

**No. 666.126.**

**Patented Jan. 15, 1901.**

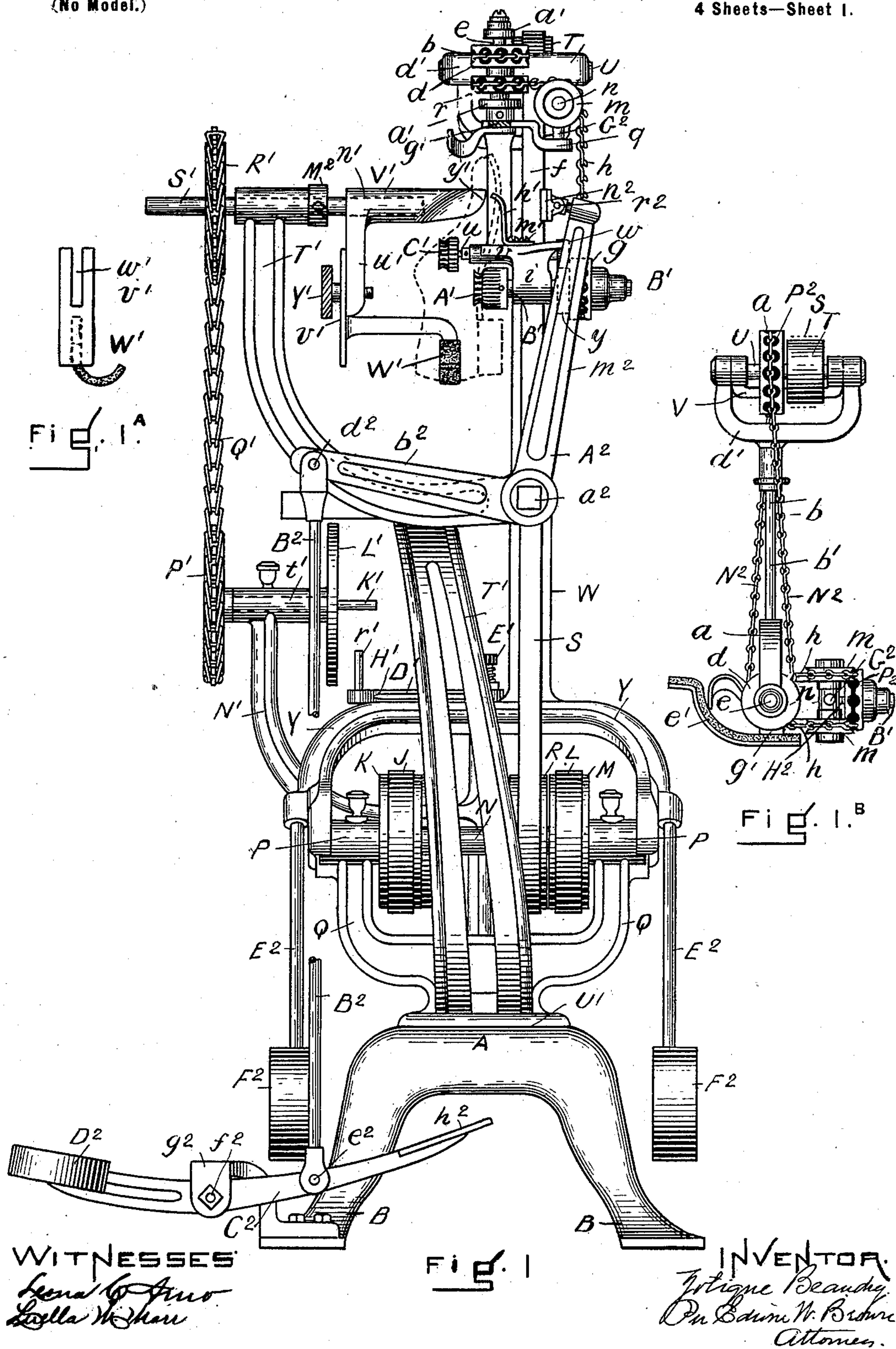
**Z. BEAUDRY.**

## EDGE SETTING MACHINE.

(Application filed May 2, 1896. Renewed June 7, 1900.)

(No Model.)

**4 Sheets—Sheet 1.**

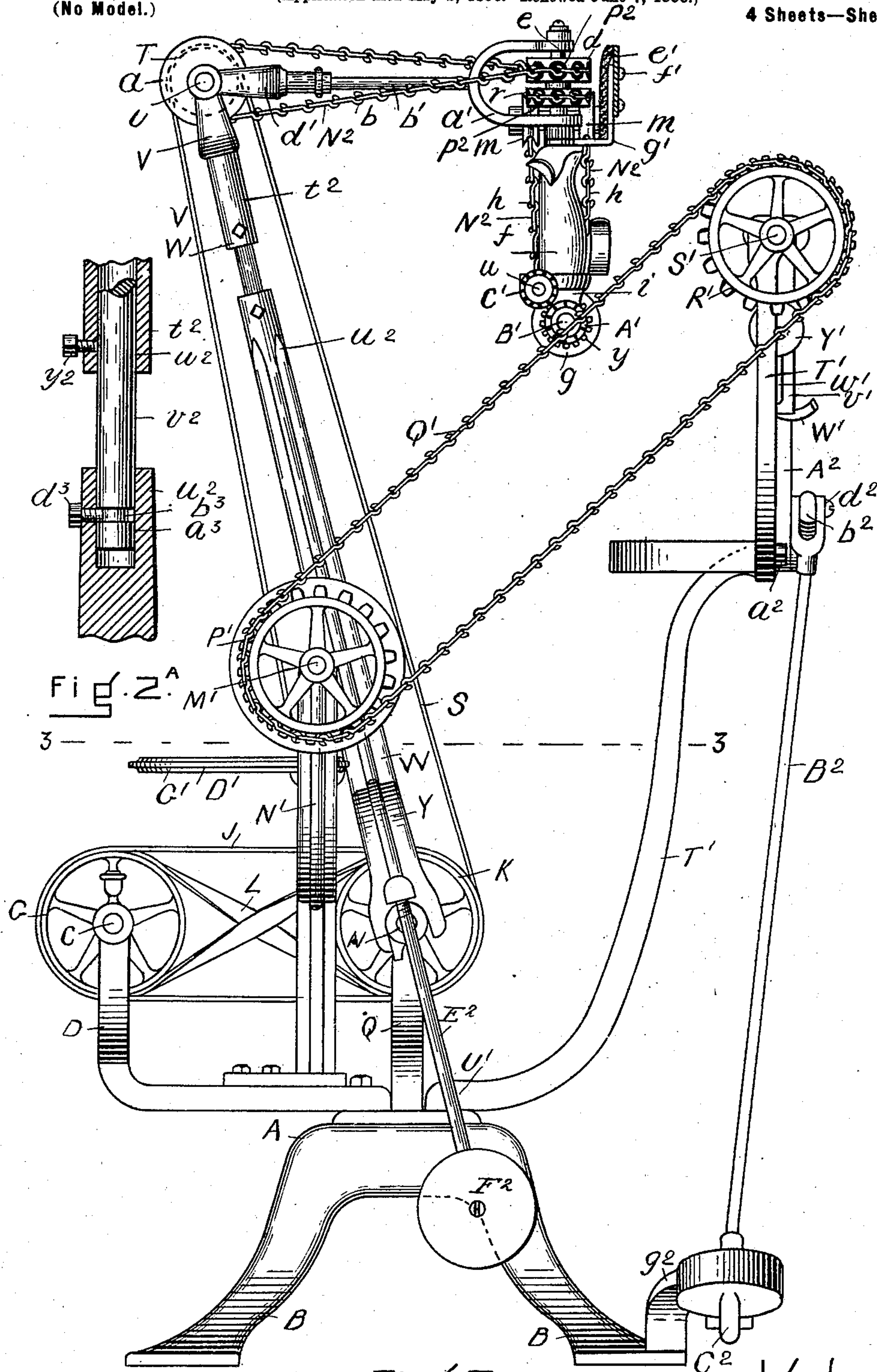


Z. BEAUDRY.  
EDGE SETTING MACHINE.

(Application filed May 2, 1896. Renewed June 7, 1900.)

(No Model.)

4 Sheets—Sheet 2.



WITNESSES  
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FIG. 2.

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**No. 666.126.**

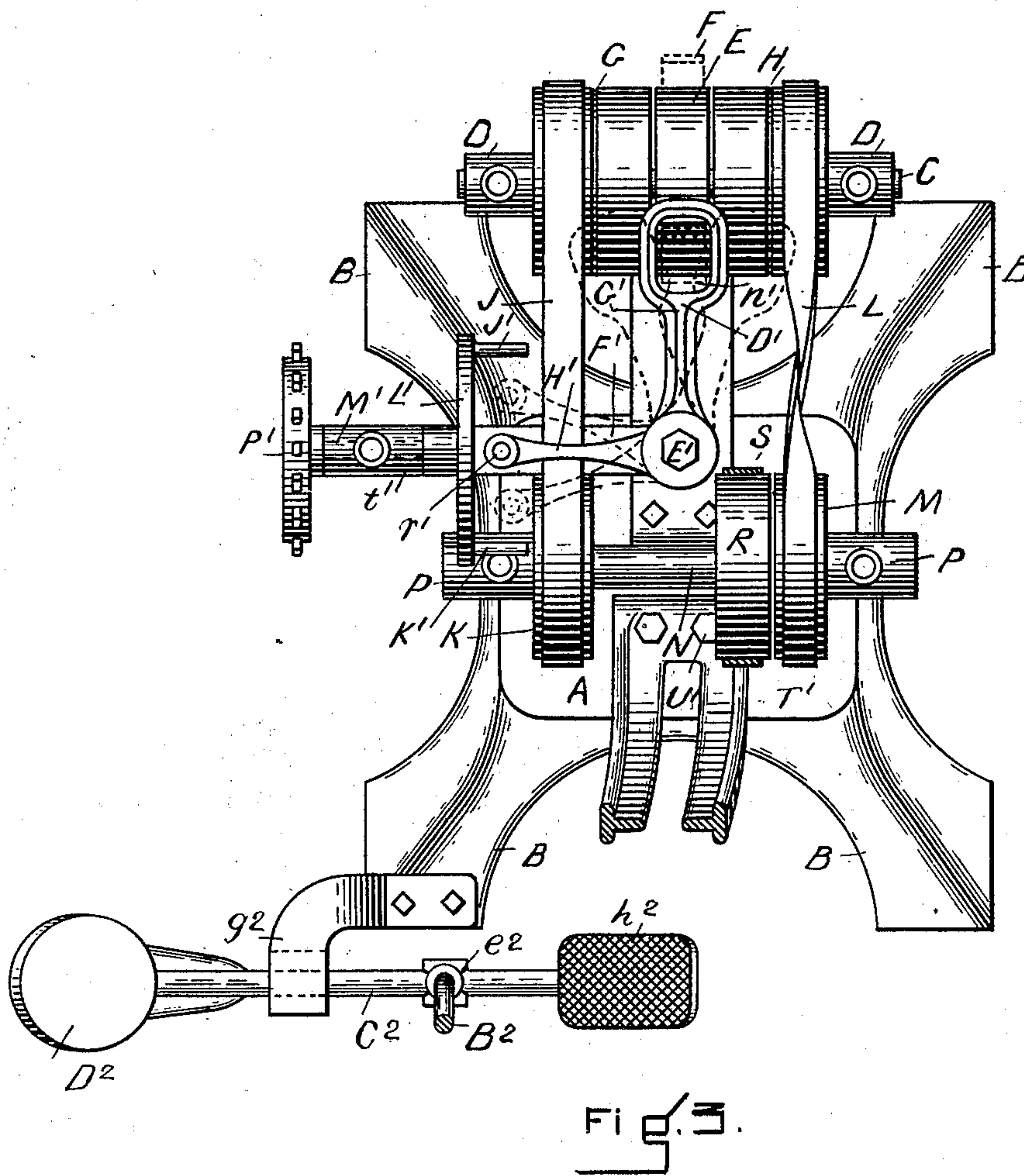
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**EDGE SETTING MACHINE.**

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(No Model.)

**4 Sheets—Sheet 3.**



WITNESSES

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4 Sheets—Sheet 4.

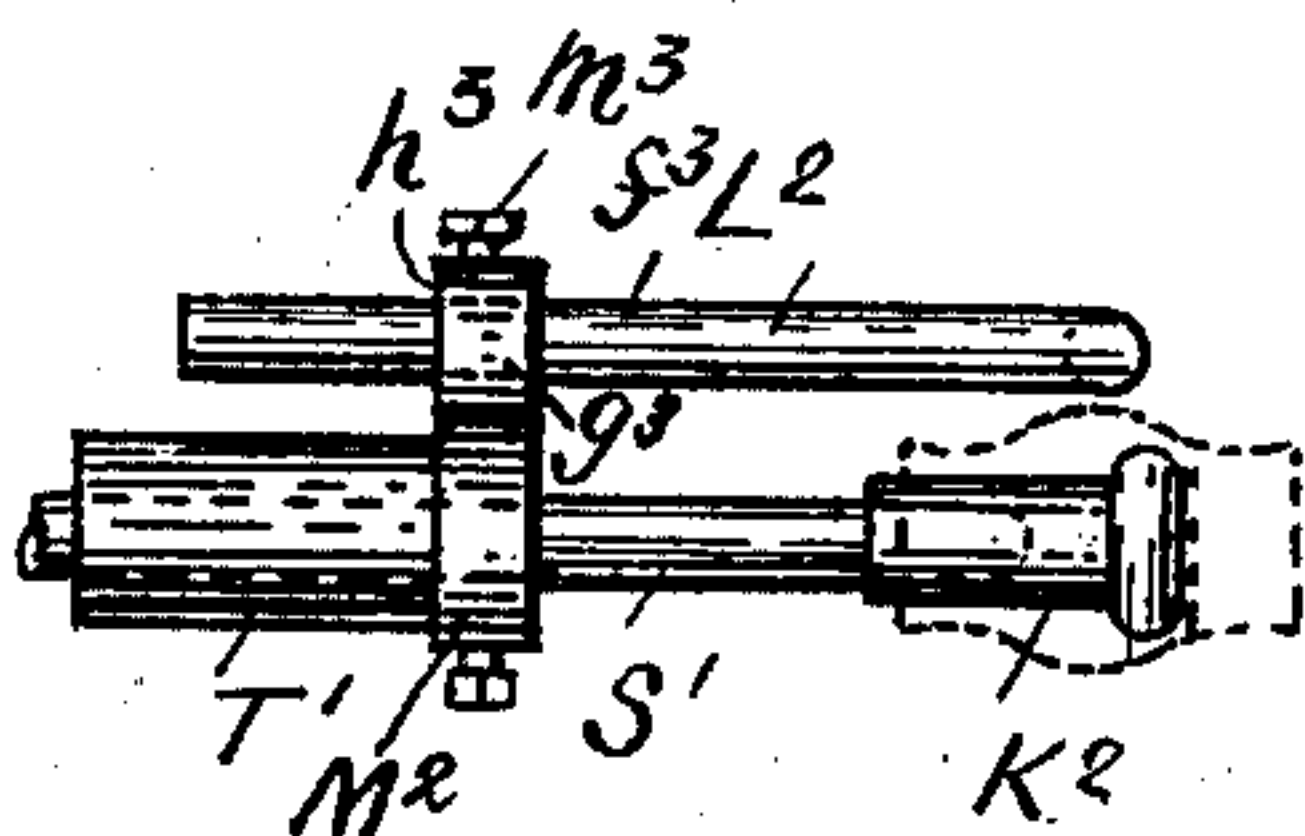
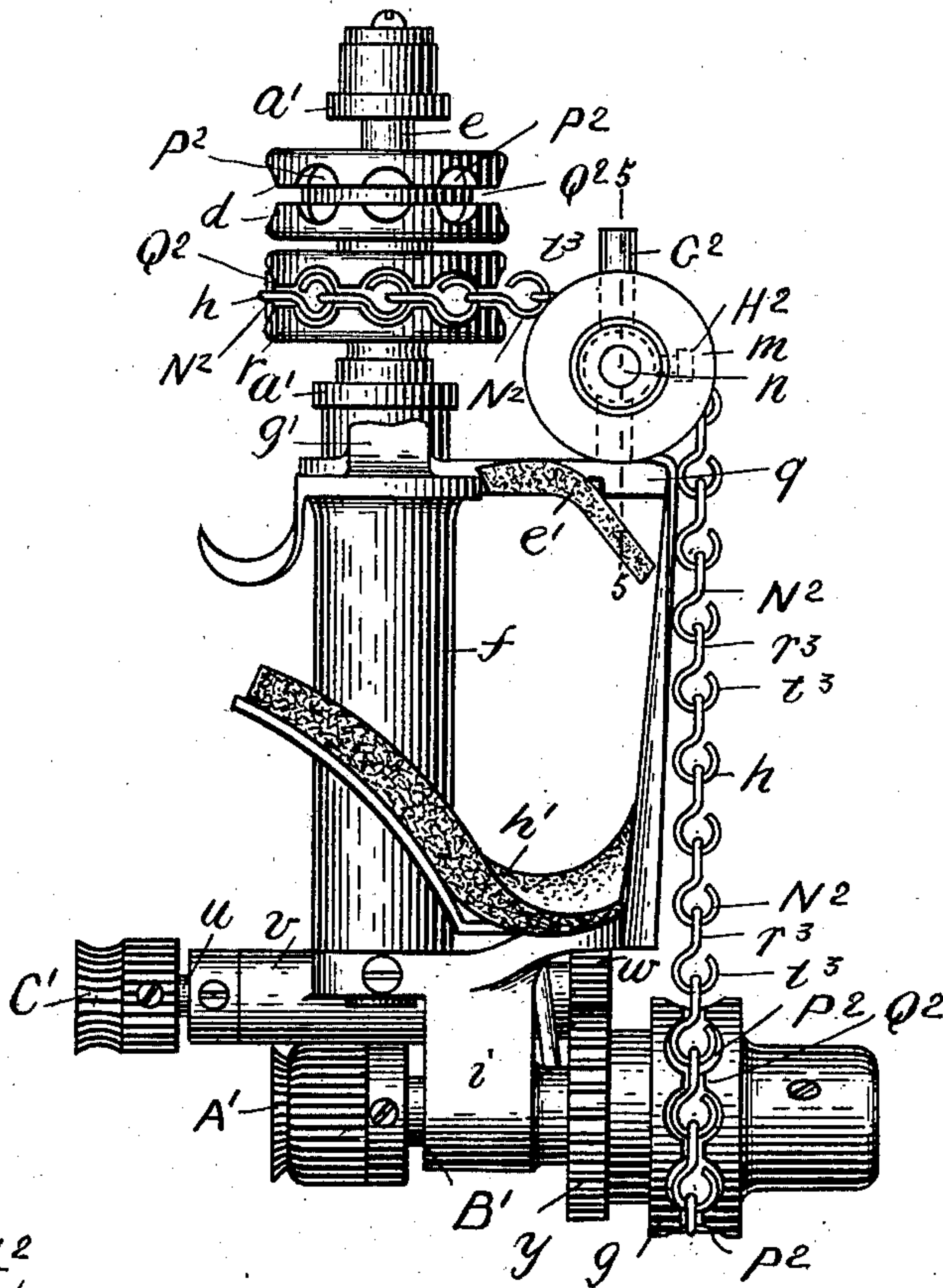


Fig. 6.

Fig. 4.

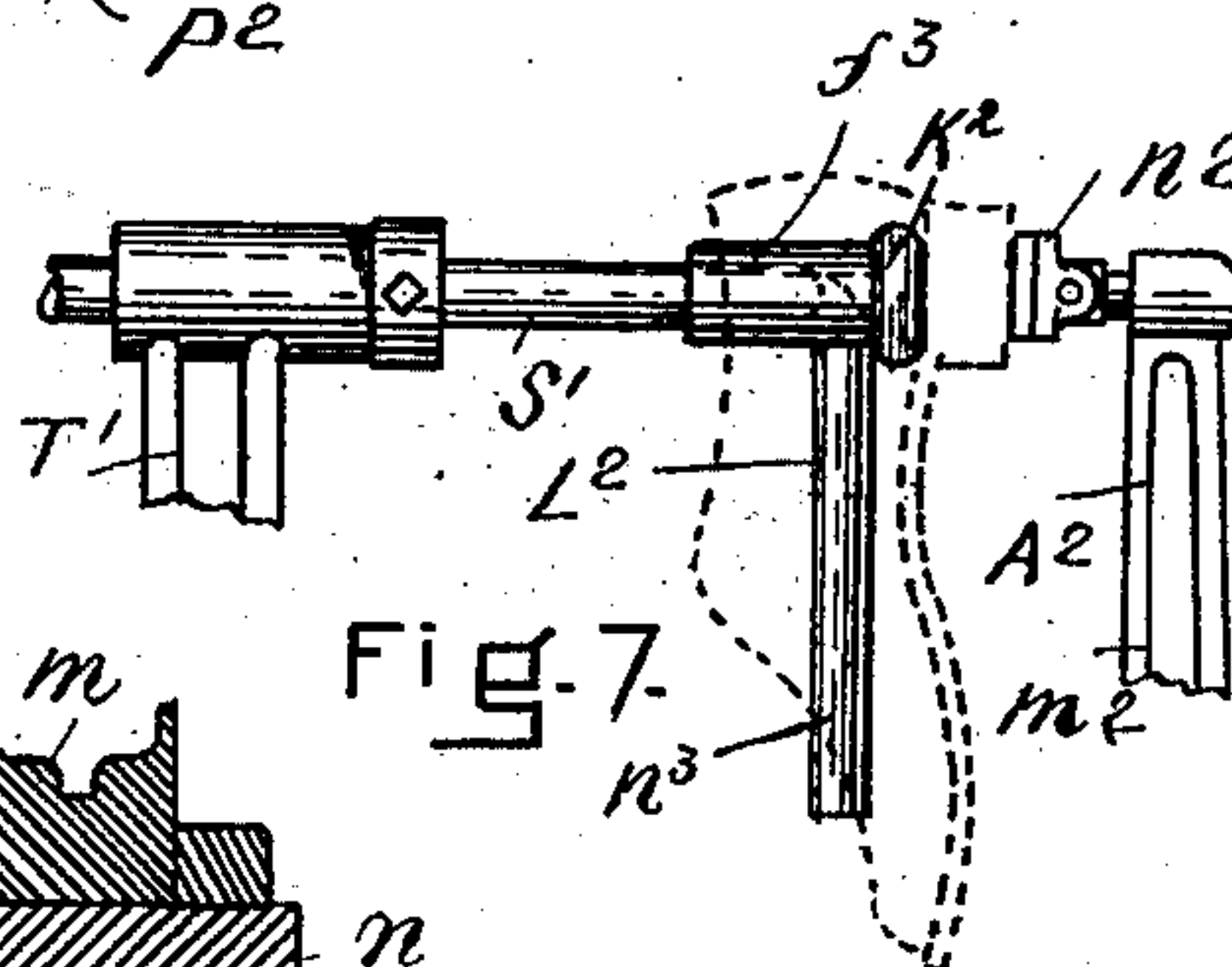


Fig. 7.

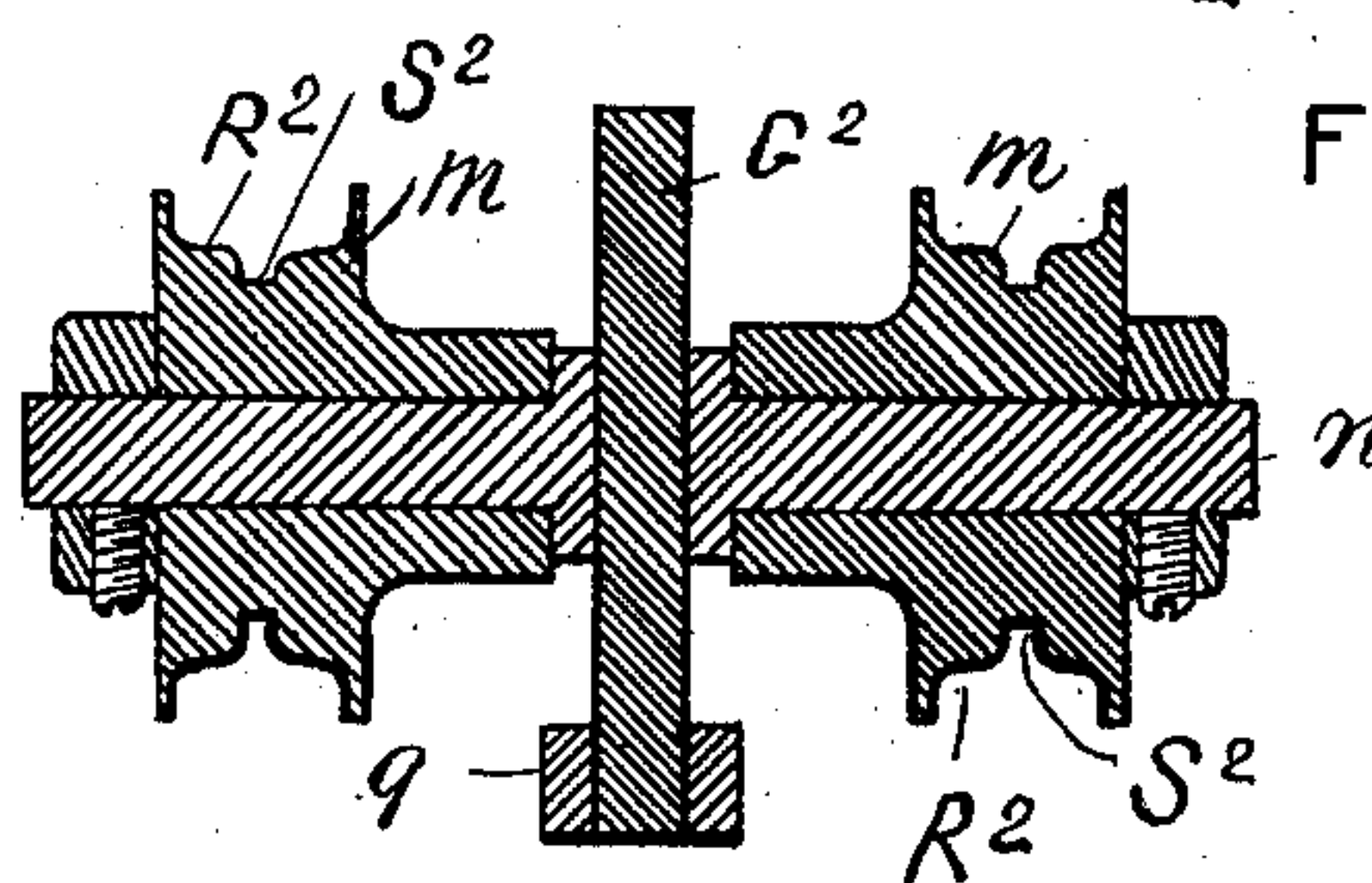


Fig. 5.

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# UNITED STATES PATENT OFFICE.

ZOTIQUE BEAUDRY, OF LYNN, MASSACHUSETTS.

## EDGE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 666,126, dated January 15, 1901.

Application filed May 2, 1896. Renewed June 7, 1900. Serial No. 19,485. (No model.)

*To all whom it may concern:*

Be it known that I, ZOTIQUE BEAUDRY, of Lynn, in the county of Essex and State of Massachusetts, (whose post-office address is No. 19 Albany street, Lynn, Massachusetts,) have invented certain new and useful Improvements in Edge-Setting Machines, of which the following is a full, clear, and exact description.

This invention consists of a machine for setting and burnishing the edges of the soles of boots and shoes constructed and arranged for operation all substantially as hereinafter fully described, reference being had to the accompanying sheets of drawings, in which is illustrated a machine constructed in accordance with this invention.

Figure 1 is a front view, Fig. 1<sup>A</sup> a detail view, and Fig. 1<sup>B</sup> a detail plan view. Fig. 2 is a side view. Fig. 2<sup>A</sup> is a detail vertical section of one of the parts shown in Fig. 2 and hereinafter referred to more particularly. Fig. 3 is a plan view of the parts of the machine below section-line 3 3, Fig. 2. Fig. 4 is a front view, enlarged, of the burnishing-tool and its connecting parts. Fig. 5 is a detail vertical section on line 5 5, Fig. 4. Fig. 6 is detail plan view. Fig. 7 is a detail side view of some of the parts shown in Fig. 6.

In the drawings, A represents a standard or framework, having legs or feet B, on which are supported and carried the various parts of the machine.

C is a horizontal transverse shaft at the rear of the machine, turning in bearings in the upper part, respectively, of two vertical arms D of the frame, and centrally on this shaft is a tight pulley E, which is connected by a belt F with a driving shaft or power in any of the usual ways. On the shaft C are two loose pulleys G H, one each side of and close to the central pulley E, each of which is preferably much wider than the central pulley. The pulley G is connected by a belt J with a pulley K, and the pulley H by a cross-belt L with a pulley M, both of which pulleys K M are secured to a transverse horizontal shaft N near the front of the machine parallel to and on the same horizontal plane with the shaft C, this shaft N turning in bearings P in the upper ends of two arms Q of the frame A. Secured to this shaft N, between the pulleys K

M, is another pulley R, which is connected by a belt S to smaller pulley T, secured to a short shaft U, adapted to turn in bearings in the forked end V of an upright arm W, secured at its lower end by its two arms Y on the outer ends of the shaft N, so the arm W can swing forward and backward thereon within certain limits. This shaft U has secured to it a sprocket-wheel *a*, connected by a chain *b* with a sprocket-wheel *d* loosely on a vertical shaft *e* of a holder *f*, which handle or holder supports a rotary burnishing-tool A'. This burnishing-tool A' is secured to a short horizontal shaft B', adapted to turn in bearings of a bracket *i* of the handle *f*, and it has on its outer end a sprocket-wheel *g*, which is connected by a sprocket-chain *h* to a sprocket-wheel *r*, turning on the shaft *e* below the sprocket-wheel *d* of the handle or support, the chain *h* running over separate rollers or grooved wheels *m*, freely turning on a journal *n*, secured to the handle or support at *q* between the sprocket-wheels *g* and *h*, which rollers serve to change the direction in which the chain runs for it to properly engage with the sprocket-wheels, which are at right angles to each other.

C' is another burnishing-tool secured to a shaft *u*, adapted to turn in bearings in an extension *v* of the bracket *i* of the handle *f*, which is a little above and back and extends to the left of the burnishing-tool A', as shown in Fig. 1, and on the shaft of the burnishing-tool is secured a gear *w*, which engages with a gear *y* on the shaft B' of the first burnishing-tool, from which shaft the shaft *u* receives its motion for the rotation of the burnishing-tool C'.

The rod of the handle, which forms the shaft *e*, is secured to and supported by the forked arms *a'* of an arm *b'*, secured by its forked arms *d'* at the other end on the shaft U, on which the arm can swing up and down, as desired.

The belt F being operated from the driving shaft or power when connected to the pulley E merely turns the pulley and its shaft C, having no effect upon either the pulleys G or H, as they are loose on the shaft C, and in such movements the burnishing-tool is at rest. To operate the burnishing-tool, shift the belt F from pulley E, for instance, onto



pulley G, which is then revolved on its shaft, and through its belt J, connecting it with pulley K, the shaft N, with its pulley R, is turned in one direction, which through its belt S, pulley T, sprocket-wheel  $a$  at the upper end of the arm W, chain  $b$ , wheels  $d$  and  $r$ , and chain  $h$  turns the shaft B, with the burnishing-tool A' thereon for the operation of the tool, in one direction. Then shifting the belt F onto the other pulley H through its cross-belt L, connecting it with the pulley M, the shaft N, with the pulley R, is turned in the reverse direction, and through its connection, as described, with the shaft B the shaft and the burnishing-tool are turned correspondingly in the reverse direction, so that shifting the belt from the pulley G to the pulley H and back again, and so on, the burnishing-tool will be turned first in one direction and then in the other, and so on indefinitely by means of the straight and cross belt.

The pulleys G and H being loose on the shaft each is enabled to act independent of the other, and thus through its respective belt cause the burnishing-tool to revolve in the one or the other direction as either the pulley G or H is operated. In the drawings each pulley G H has a central circumferential line, but such line merely represents a slight circumferential groove, the pulleys G H being, as shown in the drawings, of double the width of the pulley E as in practical operation. It is necessary for each pulley G and H to be wider and preferably double the width than the pulley E, in order that the belt F can be moved thereon to affect it and not interfere with either the belt J or L.

The belt F is shifted by a shipper D', arranged to swing horizontally on a pivot E' of an arm F' of the frame, one arm, G', of the shipper extending backward therefrom and having in its end an opening  $n'$  through which the belt freely runs, and the other arm, H', of the shipper extending to the left substantially at right angles and having a vertical pin  $r'$  in position to be operated upon alternately by two horizontal pins J' K', extending from the side of a vertical disk L', secured to a horizontal journal M', adapted to rock in bearings  $t'$  in the upper end  $f$  of an arm N' of the frame, on the outer end of which journal M' is secured a sprocket-wheel P'. This sprocket-wheel is connected by a chain Q' with another sprocket-wheel R', preferably of same diameter, secured to one end of a horizontal journal or shaft S', arranged to turn in a bearing in the upper end of an arm T', secured to the base of the frame at U'. On the other end of this journal S' is a holder or jack V' for the boot or shoe to be operated upon by the machine, the end of the journal S' fitting in a socket  $n'$  in the jack, as shown in dotted lines, Fig. 1.

To a downwardly-projecting arm  $u'$  of the holder V' a rest W' for the boot is secured by a screw Y', which screw passes through a longitudinal slot  $w'$  in an arm  $v'$  of the rest

and screws into the arm  $u'$ , by which the rest W' can be adjusted as to its height on the arm  $u'$  and secured in such adjustment. This rest W' is curved upward, as shown in Fig. 1<sup>A</sup>, in which can be easily placed the heel of the boot to be operated upon, the toe portion of the boot bearing and resting against the end  $y'$  of the holder V', which is constructed and shaped to properly receive the same.

Pivoted at  $a^2$  to the front of the arm T' of the frame is a bell-crank lever A<sup>2</sup>, to one arm,  $b^2$ , of which is pivoted at  $d^2$  the upper end of a pitman-rod B<sup>2</sup>, which extends downward and is pivoted by its lower end at  $e^2$  to a treadle C<sup>2</sup>, pivoted at  $f^2$  to an arm  $g^2$  of the frame this treadle extending in front of the machine in position for operation of the same at  $h^2$  by the foot of the operator and having on its rear end a weight D<sup>2</sup>, which serves to return the treadle to its normal position (shown in Fig. 1) after having been pressed down by the operator. The other arm,  $m^2$ , of the lever A<sup>2</sup> extends upwardly and is substantially in the same transverse vertical plane of the holder V', and on the side next thereto of its upper end is a block  $n^2$ , pivoted at  $r^2$  to the arm, which block is located and arranged when the boot or shoe is in position on the holder to bear against the sole of the boot or shoe near the toe opposite the end  $y'$  of the holder, as shown in Fig. 1 more particularly.

The upright arm W is made in two parts,  $t^2$  and  $u^2$ , and connected together by a pin  $v^2$ , fitting by one end in a central socket  $w^2$  in the part  $t^2$  and secured by a set-screw  $y^2$  from movement therein and by its other end in a central socket  $a^3$  in the end of part  $u^2$ , this end of the pin  $v^2$  having a circumferential groove  $b^3$ , in which fits a screw  $d^3$ , screwing in from the side of the part  $u^2$ , by which the two parts  $t^2$  and  $u^2$  are held together longitudinally, but so that the upper one,  $t^2$ , can swing on the other,  $u^2$ , to enable the burnisher-tool to be swung to the right or left, Fig. 1, in operating the machine.

Attached to each arm Y of the arm W is a depending rod E<sup>2</sup>, having a weight F<sup>2</sup> on its lower end, which weights serve to balance the upper part of the arm W and keep it substantially in an upright position.

The two wheels  $m$  turn on their journal  $n'$ , which is arranged on and over a vertical pin G<sup>2</sup> of the arm  $q$  of the handle, it being arranged to be moved up and down thereon and secured by a set-screw H<sup>2</sup>, whereby the wheels can be adjusted as to their height or distance from the sprocket-wheel  $g$  on burnisher-tool shaft B' to take up the slack of or loosen the chain  $h$ .

The operation of the machine is substantially as follows: The boot or shoe to have its sole burnished, having the last therein, is placed in the machine by putting the heel of upper in the curved rest W' and resting the upper at the toe against the end  $y'$  of the holder V', and then pressing and holding



down the treadle  $C^2$ , which swings the arm  $m^2$  of the lever  $A$  for its block  $n^2$  to press firmly against the toe of the boot and hold the boot firmly between it and the holder end  $y'$ . Power being applied to the driving-belt  $F$ , revolving the burnishing-tool, then grasp its handle  $J$  by the right hand and press the operating edge of the burnishing-tool against the boot-sole edge at one end next the shank, and with the left hand take hold of the holder  $V'$ , with the boot secured thereto, and swing it in the direction for the sole edge to be presented to the tool along its entire length from the point at which it started, and then swing the boot back, still holding the burnishing-tool against the sole edge until the whole edge of the sole is again burnished, and so on, back and forth as many times as desired. As the boot-holder  $V'$  is swung through the sprocket-wheel  $R'$ , chain  $Q'$ , and sprocket-wheels  $P'$ , the disk  $L'$  is correspondingly rocked, so that its arm  $J'$  or  $K'$ , as the case may be, will strike and press against the pin  $r'$  of the arm  $H'$  of shipper-lever  $D'$ , by which the belt  $F$  is shipped from one to the other of the pulleys  $G$   $H$ , correspondingly turning the burnishing-tool, this being accomplished by the turning of the boot back and forth to present its edge to the burnishing-tool. After burnishing the sole edge as described the other burnishing-tool  $C'$  is applied to each edge of the sole-shank, completing the burnishing of the sole edge.

The machine is adjusted so that in operating the machine the boot-holder is turned for the sole edge of the boot or shoe to be moved, preferably, in a direction the reverse of the rotation of the operating side of the burnishing-tool, which facilitates the burnishing of the sole edge, the swinging of the arm  $W$  allows the tool to be moved forward and backward, and its supporting arm  $b'$  being hung on the shaft  $U$  it can also be raised and lowered, by which the tool can be held and adjusted at all times to all positions necessary to do its work conveniently and easily.

The pulleys are adjusted in relation to each other to have the burnishing-tools revolve at a high speed.

$e'$  is a guard or shield secured by screws  $f'$  to an arm  $g'$  of the handle  $f$ , which guard is in front of the sprocket-wheels  $d$  and  $r$  and extends to the left and is bent backward somewhat as shown in section in Fig. 1<sup>B</sup>.

$h'$  is another guard or shield secured to an extension of the bracket  $i'$  of the handle at  $m'$ , against which the hand rests when holding the tool by its handle.

This machine is applicable as well to the burnishing of the edges of boot or shoe heels, and in such case the holder  $V'$  for the boot or shoe is removed from the shaft  $S'$  and a head  $K^2$  instead (see Fig. 1) is placed over the end of the shaft  $S'$  to freely enter the boot for the sole at the heel to bear against it, while the block  $H^2$  of the arm  $m^2$  of the lever  $A^2$  is pressed against the outside of the

heel of the boot, holding the boot firmly between the head  $K^2$  and block  $n^2$ .

To enable the boot to be swung easily around for the burnishing-tool to operate upon the heel edge, an arm  $L^2$  is pivoted to the shaft  $S'$ , which arm is bent at right angles, one,  $f^3$ , of its arms passing through a socket  $g^3$  (shown in dotted lines, Fig. 6) in a rearward extension  $h^3$  of the collar  $M^2$  on shaft  $S'$  and secured therein by a set-screw  $m^3$  and its other arm,  $n^3$ , extending downward and adjusted so as to be behind the boot, so that grasping the arm  $n^3$  and the boot by the hand the boot will be swung for operation of the tool upon its heel edge and the shaft  $S'$  turned for its sprocket-wheel  $R'$  to cause the belt-shifter to be operated, as before, to alternately rotate the burnishing-iron in one direction or the other. The arm  $n^3$  can be adjusted to the position of the boot by moving its arm  $f^3$  along its socket accordingly and then securing it by the set-screw  $m^3$ , and its arm  $n^3$  can be bent to have it in position to grasp it with the boot conveniently.

The sprocket-chains  $b$  and  $h$  and their respective wheels (shown in the drawings) for operating the burnisher-iron are constructed in a peculiar manner, and each chain consists of a series of links  $N^3$ , each of which links is composed of a wire bent into the form of two rings  $r^3$   $t^3$  at right angles to each other, the links being connected together to form the endless chain, as shown more particularly and more fully in Fig. 4. Each of the sprocket-wheels to receive these chains has a series of round holes or sockets  $P^2$  in its circumference equidistant apart, which sockets are connected by a central circumferential slot  $Q^2$ , so that as the chain runs over the wheels one eye of a link will be disposed in the socket and its other eye at right angles thereto will be run in the slot  $Q^2$ , and so on for each link as the wheel is turned. Such chains and their respective sprocket-wheels are exceedingly advantageous, in that the chain can be run at any and all angles twisting around or turning short corners, as desired, thus accommodating itself to the various angles the wheel-shafts may be placed in relation to each other for their work. As all other sprocket-chains have to run practically in direct lines, they are not suitable for the work performed by the present chains.

The two rollers  $m$ , over which the chain  $h$  runs, have each similar sockets and slots for the disposal of the links of the chain.

Having thus described my invention, what I claim is—

1. In an edge-setting machine, in combination, a holder for a boot or shoe, a support for said holder on which it can rock, a revolving burnishing-tool, means for revolving said burnishing-tool and mechanism connecting the holder with the revolving burnishing-tool, whereby in moving the holder back and forth the burnishing-tool will be alternately revolved in one and the other direction.



2. In an edge-setting machine for boots and shoes, in combination, an edge-burnishing tool, on a rotating shaft, a pulley on said shaft, an intermediate shaft, a pulley on said intermediate shaft, a belt connecting said pulleys, a driving-shaft, a tight pulley on said driving-shaft, two loose pulleys on said driving-shaft one each side of the tight pulley, two belts, one a straight belt and the other a cross-belt connecting the driving-shaft pulleys with the intermediate shaft pulley, and means for shipping the driving-belt from the tight pulley onto either one of the loose pulleys on the driving-shaft.

3. In combination, an edge-setting tool on a rotating shaft, another rotating shaft above the first rotating shaft, a gear on each shaft engaging with each other for operation of the latter shaft, and an edge-setting tool on said latter shaft, projecting beyond said first edge-setting tool for the purpose specified.

4. In a jack for holding a boot or shoe, a rest for the toe of the boot and a curved rest for the heel of the boot or shoe at one side for the easy reception of the heel.

5. In a machine for setting the edge of a boot or shoe sole, in combination, a jack or holder for the boot or shoe, a rock-shaft, a sprocket-wheel on said shaft, another shaft, a sprocket-wheel on said latter shaft, a chain connecting the two sprocket-wheels, a belt-shipping mechanism, an arm on said belt-shipping mechanism, a disk or arm on said

latter shaft, side projecting arms on said disk arranged to operate alternately the arm on the belt-shipping mechanism.

6. In a machine for setting the edge of a boot or shoe, in combination, a jack or holder for the boot or shoe, a rock-shaft, a sprocket-wheel on said shaft, another shaft, a sprocket-wheel on said latter shaft, a chain connecting the two sprocket-wheels, a disk or arm on said latter shaft, side projecting arms on said disk, an angular lever having one arm connected to the belt and its other arm having a projecting arm to be operated alternately by said disk or arm.

7. In combination, a holder for a boot or shoe, a rotating shaft to which the holder is attached, a bent rod secured by one arm to said shaft, the other arm extending down the side of the boot in position to be grasped by the hand with the boot to turn the shaft, another rotating shaft, mechanism connecting the two shafts for operation of one by the other, shipping mechanism, and means on said latter shaft for operating shipping mechanism.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ZOTIQUE BEAUDRY.

Witnesses:

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LEONA C. ARNO.