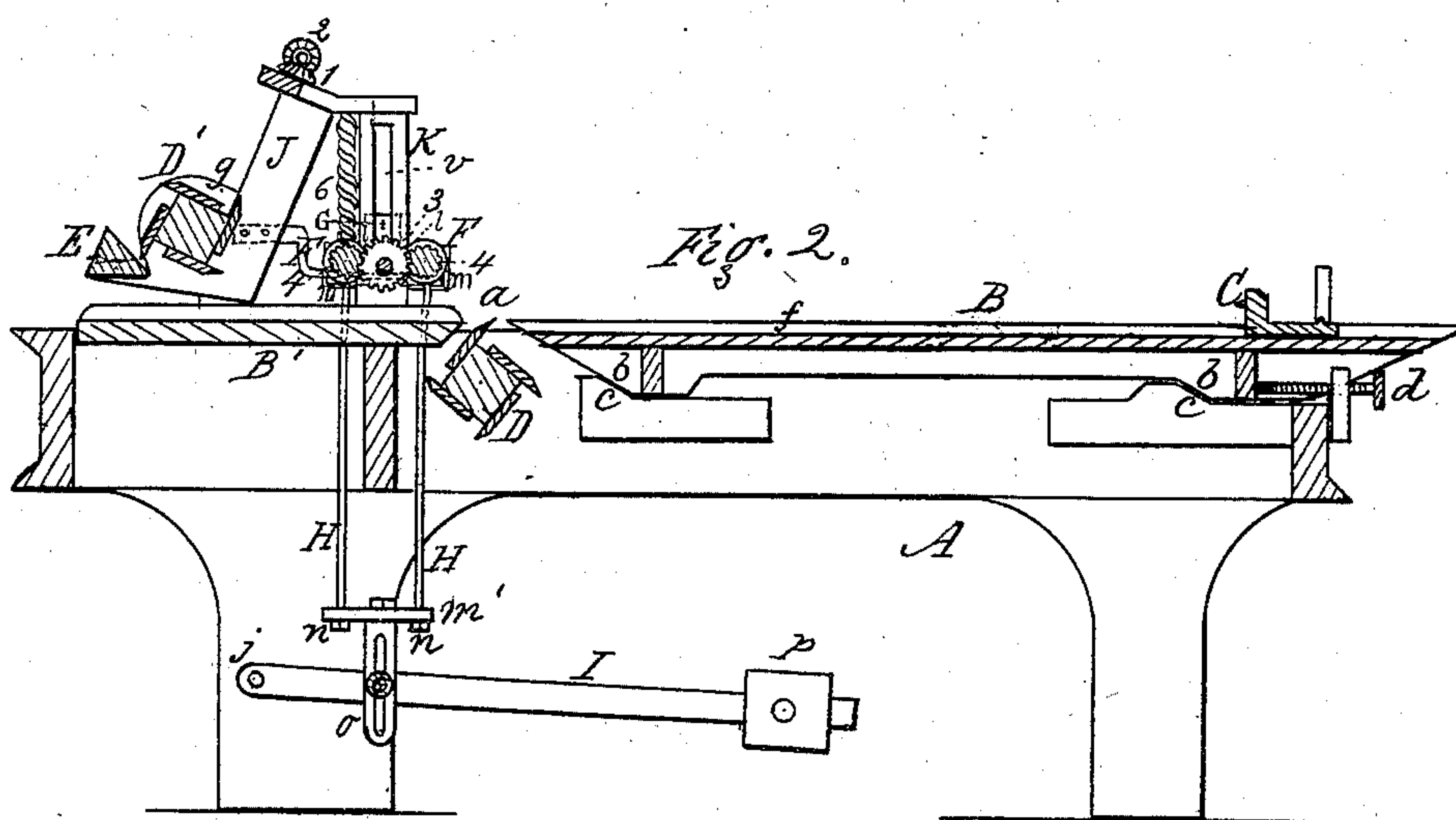
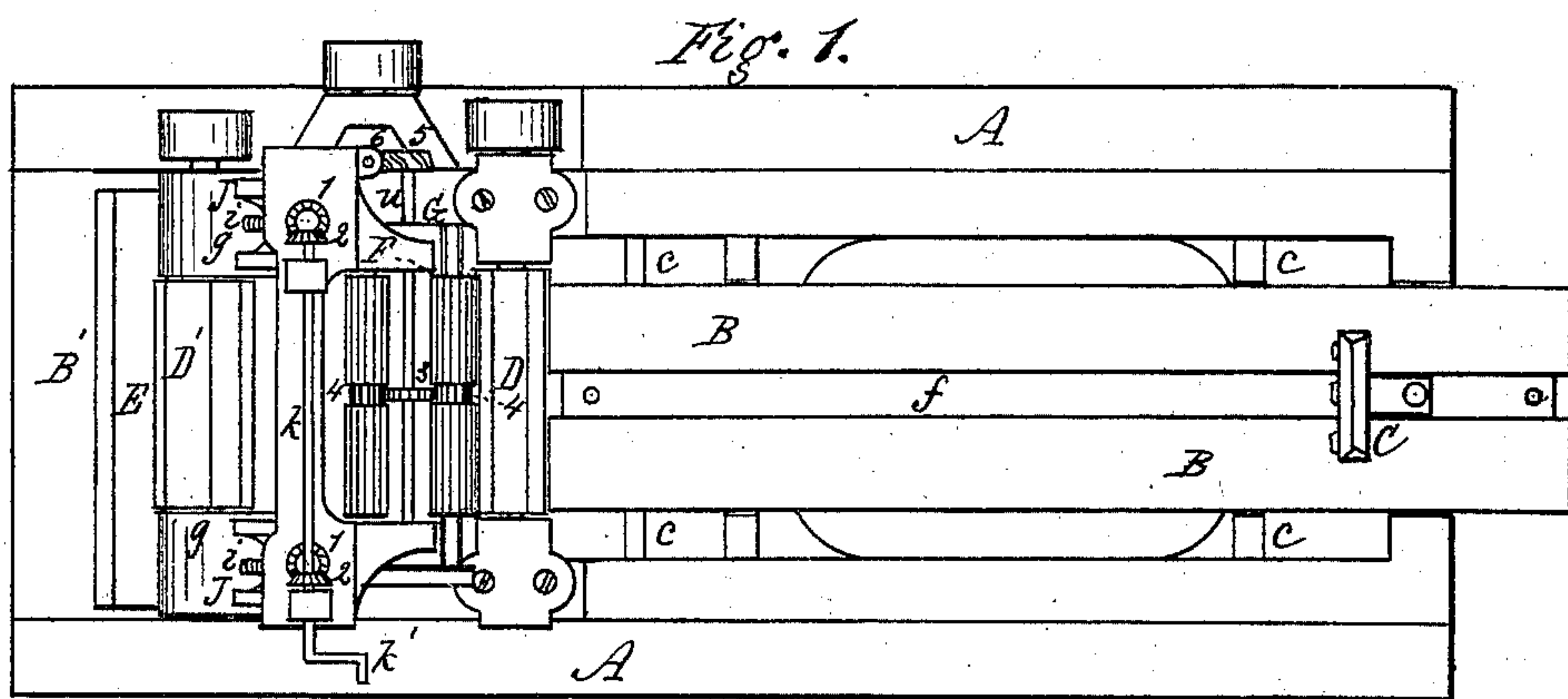


A. H. SHIPMAN.
Planing-Machines.

No. 138,703.

Patented May 6, 1873.



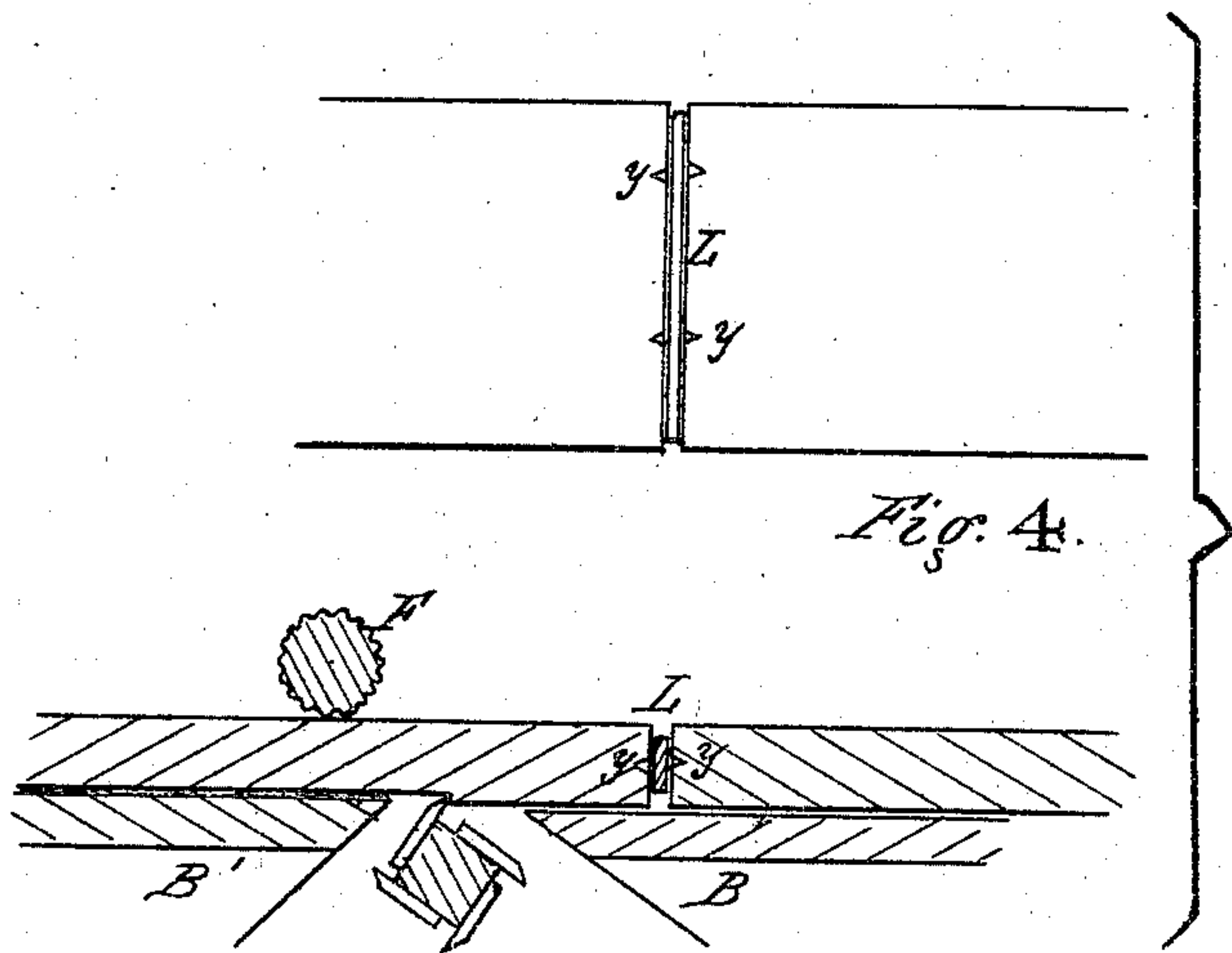
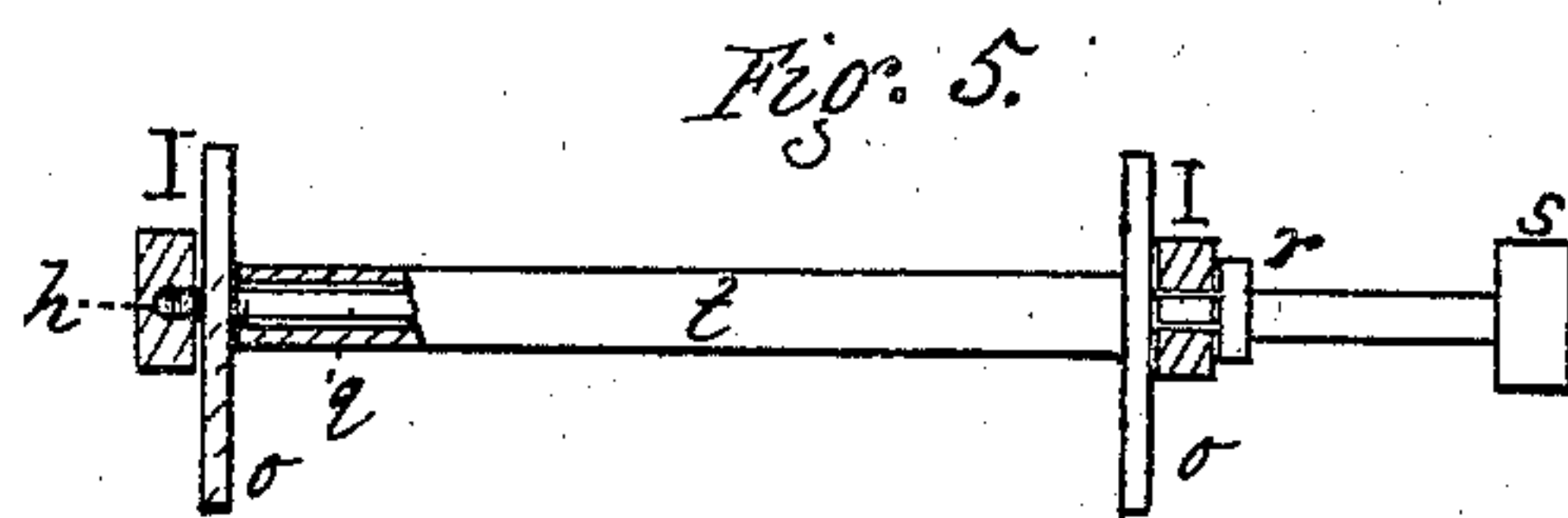
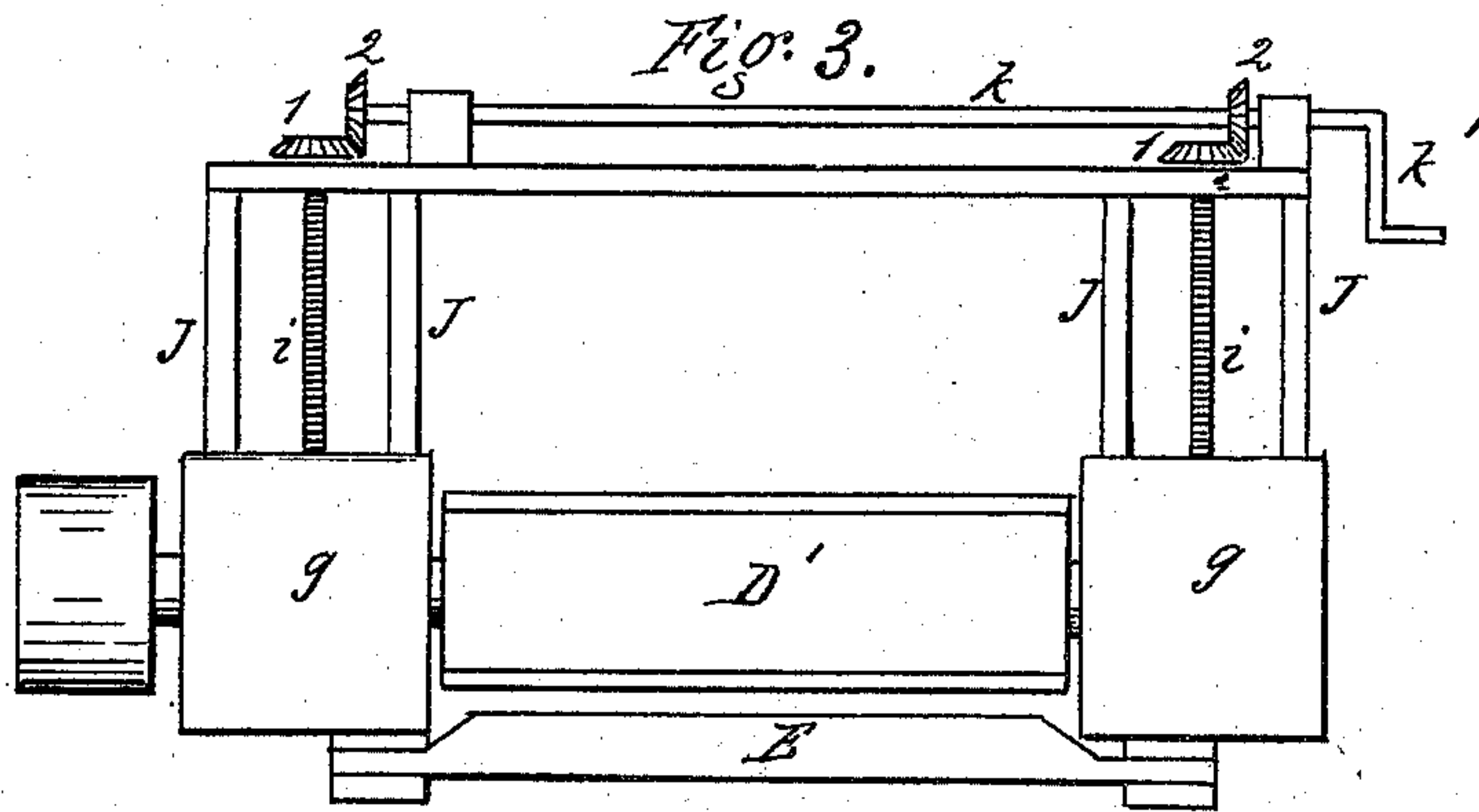
Witnesses.
William A. Loder
William C. Baune

Inventor.
Albert H. Shipman,
per R. F. Osgood,
att'y.

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William A. Leader
William C. Baine

Inventor.
Albert H. Shipman,
per R. T. Osgood,
Atty.

UNITED STATES PATENT OFFICE.

ALBERT H. SHIPMAN, OF ALBANY, NEW YORK.

IMPROVEMENT IN PLANING-MACHINES.

Specification forming part of Letters Patent No. **138,703**, dated May 6, 1873; application filed March 17, 1873.

To all whom it may concern:

Be it known that I, ALBERT H. SHIPMAN, of the city of Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Planing-Machines for Taking the "Wind" out of Lumber; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

My invention consists of a planing-machine for taking the "wind" out of lumber, constructed, arranged, and operating as hereinafter described.

In the drawing, Figure 1 is a plan, Fig. 2 a longitudinal vertical section, Fig. 3 a front view, of the upper cutter and its frame, and connecting parts; Fig. 4, a plan and section, respectively, of the lumber as the ends are jogged together in passing through the machine; Fig. 5, a detail view.

A represents the frame, which may be of any desired shape or construction. B is the primary bed at the rear end of the machine, and B' the secondary bed in the front end. The latter is made fixed, but the former is adjustable, and a throat, *a*, is left between them for the passage of the lower cutter, as indicated in Fig. 2. The primary bed B has inclines *b b* in front and rear, which run up on fixed inclines *c c* of the frame, so that the bed may be adjusted higher or lower, and still stand on a level. The bed is pressed forward to raise it on the inclines, by means of a set-screw, *d*, at the rear end of the machine, or any other suitable device. In the middle of the bed B is a longitudinal dovetailed groove, *f*, in which slides a follower, C, which is provided with spurs or points, and serves to press the lumber up to place in passing through the machine, as will be presently described. D is the lower, and D' the upper, cutter. The lower cutter is located directly within the throat *a*, between the beds B B', and stands at such a height as to plane off the lower surface of the lumber to a suitable extent as it passes over the beds. The upper cutter is hung correspondingly high to cut the upper surface of the lumber. The journals of this cutter rest in blocks or boxes *g g*, which slide up and down in ways J J, which are set inclined backward, as shown most clearly in

Fig. 2. This adjustment is made for the purpose of allowing different thicknesses of lumber to pass. The blocks *g g* are raised and lowered by screws *i i*, having bevel-pinions 1 1, with which engage corresponding bevel-pinions 2 2, on a shaft, *k*, having a crank, *k'*, by which it is operated. By turning this crank one way or the other, the cutter D' will be correspondingly raised or lowered. To the blocks *g g* is connected a pressure-bar, E, by means of arms, the object of which is to keep the lumber in place and prevent its vibration after it has passed the cutter. This pressure-bar is adjustable with the cutter. F F are corrugated feed-rollers, resting on bed B' near the throat *a*, and situated a suitable distance apart. The rear roller rests as nearly as possible to the lower cutter D, and over the extreme edge of the bed. The journals of these rollers rest in boxes *l l*, which in turn rest loosely in sockets *m m* of cross-bearings G G. Connecting-rods H H attached to the boxes *l l*, pass down through the cross-bearings G G, and are connected at the bottom beneath the frame by a cross-bar, *m'*, which rests on the heads *n n*. A pendent loop, *o*, is hung in cross-bar *m'*, and with this is connected a lever, I, pivoted at *j*, and having a weight, *p*, on its outer end. One set of these levers, loops, and connecting-rods is used on each side of the machine, and they are connected cross-wise by a rod, *q*, which passes through the slots of the loops. One end of the rod has a wheel, *s*, and shoulder *r*, which rests against one lever, and the other end of the rod has a screw-thread, *h*, which screws into the opposite lever. On the rod between the two levers is a sleeve or collar, *t*, which fills the space between the levers. It will be seen that when the rod *q* is turned up it will screw into the lever I, and the shoulder *r* will strike the opposite lever, thus drawing the two levers toward each other, and causing the collar *t* to clamp them in place. This arrangement is for the purpose of allowing the vertical adjustment of the feed-rollers F F without affecting the angle or position of the levers I. By unscrewing the rod so as to loosen the levers the feed-rollers and their connecting-rods can be raised, and the levers can then be clamped in place again. By this means the bearing or weight of the levers

on the feed-rollers is uniform at all times. The weights *p p* can be adjusted forward and back to produce more or less pressure at pleasure, and are fixed in place by set-screws. Between the feed-rollers is located one or more spur-pinions, 3, which engage with corresponding cogs 4 of the feed-rollers, said cogs being recessed within the surface to allow the spur-pinion to ride above the lumber. When located in the middle, as shown in the drawing, but one pinion is used. This arrangement of the spur-gear allows either end of the feed-rollers to rise independently of the other end, and at whatever height the rollers are raised, so that an equal pressure of both ends of the rollers may be attained, even if inclined. These feed-rollers have an equal pressure at both ends, which is not the case in ordinary feed-rollers geared from one end alone. It is not absolutely necessary to have more than one feed-roller, and but one may be used; but I prefer two, as the contact is greater to force the lumber through. The shaft *u* of the pinion 3 runs through slots *v v* of frames K, which are attached to the ways J J on each side of the machine, and rise and fall with them. The shaft *u* is operated by a worm-gear, 5 6, as shown in Fig. 1. This gear also adjusts up and down with the rising and falling of the upper cutter and the feed-rollers, and thus gives the latter motion in all positions.

The operation of this machine is as follows: The boards or other pieces of lumber to be taken out of wind are placed upon the primary bed B and pressed forward by the follower C to the feed roller or rollers F F. As fast as they are run through the machine they are followed by others, so that the action is constant. The ends of the boards are connected by dogs L L, consisting simply of thin strips of metal with points *y y*, which strike into the wood. These dogs serve to connect, hold, and stiffen the ends of the boards, so that in passing the lower cutter D there will be no vibration or loose action, as would be the case if the ends of the boards were free. These dogs are of importance only in holding the ends of the boards till they have passed the primary cutter and have engaged with the feed-rollers.

In some instances, where very accurate work is not required, they may be dispensed with, and the boards be run through, one after another, independently. The follower C serves to follow up and press the lumber forward by the hand or the application of suitable automatic power from the machine, as may be desired. It also serves to dog the ends by the spurs before described, and therefore keeps the rear end of the boards square or on a level with the front ends, and also prevents any lateral displacement.

An important feature in my invention is the arrangement of the feed roller or rollers with reference to the beds B B', having a throat between, and the lower cutter D running therein. The feed-rollers are located over the extreme edge of the bed B', and as nearly over

the lower cutter as possible, and no rollers whatever are used above the bed B except when used as an ordinary planer. The boards are therefore left free from pressure over their whole surface in passing the primary bed B, and are held only after passing cutter D and nearly over it. The main length of the lumber, being thus free from downward pressure, can retain its natural shape till after it has passed the cutter, and therefore it will be planed out of "wind" without fail.

It would not do to employ feed-rollers or pressure on the primary bed B, for in that case the lumber would be sprung down upon the bed and planed in that position, and when the lumber had passed the cutter it would spring back into its original shape again, and the wind would not be taken out. Therefore, planing-machines with ordinary feed-rollers will not answer the purpose. In this feature, viz., the use of the feed roller or rollers in proximity to the lower cutter and past its cut, leaving the whole rear portion of the bed free, consists one of the main features of novelty in my invention.

As soon as the under side of the board has been planed straight and passes the lower cutter it passes beneath the feed roller or rollers and fits flat to the front bed B', and the upper cutter takes out the wind of the upper surface, and also brings it to the proper thickness by the ordinary action of planing.

Various modifications of this machine may be made, among others the following: Edge-cutters may be employed for planing the edges of the board or pieces. Feed-rollers may be used over the primary bed B for ordinary planing, and may be so attached as to swing off on a pivot to one side, or to be elevated when the machine is used, as above described, for taking the wind out of lumber.

Instead of the corrugated feed roller or rollers F F plain ones might be used; or instead of rollers pressure-bars might be used with a similar effect, but not to so good an advantage.

Instead of the follower C, arranged as described, a sliding clamp might be used on the sides of the bed B, embracing the edges of the boards, and tightened by a lever-clamp or otherwise. Any form of the cutters D D' may be employed—straight, spiral, or otherwise.

A series or duplication of the single or double rollers F F may be employed above the bed B', and a corresponding series of the worm-gears 5 6. The latter may be driven by a single shaft on the side of the machine with a suitable number of bevel-gears.

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

1. The combination of the beds B B', throat *a*, cutter D, and follower C, for operating in connection with the feed-rollers F for the purpose of taking the wind out of lumber, substantially as described.

2. In combination with the levers I I and pendent loops *o o*, the screw-rod *q* and clamp

ing-collar *t*, arranged and operating as herein specified.

3. In combination with the bed B and feed-rollers F F, the follower C, working in guide-grooves in the bed B for guiding the back end of the board true with the front end, as herein described.

4. In a planing-machine, the method of feeding the lumber to the cutters and feed-rollers in a continuous length by means of the dogs

L L, provided with spurs *y y*, which engage the ends of the pieces, as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ALBERT H. SHIPMAN.

Witnesses:

R. F. OSGOOD,

WILLIAM C. BAINE.