

F. A. LOCKWOOD.

Machines for Scouring, Glassing, or Setting Leather.

No. 143,829.

Patented Oct. 21, 1873.

Fig. 5.  
Enlarged.

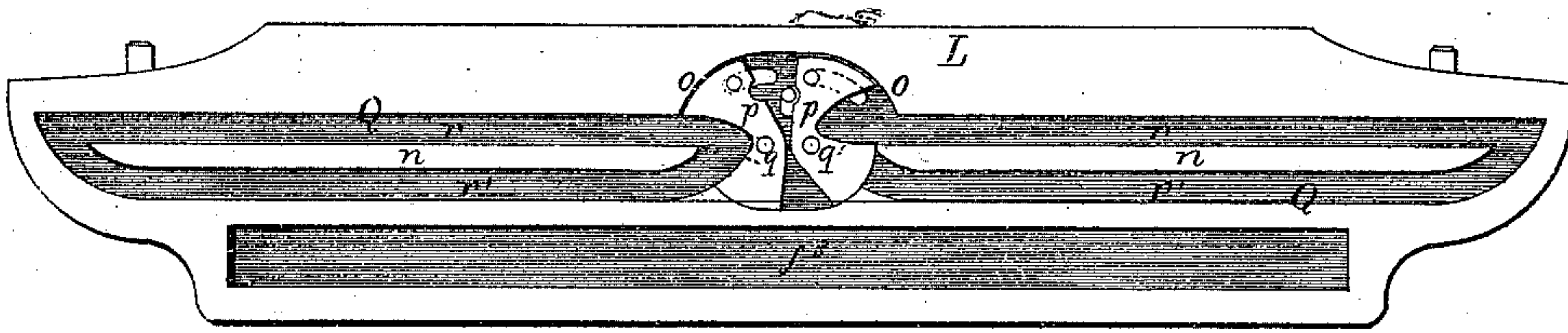
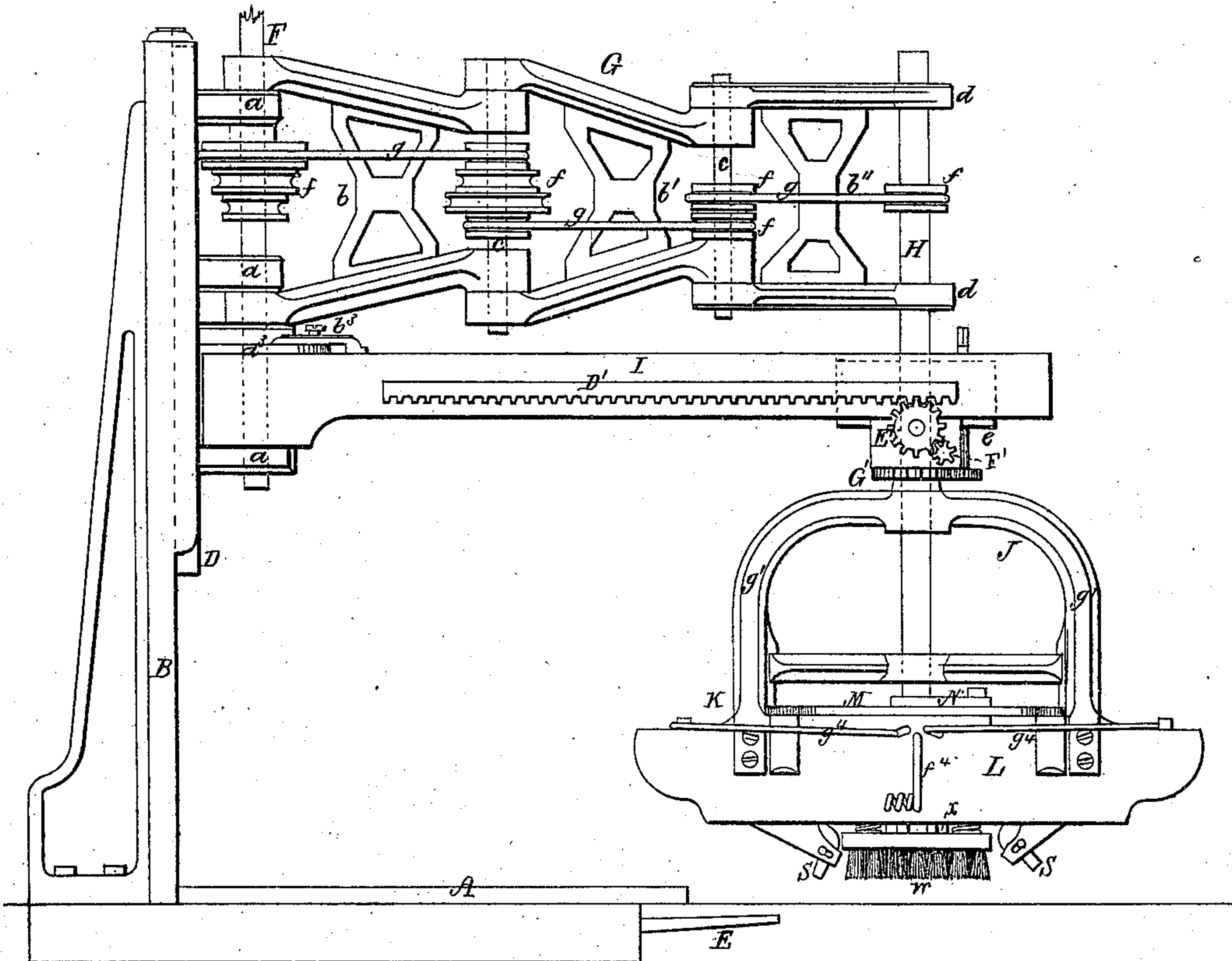


Fig. 1.

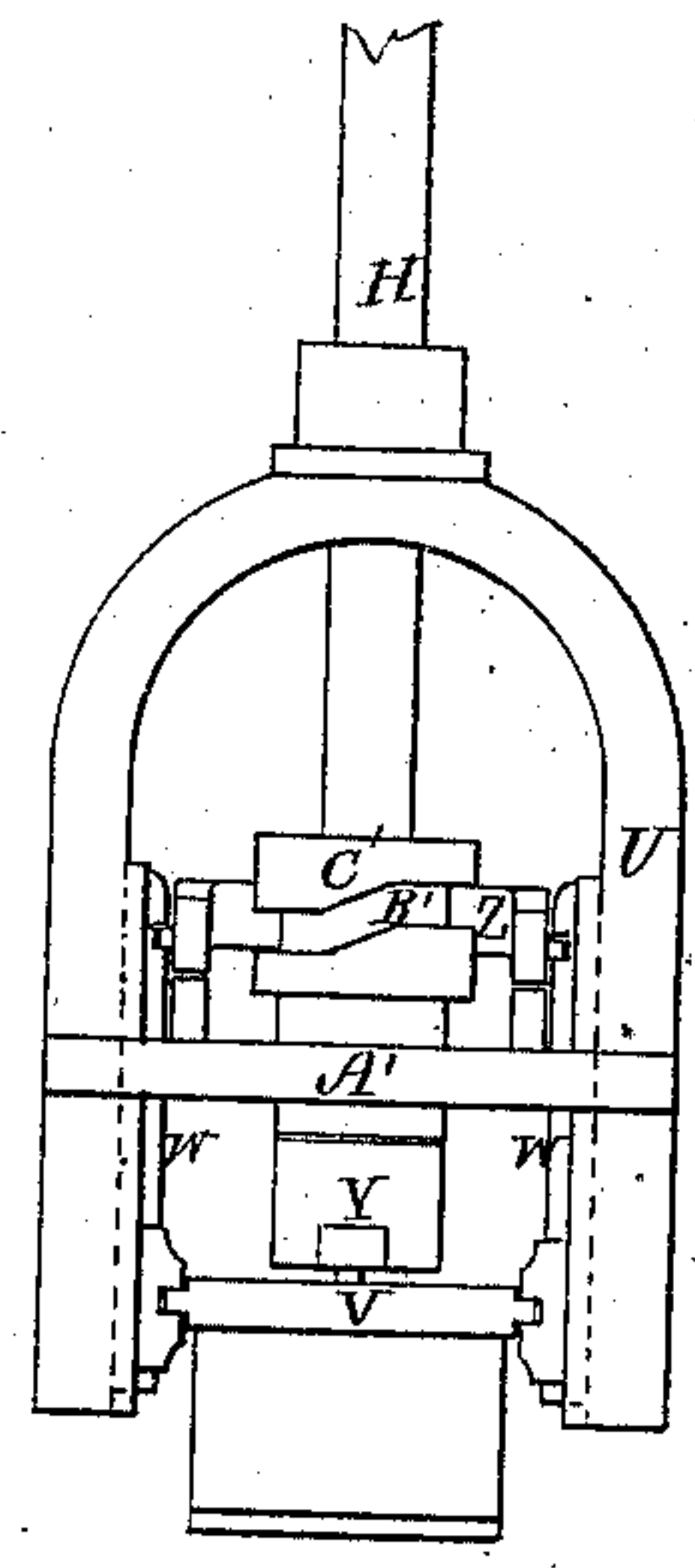


Witnesses.  
J. E. Hubbard  
W. C. Boardman

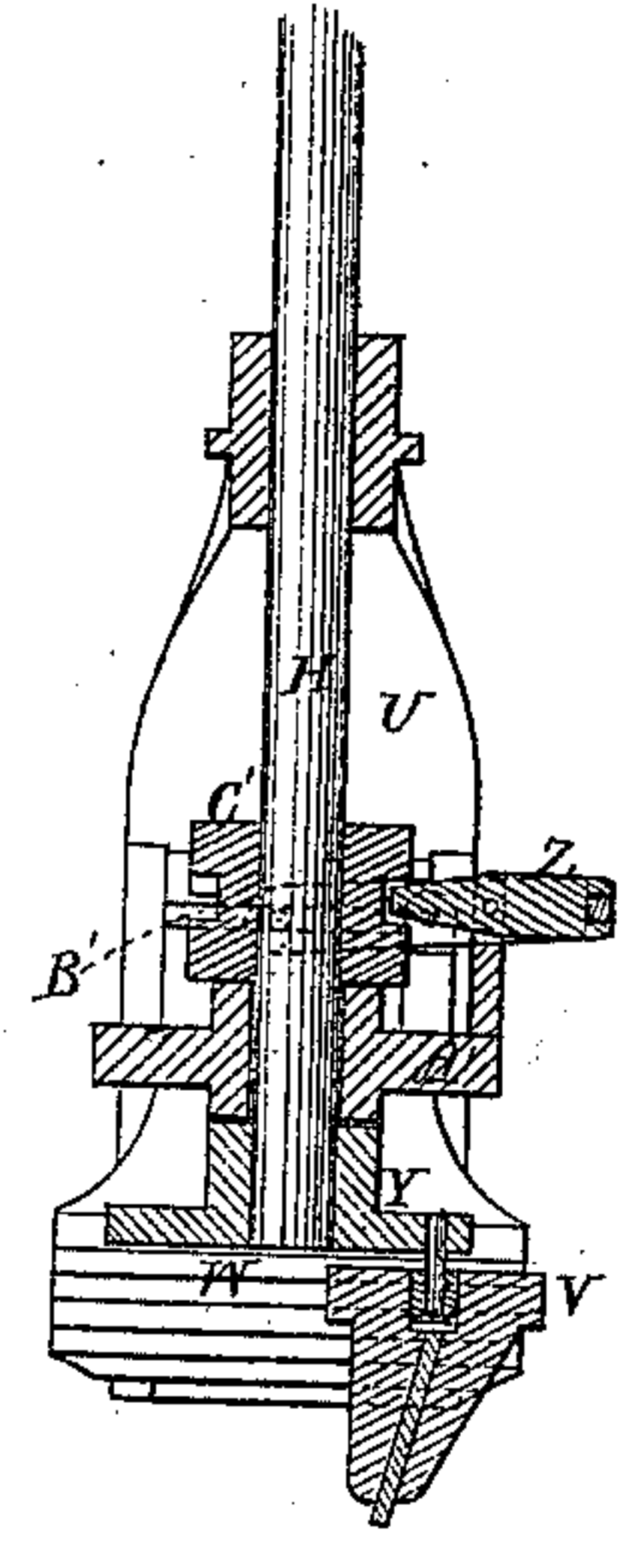
F. A. Lockwood.  
F. Curtis, Atty.

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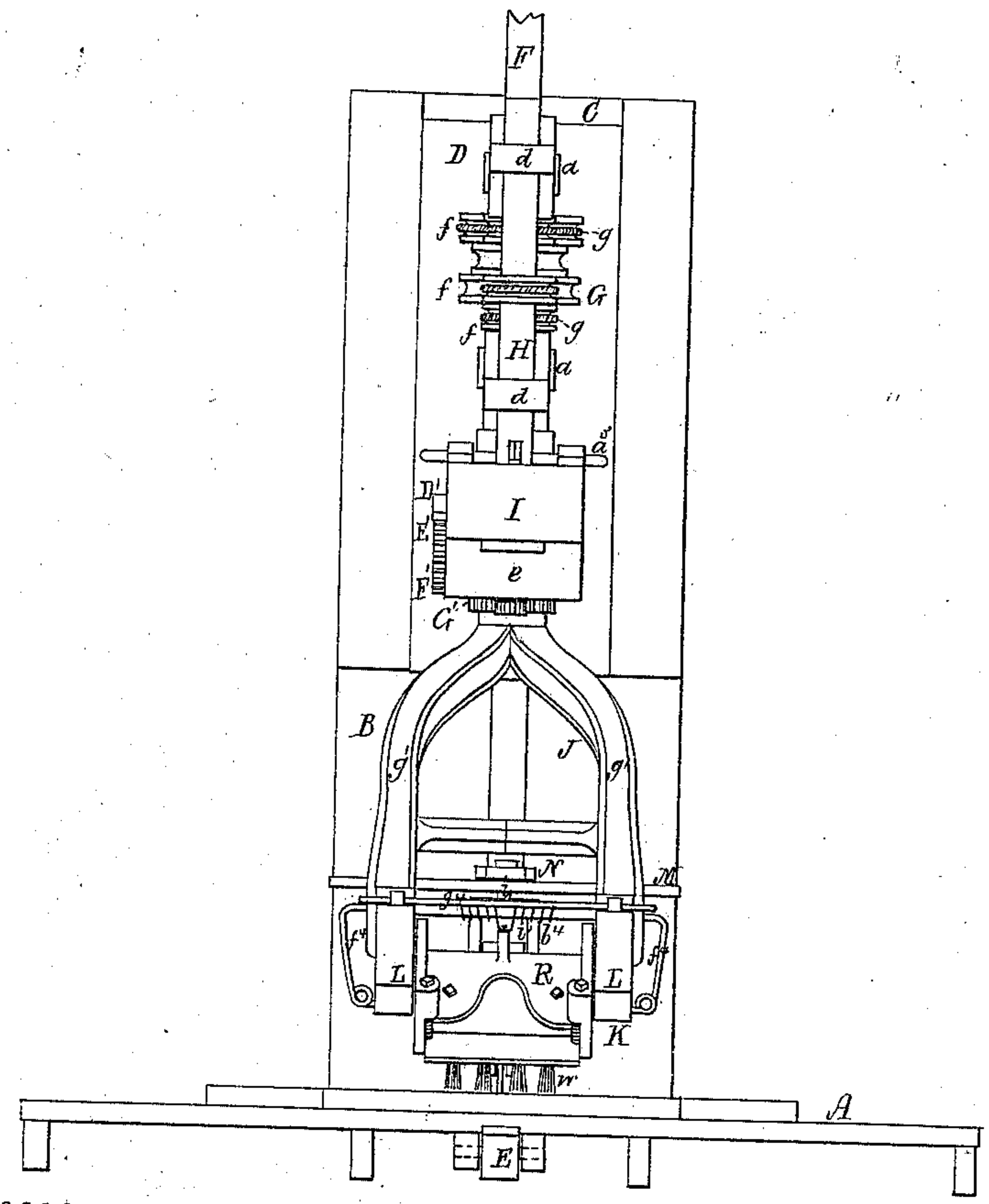
*Fig. 9.*



*Fig. 10.*



*Fig. 2.*



Witnesses.

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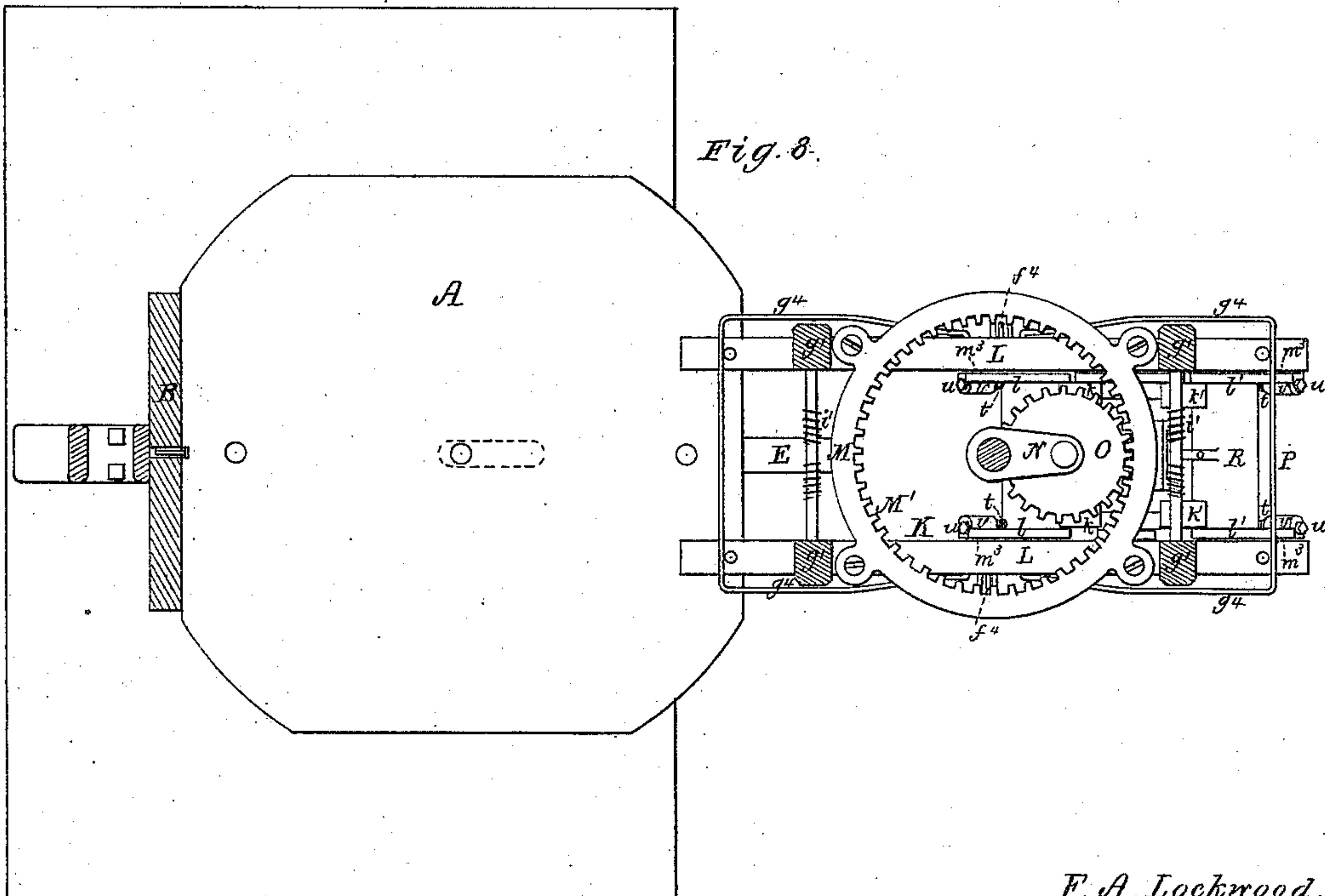
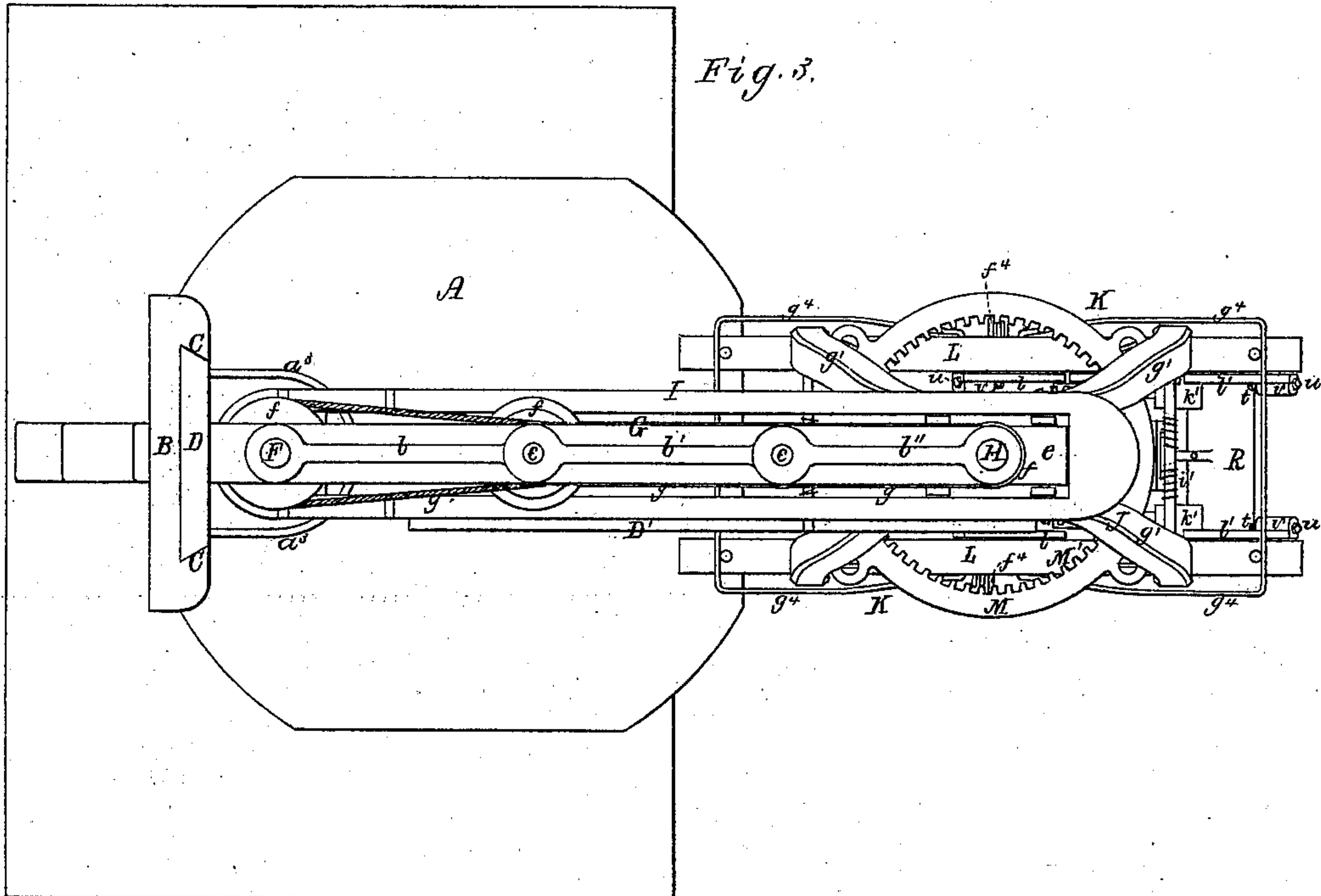
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Fig. 7.

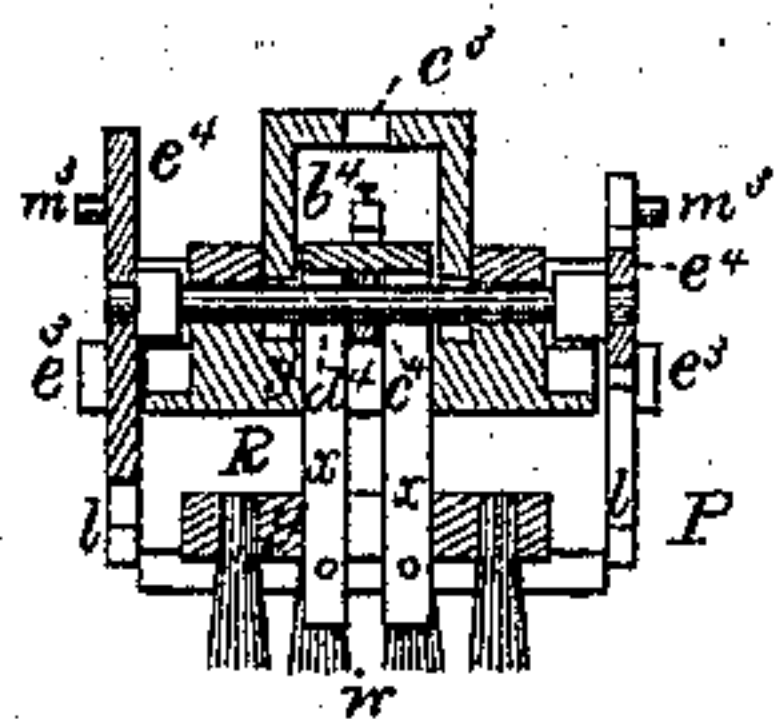


Fig. 6.

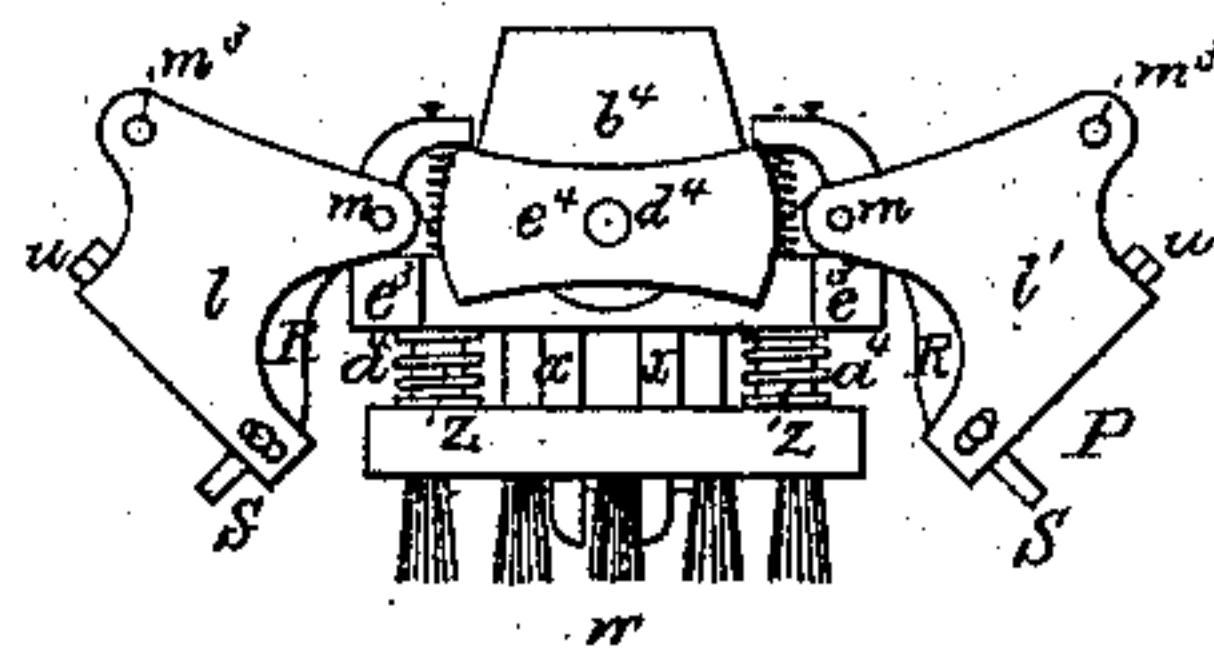
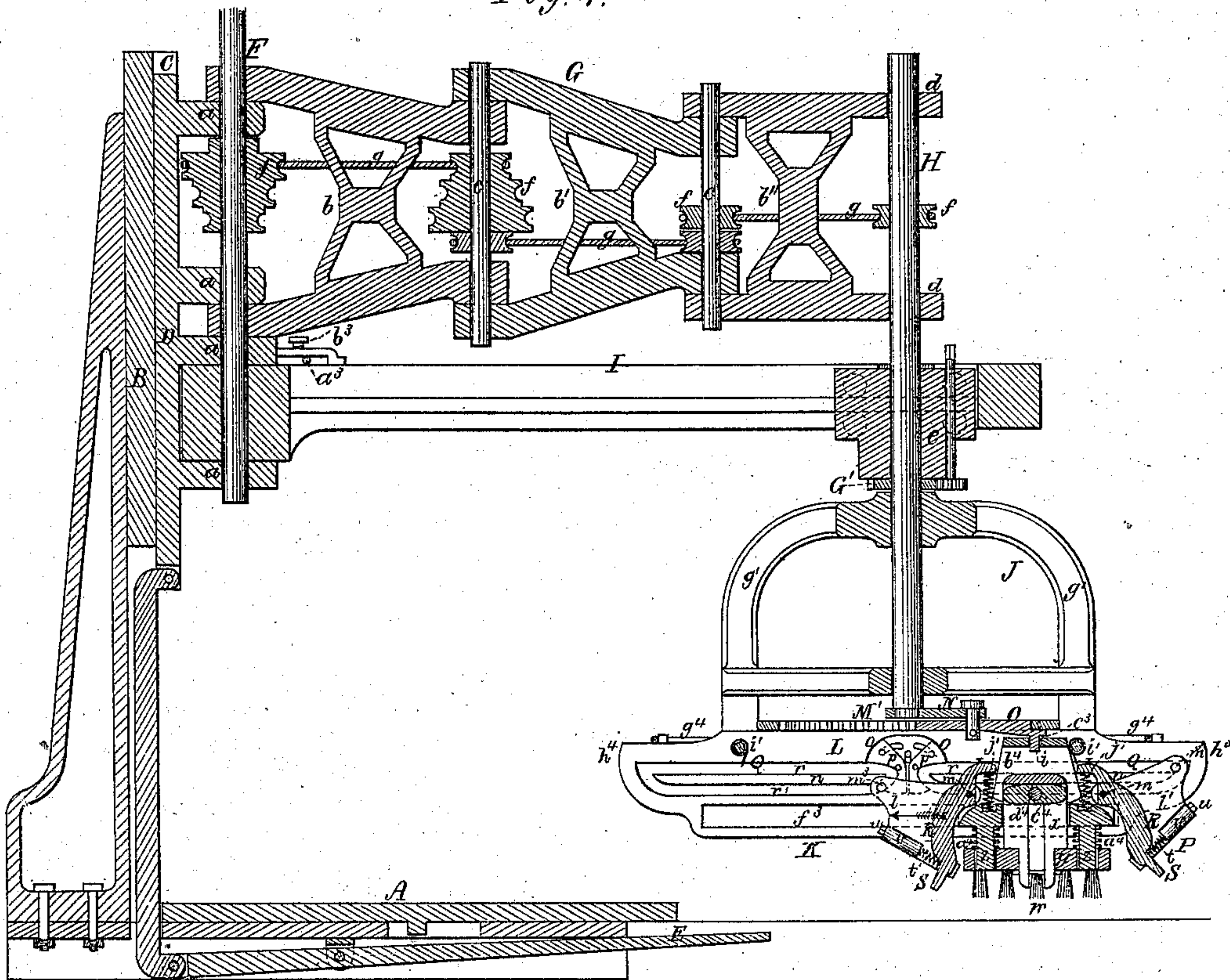


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

FREDERIC A. LOCKWOOD, OF WINTHROP, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR SCOURING, GLASSING, OR SETTING LEATHER.

Specification forming part of Letters Patent No. **143,829**, dated October 21, 1873; application filed June 9, 1873.

*To all whom it may concern:*

Be it known that I, FREDERIC AUGUSTUS LOCKWOOD, of Winthrop, Suffolk county, Massachusetts, have invented a Machine for Scouring, Glassing, or Setting Leather, or Beaming Hides, of which the following is a specification:

Previous to my invention the tools of machines for dressing or preparing hides or leather have been driven or operated in arbitrary paths of motion, the requisite variable movements being imparted to the hide or leather, which is moved about beneath the operating-tool in such various positions as to present its entire surface to the action of such tool.

My invention comprehends the method of supporting the operative tools or devices in such manner that they may be swung into any position with respect to the skin or hide, and in so constructing the tools and their supports that they are equally operative and effective in their action in any position in which they may be placed; and my invention consists substantially and mainly, first, in mounting the leather-dressing tools or devices, or the supporting-shaft and stock or head of the same, upon a jointed frame or crane, which is susceptible of longitudinal extension, or expansion and contraction, and of swinging movements in a horizontal plane; and secondly, in mounting the dressing tools or devices within or upon the carriage or stock of the same, in such manner that they may describe reciprocating movements over or upon a skin or hide, or to any part thereof to which they may be presented, by means of the expansion frame or crane.

Details of the invention will be found to consist in the peculiar method of mounting the tool stock or head within its carriage or guide, whereby the reciprocal path of movement in which it travels may be caused to approach or recede from the skin to be manipulated; also, in the means whereby the said tool stock or carrier is caused to travel in reciprocating movements within its carriage; also, in the employment of annular or endless grooves or channels in which trunnions of the tool-stock travel, and the combination with such channels of gates or latches, whereby, when desired, the trunnion shall be caused to travel in a continuous path through the entire channel, and thus operate upon the skin, or in re-

ciprocating rectilinear movements in a horizontal plane in the upper portion of such channel, and free from contact with the skin. Various other details of construction of my invention will be duly referred to.

The drawings accompanying this specification represent in Figure 1 a side elevation, in Fig. 2 a front elevation, in Fig. 3 a plan, and in Fig. 4 a vertical and longitudinal section, of a machine embodying my invention. Fig. 5 is an inner face view of one of the side plates of the tool-stock carriage, to be hereinafter described. Fig. 6 is a side view of the tool-stock; and Fig. 7, a transverse section of the same. Fig. 8 is a horizontal section of the machine through the frame which supports the tool-stock carriage. Fig. 9 is a front view, and Fig. 10 a section, of a modified form of mechanism for operating the tools.

In these drawings, A represents a platform of suitable size and construction, upon or at one side of which is erected an upright standard, B, formed with a vertical channel, C, within which slides a plate, D, this plate being raised or lowered by means of a pedal or lever, E, which is fulcrumed to the under side of the platform, and connected to the plate, as represented, the outer and free end of such pedal extending in front of the platform, and into a convenient position to be operated by the workman's foot, the said pedal constituting the means whereby the operating-tools are raised bodily above the platform while a hide or skin is being removed from the machine or applied thereto; and also constituting the means whereby the weight of the tool-stock, and, consequently, of the pressure of the tools upon a skin, is adjusted. To the front face of the plate or slide D, and at some altitude above the platform A, I pivot, upon an upright shaft, F, supported in suitable boxes *a a*, a compound arm or crane, G, composed of two or more sections, *b b' b''*, swiveled together by upright rods *c*, the outermost section, *b''*, carrying or supporting a vertical rod, H, which rotates within boxes *d d*, making part of such section *b''*, such shaft H also rotating within, and being supported by, a block, *e*, which, in turn, is supported and slides within a slotted bracket or strut, I, pivoted, at its inner end, to the shaft F in such manner as to swing freely thereupon in a horizontal plane in the arc of a circle, a curved bar, *a<sup>3</sup>*, being applied to the standard B, and pass-



ing through the said bracket, which, by means of a set-screw,  $b^3$ , applied to the bracket, serves to lock the latter in any desired position.

This mode of construction and suspension of the crane G enables the rod H, and the tools carried by it, to be presented in any desired position, and be brought to bear and operate upon any portion of a skin, while the swinging bracket I sustains the weight of the outer end of said crane, and moves with it.

The shaft F is the driving-shaft of the machine, and communicates power to the rod or shaft H by intermediate pulleys  $f$   $f$ , &c., and bands  $g$   $g$ , &c.

To the lower part of the rod or shaft H I affix a frame, J, the four arms  $g^1$   $g^1$   $g^1$   $g^1$  of which support a carriage, K, composed of two horizontal side rails or beams, L L; while upon the top of such rails, and centrally thereof, and spanning the two, I place a circular annular plate or flat ring, M, the inner periphery of which is converted into a ring gear or epicycloidal wheel, M', whose diameter is somewhat greater than the outer width of the carriage K. To the lower extremity of the upright rod H I affix a horizontal crank, N, to the free end of which I pivot a horizontal-toothed pinion, O, or epicycle, which engages with, and travels within, the ring gear or epicycloidal wheel M', a stud,  $l$ , depending from the under side of the pinion O, and entering a socket,  $c^3$ , formed in an open standard,  $l^4$ , in the tool carrier or stock P, each rotation of the crank N effecting a reciprocating movement of such tool-stock to and fro of the carriage K, the traverses of the stock in a horizontal plane being determined by lateral studs  $e^3$   $e^3$  from the stock entering grooves  $f^3$   $f^3$  formed in the sides of the carriage. This tool-carrier P is composed of two central side plates or cheeks,  $k$   $k'$ , and four ears or wings,  $l$   $l$   $l'$   $l'$ , the rod or pin which pivots the ears to the plates being shown at  $m$ ; while a trunnion or journal is shown at  $m^3$  as protruding laterally beyond the outer side of each plate, and at its free end, and entering an endless channel, Q, formed in each inner-side face of the two beams L L, the dividing rib or partition of this endless channel being shown at  $n$ . Between each channel Q, and centrally of the carriage K, and within each side rail L of the latter, I create a shallow vertical chamber,  $o$ ; and within this chamber I dispose two tilting-latches or cut-offs,  $p$   $p$ , each of which is pivoted, at about its center, to the rail L, these said latches being each formed with a curved notch,  $q$ , which operates in connection with the adjacent end of the nearest channel, Q, and its partition  $n$ , to either cut off communication between the two sides  $r$   $r^1$  of each channel, or to open communication between them, and provide an endless path for the passage of the trunnions  $m^3$ , as hereinafter explained. The stock P carries two tool-holders or clamps, B, one upon each side thereof, and pivoted at their upper parts to the stock, as shown at  $m$ , these holders assuming a slightly-inclined position, in order that the tool S, whether a hide-

beaming tool or a leather-dressing tool, may act to the best advantage, it being understood that such tool acts upon the skin or leather while traveling outwardly toward the end of the carriage K, and during the return movement is elevated from off the skin or leather. The degree of pressure with which the tool acts upon the skin is governed by springs  $t$ , which bear at their lower ends upon each end of said tool, these springs being compressed to a greater or less extent by screws  $u$ , which screw through bosses  $v$ , making part of the ears  $l$  before named.

As my machine is intended, among other uses, for scouring leather, I add to it a brush, which is shown in the drawings at  $w$  as situated midway between the tools S S and centrally of the tool-stock, below which it depends, the said brush being susceptible of vertical play, in order to bring it into action upon a skin, or to raise it from off the same, as required; and to this end I support the brush in position by means of a vertical slotted lifter-bar,  $x$ , which slides within a corresponding slot,  $y$ , created within the stock, the brush also for greater security and steadiness sliding upon guides or rods  $z$   $z$ , which depend from the under side of the tool-stock, a spiral spring,  $a^4$ , encompassing each rod, and serving, by its expansive power exerted between the stock and brush, to lower the latter upon or against a wiper-cam, to be hereinafter referred to. In order that I may be able to raise or lower the brush while the tool-stock is in motion and traversing the carriage K, I extend the bar  $x$  upward into an open standard or tower,  $b^4$ , erected centrally upon the tool-stock, and within the slot of such bar I dispose a double wiper-cam or eccentric,  $c^4$ , which is affixed to a horizontal shaft,  $d^4$ , passing transversely through the tool-stock, as shown in Fig. 7 of the drawings, each extremity of such shaft being provided with a two-armed lever or tripper,  $e^4$ , disposed closely against the inner face of the adjacent rail L, the two trippers being arranged at right angles to each other, in order that when one is horizontal the other is vertical. To the outer face of each rail L of the carriage K, I affix a spring-latch,  $f^4$ , the bend or arm of which passes horizontally through the rail L, and being so situated that when pushed inward it shall intercept and knock over one or the other of the tripper-arms  $e^4$ , and thus effect a quarter revolution of the shaft  $d^4$  and its wiper-cam, and raise or lower the brush, as the case may be.

It is my purpose to so organize this machine that both tools S may be brought to act upon a skin, or one alone; and also, as before stated, that while the tool is moving outward toward the end of the carriage K it shall be in its lowest condition, and when returning shall be elevated from above the skin. As the tool-stock alternates or reciprocates at all times in an arbitrary horizontal path, means must be provided whereby the tools shall play upon the stock, and be elevated and depressed, and



I effect such result by the employment of the channels Q and latches *p p*, the positions of the latter being governed by bails or handles *g<sup>4</sup>*, which span the carriage K, and are pivoted to the latches, as shown in the drawings.

We will suppose the tool-stock to be in the position shown in Fig. 4 of the drawing—that is, to one end, *h<sup>3</sup>*, of the carriage K—and about to move in the direction of its arrow, or toward the end *h<sup>4</sup>* of said carriage, the trunnions of the ears *l l* being situated in the lower portion *r'* of the adjacent channel Q, and the trunnions of the ears *l' l'* being in the upper portion *r* of the opposite channel Q, the four latches *p*, &c., being in such position as to open communication between the two portions of each channel, and leave the trunnions free to travel in a continuous path through it. The tool-stock moves, by the action of the pinion upon the wheel, in the direction of its arrow, with its tool S in contact with the skin to be manipulated, until the trunnions of the ears *l l* reach the outer bend of the channel, when, by the action of a spring, *i'*, they are elevated, and enter the upper portion *r* of the channel Q, the pinion O now acting upon the tool-stock to drive it in a reverse direction and return the tool-stock to its starting-point, it being observed that as the trunnions of the ears *l* are entering the upper path *r*, passing from the lower path *r'*, the trunnions of the ears *l'* are leaving the upper path *r* and entering the lower path *r'*, in readiness to act, in their turn, upon the skin when the tool-stock effects its return movement, as last above stated, the depression of the latter trunnions being effected by springs *j'*, disposed as shown in Fig. 4 of the drawings. The machine thus becomes automatic, and continues in its operations, one tool advancing and acting upon the skin, while the opposite tool follows after it in a path of movement above the skin, the brush being raised and inactive, or lowered and working also upon the skin, as may be desired, at the option of the operator.

Under the last-named condition of the latches *p p* both tools are at work; and, if it becomes desirable to put one or both tools out of work, the operator pushes in the bail which operates one or both pairs of latches, thus closing communication between the upper and lower portions of the channels Q, and compelling the tools to travel in horizontal reciprocal traverses of the carriage K.

By the mode herein shown of suspending the carriage K from the swinging beam or bracket I, I am enabled to cause the tool to wipe upon the skin in any desired direction, while by the mode of attaching the said carriage to the expansible crane, I am enabled to present the tools to any part of a skin, whatever the size of the latter may be.

By the within-described manner of pivoting the carriage K to the shaft H, I am enabled to drive the tools in directions radiating at any point from the center of a skin outward.

By the mode of supporting the crane upon

and by the swinging beam I, I maintain the tools at all times in a given horizontal position with respect to the skin, or its supporting table or bed, and relieve the operator from any labor of supporting the weight or maintaining the proper elevation of the carriage K.

For glassing leather, and for some other uses, the swinging beam I may be locked in the position shown in the drawings, and the carriage K moved backward and forward thereupon.

The epicycloidal wheels M' and O afford a simple and powerful means of effecting the desired reciprocations of the tool-stock, and of permitting the carriage K to be brought to any desired position, while the rod or shaft H always maintains the same relative position with respect to the tool-stock, or directly over the work to be done.

For the purposes of glassing hides, I propose to employ a table covered with india-rubber or other elastic or semi-elastic agent, and disposed below the carriage K.

I am enabled to obtain any desired length or speed of stroke, or any desired pressure upon a skin; and, as before stated, my machine is equally applicable to the purposes of scouring, setting, and glassing leather or beaming hides.

My machine occupies very small comparative space, and, when not in active use, can be contracted and stowed near the wall of the apartment, the table or platform by this means becoming available for other uses. This contraction or folding of the crane allows me to instantly remove the carriage K from over the skin, and gives me all desired room and convenience to remove or apply skins.

In lieu of the carriage K and tool-stock P, and their adjuncts and actuaries, I have devised a different device, which is shown in Figs. 9 and 10 of the drawings, of which the first is a front elevation, and the second a vertical section, of such modified device.

In this modification of my machine I employ a furcated block or head, U, which occupies the place of the frame J upon the shaft or rod H, and I apply the operative tool to a horizontal plate, V, sliding upon two vertical side plates, W W, which are disposed against the inner sides of the head, the reciprocal traverses of the tool within or upon such side plates being effected by a crank, Y, secured to the lower part of the said rod H, while the vertical play of the plates W W is effected by a forked lever, Z, which is fulcrumed to a horizontal shelf, A', making part of the head, the base of the lever entering a zigzag groove, B', created in a hub, C', secured to the rod H, the whole being so arranged that as the tool travels in one direction it is lowered toward and upon the skin, and in the opposite direction is elevated from off the skin.

It may be found desirable in some instances to provide mechanical means for moving the carriage K upon the beam I; and to this end I form upon one outer face of the said beam a



continuous toothed rack, D', and I pivot to the lower part of the block e, which extends below the beam, a spur-gear, E', which engages with and is driven by a pinion, F', also pivoted to the block e, and provided with a suitable crank. Like means may also be adopted, if desired, for rotating the shaft H and carriage K, as shown in a gear, G', affixed to the said shaft below the block e, and a pinion meshing into and driving such gear.

I claim—

1. In machinery for scouring, glassing, or setting leather, or beaming hides, the combination, with the table or bed for supporting the skin, of a tool carrier or stock arranged and operated to move or travel in any direction over and with respect to the table or bed, to cause the tool or tools carried by said stock to properly act upon the skin, substantially as shown and set forth.

2. In machinery for scouring, glassing, or setting leather, or beaming hides, the combination, with the work-supporting table or bed, and a tool carrier or stock capable of variable movements over said table, and mechanism for imparting said movements to said stock, of a sliding head carrying said tool-carrier and its operative mechanism, and vertically adjustable with respect to the table, substantially as and for the purposes shown and set forth.

3. In machinery for scouring, glassing, or setting leather, or beaming hides, the combination, with the tool-carrier and its operative mechanism, of an expansible crane supporting said parts, substantially as and for the purpose shown and set forth.

4. In combination with the expansible or variable frame or crane G, and rod or shaft H, the swinging beam I, whereby a uniform altitude of the stock or carriage, with respect to the plate D or other support of the crane, is maintained, substantially as and for purposes stated.

5. In combination, the plate D or its equivalent, variable crane G, and beam I, substantially as and for purposes stated.

6. In combination, the carriage K and the variable crane G, substantially as and for purposes stated.

7. In combination with the crane G and the rod H or its substitute, the pulleys *f f*, &c., or their equivalents, and bands *g g*, &c., for imparting motion to the tool-stock, substantially as and for purposes stated.

8. In machinery for scouring, glassing, or setting leather, or beaming hides, the combination of a rotary work-supporting bed or table and a tool carrier or stock arranged and operating to move in any direction over or with respect to said table, substantially as and for the purpose shown and set forth.

9. The epicycloidal wheels M' and O, for imparting reciprocating motions to the tool-stock in a horizontal plane from the rotary motion of the shaft or rod H, substantially as and for purposes stated.

10. The channels Q, formed as described,

with a central partition or guide, *n*, substantially as and for purposes stated.

11. The latches *p p*, or their equivalents, in combination with the channels Q, substantially as and for purposes stated.

12. In combination with the tool-stock P and channels Q, the ears *l l l'* or their equivalents, for determining the altitude of each tool during its traverses, substantially as and for purposes stated.

13. The brush *w*, mounted within or upon the tool stock or carrier, substantially as herein shown, whereby it may be raised or lowered with respect to the tools, substantially as and for purposes stated.

14. The combination of the knocking-over or tripper arms *e'* and spring-latches *f'*, or the equivalents of the same, whereby, while the tool-stock is in motion, the raising or lowering of the brush may be effected, substantially as and for purposes stated.

15. The combination, with the latches *p p*, of the bails or handles *g'*, or their equivalents, whereby, while the tool-stock is in motion or otherwise, the course of the ears *l l'* and tools is changed with respect to two portions of the groove Q, substantially as and for purposes stated.

16. In machinery for scouring, glassing, or setting leather, or beaming hides, a carriage susceptible of universal freedom of motion and supporting a tool-stock, and a tool-stock traversing such carriage in reciprocating rectilinear movements, substantially as and for purposes stated.

17. In machinery for scouring, glassing, or setting leather, or beaming hides, a tool-stock reciprocating in an arbitrary horizontal path upon a suitable carriage, and one or more tools or tool-holders under the arrangement and for operation as shown and described, so that during the reciprocation of the stock the slope of the tools with respect to the stock may be varied, in order not only that the tool may be lowered upon the skin when moving in one direction, and raised therefrom when moving in the opposite direction; but, if desired, elevated entirely above the skin and out of action during both traverses, substantially as and for purposes stated.

18. The grooves *f'*, for guiding the tool-stock in a horizontal path, in combination with the channels Q and latches *p p*, substantially as and for purposes stated.

19. The combination, in a machine for scouring or setting leather or working hides, of a brush capable of being lowered into working position or raised therefrom, and one or more reciprocating tools which are susceptible of acting upon a skin or traversing a path above such skin and free from contact, substantially as and for purposes stated.

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Witnesses:

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