

J. K. BLANCHARD, F. S. HUNT, & A. C. CAREY.

Machinery for Burnishing the Shanks of Boots and Shoes.

No. 124,479.

Patented March 12, 1872.

Fig. 1.

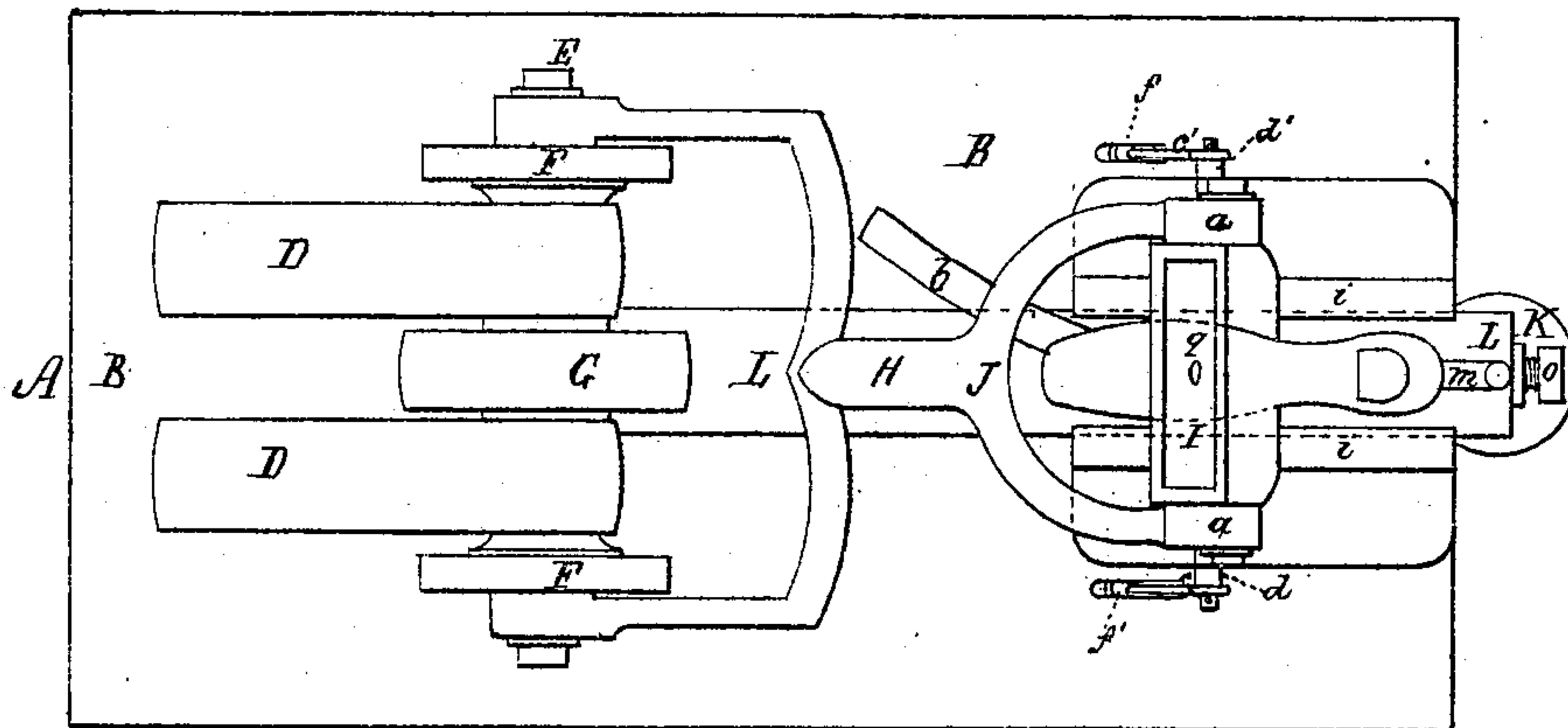
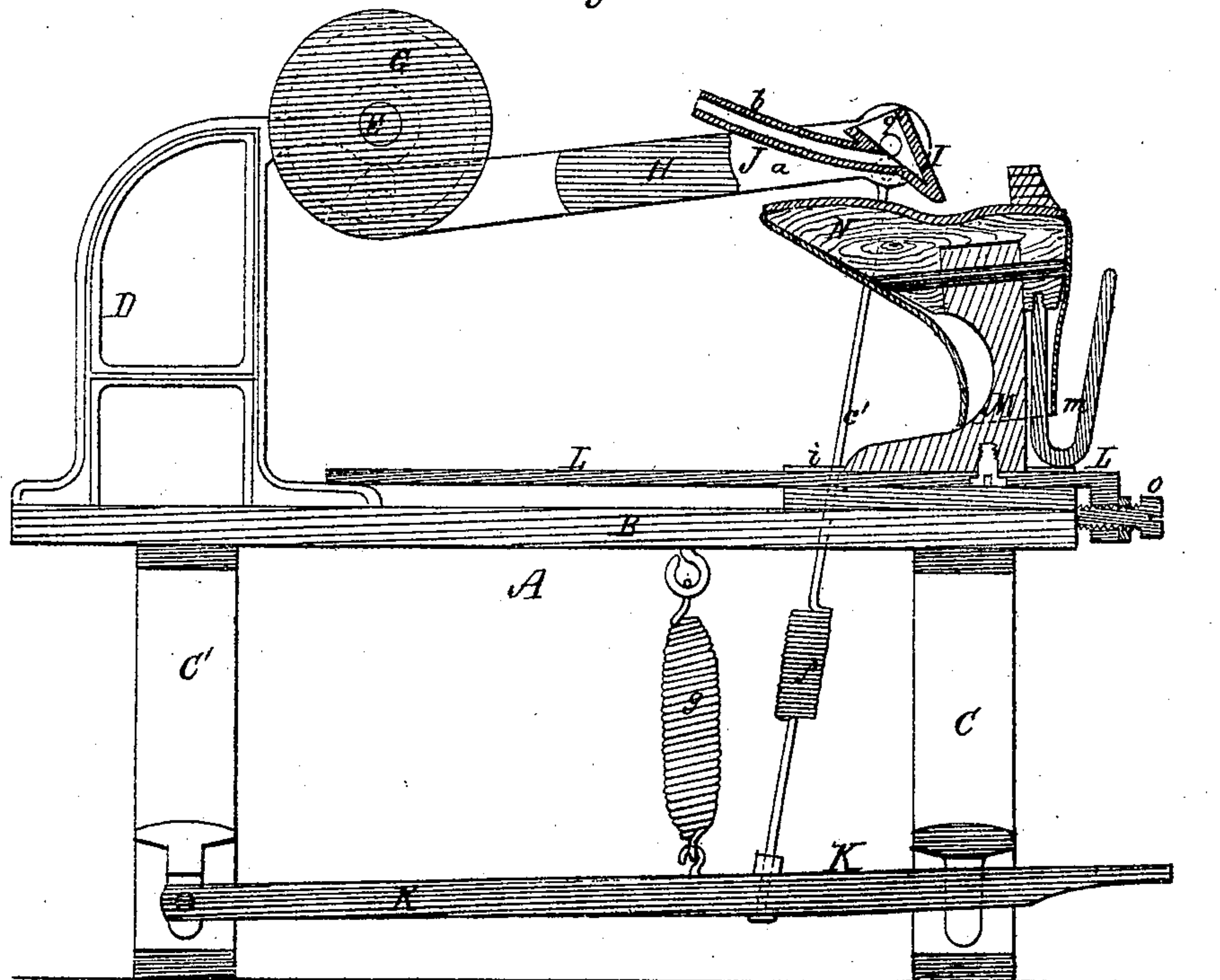


Fig. 2.



Witnesses,
C. S. Curtis
A. C. Boardman.

Blanchard Hunt & Carey,
by their Attorney,
Frederick Curtis.

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Fig. 4.

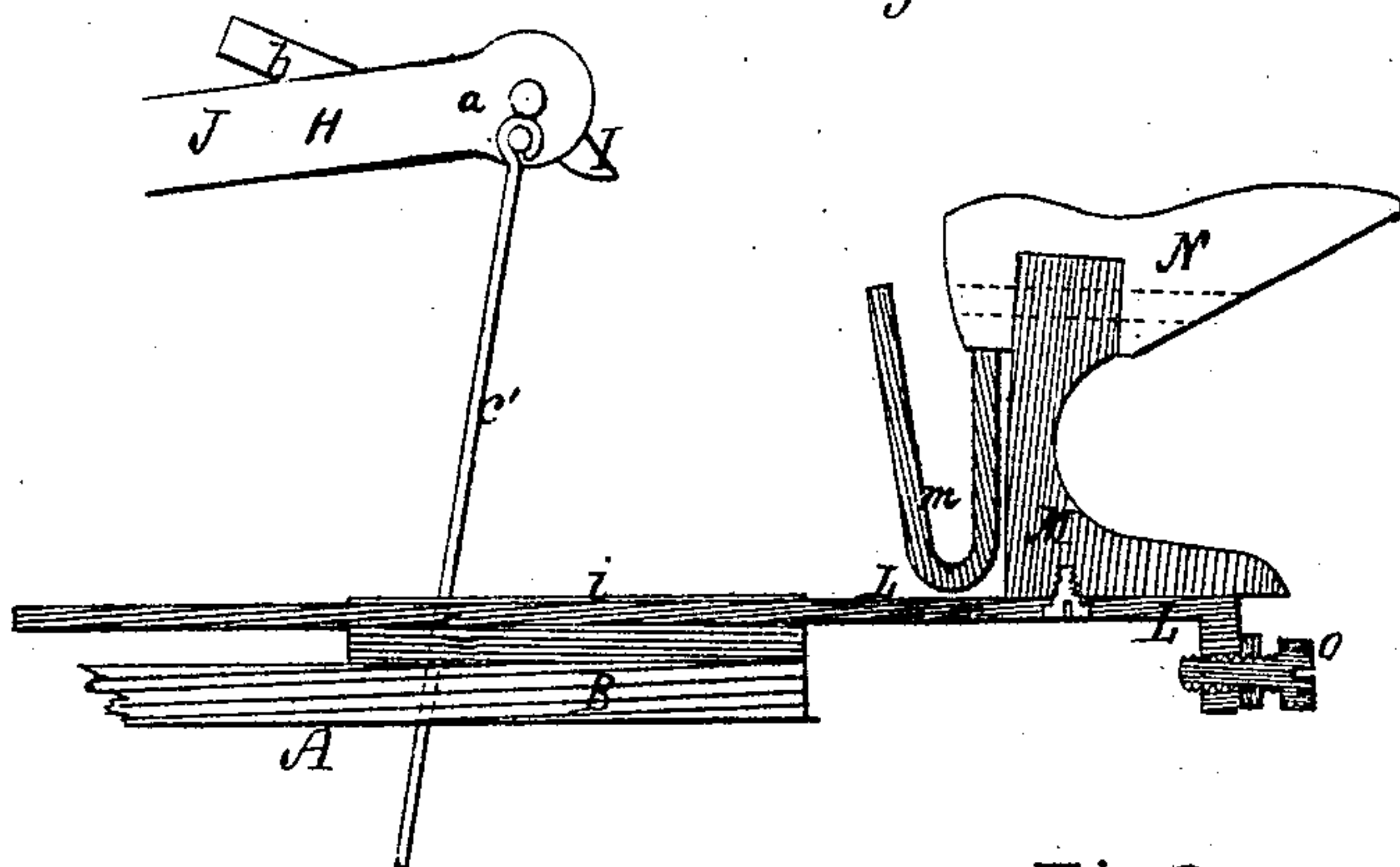
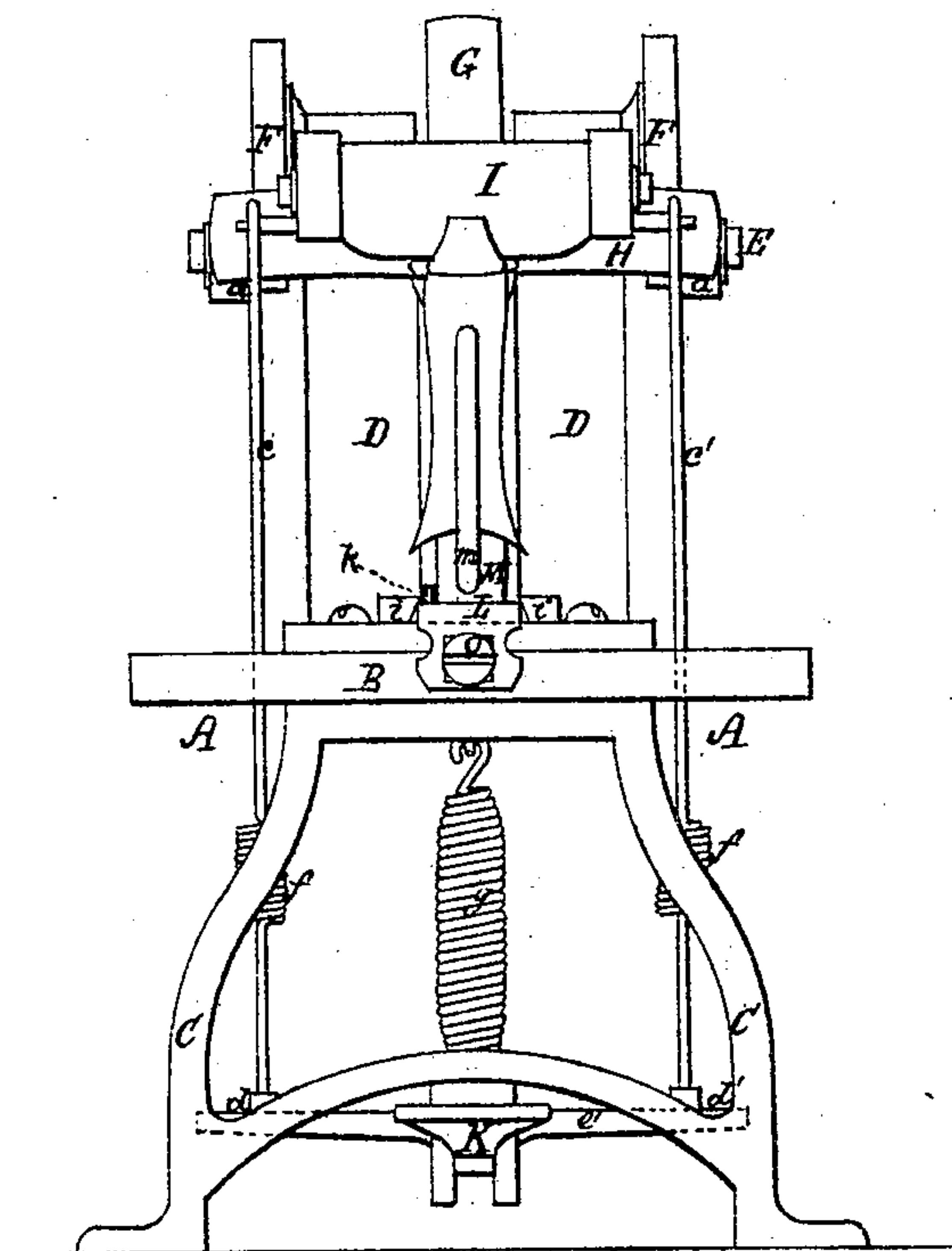


Fig. 3.



Witnesses,
H. A. Curtis
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Blanchard Hunt & Carey,
by their Attorney
Frederick Curtis

UNITED STATES PATENT OFFICE.

JAMES K. BLANCHARD, FREDERIC S. HUNT, OF LYNN, AND AUGUSTUS C. CAREY, OF MALDEN, ASSIGNORS TO THEMSELVES AND DEAN PEABODY, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN MACHINERY FOR BURNISHING THE SHANKS OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. 124,479, dated March 12, 1872.

To all to whom these presents shall come:

Be it known that we, JAMES K. BLANCHARD and FREDERIC S. HUNT, of Lynn, Essex county, and AUGUSTUS C. CAREY, of Malden, Middlesex county, in the State of Massachusetts, have made an invention of certain novel and useful Improvements in Machinery for Burnishing or Polishing the Shank Portion of the Soles of Boots and Shoes; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawing making part of this specification, and in which—

Figure 1 is a plan; Fig. 2, a vertical and longitudinal section; and Fig. 3, a front-end elevation of a machine embodying our improvements.

In the manufacture of boots and shoes, the sole after being sewed to the upper and before receiving the heel, is introduced to a leveling-machine, so called, in which the action of a roller, traveling, in most instances, over the entire length of the bottom of the sole, tends to solidify such sole and adapt it to the form of the last. After this operation has been undergone the heel is nailed to the sole, and finished and burnished; the sole edge trimmed and "set," and finally its bottom finished or "buffed off," as it is technically termed. This "buffing off" in some classes of work completes the finish of the sole; but in many instances the shank portion of the bottom of such sole is "blackened" and burnished. Heretofore, in the modern and systematic manufacture of boots and shoes, the shanks have all been burnished by hand, and the purpose of our present machine is to effect this act in much less time and with less labor than is otherwise possible, the effect being equally good, if not superior to that done by hand labor.

In organizing our machine for practical operation, we have combined as distinguishing features thereof, a jack for receiving and supporting a boot while its sole-shank is undergoing the burnishing-process, and a heated burnishing-tool traversing the sole-shank in long reciprocations, through a path assimilat-

ing closely to the curved form of such shank; and, secondly, we have combined with the reciprocating-tool carriage a treadle of peculiar character, whereby the burnishing-tool is presented to and acts upon any portion of the shank with such pressure as the operator may desire; and, thirdly, our invention consists in a peculiar mode of mounting the boot-supporting jack or last upon the pedestal of the same, and likewise the mounting of the latter upon the carriage which carries it—that is, by pivoting the last horizontally to the pedestal, and swiveling the pedestal vertically to the carriage, in order that the last may be rocked to either side to present the burnishing-tool to all parts of the shank, and turned to one side, or reversed end for end, the more readily to remove the finished boot or apply a new one; and, fourthly, we have applied to the jack-carriage an adjustable stop or gauge, wherewith to vary the position of the boot-heel with respect to the burnishing-tool, in order that the latter, while finishing the shank entirely up to such heel, shall not strike against and deface the latter, or disarrange or injure the boot or jack, the said stop, as shown herein, being a screw, screwed through the front end of the jack-carriage, and abutting against the front edge of the table or support of such carriage.

Several minor details of our machine will present themselves as we progress with this description.

The drawing accompanying this specification and illustrating our invention, represents at A a table or bench of suitable form, whereof B is the platform or tablet, and C C' its supporting legs or standards. At the rear end of the table A we erect a suitable frame or standard, D, and mount upon the same a horizontal transverse shaft, E, to each outer extremity of which we affix a crank or crank-wheel, F, while centrally of the shaft we mount a driving-pulley, G, from which it derives motion. H in the drawing represents a horizontal beam or frame, extending over the table A and centrally thereof, and which carries at its forward end the burnishing or "set-

ting"-tool, which is shown at I as applied to a cross-head, or between the arms *a a* of the forked end J of the beam or carrier H, the under side of the said burnishing-tool being convex, in order to prevent liability of abrasion of the sole, and to impart a more finished surface, and being provided with a gas-pipe, *b*, or other means of imparting heat to it. To each extremity of the cross-head or fork J we connect one end of one of two upright rods, *c c'*, the lower end of each rod being in turn attached to the end *d* or *d'* of a horizontal cross-bar, *e'*, which constitutes part of a long treadle, K, such treadle being disposed at the lower part of the table A, and longitudinally and centrally thereof, and pivoted at its rear end to the standard C'. Each rod *c c'* is expansible or elastic—that is to say, a portion of its length is converted into a coiled spring, *f*, or it may be made in section, united by suitable springs; and in addition to such springs a third spring, *g*, is secured to the treadle and to the table, the purpose of the latter spring being to elevate the burnishing-tool from off the sole, or lift it as occasion requires, and thus relieve the leg and foot of the workman from this labor, while the purpose of the springs *f f'* is to obtain an elastic or variable connection between the treadle and burnishing-tool, in order that the latter may accommodate itself to the irregular form of the shank of the sole both longitudinally and transversely. The jack hereinbefore named, which we have adopted as a member of this machine, wherewith to support the boot or shoe and present its shank to the action of the burnishing-tool, as well as to hold it firmly in place while under treatment, is constructed as follows: L represents a long flat plate, which we term a slide or carriage, this carriage sliding longitudinally and centrally of the table A and of the beam H, and its burnishing-tool I, and guided in such plate by suitable ways or guides *i i*, applied to the platform of the table and below the burnishing-tool. Upon the outer end of the carriage or slide L we erect a post or pedestal, M, which we swivel to the carriage by an upright pivot, in order that it may possess freedom of motion in a horizontal plane, and we prefer to affix to the said carriage and against one side of such pedestal, a stop or abutment, *k*, against which the pedestal shall abut when in alignment with the longest plane of the carriage, and parallel to the path of movement of the burnishing-tool, in order to determine without care or labor, its proper working position, or that of the last carried by it. To the upper part of the swiveling-post M we apply a horizontal last, N, and connect the two by a horizontal and movable pivot, *l*, the joint between the two being of such nature that the last is capable of a rocking motion from right to left, or vice versa, such last, when the pedestal is in contact with its stop *k*, being parallel with the carriage L and the path traversed by the burn-

ishing-tool, and being also situated immediately below and centrally of such burnishing-tool. In order to obtain provision for readily rocking the last while the burnisher is acting upon the sole-shank, as occasion requires, and to withdraw and advance it with respect to such burnisher, we affix to its front end a depending handle, *m*, of a suitable form, such handle extending below the pivot of the last to such a distance as to obtain the necessary leverage and power over its lateral vibrations or rockings, in order to adapt all parts of the shank of the boot-sole to the said burnishing-tool. The accompanying drawing represents an adjustable stop composed of a screw, *o*, which is screwed through the outer end of the carriage L, and which, when the carriage is pushed inward to the extreme position intended—(that is to say, when the burnishing-tool at the extent of its outward traverse, reaches the inner edge of the heel,) abuts against the front edge of the table or a metallic plate applied thereto.

We do not in any sense confine ourselves to an adjustable stop or gauge of the character last named, as various mechanical substitutes would at once manifest themselves to mechanics; but the result we desire to arrive at is a means of adjusting the position of the jack or its last with respect to the burnishing-tool, in order that the latter, while acting upon and polishing the shank entirely up to the inner edge of the heel, shall, in its outward traverse, stop at such point, and not strike against the heel with injurious force, and the screw above named is a simple and effective means of accomplishing this object. A provision of this character becomes important in machinery of this nature, owing to varying sizes of heels; and it is also important or desirable that the crank motion which reciprocates the burnishing-tool should also be adjustable to vary the length of strokes to correspond to shanks of different lengths.

The burnishing-tool, as herein shown, is a hollow prism, with a gas-pipe extending into its open chamber *q*. In practice, however, this chamber may be closed, or a block of copper or slow-conducting metal may be inserted therein to maintain a uniform degree of heat. This, however, in no wise affects this portion of our invention, as we desire to embrace thereby a heated burnishing-tool in a machine for burnishing shanks in which such tool reciprocates in a long movement over an adjustable jack placed below it.

The operation of a machine organized as explained in this context is as follows: Pre-supposing the carriage L to be withdrawn or brought forward, as shown in Fig. 4 of the drawing, which is a vertical section of such carriage, its supports, and jack, and the jack reversed—that is to say, with its toe presented outward—a boot is now placed over the last, as shown in Fig. 2 of the drawing, in which is

exhibited a section of the jack and boot, the handle *m*, or a portion thereof, remaining outside of the leg of the boot and unencumbered by it. The position of the jack is now reversed until its pedestal brings up against the guiding-stop *k*, in which case the toe of the boot is in advance. The carriage *L* is now pushed inward until its stop or gauge *o* brings up against the table, and the attendant then places his foot upon the treadle and depresses the burnishing-tool in contact with the shank of the boot-sole, it being understood that the said tool is constantly in motion in a reciprocating path, as the machine is so designed and constructed that the entire operation may be gone through with while the burnisher is thus in motion. As the burnishing-tool describes a sweep of the entire length of the "blackened" portion of the shank, and as the elastic or following-connection between the treadle and burnisher adapts the latter to the longitudinal curvature of such shank, it only remains for the operator to rock the last and boot from side to side by means of the handle *m* until all parts of the shank have been subjected to the action of the burnisher. This having been done, the operation is completed; the carriage, by means of the handle *m*, withdrawn, the jack reversed, and the boot removed. Although, as herein shown and explained, the burnishing-tool is attached rigidly to the beam or fork which supports it, it may be rigid in one direction, or that in which it takes hold upon the shank, and yielding in the other, though it is doubtful if any benefit would result from the latter.

Having thus explained the nature, purposes, and advantages of our invention, we would state that we are well aware that many years ago a machine was invented and patented, the essential feature of which consisted in the employment of two "bone" polishers attached to a reciprocating-shaft, the boot being held by hand while the polishing of its sole is effected. This machine was intended to solidify a sole and to "bone" or polish the surface of the same; and at the same time it was invented, and during the term of the patent the sole was applied to the boot without removing the grain of the leather, leaving the latter intact and outside, as with these cold "bone" polishers a finished sole, or one from which the grain is removed, could not be polished with any degree of success. This old machine is entirely inapplicable to the modern system of manufacturing boots by machinery in which the grain of the leather is either removed or placed inside and the bottom of the sole "buffed off" or finished, as in the latter case the leather, especially after having received a coat of blacking, cannot be polished to any extent with a cold burnishing-tool. So far as our knowledge extends, no machine has been devised in which a reciprocating burnishing-tool, whether heated or not, has been com-

bined with a jack for supporting and moving the boot about beneath such burnishers.

Claims.

1. We claim the combination of a reciprocating burnishing-tool, rigid in the direction of its draft or action upon the sole-shank, and a suitable jack for supporting the boot and presenting all parts of its shank to the action of the said burnishing-tool, substantially as and for purposes stated.

2. We claim the combination of a reciprocating burnishing-tool, caused or permitted to traverse the shank in a curved or irregular path, assimilating more or less closely to the curvature of the shank, and a lateral rocking-jack for receiving and supporting a boot, substantially as herein shown and set forth.

3. We claim, in a machine for burnishing the shanks of boot and shoe soles, a jack and its carriage, constructed and arranged substantially as shown and described, so as to be susceptible of three motions—viz., one longitudinally to and fro of the table of the machine or of the burnishing-tool; the second, a lateral rocking motion of the last or its support or pedestal; and the third, a horizontal swiveling motion—all substantially as and for purposes stated.

4. We claim, in machinery for burnishing the shanks of boot and shoe soles, a jack having two motions upon its carriage or support—one, a lateral rocking motion to present all parts of the shank to the action of the burnisher, and the other, a horizontal swiveling motion for convenience of removing or applying a boot or shoe to the last—essentially as shown and described.

5. We claim, in a machine for burnishing shanks, the combination with the burnishing-tool, the treadle which depresses the same upon the shank and the carrier which supports said tool under the arrangement described, so that, while permitting of lateral equality of pressure upon the shank, the boot may be introduced or advanced between the connections of the treadle and carrier, substantially as and for purposes stated.

6. We claim, in a machine for burnishing shanks of boots and shoes, the treadle connected with the burnishing-tool carrier, substantially as described, so that, with the rocking of the last or jack, the pressure shall be equally exerted upon either side of the shank, essentially as explained, and for purposes set forth.

7. We claim, in mechanism for burnishing the shanks of boot and shoe soles, the combination, with the treadle and burnishing-tool, of the spring and connecting devices for lifting the treadle and burnishing-tool simultaneously, substantially as and for objects stated.

8. We claim, in combination with a reciprocating burnisher and a suitable jack, the

adjustable stop or gauge *o* or its equivalent for determining the position of such jack relatively to the burnishing-tool, for purposes stated.

9. We claim, in combination, the treadle, jack, and burnishing-tool, all constructed and operating substantially as explained, and for purposes stated.

10. We claim, in a machine organized expressly for burnishing sole-shanks, a heated

reciprocating burnishing-tool in combination with an adjustable jack for holding the boot, as and for purposes stated.

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