

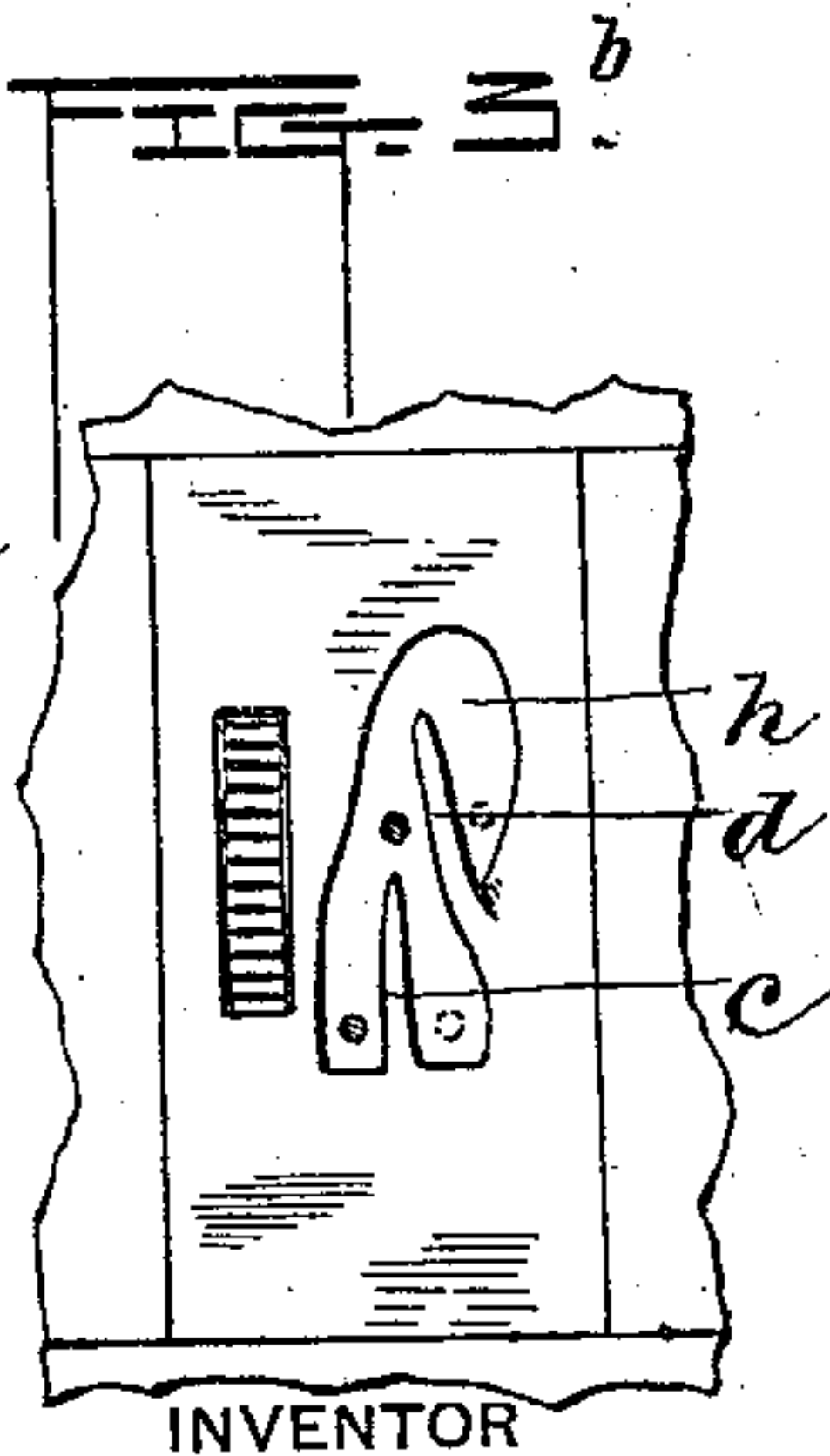
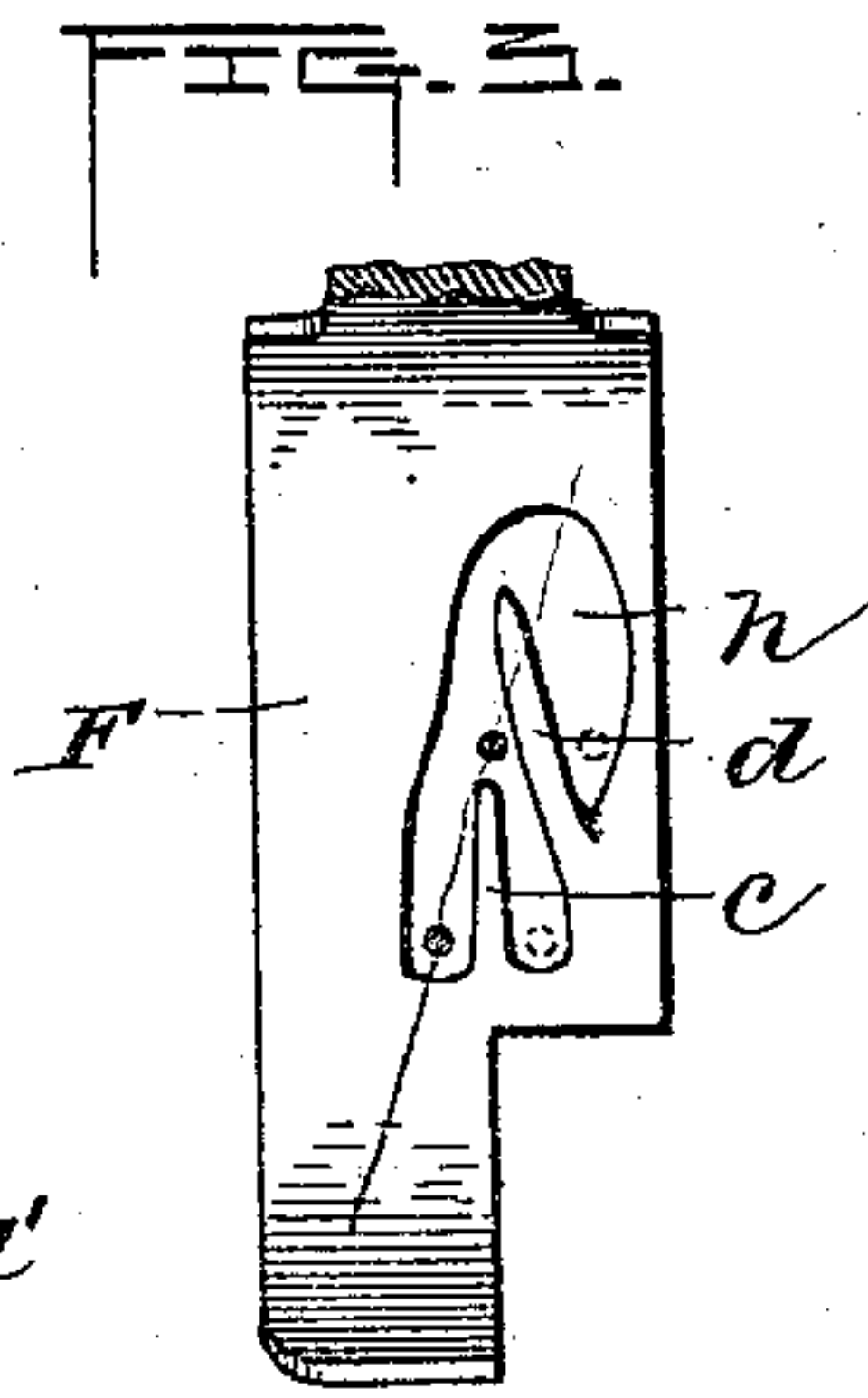
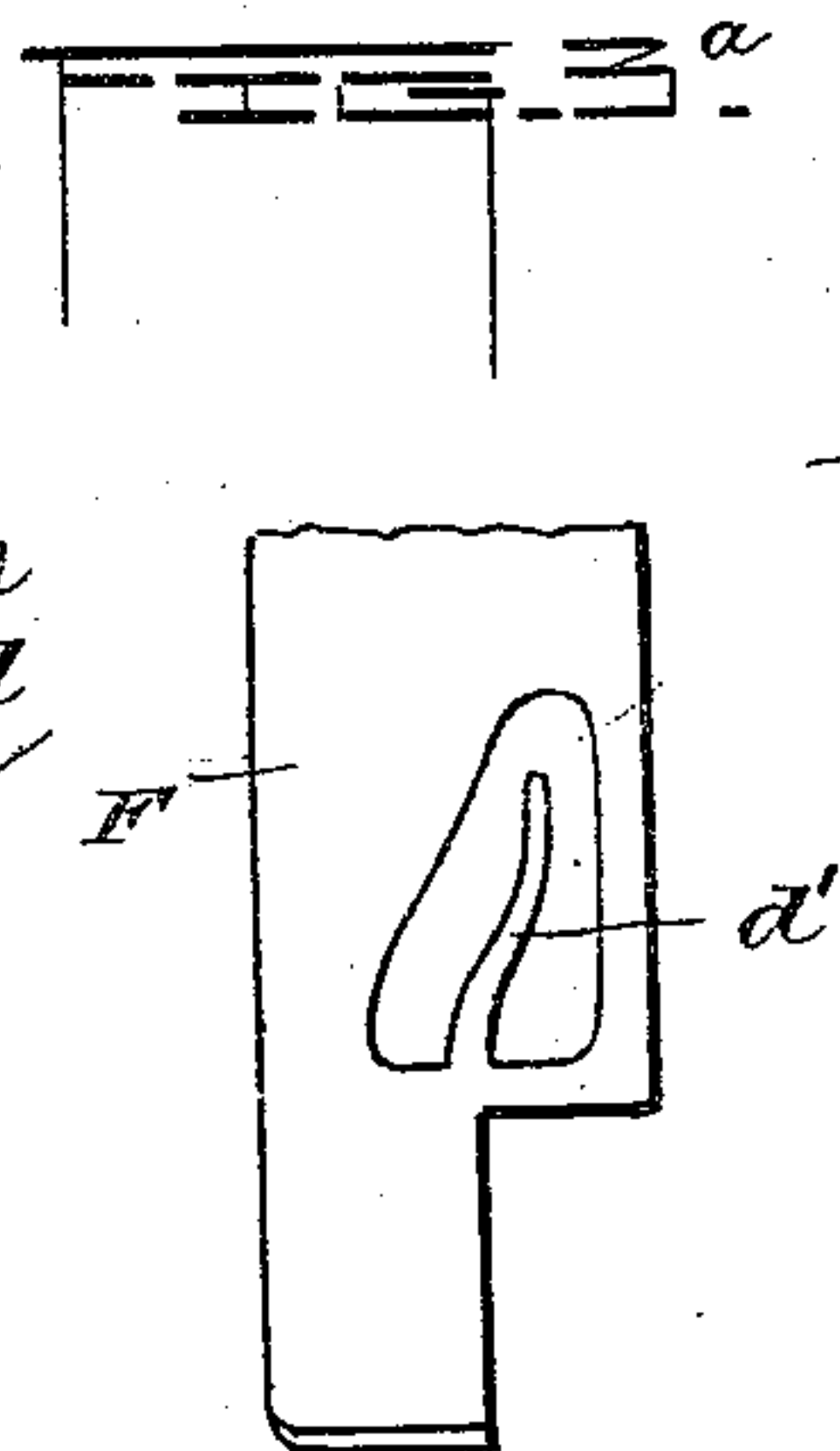
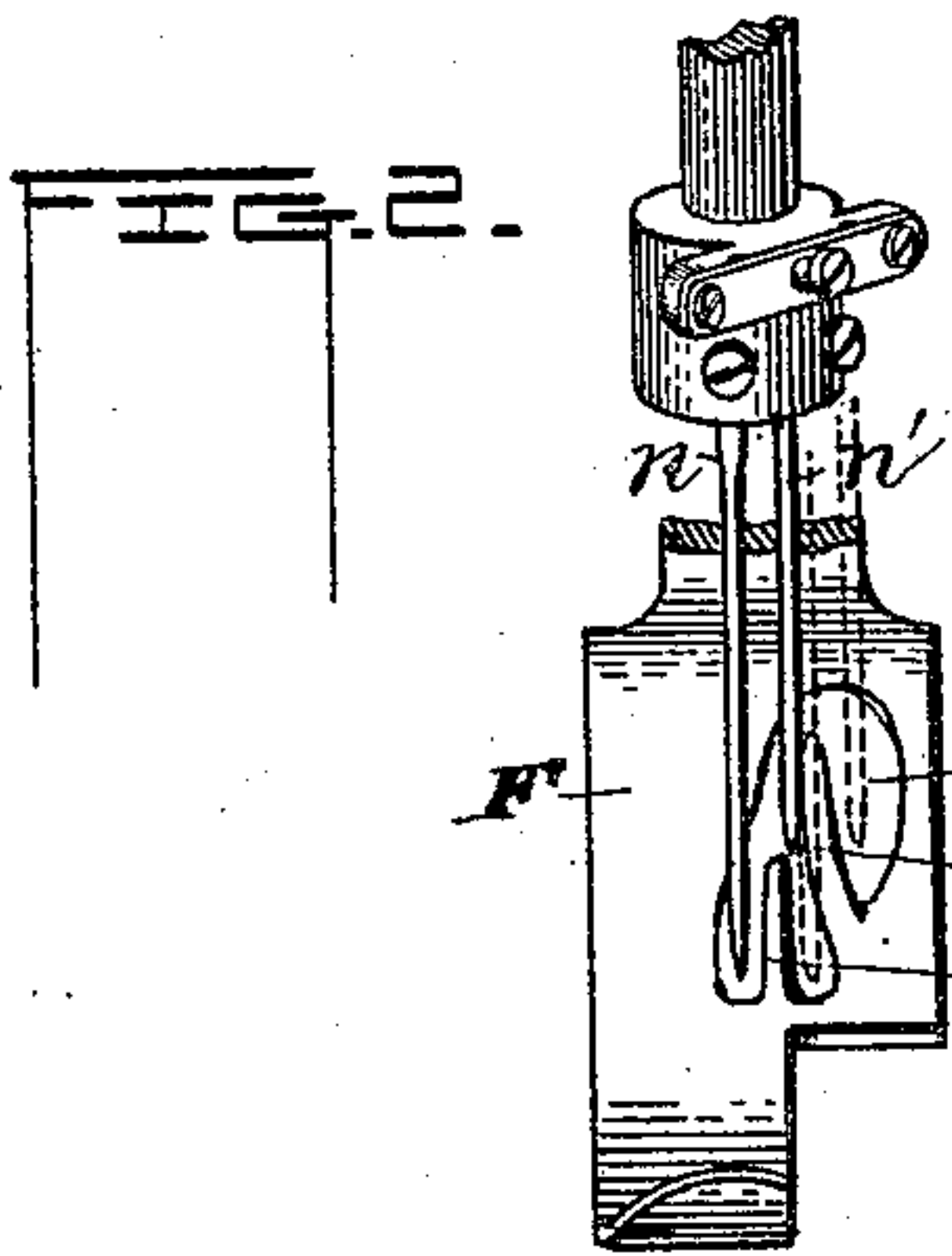
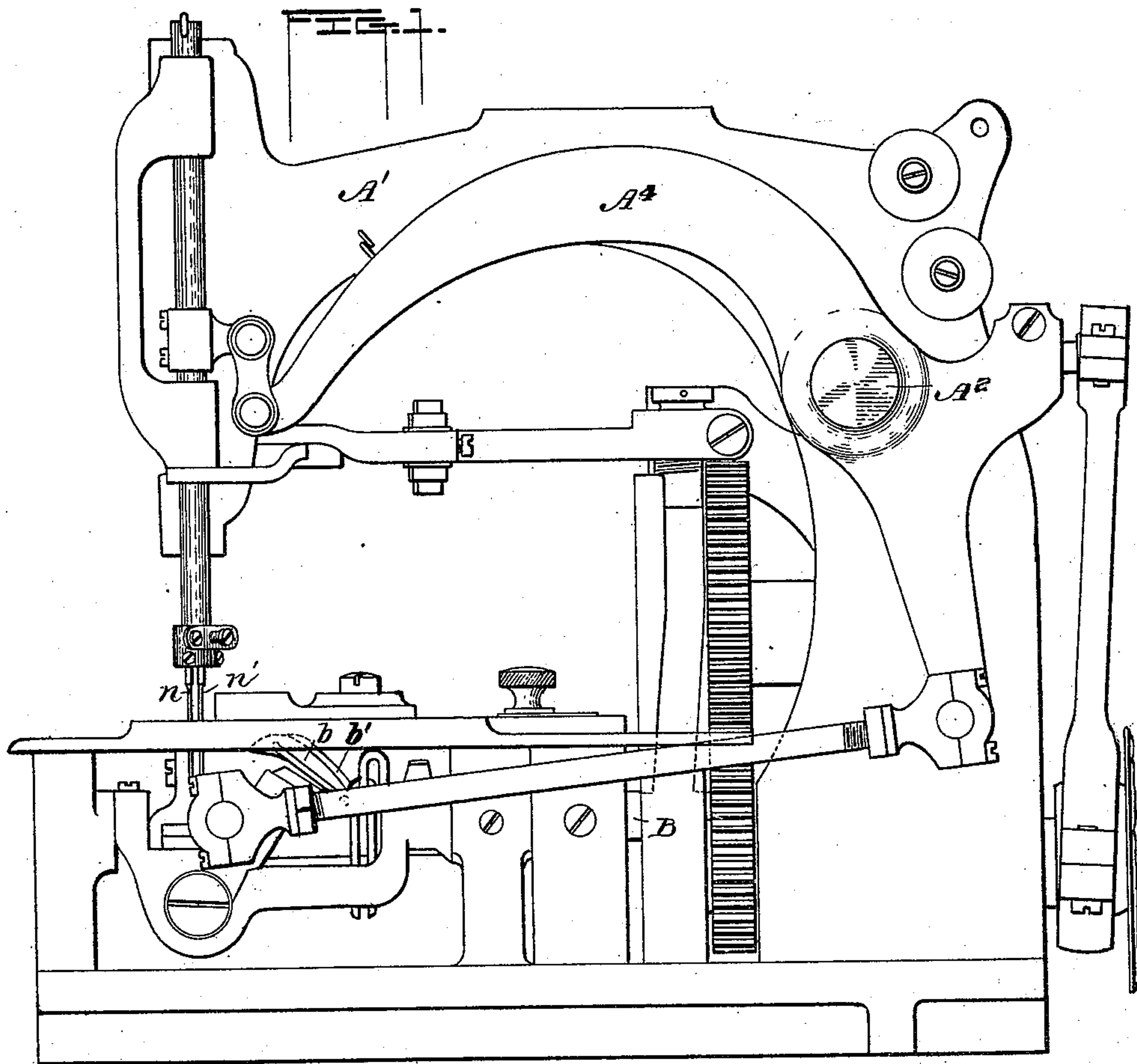
(No Model.)

2 Sheets—Sheet 1.

R. G. WOODWARD.
SEWING MACHINE.

No. 466,264.

Patented Dec. 29, 1891.



WITNESSES

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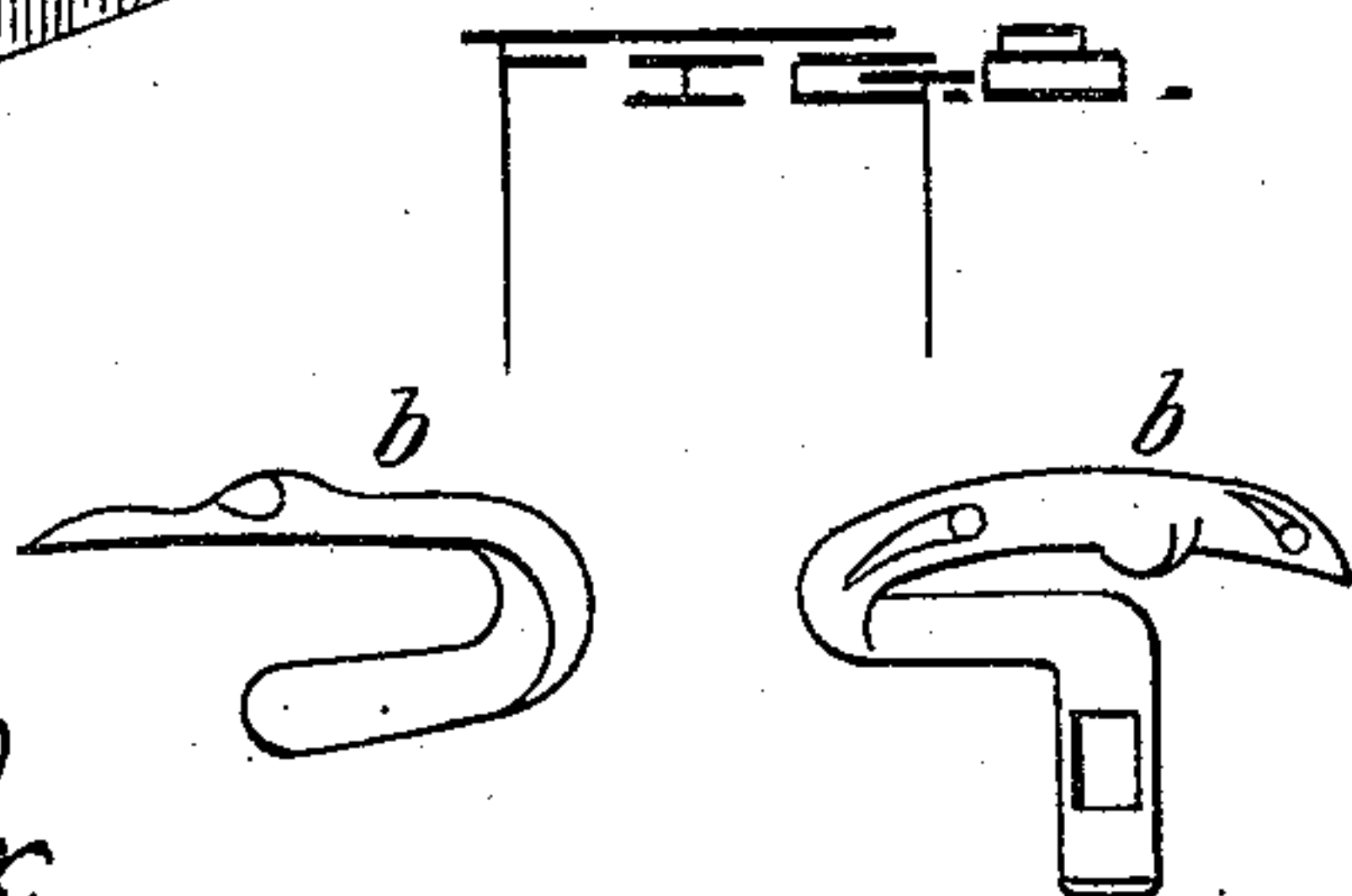
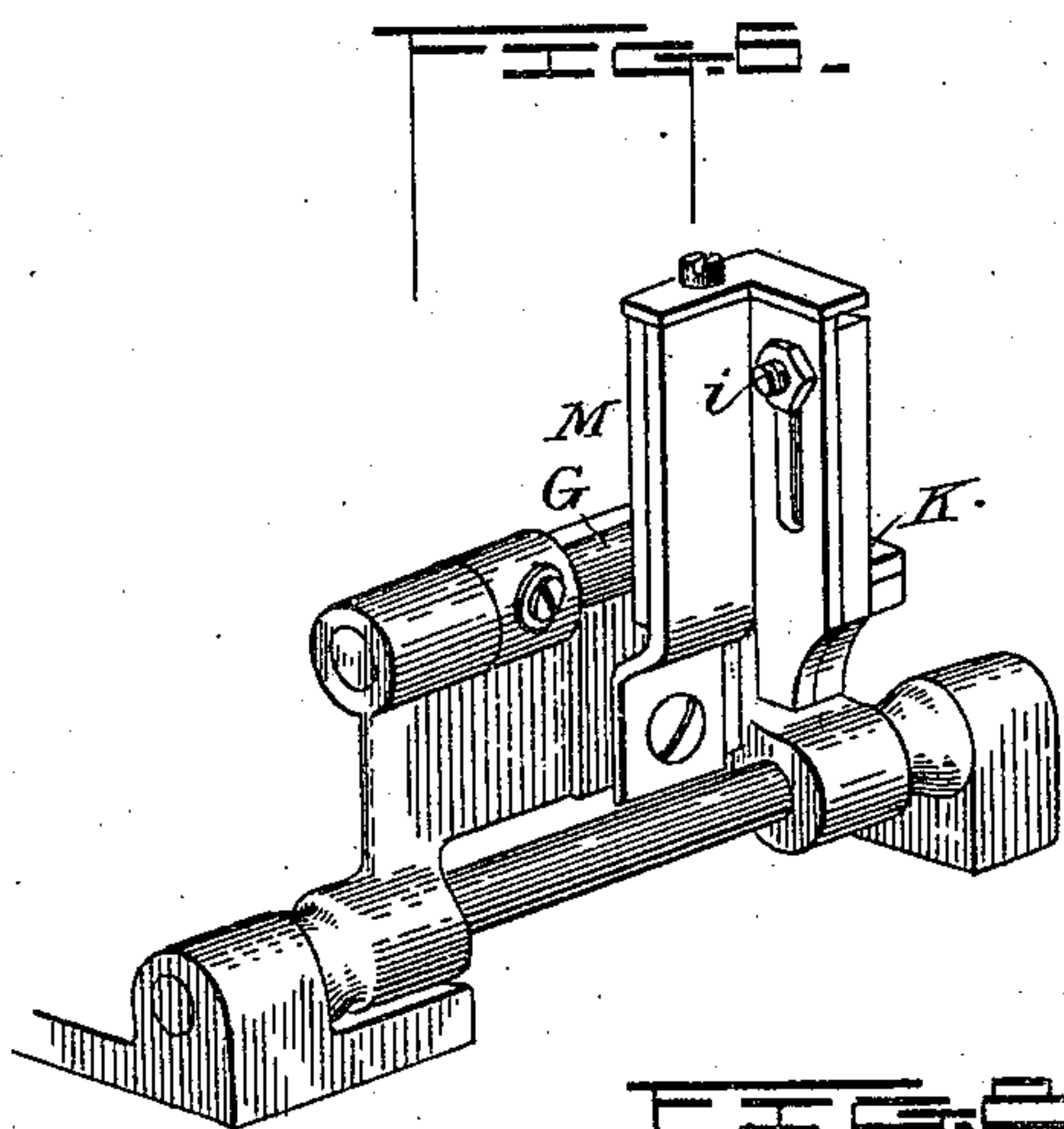
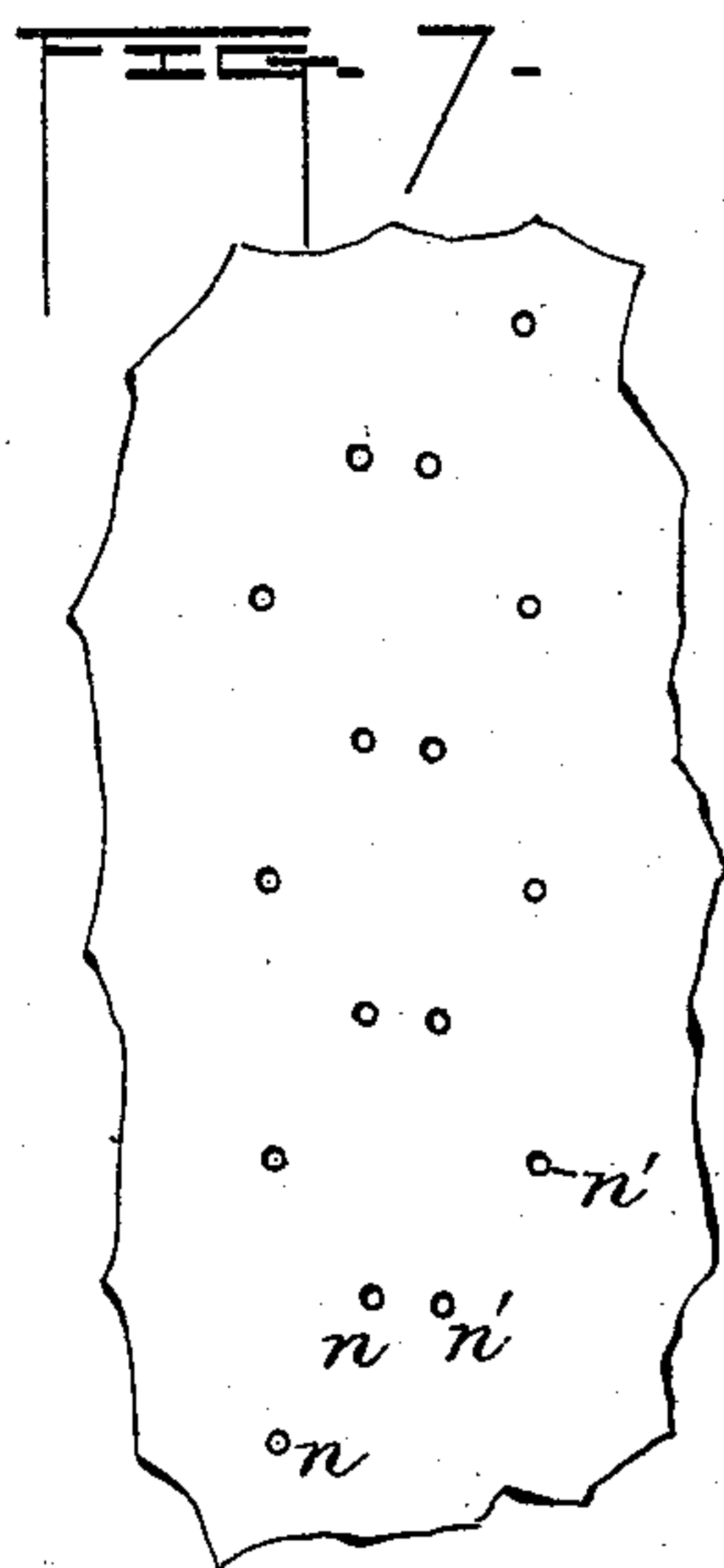
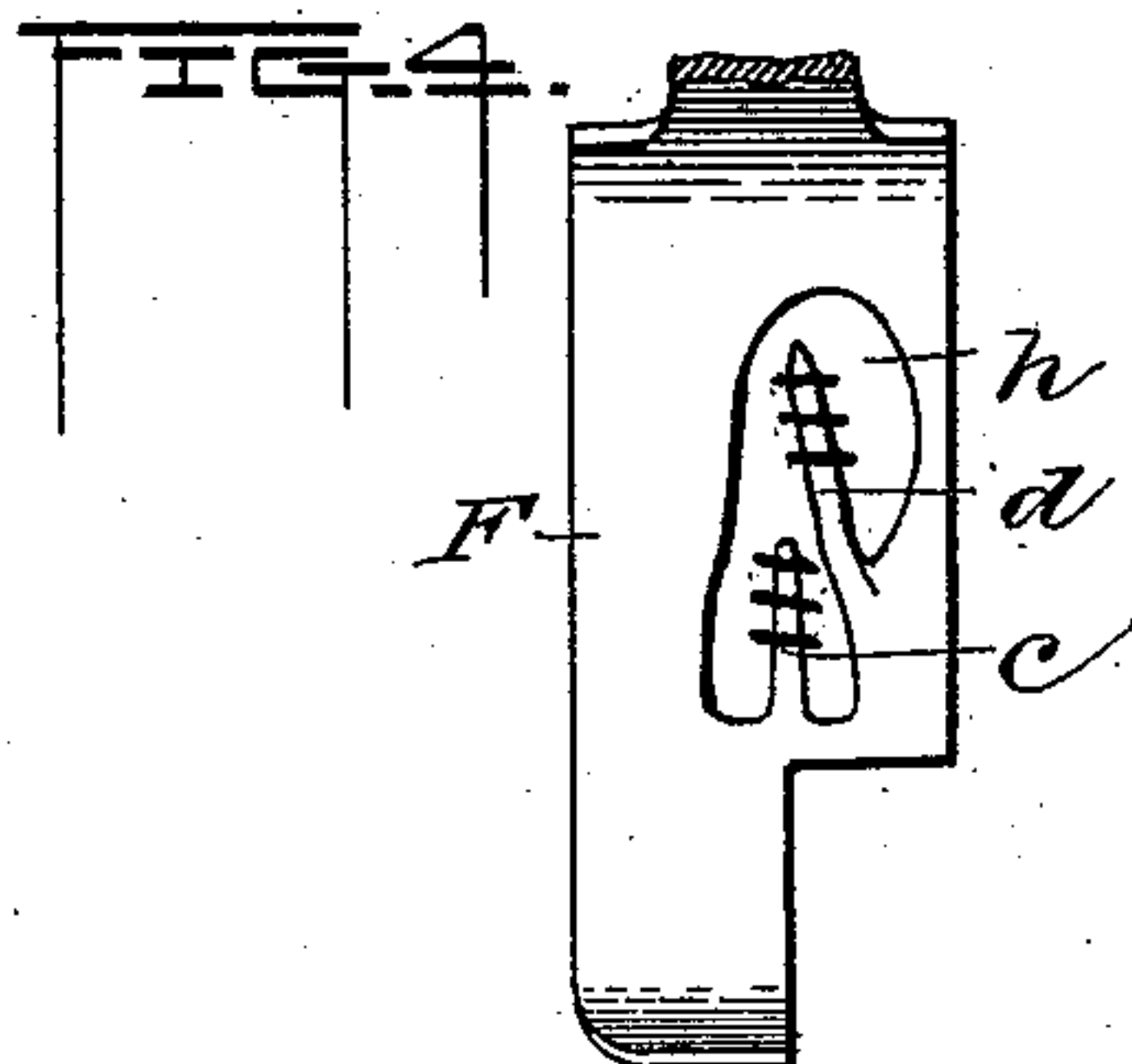
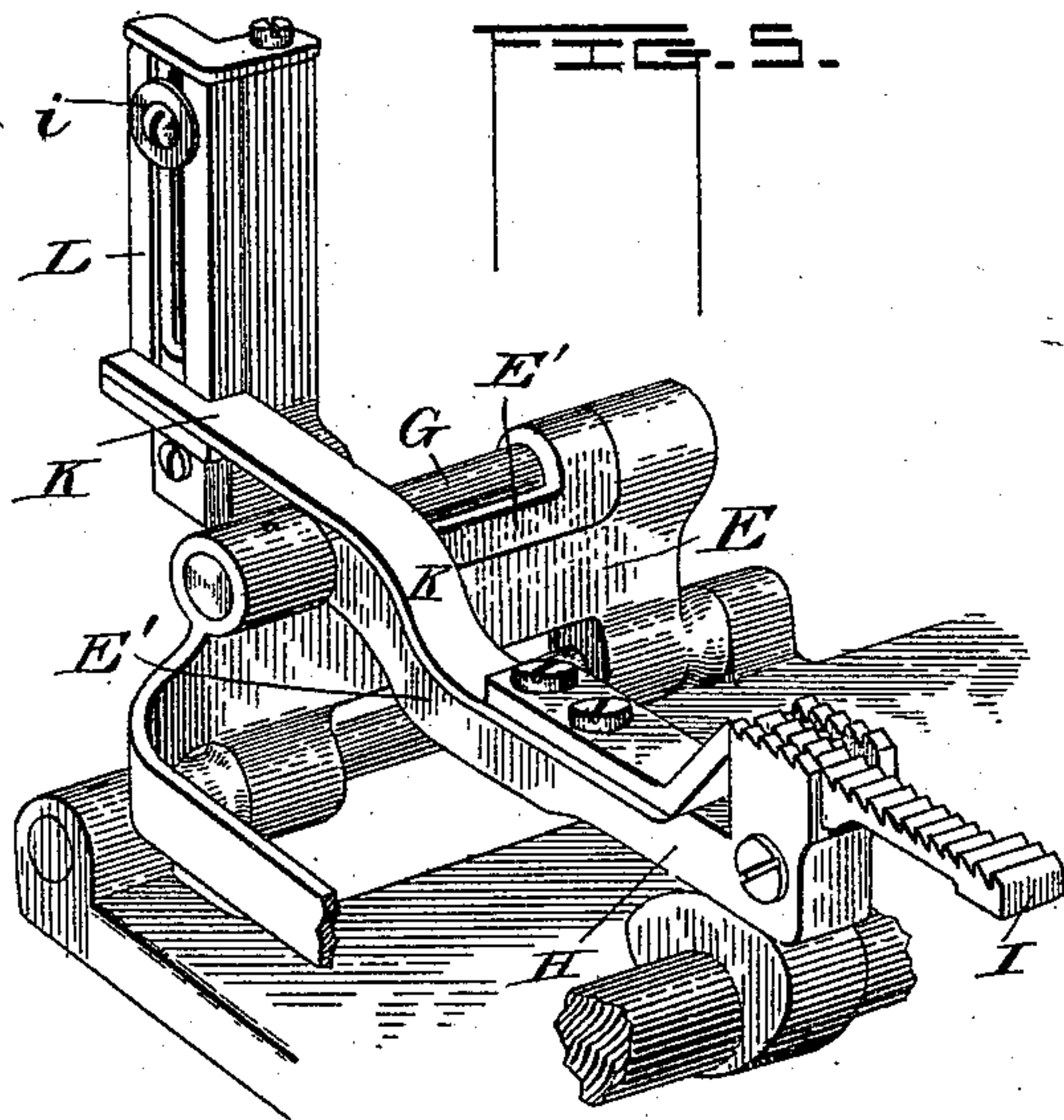
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No. 466,264.

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WITNESSES

L. A. Comer Jr.
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UNITED STATES PATENT OFFICE.

RUSSEL G. WOODWARD, OF WAUKEGAN, ASSIGNOR TO THE UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 466,264, dated December 29, 1891.

Application filed March 27, 1891. Serial No. 386,615. (No model.)

To all whom it may concern:

Be it known that I, RUSSEL G. WOODWARD, a citizen of the United States of America, residing at Waukegan, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in sewing-machines, and more especially to those designed for use in overseaming.

The object of the invention is to provide a machine which can be used either for the ordinary purpose of overseaming or for making simultaneously two rows of interlocking stitches for use either in sewing together the edges of two fabrics or for forming ornamental work upon the face or edge of a fabric.

My invention consists, first, in the combination, with the driving parts of a sewing-machine, of two needles set obliquely on the needle-bar, adapted to form independent stitches, but vibrating from one side to the other of the tongue or tongues formed in the presser-foot or throat-plate, or both, so as to form interlocking rows.

Further, the invention consists in the combination, with the two obliquely-set needles adapted to vibrate from one side to the other of a tongue or tongues formed in the presser-foot, throat-plate, or both, of a feeding arrangement to prevent stretching of the fabric during the operation of sewing and consequent curling of the edges when removed from the machine.

Finally, the invention consists in the details of construction of the presser-foot and throat-plate and in certain other matters, all of which will be hereinafter described and specifically claimed.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front side elevation of a sewing-machine embodying my invention. Fig. 2 is a front view showing alternating positions of needle-bar. Fig. 3 is a plan view of my improved form of presser-foot, showing the positions of the needles. Fig. 3^a is a similar view showing a slightly-different form of

presser-foot, but its equivalent. Fig. 3^b is a similar view of a throat-plate. Fig. 4 is a similar view showing the stitches formed upon the tongues of the presser-foot. Fig. 5 is a perspective view of my improved feed, and Fig. 6 a rear view of the same. Fig. 7 is a diagram illustrating the paths taken by the needles, and Fig. 8 is a view of the looper employed.

In the drawings, A is the main frame, having an overhanging arm A', forming a part of it. Upon this arm A' is a stud A², upon which is pivoted a vibrating arm A⁴, deriving motion from a link actuated from an eccentric on the lower shaft B of the machine, as illustrated in Patent No. 401,294, of April 9, 1889, granted to L. Muther and myself.

For use in overseaming with two needles or for the purpose of making interlocking rows of stitches it is necessary in machines of this character to provide means for giving to the needle-bar, in addition to its vertical movement, a lateral movement in respect to a line drawn longitudinally through the feeding movement. I accomplish this movement by the means illustrated in Fig. 1, which, being described in connection with the above-mentioned patent, need not be herein particularly referred to. Instead, however, of having only one needle carried by the needle-bar, I place in the needle clamp or collar attached to the bar two needles *n n'*, setting them obliquely to each other, as shown in the plan view in Fig. 3. By this arrangement it will be seen that two independent rows of zigzag stitching will be sewed simultaneously, the needles traveling over into the path of each other, as shown in Fig. 7, thus forming interlocking stitches. In connection with these two needles I employ two loopers *b b'*, which have movement into the loop of the needle-thread and then swing across the path of movement of their respective needles in the direction of the length of feed and back again toward the rear of the machine, the loopers and needles co-operating to make the rows of stitching simultaneously and interlocking them. The mechanism for operating the single looper shown in Patent No. 401,294, above referred to, can be readily used for operating two with-

out necessitating any change in construction, except to add the second loop.

In a two-line overseaming-machine in which the needles vibrate together for the purpose of forming interlocking rows of stitches it is necessary to provide some means for giving the desired looseness to the stitches to allow of stretching of the fabric without breaking. This I accomplish by the particular construction of presser-foot illustrated in Fig. 3. This presser-foot F is attached to the presser-bar in any suitable manner, and has formed in its base a large hole *h*, through which the needles reciprocate. Extending partially across this hole approximately in a horizontal plane parallel with that of the direction of feed are two tongues *c* and *d*, the tongue *c* being herein shown as shorter and *d* longer, the ends of said tongues being about as much oblique to each other as are the needles. By this arrangement of tongues when the needles vibrate they pass into their proper positions and form interlocking stitches, the said tongues forming fingers over which the threads are passed, thus allowing a certain amount of looseness to the stitch, the stitch slipping off the tongues as the feed advances. It will be understood of course that instead of arranging the tongues in the presser-foot they may be arranged on the throat-plate, as shown in Fig. 3^b, or, if desired, a long crooked tongue *d'* might be used, as shown in Fig. 3^a. If still greater looseness of the stitch is required, the presser-foot and throat-plate may both be provided with the tongues.

As above stated, the main feature of the present invention consists in the combination, with the needles set obliquely in an overseaming-machine, of the presser-foot having a tongue or tongues so arranged as to co-operate with the needles to form two independent rows of stitches made to interlock.

While I have referred to the presser-foot as containing two tongues, I desire it to be understood that I consider the placing of a long crooked tongue in the presser-foot or throat-plate or the formation of the tongues on the throat-plate instead of on the presser-foot as clearly equivalent constructions and consequently within the scope of my invention.

My invention also includes, in combination with the above features, a feeding mechanism, one portion of which moves faster than the other, whereby curling of the edges of the fabric or that portion ornamented is prevented. A preferred form of mechanism by which I accomplish this object is illustrated in Fig. 5 and constitutes an improvement upon the feed shown in Patent No. 299,568, granted to Muther and Dearborn June 3, 1884.

The feeding mechanism above described consists of a rocking frame E, hinged to the bed-plate, having the feed-dog H mounted on it by means of an arm E', pivoted at one end to a rock-shaft G on the upper portion of the frame E and acted upon by a lifting-cam at-

tached to the main shaft beneath the feed-dog, together with certain other features not deemed necessary to illustrate, as they are fully described in said patent.

In addition to the feed just described, my machine has an additional feed traveling in a space formed in the other feed-dog and adapted to travel at a different rate of speed therefrom. This feed-dog I is secured to a bar K, made integral with or attached to a slotted upwardly-extending part or piece L, adapted to be secured by a bolt and nut *i* to an upwardly-extending angular bracket M, secured at its lower part to the frame E, and provided with a slot, through which the bolt *i* passes, the same forming a pivot-point for the dog-support. It will thus be seen that in the movement of the rocking frame E as the pivotal point of the bar K is above and farther from the point of oscillation than the bar which actuates the other feed-dog, the feed-dog I will, when the movement of lower shaft is communicated to the upper feed, move faster than said lower feed.

It will of course be obvious that the amount of feed of the dog I may be changed by raising or lowering the point of attachment of its supporting-bar on the bracket M by means of the bolt and nut. Any suitable form of feeding mechanism for accomplishing the same result may be used; but that shown and described is preferable, and is claimed in an application filed by me July 8, 1891, Serial No. 398,843.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an overseaming-machine having a suitable needle-bar and reciprocating and vibrating mechanism therefor, the combination of two or more needles set oblique to the line of feed, and a presser-foot beneath the same provided with an opening in its base and a tongue or tongues extending into said opening, said needles vibrating from side to side of said tongue or tongues and forming simultaneously two rows of interlocking stitches, substantially as described.

2. In an overseaming-machine having a suitable needle-bar and reciprocating and vibrating mechanism therefor, the combination of two or more needles set oblique to the line of feed, a presser-foot beneath the same provided with an opening in its base and a tongue or tongues extending into said opening, said needles vibrating from side to side of said tongue or tongues and forming simultaneously two rows of interlocking stitches, and a feeding mechanism for the fabric, one part of which moves faster than the other, substantially as described.

3. In combination with the needles of a two-line overseaming-machine and means for laterally vibrating the same, a presser-foot having an opening for the passage of the needles, and a slack-forming device for each nee-

dle, extending into said opening, over which the stitches are formed, substantially as described.

5 4. The combination, with the needles, of a presser-foot for sewing-machines having an opening for the passage of the needles, means for vibrating said needles laterally, and two tongues extending from one end of said open-

ing toward the other end, one tongue being of greater length than the other. 10

In testimony whereof I affix my signature in presence of two witnesses.

RUSSEL G. WOODWARD.

Witnesses:

CHAS. L. STURTEVANT,
CHESTER MCNEIL.