the tongues of which fit into the slots *a* or *b*, while the cross portions bear upon the inner faces of the uprights C C. The said cross portions of the blocks F have their bearing-surfaces curved, so as to admit of a rocking motion. The blocks F form journal-bearings in pairs for two horizontal shafts G G, the outer ends of their journals being provided with annular grooves *i*.

H H are slotted cross-bars, each provided on its ends with annular grooves *k*. Said bars rest upon the ends of the shafts G, the grooves of said bars resting upon the grooved portions of said shafts.

L L are side pieces which collar the shafts G, and between said side pieces on the shafts G are rollers or spools *i' i'*. A capping-block *k'*, provided with an opening *m* for a rod connected with the knife-holder, is fixed upon the side pieces L L.

The knife-holder M is provided with a head, in which is fixed on opposite sides hand-holds *ll*, and upon which is secured a long rod, which passes through the opening of the capping piece or block *k'* and extends forward toward the tongue R, pendent from shaft Q. Pivoted to the sides of the box or base A are foot-levers D, and pivoted to said foot-levers are metallic perforated straps E E, provided with yokes which embrace the ends of the shaft O, which carries the grindstone N. These straps E are pinned to the cross-bars H, the slots of the latter receiving ends of the former. Spiral springs K K are interposed between the blocks I and the independent blocks F and serve to support yieldingly the several parts composing the knife-holder and the carriage for the same. A suitable belt (not shown) connects the pulley V with a driving-shaft of a motor. The knife or article to be ground or polished is fixed to position upon the under side of the holder M firmly.

In operating the machine, while the grind-

stone is in motion and the tongue R is being vibrated through the movement of shaft T, crank-wheel U, and pitman W, the operator grasps the hand-holds ll, while his feet bear upon the levers D D. The motion of the grindstone being from the operator, when the article being ground is brought against the stone its tendency is forward, so that it is unnecessary for the operator to use any force to push the holder. Now, to relieve the operator from the necessity of pulling the holder back, the rod M, when it comes in contact with the tongue, is automatically forced back by the vibration of the same from the pitman W. The pushing and pulling of the holder being done alternately by mechanical means, the principal duty of the operator is to keep the article bearing upon the stone and give to the knife-holder a rocking motion, so that every part of the surface of the article may be brought in proper contact with the grinding-surface.

This device, though intended more particularly for use in grinding knives of more than ordinary length, may be adapted for use for any articles of cutlery.

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

1. In a machine for grinding and polishing cutlery, the combination, with the grindstone having a motion away from the operator, of the knife-holder, substantially as described, supported on a suitable carriage and moved away from the operator by the motion of the stone, and the vibrating tongue moved by suitable means from the source of power to return the holder toward the operator, as set forth.

2. The knife-holder formed with a head,

hand-holes, and two limbs, one long and one short, adapted to straddle the rollers of the carriage, the longer adapted to enter into an opening of the capping-block and extend within reach of the vibrating tongue, and the shorter serving as a flat base to receive the knife to be ground, substantially as set forth.

3. The combination, with the carriage for the knife-holder, formed as set forth, and the movable journal-blocks cushioned upon suitable springs, of the metal straps, the bars adjustably fixed thereto by pins and bearing upon the ends of the shafts of the knife-holder carriage, and the foot-levers pivoted to the base of the box and hinged to the said vertical straps, as and for the purpose specified.

4. The combination, with the box or base of the grinding-machine and opposite uprights provided with vertical slots, of blocks, as described, fitting in said slots and adjustably clamped to said uprights, movable blocks fitting in the slots of said uprights, forming journal-bearings for the shafts of the knife-holder carriage, springs, as bearings, fixed between the said fixed bearings and the said movable bearings, and the carriage formed of two shafts journaled in the said movable bearings, side pieces collared on said shafts, and a capping-piece provided with an opening for a guide-rod of the knife-holder, and spools encircling the said carriage-shafts, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY A. AXTELL.

Witnesses:

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E. P. HITCHCOCK.