

No. 661,983.

Patented Nov. 20, 1900.

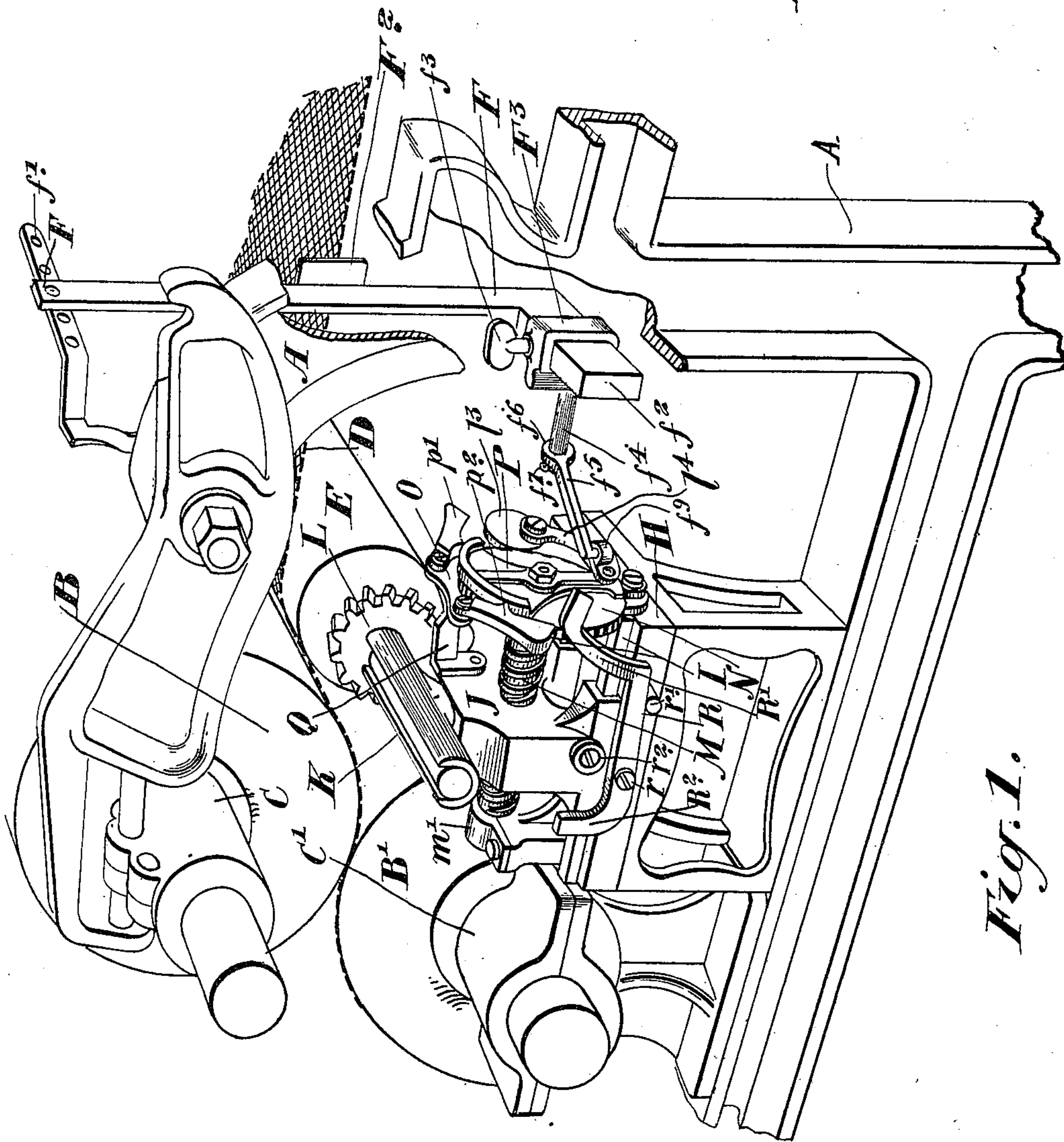
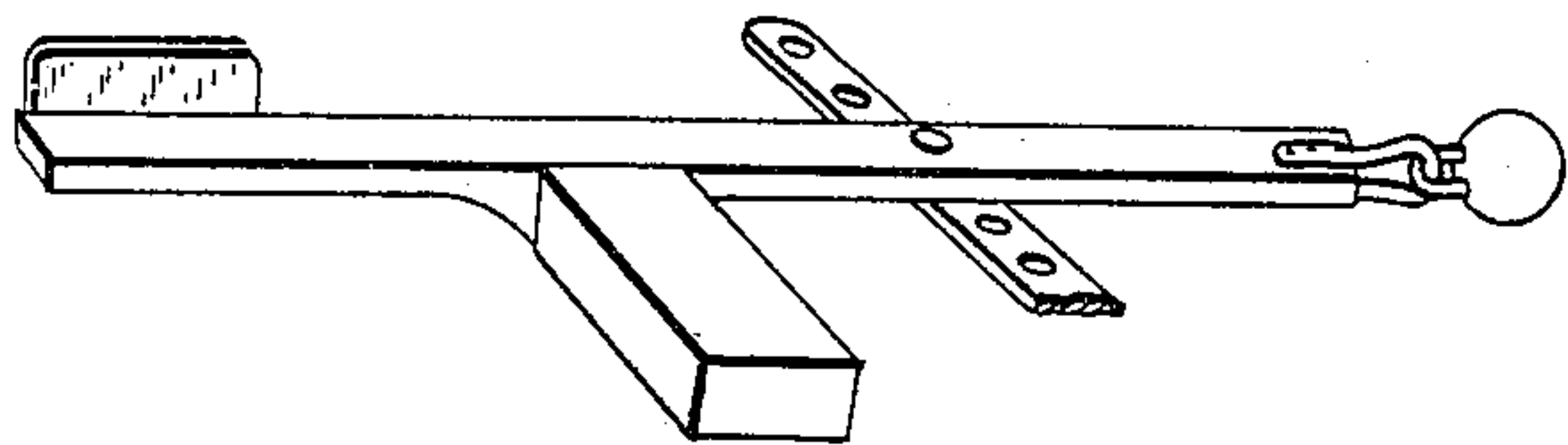
T. HARVEY, JR.

WIRE WEB GUIDE FOR PAPER MAKING MACHINES.

(Application filed May 29, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.
H. T. S. Goring
J. C. Askwith

Invertor.
Mos Harry J.
Gettysburg Co
Alto.

T. HARVEY, JR.

WIRE WEB GUIDE FOR PAPER MAKING MACHINES.

(Application filed May 29, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 2.

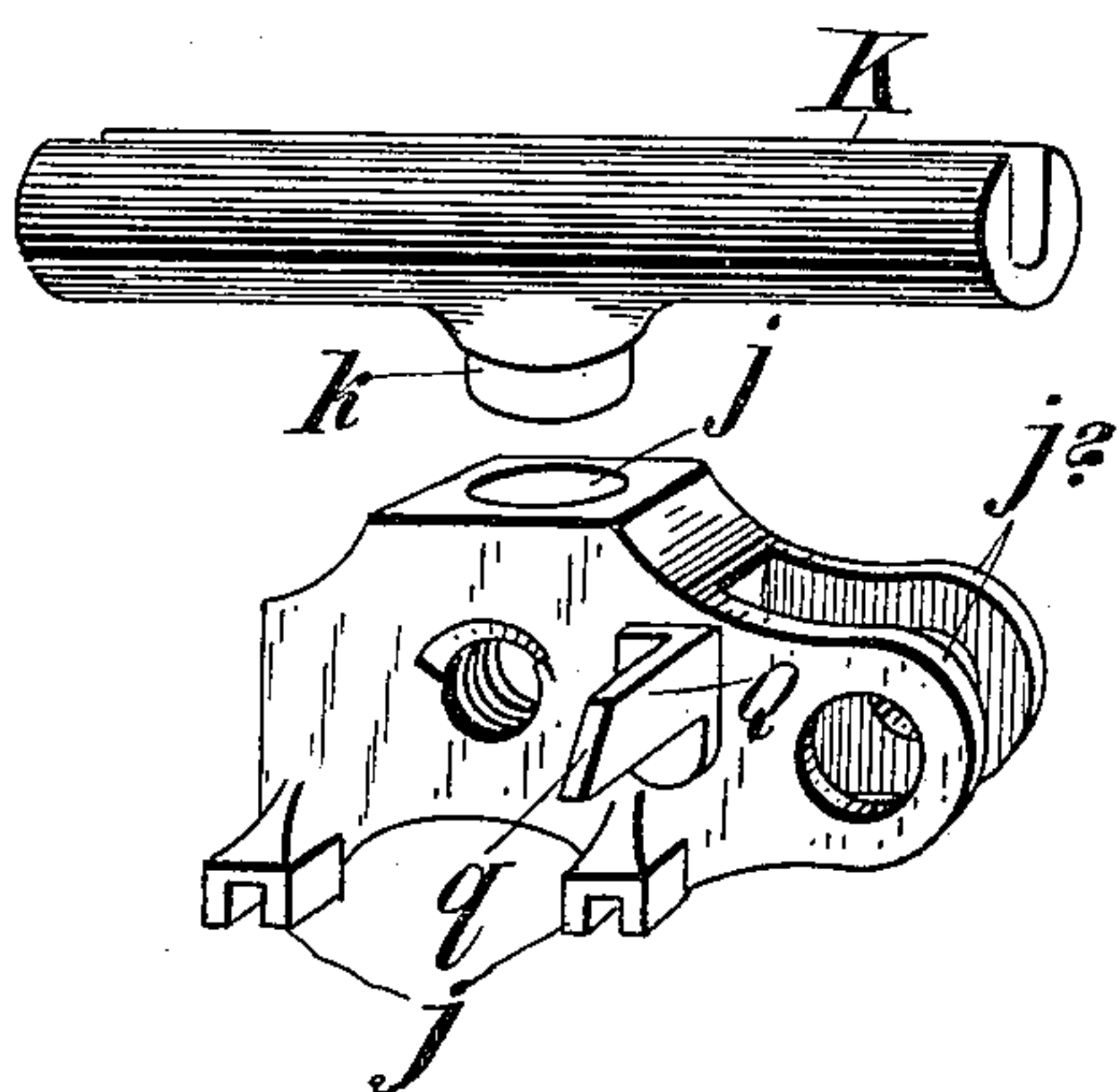
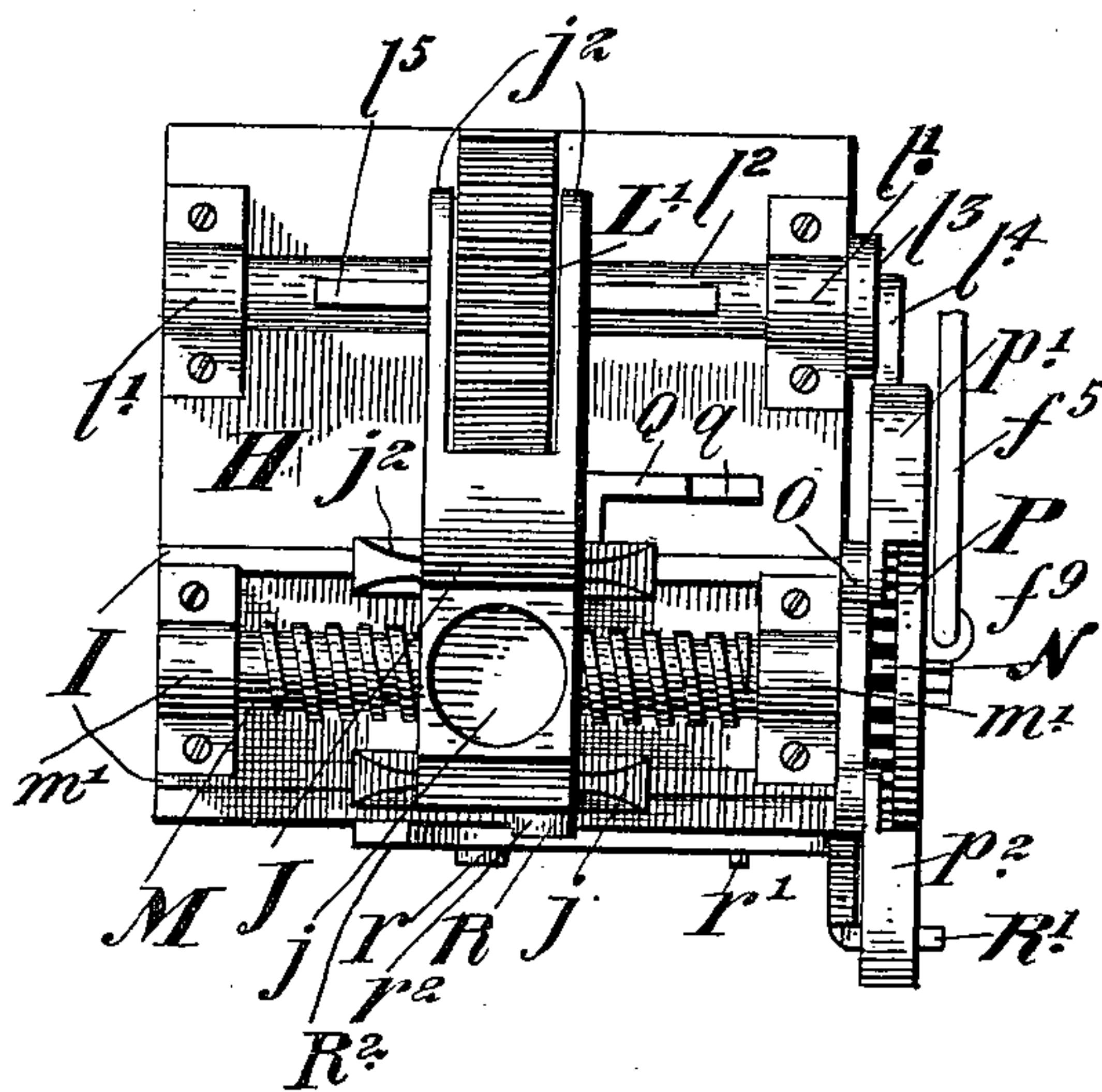


Fig. 3.

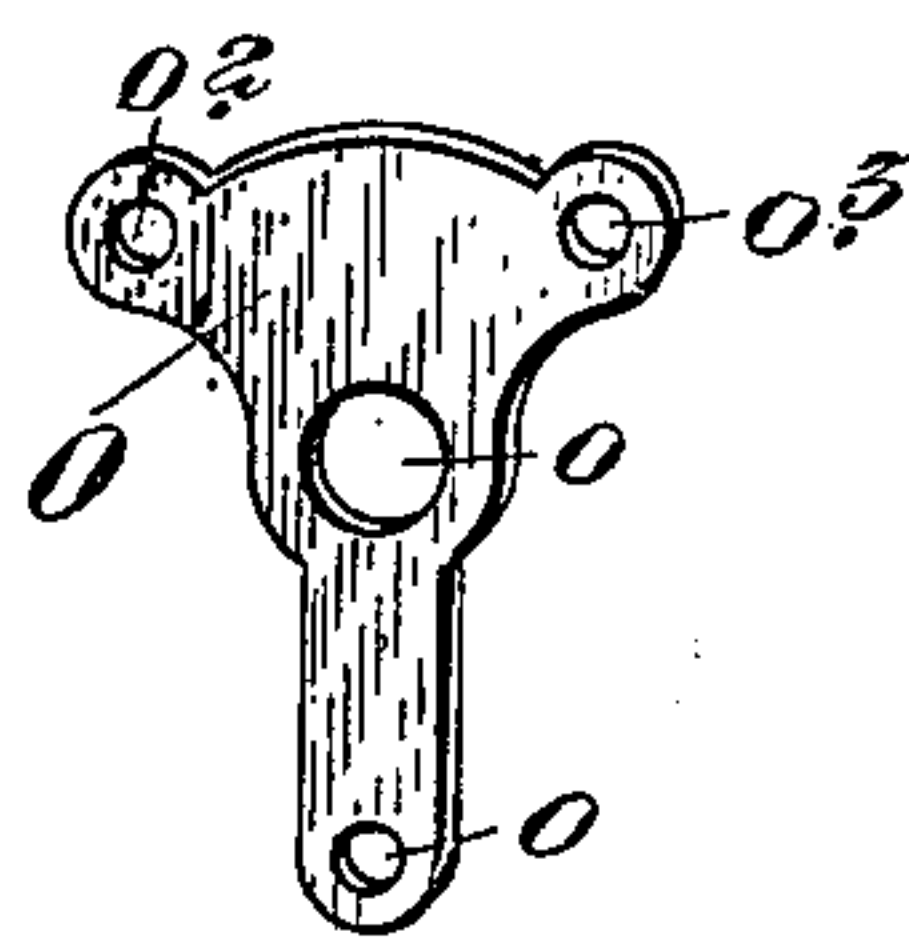


Fig. 4.

Witnesses
H. T. Young.
J. C. Askwith

Inventor:
Thomas Harvey, Jr.
By Schenck & Co.
Attys.

UNITED STATES PATENT OFFICE.

THOMAS HARVEY, JR., OF HULL, CANADA.

WIRE-WEB GUIDE FOR PAPER-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 661,983, dated November 20, 1900.

Application filed May 29, 1900. Serial No. 18,440. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HARVEY, JR., a subject of the Queen of Great Britain, residing at Hull, in the county of Ottawa, in the Province of Quebec, Canada, have invented new and useful Improvements in Wire-Web Guides for Paper-Making Machines, of which the following is a specification.

My invention relates to improvements in wire-web guides for paper-making machines; and the object of the invention is, first, to increase the sensitiveness of the guide mechanism by simplifying the mechanism which regulates the direction of the movement of the wire web, and, secondly, to provide an automatic means of raising and lowering the pawls alternately out of mesh with the ratchet-wheel as the journal-block reaches either end of the thread; and it consists, first, of a stick pivotally suspended from the frame of the machine, so as to be in contact with the edge of the web, and provided with a weighted end and flexibly connected to the rocker-guard of the guide, and, secondly, of a projection having an inclined surface to form contact with one of the pawls, a pivoted lever provided with an upturned rear end, and a roller secured to the movable journal-block, the front end of the lever projecting under the other pawl for the purpose of raising it when tilted, as hereinafter more particularly explained.

Figure 1 represents my guide attached to a paper-machine. Fig. 2 is a plan view of my guide mechanism detached. Fig. 3 is a detail of the journal block and bearing. Fig. 4 is a detail of the pawl-bearing rock-arm. Fig. 5 is an alternative form of stick used.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the frame of the machine.

B and B' are the couch-rolls, journaled in suitable bearings C and C'.

D is the wire web, passing between the couch-rolls B and B'.

E is the guide-roll, passing under the wire web D.

H is the bed of the guide, provided with ribs I.

J is a movable block slidably supported thereon. The block J is provided with a central vertical bore *j*, extending partially through the same.

K is a swivel-bearing provided with a down-

ward-extending projection *k*, which enters the bore *j* of the block J to form the pivot. The end of the spindle of the guide-roll E is supported on the said bearing K.

m' m' and *l' l'* are standards forming part of the bed-plate H. On the standards *m' m'* is supported in suitable bearings a threaded shaft M, which passes through a correspondingly-threaded hole in the block J.

N is a ratchet-wheel connected to one end of the threaded shaft M.

O is a pawl-bearing rocker loosely supported on the shaft M between the ratchet-wheel and one of the standards *m'*.

p' and *p''* are gravity-pawls pivoted at *o'* and *o''* to the rocker O.

P is a rocker-guard having an arc-shaped upper end and pivoted to the end of the shaft M without the ratchet-wheel N.

L is a spiral gear supported at the end of the guide-roll on the spindle thereof. *l''* is a cross-shaft, and *L'* is a spiral gear loosely supported thereon and held from rotary motion by a feather-key *l''*, forming part of the shaft *l''*. *l'''* is an eccentric secured to one end of the shaft *l''*. *l''''* is a link connecting the lower end of the rocker O with the eccentric *l'''*. Through this mechanism a rocking motion is given to the pawl-bearing rocker O from the rotation of the guide-roll E through the spiral gears L *L'*, shaft *l''*, eccentric *l'''*, and the link *l''''*.

The mechanism so far described is old, and I will now describe my improved method of connecting the same with the web of the machine.

F is a stick pivotally hung on the arm *f'* and provided with a weighted end *f''* at right angles to the main portion of the stick.

F² is a contact-plate against which the web operates.

F³ is a clip fastened to the end *f''* by a suitable thumb-screw *f'''* and provided with a spindle *f''''*. The rocker P is provided with a clip *f'''''*, loosely secured thereto.

f'''''' is a link connecting the clip *f'''''* to the spindle *f''''*. The spindle *f''''* passes through the enlarged end *f''''''* of the link and is secured therein by a split pin *f'''''''*.

Through the rotation of the guide-roll E the pawls *p'* and *p''*, supported on the rocker O, are caused to oscillate on the rocker-guard P

above the ratchet-wheel N. As the web D approaches the near end of the guide-roll it tilts the stick F on its pivot through its contact with the plate F², thereby through the
 5 connection of the lower end with the rocker-guard tilts the same on its pivot, so as to remove its upper arc-shaped end from beneath the pawl p², and thus allowing it to mesh with and operate the ratchet-wheel. By the rota-
 10 tion of the ratchet in this direction the block J is caused to move laterally through the threaded shaft M, passing therethrough, and consequently adjusts the position of the guide-roll so as to cause the web to move in the op-
 15 posite direction. As the web D moves in the reverse direction the stick follows the same. The weighted end being placed at right angles to the stick, the center of gravity is thereby placed to one side of the center of the
 20 stick, so that it will swing inwardly in following the web beyond a perpendicular line drawn through its pivot. This operation causes the block J to move in an opposite di-
 25 rection, thereby readjusting the guide-roll, so as to reverse the motion of the web D.

In my former machine the mechanism connecting the guide with the web was too heavy and cumbersome, and therefore took too great a pressure of the wire web to operate it. In
 30 this device it will be seen that the slightest touch of the web on the forward movement will effect the desired result and that in the receding movement no pressure is used against the stick by the web, as it merely
 35 follows it by means of its own weighted end.

In some cases it is required to use a felt band as well as a wire web. When this is the case, I use the form of stick shown in Fig. 5, which is pivoted to the frame beneath the web
 40 and is provided with an extra weight at the bottom, so as to be entirely out of danger of coming in contact with the band.

I will now describe the mechanism whereby I raise the pawls automatically out of mesh.
 45 It will be understood that hitherto the pawls were kept in mesh until reversed by the action of the web. It was found that the block unless arrested before it reached the end of the thread would be liable to run off
 50 the same before the reverse action took place. For this reason I provide the following mechanism: Q is a projection forming part of or secured to the journal-block J and provided with an inclined surface q. As the block
 55 moves forward toward the end of the thread

and toward the ratchet-wheel the projection Q comes in contact with the under surface of the pawl and raises it out of mesh, keeping it thus until the action is reversed. As the block approaches the far end of the machine
 60 the following mechanism is brought into operation: R is a lever pivoted at r in the bed of the guide. The lever R is provided with an upturned rear end R² and a forward end R', which rests on the pin r', secured to the bed-
 65 plate of the guide. r² is a roller journaled on the block J. As the block recedes the roller r² comes in contact with the upturned end R² of the lever R, tilting it on its pivot in such a manner as to bring the forward end R' into
 70 contact with the pawl p² to raise the same out of mesh until the mechanism is again reversed. It will be seen from this description that my guide is much increased in sensitive-
 75 ness and that immediately the reversing action is accomplished the motion of the block is stopped, thus obviating the danger of the guide running out of gear.

What I claim as my invention is—

1. The combination in a paper-making ma-
 80 chine with the traveling wire or felt and guide-roll therefor, of an adjustable journal-block for said roll, a single controller-stick, mechanism interposed between the same and the
 85 block for shifting the latter, said stick comprising a vertically-hung pivotally-supported portion adapted to contact with one edge of the web and a laterally-projecting weighted part to swing the stick inwardly to follow the web, substantially as described. 90

2. The combination with a paper-making machine including a guide-roll, a web, an adjustable journal-block for said roll, a ratchet-wheel, mechanism operated thereby for shifting said block, pawls adapted to engage and
 95 operate said wheel, and means controlled by the position of the web to hold one of said pawls disengaged from said ratchet-wheel, and a projection carried directly by said block adapted to disengage the active pawl 100 when the block is shifted in one direction, and an independent pivoted lever adapted to disengage the active pawl when the block is shifted in the opposite direction, substantially as described.

Ottawa, Canada, May 7, 1900.

THOMAS HARVEY, JR.

Witnesses:

H. I. S. YOUNG,
 F. C. ASKWITH.