

No. 679,906.

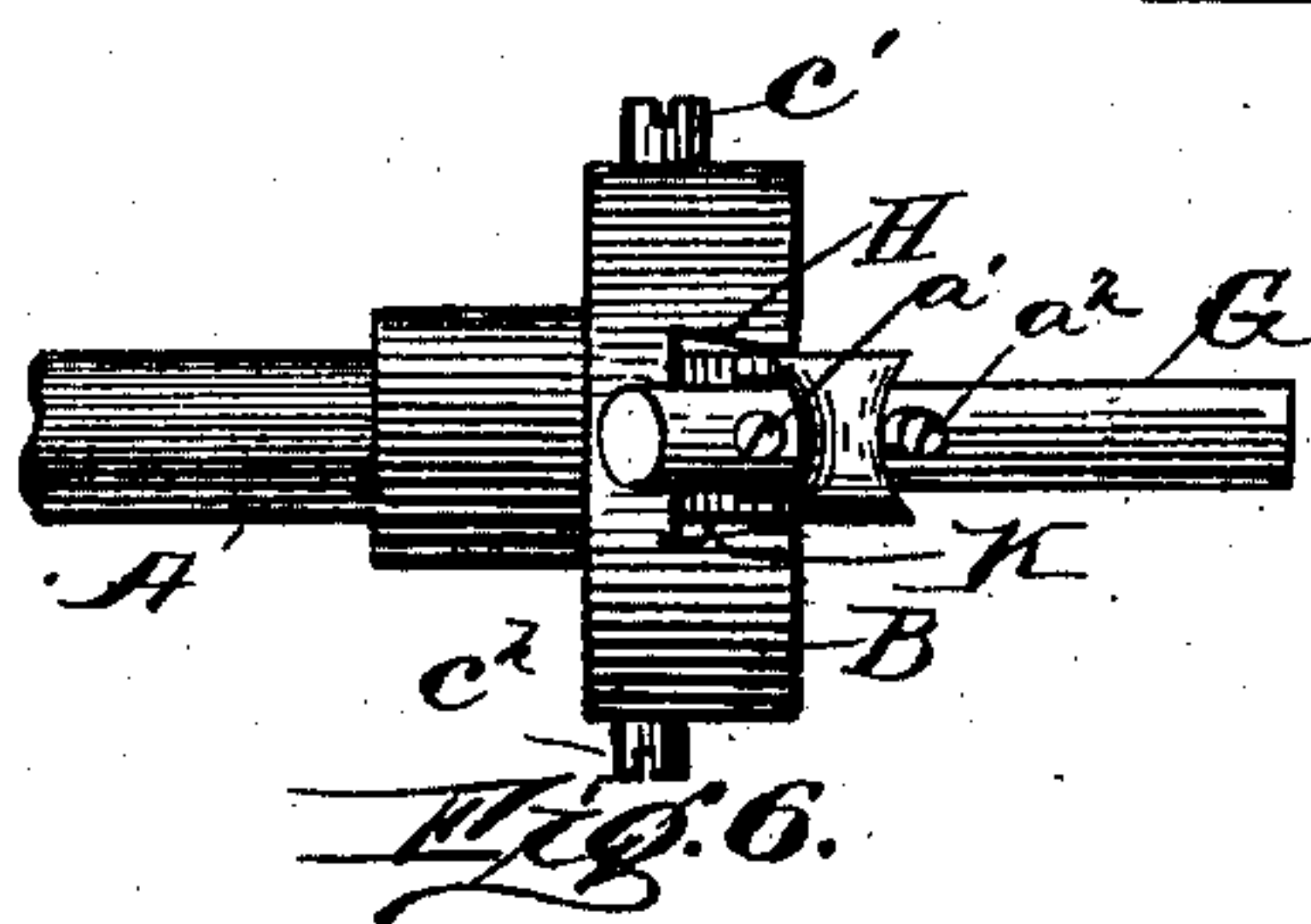
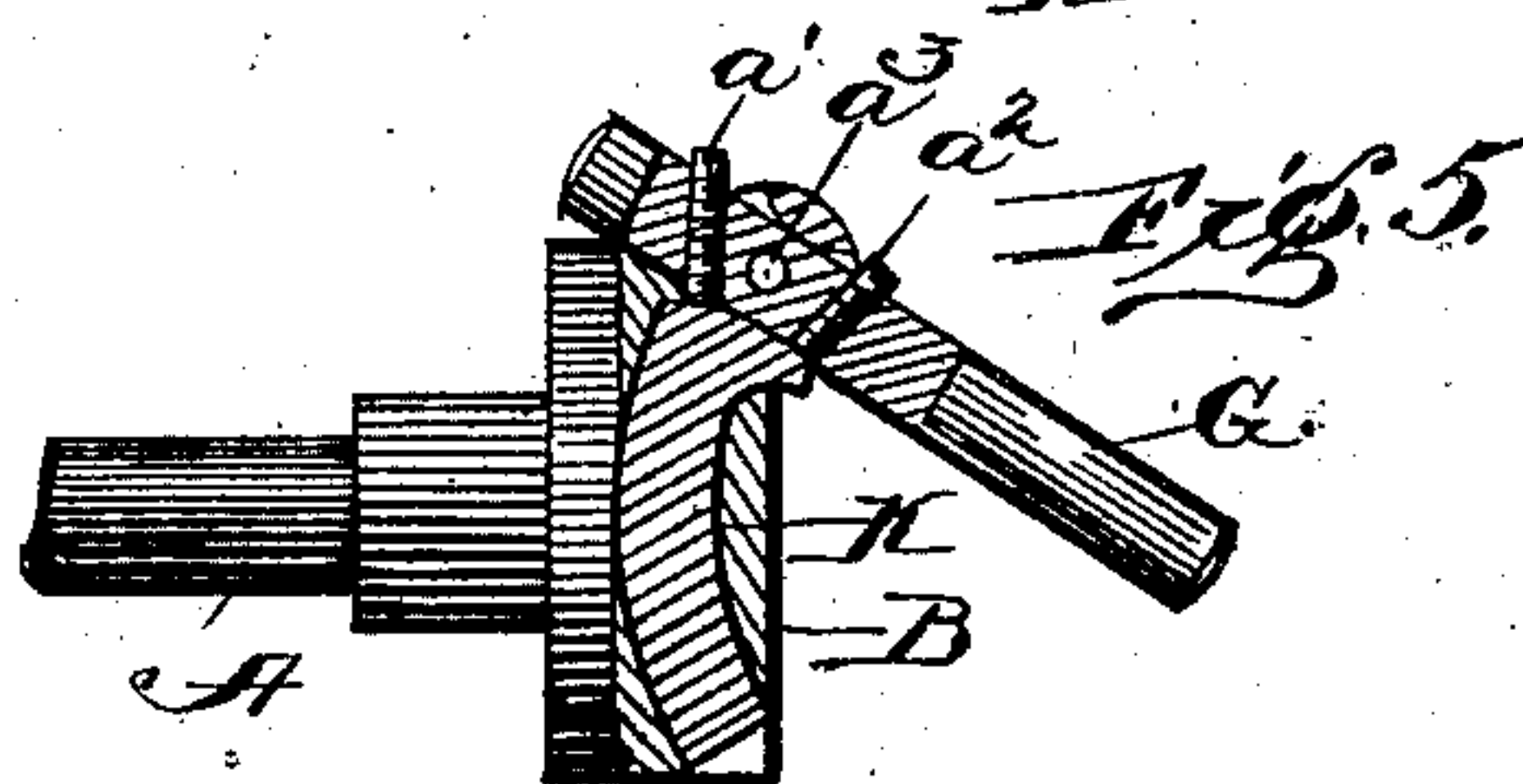
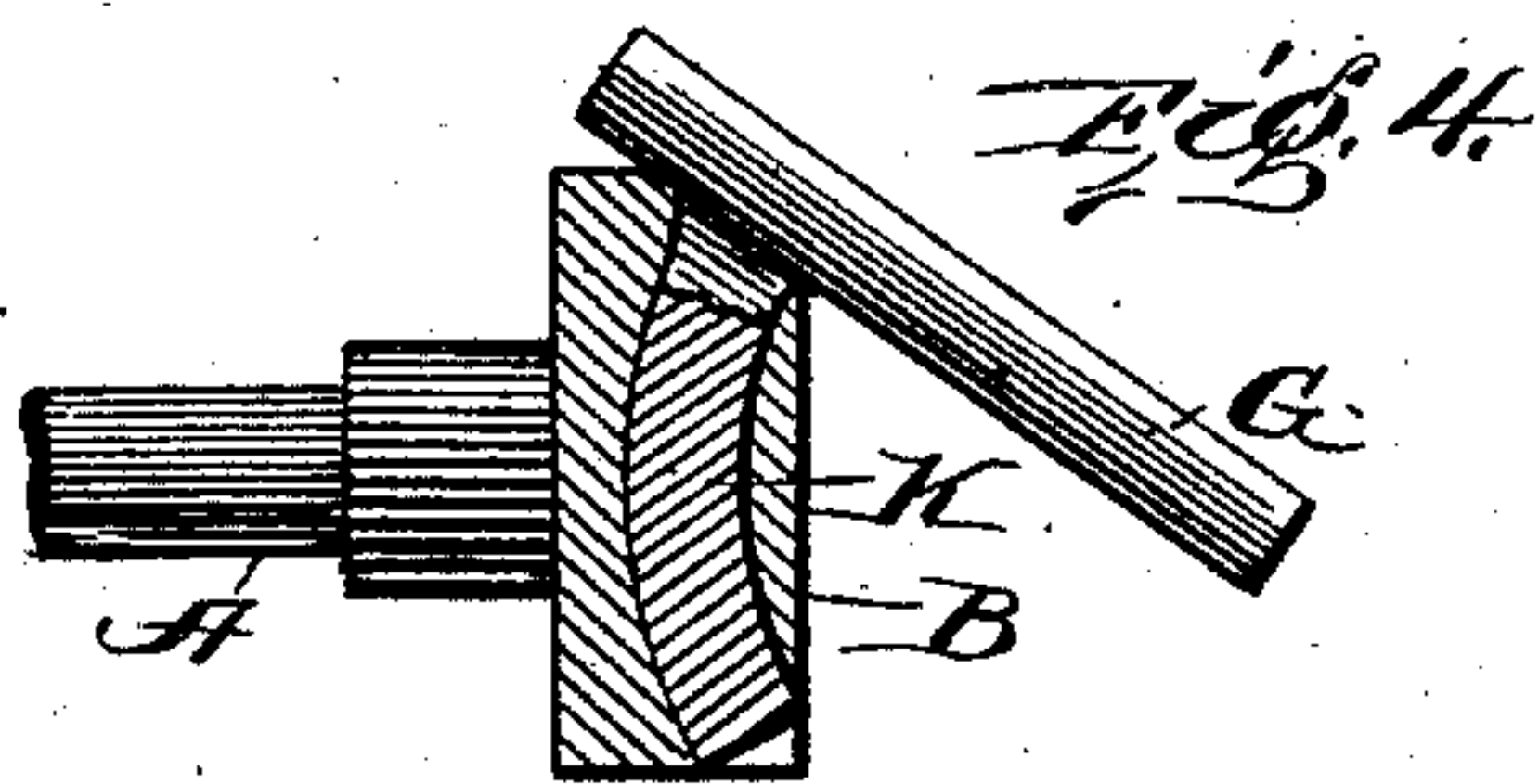
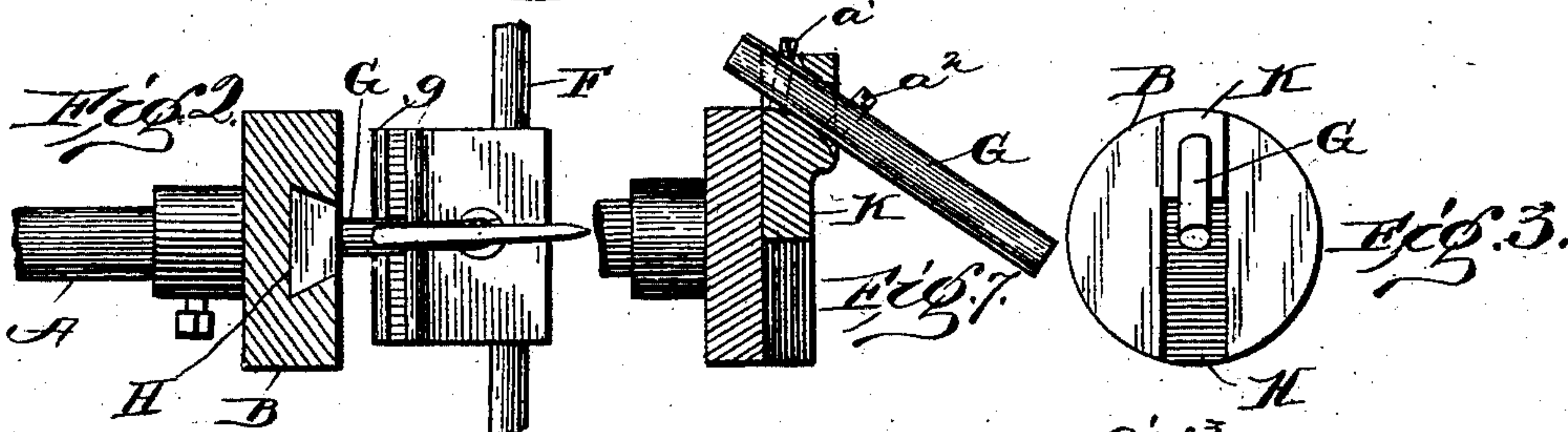
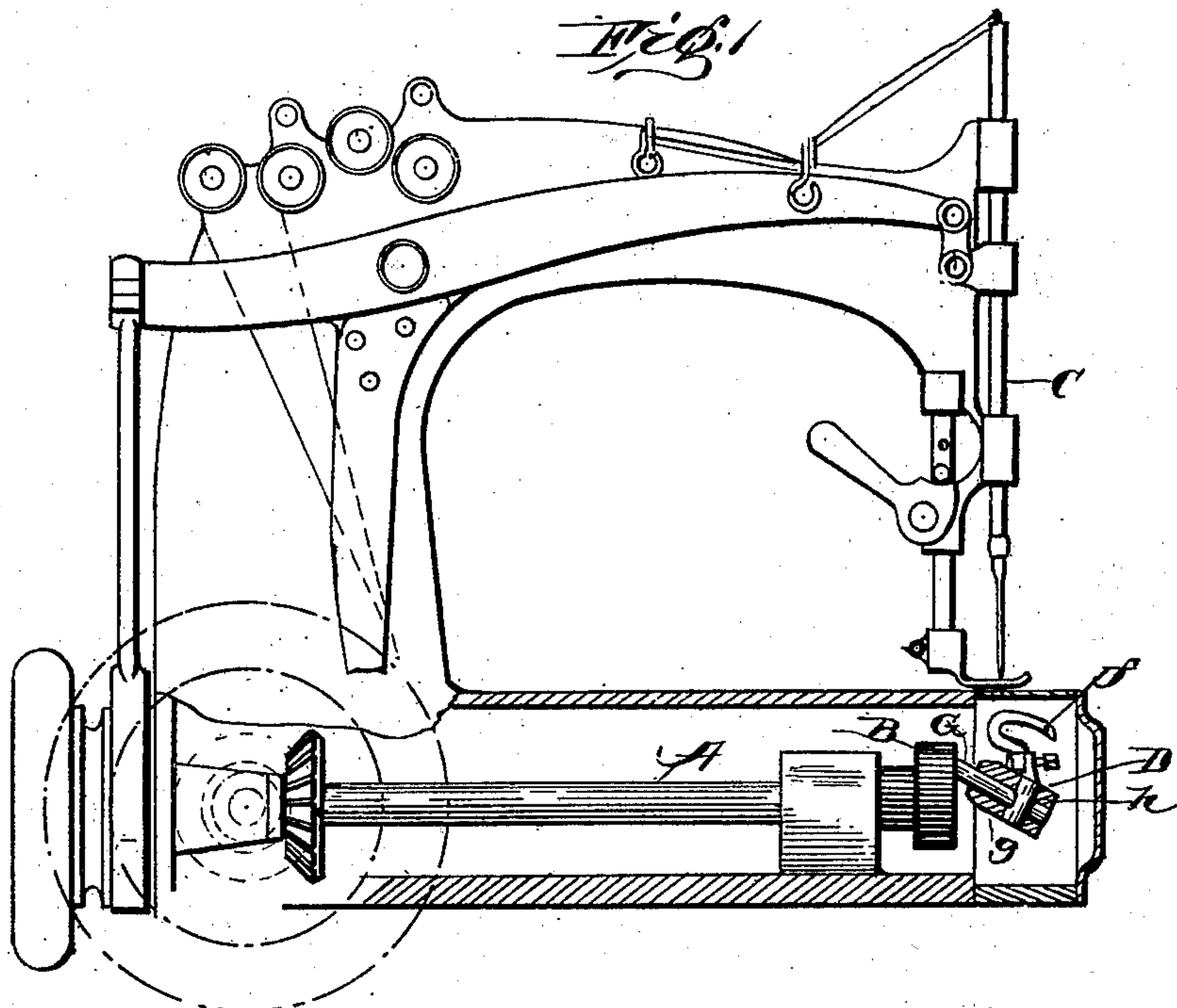
Patented Aug. 6, 1901.

L. ONDERDONK.

LOOPER OPERATING MECHANISM FOR SEWING MACHINES.

(Application filed Aug. 23, 1897.)

(No Model.)



WITNESSES
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LOOPER-OPERATING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 679,906, dated August 6, 1901.

Application filed August 23, 1897. Serial No. 649,245. (No model.)

To all whom it may concern:

Be it known that I, LANSING ONDERDONK, a citizen of the United States, residing at Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to an improvement in sewing-machines, and especially to a looper-operating mechanism for chain-stitch machines. In a number of prior patents issued to me October 12, 1897, and numbered 591,541, 591,542, 591,546, 591,539, and 591,538, I have shown, described, and claimed various forms of looper-operating mechanisms, in all of which an inclined pin or rod supported on the forward end of a driving-shaft engages a looper-carrier supported on a transverse shaft, which shaft practically forms oppositely-extending journals or trunnions for the looper-carrier, which journals or trunnions are mounted to slide and rock in fixed bearings on the machine-frame, the aforesaid pin or rod engaging the looper-carrier in such a way that by reason of its being confined in bearings it has a reciprocating sidewise movement and an oscillating forward-and-backward movement as the driving-shaft is rotated.

The object of the present invention is to provide for a series of adjustments in machines in which the looper is operated by an inclined crank, such adjustments being provided so that no matter whether there are slight defects in the construction of the various parts which are put together to make up the looper-operating mechanism these defects may be remedied by these adjustments. By these adjustments, therefore, the transverse shaft may be arranged at different distances from the end of the main shaft of the different machines, the throw of the looper may be varied, and the center of movement be changed at will without disturbing the proper relation of the various centers above referred to.

In the accompanying drawings, which illustrate the invention, Figure 1 represents a portion of a sewing-machine, partly in section, embodying my invention. Fig. 2 is a sectional

view of the end of the driving-shaft. Fig. 3 is an end view of the head of the driving-shaft. Fig. 4 is a sectional side elevation showing a modification of the arrangement for attaching the inclined pin to the head of the main shaft. Fig. 5 is a similar view showing an arrangement for changing the angle of the inclined rod or pin, and Fig. 6 is a plan view of Fig. 5. Fig. 7 is a view similar to Fig. 5, illustrating the adjustment applied to Fig. 1.

In the drawings, referring first to Figs. 1, 2, and 3, A represents the driving-shaft, having on its outer end a head secured thereto in any suitable manner. C represents the needle-bar; D, the looper-carrier; F, the oppositely-extending trunnions or journals by which the looper-carrier is supported in bearings near the forward end of the bed-plate of the machine. The looper is shown at *f*, and the looper-carrier has wings *g*, which embrace the inclined operating pin or rod G, which passes through a fulcrum-block *h*, set in the looper-carrier. Formed in the face of the enlarged head on the end of the driving-shaft is a dovetailed groove H, within which slides and is adjustable across the face of the driving-shaft the enlarged head of the inclined pin or rod G. It will be seen that by raising or lowering within certain limits the head of the pin or rod G in the dovetailed groove in the face of the enlarged head on the end of the shaft no change is effected in the relations of the centers of the driving-shaft, transverse shaft, or pin or rod to each other, but there is merely a variation in the distance from the end of the driving-shaft at which these centers are coincident.

Figs. 5 and 6 illustrate an arrangement whereby not only the distance of the face of the driving-pin from the center of the main shaft may be adjusted, but also an arrangement at which the angle of the driving-pin may also be changed, thus giving more or less pitch to the driving-pin and increasing or diminishing the throw of the looper. The driving-pin is adjustable independently of the block that holds it at any angle by arranging the block with an opening through which the pin or rod G passes, this opening being enlarged toward either end and the pin or rod G being pivoted

in the block by the transversely-arranged pin a^3 . Screws a^1 and a^2 pass through the pin G upon opposite sides of the pivot a^3 , and by loosening one screw and tightening the other the pitch of the driving-pin will be increased or diminished, and consequently the throw of the looper changed. This change would also vary the point at which the center of the driving-pin would cross the center line of the main shaft, and as this is necessarily the center of the transverse shaft the adjustable block to which the pin is secured would have to be moved to a point that would bring the driving-pin to the common center. To make the adjustment properly, the two screws would first have to be loosened, thus leaving the driving-pin free should the block move to the necessary point to give the desired angle to the driving-pin, after which the screws could be set to hold the driving-pin firmly in the desired position or angle.

As shown in Fig. 4, the driving-pin is secured to a curved block, which slides in a correspondingly-shaped groove in the head on the end of the main shaft. This block is secured by two set-screws c^1 c^2 , which are loosened and set to meet the requirements of adjustment. The curve to the block is on the arc of a circle, of which the crossing-point of the three centers above referred to is the center, and thus the adjustment of this block one way or the other does not change the relative position of the pin or rod G as to this center, but only its angle, thus effecting the throw of the looper. For example, raising the block K will give the looper more throw and the reverse less throw. While with this arrangement for varying the angle it is not absolutely necessary to provide for the further adjustment of the driving-pin by means of the screws a^1 a^2 , still this latter adjustment would allow for the correcting of any irregularity as to the centers or the throw of the looper that may occur. It will be noticed, however, that the

adjustments of the pin or rod G by means of the screws a^1 a^2 , as illustrated in Fig. 7, are more essential in the use of the straight block K or enlarged head of the pin G than in the curved one.

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

1. The herein-described looper-operating mechanism, comprising a driving-shaft, a looper-carrier, a block radially adjustable across the face of the driving-shaft, a rigid inclined pin or rod secured at or near one end to said block, and means carried by said block for adjusting the inclination of said pin or rod with reference to the axis of the driving-shaft; substantially as described.

2. The herein-described looper-operating mechanism, comprising a driving-shaft, a looper-carrier, a block radially adjustable across the face of the driving-shaft, a rigid inclined pin or rod, pivotally secured to said block, and means carried by said block for adjusting the pin or rod on its pivot to vary the inclination of said pin or rod; substantially as described.

3. The herein-described looper-operating mechanism, comprising a driving-shaft, a looper-carrier, a block radially adjustable across the face of the driving-shaft, a rigid inclined pin or rod, pivotally secured to said block, and means carried by said block for adjusting the pin or rod on its pivot to vary the inclination of said pin or rod, said means including stop-screws arranged on opposite sides of the pivot-point; substantially as described.

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

LANSING ONDERDONK.

Witnesses:

A. H. HATCH,
J. S. HOLT.