

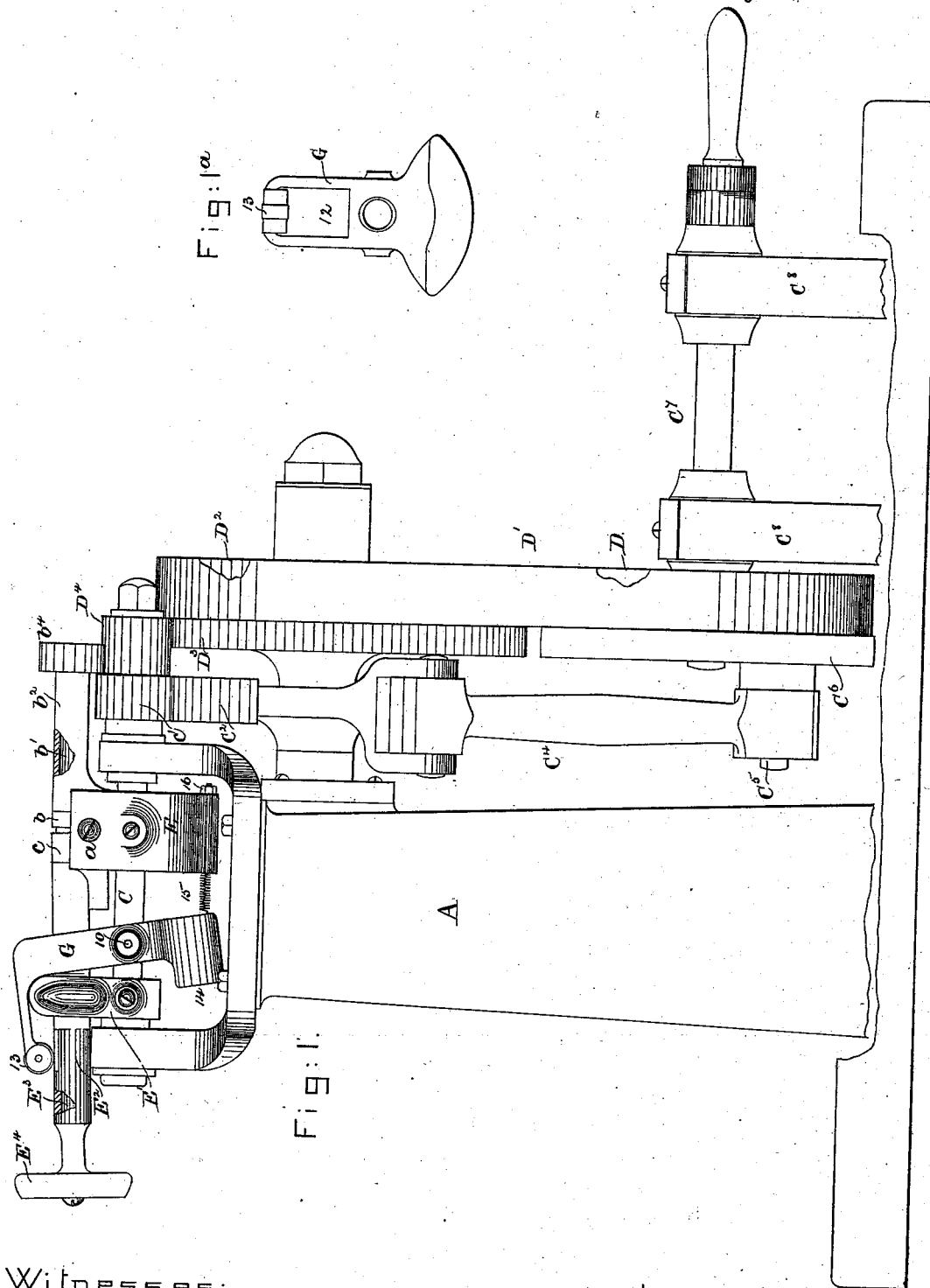
(No Model.)

3 Sheets—Sheet 1.

C. J. ADDY.
BURNISHING MACHINE.

No. 382,581.

Patented May 8, 1888.



Witnesses:
Edgar A. Goddard,
Theodore L. Emery.

Inventor
Charles J. Addy
by Henry & Gregory Attys

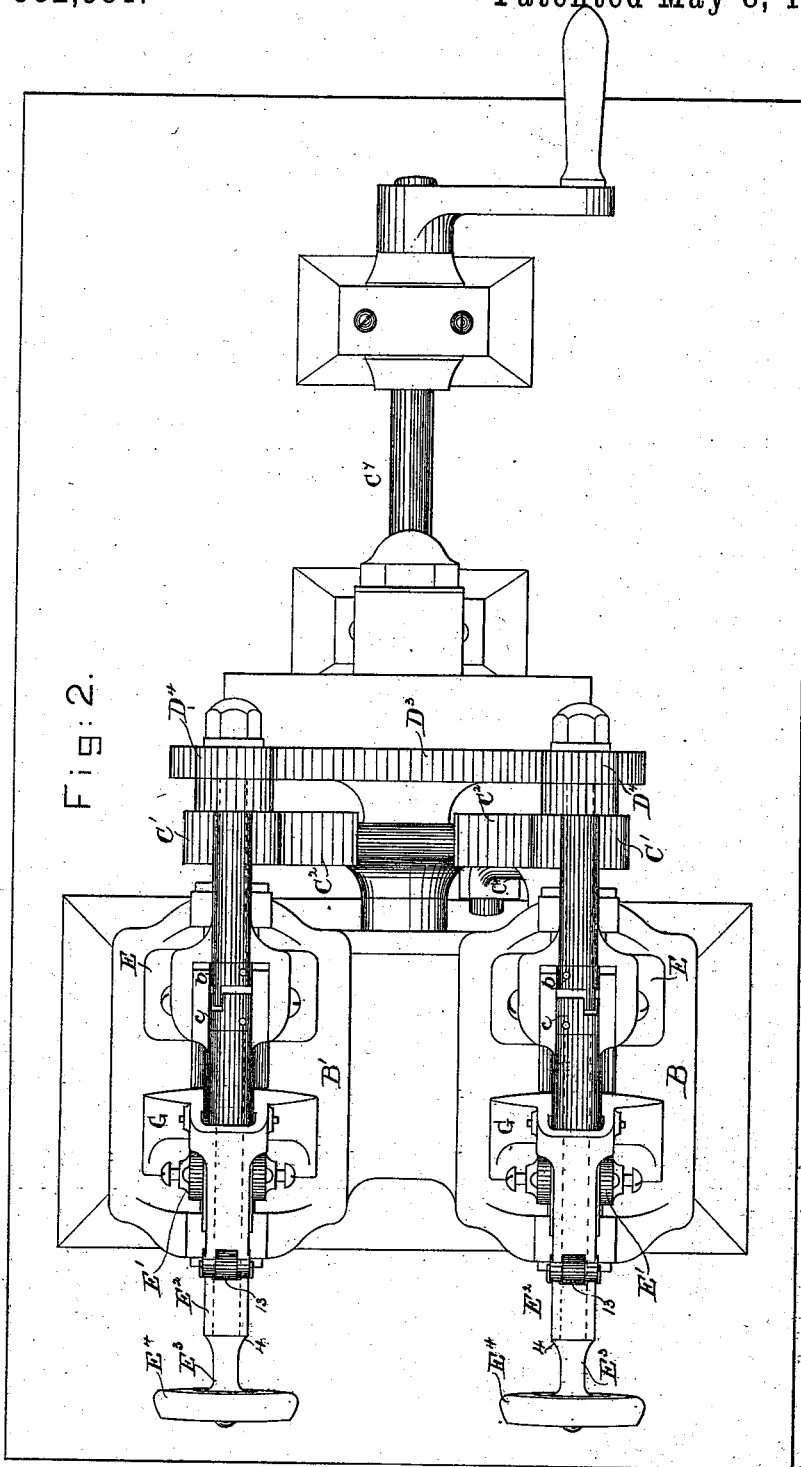
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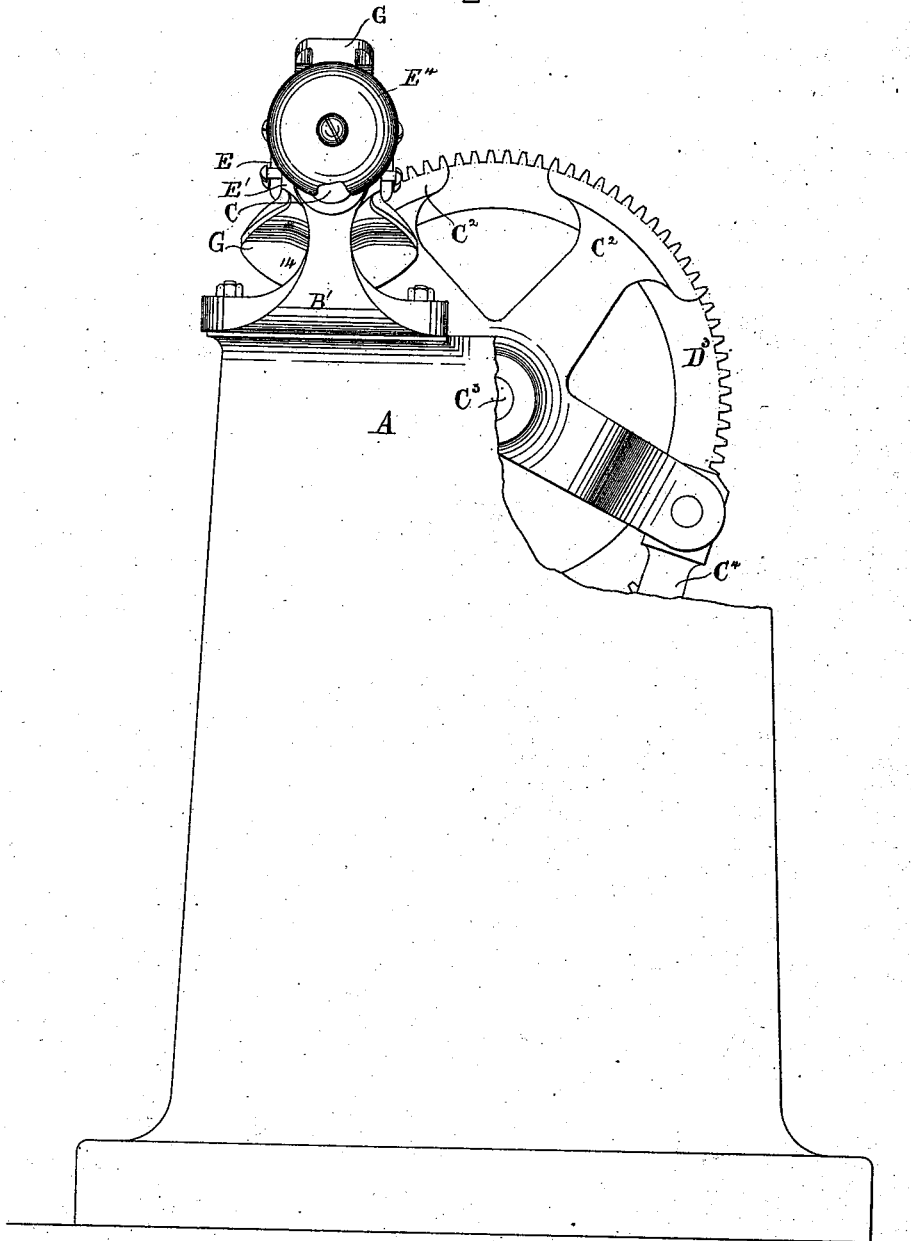
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Fig. 3.



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Charles J. Addy
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UNITED STATES PATENT OFFICE.

CHARLES J. ADDY, OF MALDEN, ASSIGNOR TO THE TAPLEY MACHINE COMPANY, OF BOSTON, MASSACHUSETTS.

BURNISHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,581, dated May 8, 1888.

Application filed March 16, 1888. Serial No. 267,346. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. ADDY, of Malden, county of Middlesex, State of Massachusetts, have invented an Improvement in Burnishing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve the construction of that class of burnishing-machines wherein a rotating tool at the end of a rotating shaft is vibrated about the heel from breast to breast, my invention embracing novel mechanism for imparting the described motions to the rotating tool or tools.

With a burnishing-tool and its shaft, actuated as described, I have combined an equalizing-lever, the purpose of which is to keep the burnishing-tool pressed with equal force upon all parts of the heel being burnished, notwithstanding variations in the shape of the heel, the tool in practice commencing to burnish the heel at its top-lift end and working toward and to the heel-seat.

My invention in burnishing machines consists, essentially, in an oscillating shaft, its attached swing-block or collar, and an arm, combined with an equalizing-lever pivoted to move with the said shaft in its oscillations, substantially as will be described; also, in an oscillating shaft, its attached swing-block or collar, and an arm, combined with an equalizing-lever pivoted to move with the said shaft in its oscillations, and with rotating but jointed tool-carrying shafts and burnishing-tool to operate substantially as will be described; also, in a burnishing-machine, an oscillating shaft provided with a pinion, a sector-lever to engage said pinion and oscillate the said shaft, means to vibrate the said sector-lever, an intermediate pinion loose on the said oscillating shaft, a toothed gear to rotate the said pinion, and a second pinion rotated by the intermediate pinion, referred to, combined with a swing-block, an arm, and connected shafts, and a tool to operate substantially as described.

Figure 1 in side elevation represents a heel-burnishing machine embodying my invention. Fig. 1^a is a detail showing the equalizing-lever detached; Fig. 2, a top or plan view thereof;

and Fig. 3, a partial front end view, one of the heads being broken off to better show the parts behind it.

The frame-work A, of suitable shape to sustain the working parts, has erected upon it two like yokes, B B', each of which has suitable bearings to receive a like oscillating shaft, C, having fast on it a toothed pinion, C', which is engaged by the teeth of a sector-lever, as C'', the said sector-lever having its fulcrum on a stud, C'', and being connected by link C'' with a crank-pin, C'', on a disk or crank, C'', fast to the main shaft C', mounted in bearings C'', and rotated in any suitable manner. In Fig. 1 the lower part of the frame-work is shown as partially broken out to shorten the same on the drawings.

The crank or disk C'' has attached to it a belt-pulley, D, which drives a belt, D', extended over a second pulley, D'', loose on the stud C'', referred to, the said pulley D'' having as part of it a toothed gear, D'', which, as herein shown, is rotated continuously in one direction and engages two like intermediate pinions, D'', loose on the outer ends of the two oscillating shafts C of the burnishing-heads. Each oscillating shaft C has secured to it not only a swing-block or collar, E, but also a guiding-yoke, E', the latter guiding each an arm, E'', pivoted at *a* on the swing block or collar E. Within this arm is placed a shaft, E'', it being provided at its front end with a rotating tool, E''.

The rear end of the shaft E'' is provided with a collar, *c*, notched or shaped to engage a reversely shaped or notched collar, *b*, at the end of a short shaft, *b'*, (see Fig. 1,) extended through a bearing or sleeve, *b''*, attached to or forming part of the swing-block, the said shaft *b'* at its opposite end having fast to it a pinion, *b''*, which is engaged and rotated by the pinion D'', before described. The shaft E'' is prevented from moving longitudinally in the arm E'' by means of the shoulder 4 on the said shaft at one end and the collar *c* at its other end.

By pivoting the arm E'' as described it is possible to enable the rotating shaft carrying the tool E'' to be moved away from the oscillating shaft C, as the tool in its vibrations about the heel is made to travel from the top-lift end thereof toward and to the heel-seat, the shoe

the heel of which is being burnished being carried by a jack substantially such as in United States Patent No. 362,347 or No. 318,340, or in other usual manner—as, for instance, as in my application, Serial No. 265,360, filed February 27, 1888.

To enable the effective pressure of the tool to remain the same upon all parts of the heel, as stated, I have devised and combined with the machine a novel equalizing-lever, G, it being herein shown as an elbow-lever pivoted at 10 upon the oscillating shaft C and slotted or bifurcated, as at 12, Fig. 1^a, to embrace the arm E², the latter moving out and in in the said slot 12. This equalizing-lever at one end is provided with a roll, as 13, which bears upon the arm E² and presses the tool against the heel being burnished, the opposite end of the equalizing-lever being weighted, as at 14, to aid in counterbalancing the weight of the arm E² and shaft E³ at the opposite side of the shaft C. In practice the equalizing-lever G will be acted upon by a suitable spring, as 15, preferably made adjustable as to its effective strength, the tendency of the said spring being to keep 25 the roller 13 against the arm E², the effective strength of the spring being increased as the burnishing-tool passes upon parts of the heel of increasing diameter, the increasing power of the spring compensating for the movement of the roll 13 back from the tool E⁴ under the conditions stated.

From the foregoing description it will be understood that the tool-carrying shaft and its attached tool will be rotated substantially continuously in the same direction through the gear D³, while the shaft C will be oscillated by the sector-lever to carry the tool from breast to breast of the heel.

The machine herein shown is provided with two like heads, each having a tool-shaft and tool to be operated simultaneously; but I do not desire to limit my invention to a machine having two heads, as I may employ one head, and so, also, I do not desire to limit the employment of the equalizing-lever herein shown to the particular arm E² herein shown.

I also desire it to be understood that the machine herein described is also adapted to be used for the class of work known as “wax burnishing” or “waxing,” wherein friction is exerted in one and the same direction rather than by a reciprocating rubbing action, as in the machine described in the said Patents Nos. 362,347 and 318,340.

I do not desire to limit myself to the employment of any particular kind of jack, as the mechanism I have described can be used together with any jack now known to the trade, and is applicable to the so-called “Tapley” machine, whether said jack is automatically moved under the operation of the tool or moved by hand.

I claim—

1. In a burnishing-machine, an oscillating shaft, its attached swing-block or collar, and the arm E², combined with the equalizing-lever pivoted to move with the said shaft in its oscillations, substantially as described.

2. The oscillating shaft, its attached swing-block or collar, and the arm E², combined with the equalizing-lever pivoted to move with the said shaft in its oscillations, and with the rotating but jointed tool-carrying shafts E³ b', bearings therefor, and burnishing-tool, to operate substantially as described.

3. In a burnishing-machine, the oscillating shaft provided with a pinion, the sector-lever to engage said pinion and oscillate the said shaft, means to vibrate the said sector-lever, the intermediate pinion, D⁴, loose on the said oscillating shaft, the toothed gear to rotate the said pinion D⁴, and the pinion b', rotated by the pinion D⁴, combined with the swing-block, the arm E², and the connected shafts E³ and b', bearings therefor, and tool, to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES J. ADDY.

Witnesses:

BERNICE J. NOYES,
F. L. EMERY.