

(No Model.)

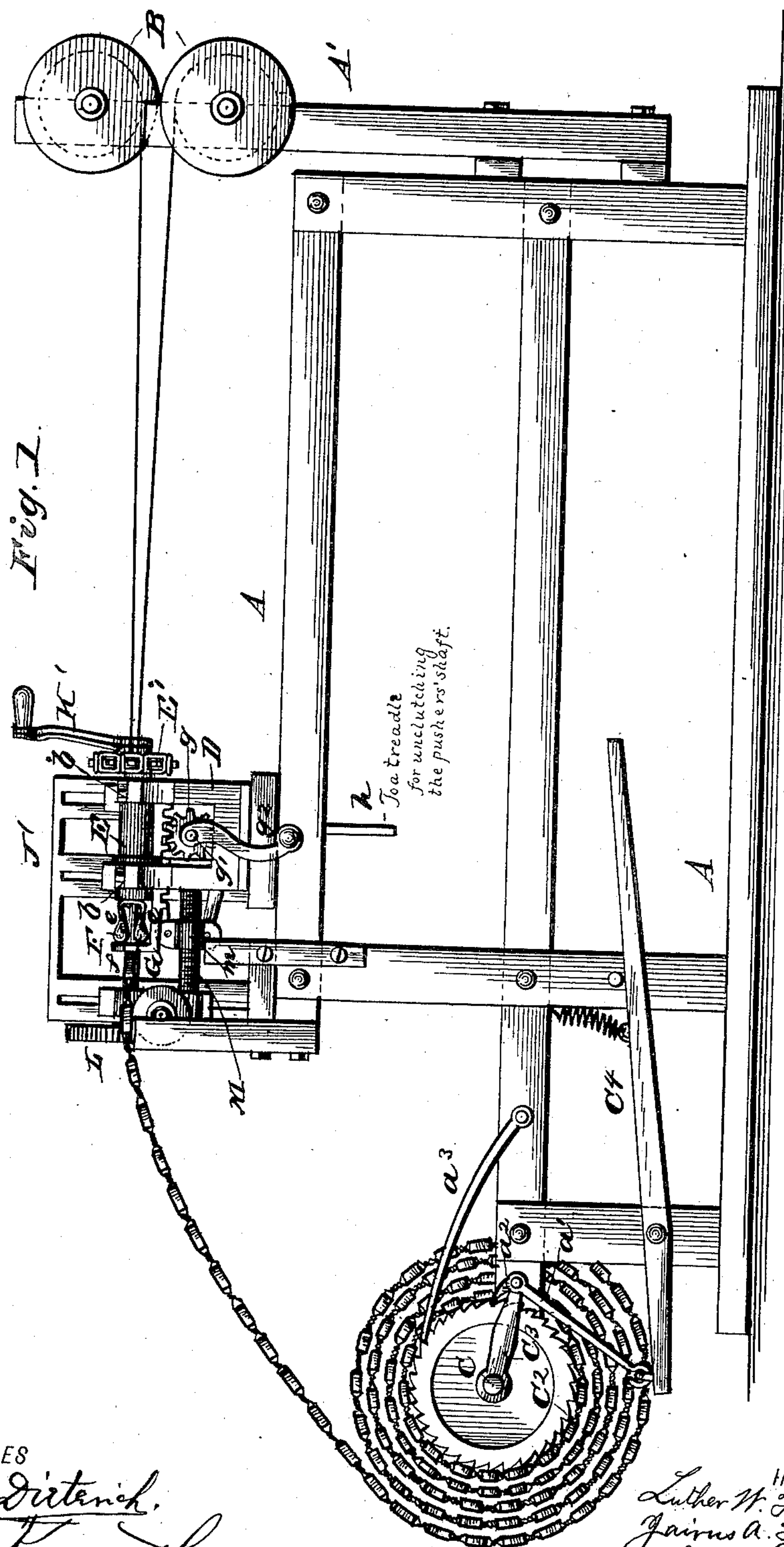
4 Sheets—Sheet 1.

L. W. FILLEBROWN, S. S. GRAY, & J. A. FILLEBROWN.

WIRE FENCE MACHINE.

No. 314,442.

Patented Mar. 24, 1885.



WITNESSES
Phil C. Dietrich,
J. R. Keyworth

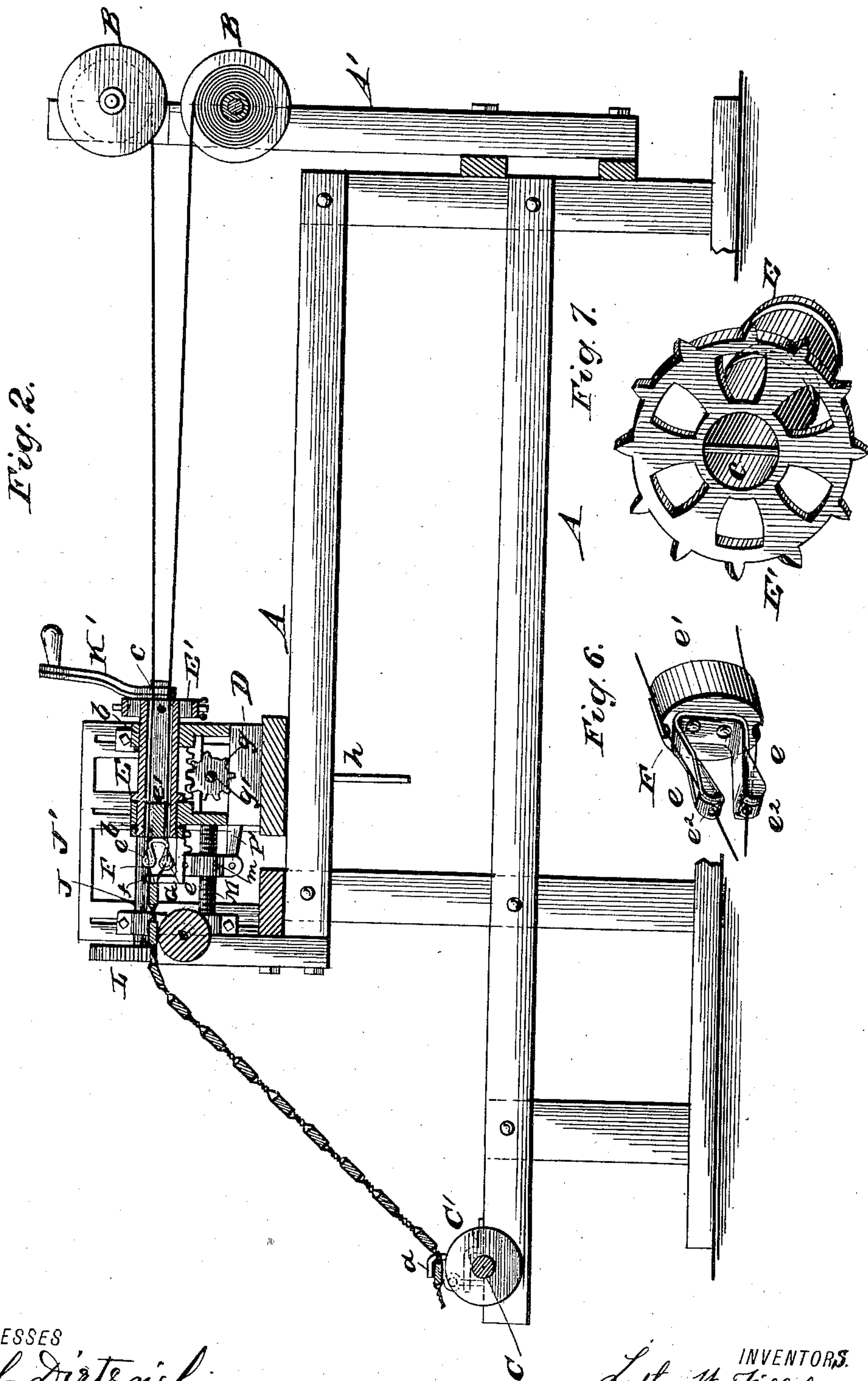
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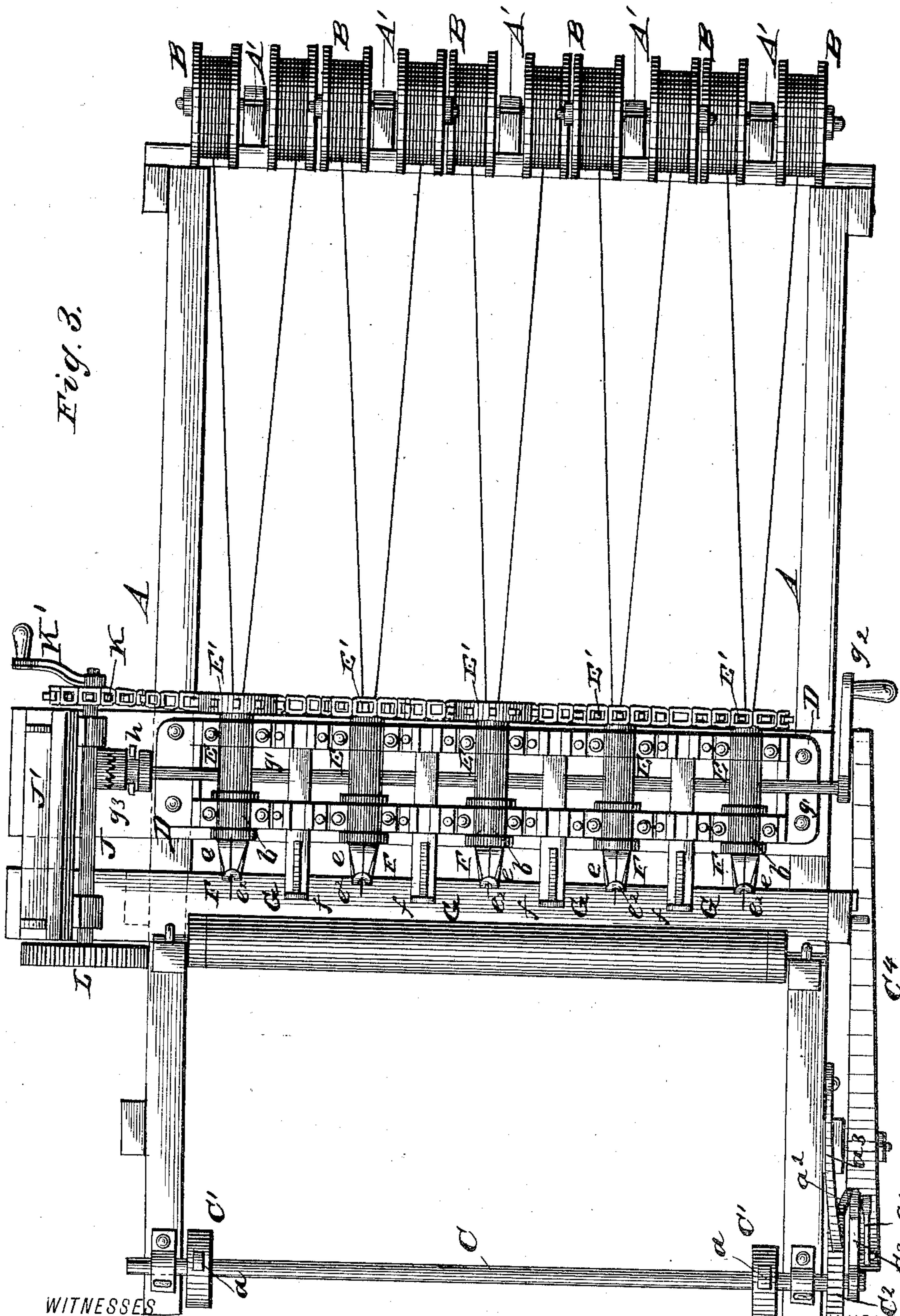


Fig. 3.

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Fig. 4.

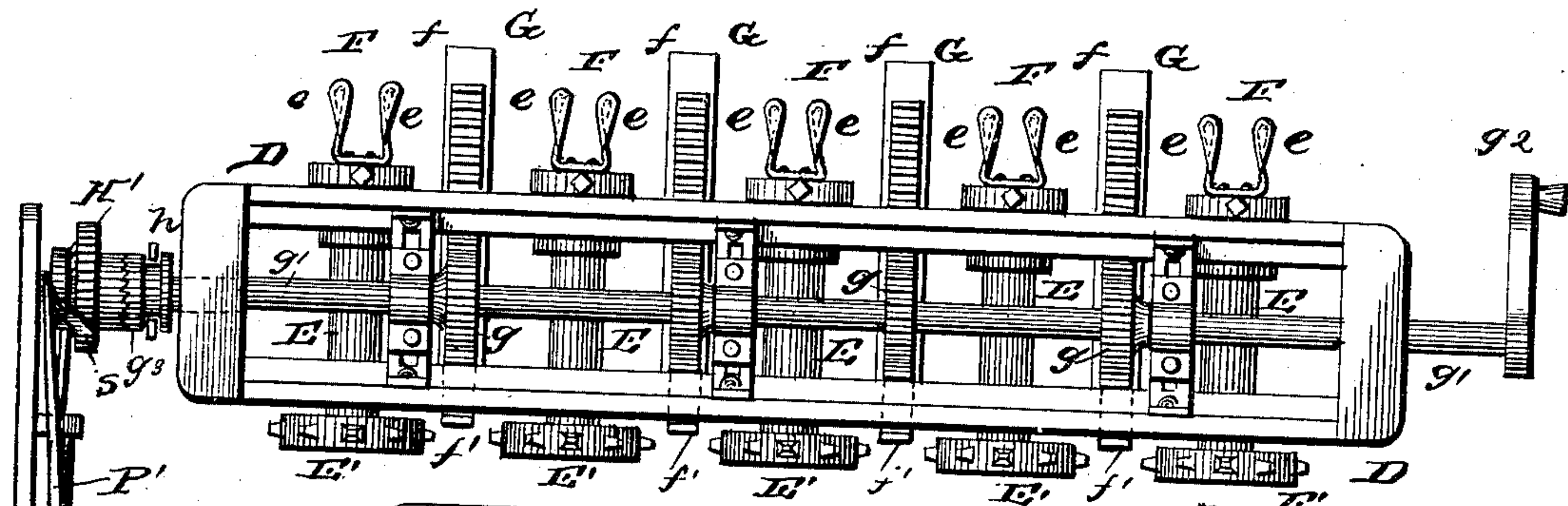


Fig. 5.

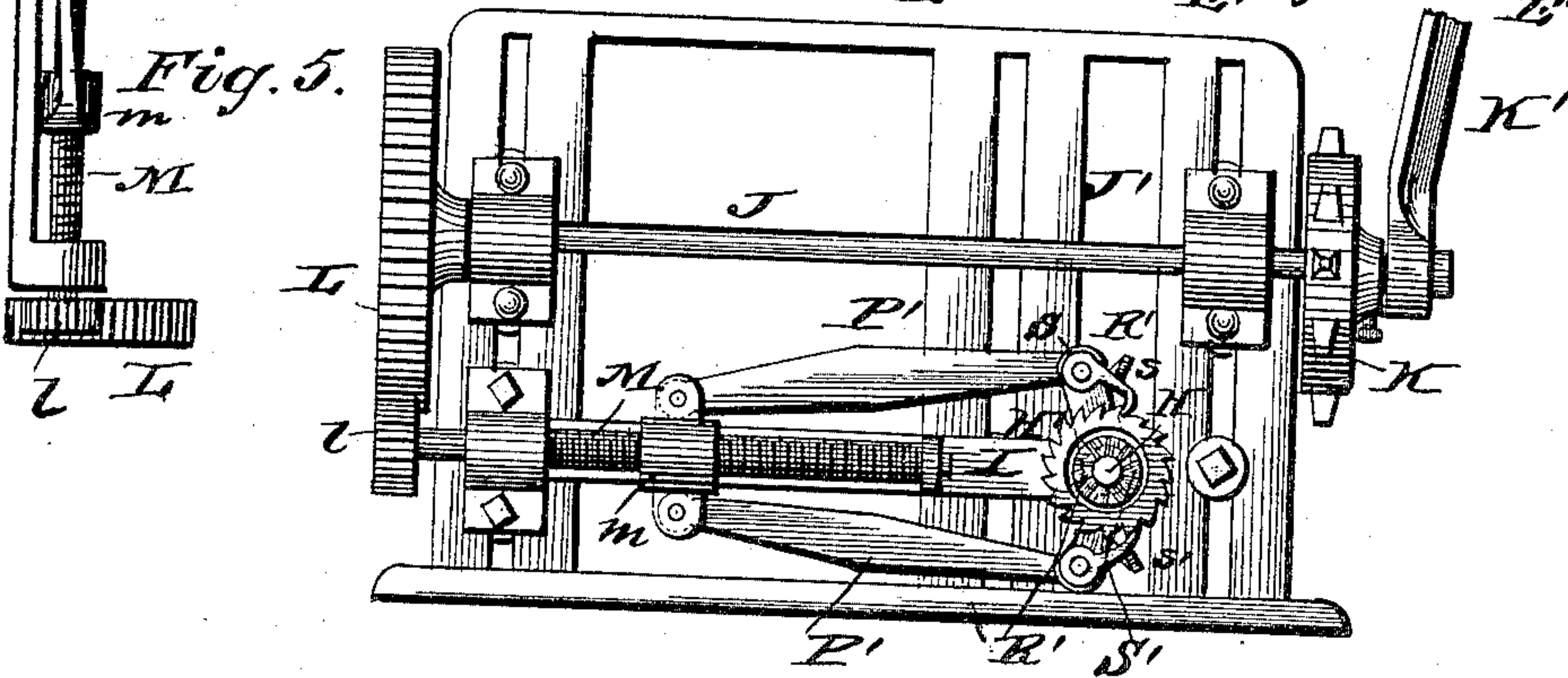


Fig. 8.

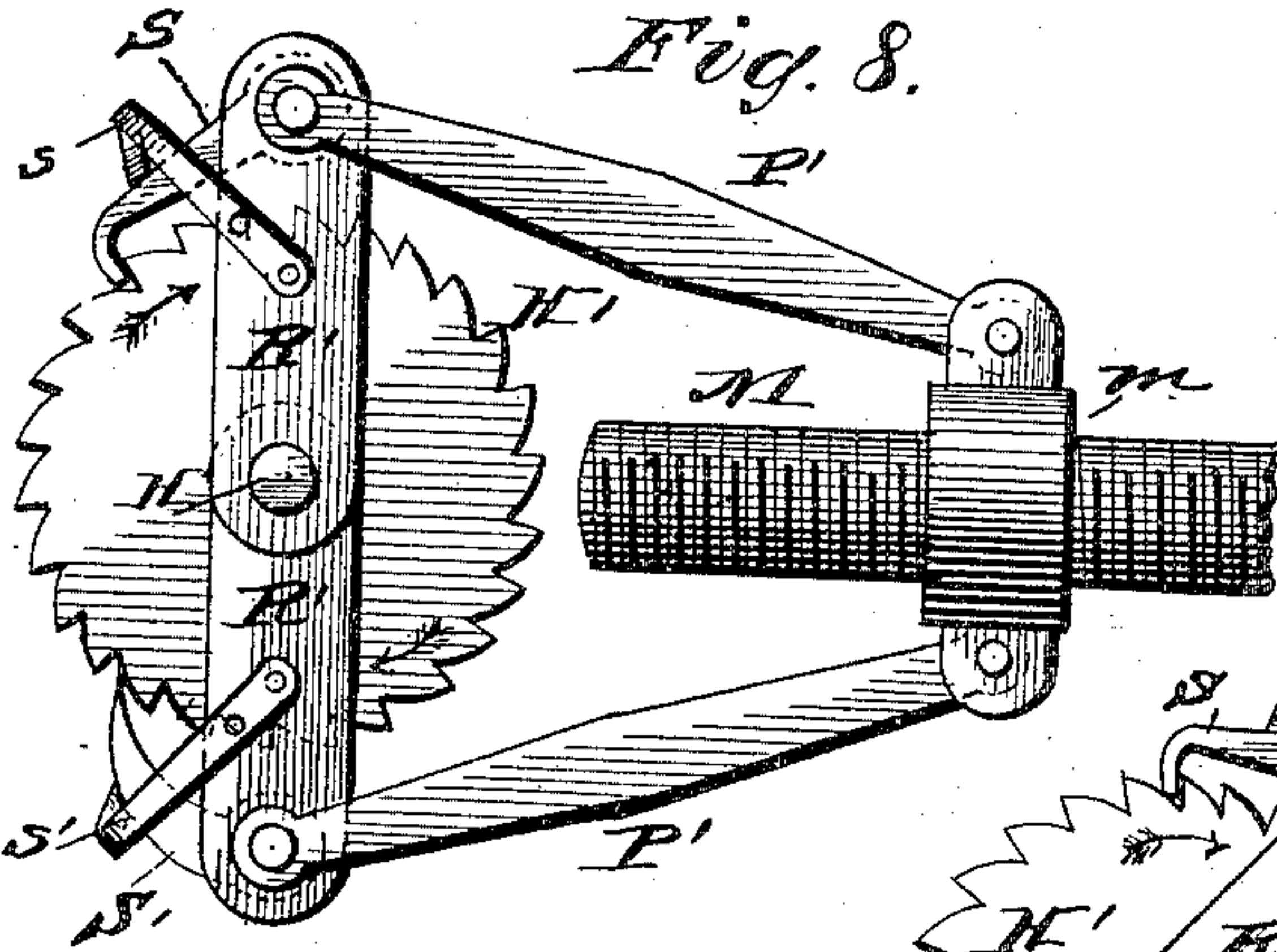
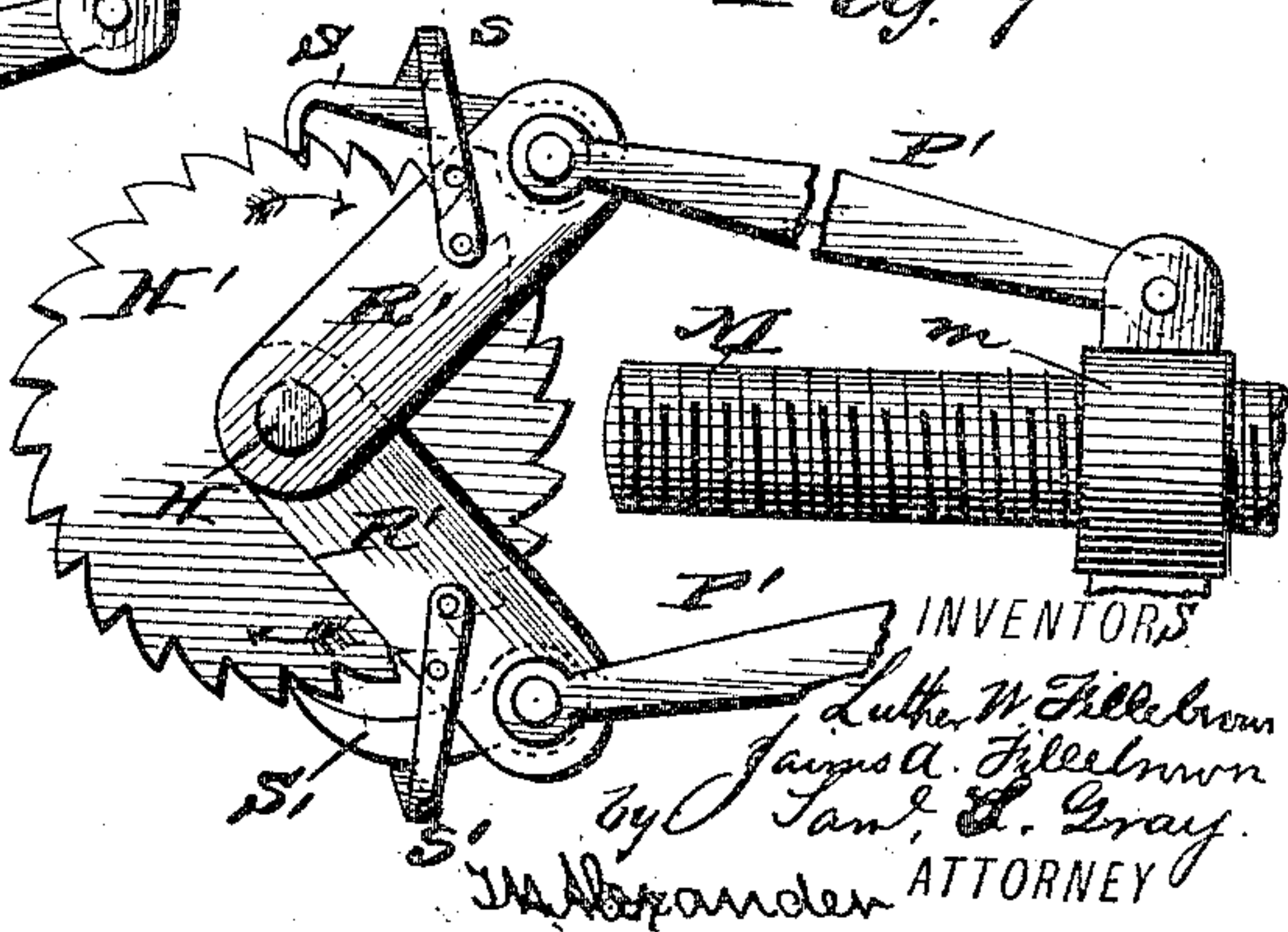


Fig. 9.



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UNITED STATES PATENT OFFICE.

LUTHER W. FILLEBROWN, SAMUEL S. GRAY, AND JAIRUS A. FILLEBROWN,
OF PIQUA, OHIO; SAID L. W. AND J. A. FILLEBROWN ASSIGNORS TO
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WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 314,442, dated March 24, 1885.

Application filed May 29, 1884. (No model.)

To all whom it may concern:

Be it known that we, L. W. FILLEBROWN, S. S. GRAY, and J. A. FILLEBROWN, of Piqua, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Wire-Fence Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is an elevation of one side of our improved fence-making machine. Fig. 2 is a vertical section through the machine, taken through one of the twist-ers. Fig. 3 is a top view of the machine complete. Fig. 4 is an inverted or bottom view of the twister-frame, showing the twist-ers and slat-pushing devices. Fig. 5 is an elevation in detail of the ratchet and jaws, and mechanism for actuating the same. Fig. 6 is an enlarged perspective view of one of the spring-twist-ers, detached from the hollow hub of a sprocket-wheel. Fig. 7 is a perspective view of a sprocket-wheel and its hollow hub. Figs. 8 and 9 are side views in detail of the ratchet-wheel, its pawl, and part of the screw-shaft which actuates the pawls, showing the latter in two positions.

This invention relates to improvements on machinery for making fences which are composed of wooden slats bound to wires, which are twisted together between the slats; and it consists in certain novel devices and combinations of devices for facilitating the introduction of the slats between the binding-wires, for tightening the slats in the wire strands, and for preventing the enamel on the wires from cracking during the twisting operations, all of which will be fully understood from the following description, when taken in connection with the annexed drawings.

A designates the main frame of the machine, at the rear end of which a number of standards, A', are erected, which afford bearings for the reels B, upon which is wound the fence-wires, which wires are preferably enameled to prevent them from rusting.

At the front end of the machine, and located

some distance below the top of the main portion thereof, is suitably mounted a horizontal transverse shaft, C, which is removable from its bearings, and which is constructed with disks C' C' on it near its ends, having hooks a adapted to engage with the first one of these series of slats in the fence and allow the latter to be wound upon said disks.

On one end of the shaft C is keyed a ratchet-wheel, C², and loosely applied to the shaft is an arm, C³, which latter is connected to a treadle, C⁴, by a link, a', and engaged with said ratchet by means of a pawl, a². By depressing the said treadle the shaft C, with its hooked disks and ratchet-wheel, will be caused to turn and wind up the fence as it is made, and by means of a pawl, a³, the said shaft will be prevented from turning backward.

D designates a horizontal transverse metal frame, which is mounted upon and rigidly secured to the main frame A.

The parallel plates of the frame D are constructed with raised journaled bearings b, in number corresponding to the number of twist-ers it is desired to employ. In said bearings we apply hollow hubs E, which are arranged longitudinally, and on which are rigidly applied sprocket-wheels E'. Each hollow hub has a rod, c, diametrically through its end, designed for preventing the two fence-wires passing through it from tangling. One end of each hollow hub E has secured into it a wire-twisting device, F, which is constructed with two spring-fingers, e e, formed on a head, e', adapted to enter the end of said hollow hub.

The spring-fingers are constructed, as shown in Fig. 6, with side flanges and inwardly-turned perforated ends, e² e², through which the fence-wires pass and are properly guided to the work. These fingers are made elastic, so that they will yield more or less and not break when subjected to undue strain.

The head of each twister F is grooved, to allow the fence-wires to pass out of the twister.

Between the twist-ers F are what we denominate "slat-pushers" G, which are constructed with upturned front ends, f, and rack-teeth on their lower sides. These slat-pushers G are applied to the bottom of the frame D, so

that they can be moved forward and backward by means of spur-wheels g , keyed on a shaft, g' , which has its bearings in the frame D, and which bears a hand-crank, g^2 , on one end, and a grooved hub, g^3 , on the other end. The clutch-hub g^3 is applied on shaft g' by means of a feather and groove, so that while it will always turn with its shaft it may be adjusted in a direction with the length thereof by means of a forked shifter, h , actuated by a treadle.

The treadle for actuating the forked shifter h is not shown in the drawings, as it may be applied in any convenient manner. The teeth of the face of the clutch-hub g^3 are designed to engage during the twisting operation with clutch-teeth on a shaft, H, to which ratchet-wheel H' is keyed. The axis of shaft H coincides with the axis of the shaft g' , and the former shaft H has its bearings in a metal frame, J', rigidly secured upon the main frame A.

J designates a shaft, which has its bearings in frame J', and which has a sprocket-wheel, K, and hand-crank K' on one end, and a large spur-wheel, L, on the other end. This spur-wheel L engages with a pinion, l , which is keyed on one end of a screw-threaded shaft, M, which has its bearings in frame J'.

On the screw-shaft M is applied a traveling nut, m , to lugs formed on which are pivoted arms P' P'. The free ends of the arms P' P' are pivoted to links R' R', which are free to vibrate on the shaft H, alongside of the ratchet-wheel H'.

S S' are two pawls, which are acted on by springs $s s'$ for holding their free ends in engagement with the teeth of the ratchet-wheel H'. The pawl S is hooked for moving the ratchet-wheel in one direction, indicated by the arrows on Figs. 8 and 9, and the pawl S' is adapted for moving said wheel in the same direction. Thus it will be seen that, whether the traveling nut m be moved forward or backward, the wheel H' will be rotated in the same direction, and will act, through the medium of its shaft H and the clutch-head, to rotate the shaft g' , which in turn will transmit intermittent movements to the pushers G.

The operation of my machine is as follows: The pairs of wires are drawn from the reels and passed through the hubs E and through the grooved forked ends of the spring-twisters, and connected to a slat, which is attached to the hooks on the disks C' C'. The wires are all tightened by depressing the treadle C⁴. The pushers G are then moved fully back by disconnecting the clutch-heads and turning the crank on shaft g' . A slat is then passed endwise between the wires in front of the upturned portions f of the pushers and twisters. The clutch g is engaged with the corresponding clutch on the shaft H, and the shaft J is turned by means of crank K'. The slat will now be moved slowly forward, and at the same time the twisters will be rotated and the twist put in the wires, thereby binding the slat

firmly when the pushers have reached their full outward stroke. The clutch g^3 is then disengaged from the corresponding clutch on the shaft of the ratchet-wheel H', and the shaft g' turned back by means of the crank g^2 , thus retracting the pushers for a repetition of the operation.

Having described our invention, we claim—

1. The combination, in a wire-fence machine, of a wire-twister consisting of spring-fingers having inwardly-turned perforated and flanged ends, a head having longitudinal grooves in its periphery, and a hollow hub, E, substantially in the manner and for the purposes described.

2. The combination of the hollow hub E, its sprocket-wheel and cross-bar with the grooved head e' , and spring-fingers having perforated ends secured to said head e' , substantially as described.

3. The combination, with wire-twisting devices, of the slat-pushing racks G, having upturned ends and engaging with pinions on a shaft, g' , substantially as described.

4. The combination, in a wire-fence machine having twisting devices and pushing devices, of the shaft and pinions for actuating the pushers, the clutch for engaging said shaft with the shaft of ratchet-wheel H', the pawls, their nut and screw shaft, spur-wheels l L, shaft J, bearing a sprocket-wheel, and the sprocket-wheels on the hubs of the twisting devices with the driving-chain, all constructed and adapted to operate substantially as described.

5. The combination, in a wire-fence machine, of wire-twisters mounted and rotated as described, rectilinear-moving slat-pushers, a clutching device, the shifter h therefor, the ratchets and pawls, the nut m and its screw-shaft, the gearing l L, and shaft J, and the means described for rotating the twisters simultaneously with the forward movement of the pushers, all substantially as specified.

6. In a wire-fence machine of the character described, the combination, with the frame J', of the ratchet-wheel having a half-clutch on its shaft, the pawls actuated by a nut on a shaft, M, the shaft J, bearing a sprocket-wheel, K, the intermediate gears between shafts M and J, sprocket-wheels on the hubs of the twisters, the driving-chain therefor, and the means described for engaging and disengaging the pusher-actuating shaft with the shaft of the ratchet-wheel H', all constructed and adapted to operate substantially in the manner and for the purposes described.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

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SAMUEL S. GRAY.
JAIRUS A. FILLEBROWN.

Witnesses:

J. H. HATCH,
C. L. FILLEBROWN.