

No. 765,273.

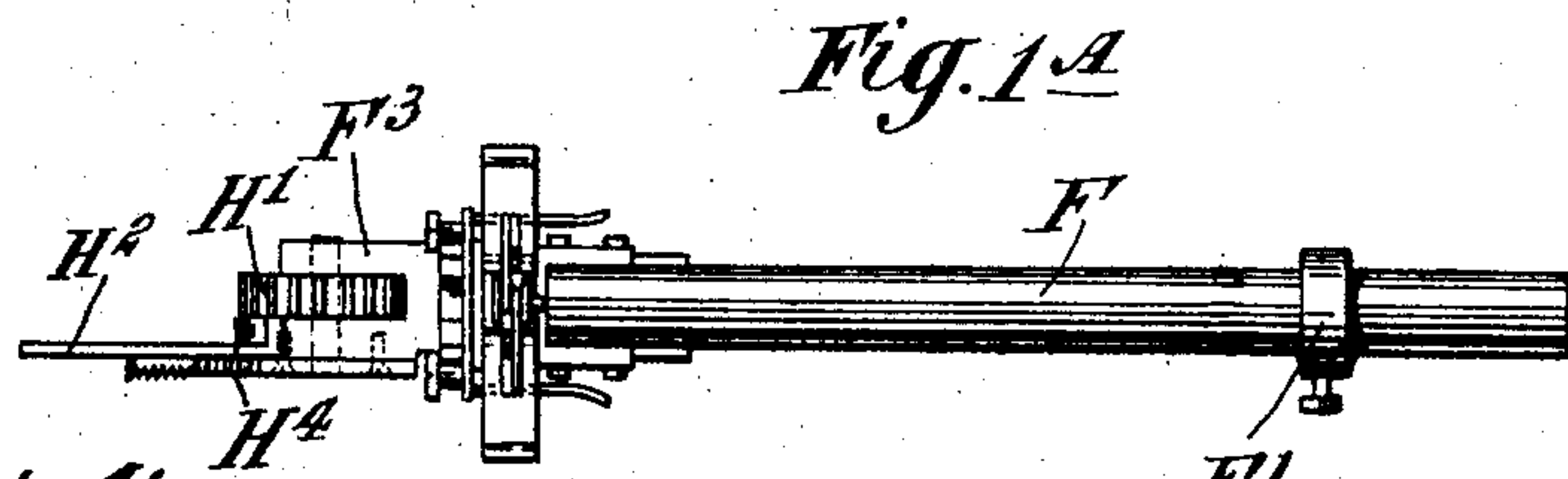
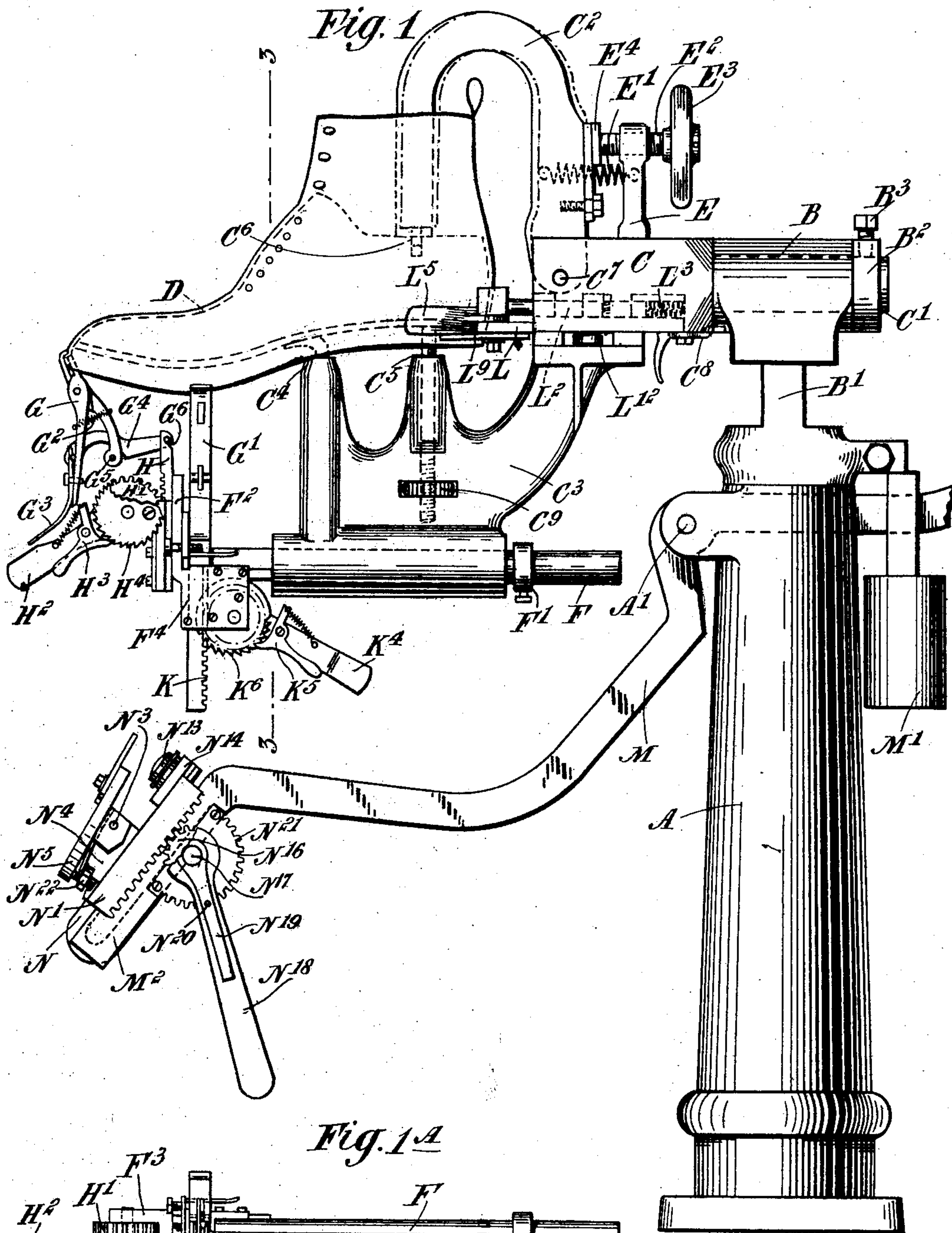
PATENTED JULY 19, 1904.

F. CUTLAN.
COMBINED PULLING-OVER AND LASTING MACHINE.

APPLICATION FILED APR. 12, 1901.

NO MODEL.

5 SHEETS—SHEET 1.



Witnesses
W. K. Pomeroy
[Signature]

Inventor
Frederick Cutlan
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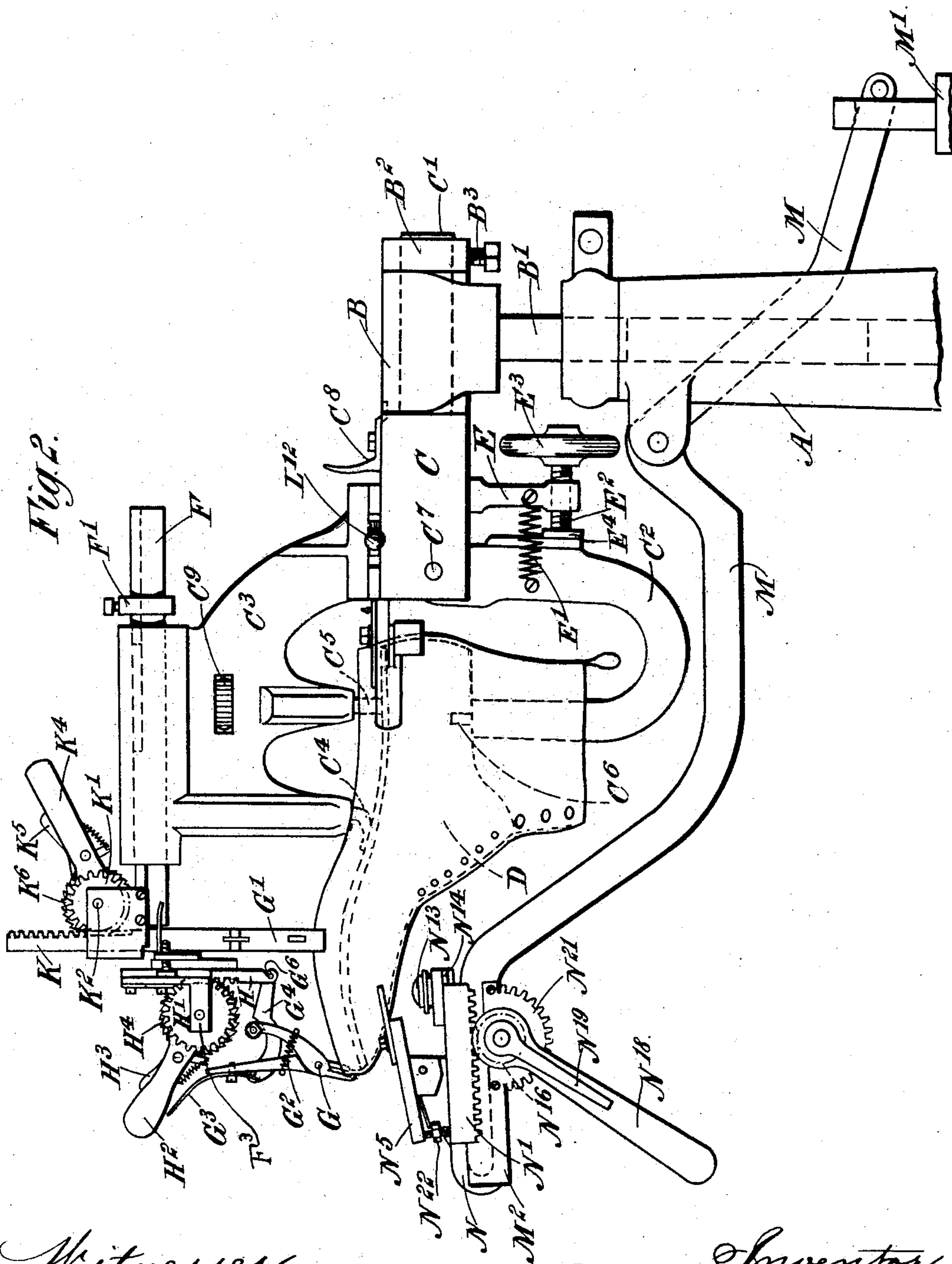
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5 SHEETS—SHEET 2.



Witnesses
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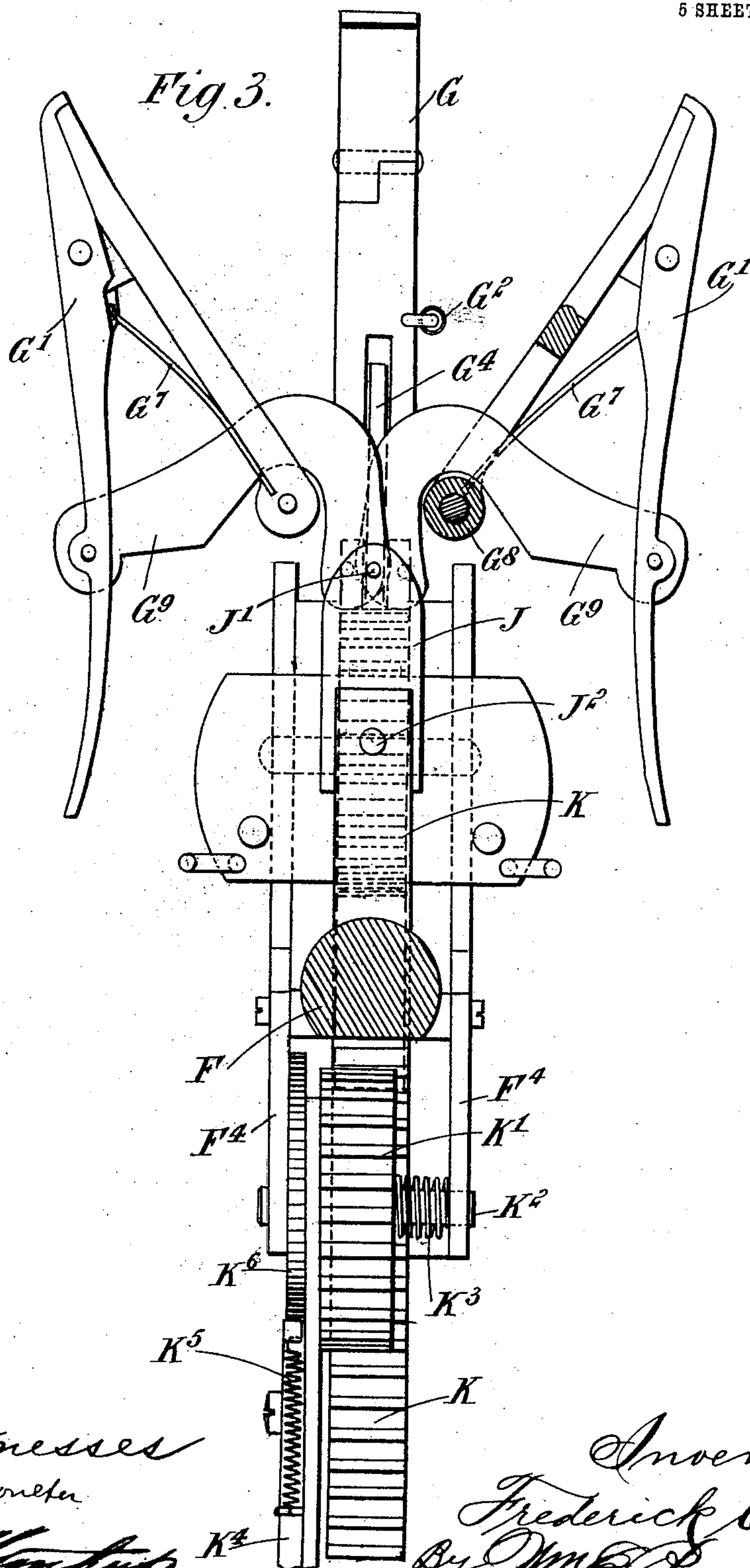
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5 SHEETS—SHEET 3.



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5 SHEETS—SHEET 4.

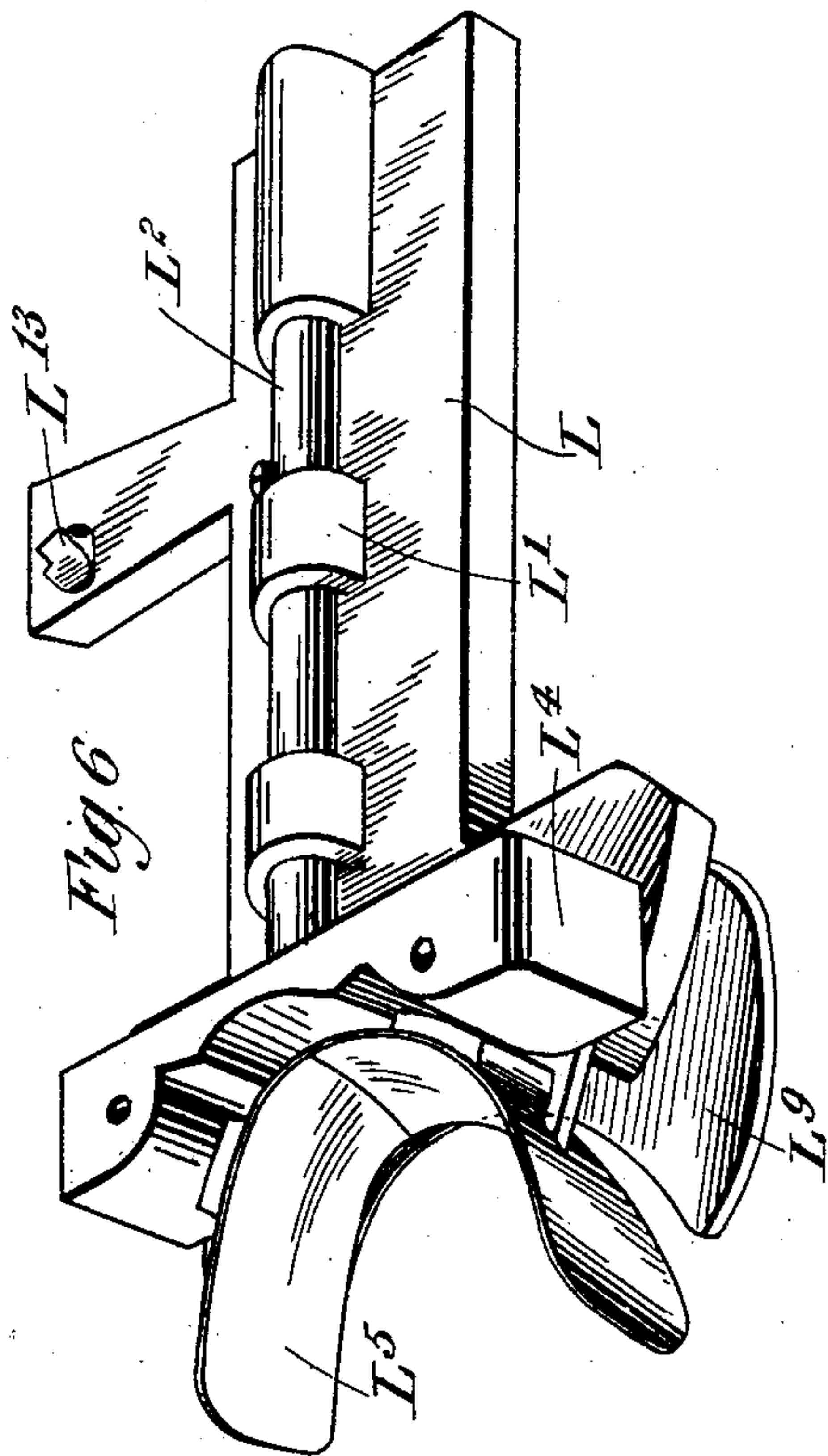


Fig. 6

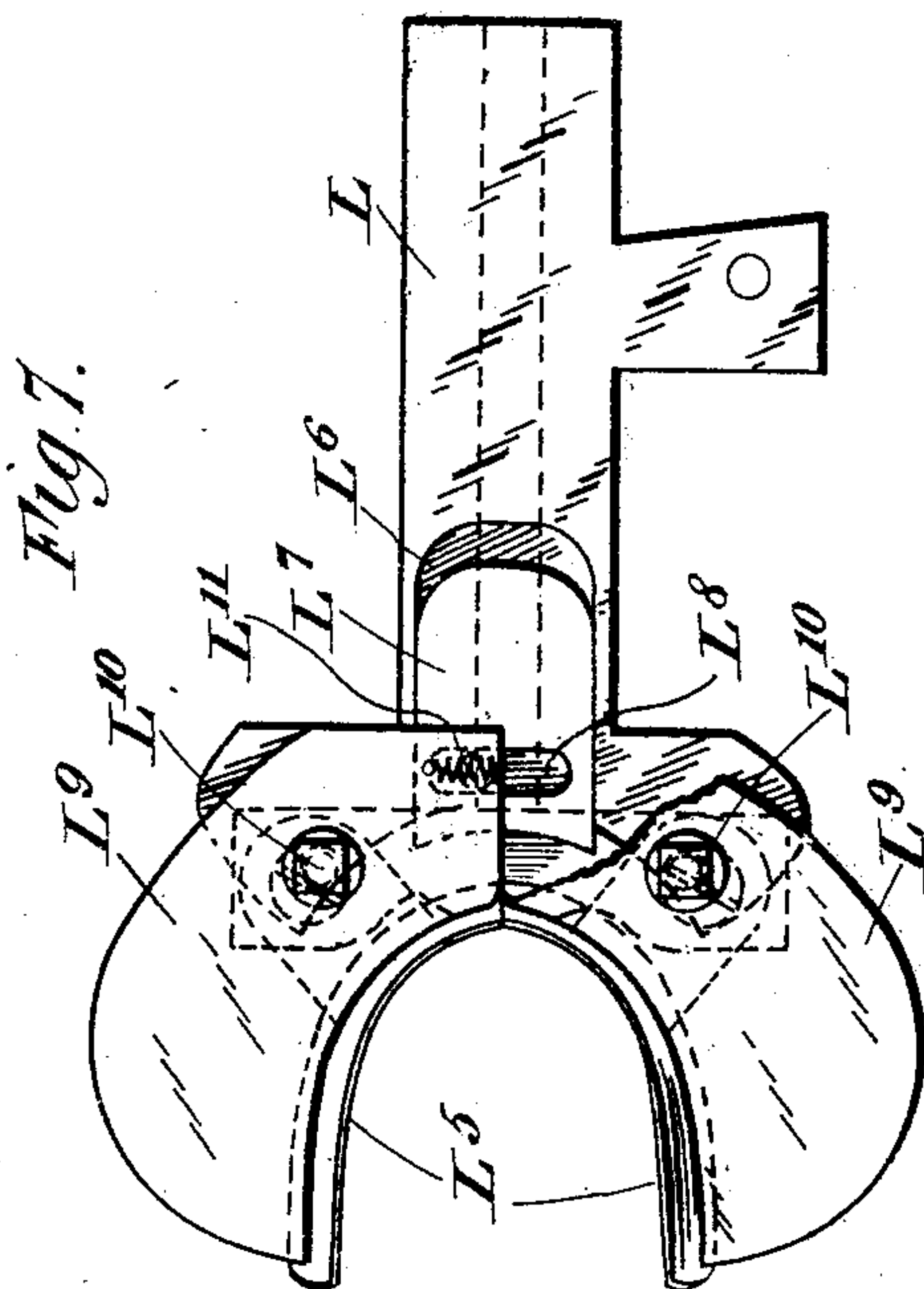


Fig. 7

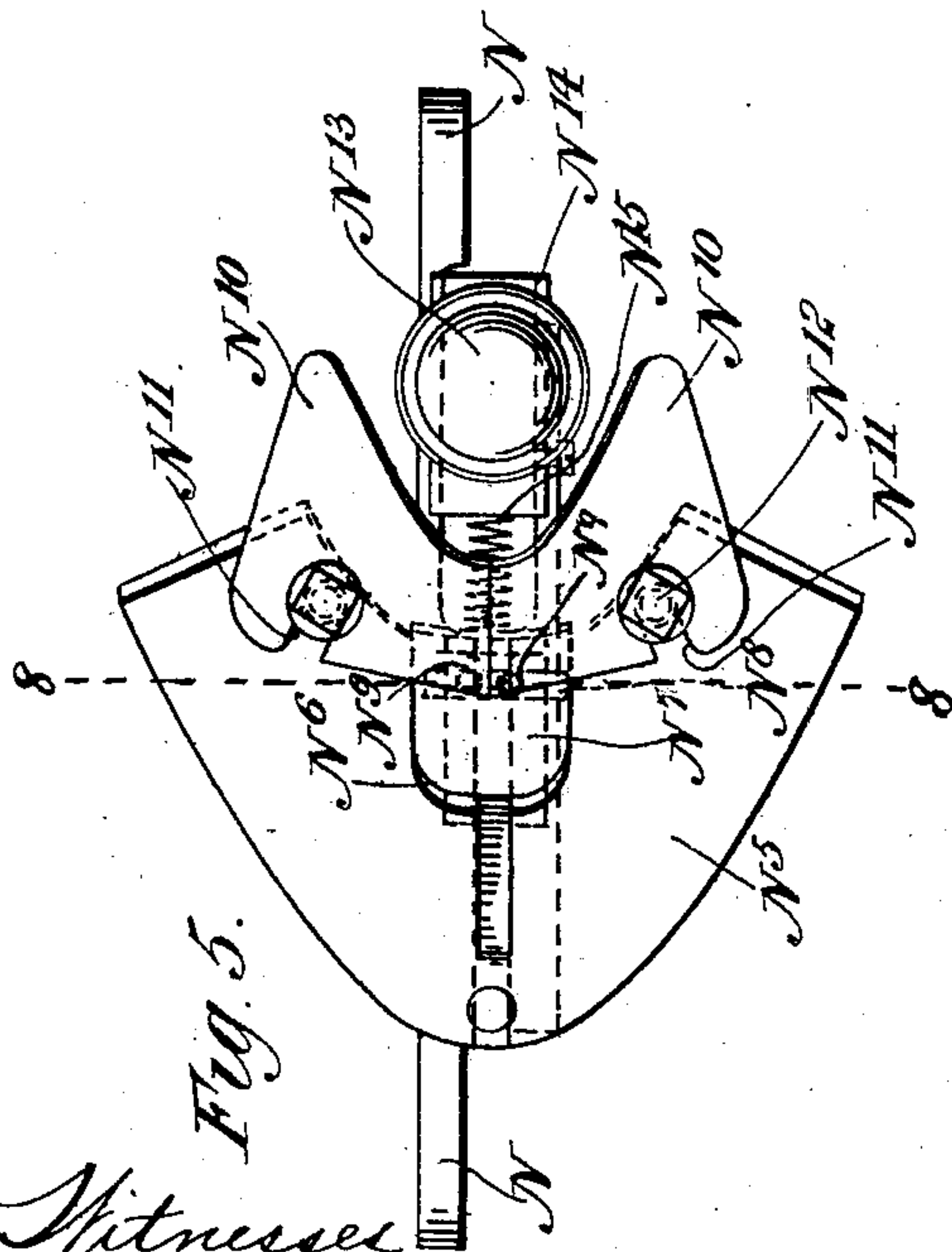


Fig. 5

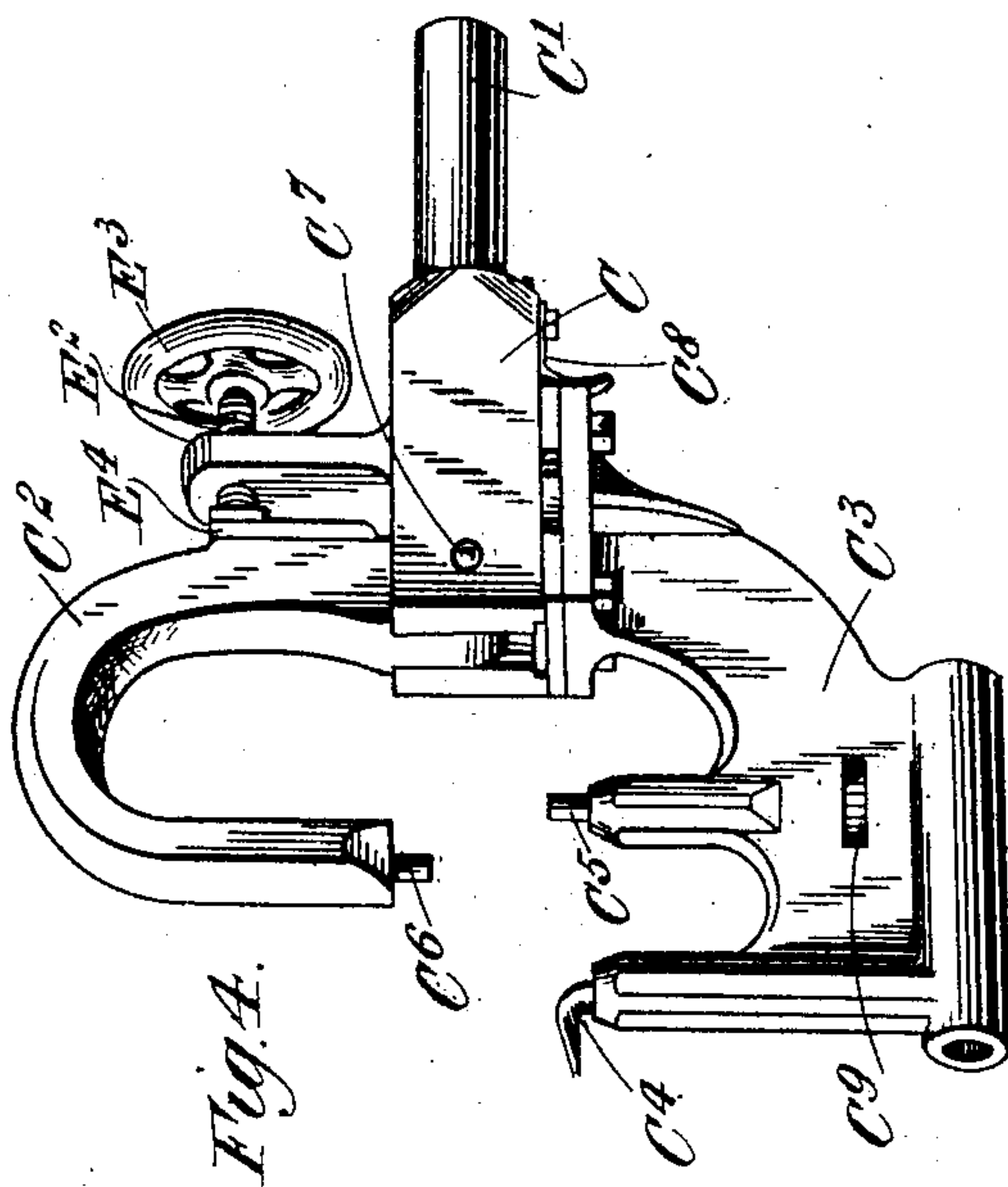


Fig. 4

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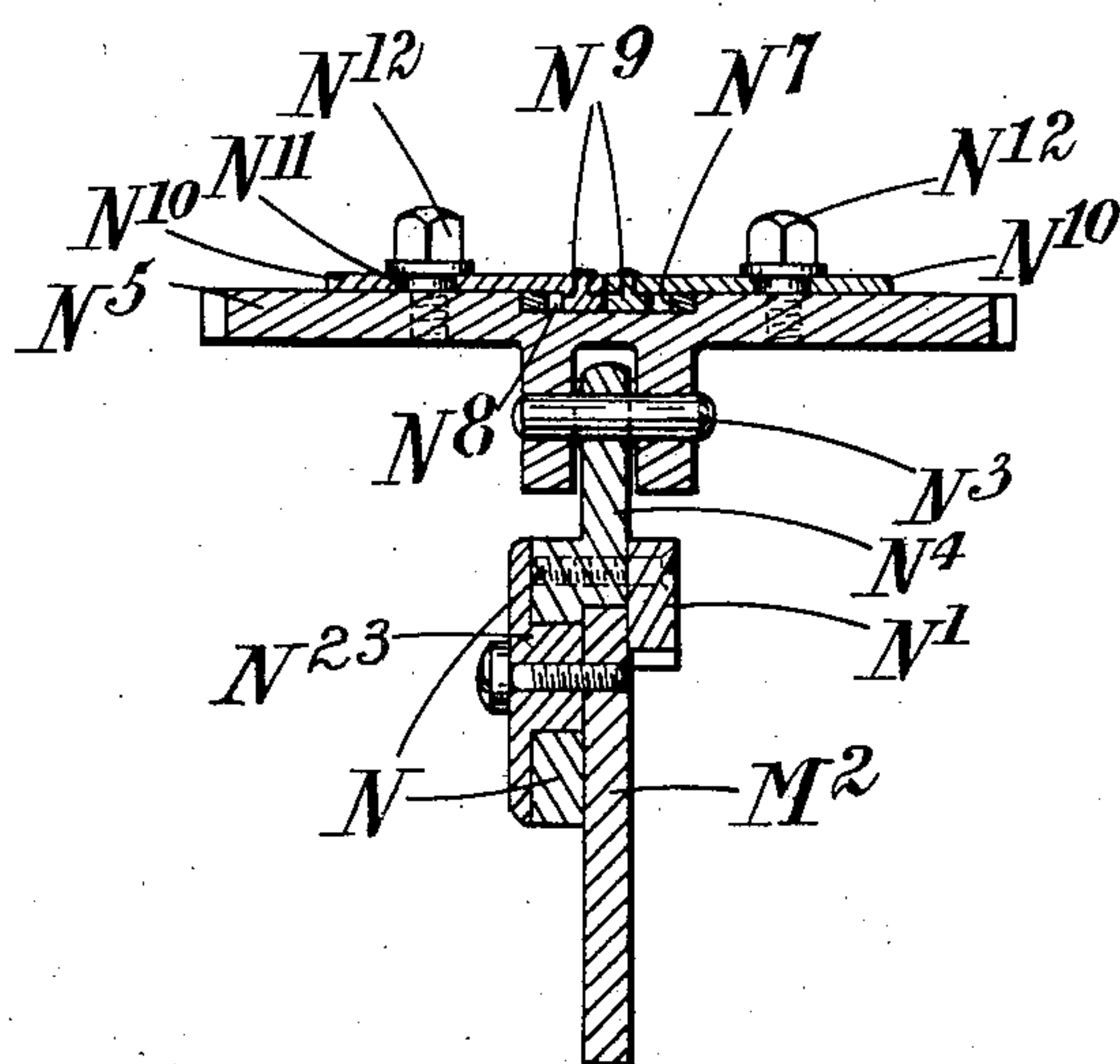
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NO MODEL.

5 SHEETS—SHEET 5.

Fig. 8.



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UNITED STATES PATENT OFFICE.

FREDERICK CUTLAN, OF WELLINGBOROUGH, ENGLAND.

COMBINED PULLING-OVER AND LASTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 765,273, dated July 19, 1904.

Application filed April 12, 1901. Serial No. 55,519. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK CUTLAN, a subject of the King of England, residing at Wellingborough, England, have invented certain new and useful Improvements in a Combined Pulling-Over and Lasting Machine, (for which application has been made in Great Britain under No. 16,403, dated September 14, 1900,) of which the following is a specification.

This invention relates to what are known as "pulling-over" machines—that is, machines for adjusting the upper of a boot or shoe upon the last prior to the lasting operation proper. Usually this operation is performed by hand, the last being held sole upward to facilitate the tacking of the upper to the last, so that the operator has either considerable difficulty in seeing whether he has truly and smoothly applied the upper or else has to bodily remove the last and upper and turn it over to look at it. By my present invention these drawbacks are removed.

The machine constructed according to my invention comprises an upright or standard which I prefer to make so that it will fit into the standard of one of my ordinary lasting or other machines, so that it can be interchanged with the removable portion of that machine; but the standard of the present machine may be adapted to fit upon a bench or to engage in a socket therein or to be supported in any other convenient manner. The standard is provided with a transverse or horizontal socket, which forms a bearing for a horizontal frame which carries the operating portions of the mechanism. This frame is arranged to rotate in the bearing of the standard, so that the upper and lower portions of the frame may be reversed, and as the last is carried upon this frame it can be turned with either the sole or the top uppermost. A spring-detent or other suitable device may be employed for fixing the frame in either position. The horizontal frame carries one or more supports provided with screws or other means of adjustment, and upon these the last rests, being fixed by means of a clamping-horn or equivalent fitting into the usual socket in the last. The clamping-horn may be pivoted in

the frame, set by hand, and fixed by a screw or other suitable device. Where the screw is employed, I prefer to have a heavy hand-wheel upon it. At that portion where the last rests the frame may spread out sidewise into a single jaw or limb, so as to leave a clear space for the operator round the last, this limb carrying besides the last-supports previously mentioned the pincers by which the upper is tightened upon the last previous to tacking. Upon the limb slides a carrier upon which are the pincers for pulling over the leather of the boot-upper, the sliding movement being for adjustment purposes, and the carrier can be fixed in any required position or it may be left loose, as it will generally stay where required.

The operation of applying the upper to the last and straining it previous to tacking would be performed with the last presenting its top side uppermost. Upon its completion the frame would be turned round to present the last with the sole uppermost, when the tacking operation can be completed in the usual manner, the operator having been able to precisely adjust the upper as he required it and being now able to tack it with certainty and without the need for untacking and readjusting, which frequently arises with ordinary handwork. When the operation is completed, the last is removed, the frame turned over, and another one substituted.

In the accompanying drawings, which illustrate one construction of pulling-over machine according to this invention, Figure 1 is a side elevation showing the machine in the position in which it is used when the upper is being pulled over the last. Fig. 1^A is a plan showing the sliding-carrier for the pincers removed from its support. Fig. 2 is an elevation similar to Fig. 1, but showing the frame turned so as to present the last with the sole uppermost. Fig. 3 is a section on the line 3 3 of Fig. 1 drawn to an enlarged scale. Fig. 4 is a perspective view showing the frame removed from its socket. Fig. 5 is a plan of a toe-plate. Fig. 6 is a perspective view of a heel-clamp, and Fig. 7 a bottom plan of the same. Figs. 5, 6, and 7 are detailed views of parts of the machine shown in Figs. 1 and

2 and are drawn to a larger scale than those figures. Fig. 8 is a cross-section on the line 8 8 of Fig. 5.

Like letters indicate like parts throughout the drawings.

With reference first to Figs. 1 and 2, A is a standard or pedestal made to accommodate the stem B' of a head B. This head is provided with a transverse or horizontal socket, which receives and forms a bearing for the stem C' of a frame C, which carries the operating portions of the mechanism. The stem C' is kept in its place in the head B by means of a collar B² and set-screw B³. The frame C comprises a clamping-horn C², forming one limb, and another limb C³, provided with supports C⁴ and C⁵ for the bottom of the last. The clamping-horn C² is formed with a pin or projection C⁶, which engages with the corresponding socket in the last D, and the clamping-horn is pivoted, as at C⁷, so that it may be turned back to engage or disengage the last from the frame. Behind the clamping-horn C² is a bracket E, to which the horn is attached by means of a spring E', which tends to pull the horn back and release the last. The top of the bracket E is tapped to receive a screw E², operated by a hand-wheel E³. The action of this screw is to overcome the spring E' and force the horn C² down upon the last D. Conveniently a pivoted plate E⁴ is interposed between the point of the screw and the back of the clamping-horn C², and this may be turned aside on its pivot, thus saving some amount of motion of the screw when altering the position of the clamping-horn. The frame C is retained in a definite position relatively to the head by means of a bolt C⁸, which can engage with recesses or notches made to suit it in the head B. The lower limb C³ of the last-holding frame is preferably flattened in order to allow the operator to get all round the edge of the sole, and the pin C⁵, which supports the heel of the last, can be raised or lowered to suit various-shaped boots and shoes by means of a milled nut C⁹. At the bottom of the limb C³ a socket is formed to accommodate a sliding carrier F, which is kept from coming out of its socket by a collar and set-screw F'. At the other end of the carrier F are pincers G for grasping the toe portion of the upper and other pincers G' for grasping the upper at its sides. The limbs of the toe-pincers G are connected by a spiral spring G², which tends to draw them together, and the outside limb is provided with an extension G³, which acts as a handle. To this outside limb is pivoted an arm G⁴, which passes through a slot in the inner limb and rests upon a roller journaled at G⁵ in that slot. The other end of the lever G⁴ is provided with a pin G⁶, which engages with a hook in the slotted end of a rack H, carried in a suitable housing F², formed on or carried by the sliding carrier F. In a fork F³, mount-

ed upon the end of the carrier F, and adjacent to the toe-pincers G is journaled a pinion H', which gears with the rack H. To this wheel is attached a hand-lever H², provided with a spring-controlled pawl H³, engaging with a stationary ratchet-wheel H⁴. The hand-lever H² is not in the same plane as the extension G³ of the pincers G, and can therefore be raised without lifting that extension. The toe of the upper is first gripped by the pincers G, and the handle H² is then raised, rotating the gear-wheel H' and forcing down the toothed rack H. This has the effect of tightening the grip of the pincers G upon the upper and also straining the toe portion of the upper by pulling it down over the last D. It will be noticed that owing to the shape and arrangement of the arm G⁴ the downward pull of the rack H will increase the grip of the pincers G upon the leather. The pincers G, being only attached to the apparatus by the hook on the rack H engaging with the pin G⁶, can be removed in order to reach the toe and then pulled down into engagement with the hook.

The pincers G' for gripping the sides of the upper are mounted in a way substantially similar to that already described with reference to the toe-pincers G. These side pincers can be best seen in Fig. 3. Instead of the spiral spring G² the jaws are brought together by means of a flat spring G⁷. The inner limb of the pincers is, as in the case of the toe-pincers G, forked and provided with a roller G⁸. Through the fork passes a bent arm G⁹, one end of which is pivoted to the outer limb, while the other end is pivoted by a pin J' to a plate J, pivoted, as at J², to the forked end of rack K. This rack, which is carried in a housing F⁴, attached to the sliding carrier F, engages with a pinion K', journaled at K² and kept in position by a spring K³. A handle K⁴ is attached to this gear-wheel K' and carries a spring-controlled pivoted pawl K⁵, which engages with the teeth of a fixed ratchet-wheel K⁶. The action of the side pincers G' will be readily understood from the description already given of the toe-pincers G. After having gripped the upper in the jaws of the pincers G' the handle K⁴ is raised, rotating the wheel K' and forcing the rack K down. This increases the grip of the pincers upon the leather through the action of the arms G⁸ and pulls the leather well down over the last. The double pivoting of the side pincers G' on the rack K enables them to adapt themselves to irregularly-shaped lasts. It will of course be understood that both the side pincers G' and the toe-pincers G are retained in their desired position after the hand-levers are raised by the action of the pivoted pawls.

In a suitable recess in the frame C is a plate L, Figs. 1, 2, 6, and 7, and on one side of this plate in guides L' is a rod L², sup-

ported at its rear by a spring L^3 , Fig. 1. At the end of the rod L^2 is a head L^4 , to which are pivoted two jaws L^5 , adapted to embrace the heel part of the upper and press it round the last. On the under side of the plate L , as shown in Fig. 7, is a recess L^6 , accommodating the plate L^7 , free to slide in it. This plate L^7 has formed in it a slot L^8 , in which work pins attached to two flat wing-plates L^9 , pivoted, as at L^{10} , and connected by a light spring L^{11} . The plate L can be moved backward and forward in its recess by means of a lever L^{12} , Fig. 1, which operates against a projection L^{13} . When the upper is in position, as shown in Fig. 1, the plate L is moved forward and the jaws L^5 , coming round the outside of the upper, press it into position round the last. Continued movement of the lever L^{12} forces the rod L^2 back against its spring L^3 , and the inner portion of the wing-plates L^9 then comes into contact with the back of the upper. This causes them to close in upon their pivots L^{10} , and they accordingly tuck or wipe the leather over the bottom of the sole. While the upper is being pulled over by means of the mechanism above described, the mechanism is in the position indicated in Fig. 1, so that the straining of the leather is being carried on under the eye of the operator. When this part of the process is finished, the frame $C C^2 C^3$ is swung round in its socket in the head B into the position indicated in Fig. 2, the sole being uppermost and ready for the tacking or other fastening operation. Pivoted to the standard A , as at A' , is a lever M . One end of this lever passes through the standard A and through the stem B' of the head B , which is slotted to receive it and is provided with a counterweight M' . The other end of this lever carries mechanism for smoothing and pressing the leather over the toe of the last. This mechanism comprises a slotted plate N , to which is attached a rack N' . The plate N and rack N' sit saddle fashion upon the end M^2 of the lever M , being slidably mounted thereon by means of the clamping-plate N^{23} , part of which is accommodated in the slot of the plate N (see Fig. 8) and forms, with the part M^2 , a support for the plate N . Pivoted, as at N^3 , to a lug N^4 , forming part of the plate N , is a plate N^5 , the slope of which can be regulated by means of a screw N^{22} . On top of this plate N^5 is a recess N^6 , Fig. 5, in which lies a slotted plate N^7 . In the slot N^8 of this plate N^7 lie pins N^9 , attached to wing-plates N^{10} , having slots N^{11} , through which pass studs N^{12} . In front of the plate N^5 and its appurtenances is a small pad N^{13} , mounted upon a carriage N^{14} , which can move in suitable guides in the plate N and rack N' , but is normally kept away from the plate N^5 by means of a spring N^{15} . The teeth of the rack N' engage with a pin-

ion N^{16} , journaled, as at N^{17} , and controlled by a handle N^{18} . This handle is furnished with a spring-detent N^{19} , having a pin N^{20} , which engages with the teeth of a stationary semicircular rack N^{21} . When the boot or shoe has been brought in the frame $C C^2 C^3$ into the inverted position, (shown in Fig. 2,) the lever M is brought upward and the plate N^5 , by the action of the handle N^{18} and pinion N^{16} , caused to advance over the toe of the last. As this motion is continued the wing-plates N^{10} are pressed inward, and acting similarly to the plates L^9 on the heel-adjusting mechanism turn the leather over into position. It will be understood that when this operation is taking place the plate N^5 and its appurtenances will be in a position somewhat higher relatively to the last than is shown in Fig. 2, the action of the plates N^{10} being to turn the edges of the upper over and inward round the edge of the toe portion of the last.

It will be understood that various alterations may be made in the details of construction of the various parts of machines according to this invention without departing from the spirit thereof.

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

1. In a combined pulling-over and lasting machine, the combination of a standard, an invertible last-holding frame comprising a pivoted spring-controlled and screw-operated clamping-horn, a lower limb, last-supports carried by said lower limb, a carrier adapted to slide freely in said limb and straining-pincers mounted on the carrier, a pivoted lever, a toe presser-plate mounted upon one end of the lever, means for moving the toe presser-plate relatively to the lever, a heel-clamp and means for moving such clamp into contact with the heel portion of the upper upon the last, substantially as set forth.

2. In a combined pulling-over and lasting machine a heel-clamp comprising a plate L , a spring-controlled rod L^2 slidably mounted in guides upon the plate, a head L^4 attached to the rod, jaws L^5 pivoted to the head and adapted to embrace the heel part of the upper, a plate L^7 sliding in a recess L^6 in the plate L , pivoted wiping-plates L^9 having pins L^{11} which enter a slot in the plate L^7 and are connected by a spring, and means for moving the plate and its appurtenances into contact with the heel portion of the upper upon the last, substantially as set forth.

3. In a combined pulling-over and lasting machine, a toe-presser comprising a slotted plate N , a support for said plate, a plate N^5 pivotally attached to the plate N , means for altering the inclination of the plate N^5 , wiping-plates N^{10} pivoted to the plate N^5 , a recess N^6 in the plate N^5 , a plate N^7 in said recess, a slot N^8 in said plate, pins N^9 upon the under

side of the plates N¹⁰ entering the slot N⁸, a
pad N¹³ mounted in guides in the plate N, a
spring N¹⁵ to normally keep the pad N¹³ away
from the plate N⁵, and means for altering the
5 position of the plate N and its appurtenances
upon their support, substantially as set forth.
In testimony whereof I have signed my name

to this specification in the presence of two sub-
scribing witnesses.

FREDERICK CUTLAN.

Witnesses:

ALFRED J. BOULT,
HARRY B. BRIDGE.