

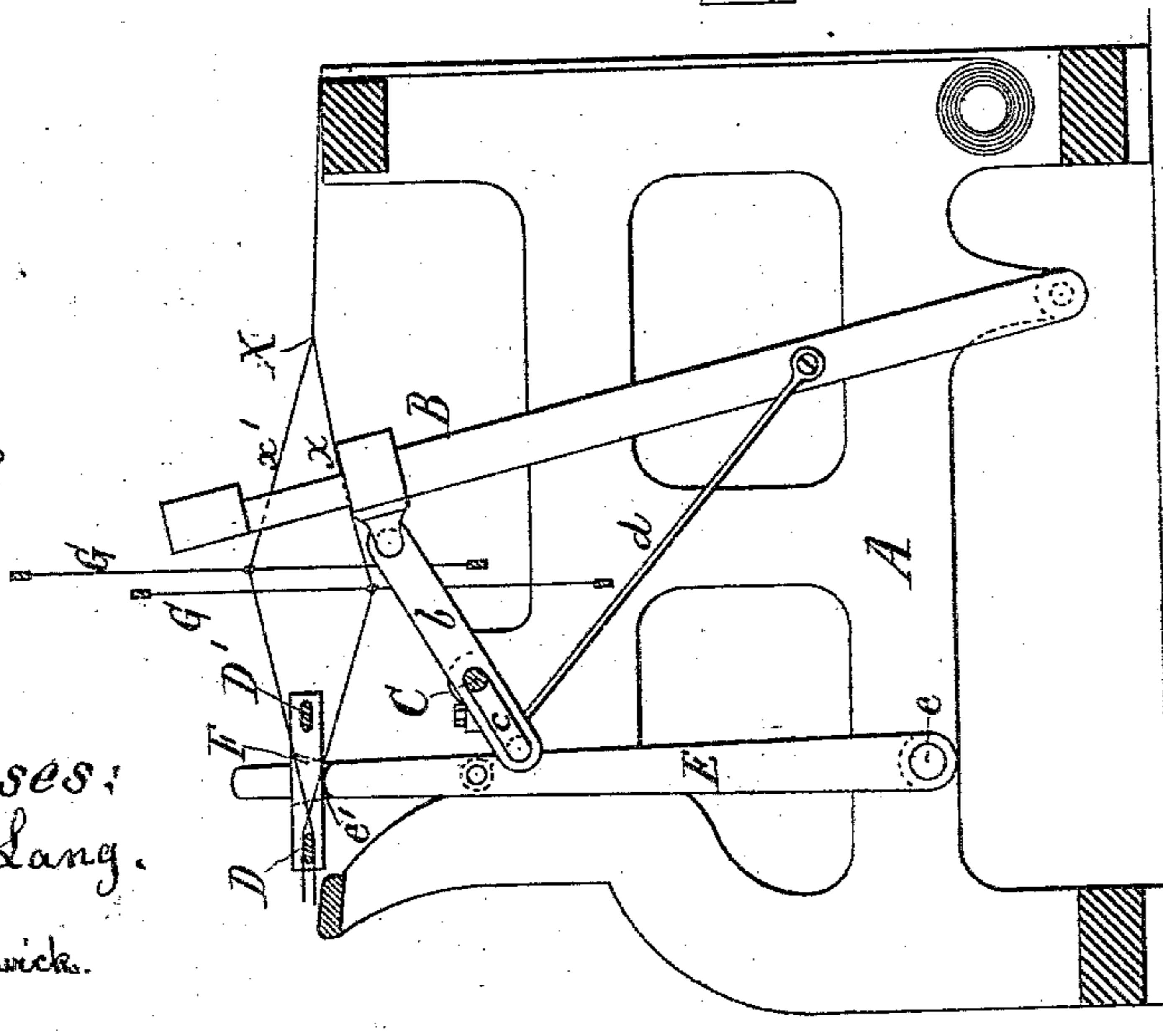
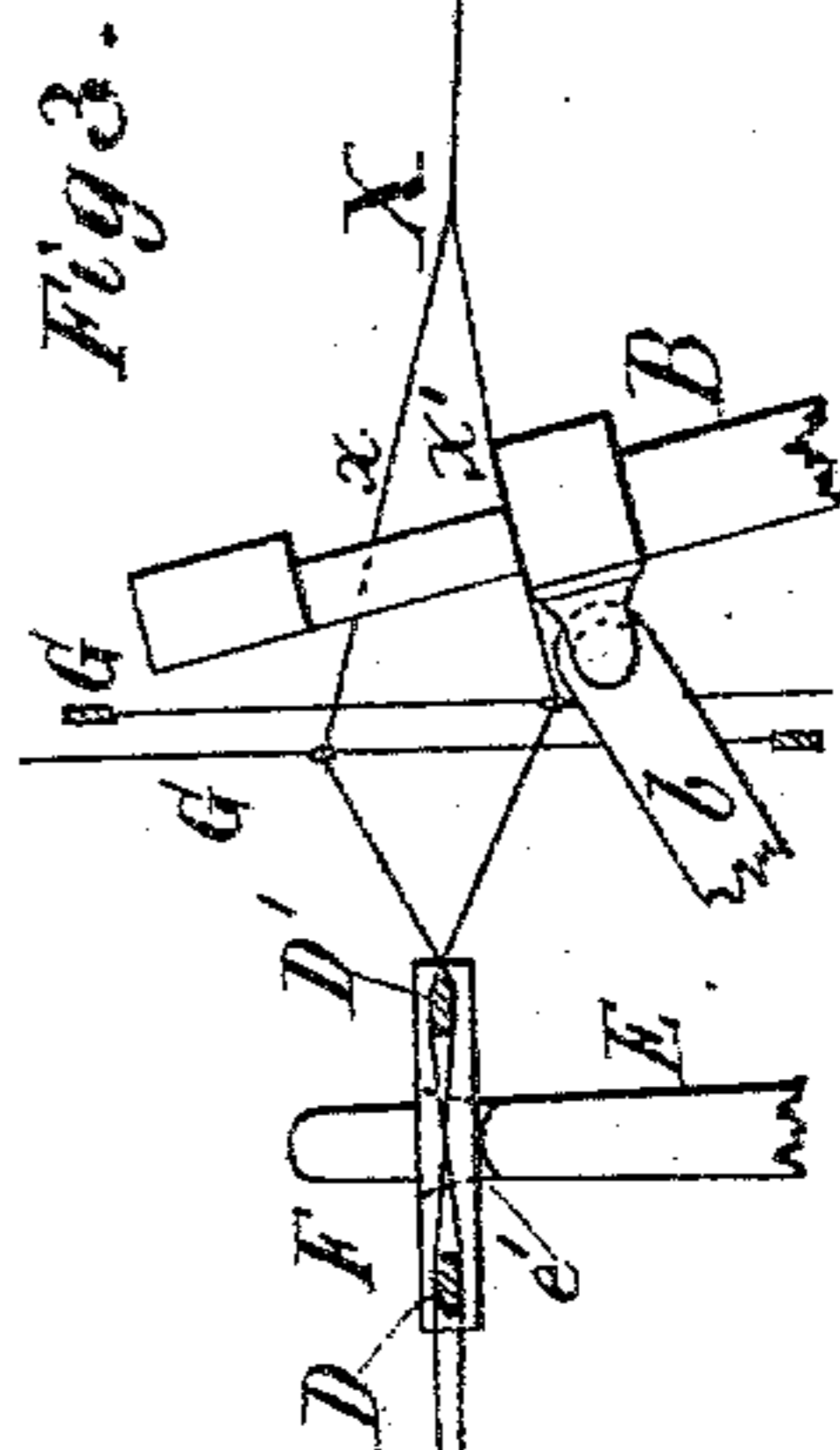
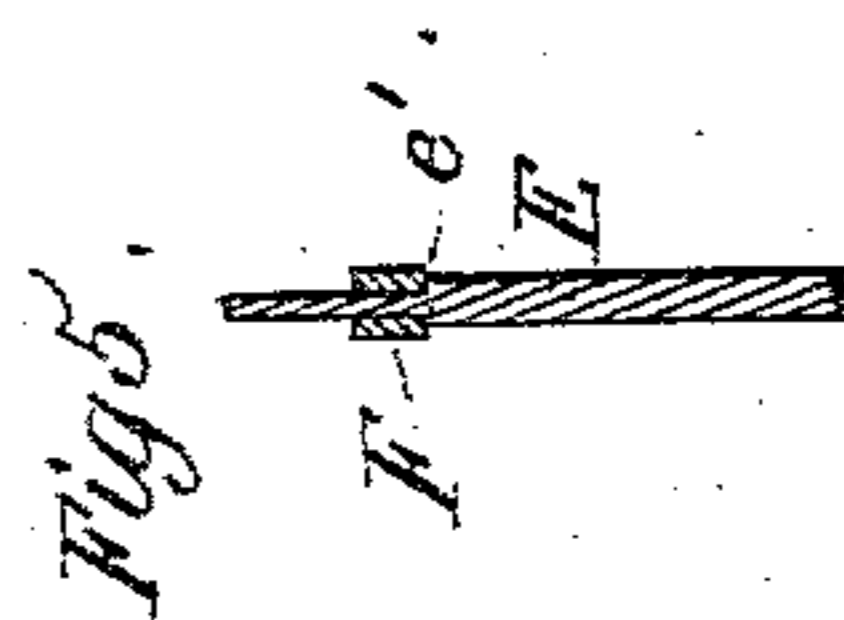
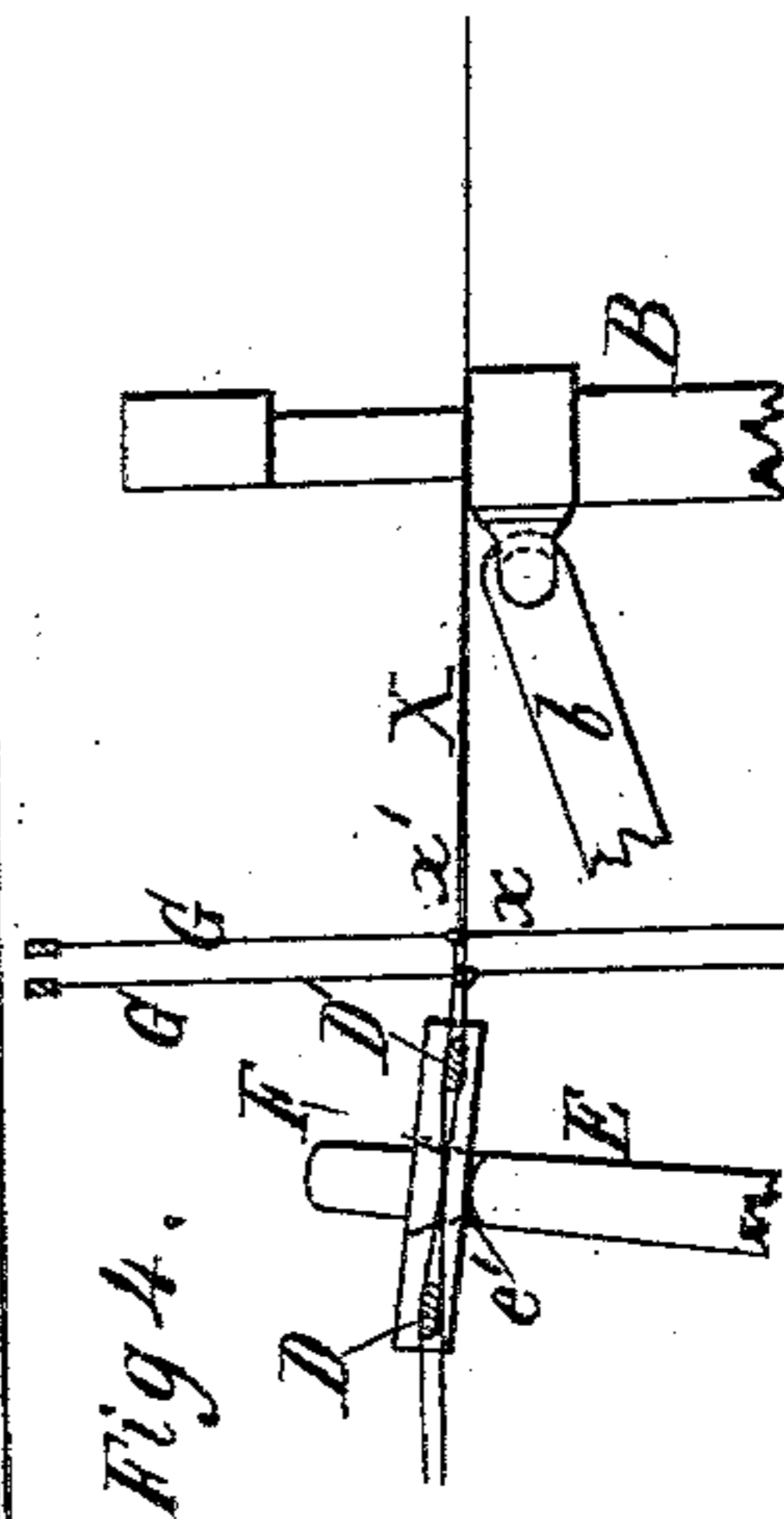
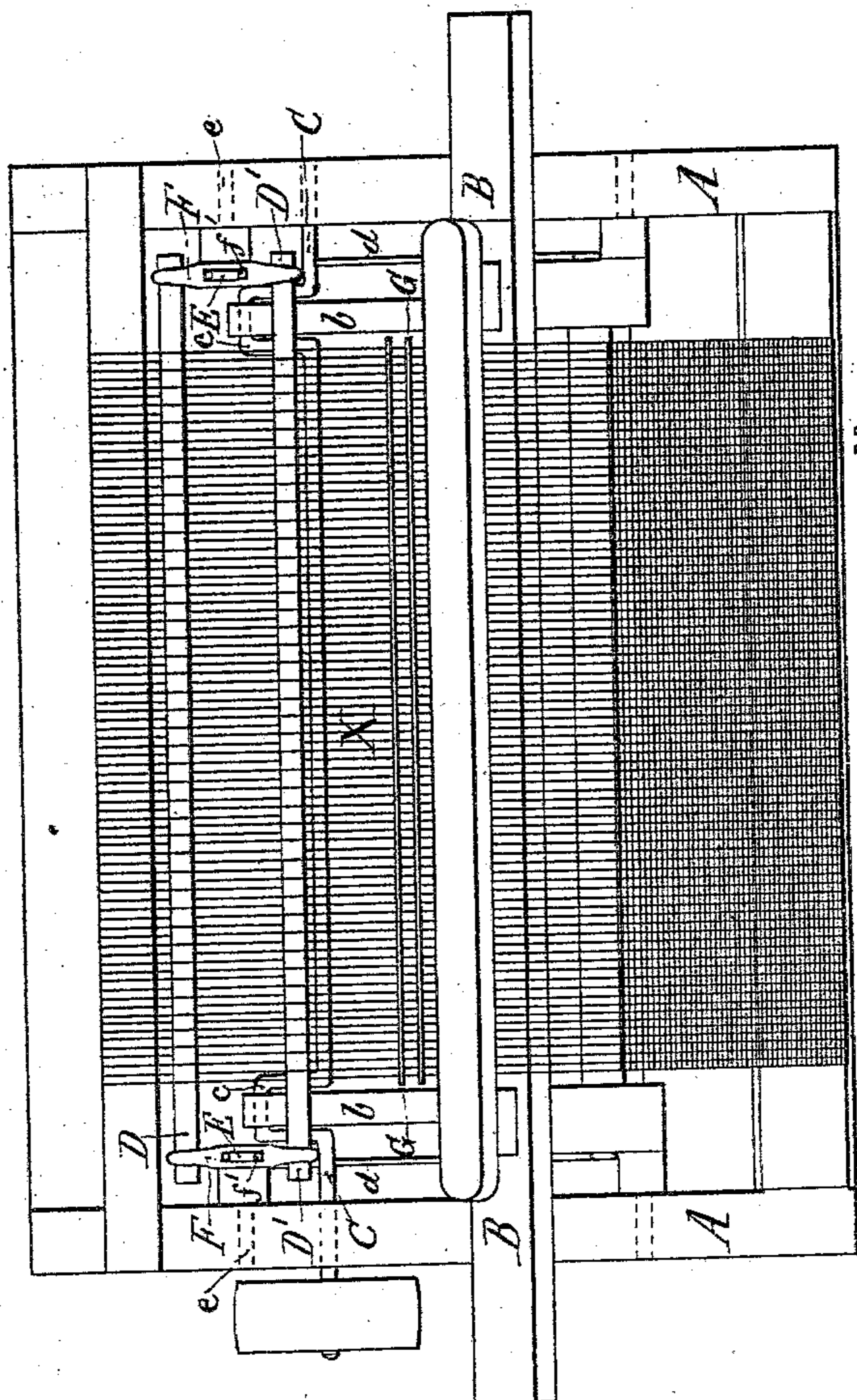
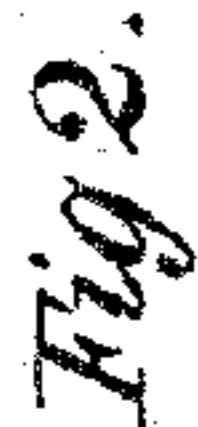
(No Model.)

2 Sheets—Sheet 1.

W. BROWN.
LEASE ROD FOR LOOMS.

No. 288,303.

Patented Nov. 13, 1883.



Witnesses:
J. P. Theo. Lang.
B. C. Fenwick.

Inventor:
William Brown
by his attys
Fenwick & Lawrence.

(No Model.)

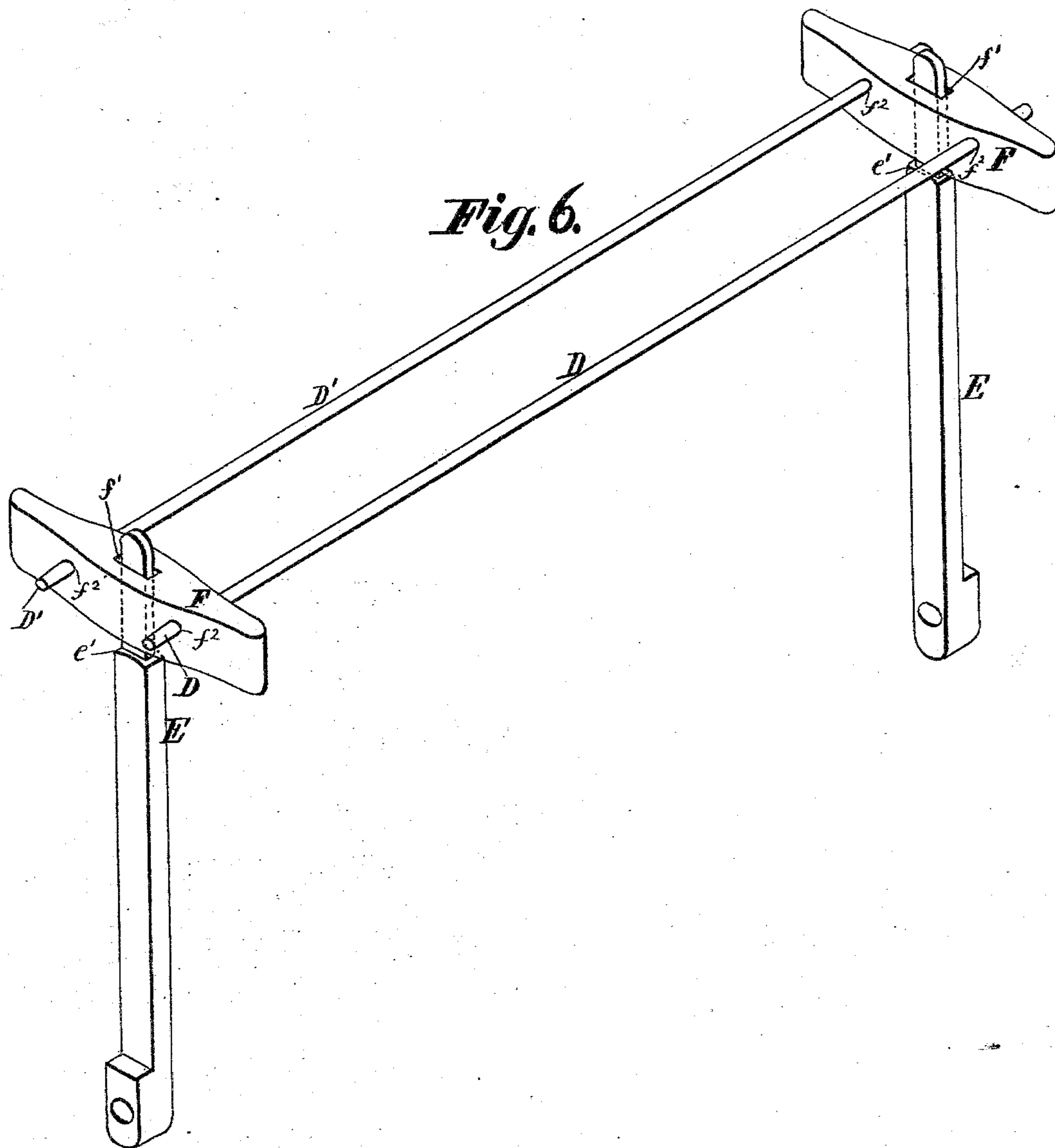
2 Sheets—Sheet 2.

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Robt. E. Fenwick

Inventor.

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UNITED STATES PATENT OFFICE.

WILLIAM BROWN, OF WEST POINT, GEORGIA, ASSIGNOR OF ONE-HALF TO
THOMAS LANG, OF SAME PLACE.

LEASE-ROD FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 288,303, dated November 13, 1883.

Application filed April 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BROWN, a citizen of the United States, residing at West Point, in the county of Troup and State of Georgia, have invented a new and useful Improvement in Lease-Rods for Looms, of which the following is a specification.

My invention comprises improved means for applying movable lease-rods to looms; and it consists, first, in a combination of mechanism for moving the lease-rods simultaneously with the lathe; second, in a combination of rocking couplers or clamps with the movable lease-rods, the levers, or supports of the clamps, and means for vibrating said levers; and, third, in the combination of endwise removable lease-rods, clamps, or couplers, the lathe, connecting-rods, and levers, as hereinafter described and claimed.

The use of vibrating lease-rods upon looms is very desirable. Where the lease-rods are not constructed to vibrate it is customary to apply them in a stationary manner by securing them with a leather band fastened to the cross-beam or whip-roll at the rear of the loom; or, in other words, the end couplers or clamps of the lease-rods shown in my drawings are fastened in place by cord or leather bands, instead of being mounted upon levers. Lease-rods thus applied offer great resistance to the passage of the warp on account of knots, swells, and the like upon the warp-threads hanging upon the rods.

Vibrating lease rods and bars have been employed prior to my invention, as is instanced in United States Letters Patent No. 6,813, and in British Patent No. 2,428 for 1869; but these contrivances differ essentially in their construction and combination and operation from my improved means for applying movable lease-rods to looms.

In the United States patent above referred to the movement of the rods is simultaneous with the heddles or harness, for the purpose of relieving the friction of the warp-threads upon the harness, while my invention separates the warp-threads. In the English patent, also above referred to, the rods have an up-and-down motion, and this arrangement and motion would not operate successfully in weaving domestics and heavy fabrics.

By making the lease-rods movable horizontally in the manner and by the means I have shown and shall describe hereinafter, the draft of the warp-threads is eased and the passage of knots and swells over the rods is facilitated, and thus the loom can be operated more rapidly and without dragging or danger of breaking the warp-threads, and more work, as well as more compact and better weaving, can be done with the loom in a given time than with a loom having vibrating bars or lease-rods, such as are shown in the patents above referred to, or when stationary lease-rods are employed upon the looms.

In the accompanying drawings I have represented a portion of a loom with my movable lease-rods applied to it, Figure 1 showing a partial section and elevation. Fig. 2 is a top view of a portion of a loom provided with my invention. Fig. 3 is a diagram of the main working portions and the warp, the position of said portions being the same as in Fig. 1, but the shed of the warp being in reversed position. Fig. 4 is a diagram showing the lathe and lease-rods in their most advanced position, and the shed closed previous to reversal. Fig. 5 is a vertical section through one of the lease-rod clamps and the upper portion of one of the supporting and operating levers. Fig. 6 is a detached perspective view of the two clamps or couplers, their supports or levers, and the lease-rods, the clamps or couplers being shown slightly raised above the bases, upon which they rest and rock longitudinally when in proper position.

A represents a loom-frame; B, the lathe; C, the operating crank-shaft; D D', the lease-rods; E E, the lease-rod carrying-levers; X, the warp. The parts, excepting the lease-rods and lease-rod levers, may be of any suitable known construction, and adapted for any style of weaving.

The lathe B is connected with the cranks *c* by means of ordinary connecting-rods, *b*, and with the lease-rod levers by means of suitable connecting-rods, *d*. The lease-rod levers E are suitably pivoted to the frame at *e*. Their top portions are reduced, so as to form a rounded or other suitably-shaped shoulder, as at *e'*, and to these reduced portions the lease-rod clamps F are secured by means of elongated slots *f'*,

allowing the clamps to rock longitudinally in vertical planes on their supports, and thus permitting the lease-rods D D' to accommodate themselves to the position of the warp while the levers E are moving backward and forward. The lease-rods D D' are secured to the clamps by being properly fitted into them. The half x of the warps passes over the lease-rod D and under the lease-rod D', and the half x' of the warps passes under the lease-rod D and over the lease-rod D', and the warp at one end and the finished fabric at the other end are secured in position and fed along in the usual way.

With my invention upon a loom the operation is as follows: After the loom is provided, in the usual manner, with the warp, the lease-rods, after having been withdrawn from the clamps, are reinserted in the following way: the back heddle is raised and the back lease-rod is inserted between the warps. The back heddle is now let down and the front heddle is raised, whereupon the front lease-rod is inserted between the crossed warps. The clamps or couplers F are, by means of passages f^2 formed in them, as shown, then attached to the ends of the lease-rods D D', and finally, by means of the oblong slots f' , passed down over and thereby connected to the top portions of the levers E, they resting down upon the curved shoulders e of said levers, so as to rock thereon, as occasion requires. In the operation of the loom thus constructed the lathe moves forward, as do also the lease-rods, the motion of the latter being, by preference, of less length than that of the lathe, and while this movement of the lease-rods is going on they accommodate themselves to the position of the warp, while the levers move backward and forward.

By means of the construction and combination of parts, as herein described and shown, the lease-rods are caused to pass so effectively over all portions of the warp-threads as to smoothen all rough places—such as knots and swells—preparatory to their passage through the heddles, whereby the warp-threads are prevented from hanging to the lease-rods and to the heddles, and breaking in consequence thereof. By means of the back stroke of the lease-rods every separate warp-thread is combed backward, and if, in passing through the heddles or through the reed in the lathe,

any of the above-described inequalities of the warp-threads should cause such thread or threads to become stretched, said back stroke of the lease-rods, together with the friction of the warp-threads and lease-rods, serves to again equalize or re-establish the proper tension of those threads. Any imperfection in the warp, such as "twisted half-beers," "spooler's knots," "leaf," "cross-threads in heddling," "improperly-sized warps," and the like, will cause the warp to cling behind the ordinary lease-rods, causing breakage of warp-threads, loss of time, and damaged places in the fabric. These difficulties are overcome by means of the moving lease-rods, by which the warp is gently opened before entering the heddles, and all clinging to or behind the rods is prevented, and thus the loom will not only produce a more perfect quality of fabric, but it may also be rendered more productive by running it faster without endangering the fabric.

Other modes analogous to the one shown might be adopted for giving movement to the lease-rods, according to the requirements of the different styles of looms to which they are applied. For instance, the movement might be straight reciprocating, instead of a vibratory or oscillatory one. So, also, more than two lease-rods might be used.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the lease-rods, means for holding the same, and the supporting-levers, with the lathe, and means for connecting the levers with the lathe, whereby the lease-rods have a forward and backward motion in the direction of the warp simultaneously with the motion of the lathe, substantially as and for the purpose described.

2. The rocking clamps or couplers, in combination with lease-rods, supporting-levers for said clamps, and means for vibrating the levers, substantially as and for the purpose described.

3. The combination of the lathe B, connecting-rods d , levers E E, removable clamps F F, and endwise removable lease-rods D D', substantially as and for the purpose described.

WILLIAM BROWN.

Witnesses:

W. H. HARRINGTON,
J. W. GRIGGS.