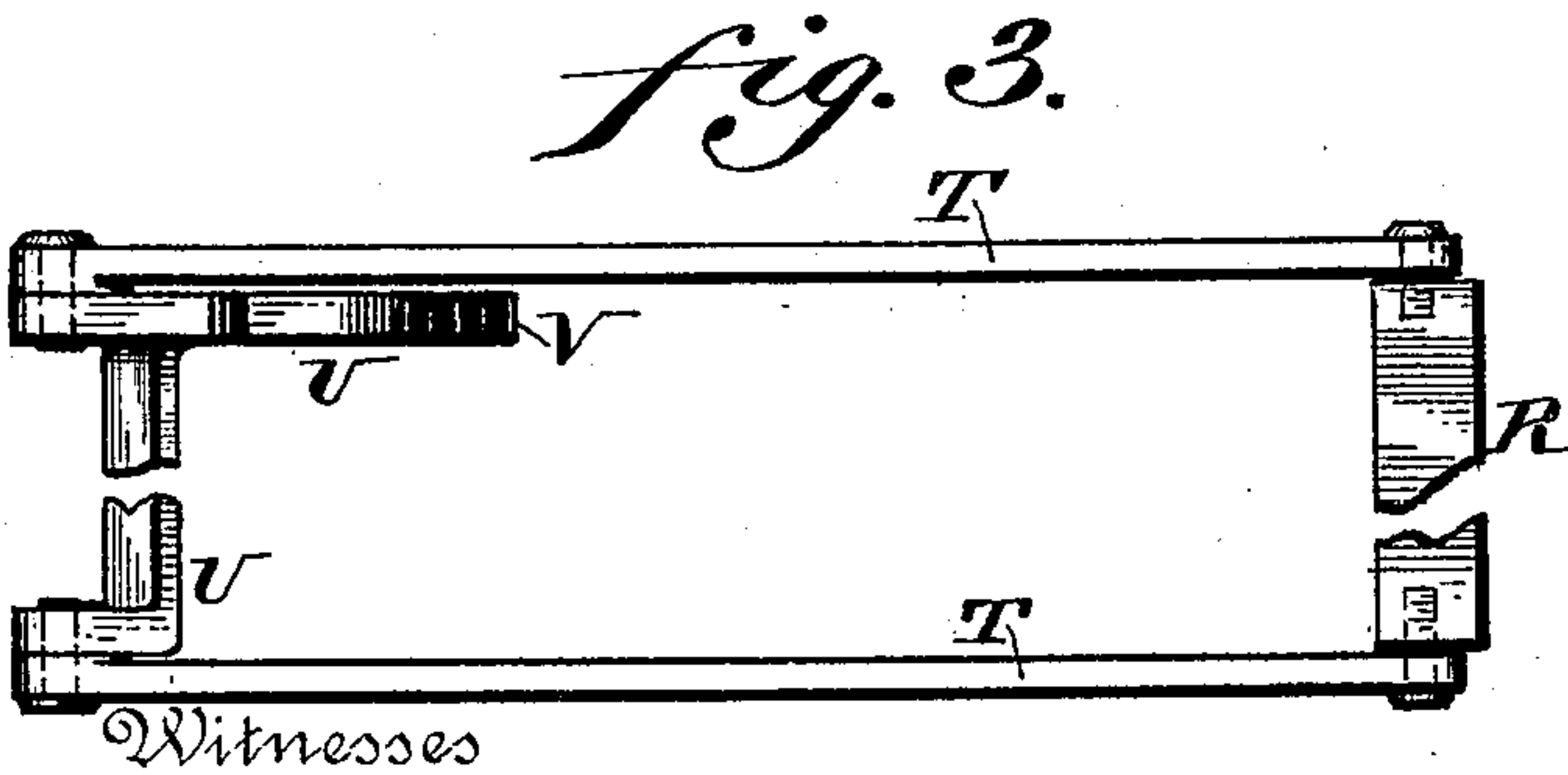
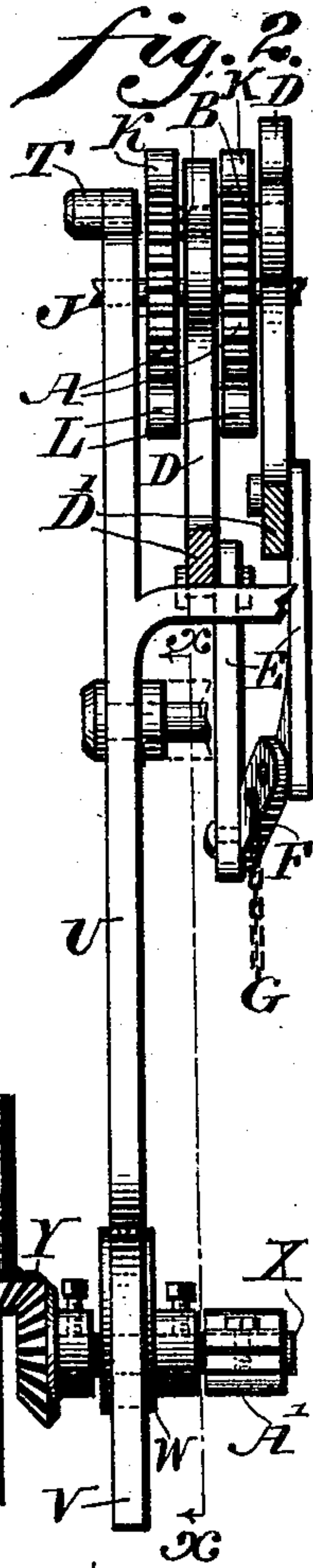
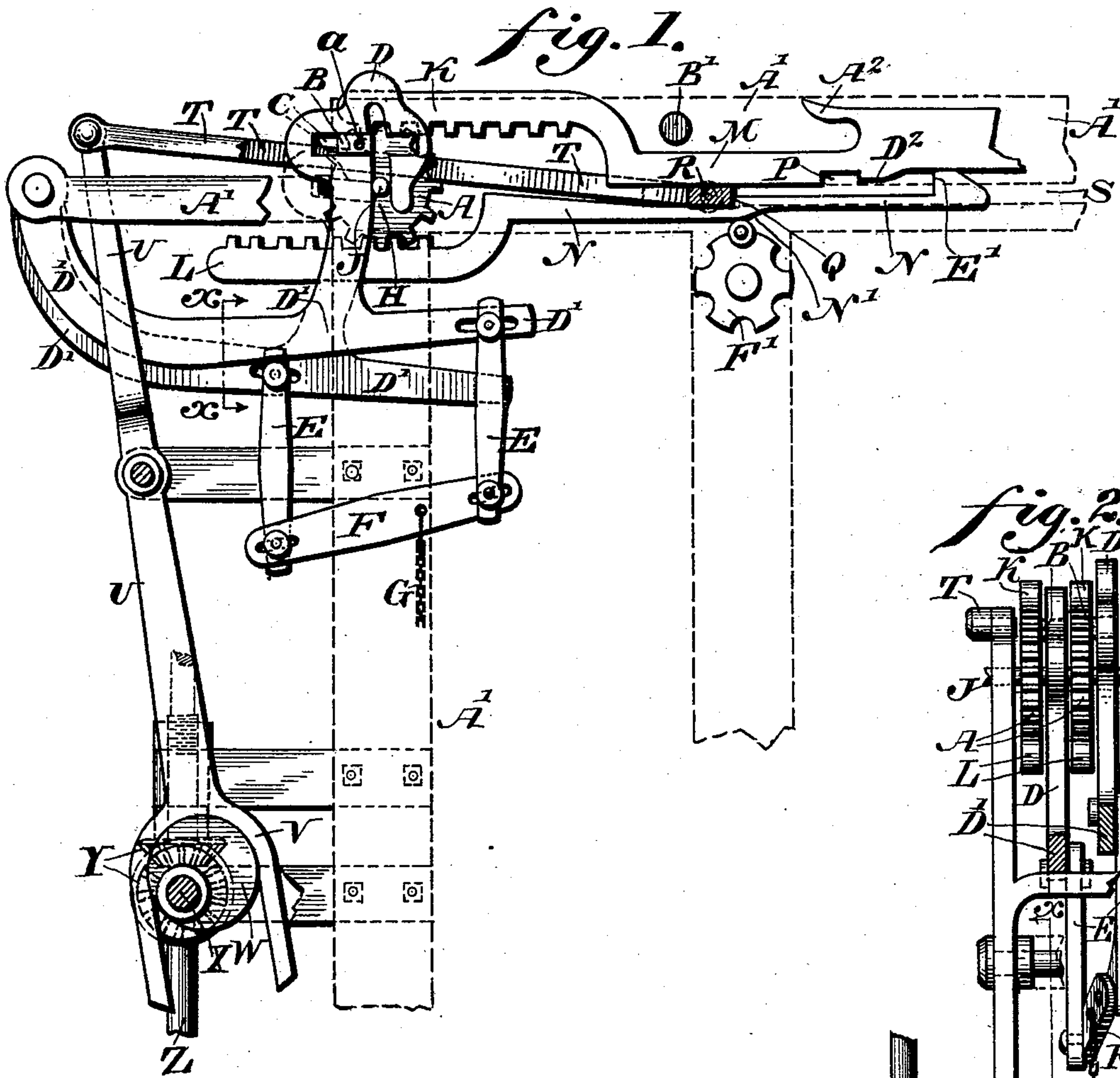


(No Model.)

T. LYNN.
SHUTTLE BOX MOTION FOR LOOMS.

No. 551,191.

Patented Dec. 10, 1895.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS LYNN, OF NORRISTOWN, PENNSYLVANIA, ASSIGNOR TO THE M. A. FURBISH & SON MACHINE COMPANY, OF NEW JERSEY.

SHUTTLE-BOX MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 551,191, dated December 10, 1895.

Application filed January 7, 1895. Serial No. 534,009. (No model.)

To all whom it may concern:

Be it known that I, THOMAS LYNN, a citizen of the United States, residing at Norristown, in the county of Montgomery, State of Pennsylvania, have invented a new and useful Improvement in Shuttle-Box Motions for Looms, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in box-motions for looms; and it consists of a novel combination and arrangement of parts hereinafter set forth.

Figure 1 represents a partial side elevation and partial vertical section on line *x x*, Fig. 2, of a box-motion for looms embodying my invention. Fig. 2 represents a partial end view and partial section thereof on line *x x*, Fig. 1. Fig. 3 represents a view of a detached portion.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates pinions which are mounted on the frame A', the latter being connected with or forming part of the frame proper of the loom, and has mounted on its side the studs *a*, carrying the blocks B, which play in slots or recesses C of the arms D of the levers D', the latter being pivotally mounted on the frame A' and having connected with them the depending links E, which are attached to the swinging levers F, from which depend chains G, which are connected with box-levers, it being noticed that the slots or recesses C of the arms D extend in horizontal or somewhat horizontal direction.

In the arms D, below the recesses C, are recesses H, which receive the axial pins J of the pinions A, said recesses H passing over said pin as the arms D oscillate, due to the action of the blocks B, which are carried to the right and left by the pinions A, it being seen that the latter receive reciprocating motions by the operation of the racks K and L, which mesh with said pinions and have connected with them, respectively, the bars M and N, the bar N being adapted to rise and fall without disengaging the racks from the pinions.

At the under side of the bar M is a recess P, and on the upper side of the bar N is a recess Q, either of said recesses being adapted to receive the lifter-bar R, which is adapted to play in the space between said bars M and N and is guided in a slot S in the frame A', the said lifter-bar R being operated in opposite directions by links T, which are connected with an oscillating arm U, which is provided with a yoke V, which latter is engaged by a cam W, which is mounted on a shaft X, to which motion is imparted by the gearing Y and shaft Z, the arm U and shafts X Z being properly mounted on the frame A'.

On the upper side of the bar M is an inclined finger or lifter A², which is adapted to engage with a roller or abutment B' on the frame A', and thus clear the recess in the bar M from engagement with the lifter-bar R, so as to permit the return movement of the latter free from said bar. On the under side of the bar M is the inclined shoulder D², which is adapted to be engaged by the shoulder E', which rises from the end of the bar N and thereby separates said bars so as allow the free passage of the lifter between them for the purpose hereinafter explained.

F' designates a pattern-wheel which is adapted to actuate the bar N, whereby the latter will be raised and permitted to drop relatively to the design or pattern of goods to be woven.

The operation is as follows: When the riser on the pattern lifts the bar N, the recess Q then receives the lifter-bar R and causes said bar N to be engaged by said lifter-bar. The latter now advances and carries with it the bar N, thus rotating the pinion A and thereby operating the lever D so as to raise the attached box-lever. The shoulder N' on the bar N clearing the pattern-wheel permits the said bar to drop to such extent that the recess Q leaves the lifter-bar. The shoulder D² then engages the shoulder E', thus preventing the bar M from dropping to the same extent. When the lifter-bar returns it is clear of the bar. When a sinker occurs, both of the bars N and M drop and the bar M has its recess P engaged with the lifter-bar, which latter advances and carries with it the bar M

and causes the rotation of the pinion in reverse order, whereby the lever D' is moved so as to lower the attached box-lever. The finger A² now engages with the roller B' and
5 lifts the bar M clear of the lifter-bar, whereby when the latter returns it is free of the said bar M, and so the operations may be repeated. Should, however, after a riser on the pattern-chain there be a second riser instead of a
10 sinker, as has just been stated, then instead of both bars dropping they will be held up and the bar will remain free of both recesses Q and P, and work in the space between the bar without causing a shifting or rotation of
15 the pinion, the box-lever thus remaining at rest or in the position it last occupied. When the block is raised by the pinion, it enters the recess and operates the lever D, so as to either raise or lower the attached box-lever, as the
20 case may be, but when said lever has made its throw, as the pinion is locked by stopping of the racks, the said lever D is locked until the next movement of the pinion.

Having thus described my invention, what

I claim as new, and desire to secure by Letters 25 Patent, is—

In a box motion for a loom, a frame, pinions A mounted thereon, bars M and N with racks engaging said pinions, and having recesses in their lower and upper faces respectively, the reciprocating lifter bar R movable in a slot in said frame adapted to engage the recesses in the bars M and N, a pattern wheel adapted to raise and lower said bars M and N, the levers D' with arms D having the recesses C and H therein, the blocks B carried on the sides of said pinions A, in said recesses C, the axial pin of said pinions A moving in said recesses H, the swinging levers F, the links E connecting said levers D' and F, and box 40 levers connected to said levers F, said rack bars M and N having the shoulders D² and E' respectively, said parts being combined substantially as described.

THOMAS LYNN.

Witnesses:

WM. HART,

ROBT. ANDERSON.

It is hereby certified that the name of the assignee in Letters Patent No. 551,191, granted December 10, 1895, upon the application of Thomas Lynn, of Norristown, Pennsylvania, for an improvement in "Shuttle-Box Motions for Looms," was erroneously written and printed the "M. A. Furbish & Son Machine Company;" that said name should have been written and printed the *M. A. Furbush & Son Machine Company*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 17th day of December, A. D., 1895.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

JOHN S. SEYMOUR,
Commissioner of Patents.