(No Model.)

W. GORDON.

SOLE AND HEEL EDGE BURNISHING MACHINE.

No. 286,128. Patented Oct. 2, 1883.

Fig 1

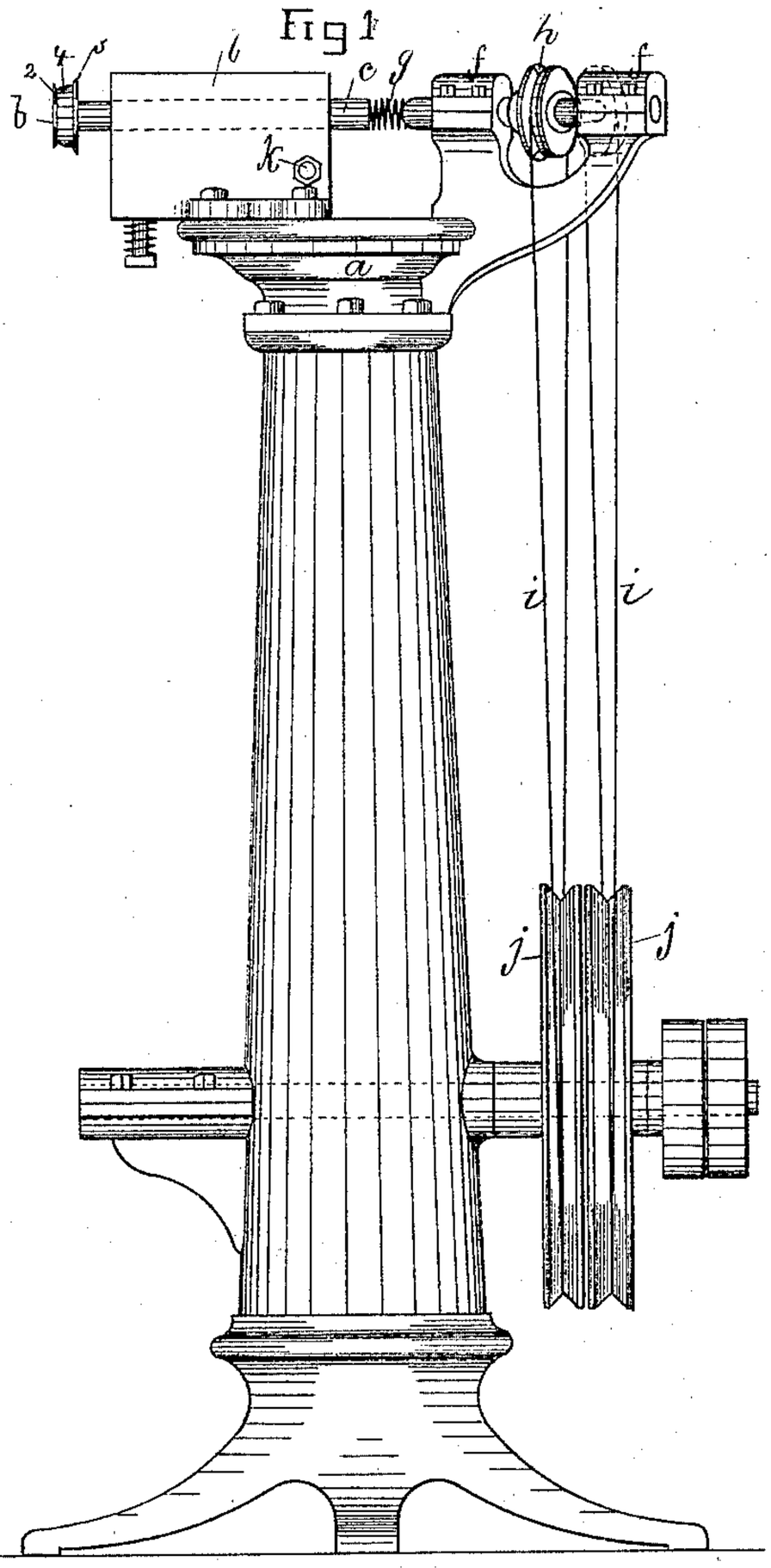


Fig 2.

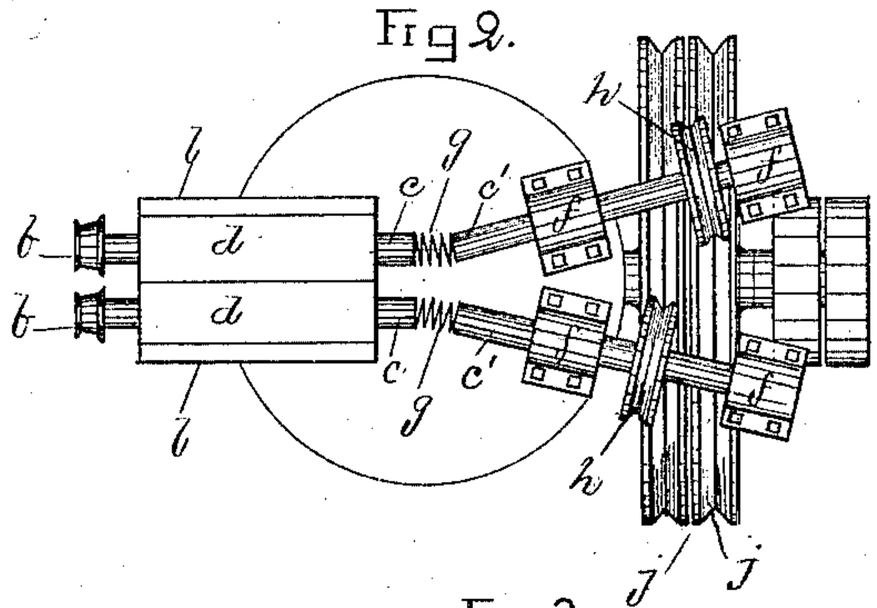


Fig 3

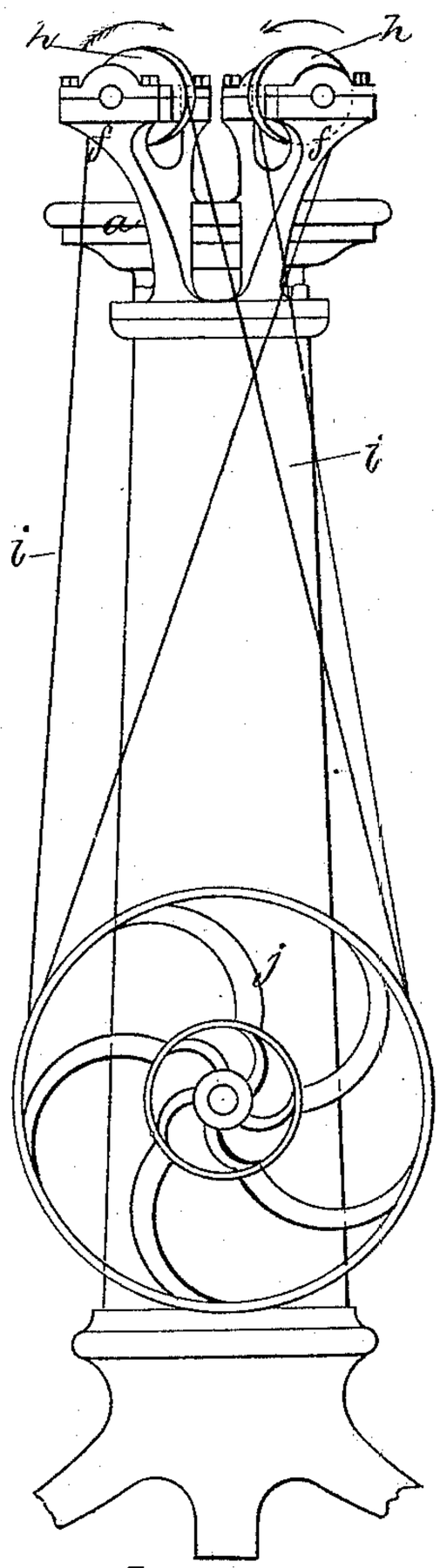


Fig 4

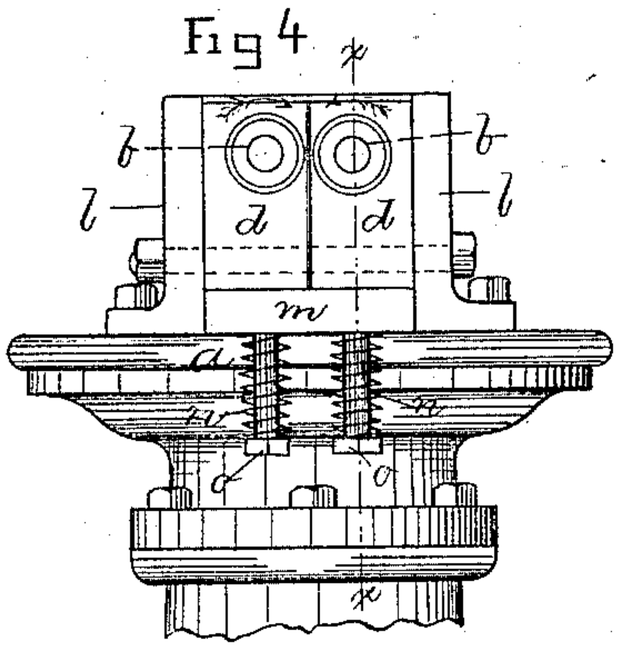
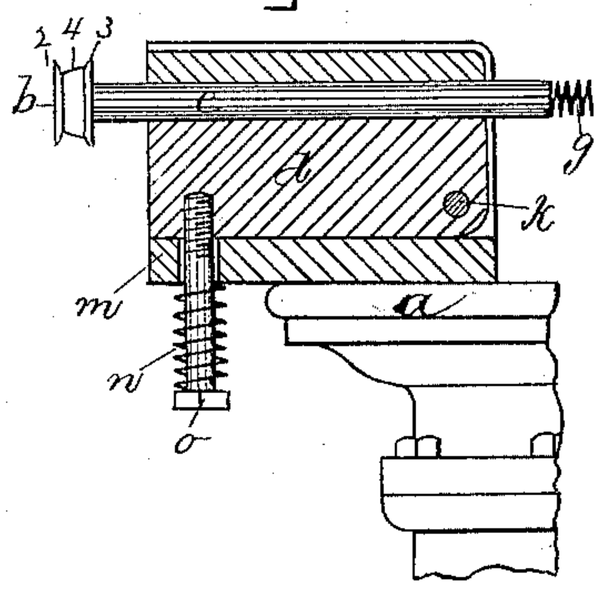


Fig. 5



Witnesses.
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A L. White

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UNITED STATES PATENT OFFICE.

WILLIAM GORDON, OF BOSTON, MASSACHUSETTS.

SOLE AND HEEL EDGE BURNISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 286,123, dated October 2, 1883.

Application filed May 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GORDON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Sole and Heel Edge Burnishing Machines, of which the following is a specification.

This invention consists in the combination, in a sole and heel edge burnishing machine, of two rotary burnishing-tools adapted to bear simultaneously upon the edge to be burnished, and rotated simultaneously in opposite directions, with diverging driving-arbors, and flexible couplings connecting said driving-arbors with the arbors of the rotary tools.

The invention also consists in the provision of means for giving each tool independent yielding movements both in the direction of the length of its axis and at right angles thereto, all of which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of an organized machine embodying my invention. Fig. 2 represents a top view of the same. Fig. 3 represents a rear elevation. Fig. 4 represents a partial front elevation. Fig. 5 represents a section on line *x x*, Fig. 4.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a supporting-frame of any suitable construction. *b b* represent two rotary burnishing-tools, each having its periphery molded to conform to the transverse section of the edge to be burnished. In the present instance the periphery of each tool has a rand-lip, 2, at one edge, a guard, 3, at the opposite edge, and an intermediate acting surface, 4. The rotary tools *b b* are mounted on parallel arbors *c c*, which are journaled in boxes *d d*, and are as close to each other as they can be placed without contact between the tools *b b*. The close proximity of the arbors *c c* to each other prevents them from being rotated by pulleys applied directly to said arbors, and to overcome this difficulty I provide diverging arbors *c' c'*, journaled in bearings *f f*, affixed to the frame *a*, and connected to the arbors *c c* by flexible couplings *g g*, as clearly shown in Figs. 1 and 2. The divergence of the arbors *c' c'* is sufficient to enable their rear ends to be provided with pulleys *h h*, of suitable size to receive belts *i i*, connecting said pulleys with driving-pulleys *j j*. One of said belts is crossed and the other is not, as shown in Fig. 3; hence the arbors *c c* and their tools are rotated in opposite directions, as indicated by arrows in Figs. 3 and 4. The effect of the rotation of each tool in an opposite direction to that of the other tool, both bearing at the same time on the sole-edge, is to lay the fibers of the leather in both directions, as they are laid by a reciprocating tool, thus producing a durable finish. If both tools rotated in the same direction, or if a single rotating tool were employed, the fibers would all be laid in the same direction, and would eventually rise sufficiently to impair the luster, finish, and smoothness of the burnished edge. The flexible couplings *g g* are in this instance spiral springs attached at their ends to the ends of the arbors *c c'*. Said springs enable the arbors *c c* to have a limited longitudinal movement in the boxes *d d*, so that the tools *b b* can move independently toward and from the operator, and thus accommodate themselves somewhat to the rand curves of a sole-edge. The boxes *d d* are pivoted at *k* between vertical flanges *l l*, attached to the frame *a*, so that said boxes can oscillate vertically to enable the tools to rise and fall independently, and thus accommodate themselves to the varying inclinations of the sole-edge. The boxes are pressed downwardly against a fixed stop or plate, *m*, by springs *n n*, interposed between the under side of said plate and the heads of studs *o o*, attached to said boxes and passing through enlarged orifices in the plate *m*.

I am aware that it has been proposed to use two rotary burnishing-tools adapted to bear on the edge of a boot or shoe heel side by side and rotated simultaneously in opposite directions, the arbors of said tools being geared together; hence I do not claim, broadly, two oppositely-rotating tools in an edge-burnishing machine.

It will be seen that the provision of the diverging driving-arbors and the flexible couplings connecting said arbors with the parallel

arbors of the tools enables the latter to be located as close together as possible, and at the same time permit them to be rotated by belts applied to the driving-arbors. It is well known that tools of this kind can be much more rapidly and smoothly driven by belts than by gearing.

I claim—

1. In a sole-edge-burnishing machine, the combination, with the two rotary burnishing-tools *b b*, adapted to bear simultaneously on the same edge, their arbors *c c*, and the parallel bearings in which said arbors are journaled, of the diverging arbors *c′ c′*, journaled in fixed diverging bearings *f f*, and flexible couplings connecting said arbors *c′ c′* with the arbors *c c*, whereby the said rotary tools are enabled to be located close to each other, and at the same time be rotated by belts applied to pulleys on the diverging arbors, as set forth.

2. In a sole-edge-burnishing machine, the combination of two rotary burnishing-tools adapted to bear simultaneously on the same edge, means for rotating said tools simultaneously in opposite directions, and the boxes *d d*, in which the arbors of said tools are journaled, each box having an independently-yielding movement, whereby the tools are adapted to conform to different inclinations of the sole-edge, as set forth.

3. In a sole-edge-burnishing machine, the combination, with the two rotary burnishing-tools, their arbors *b b*, the parallel bearings *d d*, in which said arbors are longitudinally movable, of the driving-arbors *c′ c′*, and the flexible couplings *g g*, connecting the arbors *c′* and *c*, and enabling the latter to yield to endwise inward pressure, whereby the tools *b b* are adapted to move in and out independently, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 19th day of May, 1883.

WILLIAM GORDON.

Witnesses:

C. F. BROWN,

A. L. WHITE.