

L. S. Hicks,
Tenoning Mach.

No. 91,846.

Patented June 29, 1869.

Fig: 1.

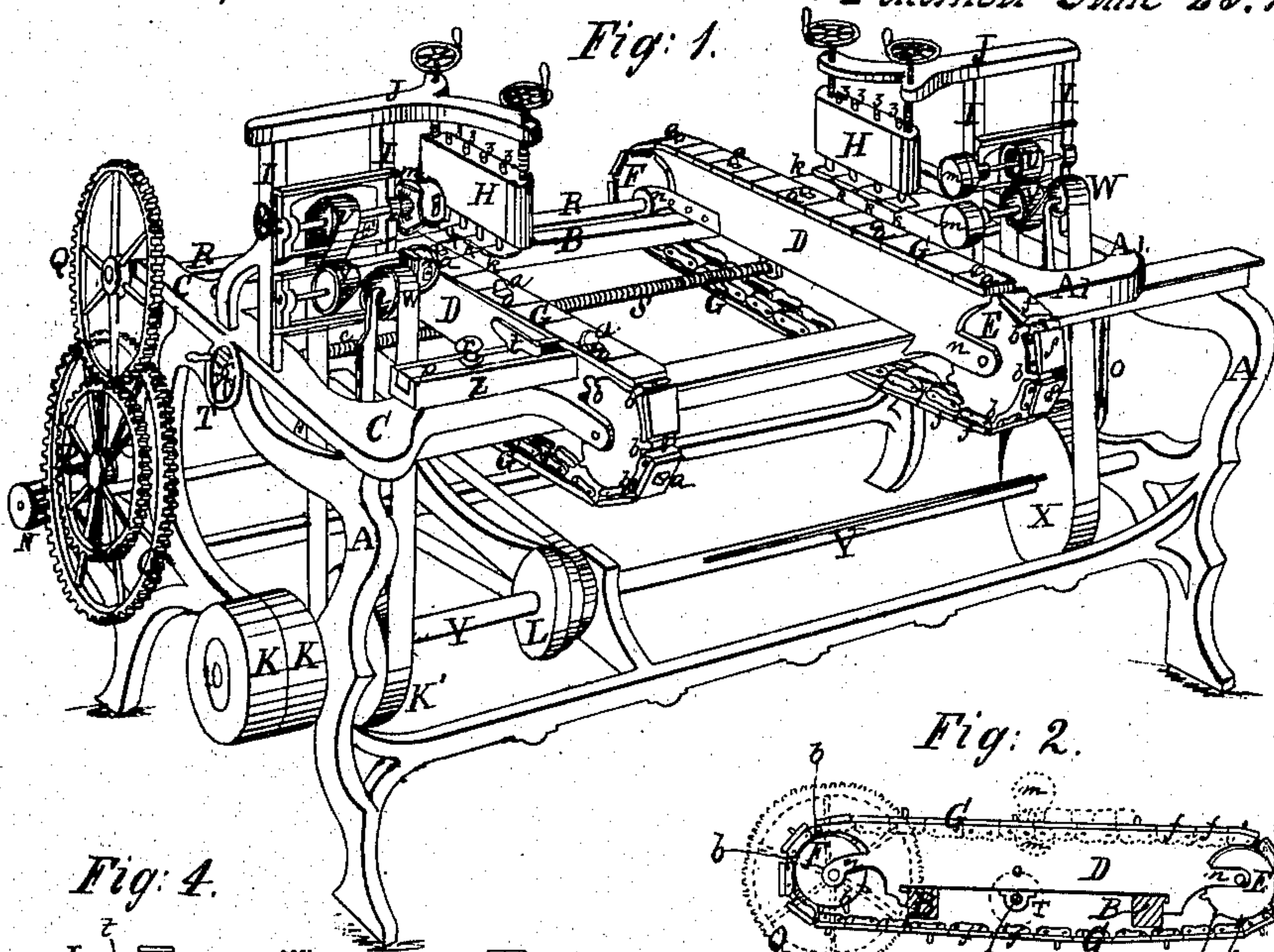


Fig: 2.

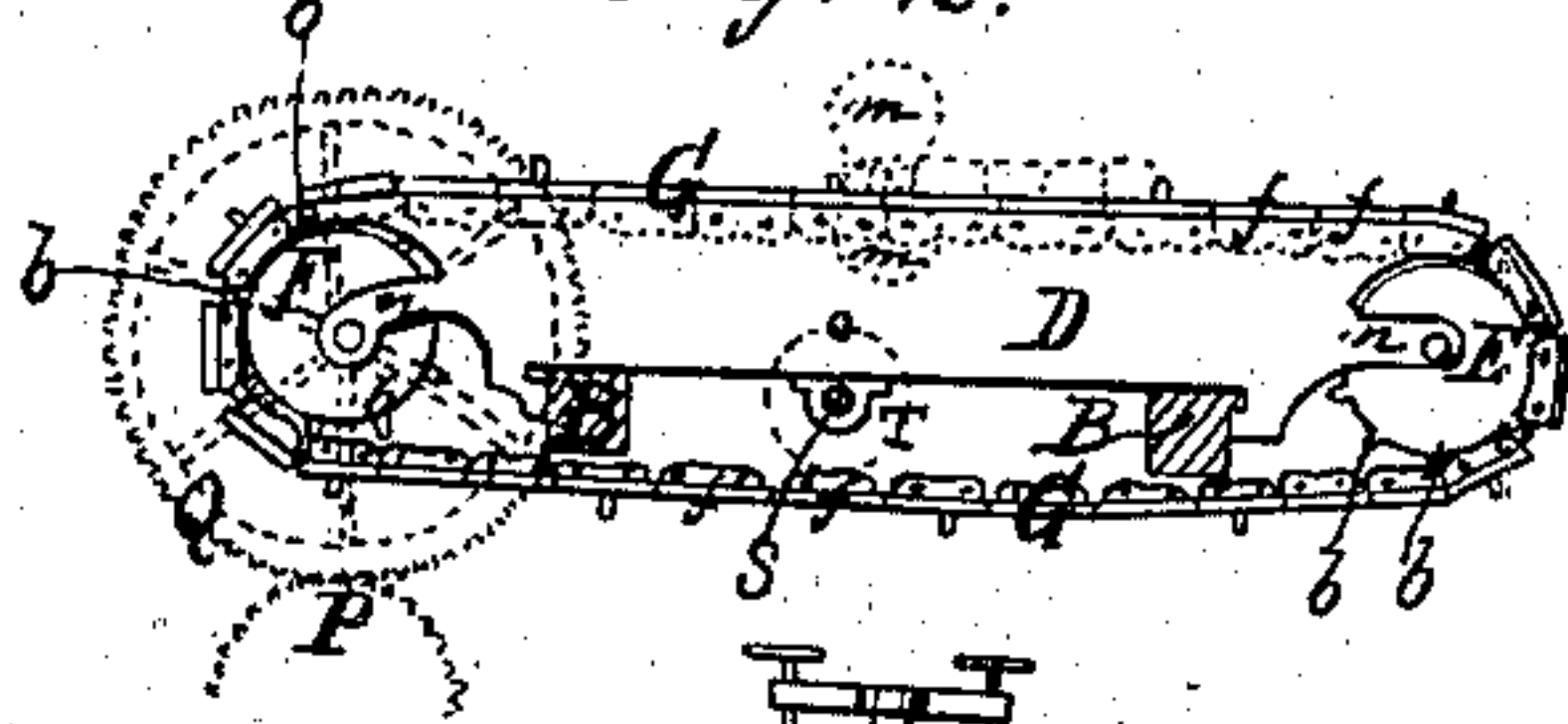


Fig: 3.

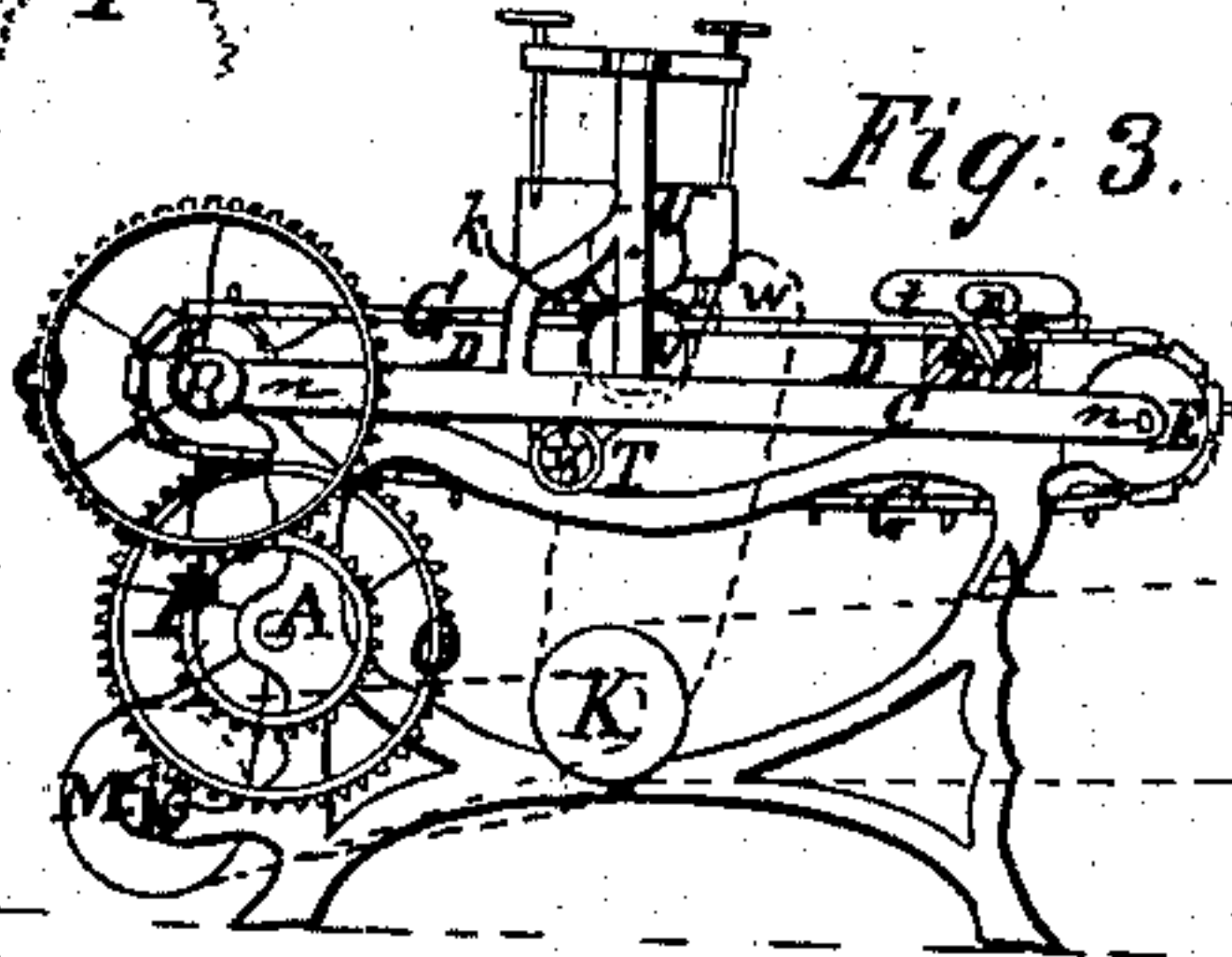


Fig: 4.

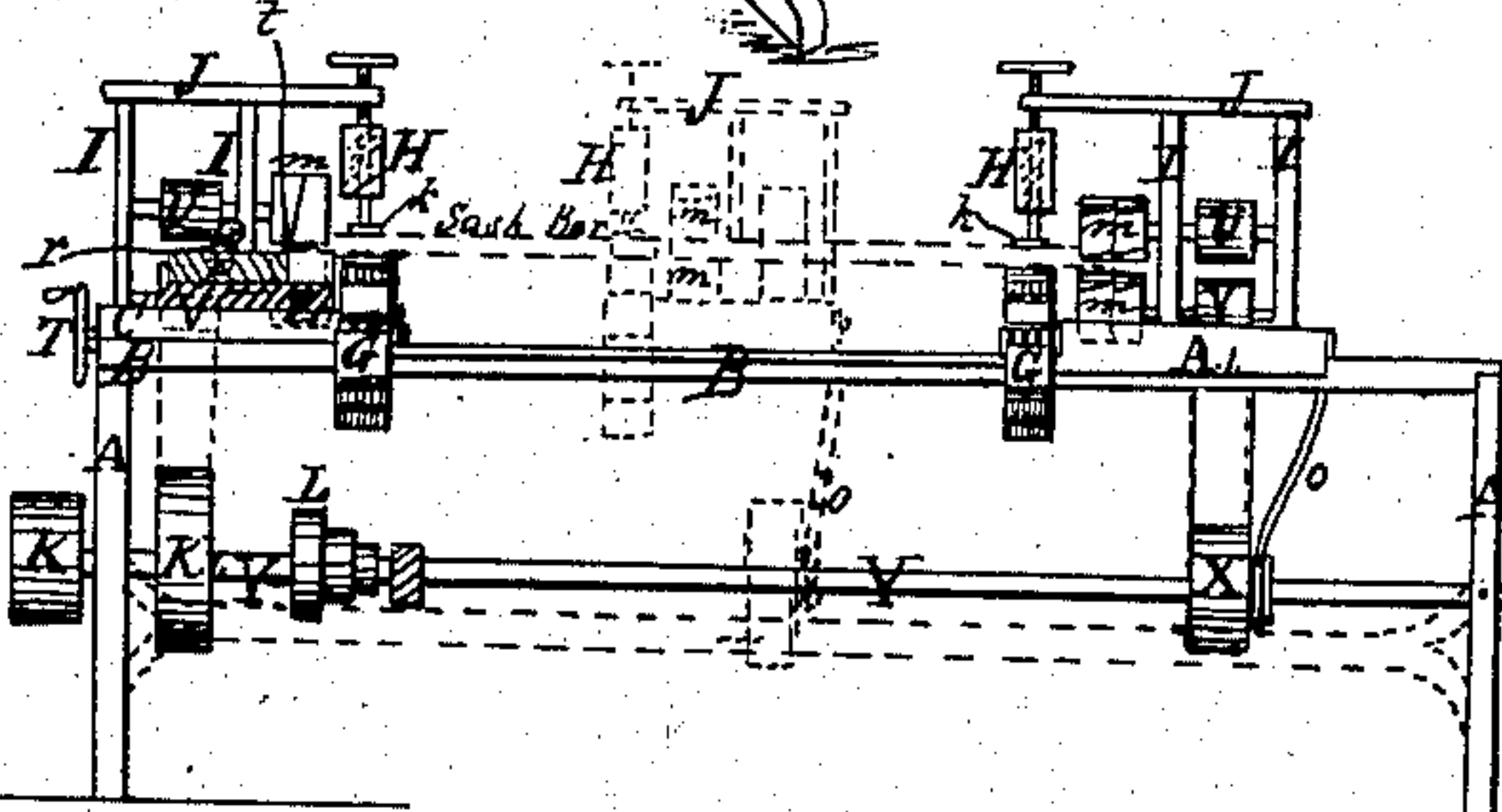


Fig: 5.

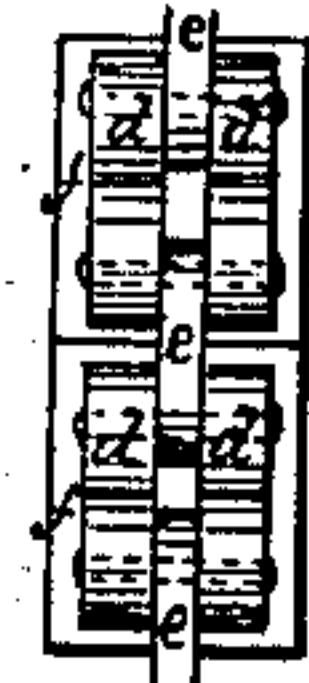


Fig: 7.

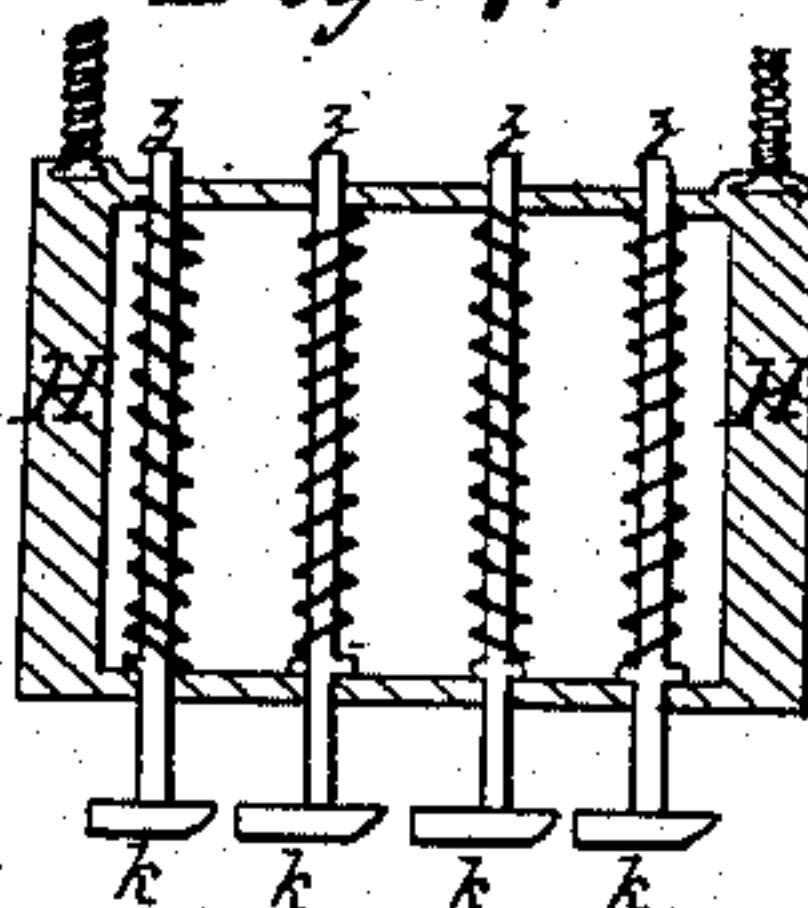


Fig: 8.



Fig: 7.



Fig: 6.



Witnesses:

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United States Patent Office.

LEVI S. HICKS, OF PEORIA COUNTY, ILLINOIS.

Letters Patent No. 91,846, dated June 29, 1869.

IMPROVEMENT IN TENONING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LEVI S. HICKS, of the county of Peoria, and State of Illinois, have invented a new and improved Tenoning-Machine; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view.

Figure 2 is a cross-section.

Figure 3 is an elevation of left end of machine.

Figure 4 is a longitudinal elevation.

Figure 5 is an under-side view of link.

Figure 6 is an end view of chain-way.

Figure 7 is an end view of link.

Figure 8 is a section of presser-box.

Figure 9 is a view of link, showing feed-lug and slot.

Like letters in the figures of the drawings indicate like parts.

This invention has for its object to furnish an improved tenoning-machine, so constructed and arranged that the tenons may be cut upon both ends of the stuff, and at both sides of the ends at the same time, and upon stuff of any length, from six inches to five feet and upward; also to furnish an automatic and constant feed, by means of two endless chains running near their respective cutter-heads, and assisted by a series of pressers.

A are the legs, or supports of the machine.

A' is the movable bed-plate, carrying the right-hand set, or cutters, chain-feed, &c.

B is the frame and "way," carrying the bed-plates.

C is the stationary bed-plate, carrying the machinery for left-hand cutters and feed.

D D are the two chain-ways.

E E are the friction-pulleys' bearing-chains.

F F are driving-pulleys on the driving-shaft R.

G G are the endless chains.

H H are the presser-boxes, with shoes k.

I I are the vertical standards for cutting-gearing.

J J are the head-plates, carrying presser-boxes.

K' and K are the tight and loose pulleys, to which the power is applied.

K' is the driving-pulley for left-hand or stationary cutter-heads.

L is a cone-pulley, on main or counter-shaft.

M is the cone-pulley on cone-shaft.

N is the spur-pinion on cone-shaft.

O and P are spur-wheels, engaging with the spur-pinion N and the feed-shaft wheel Q, on the feed-shaft R.

S is a screw for regulating the distance between the two sets of cutter-heads.

T, hand-wheel of the screw S.

U and V are pulleys for driving the cutter-heads.

W are tightener-pulleys.

X are driving-pulleys, on a spline for movable cutter-heads above it.

Y is a main or counter-shaft.

Z is a gauge for governing the length of the required tenon.

This machine is composed of a rectangular frame, with parallel "ways" B B, on which are carried the stationary bed-plate C, the vertical guides I I, with their two cutter-heads *m m* and cutter-pulleys *u v*, each of the cutters and respective pulleys being supported by a horizontal shaft running in adjustable arbors, by which the distance between the cutter-heads *m m* is regulated.

Across the top, and connecting these guides I I, is the horizontal forked head-plate J, the arms of which project over the endless chain G.

Through each end of these arms, a vertical hand-screw passes, supporting the presser-box H, which may be from ten to twelve inches long and six inches deep, and of convenient width to carry a series of vertical presser-bars, *z z z z*.

These latter pass entirely through the box H, their lower ends terminating in the shoes *k k k k*, which may be about one inch square, by about a half inch thick.

Each shoe *k* presents, toward the front of the machine, a bevelled edge, to admit the stuff beneath them and the chain G.

The bars *z z*, &c., carrying the shoes, have each a collar around them, which rests on the bottom of the presser-box.

Between this collar and the ceiling of the box, a strong spiral spring, or its equivalent winds around each bar, by which a strong pressure is maintained on the stuff to be cut.

The bars may be kept from turning in their sockets by making them square or with a spline.

On the inner side of this stationary bed-plate C, is the chain-way D, which resembles a trough, in the trough, or groove of which runs the lugs *d d* of the endless chain G, for the feed.

The chain-way lies athwart the bed-plate, from front to rear of the machine, and within a short distance of the cutter-heads *m m*, and immediately under the presser-bars *z z* and shoes *k*.

The front and rear ends of the chain-way partially bridge the chain pulleys E and F under its respective ends, in order to carry the lugs of the chain well on to the pulleys and cogs *b*.

The pulleys E and F are supported by arms *n*, projecting from the side of bed-plate under the chain-way.

These pulleys may be from six inches or upward, and have a series of teeth on their circumference, arranged in pairs, one of each pair occupying the extreme edges of the pulley, to admit between them the flat connecting-link *e* of the larger links of the chain.

By this arrangement, the teeth on each side press or pull equally on each lug *d* on each side of the link, carrying the same squarely forward.

The teeth are arranged around the pulleys at such intervals as to properly engage each link of the chain.

The chain is driven by the rear pulley *F*, on the feed-shaft *R*, which shaft being splined at its other end, also, carries the pulley *F* of the chain of the movable bed-plate *A'*.

The endless feed-chain *G* is composed of links *ff*, of a slab-shape, or oblong tables of iron *f*, about two and a half inches wide, by three and a half inches long and three inches thick.

Each tablet has two parallel lugs, *d d*, on the under side, with rounded corners, and curved in that part which passes on to the pulley.

Between the outer edge of the tablet of link and the lug is a space of from one-fourth to one-half of an inch wide, corresponding to the width of the edges *g g* of the chain-way on which this part slides.

The lugs are perforated through each end, to admit a bolt which unites them to the flat connecting-link *e*. The lugs pass within the groove of the way, while the tablets slide on the top.

Adjustable feed-lugs, *a a a*, &c., with slots, are bolted to the surface of every four or more of the tablets *f*, opposite the corresponding feed-lugs on the other chain. These are to be adjusted to compensate for any unequal wearing of the tablets *f* of links, thus securing means to keep the "stuff" at right angles in feeding.

On the bed-plate *C*, and at right angles to the chain, is the gauge *Z*, with a transverse guide-plate, *t*, the latter parallel to the chain used to regulate the length of the tenon.

The movable bed-plate *A'* carries a precisely-similar set of standards, *I I*, head-plate *J*, presser-box *H*, with shoes *k*, cutters *m m*, pulleys *u v*, endless chain *G*, chain-way *D*, with its pulleys, but reversed, or presenting the cutters, presser-box, chain, and chain-way toward the set just described.

This bed-plate slides on the "ways" *B B*, and is confined by the ordinary V-shaped guides, and is movable to or from the stationary set by means of the usual device or screw *S*, running beneath the beds, and terminating in hand-wheel *T*.

The driving-pulley *F* of the chain slides on a spline on the same shaft that carries the corresponding pulley on the stationary bed-plate.

The pulley *X*, on the driving-shaft *Y*, which, by means of a belt, runs the cutter-pulleys above it, also runs on a spline, being engaged by the guide *o*, attached to the bed-plate above it.

Beneath the bed-plates run the main, or counter-shaft *Y*, carrying at its left end the tight and loose pulleys *K K*, to which the power is applied, and also the driving-pulley *K'*, for cutters on that part of shaft beneath the tightener *W* and cutter-pulleys *u v* of stationary bed-plate; also the feed-driving pulley *L*, which drives the spur-pinion *N*, which is engaged with the spur-wheel *O*, which, by means of a smaller wheel, *P*, engages the spur-wheel *Q* at the end of the feed-shaft *R*, which carries the chain-pulleys.

The remote end of the shaft *Y* carries the pulley *X*, which moves, with the bed-plate above it.

On a spline, run the cutter-pulleys *u v*, and tightener-pulley above it.

Having thus fully described my invention,

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

In a tenoning-machine, the movable bed-plate *A'*, carrying the presser-box *H*, the chain-feed *G*, provided with adjustable lugs *a*, in combination with the stationary bed-plate *C*, having like devices, when all the parts are constructed, arranged, and operated substantially in the manner described and for the purpose set forth.

LEVI S. HICKS.

Witnesses:

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HENRY W. WELLS.