

(No Model.)

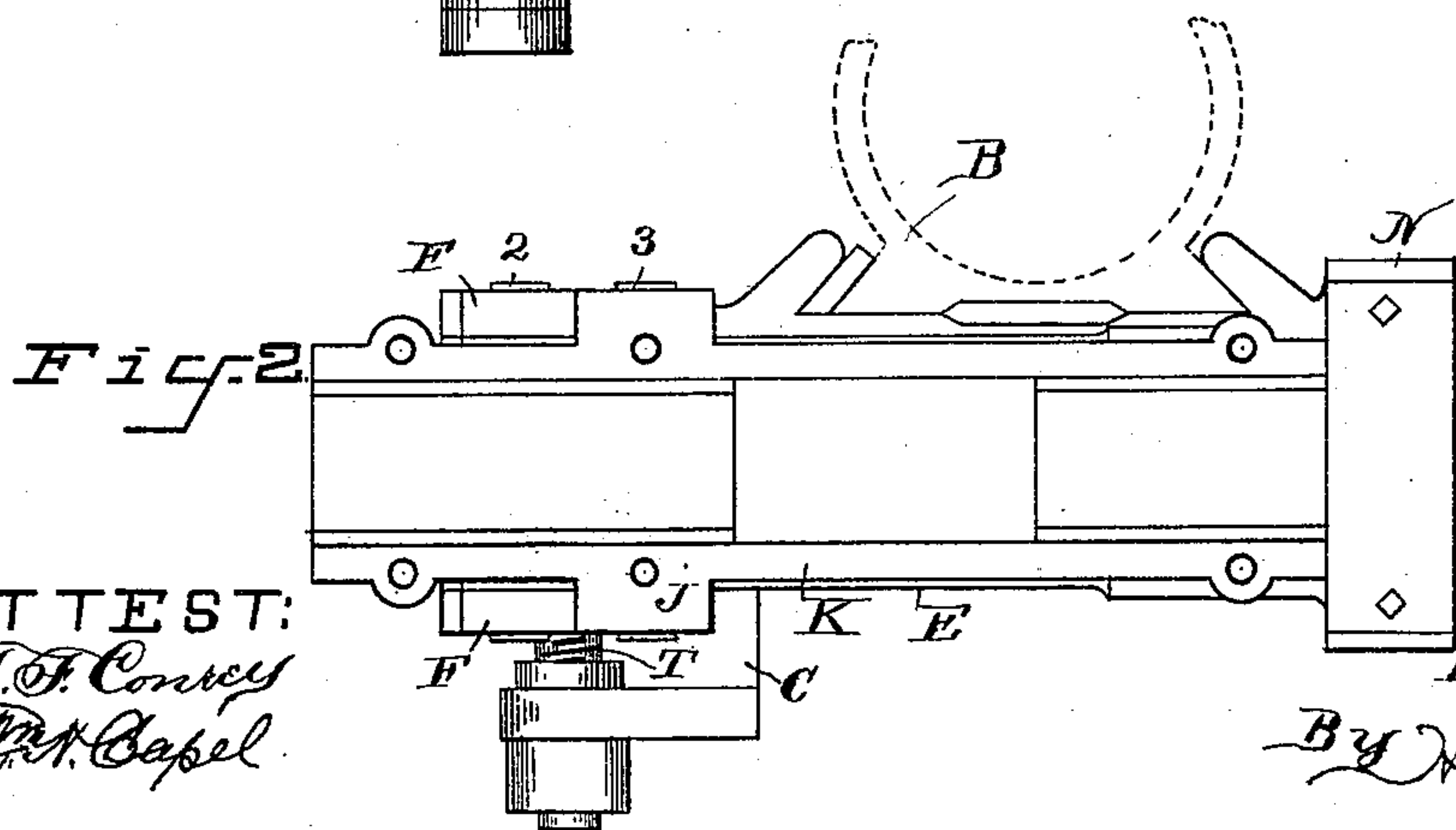
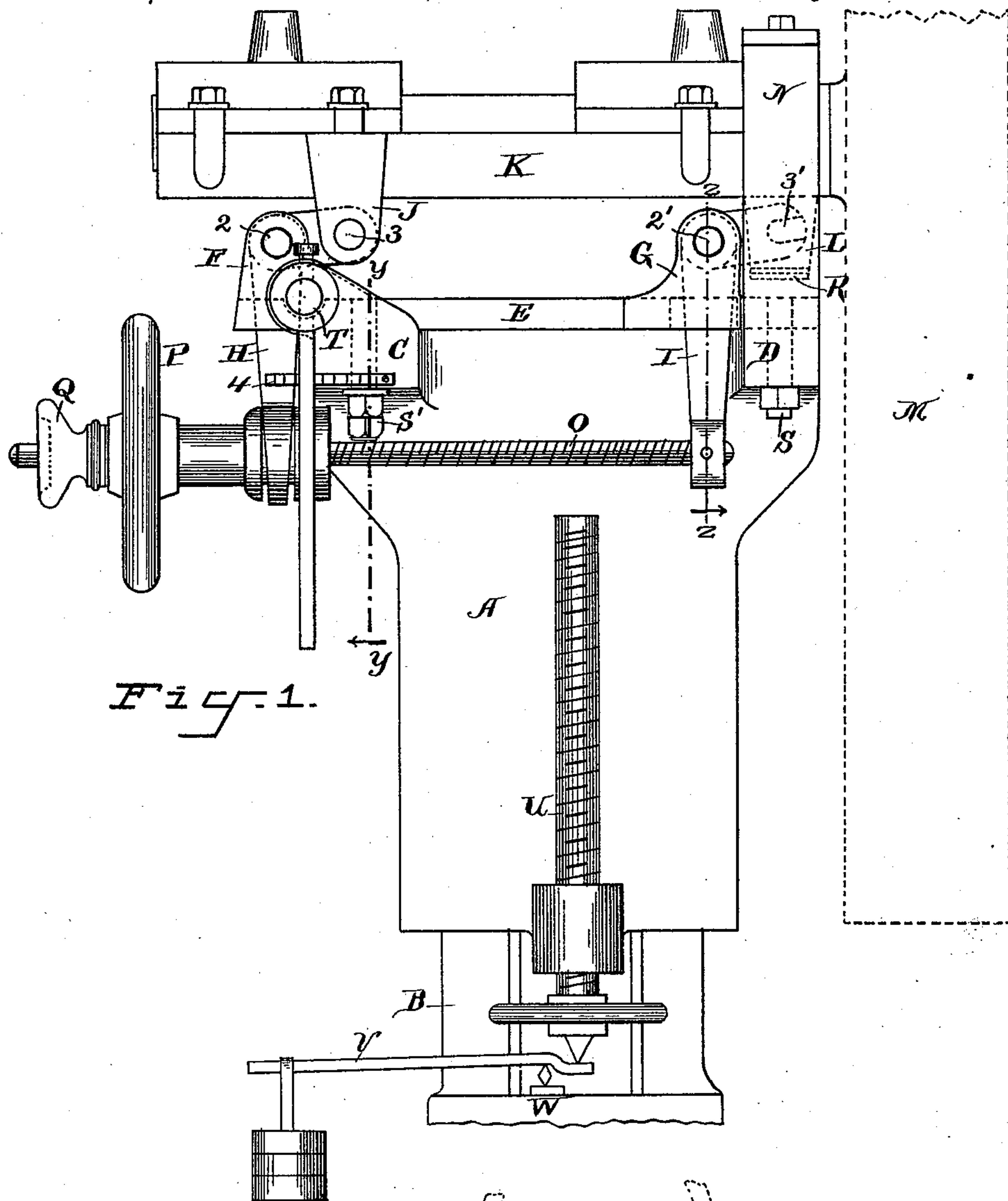
2 Sheets—Sheet 1.

E. C. MERSHON.

CROSS HEAD FOR BAND SAWING MACHINES.

No. 539,629.

Patented May 21, 1895.



ATTEST:

J. F. Conroy
Wm. A. Capel.

INVENTOR:

Edward C. Mershon

By N. B. Townsend
Attorney.

(No Model.)

2 Sheets—Sheet 2.

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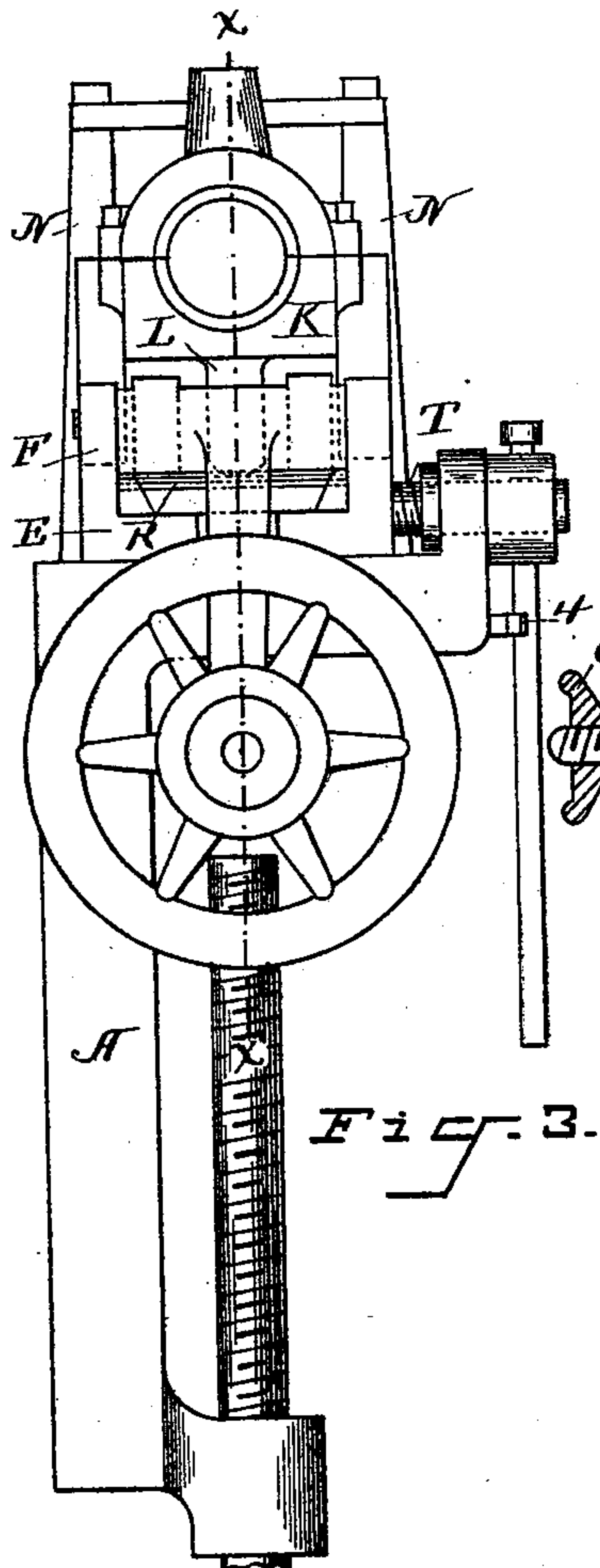


Fig. 3.

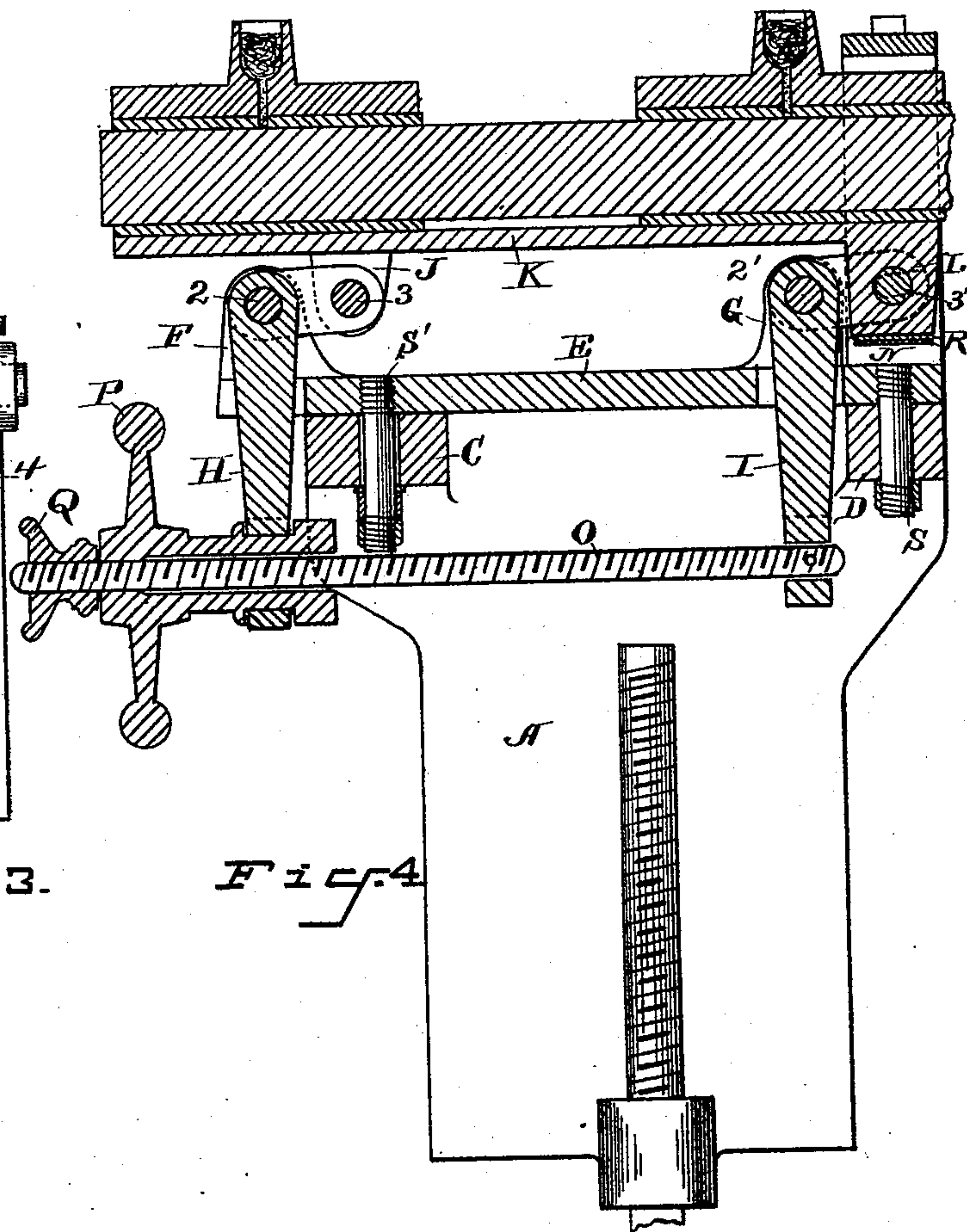
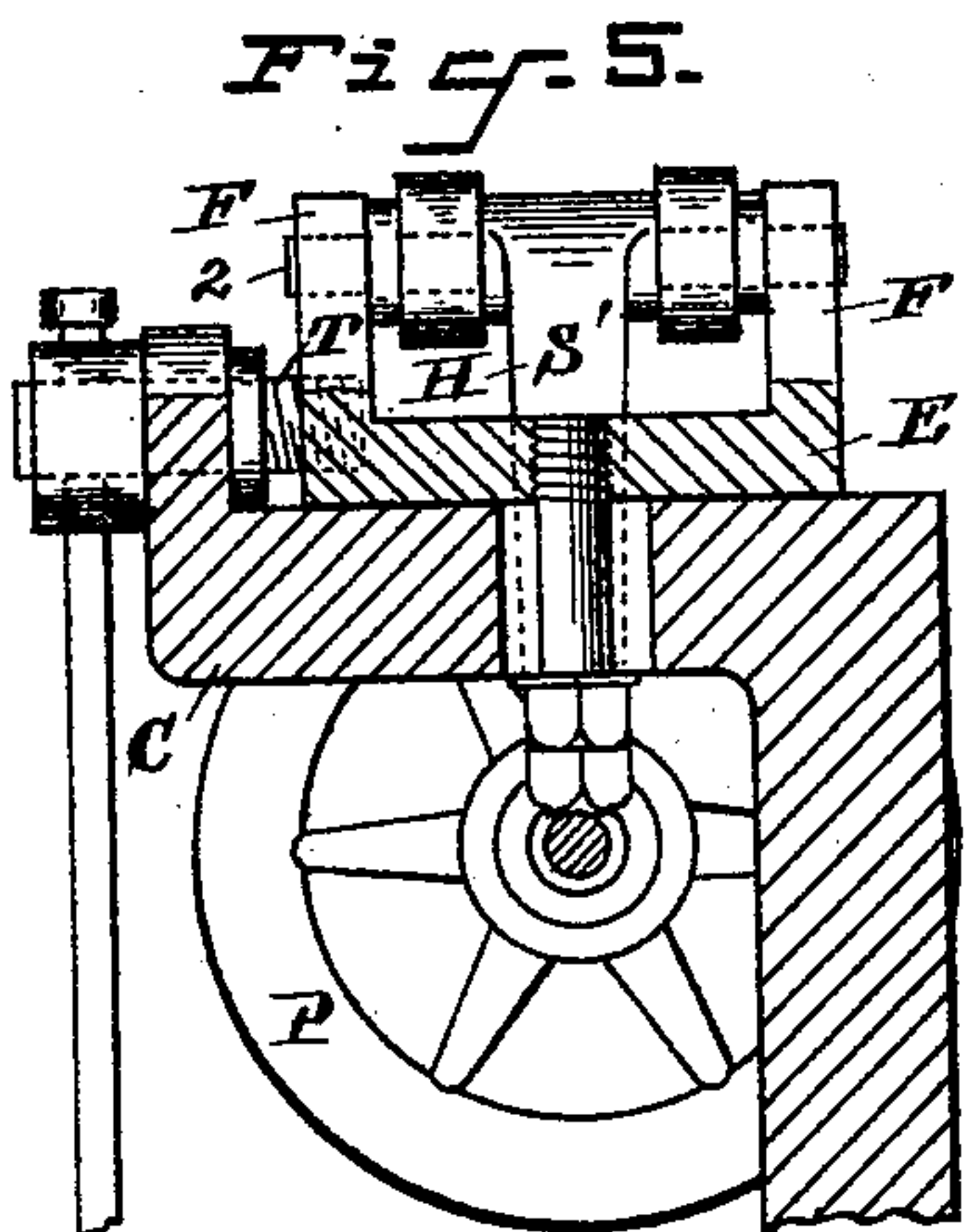


Fig. 4.



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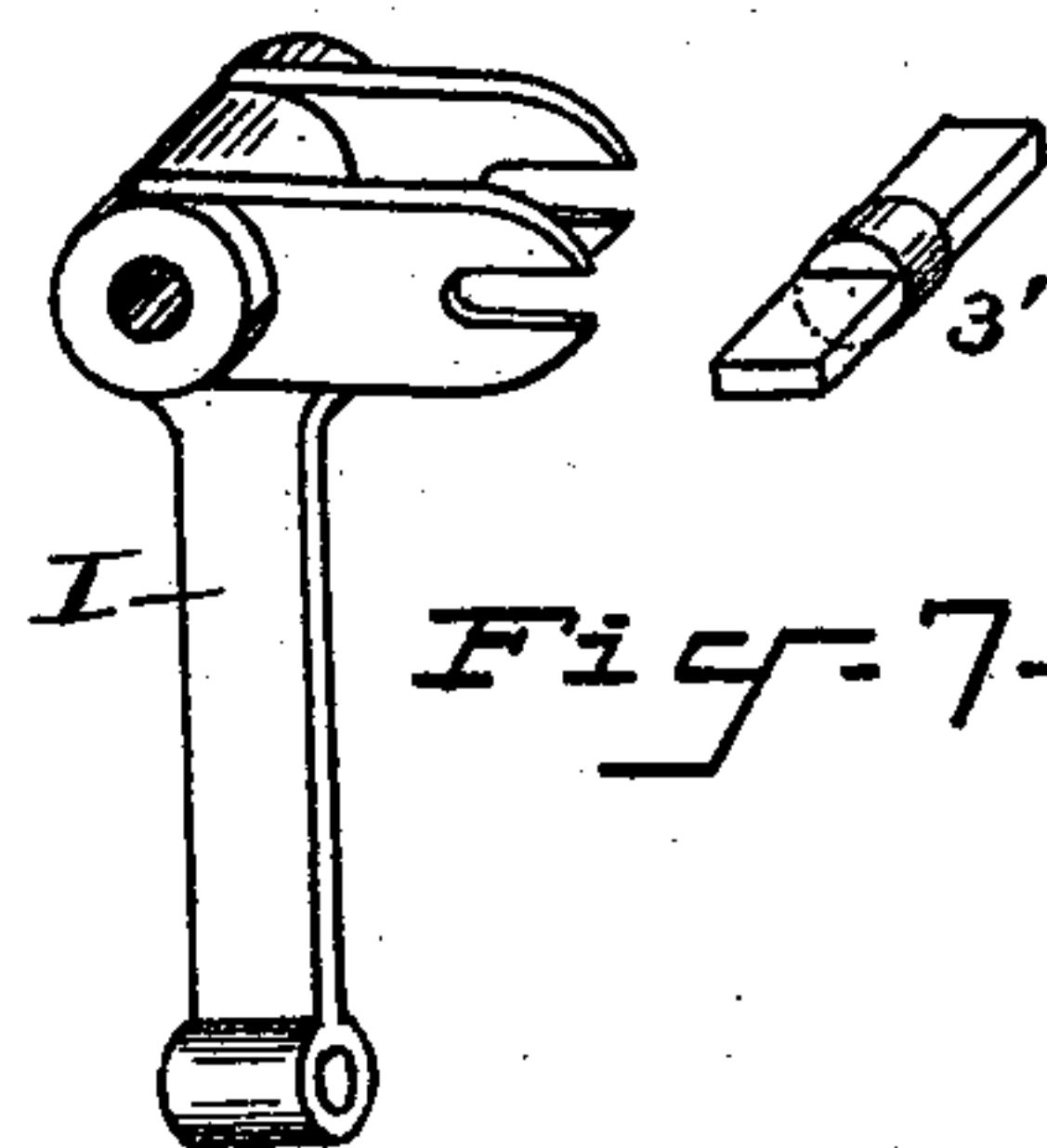
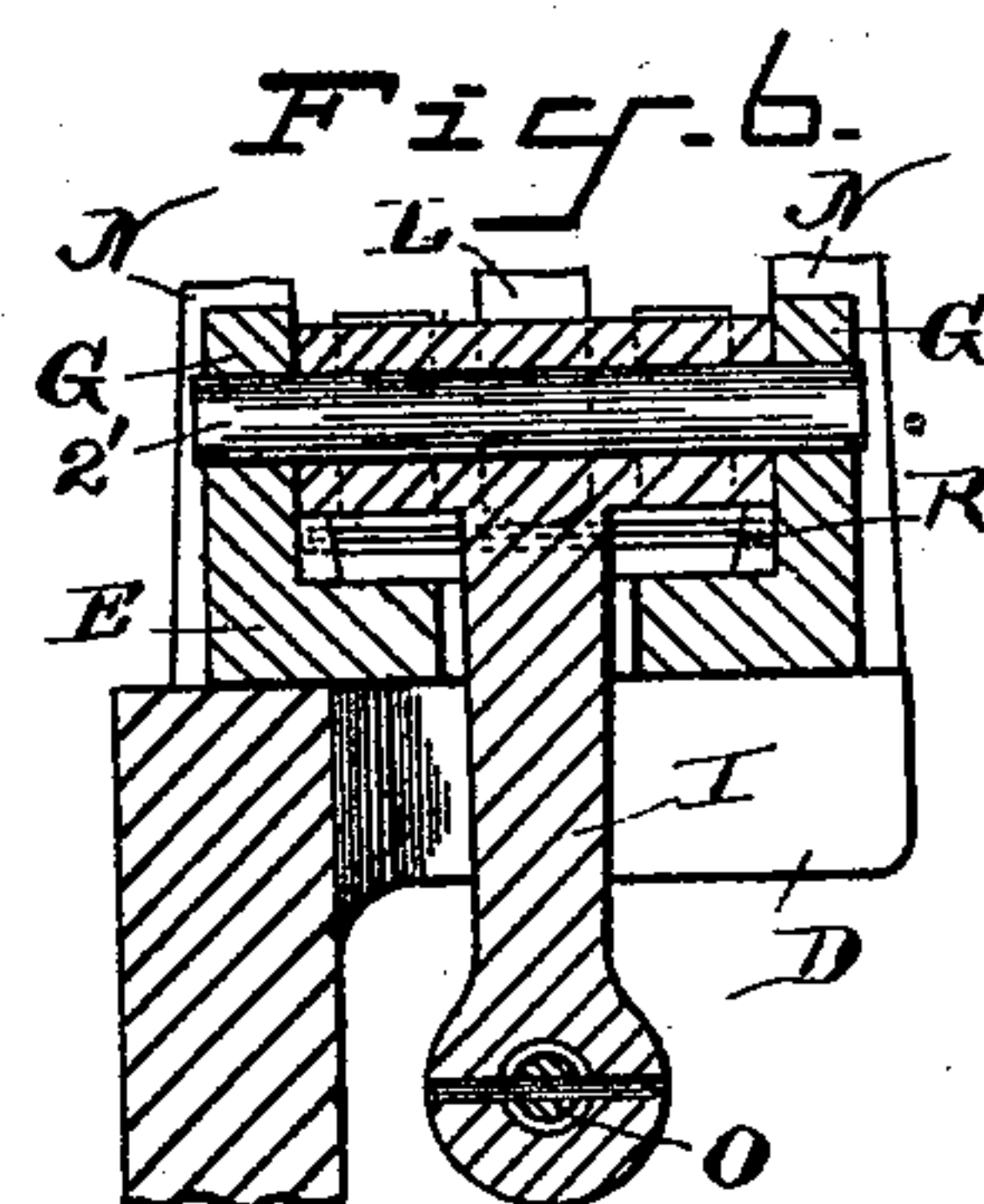


Fig. 7.



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UNITED STATES PATENT OFFICE.

EDWARD C. MERSHON, OF SAGINAW, MICHIGAN.

CROSS-HEAD FOR BAND SAWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 539,629, dated May 21, 1895.

Application filed August 14, 1894. Serial No. 520,243. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. MERSHON, a citizen of the United States, and a resident of Saginaw, in the county of Saginaw and State of Michigan, have invented a certain new and useful Cross-Head for Band Sawing-Machines, of which the following is a specification.

My invention relates to improvements in cross-heads for band sawing machines and has for its object the construction of a cross-head in such a manner that while providing a constant strain for the saw there shall also be provision made for compensating for sudden strains upon the saw. In addition to these features it shall also comprise means for vertical and horizontal adjustment of the upper band wheel. This compensation for sudden strains upon the saw must be provided for by means independent of the mechanism providing for the constant strain upon the saw, or if not wholly independent thereof it must not depend on overcoming the heavy weight or spring which is necessary to maintain the desired constant strain. Heretofore supplemental adjusting means or compensating mechanism have been provided for lessening or counteracting the evils resulting from sudden strains upon the saw but they have either been defective in one way or another or have in attempting to cure one evil introduced others. For example, one such compensating means consists in hinging at one side thereof, the support for the shaft of the upper band wheel and placing a spring or other straining device between said support and the cross-head, as illustrated in a prior application of mine filed May 8, 1894, Serial No. 510,459, upon which the present construction is an improvement, and in which appear the broad claims to the features of construction common to both applications. In the operation of such a construction the upper band wheel is carried to one side of the vertical line in which it should reciprocate in compensating for sudden strains and as a consequence the saw is moved sidewise out of the vertical. These defects I overcome by the construction fully set forth below.

My invention consists in mounting the upper band wheel shaft, in connection with compensating means for sudden strains, in a man-

ner such that its compensating movements shall be in a vertical plane and in parallelism with its normal position.

It also consists in the special construction and arrangement by which the compensation is obtained, and in the means employed for effecting vertical and horizontal alignment of the upper band wheel.

My invention further consists in the construction and combination of parts hereinafter fully described and pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 represents a front elevation of my improved cross-head. Fig. 2 represents a plan thereof. Fig. 3 represents a side elevation. Fig. 4 represents a vertical section taken through the plane indicated by the line $x x$ in Fig. 3. Figs. 5 and 6 represent vertical detail sections taken on line $y y$ and $z z$, respectively, of Fig. 1, the views being taken in the directions indicated by the arrows; and Fig. 7 is a detail hereinafter referred to.

In the drawings, A, represents the main portion or slide of the cross-head which is mounted to reciprocate upon ways formed on the main column of the machine, indicated at B, in Figs. 1 and 2. At the upper end of this slide A, project two brackets C and D, whose upper surfaces are planed to receive the plate E. From this plate there project upwardly two pairs of lugs F and G, between which are mounted elbow levers H and I, respectively, on suitable pintles or shafts 2, 2', passing through said lugs. These elbow levers each have two horizontal or short arms through which pass pintles or pivots 3, 3', which also pass respectively through a pair of lugs J, depending from one end of a beam or web K, and a lug L, depending from the other end of said beam. The pintle 3', is reduced or flattened where it passes through the arms of lever I, and the openings in said arms are in the form of slots (see Fig. 7), to allow the required amount of play as the beam K, is tilted in the vertical adjustment of the upper wheel. This beam K, serves as the support for the journal-boxes or bearings of the shaft carrying the upper band wheel indicated by dotted lines at M, in Fig. 1. Lateral guides for the end of web K, nearest the band wheel, are

formed by projections N, which arise from the slide A, and bracket D.

To the lower arm of the elbow lever I, is pinned a rod O, whose opposite end is formed into a screw upon which turns a hand nut P, provided with a sleeve on which is formed a collar for the reception of the fork on the lower end of elbow lever H. A jam-nut or friction nut Q, is also placed on said screw to co-operate with hand nut P. In the normal positions of the elbow levers and the web K, connected thereto, the pivotal points 2, 2', and 3, 3', are substantially in the same horizontal plane and the lug L, rests upon the leaf spring R, whose ends rest in seats formed on the guides N.

The plate E, which carries the web K, is pivoted at the end next to the saw upon a stud bolt S, which passes through the bracket D. To the opposite end of said plate a similar stud bolt S', is secured which passes down through a slot in the bracket C. This arrangement allows for swinging said plate horizontally about bolt S, as a pivot and thereby swinging the shaft of wheel M, and giving to said wheel the necessary horizontal adjustment. The movement of said plate and its adjuncts is produced by means of a screw T, which is provided with a suitable handle and mounted in a bearing on bracket C, the inner end of said screw working in a screw threaded socket in said plate. To hold said screw fixed in an adjusted position, a notched spring as 4, may be secured to the bracket C.

The vertical adjustment of the cross-head as an entirety is effected in any of the well-known ways which may be exemplified by the construction shown in Fig. 1, wherein a screw U, is shown passing through a nut integral with the slide A, and resting by a conical end upon the end of the weighted lever V, which is fulcrumed upon the frame of the machine as at W. To turn this screw a ratchet-lever attachment may be employed or a hand wheel as shown.

The adjustment and operation of the above detailed apparatus are as follows:

The saw having been put into place upon the wheels and the screw U, turned to elevate the cross-head and produce the required strain upon the saw, said strain will be kept practically constant by means of the weighted lever V. Should any sudden or sharp strain be produced upon the same by the pinching of the lumber being sawed or by the saw striking an obstruction, then the leaf spring R, comes into play to prevent said strain from breaking the saw while it is cutting through the obstruction or while the inertia of the weighted lever is being overcome.

With the beam K, mounted as shown and described so as in effect to constitute, with the plate E, and the short parallel arms of levers H and I, a parallelogram, any force brought to bear upon the said beam at any point will cause it to move in parallelism with plate E, or in other words to move in

parallelism with its original position. This is essential, since in consequence thereof the relative positions of the same and the upper wheel are not altered as said wheel is depressed by a sudden strain.

With a sharp saw and all parts in their normal operating positions the upper and lower wheel shafts are in the same vertical plane; the upper shaft having been adjusted to produce the desired tension upon all parts of the saw blade by operating the hand wheel P, which being turned in one direction draws the lower ends of levers H and I, toward each other and being turned in the opposite direction causes them to recede thereby raising or lowering the inner or outer edge of the upper wheel as required.

It will be noticed also that my construction is such that the adjustment in no wise affects the compensating action for sudden strains, the beam K, being as free to move after the adjustment as before, any shifting from parallelism of the parts constituting the parallelogram above referred to being so slight that any consequent changing of pivotal points is fully provided for by the special construction of the pintle 3', as shown in detail in Fig. 7.

If it is desired to shift the position of the saw upon the upper band wheel to counteract any unusual backward thrust due to dullness of the saw or other cause and to do so without affecting the tension thereof, or in other words to effect cross alignment, it is only necessary to turn the screw T, and thereby swing the plate E, and the parts carried thereby until the angle of the face of the upper wheel to the plane of the slide A, or the line of cut is such as to cause the saw to run thereon as desired. When the screw has been turned sufficiently it will be retained in place by the notched spring 4, engaging the handle thereof.

I claim as my invention—

1. The combination in a band saw, of the main portion of the cross-head and mechanism connected therewith for keeping a constant strain upon the saw, of the support for a band-saw shaft, connections between the support and said main portion of the cross head for insuring the movement of said support in a vertical plane in parallelism with its normal position, and means located between the support and said main portion of the cross-head for compensating for sudden strains upon the saw independently of the mechanism for producing the constant strain upon the saw.

2. In a cross-head for band saws, the combination with a suitable support, of a beam or web carrying the shaft of the upper band wheel, parallel arms pivotally connected to the support and to the said web, and a spring between said support and web for the purpose set forth.

3. The combination with the slide A, of the elbow levers pivotally supported thereon, the web B, supported on said levers and carrying

the shaft of the upper band wheel, a spring sustaining said web in its normal position, and means for adjusting said levers to tilt said web, as and for the purpose set forth.

5 4. The combination with the slide A, of the elbow levers pivotally supported thereon, the web B, supported on said levers and carrying the shaft of the upper band wheel, a spring sustaining said web in its normal position, 10 and the rod and nut for changing the distance between the lower ends of said levers, and thereby tilting the web.

15 5. In a cross-head for band saws, the combination with the main portion of the cross-head provided with a horizontal bearing surface, of a plate resting on said surface, a web carrying the upper band wheel shaft, parallel arms supporting said web upon said plate, a pivot securing said plate to the main 20 portion of the cross-head, and means upon said portion of the cross-head for swinging said

plate about the pivot for the purpose set forth.

6. In a cross-head for band saws, the combination with the main portion of the cross-head provided with a horizontal bearing surface, of a plate pivoted at one end upon said 25 surface, bearings for the upper band wheel shaft, parallel arms supporting said bearings upon said plate, means connected to said arms for vertically adjusting said bearings, and a 30 screw mounted on said portion of the cross-head and engaging the free end of said plate to move it in the desired direction to change the position of the saw upon said wheel.

Signed at Saginaw, in the county of Saginaw 35 and State of Michigan, this 10th day of August, A. D. 1894.

EDWARD C. MERSHON.

Witnesses:

R. L. JONES,
CHAS. D. CURTIS.