

(No Model.)

3 Sheets—Sheet 1.

C. E. PARKS & L. MOLLART.
LOOM FOR WEAVING SLAT AND WIRE FABRIC.

No. 433,024.

Patented July 29, 1890.

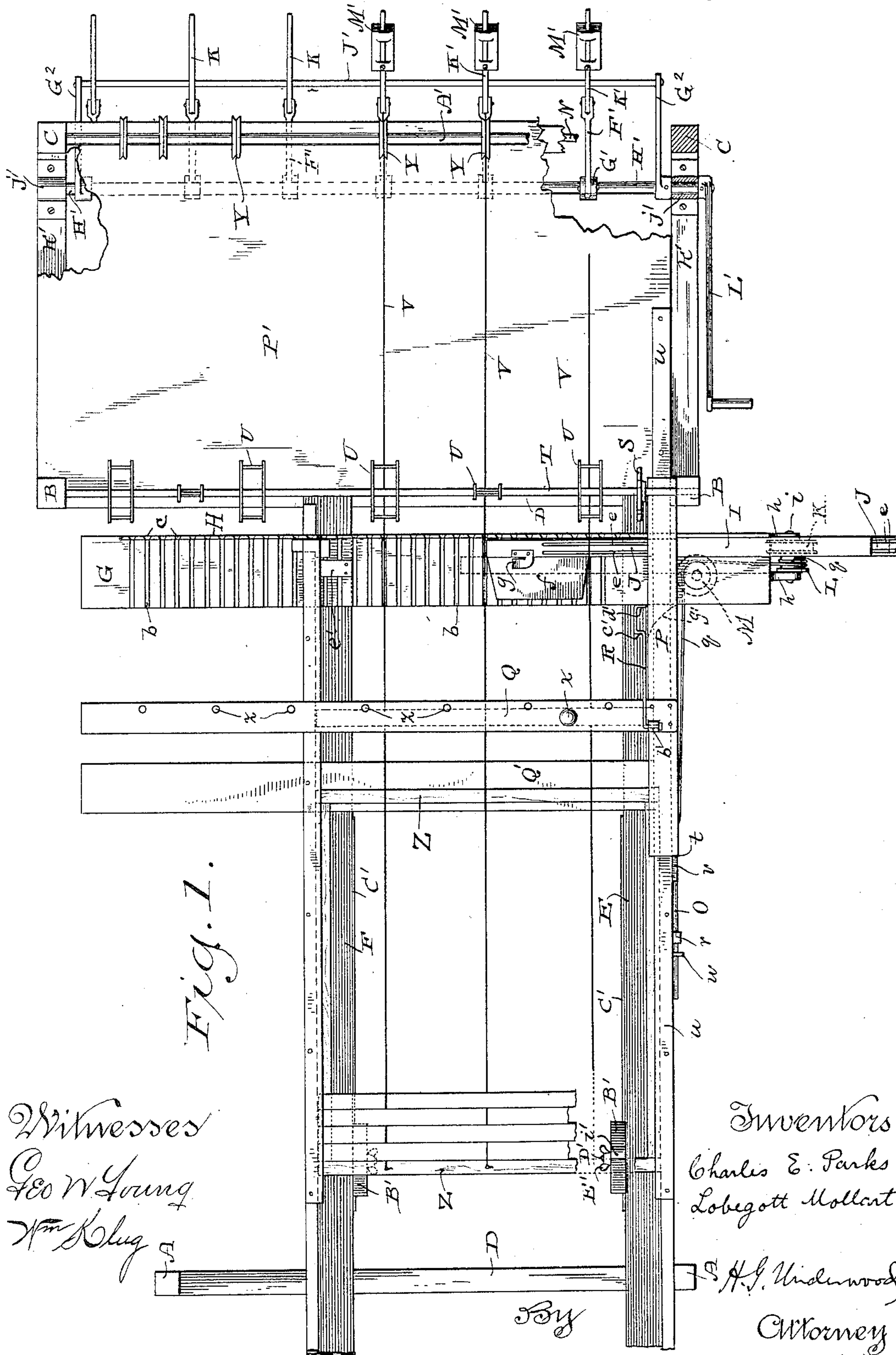


Fig. 1.

Witnesses
Geo W. Young
Wm. Klug

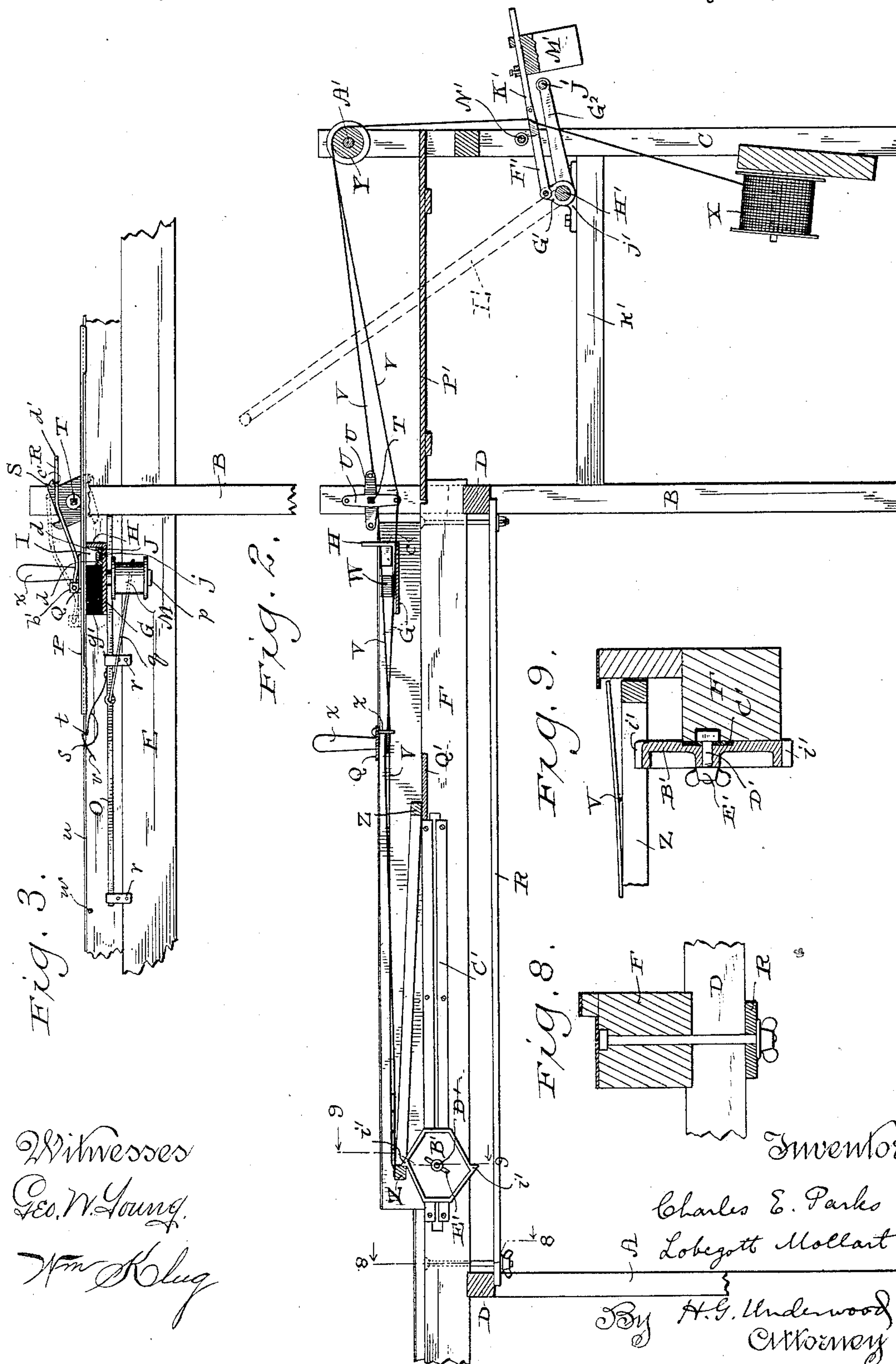
Inventors:
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3 Sheets—Sheet 2.

No. 433,024.

Patented July 29, 1890.



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3 Sheets—Sheet 3.

No. 433,024.

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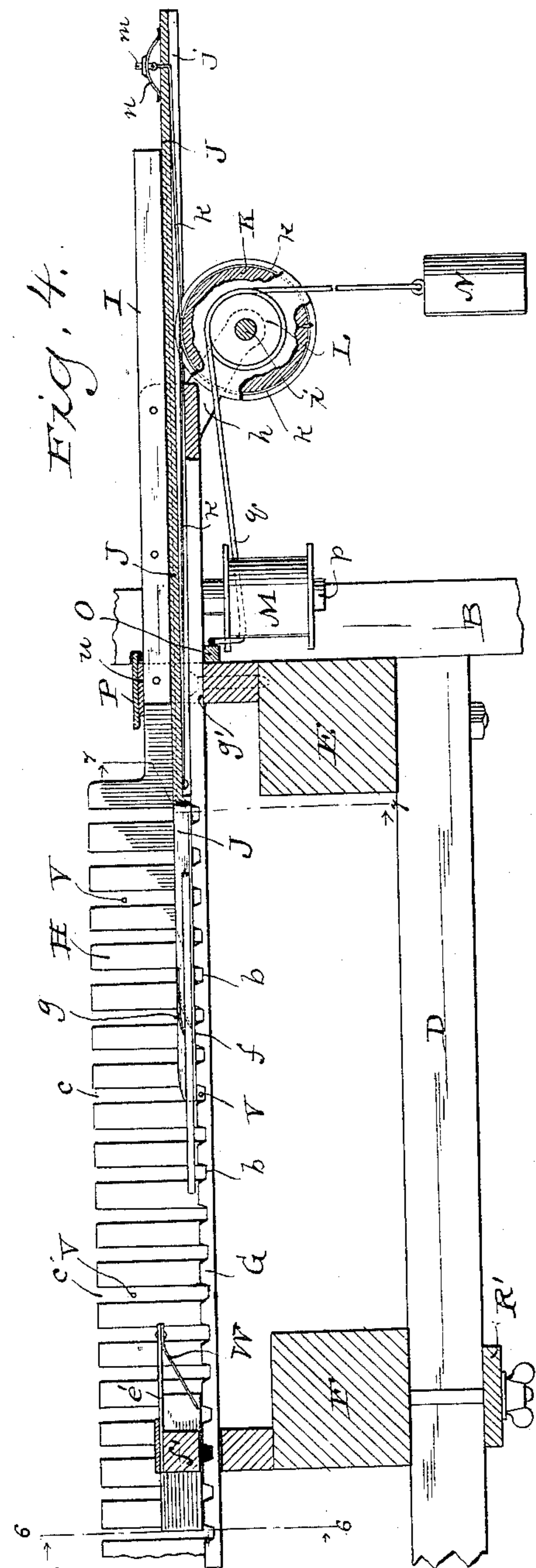


Fig. 4.

Witnesses
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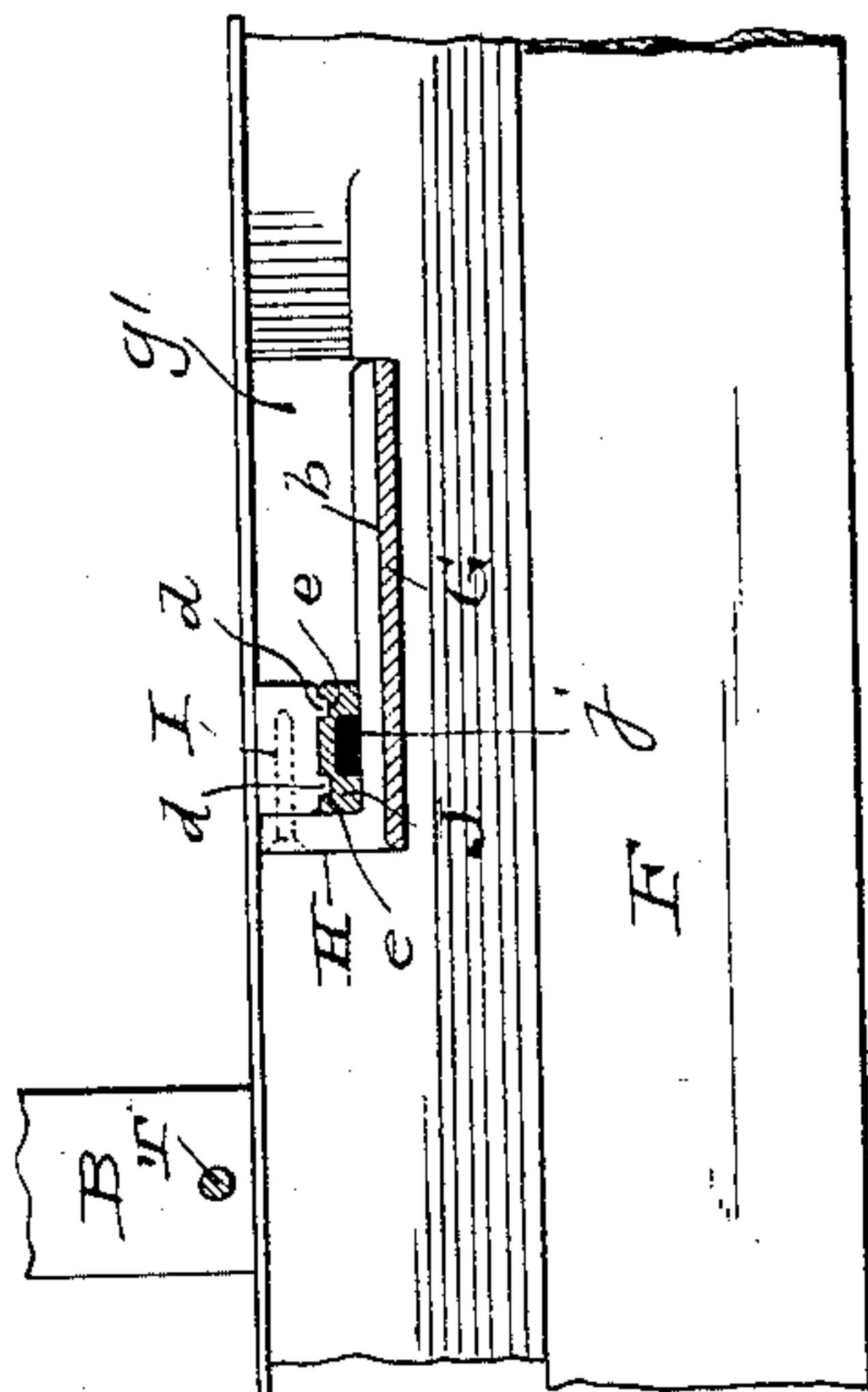


Fig. 1.

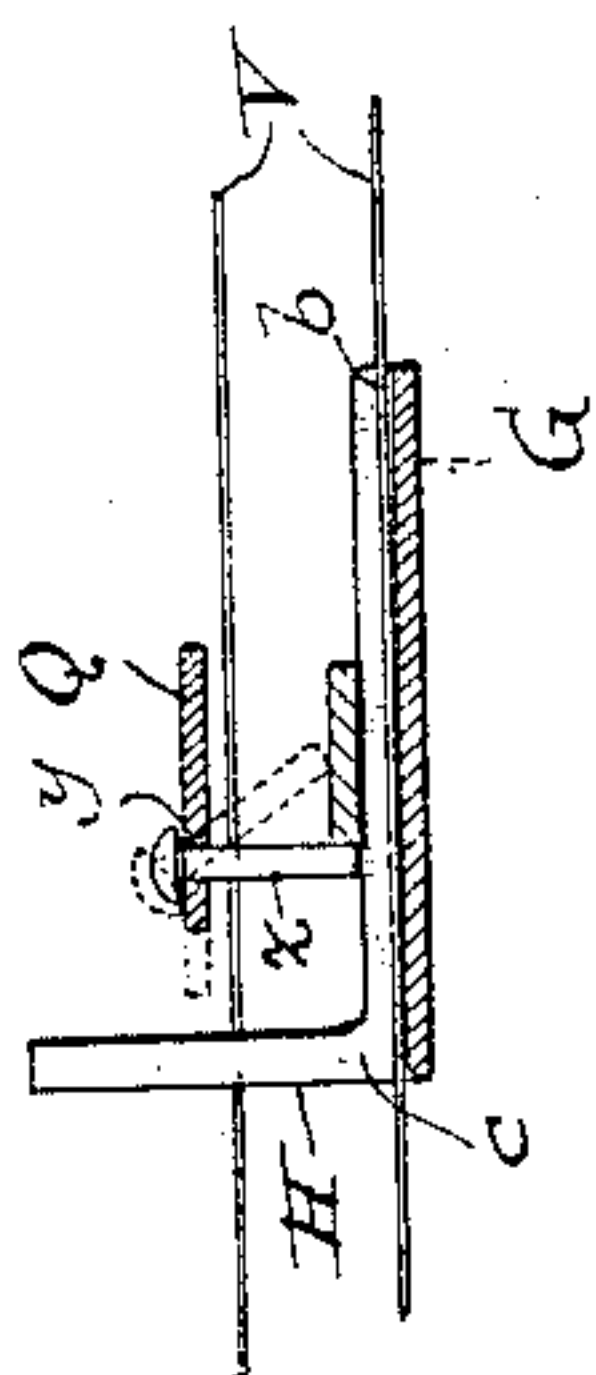


Fig. 5.

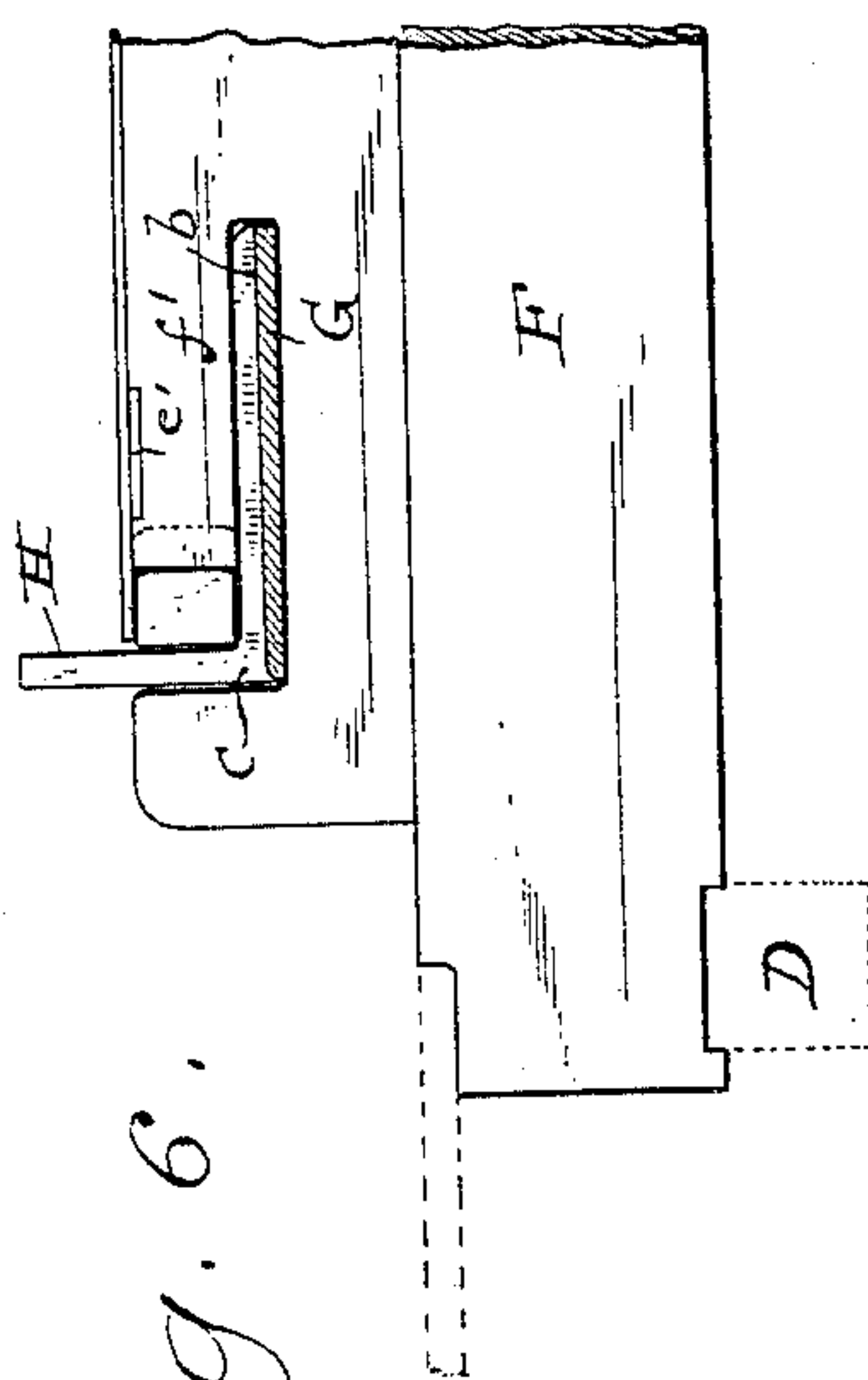


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES E. PARKS AND LOBEGOTT MOLLART, OF WATERTOWN, WISCONSIN;
SAID MOLLART ASSIGNOR TO SAID PARKS.

LOOM FOR WEAVING SLAT-AND-WIRE FABRIC.

SPECIFICATION forming part of Letters Patent No. 433,024, dated July 29, 1890.

Application filed January 29, 1890. Serial No. 338,498. (No model.)

To all whom it may concern:

Be it known that we, CHARLES E. PARKS and LOBEGOTT MOLLART, both of Watertown, in the county of Jefferson, and in the State of Wisconsin, have invented certain new and useful Improvements in Looms for Weaving Slat-and-Wire Fabric; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention relates to looms designed for the manufacture of the fabric and panels of such boxes or crates as are described in patents to Charles E. Parks, No. 386,157, July 17, 1888, and No. 409,699, August 27, 1889, the said invention consisting in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a plan view of a slat-weaving loom constructed according to our invention; Fig. 2, a longitudinal vertical section of the same; Fig. 3, a detail elevation, partly in section, illustrating the shuttle and warp shifting mechanism; Fig. 4, a transverse section, partly in elevation, from the rear, illustrating the shuttle-actuating mechanism and warp-frame; Fig. 5, a section of the beater and warp-frame; Figs. 6 and 7, sections respectively taken on lines 6 6 and 7 7 of Fig. 4, and Figs. 8 and 9 sections respectively taken on lines 8 8 and 9 9 of Fig. 2.

Referring by letter to the drawings, A B C represent the standards of the loom-frame, these standards being united in pairs, and the ones B joined to the ones C by suitable timbers *k'*. The cross-timbers D, uniting the standards A A and B B, support longitudinal beams E F, the outer one E of these beams being stationary and the inner one F laterally adjustable.

Supported on the beams E F is a warp-frame comprising a base G, provided with a series of transverse grooves *b*, and a vertical wall H, having a series of slots or openings *c* coincident with the said grooves.

Secured to the wall H at the outer end of the warp-frame is a guide-block I, provided upon its under side with ribs *d* for engagement with grooves *e* in the upper face of a

bar J, and the inner end of this bar carries a plate *f*, against which a flat spring *g*, attached to said bar, is normally impinged. The bar J, plate *f*, and spring *g* constitute the shuttle of the loom, this shuttle being reciprocated across the warp-frame by the mechanism to be hereinafter described.

Depending from the outer end of the warp-frame are bearings *h* for a shaft *i*, and fast on this shaft are two pulleys K L of different diameters.

The bar J has its under side provided with a groove *j* for the reception of a cord *k*, the latter being fast at one end to said bar. The cord *k* is given a turn around the larger pulley K and its outer end passed through the corresponding end of the bar J to connect with a clip *m*, supported by a bow-spring *n* on said bar.

Depending from the warp-frame is a stud *p* for a drum M, and wound on this drum is a turn of a cord *q*, passing around the smaller pulley L and having the outer end thereof attached to a weight N and the inner end connected to a sliding bar O, supported in guides *r* on the outer beam E of the loom-frame.

Secured to the sliding bar O is a spring *s*, bent to form a latch *t*, in the path of a slide P, the latter being arranged on a guide-plate *u* above the beam E of the loom-frame, and the spring has a curved extension *v* beyond the latch, a pin *w* on the frame being arranged in the path of the extension to automatically depress said spring.

Secured to the slide P is one end of a beater Q, provided with a handle *x* and a series of perforations *y*, the latter being beveled on one side. The perforations *y* are engaged by pins *z* and the beveled side of said perforations permits the pins to yield in one direction and slip over a slat, as shown by dotted lines in Fig. 5.

The beater Q is provided with a bearing *b'* for one end of a pawl R, that actuates a ratchet S on a shaft T, the latter having its bearings in the standards B and provided with a series of spreaders U, adjustably arranged at certain intervals, each spreader consisting of two spiders united by cross-rods.

The wires V, forming the warp of the fabric to be woven by the machine, are arranged with

relation to the spreaders, and at each partial revolution of these spreaders certain of the wires are lowered and the remainder raised to form the shed in which a slat is laid by the shuttle and afterward beat up, the next partial revolution of the said spreaders reversing the position of the wires to thereby clamp the said slat in place and form a shed for the succeeding slat. An offset c' on the pawl R is first engaged with a tooth of the ratchet S, and as the slide P and beater Q are moved back by the operator the said ratchet is actuated to partially rotate the shaft T and spreaders U thereon. The inclined surface between the teeth of the ratchet comes into contact with another offset d' on the pawl at about the time the wires have been shifted by the spreaders, and thus the said pawl is raised to disengage with said ratchet, the slide P continuing its travel to engage the latch t and actuate the sliding bar O, as above described. The movement of the sliding bar O throws the shuttle across the machine and the slat carried by this shuttle is caught by a grip-spring W, secured to the underside of an arm e' , extending in from the inner support f' for the beater Q, the said support being preferably shod with a metal plate. The grip-spring W being stronger than the spring g on the bar J of the shuttle, the slat is held in the shed by said grip-spring, and the shuttle is automatically returned by the descent of the weight N after the spring s on the sliding bar O has been depressed by the pin w , so as to disengage the slide P prior to the time the beater Q reaches its limit of travel in a rearward direction.

A slat is laid in upon the shuttle through an opening g' in the support for the guide-plate u , and when the beater Q is in its normal position the pins z depending therefrom oppose the front edge of the slat, the latter being forced up in the shed by the rearward movement of said beater. When the beater is on its return movement, the pins z will yield in the perforations y to pass over and drop in front of the next slat that has been placed upon the shuttle. The warp-wires V are run from spools X, hung on spindles projecting from a cross-brace uniting the standards C, and said wires are carried up through jointed clamps and over pulleys Y, the latter being arranged at intervals on a shaft A', having its bearings in the said standards. The pulleys Y register with the spreaders U, the wires being carried back under these spreaders and through the warp-frame to be secured to a strip Z, that may form the end piece of a continuous web of fabric or one side of a panel-frame, this strip being held in place against the draw of said wires by means of a shoulder i' on plates B', secured to slotted ways C' on the beams E F by means of bolts D' and set-screws E', as best illustrated in Figs. 2 and 9. The joints F' of the clamps are pivotally connected to collars G' on a shaft H', having bearings j' on the timbers k' , that unite the standards B C, the arms G² near the outer

ends of the shaft being connected by a rod J', designed to be brought up against the joints K' on said clamps when said shaft H' is actuated by a crank L', secured thereto, as best illustrated in Fig. 1. The clamp-joints K' are held down against the wires by means of adjustable weights M', and thus said wires are held taut while one length of the fabric is being woven. To slack the wires, the crank L' is actuated and the clamp-joints F' held against upward movement by a stop-rod N'; but the rise of the rod J' overcomes the weights M' and elevates the clamp-joints K' to effect the desired result. The wires being free in the clamps, they can be drawn back to form the warp for another length of the fabric, and the operation of weaving proceeds as before. If necessary, the wires may be fastened to another strip Z, laid in upon the plates B', a strip being used for each length of the fabric.

Supported between the standards B and C is a table P', on which it is designed to place the rectangular frames of box-sections, such as are described in the above-named patents. In making box-panels from the frames and fabric one of said frames is placed so that a side strip Z thereof will rest on a plate Q', extending across the machine in the rear of the warp-frame on a horizontal line below the uppermost shoulders of the plates B' and at right angles to the latter. The wires are fastened to said strip and the latter placed upon the said shouldered plates, the opposing strip of said panel being supported on the plate Q' while the operation of weaving is carried on, as above described. When enough of the fabric has been woven to cover the frame, the wires are fastened to that end or strip of the latter that is supported by the plate Q', and the operation proceeds with another frame. By this description it will be seen that the panels are finished on the machine and can be rapidly made either singly or in a continuous web to be separated at the convenience of those who set up the boxes or crates, the ends of the slats being fastened to the frames while on the machine or afterward, as may be found most convenient or economical. The plates B' elevate the rear ends of the frames, and this elevation may be less or greater accordingly as said plates are pivotally adjusted, one of the shoulders i' on each plate being farther from the center than the other, as best illustrated in Fig. 2. The plates B' are adjustable with relation to the slotted ways C' in order to lengthen or shorten the distance between said plates and the plate Q' in proportion to the width of the panel-frames.

In order to vary the width of the fabric, the beam F is laterally adjusted and held in position by means of a clamp-plate R', arranged to come under the cross-timbers D, uniting the standards A A and B B, as best illustrated in Fig. 2.

While we have described the pawl as operating the ratchet when the beater is moved

to the rear, the mechanism can be varied to effect this operation when said beater is brought toward the warp-frame. If the machine were thus organized, we would prefer to have the pins *z* of the beater rigid and place a slat in the shed each time the said beater returns to its normal position.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is—

1. In a loom for weaving slat-and-wire fabric, the combination of a warp-frame, a weight-controlled shuttle, a sliding bar flexibly connected to the shuttle, a spring-latch on the sliding bar, a pin arranged in the path of the latch, a beater, and a slide connected to the beater for engagement with said latch, substantially as set forth.

2. In a loom for weaving slat-and-wire fabric, the combination of a warp-frame, two relatively-arranged pulleys suspended from the warp-frame, a shuttle, a cord having its ends connected to the ends of the shuttle and turned around one of the pulleys, a drum depending from said warp-frame, a weighted cord supported on the second pulley and having a turn thereof wound on the drum, a sliding bar connected to the weighted cord, a spring-latch on the sliding bar, a pin arranged in the path of the latch, a beater, and a slide connected to the beater for engagement with the said latch, substantially as set forth.

3. In a loom for weaving slat-and-wire fabric, the combination of a warp-frame, a shuttle provided with a slat-retaining spring, and a grip-spring arranged to grasp a slat laid in by the shuttle, said grip-spring being stronger than the one on the shuttle, substantially as set forth.

4. In a loom for weaving slat-and-wire fabric, a warp-frame provided at its outer end with a ribbed guide-block, a shuttle having its bar provided with grooves for engagement with the ribs on the guide-block, and a slat-retaining spring on the shuttle, substantially as set forth.

5. In a loom for weaving slat-and-wire fabric, the combination of a warp-frame, a shaft adjacent to the warp-frame, a ratchet and series of spreaders on the shaft, a beater, and a pawl movable with the beater to actuate the ratchet, substantially as set forth.

6. In a loom for weaving slat-and-wire fabric, a beater provided with perforations beveled on one side, and a series of pins engaging the perforations, substantially as set forth.

7. In a loom for weaving slat-and-wire fabric, the combination, with the weaving mechanism, of a fabric-support that comprises shouldered eccentric plates pivotally adjustable on longitudinal beams of the loom-frame, substantially as set forth.

8. In a loom for weaving slat-and-wire fabric, the combination, with the weaving mechanism, of a panel-frame support comprising shouldered plates longitudinally adjustable on the loom-frame, and a stationary plate arranged in front of the adjustable ones at right angles thereto and on a line below the shoulders thereof, substantially as set forth.

9. In a loom for weaving slat-and-wire fabric, shouldered and pivotally-adjustable eccentric plates longitudinally adjustable on beams of the loom-frame, and a transverse plate arranged in the front of said shouldered plates, substantially as set forth.

10. In a loom for weaving slat-and-wire fabric, a warp-frame, a shuttle, and a laterally-adjustable longitudinal beam provided with a slat-gripping device, substantially as set forth.

11. In a loom for weaving slat-and-wire fabric, a shaft provided with a series of arms, wire clamps pivotally connected to the shaft and provided with weighted joints, a rod uniting the several arms and arranged to come under the weighted joints of the clamps, another rod arranged above the non-weighted joints of said clamps, and a crank for actuating said shaft, substantially as set forth.

12. In a loom for weaving slat-and-wire fabric, the combination of a warp-frame, a shaft adjacent to the warp-frame, a ratchet and series of spreaders on the shaft, a beater, a pawl movable with the beater to actuate the ratchet, and a series of tension devices for warp-wires arranged in operative relation to the warp-frame and spreaders, substantially as set forth.

13. In a loom for weaving slat-and-wire fabric, a series of spool-spindles, wire clamps arranged above the spindles, a shaft arranged above the clamps and provided with a series of pulleys, spreaders arranged on a shaft in rear of the pulleys, a warp-frame in rear of the spreaders, a weight-controlled shuttle, a beater, a pawl-and-ratchet mechanism actuated by the beater to partially rotate the spreader-shaft, a sliding bar flexibly connected to the shuttle, a spring-latch on the sliding bar, a pin arranged in the path of the latch, and a slide connected to said beater to engage said latch, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands, at Watertown, in the county of Jefferson and State of Wisconsin, in the presence of two witnesses.

CHARLES E. PARKS.
LOBEGOTT MOLLART.

Witnesses:

E. J. BRANDT,
CARL E. EMMERLING.