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PATENTED DEC. 29, 1903.

W. C. & J. B. MALLINSON.
CUTLERY POLISHING MACHINE.

APPLICATION FILED JAN. 13, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

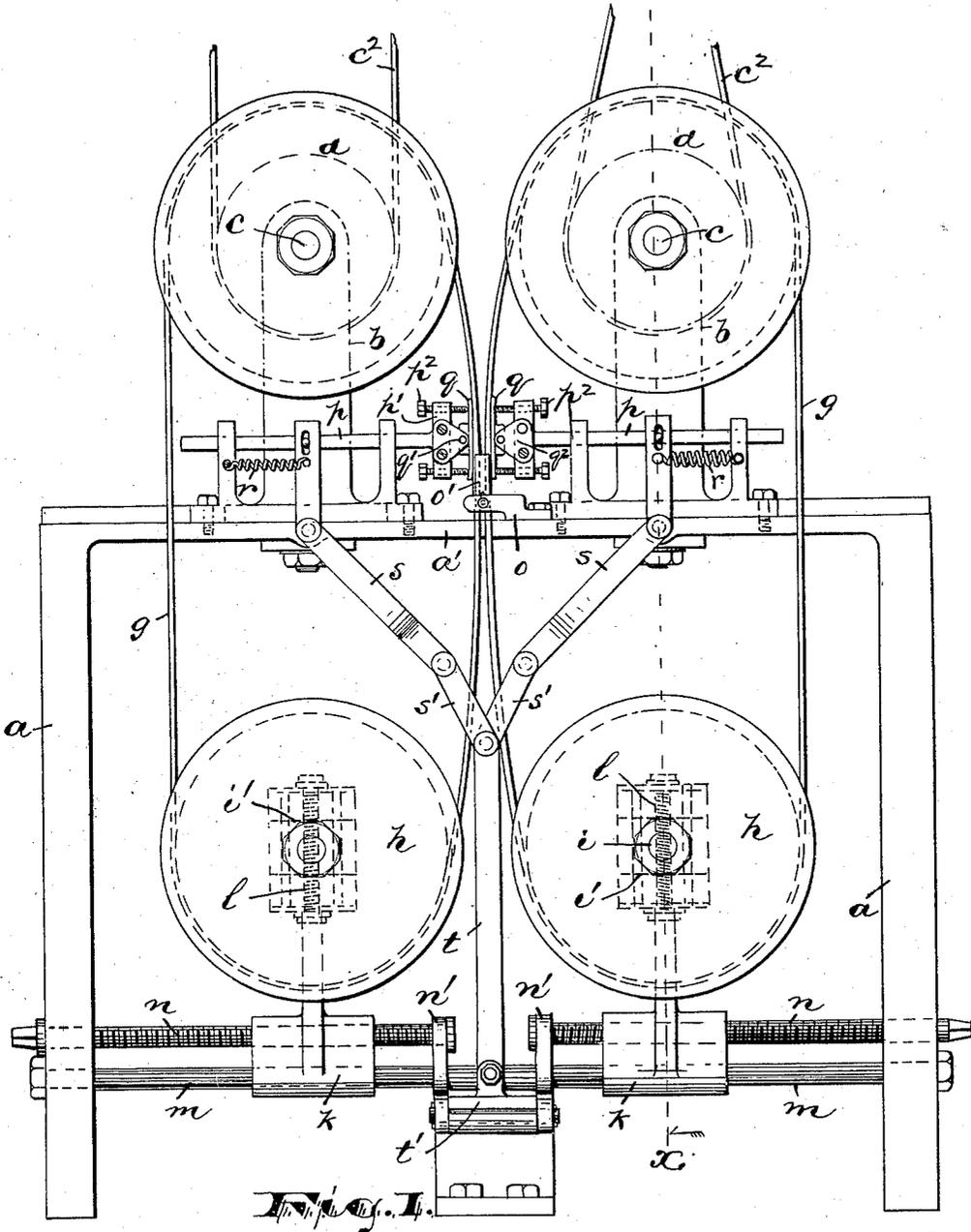


Fig. 1.

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INVENTORS

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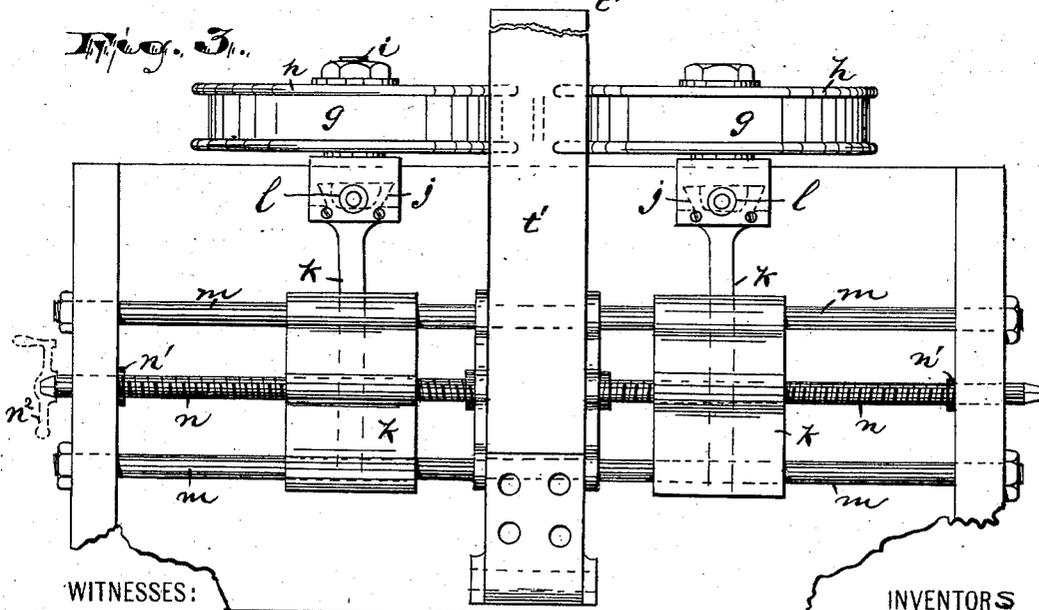
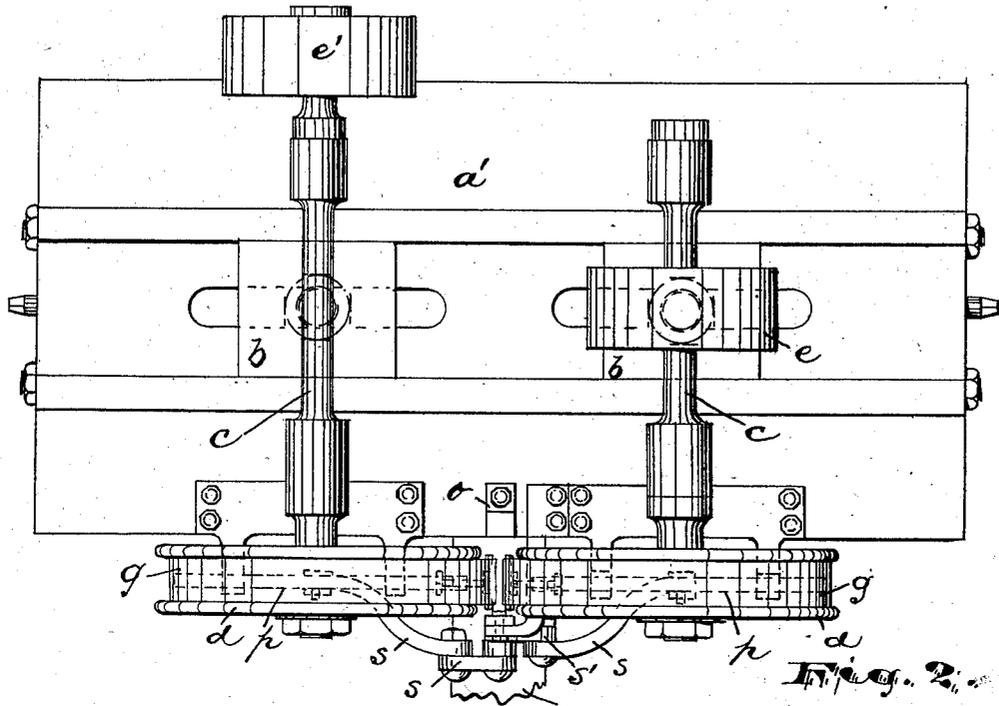
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3 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM C. MALLINSON AND JOSEPH B. MALLINSON, OF NEWARK, NEW JERSEY.

CUTLERY-POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 748,391, dated December 29, 1903.

Application filed January 13, 1902. Serial No. 89,536. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM C. MALLINSON and JOSEPH B. MALLINSON, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Cutlery-Polishing Machines; and we 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide a machine adapted to be employed in cutlery-factories for polishing the blades of knives or the like after they have been ground; to enable such polishing to be done rapidly and at little expense and labor, to enable each blade to be polished evenly and to obtain upon successive blades a uniform polish, to secure an adjustment of the machine to different surfaces to be ground, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved cutlery-polishing machine and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures, Figure 1 is a front view of our improved cutlery-polishing machine. Fig. 2 is a plan of the same, and Fig. 3 is a reverse plan. Fig. 4 is a vertical sectional view on a plane extending from front to rear of the machine, as indicated by line *x* in Fig. 1.

In said drawings, *a* indicates a suitable frame of any ordinary construction adapted to support the parts of our improved apparatus at a convenient height. Upon the top *a'* of said frame are bolted upwardly-extending brackets or yokes *b*, in each of which is journaled a shaft *c*. Said shafts *c* lie parallel to each other and at their ends next the front

of the machine carry belt-pulleys *d*, grooved, as at *d'*, to hold the belt more securely. Back from the said belt-pulleys the shafts *c c* carry driving-pulleys *e e'*, respectively, adapted to receive power through belts *c²* to drive them in opposite directions, so that the grinding or polishing belts *g* upon the pulleys *d* will both be carried downwardly at the adjacent sides of said pulleys. Said belts are preferably of leather and coated with emery by means of glue or the like in any ordinary manner to effect a grinding or polishing action. Each belt is endless and at the lower part of the machine runs around an idle belt-pulley *h*, vertically beneath the upper belt-pulleys *d* and in the same plane. These lower belt-pulleys are each journaled upon a pin or shaft *i*, provided at its rear end with a dovetailed head *i'*, adapted to slide vertically in an undercut slideway *j* of a bracket *k*. Said head *i'* has a vertical threaded perforation adapted to receive a screw *l*, which works loose in the top and bottom ends of the slideway *j* to turn without longitudinal movement, and thus raise and lower the head *i'* and with it the belt-pulley *h*. This enables the belt *g* to be adjusted to any desired tension or slackened sufficiently to be removed from its pulleys for renewal of its emery surface or for any other reason.

Each bracket *k* is transversely perforated, as at *k'*, to slide upon rods *m*, extending from side to side of the machine, and between said rods the bracket has a threaded perforation *k²* to receive a screw-shaft *n*, held in bearings *n'* of the frame against longitudinal movement, but adapted to be turned by means of a crank *n²* to slide the bracket along its rods *m*. This adjustment enables the grinding-belts to be brought closer to each other or farther apart, as will be understood.

Near the forward edge of the top of the frame *a* is bolted a rest *o*, providing posts *o' o'* at opposite sides of the grinding-belts and upon which a knife-blade can be rested between the belts while it is being polished.

In order to enable the grinding or polishing belts *g g* to be moved toward each other into close enough proximity to engage the opposite sides of the blade at the same time, we have provided upon the top of the frame *a*

slides *pp* at opposite sides of the two adjacent belt-strands, each carrying at its forward end a pressure-plate *q*, pivoted upon a horizontal pin *q'*, lying parallel to the belts *g*.

5 Said pin *q'* is journaled in cheek-pieces *q²*, projecting from an upright cross-head *p'* at the end of the slide *p* next the grinding-belt, and through the upper and lower ends of said cross-head *p'* extend adjusting-screws *p²*,

10 which engage the pressure-plate *q* above and below its fulcrum and by means of which the said pressure-plate can be adjusted to different positions to guide the grinding-belt properly against the blade of the knife. Preferably said pressure-plates are resilient or flexible to a certain extent, so that they will assume a curved form under the combined influence of their supports and the polishing-

15 belts, if desired.

20 The slides *pp* are drawn oppositely apart by springs *rr*, so that normally the grinding-belts separate to permit the insertion of the knife-blade. After the blade has been inserted the slides *p'p'* are forced together by

25 means of bent levers *ss*, pivoted on the front side of the frame *a* and connected at their lower ends by links *s's'* to a connecting-rod *t*, extending to a treadle *t'*, adapted to be depressed by the foot.

30 In operation, the driving-pulleys *dd* being rotated by the power means described, the grinding or polishing belts *gg* are caused to move downward at their adjacent middle strands at an equal velocity properly regulated to best effect the polishing. The knife-

35 blade is then inserted by the operator upon the rests *o'o'* so that the handle end lies close to the forward edge of the belts, and the operator presses his foot upon the treadle

40 *t*, thus throwing the slides *pp* and pressing the grinding-belts firmly against the opposite sides of the knife-blade, it being understood that the position of the pressure-plates *q* has been previously adjusted to conform to the

45 sides of the particular style of knife being polished. The knife is then drawn straight out from between the belts toward the operator, and in its passage is effectually and uniformly polished on both sides. The treadle *t*

50 is then released, and the springs *r'r'* separate the slides *pp* to permit the insertion of the next knife. In this way the knives are polished with great rapidity and at the same time a uniform and elegant polish is secured.

55 Having thus described our invention, what we claim as new is—

1. In a cutlery-polishing machine, the combination of a frame *a*, brackets *b*, horizontally adjustable toward and away from each other upon the upper part of said frame, a shaft journaled in each bracket and having a grinding belt-pulley fast thereon, lower brackets *k*, horizontally adjustable toward and away from each other upon the lower part of said

frame, vertically-adjustable studs *i*, upon 65 said lower brackets and having grinding-belt pulleys journaled thereon, and endless grinding-belts each extending vertically from one upper pulley to the corresponding lower one and back again around the upper one. 70

2. In a cutlery-polishing machine, the combination of a bench-like frame *a*, brackets *b*, projecting upward above the top of said frame and being adjustable thereon, shafts journaled in said brackets and grinding-belt 75 pulleys on said shafts, lower grinding-belt pulleys adjustably mounted beneath the top of said frame in alinement with the upper ones, grinding-belts arranged on said pulleys, and means upon the top of the bench or frame 80 for supporting between said belts a knife or the like to be ground.

3. In a cutlery-polishing machine, the combination with a grinding-belt, of a slide working at right angles to said belt, a flexible 85 pressure-plate carried by said plate-slide and adapted to engage the belt, means for adjusting said pressure-plate to different positions, and means for operating said slide.

4. In a cutlery-polishing machine, the combination with a grinding-belt, of a pressure-plate adapted to engage the reverse side of the belt, a slide on which said plate is pivoted intermediate of its ends, and screws working on said slide to engage the ends of said plate. 95

5. In a cutlery-polishing machine, the combination with a grinding-belt, of a flexible pressure-plate adapted to engage the reverse side of said belt, and means for applying pressure at different points of said plate, said 100 means being independently operable.

6. In a cutlery-polishing machine, the combination with oppositely-driven adjacent grinding-belts, of flexible and adjustable pressure-plates adapted to engage the reverse 105 sides of contiguous strands of said belts, independent slides carrying said pressure-plates, bent levers *s*, engaging each at one arm one of said slides, a foot-lever *t'*, and links connecting said bent levers to said foot- 110 lever.

7. In a cutlery-polishing machine, the combination with a grinding-belt, of a driving-pulley for said belt, an idle pulley, a supporting-bracket movable sidewise of said belt 115 and having on itself a slideway disposed longitudinally with respect to the belt, and a pin or shaft on which said idle pulley is pivoted and having a head working in said slideway and held thereby. 120

In testimony that we claim the foregoing we have hereunto set our hands this 31st day of December, 1901.

WILLIAM C. MALLINSON.
JOSEPH B. MALLINSON.

Witnesses:

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C. B. PITNEY.