

(No Model.)

3 Sheets—Sheet 1.

O. C. DOLLOFF & R. M. EASTMAN.  
SEWING MACHINE.

No. 377,888.

Patented Feb. 14, 1888.

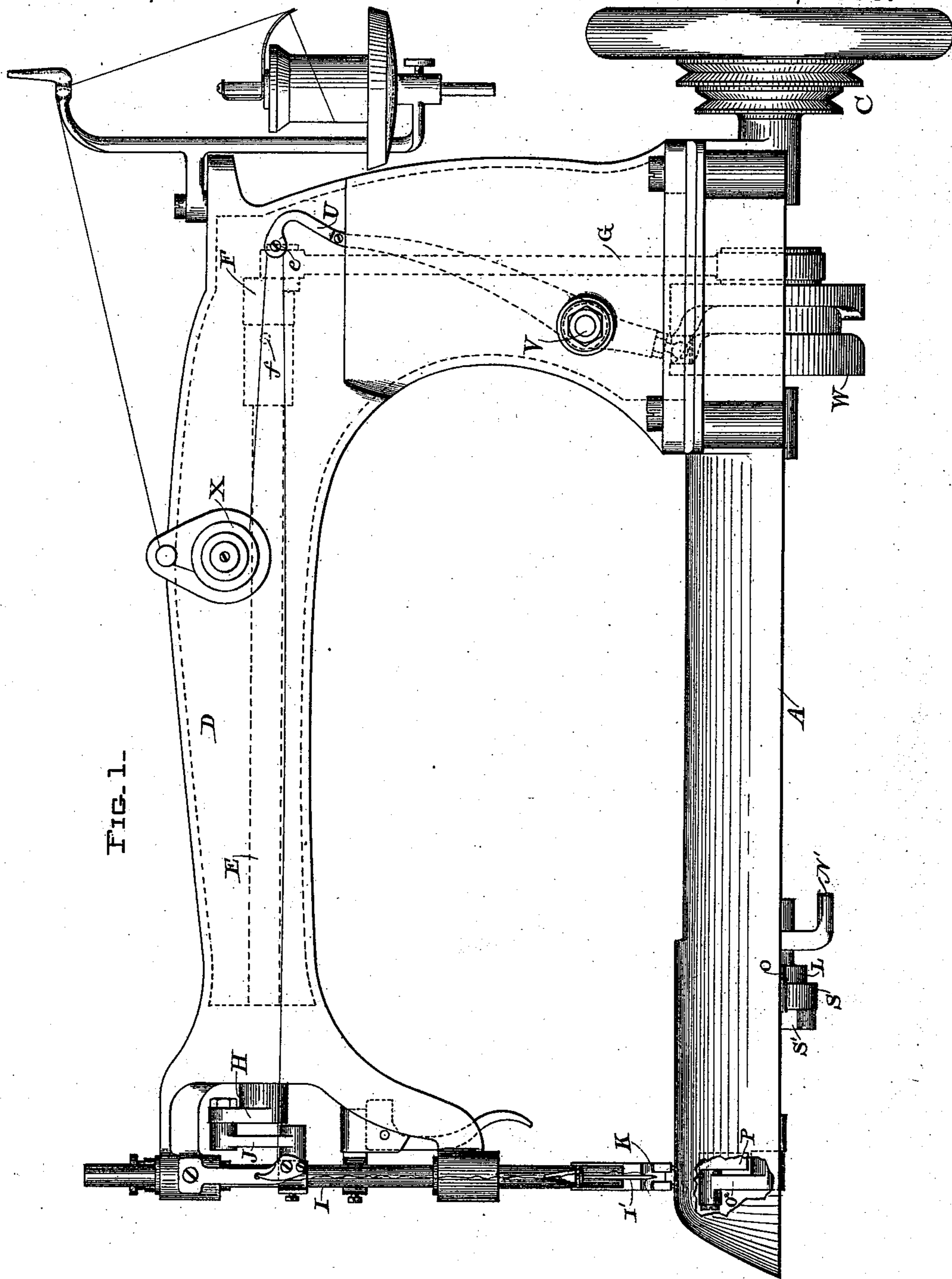


FIG. 1.

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(No Model.)

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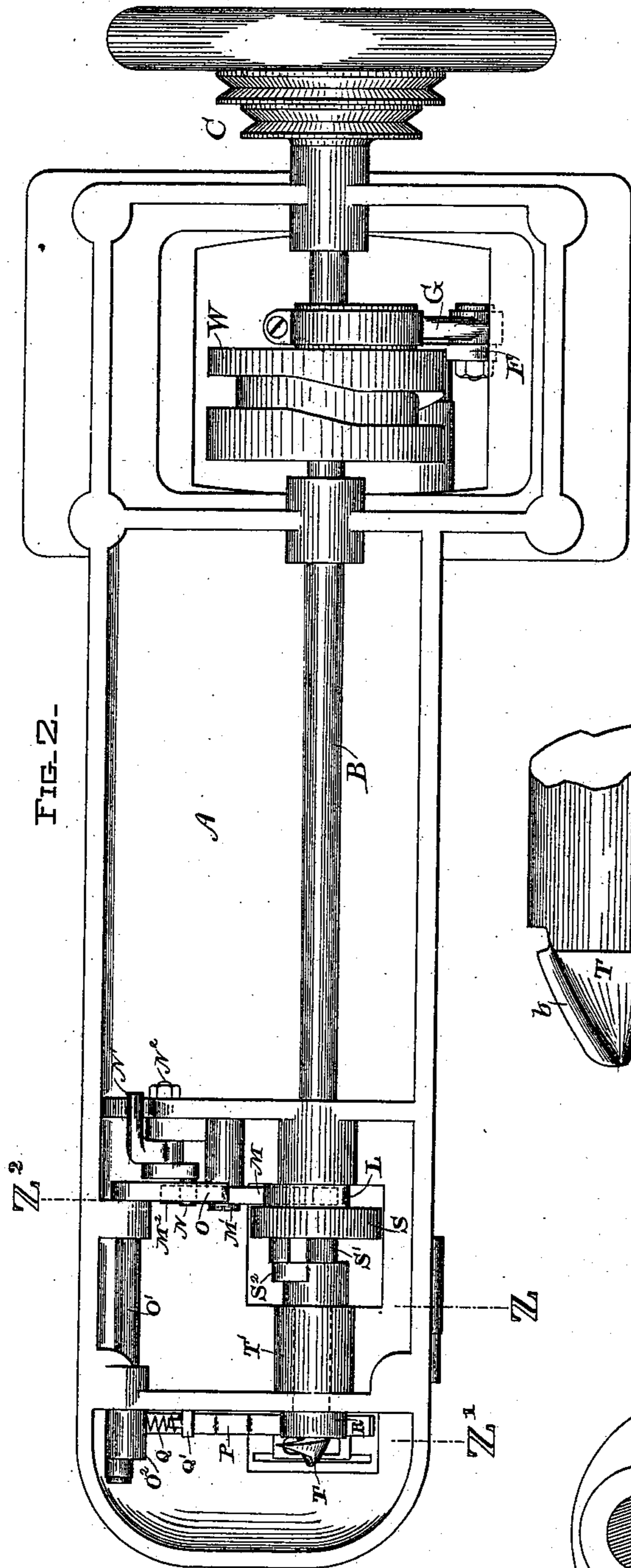


FIG. 2.

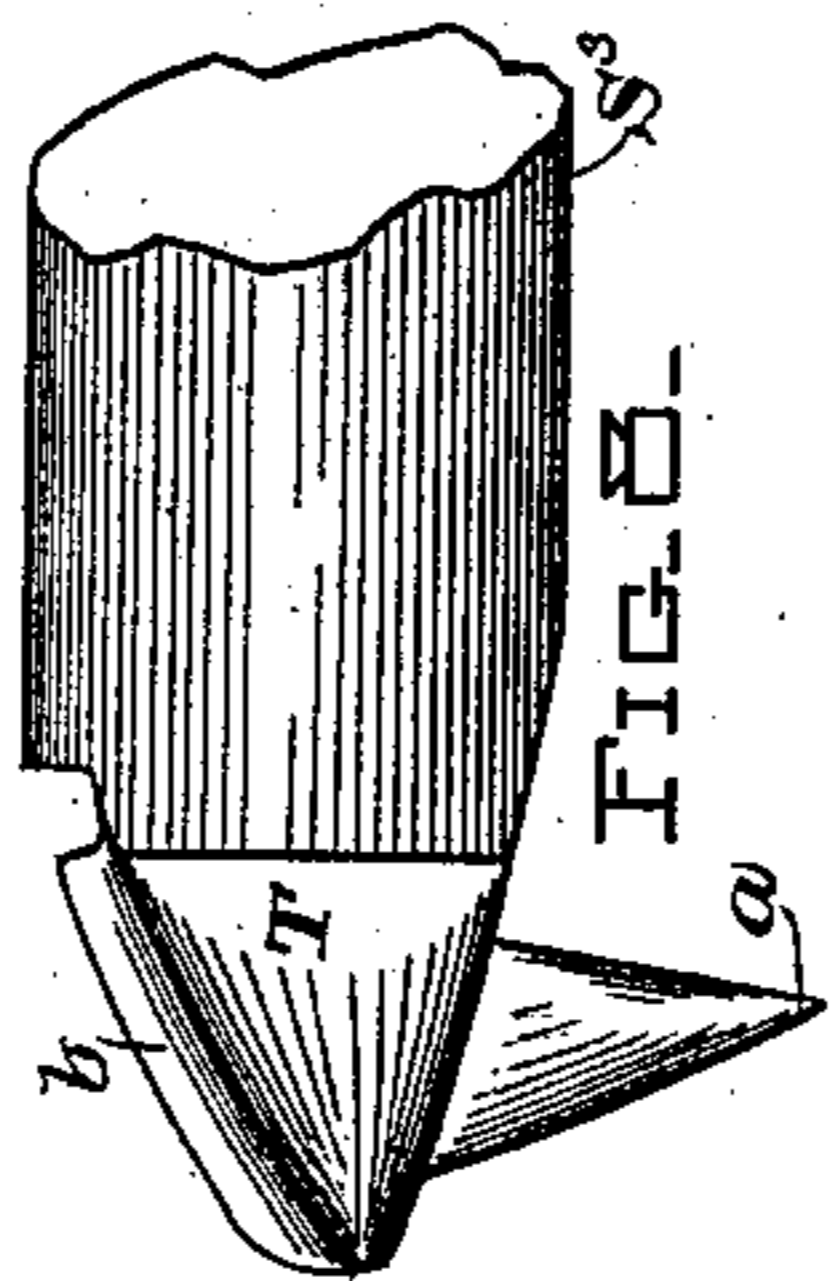


FIG. 3.

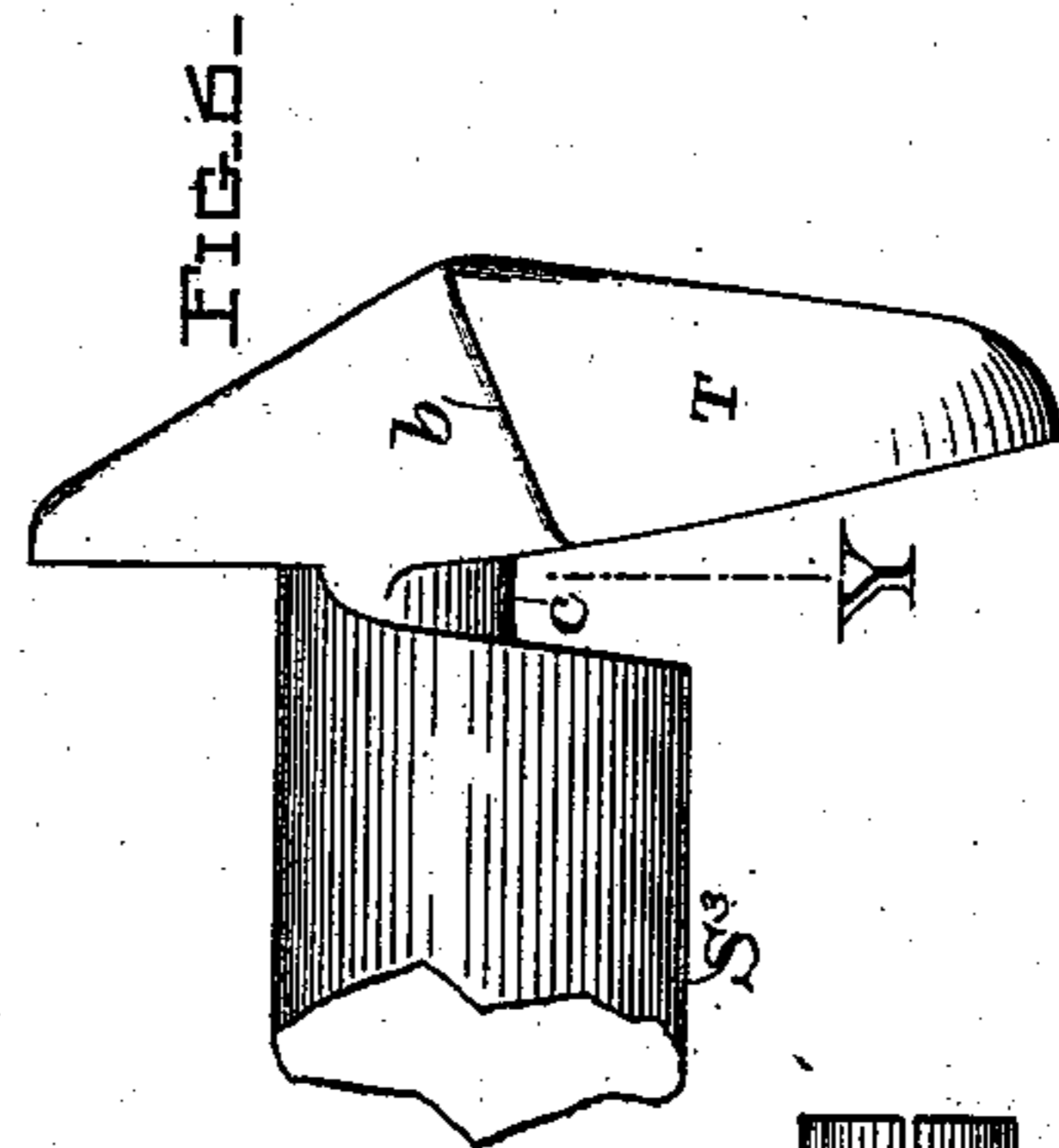


FIG. 4.

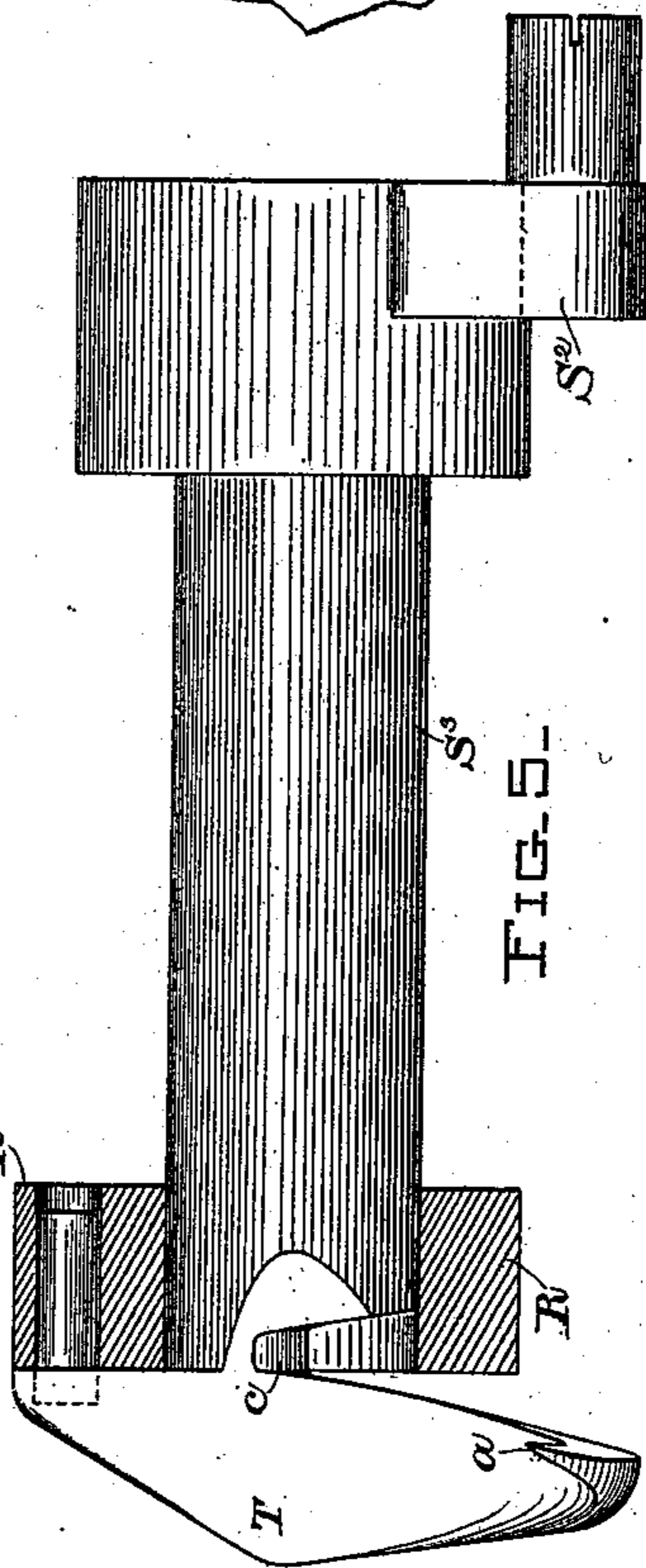


FIG. 5.

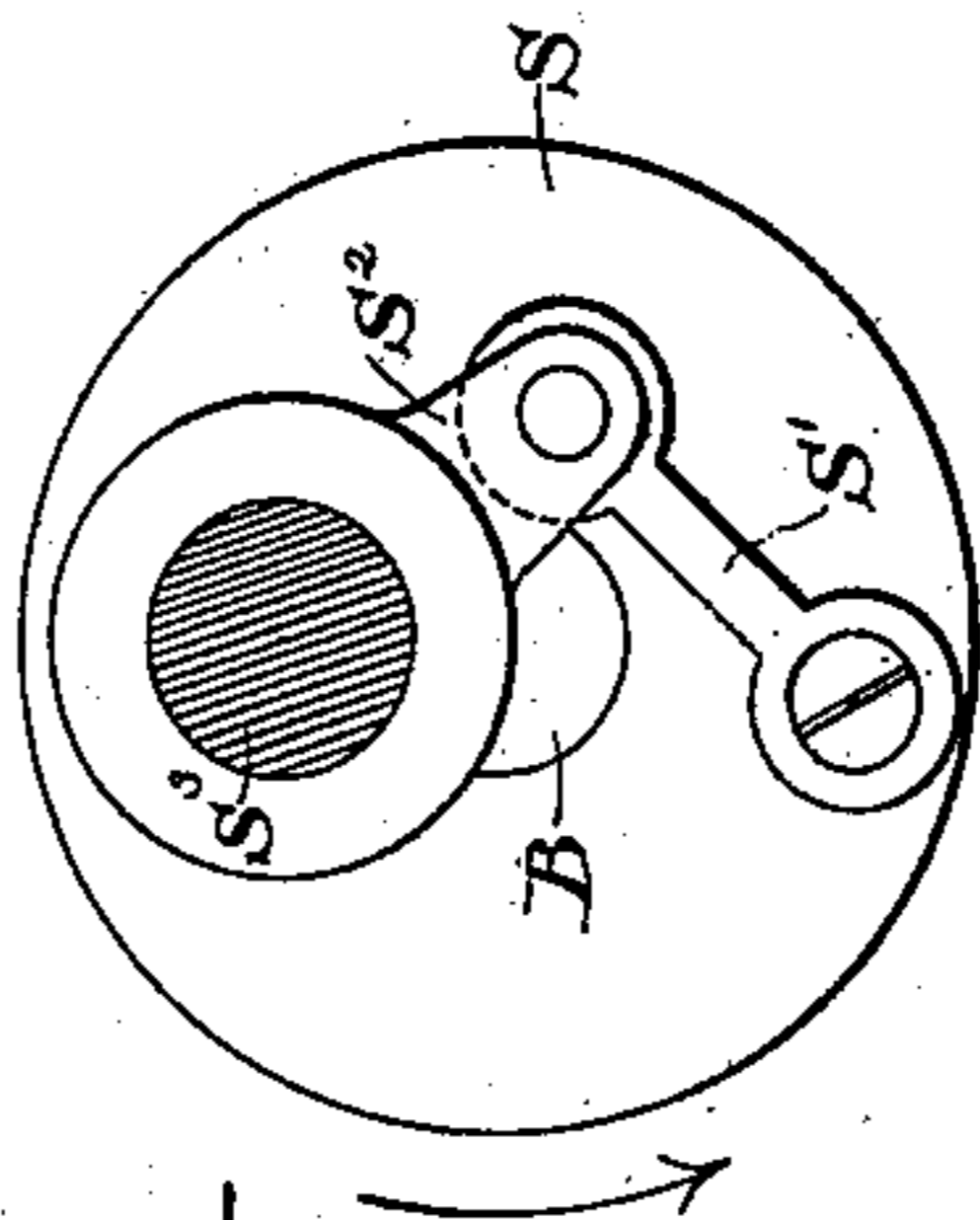


FIG. 6.

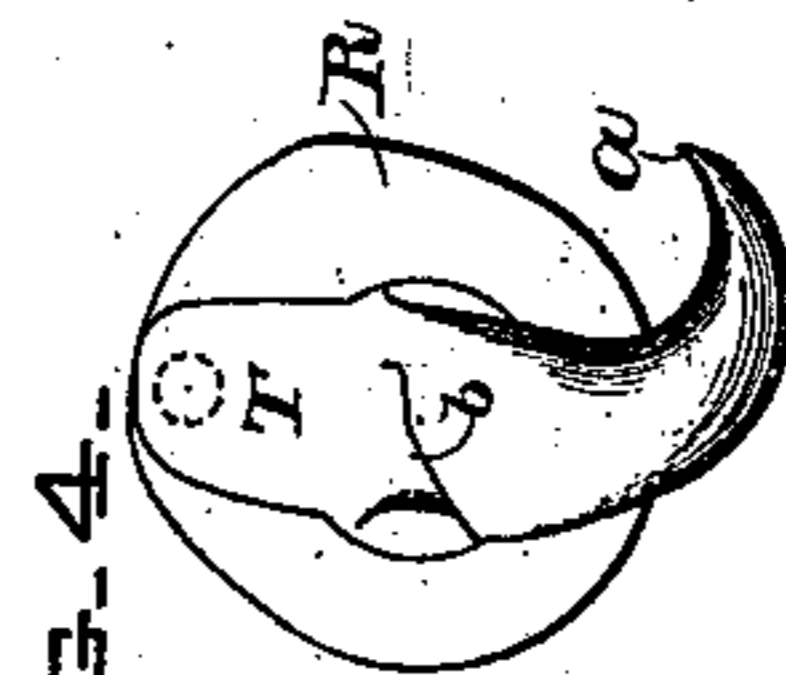


FIG. 7.

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FIG. 7.

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3 Sheets—Sheet 3.

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FIG. 9.

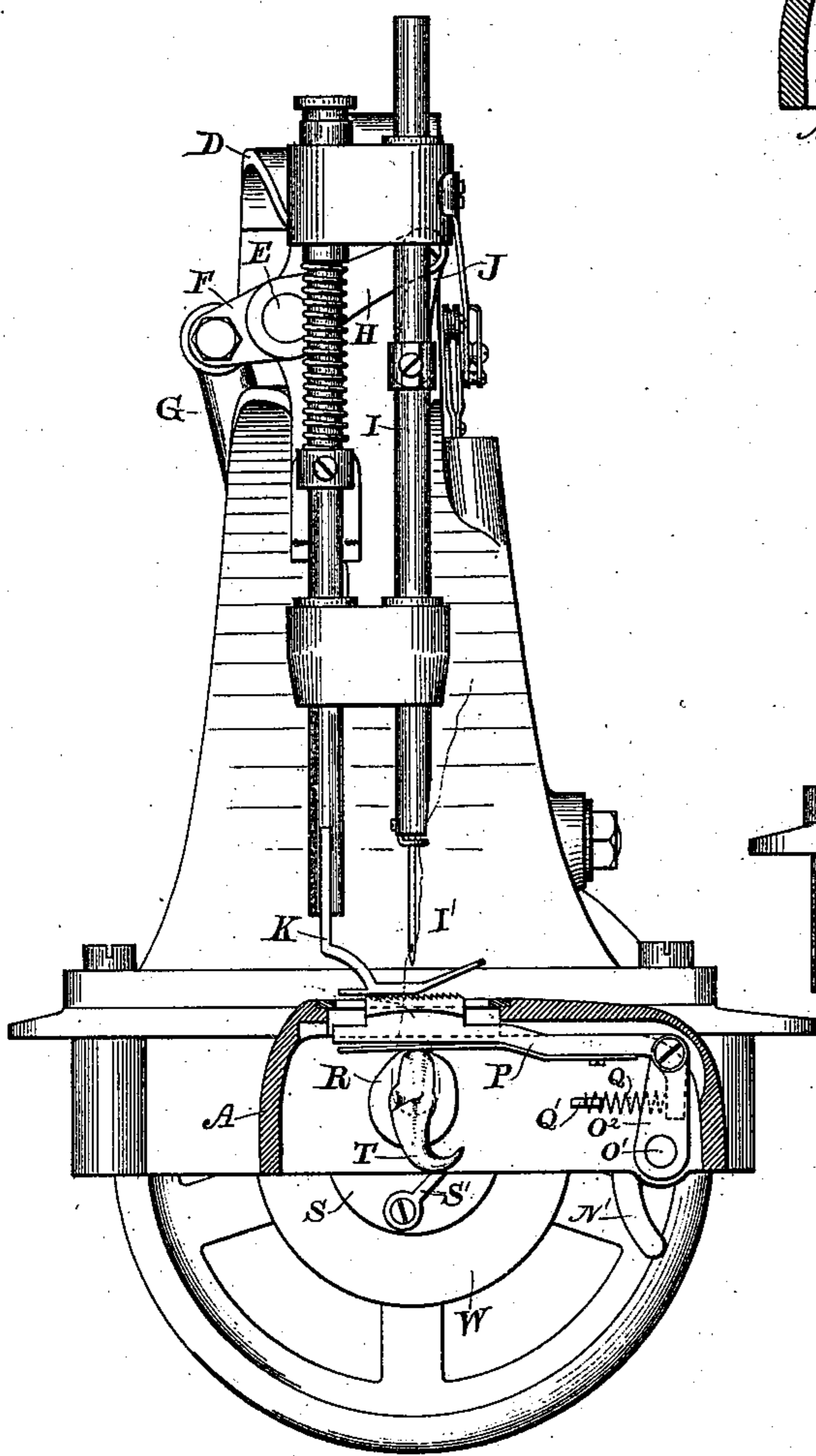


FIG. 10.

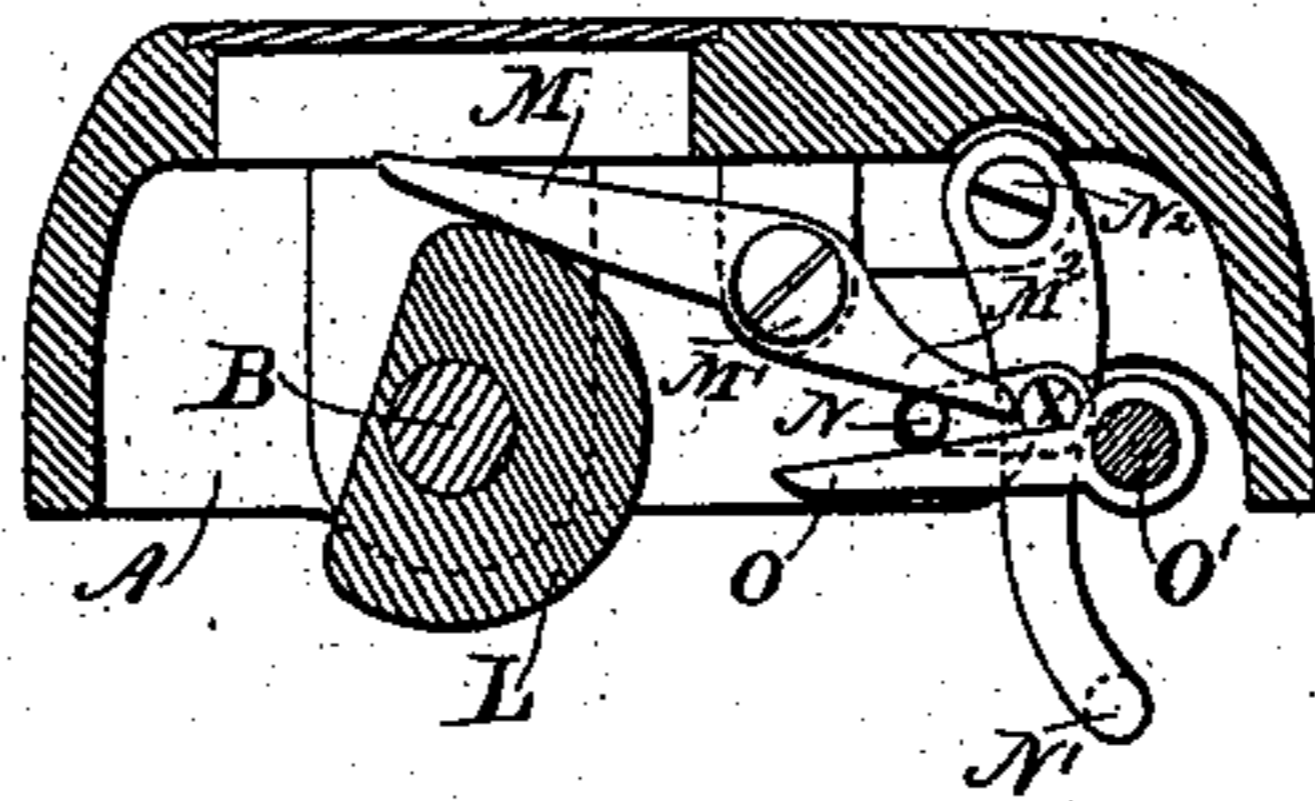
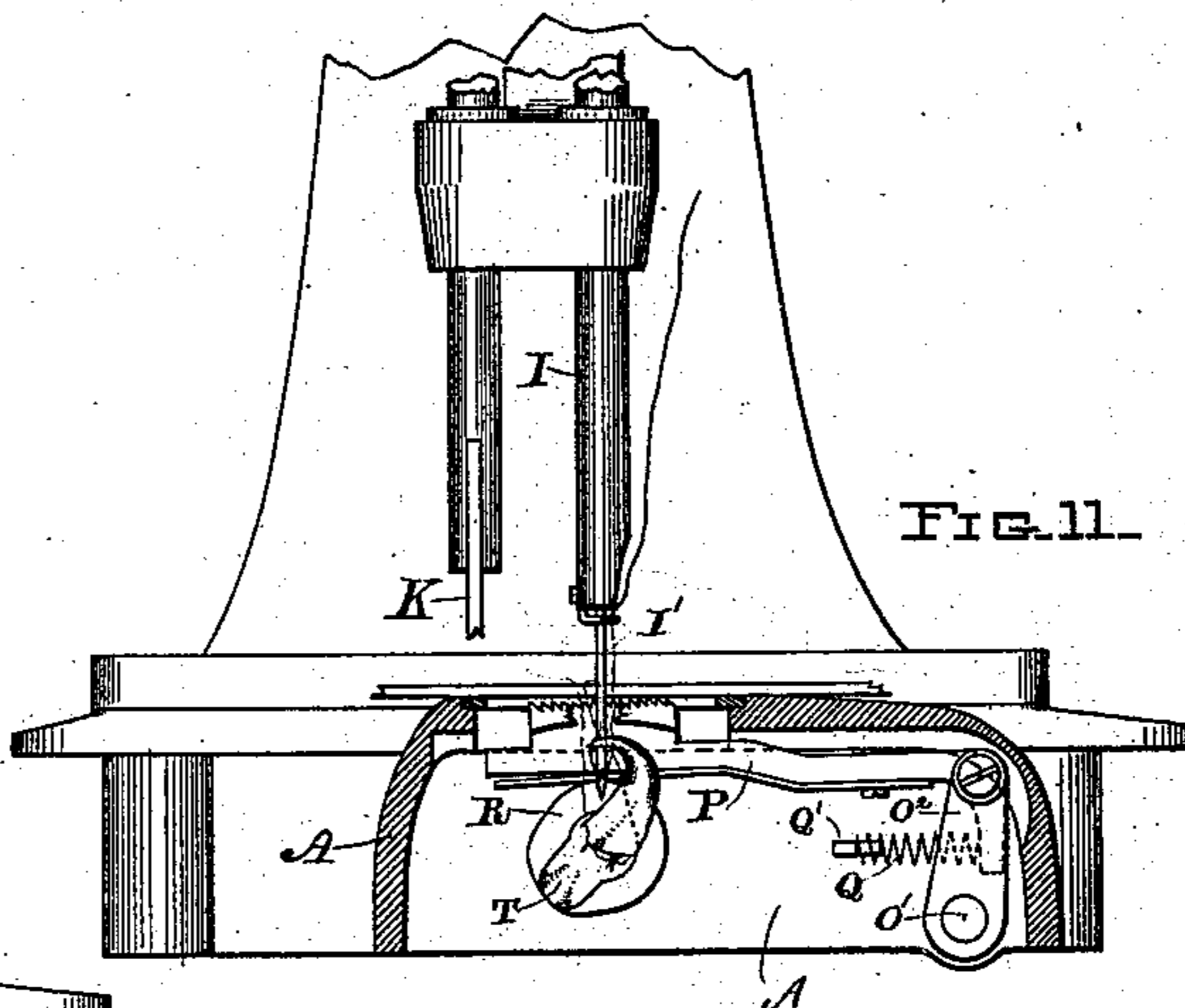


FIG. 11.



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# UNITED STATES PATENT OFFICE.

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MASSACHUSETTS.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 377,888, dated February 14, 1888.

Application filed December 27, 1886. Serial No. 222,544. (No model.)

*To all whom it may concern:*

Be it known that we, ORVILLE C. DOLLOFF, of Chelsea, and RUFUS M. EASTMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Sewing-Machines, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

10 In the accompanying three sheets of drawings, Figure 1 is a side elevation of a machine embodying our invention. Fig. 2 is an under side view of the same. Fig. 3 is a section taken, as on line Z, through the stem of the looper  
15 and as viewed from the left of said section-line, and showing to the right thereof the connections through which the looper is rotated. Fig. 4 is a detached front view of the looper, and also shows the cam which is employed to  
20 raise the feed-bar and which is mounted upon the stem of the looper, and by means of an interlocking pin is made to revolve with the looper. Fig. 5 is an enlarged side view of the  
25 looper, showing also in section the cam for raising the feed-bar as mounted upon the stem of the looper, and the pin by which it is interlocked with the looper, and showing also the crank which is secured by set-screw or pin to the stem of the looper and through which  
30 the looper is turned. Fig. 6 is a view of the opposite side of the looper from that shown in Fig. 5. Fig. 7 is a view of the looper opposite to that shown in Fig. 4 and as viewed from the left of section-line Y, Fig. 6. Fig. 8  
35 is a top view of the looper as seen from above, Fig. 5. Fig. 9 is a sectional elevation of the front end of the machine, the section being taken as on line Z', Fig. 2. Fig. 10 is a section through the feed devices, taken as on line  
40 Z', Fig. 2. Fig. 11 is a view substantially like Fig. 9, with some parts omitted, but showing the looper, needle, feed-bar, &c., in different positions and relation to each other.

Our invention relates to a machine for "basting," by which the parts of a garment which are to be sewed together permanently with the usual short-stitch seams are first seamed together preparatory to such final stitching with long or basting stitches, which, after they have  
50 served their temporary purpose, can be easily removed.

The chief requisites for a practical basting-machine we have by experimental operations discovered to be, first, a suitable device or devices for forming a long-loop single-thread  
55 chain-stitch; second, a thread-controller which shall automatically yield at the proper time the requisite amount of slack thread to the action of the looping devices, and in such manner as to avoid undue wear and strain upon the thread, 60  
and, third, which shall draw up the loops and properly set the basting-stitches independently of the feed movement, while the goods remain stationary on the work-plate under the pressure of the foot; fourth, a long feed movement 65  
adapted to carry forward the goods to the required extent at the time the thread is slackened to form the succeeding stitch; and, fifth, a bed-plate formed and adapted to receive and support such parts of a garment—for instance, 70  
the shoulders of a coat—as cannot be properly basted upon the usual broad flat bed of a machine. We have applied our invention, as hereinafter described, to one form of the well-known "Wheeler & Wilson Sewing-Ma- 75  
chine," modified as to the shape of the bed and as hereinafter pointed out, and have thus attained the requisites referred to for a successful basting-machine, in the manner and by the means which we will now describe, first merely 80  
outlining the general construction of the machine illustrated by the drawings as to those parts or features which do not in and of themselves constitute a part of our invention.

Upon the under side of the bed A is a rotary 85  
shaft, B, to which the driving-pulley C is attached. Upon the back side of the goose-neck D a rock-shaft, E, is mounted in suitable bearings, and to the rear end of the shaft is attached a crank, F, which is connected with an 90  
eccentric on shaft B by rod G, through which a vibratory movement is imparted to shaft E when shaft B is rotated. The front end of shaft E is also provided with a crank, H, that connects with the needle-bar I through the 95  
link J, and by which the needle-bar and its eye-pointed needle I' are actuated in the well known manner.

The head of the machine also contains the usual spring-presser foot, K, as shown. The 100  
bed A under the horizontal portion of the goose-neck or overhanging arm of the machine

is constructed narrow and with curved corners and sides which extend around the front end of the machine, covering in the operative stitching and feeding devices located under the work-plate, as shown in Fig. 1, in which the bed is broken away, showing a portion of the devices within the overhanging edges. The forward end of the bed-plate is also curved horizontally at its outersides or "corners," or what would be the corners if this part of the said plate were not thus curved. This form of the bed is constructed for the purpose, hereinbefore indicated, of adapting it to properly support such parts of a garment as are molded or rounded into form—such as the shoulders of coats—and require to be basted without deforming them in the operation, and this construction of the machine bed-plate with its overhanging forward end curved or rounded both horizontally and vertically, as shown in Figs. 1 and 2, constitutes one of the novel features of our invention.

Secured to the forward end of the rotary shaft B is a feed-cam, L, Fig. 2, which acts against one arm of a lever, M, pivoted at M', and the opposite arm of which, M<sup>2</sup>, acts through an adjustable interposed pin, N, upon lever O, which is secured to rock-shaft O', which at its opposite end acts through lever O<sup>2</sup> upon feed-bar P (see Figs. 9 and 11) to move the latter longitudinally in one direction, the bar being reacted upon and moved in the opposite direction by a spring, Q, which at one end is seated upon a fixed stud, while its opposite end bears by its expansion against a curved portion or shoulder, Q', of the bar P, as shown. The extent of the movement of bar P by cam L is governed by the position of the adjustable pin N, which is pivotally connected with lever N', (see Fig. 10,) and by the movement of said lever on its pivot N<sup>2</sup> the pin N is placed in any position desired between levers M<sup>2</sup> and O, and thus according to its relative position to the fulcrum of said levers the movement of bar P by cam L is lengthened or shortened, and consequently the space between the stitches is regulated accordingly. The vertical movement of bar P, by which its roughened surface is brought into and out of contact with the goods at proper intervals through a slot in the work-plate, is produced in an upward direction by a cam, R, which is mounted upon the stem of the looper, hereinafter described, and is made to revolve in connection with the looper by means of an interlocking pin extended through the cam into the looper, as clearly shown in Fig. 5.

The outer face of the cam is properly formed to raise the feed-bar, when required, into contact with the goods, as in Fig. 9, and, when in different position, to allow the bar to react downward, partly by the expansive force of spring Q, as in Fig. 11. Thus the devices just described produce the old and well-known "four-motion" feed movement. There is also secured to the forward end of rotary shaft B a disk, S, and from a pivot in the face

of this disk a link, S', extends to and connects with a crank, S<sup>2</sup>, which is fixed upon the inner end of the stem S<sup>3</sup> of the rotary looper T, whose axis of rotation is placed slightly above and parallel with the axis of shaft B. By this arrangement of the axis of the looper relative to the axis of the actuating-shaft B, and connecting the looper and shaft, as above described, a variable movement of the looper is secured, which is so timed that when the hook or point of the looper is about to enter the loop of thread thrown out from the eye of needle I', as in Fig. 11, and just before it reaches the position there shown, its movement is accelerated, so as to enter the loop quickly before the needle, which has a continuous up-and-down movement, withdraws far enough to render uncertain the securing of the loop by the looper-point, and when the looper-point has passed into and secured the loop the movement of the looper is retarded. The manner in which the devices described accomplish this variable movement being obvious from their construction and arrangement, and also old and well known, no further description or explanation is deemed necessary, as the devices, excepting the looper, do not in and of themselves constitute a feature of our invention.

The looper T in its construction and in its operation in combination with the other devices described, as hereinafter set forth, does constitute an essential feature of our invention. This looper is formed with a curved point or hook, *a*—a body which gradually widens toward its center and then narrows again to its opposite extremity, as shown in Fig. 5, and upon the opposite side, as shown in Fig. 6, has a shoulder, *b*, formed across and about midway of the body. A shaft or stem, S<sup>3</sup>, is formed as an integral part of the looper, reduced in diameter by turning while revolving around a common center. The said shaft or stem S<sup>3</sup> is provided on its side toward the hook or point *a* of the looper with a notch, *c*, the purpose of which will be explained. In placing the looper in its working position, cam R is first slipped upon the stem and connected with the looper by a pin, as before described, and as shown in Fig. 5. Then stem S<sup>3</sup> is passed from the left through a hole in a bearing, T', Fig. 2, formed on the bed A, in which bearing the stem is fitted to revolve, and while cam R rests against the outer end of said bearing the stem projects beyond the inner end far enough to receive the hub of crank S<sup>2</sup> thereon, by which it is secured in place in its bearing T', and through which it is rotated, as before stated.

When the hook of the looper enters the loop of thread, as shown in Fig. 11, it does so upon the left side of the needle and passes into and through the loop, and as the loop is drawn down by the hook of the looper, and as the looper approaches the position shown in Fig. 9, the loop can be drawn up into the notch *c* and against shoulder *b*, the inner end of which is opposite said notch, thus avoiding an un-

necessary extension of the loop and consequent useless wearing and chafing of the thread through the eye of the needle, and the loop is so drawn up by the feed movement, which  
 5 takes place at the time the looper is in about the position shown in said Fig. 9, without straining upon the thread, the loop being sufficiently large or extended to admit of such movement without any overdraft upon the  
 10 thread, and while the looper completes its next half-turn and secures upon its hook a second loop, as in Fig. 11, the first loop rests against shoulder *b*, where and by which it is retained until the looper has turned far enough  
 15 to commence drawing down the second loop, when the first loop is cast off around the second, thus forming the well-known single-thread chain-stitch. When the feed movement has taken place, as above described, and while the  
 20 goods are at rest upon the work-plate, being held smoothly in place by the presser-foot, the thread controller or take-up *U*, pivoted at *V*, and through a guide in the upper end of which the thread passes, as shown in Fig. 1, is moved  
 25 by a cam, *W*, on shaft *B*, so as to draw up the loop and set the stitch in the goods, as required, the top of the thread controlling or take-up lever *U* stopping in about the position *e*, as there shown, and when the needle  
 30 again descends and the looper draws upon its thread the lever *U* gradually advances to about the position *f* and yields up the thread to the looper without undue strain and to the extent required. Thus the stitch is drawn up and  
 35 set independently of the feed movement, being drawn against the pressure of the foot *K*, thereby avoiding all puckering of the goods, and under this arrangement and relative movement of the parts the thread-tension *X* on the  
 40 thread, between which and the needle *I'* the controller or take-up *U* operates, is thereby rendered practically automatic and adapted to any length of stitch required and to any thickness of goods likely to be operated upon  
 45 when once properly adjusted, for in any case

the looper draws down thread enough for the longest feed movement employed, and if in setting the stitch the thickness of the goods is such as to take up the surplus thread of the  
 loop before the controller or take-up *U* reaches  
 50 its extreme backward position, *e*, then it draws from the supply-spool through tension *X*, and thus a uniform tension counteracts and equalizes the strain of the take-up *U* upon the  
 thread in setting the stitch, whether the goods  
 55 be thick or thin.

We claim as our invention—

1. A rotary looper for sewing-machines, consisting of the body portion *T*, widest near its center and tapering thence in both directions  
 60 laterally, as shown, and the stem or shaft *S*<sup>3</sup>, having the notch *c* on its side toward the point of the looper and adjacent to the said body portion, the latter having the curved hook *a*  
 and near its middle the crosswise shoulder *b*,  
 65 the inner end of which is opposite said notch, substantially as set forth.

2. A sewing-machine bed-plate having an overhanging forward end and overhanging curved sides extending from the standard of  
 70 the bracket-arm or goose-neck to the said forward end, and the latter being curved or rounded both horizontally and vertically, substantially as set forth.

3. In a sewing-machine, the combination,  
 75 with the bed-plate *A*, having the overhanging curved sides and end, as shown, of the rotary looper *T*, widest near its center and tapering thence laterally toward its curved point or  
 hook *a* and its heel, and having the crosswise  
 80 shoulder *b* and the stem *S*<sup>3</sup>, provided with notch *c*, the needle-bar, its needle, the feed-bar, and take-up or thread-controller, and means for operating the moving parts, substantially as set forth.

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