

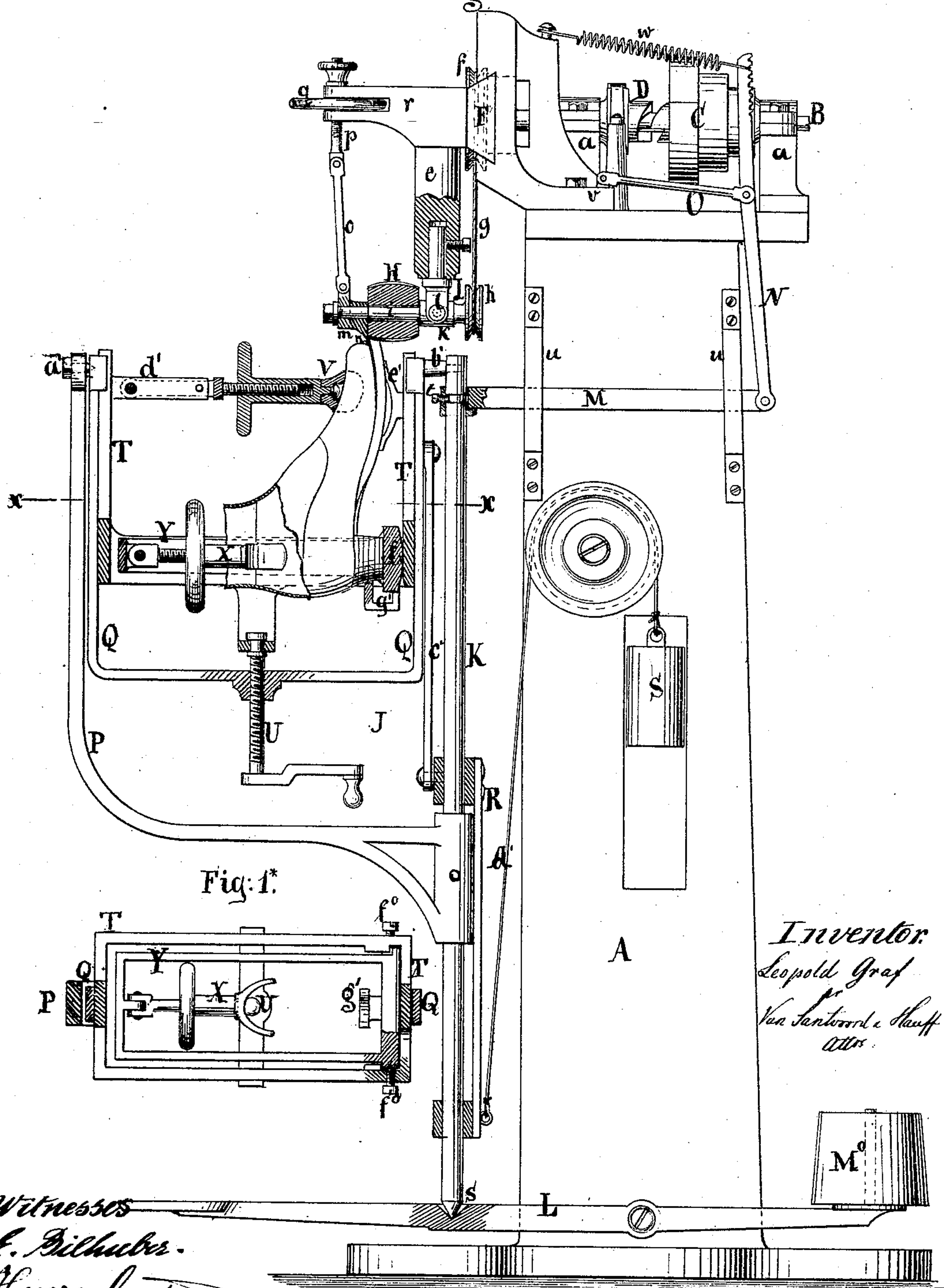
L. GRAF.

Machines for Trimming and Burnishing the Soles and Heels of Boots and Shoes.

No. 151,872.

Patented June 9, 1874.

Fig 1.



Inventor:
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Witnesses

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Henry Gentner

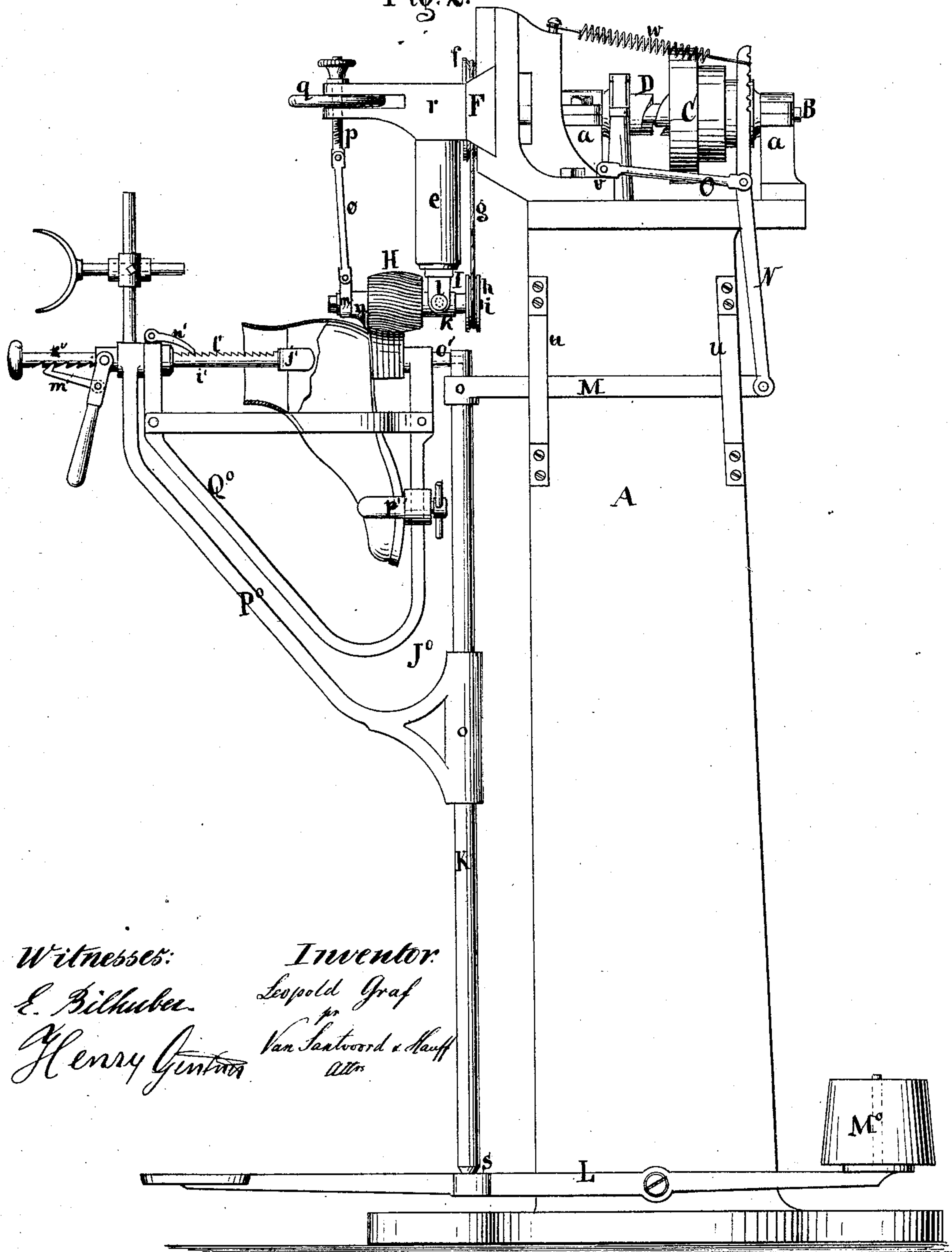
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Fig. 2.



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Fig. 3.

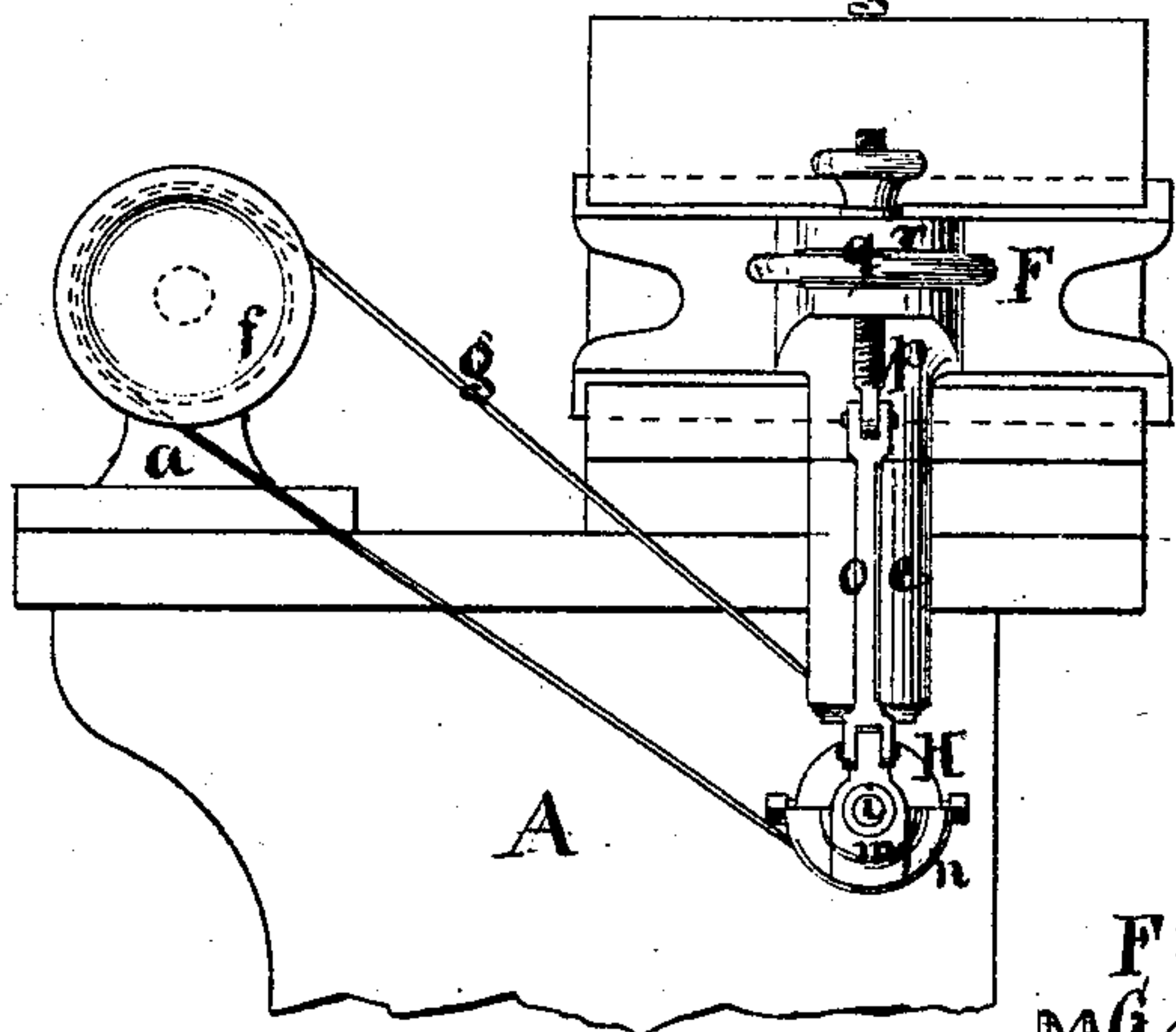


Fig. 4.

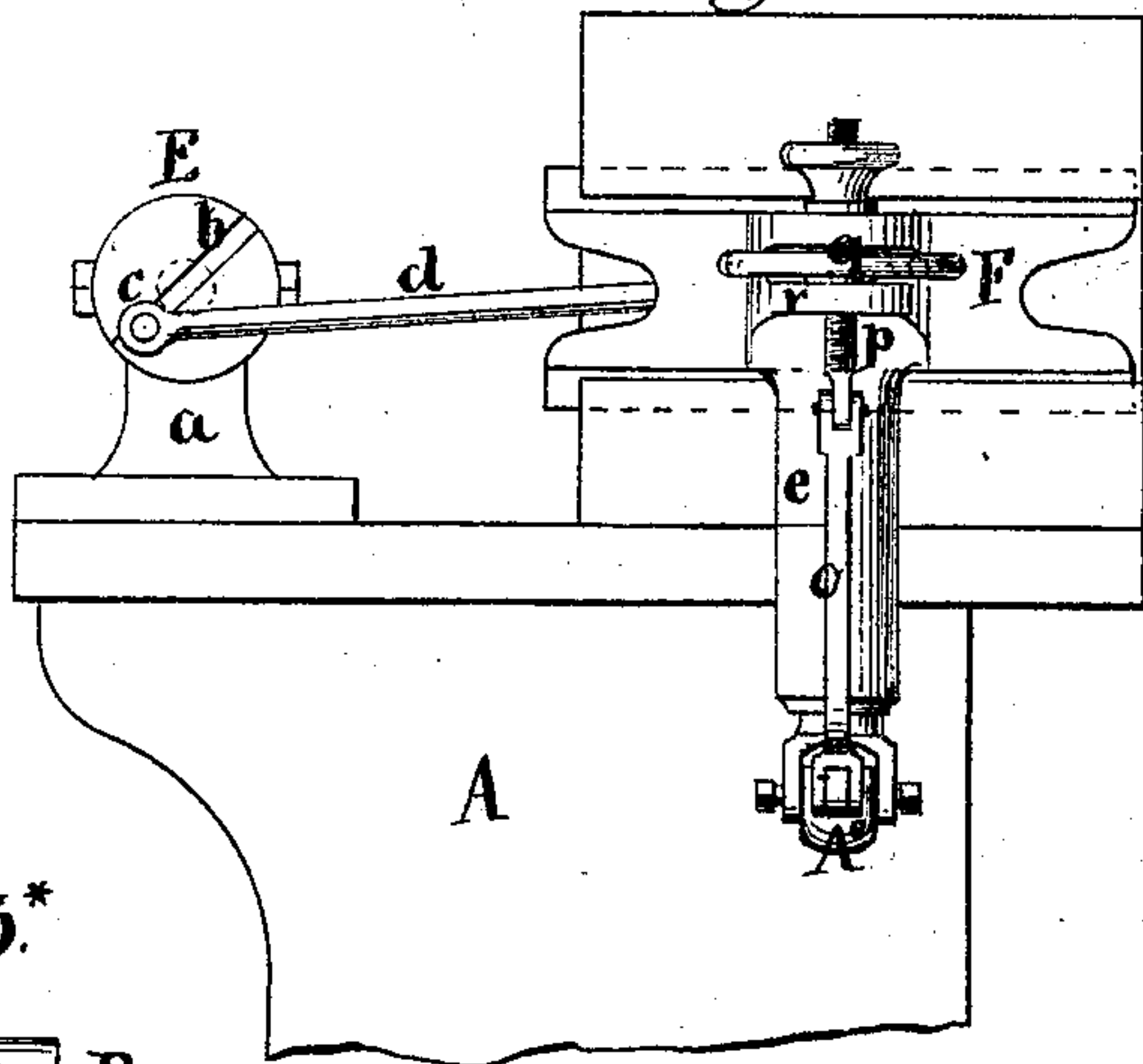


Fig. 5*.

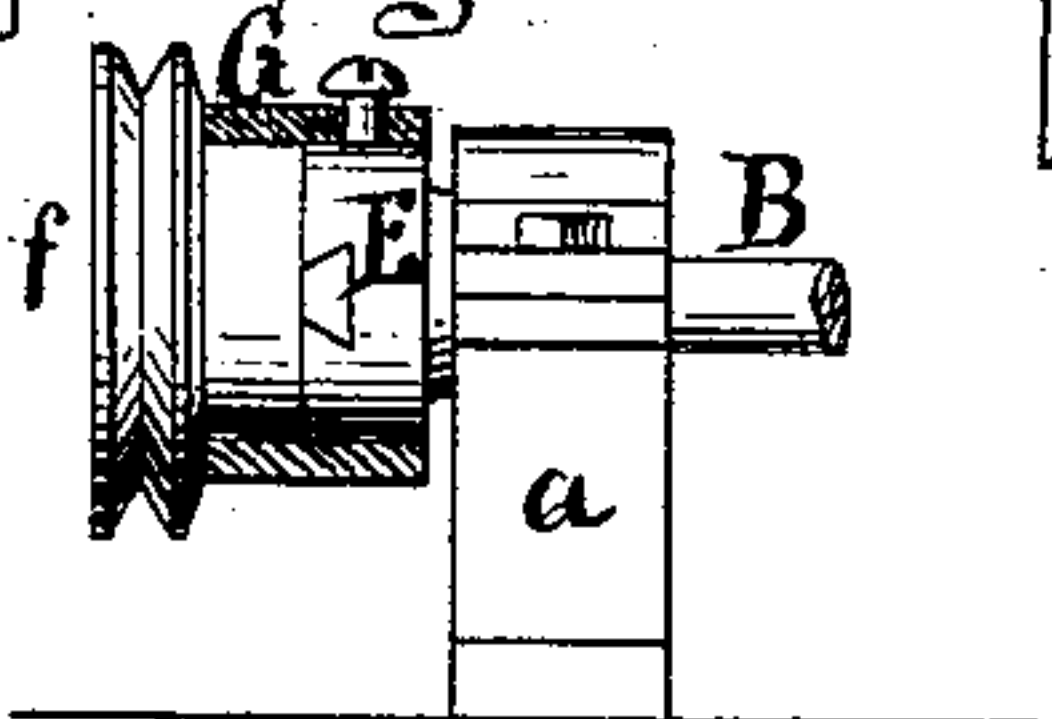


Fig. 6.

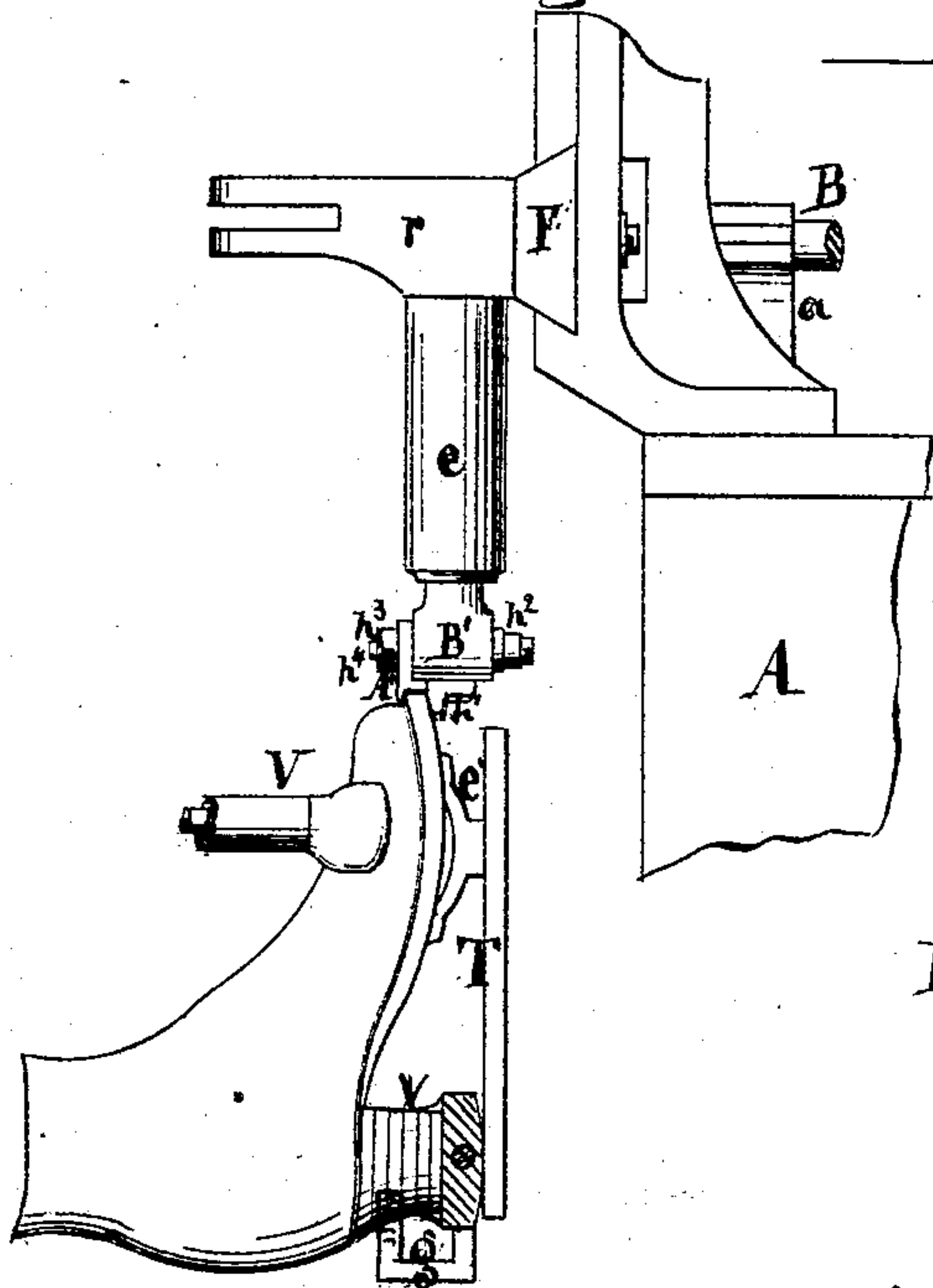


Fig. 5.

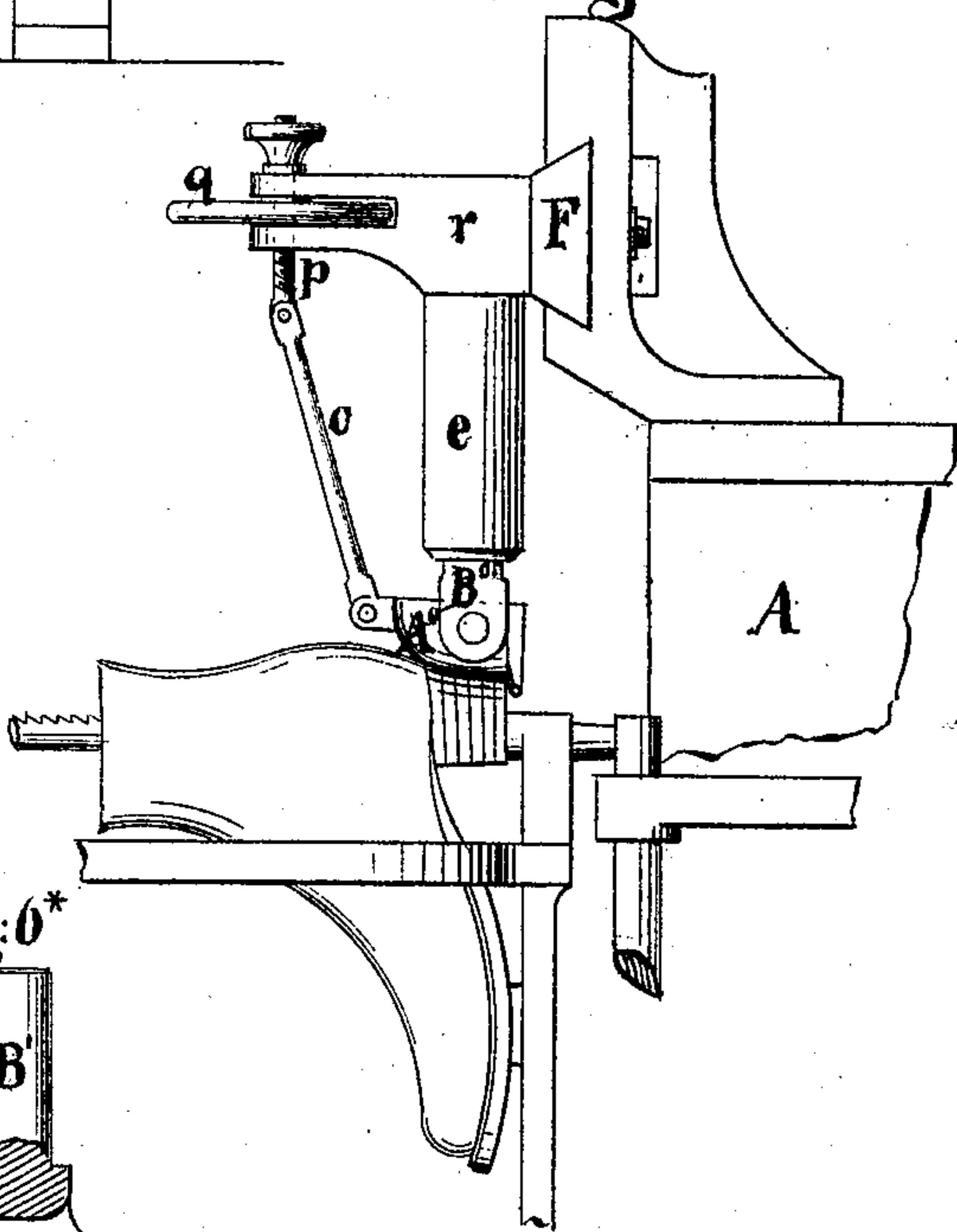
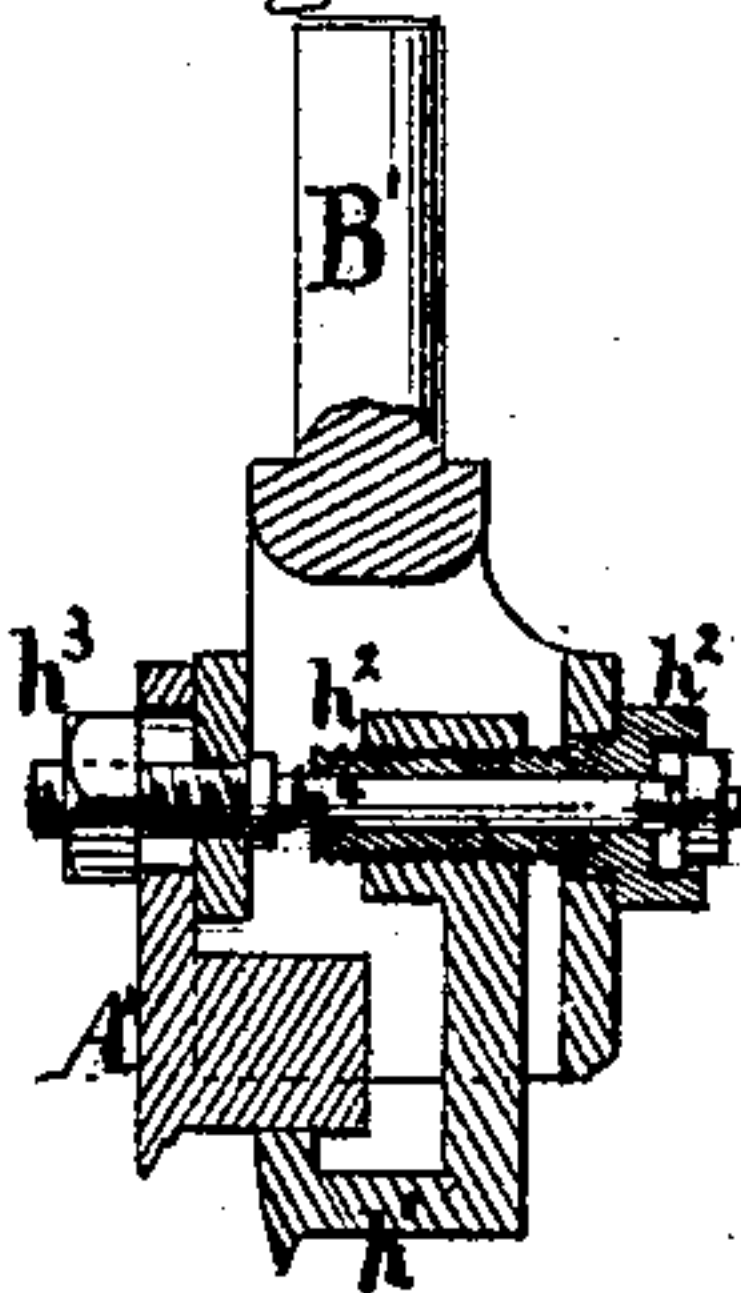


Fig. 6*.



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UNITED STATES PATENT OFFICE.

LEOPOLD GRAF, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN MACHINES FOR TRIMMING AND BURNISHING THE SOLES AND HEELS OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **151,872**, dated June 9, 1874; application filed April 20, 1874.

To all whom it may concern:

Be it known that I, LEOPOLD GRAF, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Machines for Trimming and Burnishing the Heels and Soles of Boots and Shoes; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a sectional side view of my machine when arranged for trimming the edge of a sole. Fig. 2 is a similar view of the same when arranged for trimming a heel. Fig. 3 is a front view of the same. Fig. 4 is a front view of the same when arranged for burnishing a heel. Fig. 5 is a side view of the same. Fig. 6 is a similar view of the same when arranged for burnishing the edge of a sole.

Similar letters indicate corresponding parts.

This invention relates particularly to the means for adjusting and for imparting motion to the trimming-tool or cutter, and to the burnisher, and to the means for securing the shoe, and for presenting the edge of the sole or the heel to the cutter and to the burnisher.

In the drawing, the letter A designates a standard, which supports the pillow-blocks *a* for the driving-shaft B of my machine. On this shaft is mounted loosely a cone-pulley, C, which can be coupled with the shaft by a clutch, D, so that by moving the clutch in and out of gear with the cone-pulley the machine can be readily started and stopped. On the end of this shaft is mounted a disk, E, Fig. 1, with a diametrical dovetailed groove, *b*, in which is secured, a pin, *c*, that connects by a rod, *d*, with a sliding carriage, F. By moving the pin *c* in the groove *b* the throw of the carriage can be regulated. From this carriage projects a bracket, *e*, in which is secured the tool that acts on the sole or heel of a boot or shoe. When the machine is to be used for trimming the edge of a sole or a heel, the pin *c* and rod *d* are removed, and over the disk E is secured a chuck, G, carrying a pulley, *f*, Figs. 3 and 3*, which connects by a belt, *g*, with a pulley, *h*, mounted on the inner end of

a spindle, *i*, that carries the trimming-tool or cutter H. Said spindle has its bearing in a box, *k*, which is suspended between pivots *l*, secured in the bifurcated end of a hanger, I, that is fastened in the bracket *e* of the carriage F. The outer end of the spindle *i* is supported by a head, *m*, the edges of which are V-shaped and fit into a corresponding groove of the gage *n*, which is finally secured in position by a set-screw. From the head *m* extends a rod, *o*, to a screw, *p*, which is tapped in a hand-wheel, *q*, situated in a slot provided for its reception in an arm, *r*, which projects from the carriage F. By turning this hand-wheel the head *m* is raised or depressed, and the cutter H can be adjusted at the required inclination. The hanger I is also adjustable in the bracket *e*, and thereby the operation of regulating the position of the cutter is still further facilitated. The boot or shoe, for the purpose of trimming the edge of its sole, is secured in a jack, J, which is supported by a vertical rod, K, the lower pointed end of which is stepped in a cavity, *s*, made for this purpose in a treadle, L, which is provided with a balance-weight, *M*^o, that has a tendency to force the rod K upward, so that the workman, by stepping on the front part of said treadle, can regulate the pressure which brings the sole in contact with the cutter. The upper end of the rod K turns in an eye, *t*, at the end of an arm, M, said eye being prevented from sliding up and down on the rod by a pin, which catches in a circular groove in the rod K. The arm M passes through staples *u*, which are secured to the standard A, and its rear end is pivoted to a lever, N, that has its fulcrum in the end of a link, O, which is pivoted to a stud, *v*, secured in the standard A. The upper end of the lever N is subjected to the action of a spring, *w*, which has a tendency to force the rod K, together with the jack J, inward toward the column A, whereby the tendency of the cutter to force the shoe outward away from the column is counteracted, and the workman is enabled to keep the sole easily in the proper relation toward the cutter, and at the same time the arm M and its lever N are free to accommodate themselves to any desired posi-

tion of the shoe. On the rod K is firmly secured an arm, P, and through the end of this arm passes a pointed screw, a' , which supports one end of a frame, Q, the opposite end of which is supported by a pivot, b' , catching in a socket in the upper end of the rod K. From the frame Q extends a rod, c' , to a slide, R, which is fitted on the rod K, and which connects by a cord, d^2 , with a weight, S, the object of which is to counterbalance the weight of said frame, with its appendages, during the operation of trimming or burnishing the side edges of the sole. The frame Q forms the guide for a carriage, T, which is adjusted in the required position by a hand-screw, U, and in which is secured the shoe by means of a toe-clamp, V, and a heel-clamp, X. The toe-clamp is hinged to an arm, d^1 , extending from the front piece of the carriage, and the toe part of the shoe is placed on a support, e' , secured to the rear piece of the carriage, and then the toe-clamp is turned down and fastened by means of its screw. The heel-clamp X is pivoted to a frame, Y, which is secured to the carriage T by means of pivots, f' , (see Fig. 1*,) and which is provided with a heel-support, g' , at a point opposite to the clamps X. The forked end of this clamp is made to catch over the head of the last in the shoe, then the heel of the shoe is placed on the heel-support g' , and by tightening the heel-clamp the heel part of the shoe is firmly secured. The frame Y is hinged in the carriage, so that the same can yield and accommodate itself to the action of the toe-clamp without producing any undue strain in the parts which serve to retain the shoe.

During the operation of trimming the toe-part of the sole, the frame Q of the jack is turned down to the position shown in Fig. 1, and it is swung in either direction a sufficient distance to bring the cutter in contact with the entire front edge of the sole. The frame Q is then turned up gradually to a horizontal position, in which the same is partially balanced by the weight S, and by turning the hand-screw U the carriage T is moved in the frame Q, so as to expose the side edge of the sole to the action of the cutter. If one side edge is finished, the frame Q is swung round so as to expose the other side edge to the cutter. During this entire operation the pressure which holds the edge of the sole in contact with the cutter is regulated by the weight M^o , and by the pressure of the foot on the treadle L, and by the action of the balance-weights M^o and S, the entire operation is rendered comparatively easy for the workman. After the edge of the sole has been trimmed, the hanger I, with the cutter H, are removed and the burnisher A' , Figs. 6 and 6*, is inserted into the bracket e of the carriage F. This burnisher is secured in a hanger, B' , and it is combined with a gage, h^1 , Fig. 6*, which is fitted into the head of the hanger, so that it can be moved in the same by a tubular screw, h^2 . The burnisher A' fits into the cavity of the head, and

under the gage h^1 , and it is secured in position by a nut, h^3 , which screws on a bolt, h^4 , extending through the tubular screw h^2 . In the burnisher is an oblong slot, so that it can be adjusted as the burnishing-surface wears off. By these means the gage and the burnisher can be readily adjusted to soles of various thicknesses. During the operation of burnishing, the carriage F receives a reciprocating motion by means of the jack J above described. When the heel of the shoe is to be exposed to the action of a cutter or burnisher, I secure the same in a jack, J^o , which is shown in Fig. 2, and which is somewhat different from the jack J. Both jacks have in common the upright rod K, treadle L, weight M^o , arm M, lever N, and spring w . On the rod K of the jack J^o is secured an arm, P^o , similar to the arm P of the jack J. Through the end of this arm extends a rod, i' , which carries on its inner end the heel-clamp j' , and which is provided with two sets of ratchet-teeth, $n' V$, one set being intended to engage with a lever-pawl, m' , that is hinged to the arm P^o , and serves to press the rod i' inward against the shoe. The other set, V , of ratchet-teeth engages with a stop-pawl, n' , which prevents the rod i' from receding. Said stop-pawl is hinged to a frame, Q^o , one end of which turns on the rod i' , while its other end turns on a pivot, o' , secured in the upright rod K. On this frame is fitted the toe-clamp p' , which is composed of two prongs extending from a head that slides on the frame Q^o , so that said prongs can be made to catch over the toe-part of the shoe, as shown in Fig. 2.

By this arrangement the heel of the shoe can be exposed to the action of the cutter H, and by turning the frame Q^o the cutter can be made to act successively on the whole surface of said heel.

For the purpose of polishing the heel, the cutter H is replaced by the burnisher A^o , (see Fig. 5,) which is hinged in the hanger B^o , and which connects by a rod, o , with the screw p , that is tapped into the hand-wheel q , as already described. By turning this hand-wheel the burnisher A^o can be set to any desired inclination, according to the shape of the heel to be burnished.

When the burnisher is used, the carriage F receives a reciprocating motion, and, if desired, the burnisher may be heated by gas or otherwise.

What I claim as new, and desire to secure by Letters Patent, is—

1. The chuck G, provided with the pulley f' fitting over the disk E on the driving-shaft B, in combination with the driving-shaft i of the cutter H, substantially as and for the purpose described.

2. The combination of a spring, w , link-lever N, and arm M, with the upright swivel-rod K, and shoe-supporting jack, substantially as described.

3. The balance-weight M^o , in combination with the treadle L, swivel-rod K, and shoe-

supporting jack, substantially as and for the purpose described.

4. The balance-weight S and slide R, in combination with the swinging frame Q of the jack J, substantially as and for the purpose described.

5. The sliding carriage T, in combination with the swinging frame Q of the jack J, substantially as and for the purpose described.

6. The screw *p* and hand-wheel *q*, in combination with the shaft *i*, cutter H, and hanger I, substantially as and for the purpose described.

7. The gage *n* fitted on the head *m*, which supports the outer end of the cutter-shaft *i*, in combination with the adjusting-screw *p*

and hanger T', substantially as and for the purpose set forth.

8. The burnisher A' secured in the head of the hanger B' by a nut, *h*³, in combination with a gage, *h*¹, which is adjusted in the head of the hanger by a screw, *h*², substantially in the manner shown and described.

9. The rod *i'*, provided with a double set of ratchet-teeth, and carrying the heel-clamp *j*, in combination with a lever-pawl, *m'*, stop-pawl *n'*, and a swinging frame, Q^o, in the jack J^o, substantially as and for the purpose set forth.

Witnesses:

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