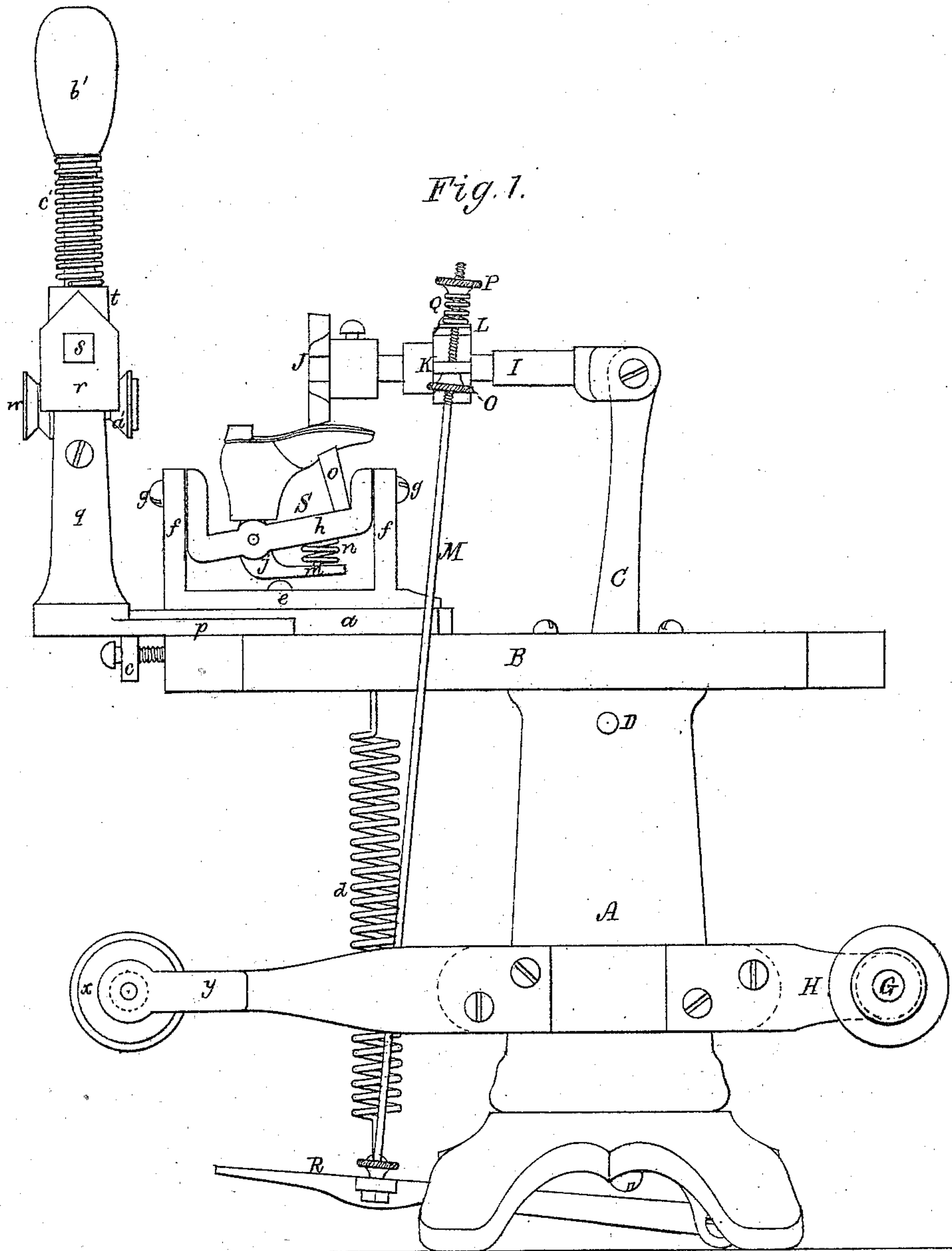


A. C. CAREY.

Improvement in Sole-Burnishing Machines.

No. 130,567.

Patented Aug. 20, 1872.



Witnesses,

W. Geo. Alden

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by his attorney.

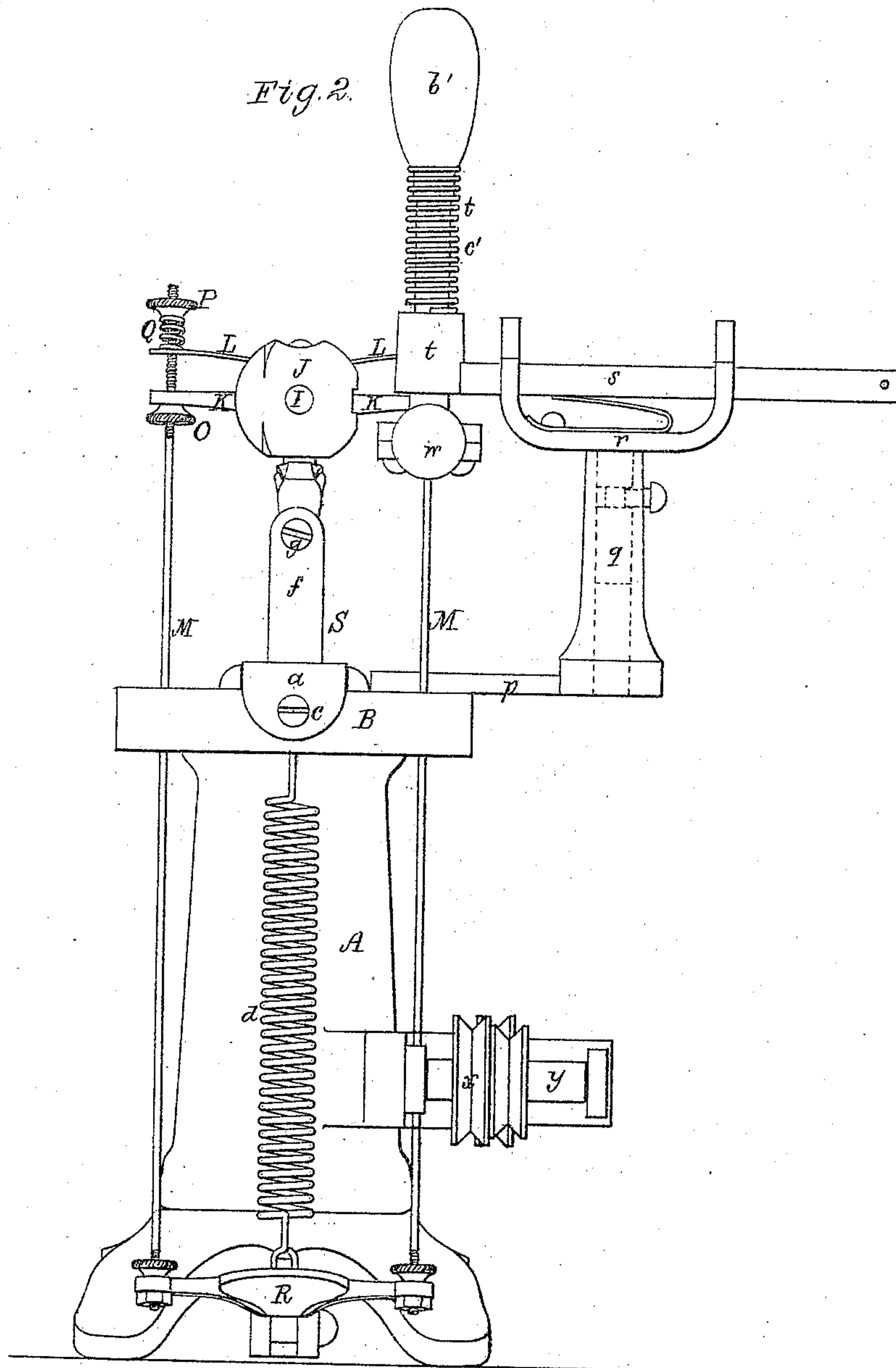
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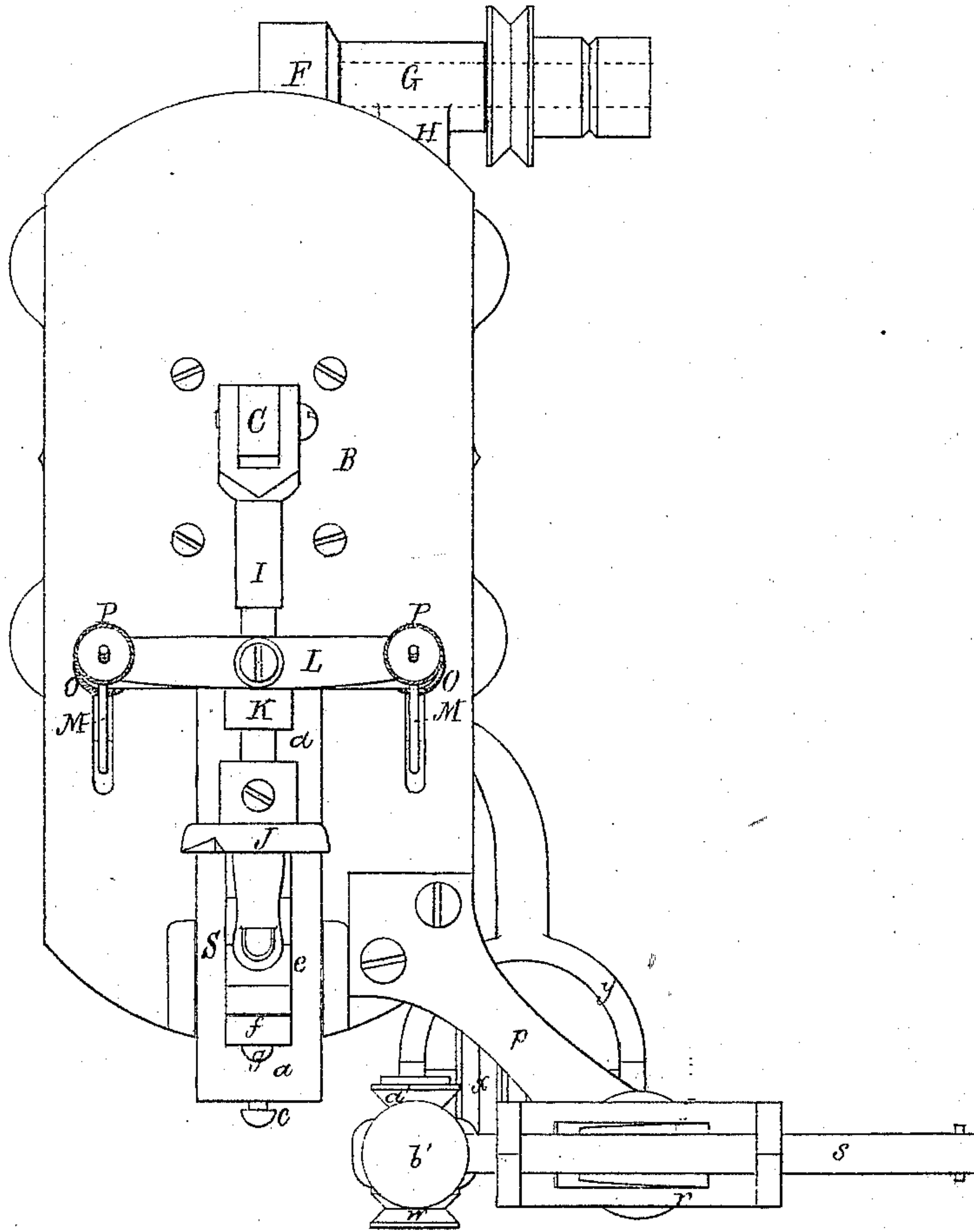
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Fig. 3.



Witnesses.

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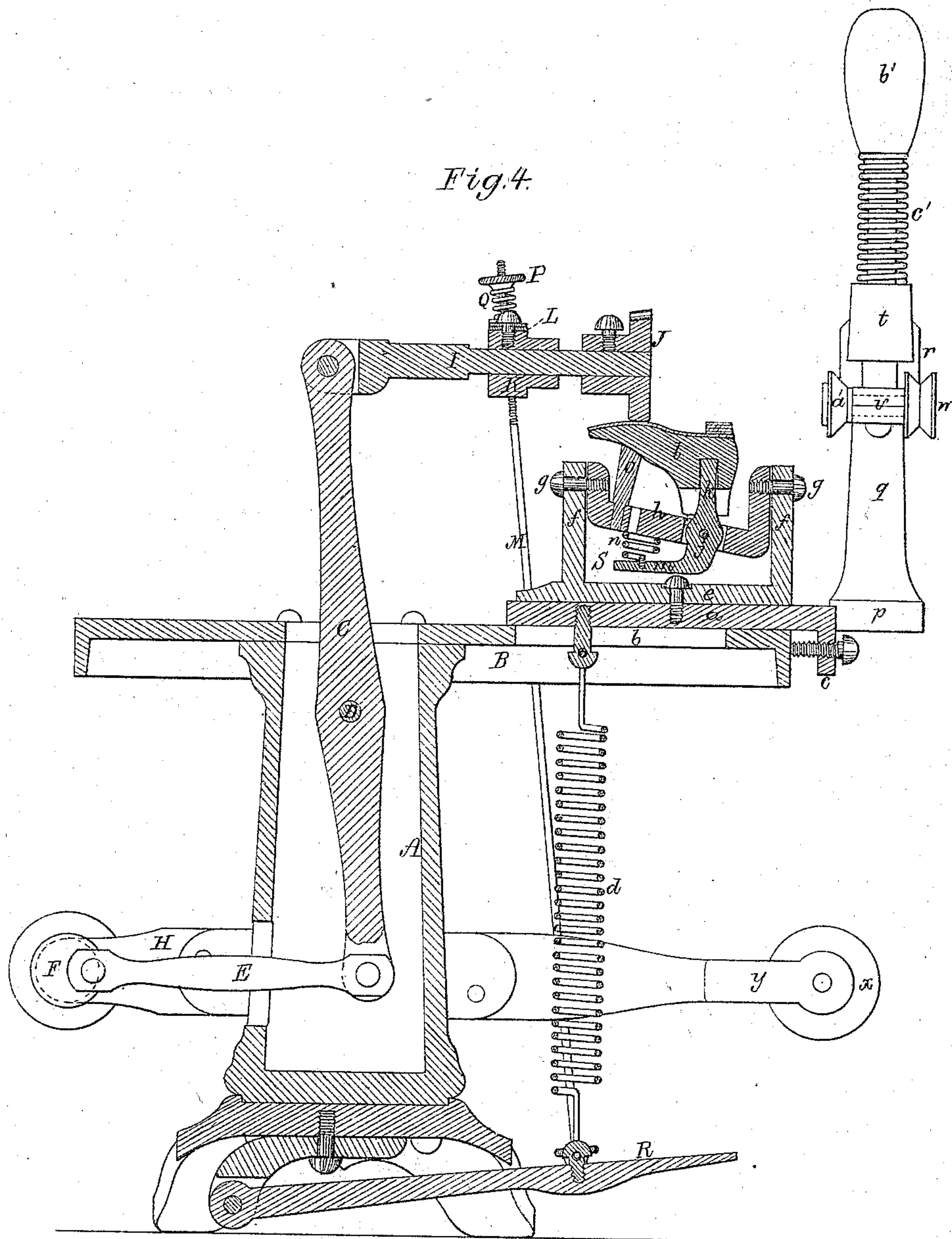
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H. Curtis.

UNITED STATES PATENT OFFICE.

AUGUSTUS C. CAREY, OF MALDEN, ASSIGNOR TO HIMSELF AND DEAN PEABODY, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN SOLE-BURNISHING MACHINES.

Specification forming part of Letters Patent No. 130,567, dated August 20, 1872.

Specification describing certain Improvements in Machinery for Burnishing the Bottoms of Boot and Shoe Soles, invented by AUGUSTUS C. CAREY, of Malden, in the county of Middlesex and Commonwealth of Massachusetts.

My present improvements relate more or less intimately to the principle of a machine for burnishing sole-shanks shown and described in Letters Patent of the United States numbered 124,479, and issued on the 12th day of March, 1872, to James K. Blanchard, Frederick S. Hunt, and myself; but while this machine was intended solely for burnishing the shanks of soles my present machine, in addition to comprising certain improvements in such patented mechanism, is designed to effect the "fore-part" burnishing, so called, of the sole—that is to say, to polish the narrow black or red band about the edge of the sole-bottom now common to certain classes of work; and this invention may be said to consist primarily in the combination, with a machine for burnishing sole-shanks, of a suitable mechanism for effecting the said fore-part burnishing.

I have, in carrying out my present purpose, reorganized the general construction of the patented machine above named by, first, removing from the top of the operative table of the same the shaft and crank which drives the burnishing-tool, and employing in lieu thereof an upright vibratory or oscillating lever, pivoted with the hollow column of the machine, and driven by a suitable crank motion, the burnishing-tool being driven directly by the upper extremity of said lever; and, secondly, my improvements in said patented machine consist in the employment of a many-sided burnishing-tool or stock, whereby I am enabled to bring into action instantly any desired form of tool, and economize the time which might otherwise be consumed in removing or applying tools of various forms; and, thirdly, I have embodied herein a certain construction of jack, which relates not only to the patented machine before referred to, but to the additional feature of "fore-part" work combined therewith, since the jack is designed to operate with either alone or with both, as the case may be; said improved jack consisting of

a plate sliding to and fro of the operating-table, and bearing upon its top a head stock or standard pivoted to it in such a manner as to revolve freely upon the pivot in a horizontal plane, in order to present the boot carried by it to the action of either the shank or fore-part burnishing-tool, while within said head-stock is suspended a swinging frame or yoke susceptible of swaying laterally upon its points of suspension, in order to accommodate the transverse crowning-surface of the shank to the shank-burnishing tool when the latter itself does not rock, and to enable the "fore-part" burnisher to conform to the irregular outline of the sole as it travels about the latter, the heel-support of the jack being pivoted within the rocking frame, and provided with a suitable spring to impel it toward the toe-support, while the toe-support in turn is adjustable within the said frame in order to adapt the jack to the carrying of a boot which does or does not contain a last.

I have shown, in the drawing which accompanies this specification, in Figure 1 a side elevation, in Fig. 2 a front-end view, in Fig. 3 a plan, and in Fig. 4 a vertical, central, and longitudinal section of a machine embodying my improvements.

The drawing accompanying this specification represents at A an upright hollow column or pedestal, provided with a suitable base, and terminating at the top in a horizontal flat tablet or platform, B. Within the column A is disposed an upright beam or lever, C, oscillating upon a horizontal pivot, D, which supports it within such a column, the lower end of said beam C being connected to one extremity of a connecting-rod, E, whose opposite termination embraces the wrist-pin of a crank-wheel, F, affixed to and revolved by a horizontal driving-shaft, G, which is mounted in a suitable bracket, H, projecting rearward from the column A. The beam C rises through and to some distance above the top of the tablet, and is pivoted at its upper end to the rear extremity of a horizontal bar or rod, I, which extends over the tablet B, and longitudinally and centrally thereof, the forward end of such bar carrying the shank-burnishing tool J. This tool, as shown in the drawing, is a block of steel, formed with several working-faces of various

forms in order to obtain a wide range of application in one instrument without loss of time, the said block being applied to the bar by a set-screw or otherwise, and being heated by a gas-jet or in any suitable manner. Upon the bar I, I affix a cross-head, K, and over this cross-head and securely attached to it I dispose a plate-spring, L, of equal length. M M represent two upright rods, disposed one upon each side of the bar I, and extending loosely through the ends of the cross-head K and spring L, a set-screw, O, being screwed upon each rod below and abutting against the cross-head and a nut, P, upon the top of each rod, a spring, Q, being situated between the said spring and bar, and about each rod, and serving, by expansion, to obtain, in conjunction with the spring L, an elastic medium between the burnishing-tool J and the pedal R, to which the said rods are attached, such pedal being disposed at the bottom of the column A, and pivoted to its rear part, as shown, and extending forward into a position to be readily accessible to the foot of the operator. The purposes of the springs L and M are to create an elastic or yielding union between the burnishing-tool and pedal to enable the said tool to traverse the sole with the desired effect, and adapt itself with good effect to the curvatures of the latter, which a rigid connection would not permit of. The oscillations of the beam C carry the burnishing-tool through the necessary reciprocations to impart a polish to the sole-shank, against which it impinges, and the bar I serves to uphold the burnishing-tool during such reciprocal traverses, the set-screws O O enabling the height of the tool to be varied with respect to the pedal, as desired, while the nuts P P regulate the degree of elasticity between the burnishing-tool and pedal.

The jack for supporting the boot or shoe and presenting it to the action of the burnishing-tool is shown at S in the accompanying drawing as composed, first, of a flat carriage or plate, *a*, which rests upon the table B, and slides longitudinally to and fro of the front part thereof, and is guided by a slot, *b*, created therein, a stop-pin or gage, *c*, being applied to the front part of said plate or carriage, which pin, abutting against the table, serves to estop the advance of the jack at the desired point with respect to the burnishing-tool, the plate being connected with the pedal R by a coiled spring, *d*, in order to retain it in place upon the table. Upon the plate or carriage *a* I pivot a head-stock, *e*, in such manner that the latter may rotate freely upon the former, and within the head-stock or between its end standards *f f*, I suspend, by suitable pivots *g g*, in such manner that it may rock thereupon, an upright frame or curved bar or carrier, *h*, within the front part of which frame I pivot a bent lever, *j*, the upper and upright part or post *k* of which constitutes the heel-support of the last *l*, while between the lower and horizontal arm *m* of such lever and the

frame or carrier *h* I dispose a spring, *n*, whose expansion serves to impel the heel-post *k* toward the toe-rest *o* and clamp the last firmly thereto. The toe-rest last named is an upright post applied in an adjustable manner to the carrier *h*, in order that its position, with respect to the heel-post, may be varied, and increase or diminish the distance intervening between them in order that, when a boot in which the last is left remaining is applied to the machine, the toe-rest may be removed further from the heel-post and bear upon the outside of the upper of the boot, while if a stationary last, or one making part, for the time being, of the jack, is employed, the toe-rest must be placed nearer the heel-post in order that the last may bear directly upon it and permit the shoe to be applied, which could not be drawn over the last were the toe-rest in an advanced position.

The longitudinal to-and-fro sliding of the jack is to enable it to be retracted to receive a boot, and to be advanced to present the boot to the action of the burnishing-tool and hold it firmly in place under the action of the latter, while the lateral rocking or swinging motion of the last is to present the entire convex surface of the sole-shank to the action of the tool. This rocking motion, however, may be wholly or partially applied to the burnishing-tool, or such tool or the jack, or both, may receive a compound or twisting motion, which is both reciprocating and rocking, should this be found desirable. This, however, is of little consequence, and would be a mere mechanical variation of the principle of the patented machine hereinbefore referred to as issued to myself and others. The horizontal swiveling motion of the head-stock *h* upon the sliding plate or carrier *e* is for the purpose of enabling the boot to be more readily "jacked" or removed, and also to provide a ready means of presenting the boot to the action of the "fore-part" burnishing-tool, hereinbefore alluded to as constituting an important element in my present machine.

In carrying this portion of my invention in one practical manner, in which, among others, it may be effected, I erect upon one front corner of the table B, and overhanging the same, a bracket, *p*, terminating in an upright post, *q*, within the upper part of which post I swivel a horizontal head, *r*, in such manner that it may rotate freely in such post, while within or upon such head I mount a horizontal bar or slider, *s*, which is susceptible of sliding back and forth in its bearings in said head, a suitable spring being interposed between the two to prevent too free movement of the bar. Within one extremity of the bar *s* I swivel an upright rod or tool-carrier, *t*, in order that it may revolve therein at the pleasure of the operator, the lower end of such tool carrying a short horizontal shaft, *v*, which revolves within it, a pulley, *w*, being affixed to one end of such shaft to which power is applied from a second pulley, *x*, mounted upon an arm or

bracket, *y*, projecting forward from the column *A*, while upon the opposite end of the said shaft *v* I mount the burnishing-tool *a'*, which is duly fashioned to accomplish the "fore-part" burnishing of the sole, in doing which I carry out the primary feature of the improvements constituting the subject-matter of these Letters Patent. The tool-carrier *t* rises above the bar *s*, and is provided at the top with a handle, *b'*, a proper spring, *c'*, being interposed between the two in order to prevent too easy a rotation of the said carrier, and to allow the burnishing-tool to rise or fall to conform to the form of the sole.

The universal joint last above described permits a freedom of motion of the fore-part tool in any direction, and allows it, while revolving, to be carried about the boundary of the sole-bottom and burnish the extreme edge of the latter. The character of this application of the "fore-part" tool, however, is in no wise arbitrary or restricted, as a universal joint for the purpose may be obtained in a variety of ways without affecting the portion of my invention which comprehends the combination of the two elements—the shank and "fore-part" burnishing process. So, also, with regard to the character of the "fore-part" tool. Although herein shown as a rotary disk, it may be a tool vibrating or oscillating upon a pivot, or moving in reciprocal traverses in a given plane, or otherwise traveling to effect the desired result—as I do not consider this portion of my invention to be limited to a given mode of construction or method of operating the "fore-part" tool.

The operation of the above-described machine is briefly as follows: The jack is advanced to its extreme position away from the shank-burnishing tool, a boot applied to it and returned, the said tool being in motion. The operator now depresses the pedal and lowers the burnishing-tool in contact with the shank, the reciprocations of such tool effecting the desired polish, the boot being rocked laterally (should the tool not rock or move laterally) as the polishing progresses, until the entire surface of the blacked portion of the shank has been gone over. The shank having been thus burnished, the jack and boot is again retracted, and the jack turned upon its pivot ninety degrees of a circle or thereabout, or at about right angles to the path of movement of the burnishing-tool, this adjustment of the jack, however, being dependent upon the position of the fore-part tool. The boot being turned into the position last stated, is

in a proper position to receive the action of the fore-part tool *a'*. The operator now seizes the handle *b'* in his right hand and grasps the jack or some part of the boot with his left, places the revolving tool *a'* in contact with the edge of the sole-bottom, and so guides the movements of the said boot or its jack and the said fore-part tool as to compel the latter to travel entirely about the contour of the sole, with the exception of the shank portion thereof, which had previously been burnished, as stated. The boot is now removed, and an unfinished one applied to the jack.

Claims.

1. An organized mechanism for burnishing the bottoms of boot and shoe soles, comprising a shank-burnisher, a "fore-part" burnisher, and a jack, arranged to present the work to each of said burnishers in succession, substantially as shown and set forth.
2. A jack, composed of the head-stock *e*, swinging frame *h*, lever *j*, and adjustable toe-support *o*, together with means for pressing or holding the upper part or heel-post of the lever toward said toe-support, substantially as and for the purposes set forth.
3. The combination of the head-stock *e* and plate *a*, the said head-stock being pivoted to the plate so as to turn on a vertical axis, and the plate being arranged to slide toward and away from the shank-burnishing tool, substantially as set forth.
4. In machinery for burnishing the shanks of boots and shoes, a burnishing-tool or stock, formed with faces of different shapes, as required, for the different stages of the burnishing process, or for the various shapes of soles to be burnished, and combined with its support, in the manner described, so that it may be adjusted to bring into position for work any one of its faces, as required.
5. In a machine for burnishing the "fore part" of a boot or shoe sole, a "fore-part" burnishing-tool having universal freedom of motion, substantially as herein shown and described, and for the purposes stated.
6. The means herein described of connecting the pedal with the support of the shank-burnishing tool, consisting of the cross-head *K*, spring *L*, rods *M*, and nuts and springs *O P Q*, substantially as herein shown and set forth.

AUGUSTUS C. CAREY.

Witnesses:

DEAN PEABODY,
WM. STURGIS.