

No. 713,657.

Patented Nov. 18, 1902.

R. H. LUFKIN.
LEATHER FOLDING MACHINE.

(Application filed Feb. 14, 1902.)

(No Model.)

3 Sheets—Sheet 1.

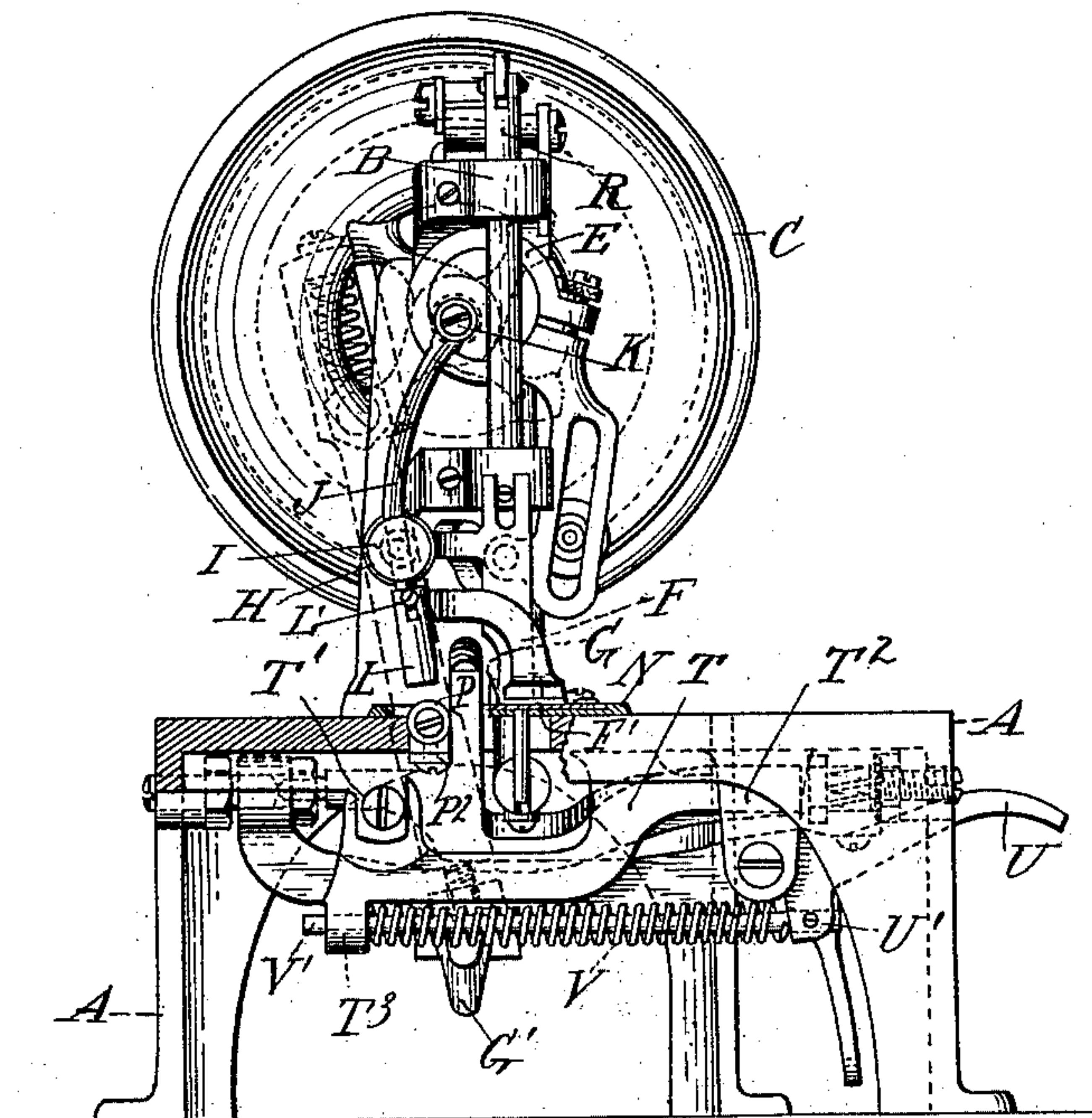


Fig. 1

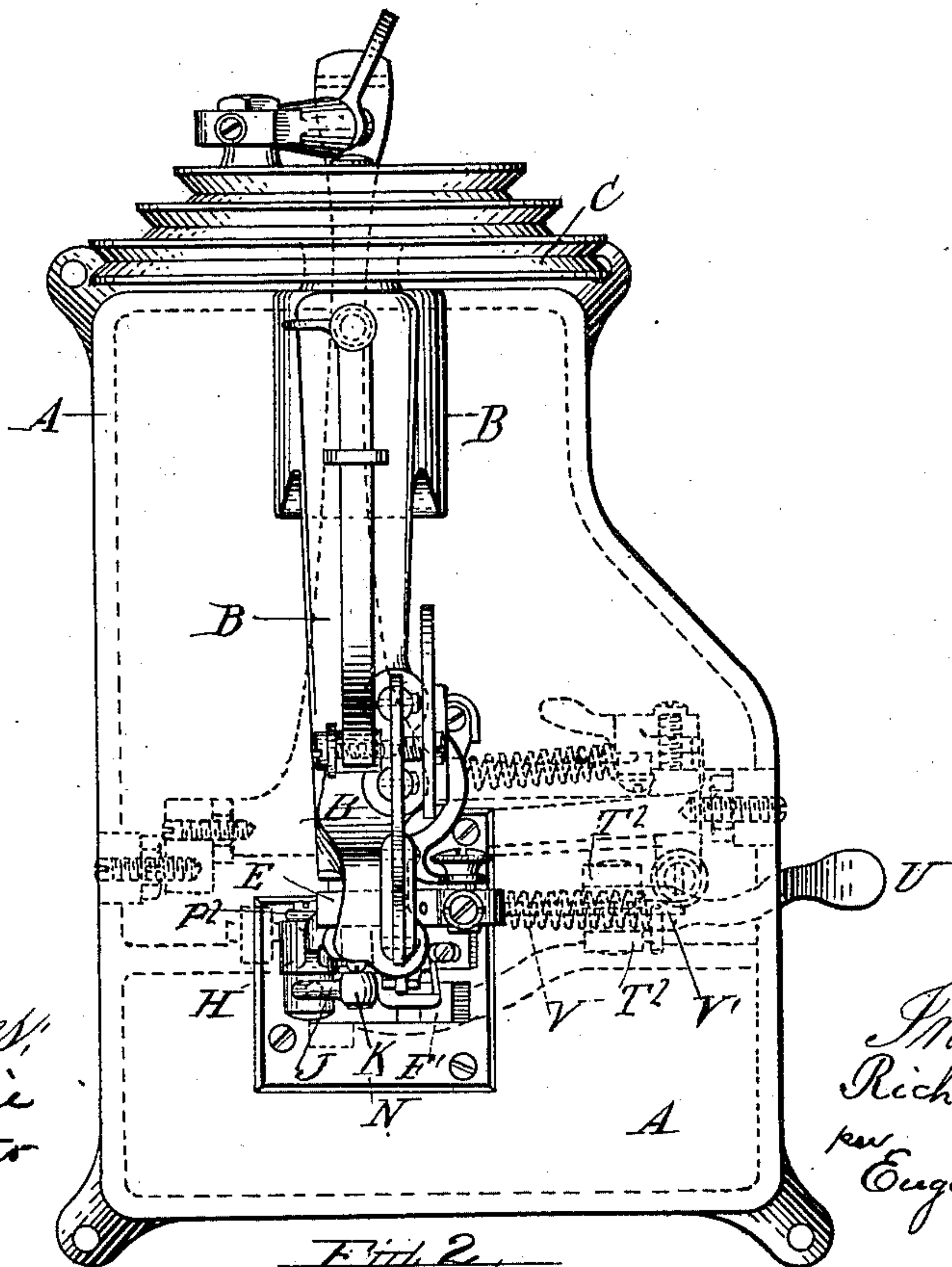


Fig. 2

Witnesses:
Alfred White
James F. De Carter

Inventor:
Richard H. Lufkin
per Eugene Humphrey
his atty.

No. 713,657.

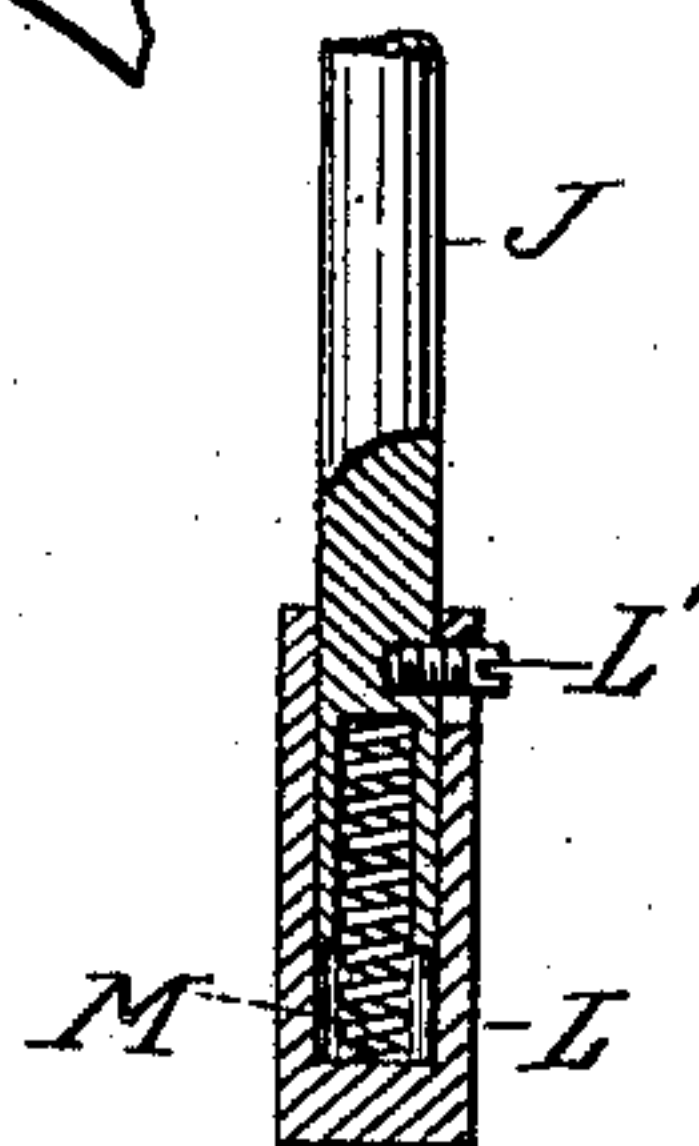
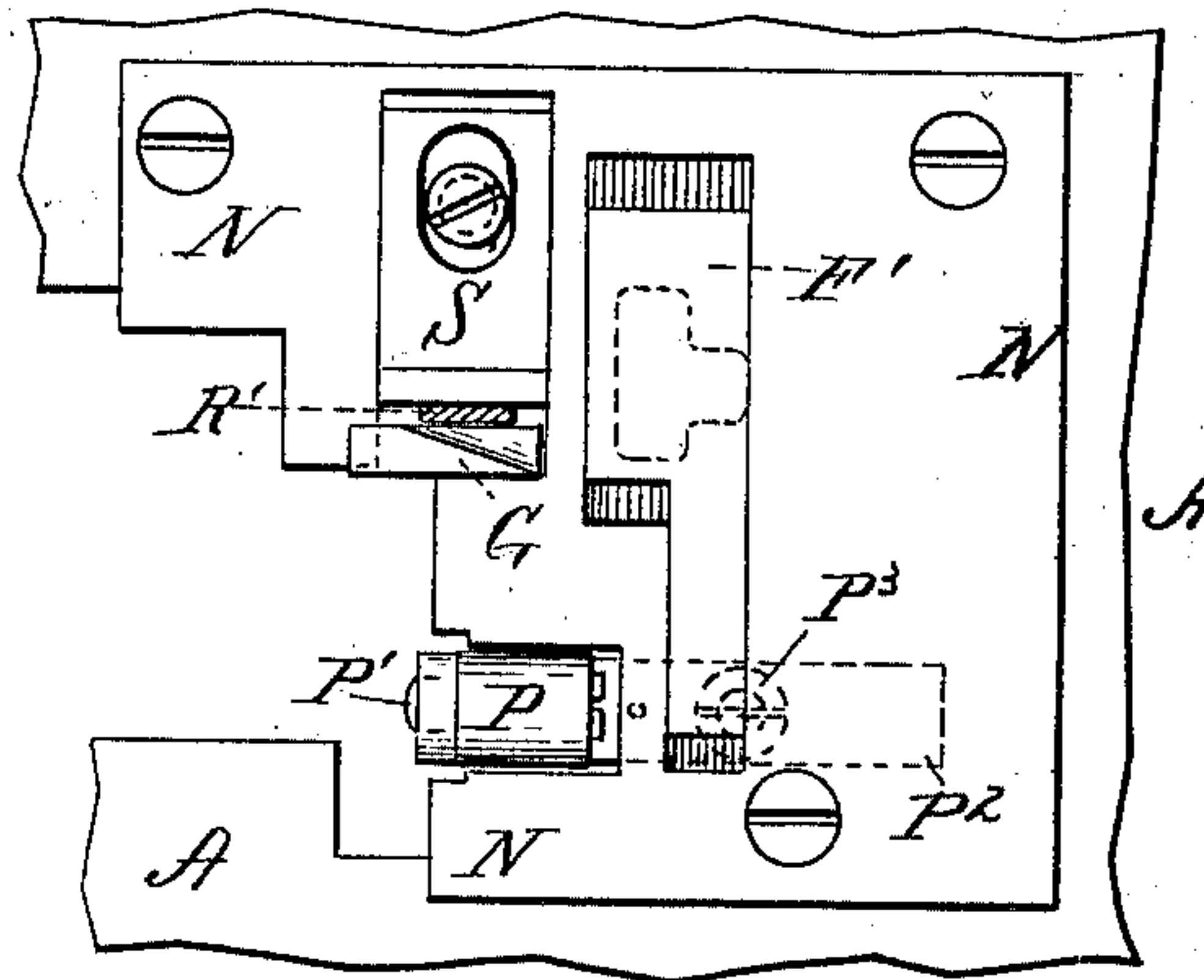
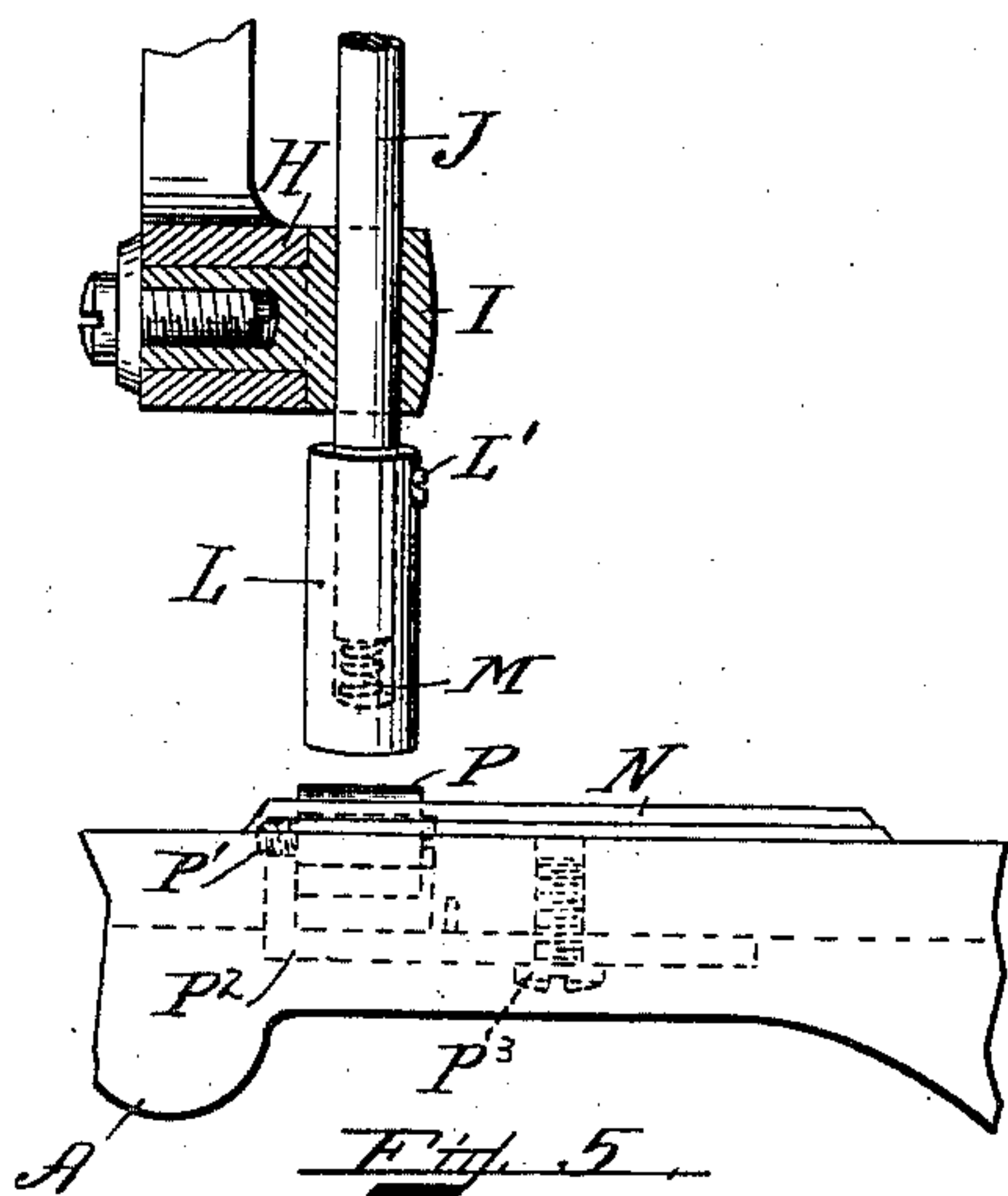
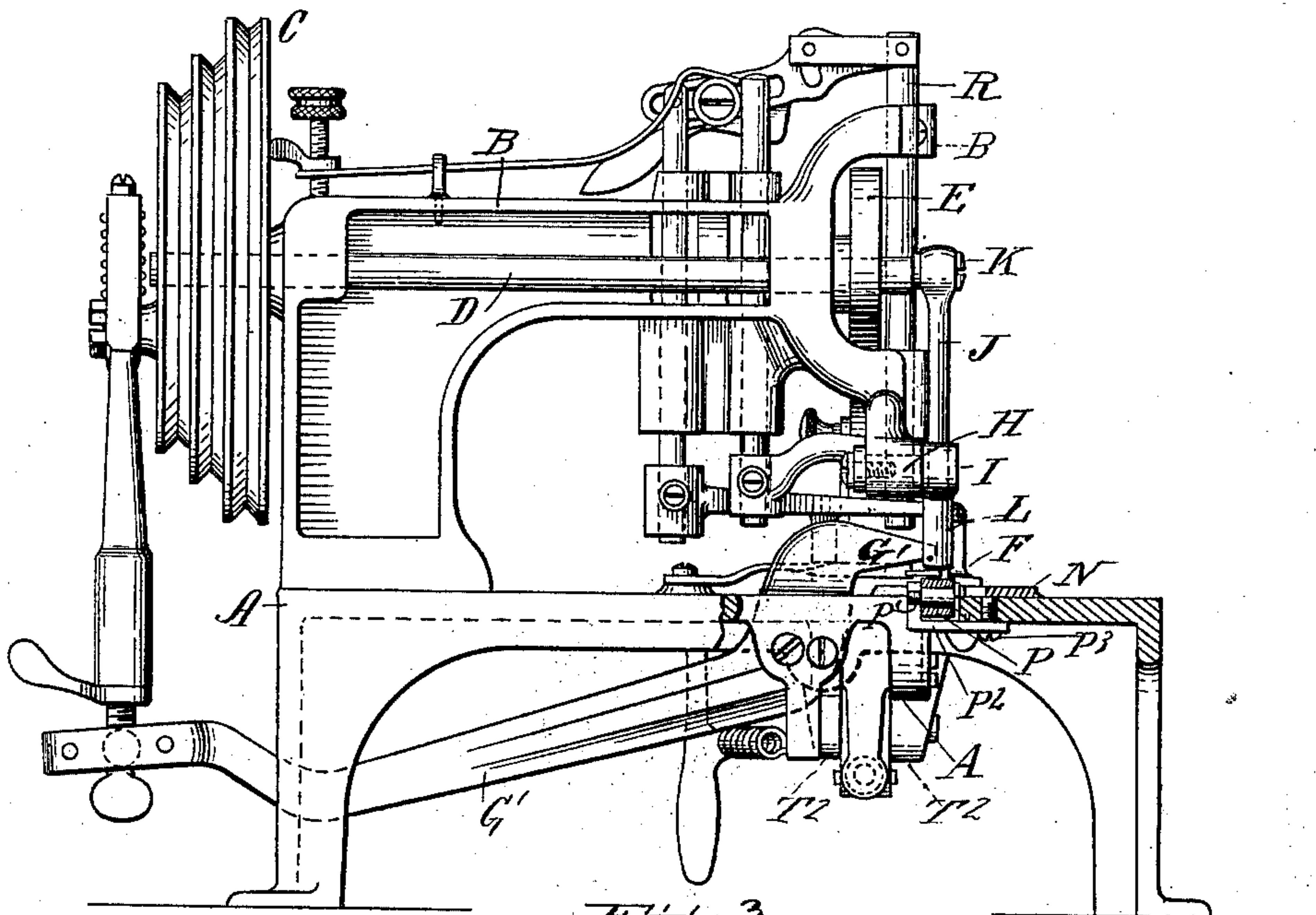
Patented Nov. 18, 1902.

R. H. LUFKIN.
LEATHER FOLDING MACHINE.

(Application filed Feb. 14, 1902.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses:
Alfred D. Rice
James F. De Castro

Inventor:
Richard H. Lufkin
per Eugene Humphrey
his atty.

No. 713,657.

Patented Nov. 18, 1902.

R. H. LUFKIN.
LEATHER FOLDING MACHINE.

(Application filed Feb. 14, 1902.)

(No Model.)

3 Sheets--Sheet 3.

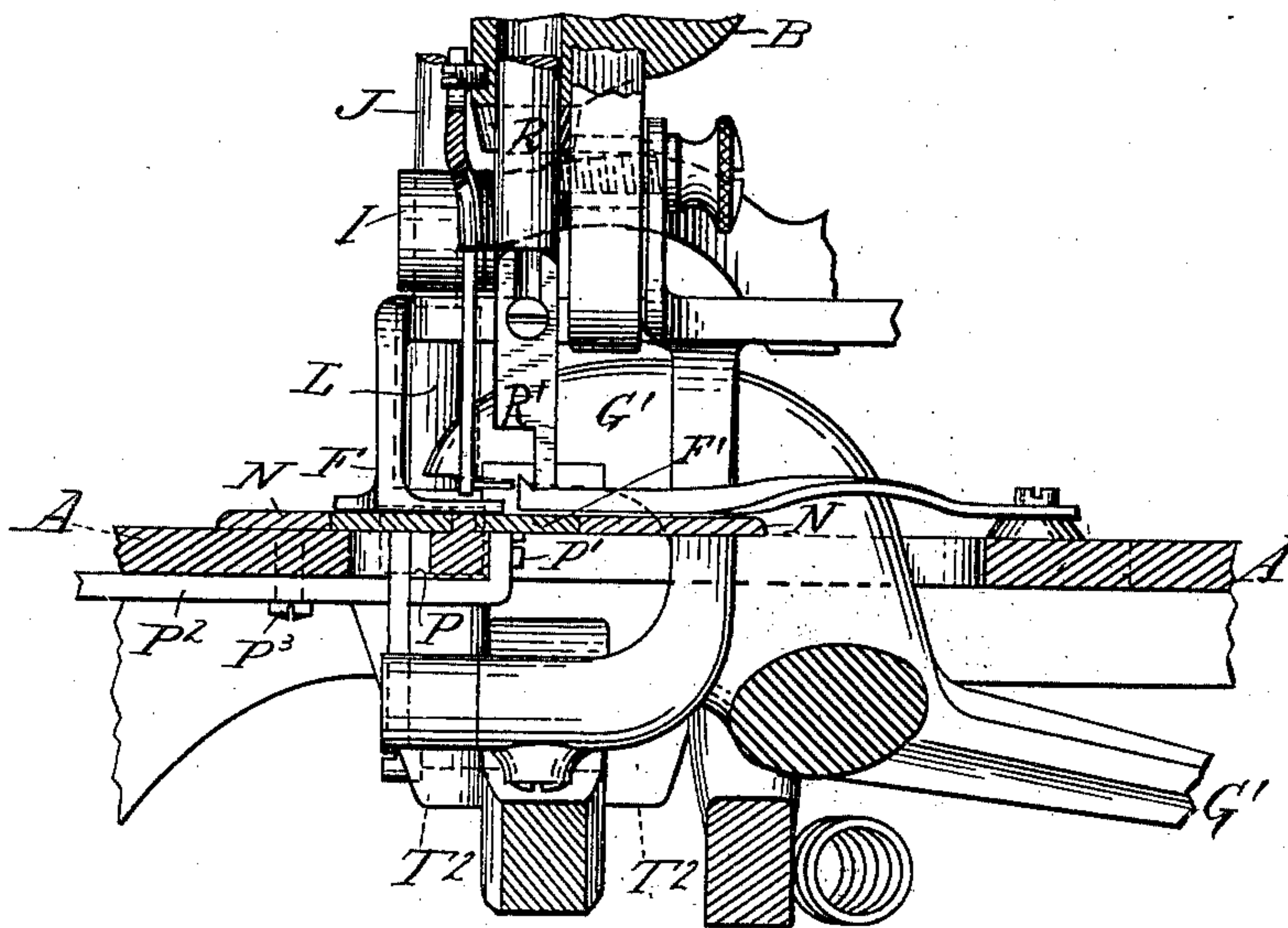
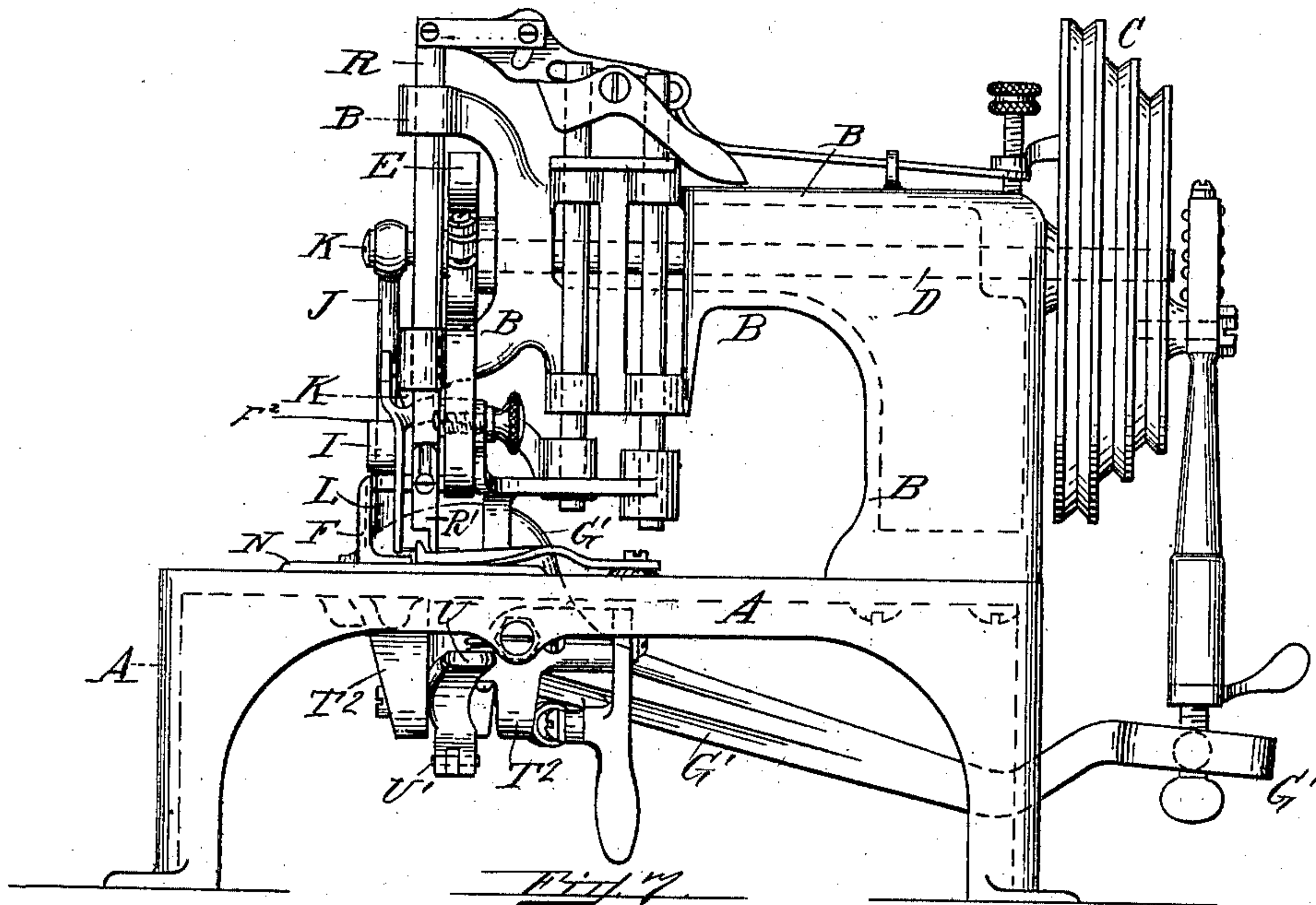


Fig. 8.

Witnesses:
Alfred D. Wise
James F. De Bastro

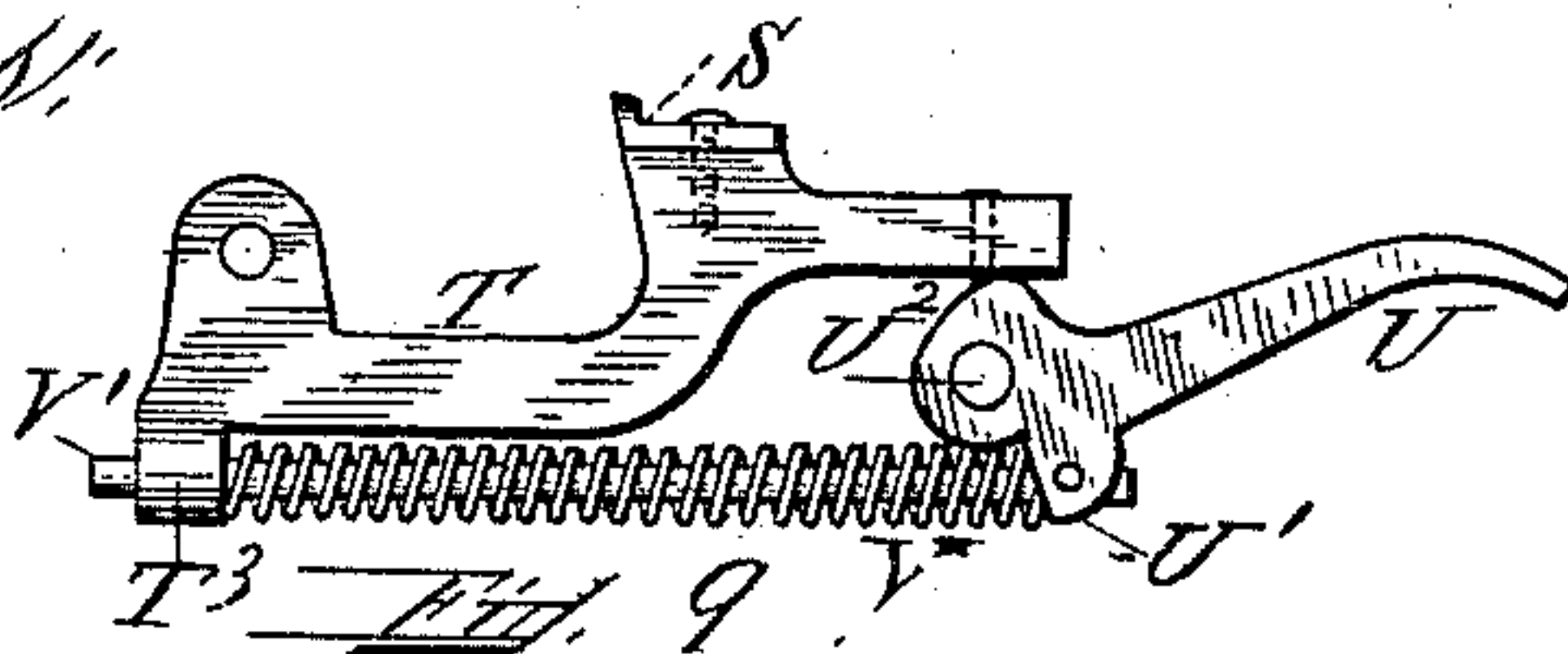


Fig. 9.

Inventor:
Richard H. Lufkin
per Eugene Humphrey
his Atty.

UNITED STATES PATENT OFFICE.

RICHARD H. LUFKIN, OF MEDFORD, MASSACHUSETTS.

LEATHER-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 713,657, dated November 18, 1902.

Application filed February 14, 1902. Serial No. 94,029. (No model.)

To all whom it may concern:

Be it known that I, RICHARD H. LUFKIN, a citizen of the United States, residing at Medford, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Leather-Folding Machines, of which the following is a specification.

My invention relates especially to an improvement upon the well-known leather-folding machine described in Letters Patent of the United States issued to me March 4, 1884, and numbered 294,394; and the object of my present improvement is to prevent wrinkling the face of the stock near the folded edge when there is a recurvature of the edge to be folded. I attain the object stated by means of the improved mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation, partly in section, of a leather-folding machine embodying my invention. Fig. 2 is a plan of the same. Fig. 3 is a side elevation of the same, showing the bed partly in section through the bed-plate. Fig. 4 is an enlarged plan of the bed-plate. Fig. 5 is an enlarged sectional view of a portion of the overhanging arm and its attachments and an edge view of the underlying bed-plate in position on the bed and showing attachments thereto. Fig. 6 is a sectional view of the stretcher-foot detached. Fig. 7 is a side elevation of the machine the opposite of that shown in Fig. 3. Fig. 8 is an enlarged sectional view of a portion of the same. Fig. 9 is a detached detail of the cutter-block-supporting lever and the cam-lever and actuating-spring which support and actuate the cutter-block.

The devices for cutting, feeding, folding, and pressing the edge of the leather, which are illustrated in the drawings, are practically embodied in the machine described in my said former patent, and are therefore well known, and consequently it is deemed unnecessary to particularly describe their construction and mode of operation, except in their relation to the new devices constructed and arranged to cooperate with them to accomplish the purpose before stated.

Referring to the accompanying drawings, A represents the bed of the machine, B the neck, C the driving-pulley, D the pulley-

shaft, E the eccentric for operating through suitable connections the feed F, and G the fold-presser, all comprised in the well-known construction above referred to. Upon the outer end of neck B on the back side thereof is formed a projecting hub or bearing H, which supports a rocking stud I, secured in hub H by a screw turned through a clamping-washer into I, as clearly shown in Fig. 5. In the outer end of the stud I is fitted a curved vertical rod J, which extends upward and is secured to an eccentric screw-stud K, connected with the front face of the feed-eccentric E, as shown clearly in Figs. 1 and 3. Rod J has free vertical movement in the rocking stud I and carries on its lower end a foot L, which has a yielding pressure by reason of a spring M located therein and bearing upward against the lower end of rod J, the foot being slotted and secured to the rod by a screw L', which is passed through the slot and threaded into the rod so as to afford a limited vertical play of the foot on the rod. Beneath the bed-plate N and projecting upward slightly through an opening in the plate is a roll P, which is supported in pivotal bearings P', upheld by an angle-plate P², secured to the under side of the bed A by a screw P³. Upon roll P the foot L bears and moves therewith when drawing upon the edge of the material in their practical operation. When the recurved edge of a shoe-vamp, for instance, is cut from thin stock, the unaided feed mechanism, as heretofore employed, will allow the face of the stock adjacent to the folded edge to become wrinkled and pressed into small creases, giving an imperfect finish to the vamp. By aid of the stretching-foot L cooperating with the feed, which causes the material to progress through the folding operations, the defect above mentioned is avoided. The principal parts which form the group that comprises the cutting, feeding, folding, pressing, and stretching devices include the knife R', clamp-feed F F', presser-foot F², folding-block G, presser-lever G', and stretcher L, as shown. The stretcher L in the group of parts referred to is so united with the feed F F' and actuated in relation thereto by the eccentric connections E and K that it imparts such timely action to the foot and feed as to cause them to act in the following order upon the edge

to be folded: First, the edge is placed against the gage on the bed-plate under the knife-blade which descends and slits it; second, the feed seizes and moves the stock forward in the usual manner to the extent of its movement, carrying the edge up the incline of the folding-block which turns it up; third, the stretcher now descends upon the edge and while the feed-foot remains stationary upon the same moves forward and accomplishes the stretching or straightening thereof; fourth, at this stage of the operation the presser-foot F^2 comes down upon the goods and holds the same still while the feed-foot rises and retracts; fifth, while the feed retracts the fold-presser rocks down upon the upturned edge and turns it over and presses it, completing the series of operations on the edge, which are repeated as the work progresses and in the order named and in close succession. Except as to the stretcher L and its actuating connections and the improvement in the cutting mechanism described below the other parts are substantially the same in construction and operation as in my said former patent. The mechanism for momentarily suspending the cutting operations while the machine is in motion is different from that described in my former patent and is an improvement thereon and is shown most clearly in Figs. 1, 3, 7, and 9. It comprises a vertically-reciprocating knife-bar R, which carries at its lower end a blade R' , the cutting edge of which shears by the edge of a block S and slits the edge of the goods at right angles to the line of feed movement. The block S rests upon a supporting-lever T, which is pivoted to a projection T' from the under side of the bed and also slides in a slotted bracket T^2 , which extends downward from the machine-bed. The free end of the lever T rests upon a cam-lever U, which is pivoted in the lower end of bracket T^2 at U' and is held in its normal supporting position by a spring V, supported by a connecting-rod V' , which slides in a bearing at the rear end of lever T, while its opposite end is attached to lever U. When the free end of lever U is depressed, the cam U^2 thereon, which supports the free end of the lever T, is turned and by its form permits the spring V to draw the lever T downward, and thereby also swings the block S backward and away from knife R' , thus effecting a momentary suspension of its cutting operation, and when the lever U is released from the depressing force the spring V restores it to its normal position.

The peculiar construction and arrangement of the levers T and U causes the spring V to rock the block-supporting lever T downward when released by the turning of the cam on lever U as the latter is depressed and to throw lever T up again when lever U is released. Thus the single spring acts in both directions in this manner: When lever U is depressed, its branch U' , pivoted to rod V' , compresses spring V between U' and the part T^3 of lever T, and thus by turning the cam U^2 lever T, with its cutter-block, is allowed to move downward, acting under the force of the compressed spring operating on T^2 , and when lever U is released from its depressing force the expansion of spring V, operating against U' , will turn cam U^2 and raise lever T to the position shown, in which it normally supports the lever and rigidly upholds the block thereon. By the employment of the stretching devices described in cooperation with the feeding and folding devices, as stated, the face of the stock near the folded edge, of a recurved form, is drawn taut and smooth, while the fold is turned and pressed, which stress upon such recurved edge prevents the wrinkles referred to, and consequently a much nicer finish is obtained.

I claim—

1. In a machine for folding the edges of leather, the combination of cutting, feeding, folding, pressing, and stretching devices, with means for momentarily suspending the cutting operations at will while the machine is running, comprising a movable cutter-block S; lever T; cam-lever U; rod V' ; and spring V, said specified parts being constructed and arranged so that lever T, movably supports block S; lever U, upholds lever T; spring V, is compressed between the two upon rod V' , and by its expansive force serves to hold lever T down upon cam-lever U, and to uphold lever U in its normal position, all substantially as specified.

2. In combination with the described cutting, feeding, folding and pressing devices, an edge-stretching mechanism comprising the hub H; rocking stud I; rod J; yielding foot L; screw-stud K; eccentric E; and roll P, constructed and arranged to operate together substantially in the manner and for the purpose specified.

RICHARD H. LUFKIN.

Witnesses:

ALFRED D. WISE,
EUGENE HUMPHREY.