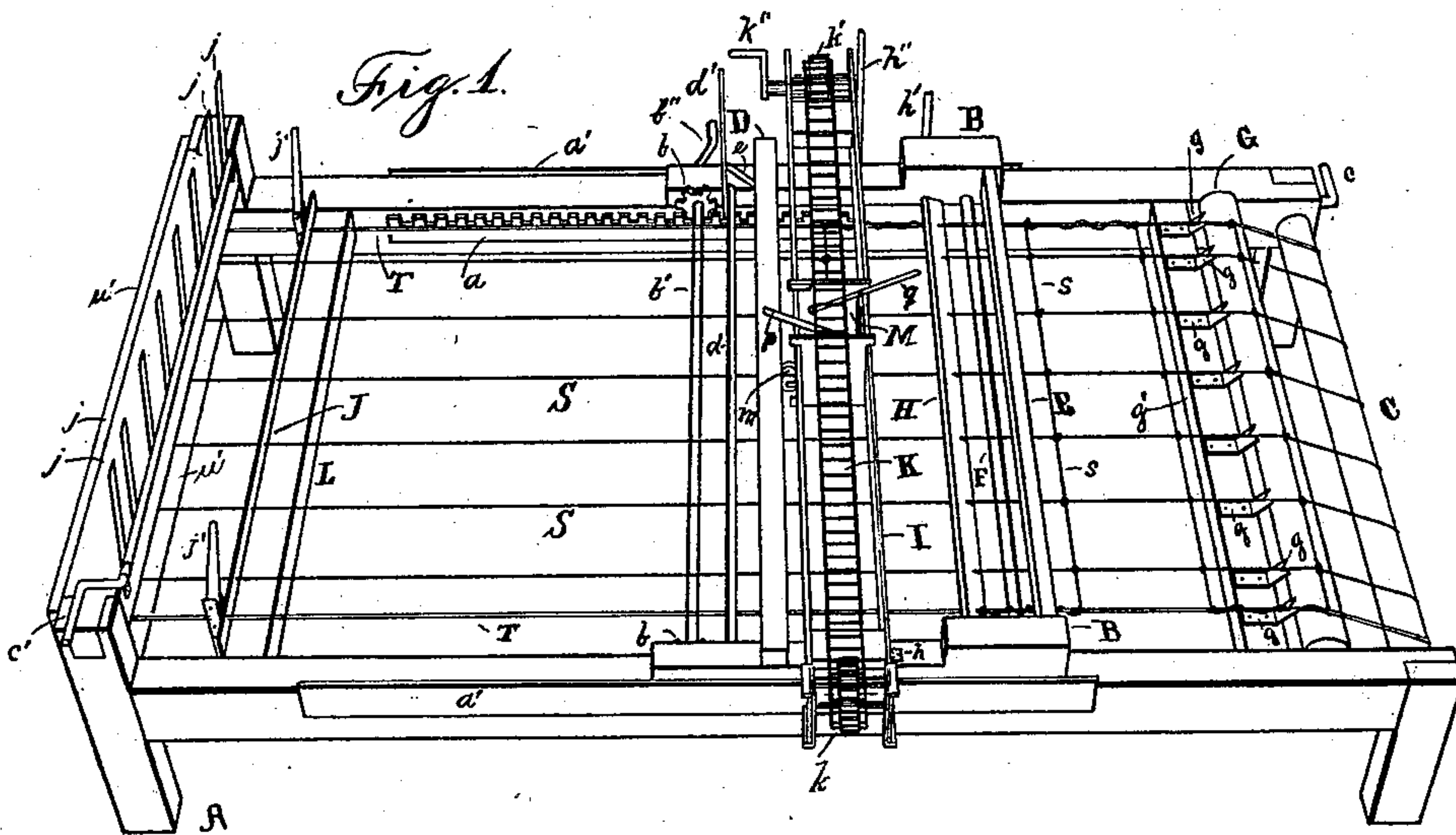


(No Model.)

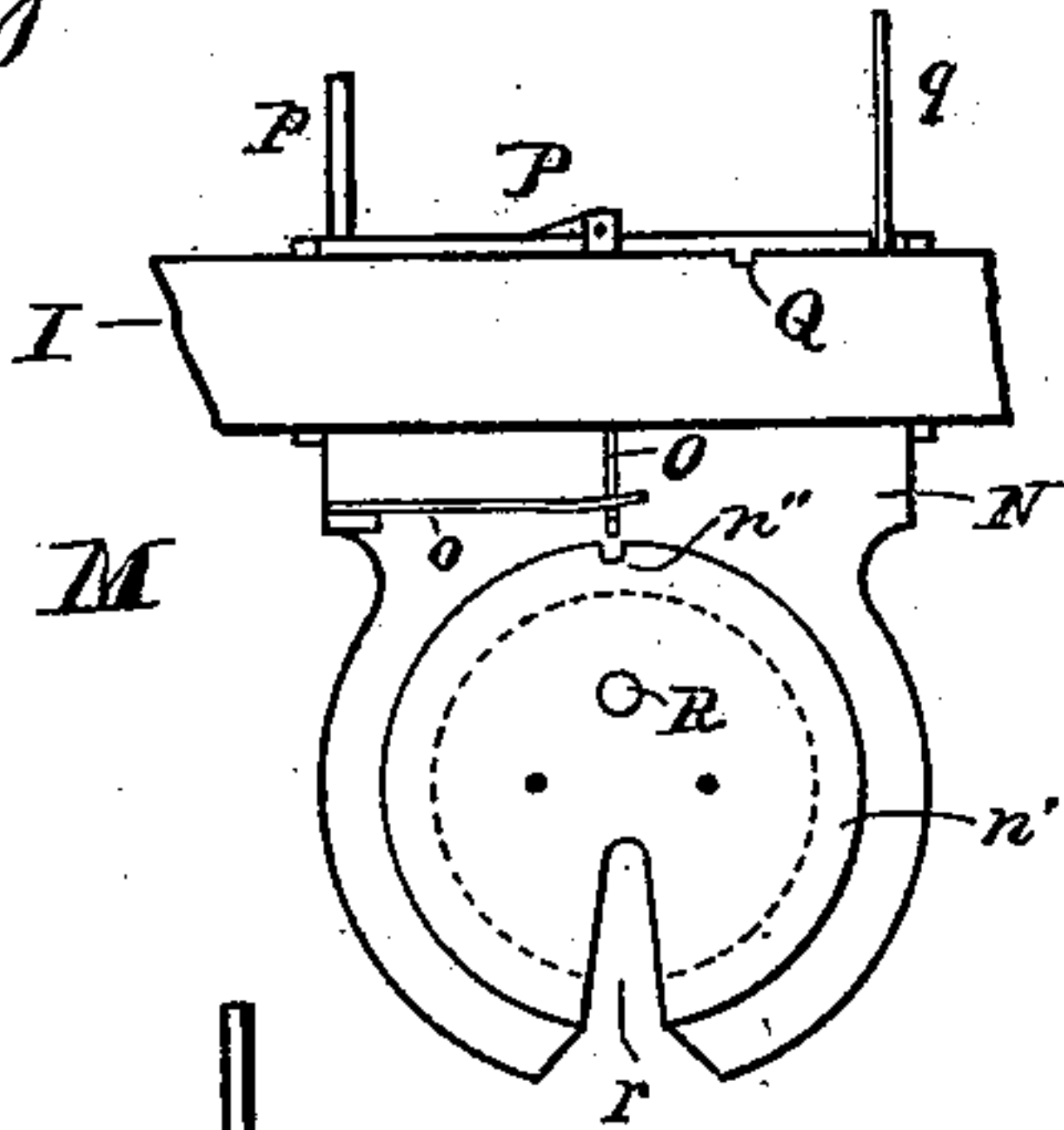
W. G. PHILLIPS.  
STAY WIRE WINDING MACHINE.

No. 568,791.

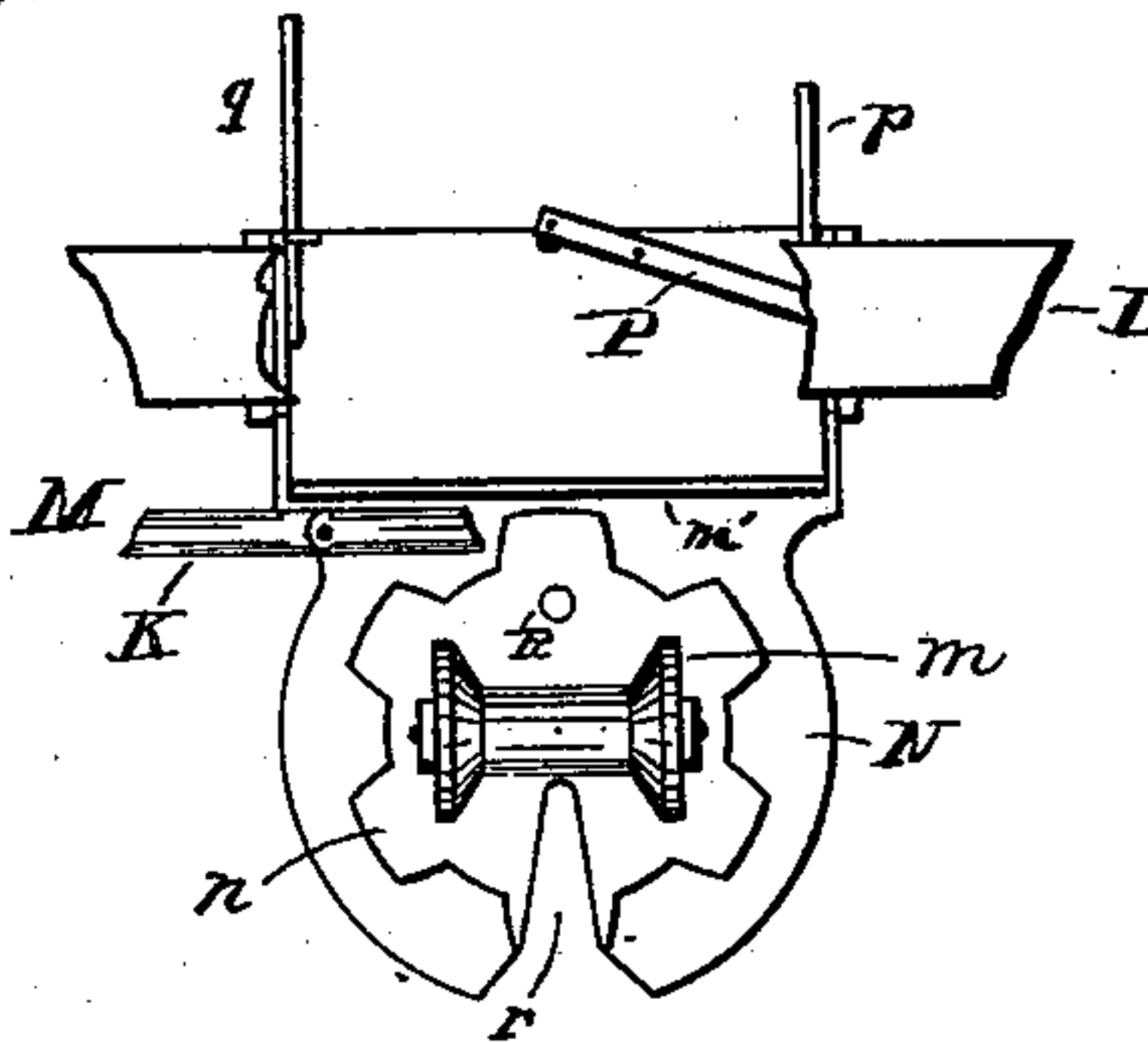
Patented Oct. 6, 1896.



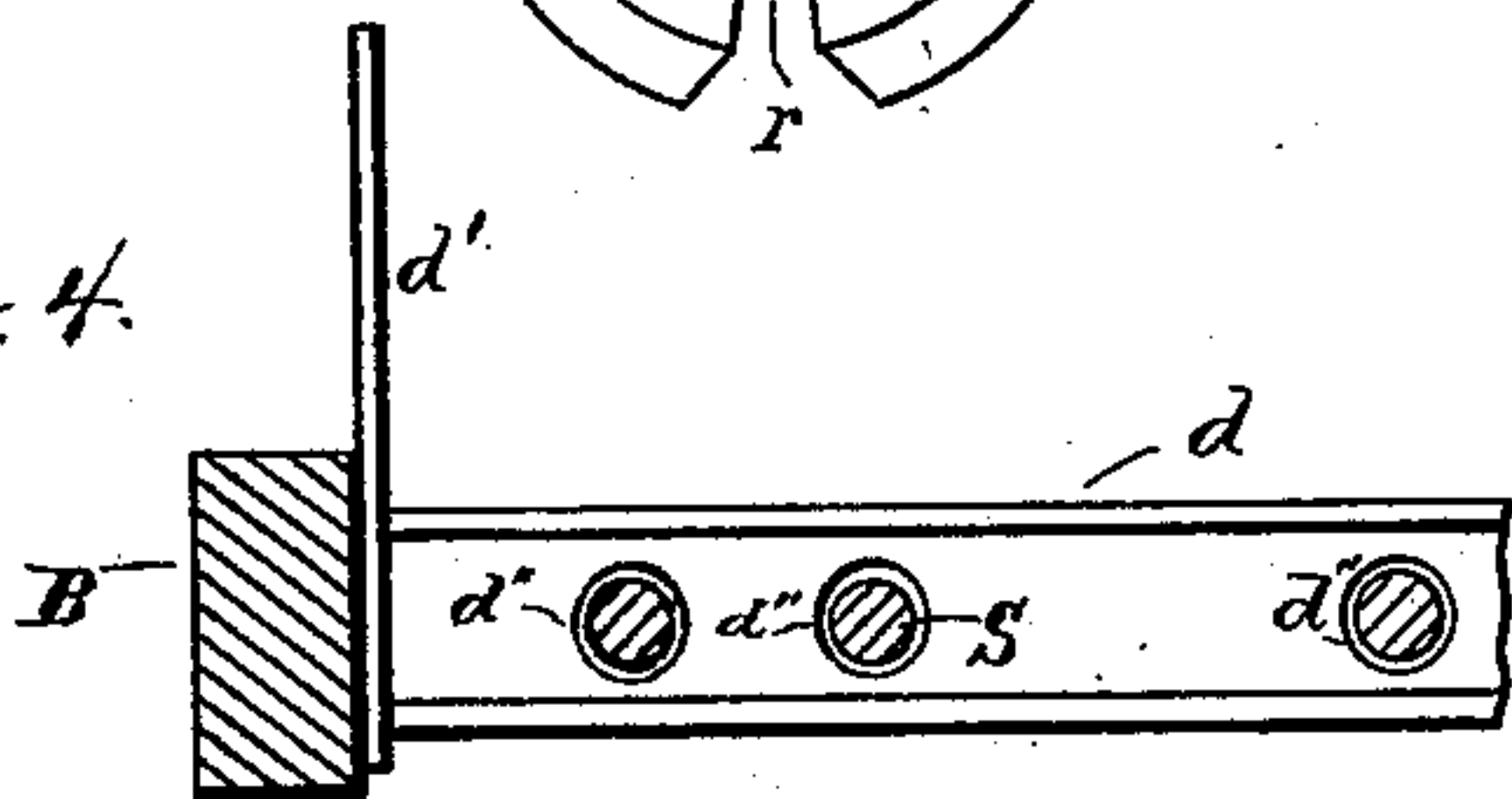
*Fig. 2.*



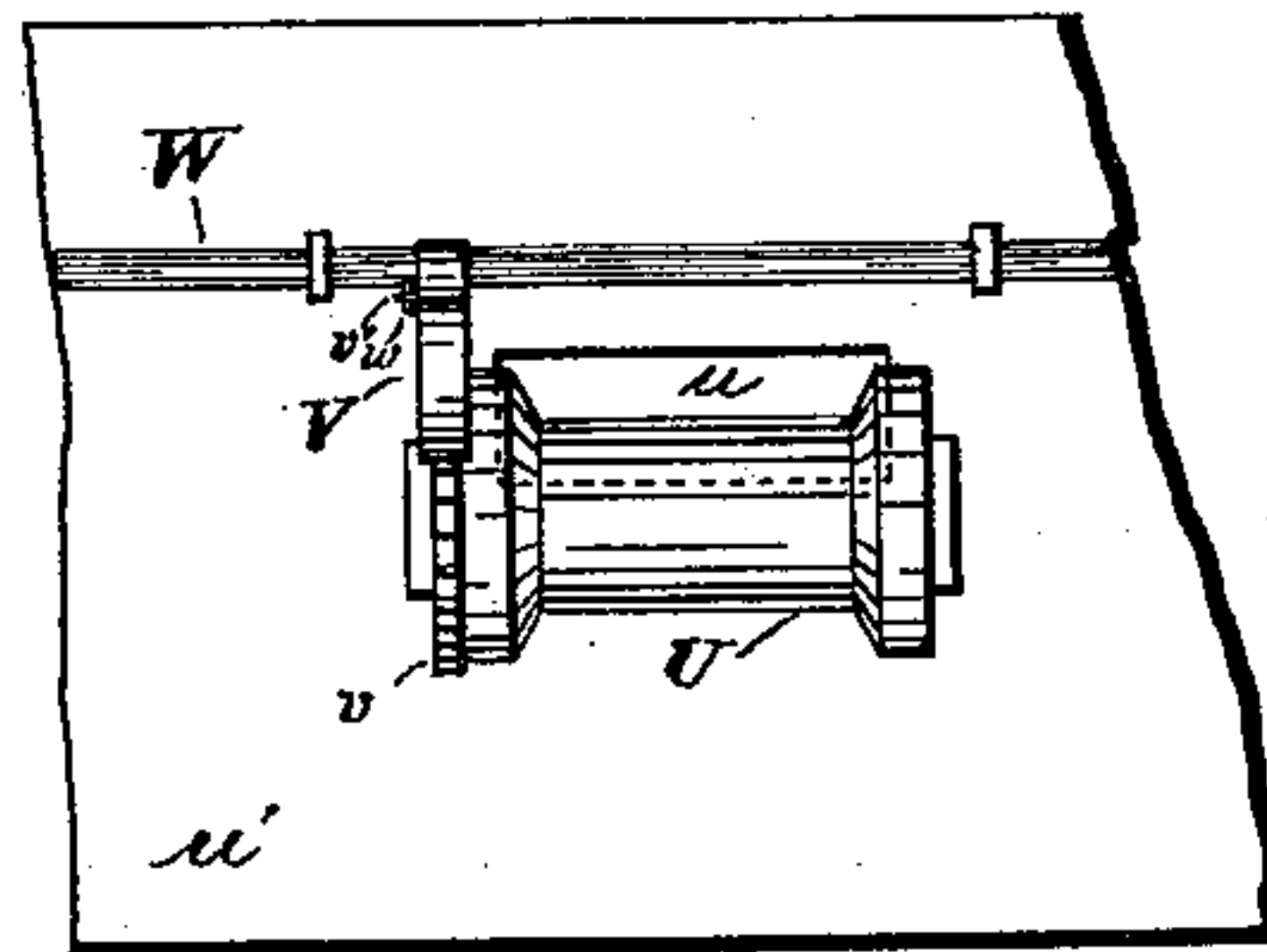
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM G. PHILLIPS, OF HOPEDALE, ILLINOIS.

## STAY-WIRE-WINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 568,791, dated October 6, 1896.

Application filed June 22, 1896. Serial No. 596,403. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM G. PHILLIPS, a citizen of the United States, residing at Hopedale, in the county of Tazewell and State of Illinois, have invented certain new and useful Improvements in Fence-Looms; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention embodies useful improvements in fence-loom whereby labor is saved and the standard of excellence raised.

The several features of my invention are hereinafter described.

Reference is made to the accompanying drawings, of which—

Figure 1 is a perspective view of my loom. Figs. 2 and 3 are enlarged front and back views of the stay-wire-winding device. Fig. 4 is an enlarged view of the wire-kinking bar. Fig. 5 is an enlarged view of part of the back of the loom, showing one spool, ratchet, pawl, and releasing-bar.

Similar letters of reference denote corresponding parts in the several views.

In the drawings, A represents the main frame; B, a frame movable upon frame A between guides  $a'$   $a'$ .

$a$   $a$  are cogged racks to engage the cog-wheels  $b$   $b$ , which are fitted on rod  $b'$ .

C is a windlass, upon which is wound the finished fence.

D and E are cross-bars on frame B.

$d$  is a wire-kinking bar.

$d'$  is a lever to operate  $d$ .

$d''$   $d''$  are holes to accommodate the line-wires S S and cable-wires T T, or a slot may be cut in bar  $d$ , or two bars may be substituted for bar  $d$ .

F is a roller holding fence close up to evening-bar H.

G is a roller taking friction off the guide and steadying forks  $g$   $g$ , which are supported by cross-bar  $g'$ .

H is a pivoted oscillating evening-bar operated by lever  $h'$ .

J is a guide-plate and support for the line-wire as it is fed to the machine.

$j$   $j$  are fingers for applying friction to the line-wires close to and before they reach the guide-plate J.

$j'$   $j'$  are levers to apply friction to the cable-wires.

K is a sprocket-chain engaging the teeth of the sprocket-wheels  $k$  and  $k'$ , which latter are operated by crank  $k''$ .

L is a cross-bar supporting the guide-plate J.

M is the stay-wire-fastening mechanism.

$m$  is a spool holding the stay-wire.

$m'$  is a plate extending over cogs on wheel  $n$ , which keeps chain K meshed with cogs on wheel  $n$ .

N is a plate passing between and movably holding cogged wheel  $n$  and plain wheel  $n'$ , in which latter plate is cut a notch  $n''$  to accommodate the vertical pin O, which is continually being forced down by spring  $o$ .

P is a lever operating pin O, and  $p$  is a lever operating lever P.

Q Q are notches cut into the upper edge of the front plate of frame I, and  $q$  is a lever which may enter notch Q and hold plate N steady on frame I.

R is a hole passing through wheels  $n$  and  $n'$ , and  $r$  is a radial groove cut through plate N and wheels  $n$  and  $n'$  at lower edge of plate N and into the wheels  $n$  and  $n'$  opposite the notch  $n''$ .

S S are line-wires, and  $s$  is the stay-wire.

T T are cable-wires.

U is one of the spools, supplying line and cable wires to the loom through hole  $u$  in back board  $u'$ , and to this spool is fastened a ratchet  $v$ , governed by the pawl V, having the pin  $v'$ , which is upwardly movable by pin  $w$  on rod W.

To operate my loom, I wind spools U with line and cable wire, raise the pawl V by rocking the rod W, and run the line-wires through their respective holes in plate J, first passing cable-wires through levers  $j'$   $j'$ , over rod  $b'$ , through corresponding holes in bar  $d$ , under cross-bar D and frame I, under bar H, oppo-



site the corresponding openings in it, over roller F, under cross-bar E, over and into forks *g g*, over roller G, and fasten them to windlass C, preserving their initial spacing throughout. I then run frame B toward the front of the loom (that end at which C is placed) by turning crank *b''*. The spool *m* is then supplied with stay-wire and the loose end run through hole R, Figs. 2 and 3. When frame I is resting with both sides on frame B, the lever *q* falls onto the front side of frame I, and whenever the device M passes opposite notch Q lever *q* falls into it and M is held firmly with frame I; also, when frame I is in this upright position lever *p* is kept raised by pressure on cross-bar D, thereby raising pin O against the spring *o* and out of notch *n''*. When frame I is tilted on hinges *h h* toward the front of the loom, lever *p* is freed and spring *o* forces pin O into notch *n''* whenever that notch is opposite to it. Lever *q*, however, strikes cross-bar E, and is held still as notch Q passes beyond its reach, therefore freeing N to travel longitudinally on frame I. Chain K passes between plate *m'*, Fig. 3, and cog-wheel *n*. To fasten stay-wire on line-wires, the radial groove *r* in plate N and wheels *n* and *n'* is made to register by turning wheels *n* and *n'*, which are riveted together, while frame I is resting on frame B. The notch is now opposite pin O, as shown in Fig. 2 of the drawings. The frame I is now tilted by lever *h''*. Wheels *n* and *n'* are now held firmly by pin O, while lever *q* is left above front side of frame I. Crank *k''* is now turned until radial groove *r* is opposite a cable-wire, and then frame I is replaced on frame B and the radial groove *r* receives the wire. At the same time wheels *n* and *n'* are released and lever *q* falls into the notch Q corresponding to that wire, each wire having a corresponding notch. The stay-wires, which protrudes through hole R, Fig. 2, is then fastened to cable-wire and crank *k''* is now turned, moving chain K, which revolves wheel *n*, thereby coiling stay-wire around line-wire. When notch *n''* is again opposite pin O, the frame I is tilted back and M is moved by turning crank *k''* to the next line-wire, wheel *n* being fast and lever *q* being released from notch Q. As M is moved stay-wire *s* is paid off from spool *m*. The same operation is repeated for every line-wire, always turning wheel *n* so that hole R when at the top shall move away from the last tie. When the last line-wire is reached, the cranks *k''* and *b''* are operated together

until the desired point for recrossing line-wire has been reached, when a return can be made, as described.

Instead of operating crank *b''* to reach point for recrossing line-wires, windlass C may be turned while pawl V is released, and fingers *j j* are forced onto line-wires and levers *j' j'* furnish cable-wires with proper friction; but in either case whenever line-wires are passing through holes *d''* the lever *d'* should be operated to kink the wire, allowing for contraction in winter, and fingers *j j* and levers *j' j'* should bear on the line-wire. Whenever a cross of stay-wire reaches bar H, lever *h'* is pressed forward, thereby evening the stay-wire. The forks *g g* keep the fence in shape for rolling onto the windlass. Lever *d'* may be fastened in any position by adjusting rod *e* to give friction to line-wires.

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

1. In a wire-working machine, an oscillating bar provided with an opening or openings through which the main wires pass, and are kinked by rocking the bar, or held more or less firmly, substantially as and for the purpose specified.

2. In a wire-kinking device, a fastening device to hold it at any angle, thereby creating a friction on main wires, substantially by the means and for the purpose specified.

3. In a stay-wire-winding device a plate supported at right angles to main wire, carrying on either side a wheel, riveted one onto the other, one plain with a notch cut into it, and at the opposite side through both wheels a radial groove cut to receive the main wire through another radial groove cut through the aforesaid plate, and a spool feeding the stay-wire as the wheel carries it around the main wire, substantially as herein described and for the purpose specified.

4. In a wire-working machine, having a stay-wire-tying device, levers and cross-bars alternating the operation of a single chain, when levers are rested alternately on corresponding cross-bars, by rocking the frame carrying the tying device, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM G. PHILLIPS.

Witnesses:

C. L. SMITH,

J. W. HAMILTON.