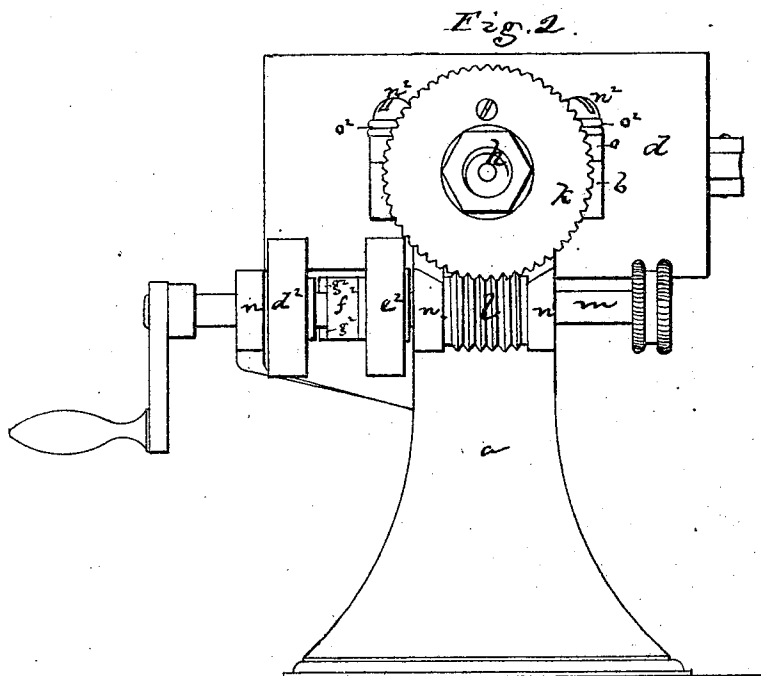
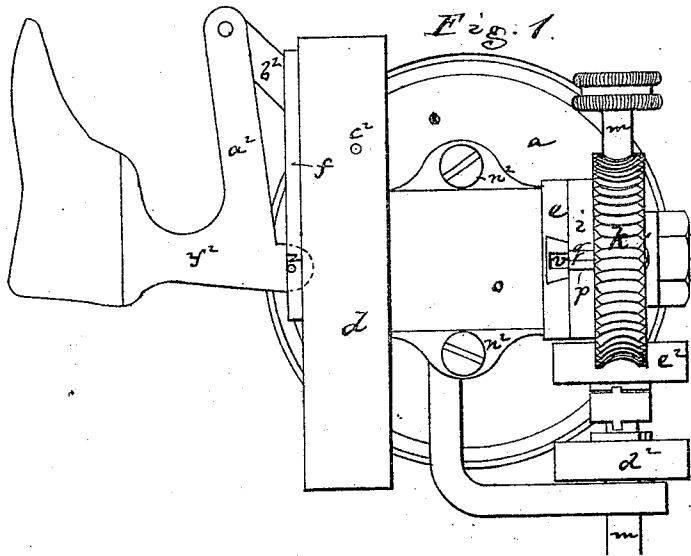


H. F. WHEELER.

Machinery for Finishing the Sole-Edges of Boots and Shoes.

No. 141,843.

Patented August 12, 1873.



Witnesses,
M. W. Frothingham,
L. H. Latimer.

Inventor,
Henry F. Wheeler,
By his Atty.

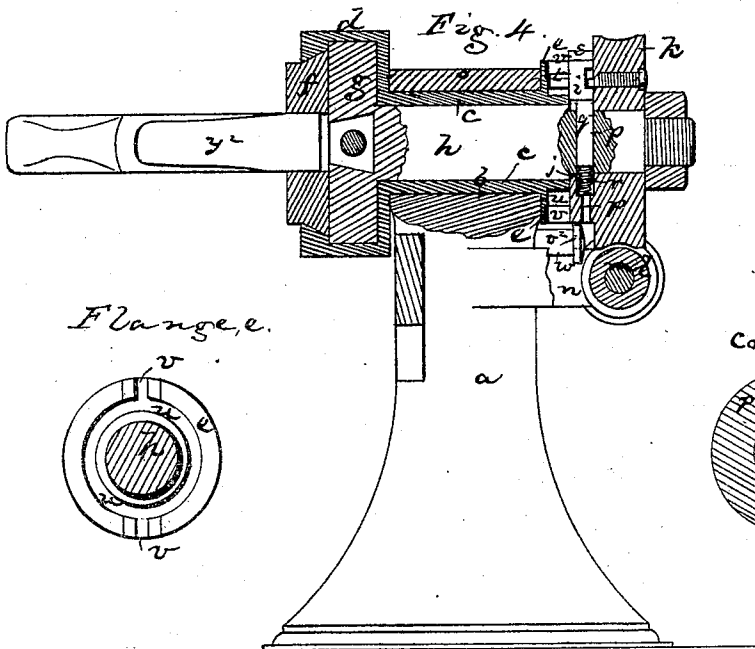
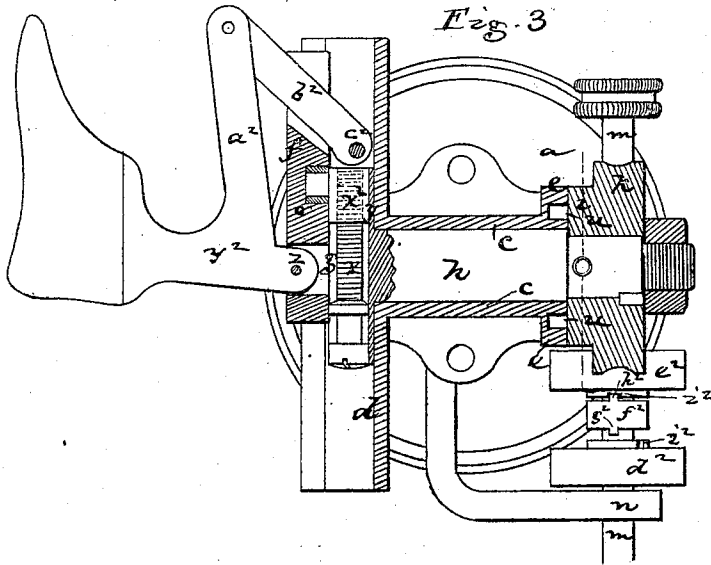
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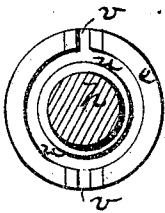
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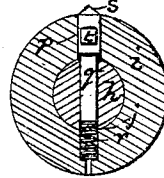
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Flange, e.



Collar, i.



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UNITED STATES PATENT OFFICE.

HENRY F. WHEELER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINERY FOR FINISHING THE SOLE-EDGES OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **141,843**, dated August 12, 1873; application filed May 6, 1873.

To all whom it may concern:

Be it known that I, HENRY F. WHEELER, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Machines for Trimming and Burnishing the Edges of the Heels of Boots and Shoes; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates to details of construction or organization of machines for trimming or burnishing the edges of boot and shoe soles, and particularly of such machines as employ a jacking mechanism connected with a plate that has intermittent horizontal movements, and semi-rotative movements to bring the whole length of edge, from heel to toe on both sides of the sole and around the heel and toe, properly to the action of the overhanging burnishing or trimming tool. In such machines provision is necessary for causing the jack-plate to slide without rotative movement, and to rotate without sliding movement, at proper times; and my invention relates, particularly, to the mechanism for locking the parts together.

In my invention I use a shaft journaled in a suitable bearing, having fixed to one end the guide-plate in which the jack-plate slides, and with which it turns rotatively; and this shaft I make as a sleeve and bearing for another shaft, which, extending through the sleeve, carries at its front end a crank-wheel having a crank-pin projecting into a groove in the sliding jack-plate, this shaft being constantly rotated, and the sleeve, sleeve-plate, and jack-plate rotating with it by the sleeve being locked to the shaft, except at such times as the plates are brought to horizontal position, (twice during each rotation,) at which times a projection from a key extending through the central shaft, and thrown into a notch in a flange extending from the sleeve, is thrown from such notch, when the sleeve will be held by friction, and the crank-pin will slide the jack-plate forward in the guide-plate at the end of the sleeve.

My invention consists, primarily, in the arrangement of the devices for automatically locking the sleeve and shaft together when the

jack-plate is ending its horizontal movement, so that the jack-plate, sleeve, and shaft will rotate as one, and are released from their locked connection at the end of each semi-rotative movement of the jack-plate, so that, while the sleeve is held still by friction in its bearing, the shaft, by rotating the crank-wheel, will cause the crank-pin to drive forward the jack-plate.

The drawing represents a machine embodying the invention.

Figure 1 shows the machine in plan. Fig. 2 is an end elevation of it. Fig. 3 is a section on the line *xx*. Fig. 4 is a sectional elevation, the section being taken on the line *yy*.

a denotes a post or standard, at the top of which is a bearing, *b*, in which is supported the horizontal tubular shaft or sleeve *c*. Fixed to the front end of this sleeve, or integral with it, is the guide-plate *d*, and the bearing extends from this guide-plate to a flange, *e*, at the opposite end of the sleeve. Sliding in suitable grooves in the plate *d* is a jack-plate, *f*, and from this plate extends a crank-pin projecting from a block connected with a crank-wheel, *g*, on the end of a shaft, *h*, that extends through the tubular shaft or sleeve *c*, the crank-wheel being on, or forming the front end of, the shaft *h*, and there being fixed on its opposite end a collar, *i*, and gear-wheel *k*. The wheel *k* is a worm-wheel, into which meshes a worm-gear, *l*, on a driving-shaft, *m*, rotating in suitable bearings *n* extending from the post *a*.

The sleeve *c* and shaft *h* are capable of independent rotation; and while the shaft *h* rotates freely in the sleeve, the sleeve is held by the cap *o* (confined by screws *n*² and pressed down by springs *o*²) with such frictional stress that, unless the shaft and sleeve are positively locked together, the shaft will rotate without rotation being imparted to the sleeve. In such rotation, the plate *d* being stationary, and the crank-wheel *g* turning, the crank-pin will impart a slide movement to the jack-plate, and to the shoe jacked to said plate. This slide movement in one direction is to be imparted to the jack-plate when the plate *d* is brought to horizontal position, and, having been terminated, the shaft *h* and sleeve *c* and the plate *d* and jack-plate *f* rotate as one, making a half rotation, after which the jack-plate *f* again slides,

sliding back in the guide-plate to its first position, and the plates d f then complete their rotation.

To lock the sleeve c and shaft h together for the semi-rotative movements of the jack-plate, devices are used as follows: The collar i has a radial or diametrical groove or slot, p , in which is a key, q , said key having at one end a pin or shank, r , that extends through the shaft h . The key is pressed forward by a suitable spring, j , and has at its outer end a tooth, s , that extends beyond the periphery of the collar. From the key projects a pin, t , that, as the shaft rotates in the sleeve c , travels in a circular groove, u , in the rear face of the flange e . At opposite sides of this groove or flange are two notches, v , opening from the groove, and, as the shaft h rotates, the pin t , at the completion of each half-rotation of the shaft h , will be brought opposite one or the other of these notches, into which it will be driven by the force of the spring j , and the collar and flange, shaft and sleeve, guide-plate and jack-plate, will then be locked together, so as to rotate as one, or so that the rotation of the shaft shall effect the rotation of the sleeve. When thus locked, the tooth at the end of the key will be at its uppermost position, and will project beyond the collar. The half rotation of the shaft, sleeve, and jack-plate will carry the key under its axis of rotation, and will bring the tooth into contact with a roll, v^2 , on a stationary pin, w , striking which roll will force it up, carrying the pin t into line with the groove u , into which it will slide, and the shaft and its crank-pin will then rotate with respect to the sleeve, the plate d remaining stationary, and the crank imparting end movement to the jack-plate. Thus, automatically, at the end of each forward movement of the jack-plate, the shaft and sleeve are keyed together to cause the guide-plate and jack-plate to turn as one; and, at the end of each semi-rotative movement, the shaft and sleeve are disconnected, and the guide-plate remains stationary, and the crank effects the forward movement of the jack-plate.

To vary the extent of movement of the jack-plate, the crank-pin block is made adjustable by means of a screw, x , the screw being prevented from end movement by suitable stops, and entering the block x^2 , which slides in a groove or slot, y , in the crank-wheel.

To insure the proper presentation of the whole length of the irregularly-curved sole-edge, as it slides forward, to the action of the burnishing or reducing tool, I jack the boot to a lever mechanism connected with the jack-plate, as follows: The arm y^2 , that extends forward, and has fixed to its end the boot or shoe, is jointed to the jack-plate, as seen at z , and has an arm, a^2 , extending from it, said arm being jointed, by a link, b^2 , to a pin, c^2 ,

fixed in the guide-plate. The arm a^2 , being thus connected by the link b^2 , swings the shoe as the plate slides, and thus automatically presents the respective parts of the whole edge at substantially the same angle for the action of the burnishing or trimming tool.

The jack-plate may be turned in either direction; and, to drive it in either direction by power, I arrange a shipping mechanism, as follows: The worm-gear l fills the space between two of the bearings n , and the shaft m slides in and is splined to said gear. Between the outer bearings and the center one the shaft carries two loose pulleys, d^2 e^2 , and a clutch pulley or collar, f^2 , the latter being fast on the shaft, and having, on opposite sides, teeth g^2 h^2 that engage with notches i^2 formed in the inner ends of the hubs of the respective pulleys. The shaft m slides in the pulleys, and has just end play enough to carry the teeth on either side of the clutch out of the notches of the adjacent wheel, and its opposite teeth into the notches of the other wheel, the pulleys being held from end movement by any suitable means.

One of the pulleys having an open belt, and the other a cross-belt, it will be obvious that, by slight end movement of the shaft, to disconnect with either pulley and connect with the other, the rotation of the shaft may be reversed whenever desirable.

I claim—

1. In combination with the sliding jack-plate f and guide-plate d and rotating shaft h , the friction-sleeve c , and the mechanism for automatically and intermittently locking and unlocking the sleeve c and shaft h , to effect the respective movements of the jack-plate, substantially as described.

2. In combination, the sleeve c , flange e , and its groove u and notches v , the shaft-collar i and its key q , and the roll v^2 and spring j , all operating together substantially as shown and described.

3. The arms y^2 a^2 , jointed at c^2 , and the link b^2 , in combination with the jack-plate f , substantially as shown and described.

4. In combination with the shaft h and sleeve c , the spring-presser cap o , worm-wheel k , and worm-gear l , and shaft m , arranged and operating substantially as shown and described.

5. In combination with the mechanism for imparting motion to the jack-plate, the sliding shaft m , loose pulleys d^2 e^2 , with notches i^2 , and clutch-collar f^2 , with teeth g^2 h^2 , all substantially as shown and described.

Executed this 7th day of April, A. D. 1873.

HENRY F. WHEELER.

Witnesses:

FRANCIS GOULD,
M. W. FROTHINGHAM.