

(No Model.)

6 Sheets— Sheet 1.

L. P. BOUVIER.
ENVELOPE MACHINE.

No. 321,183.

Patented June 30, 1885.

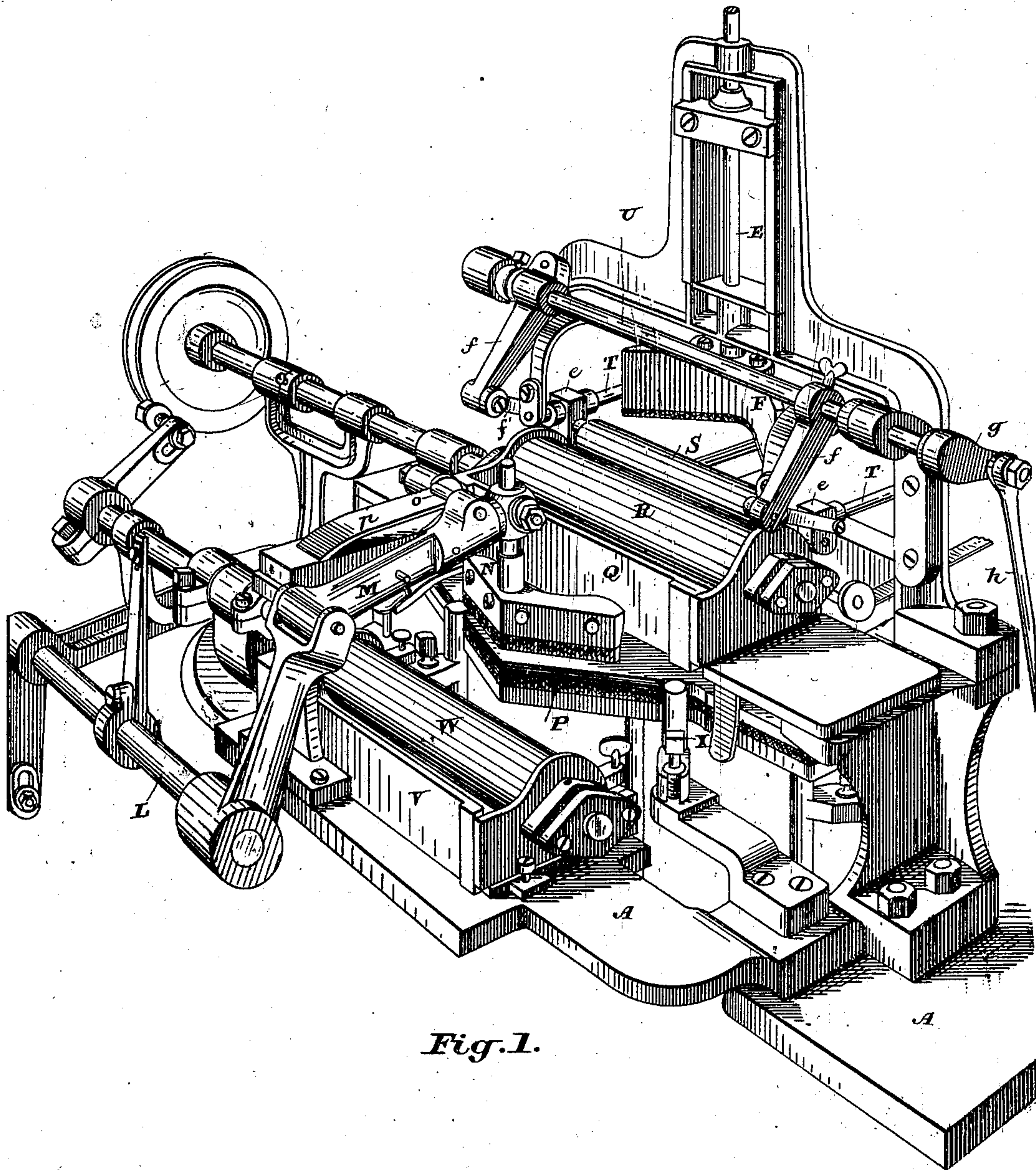


Fig. 1.

Witnesses.

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Louis P. Bouvier
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Attorneys.

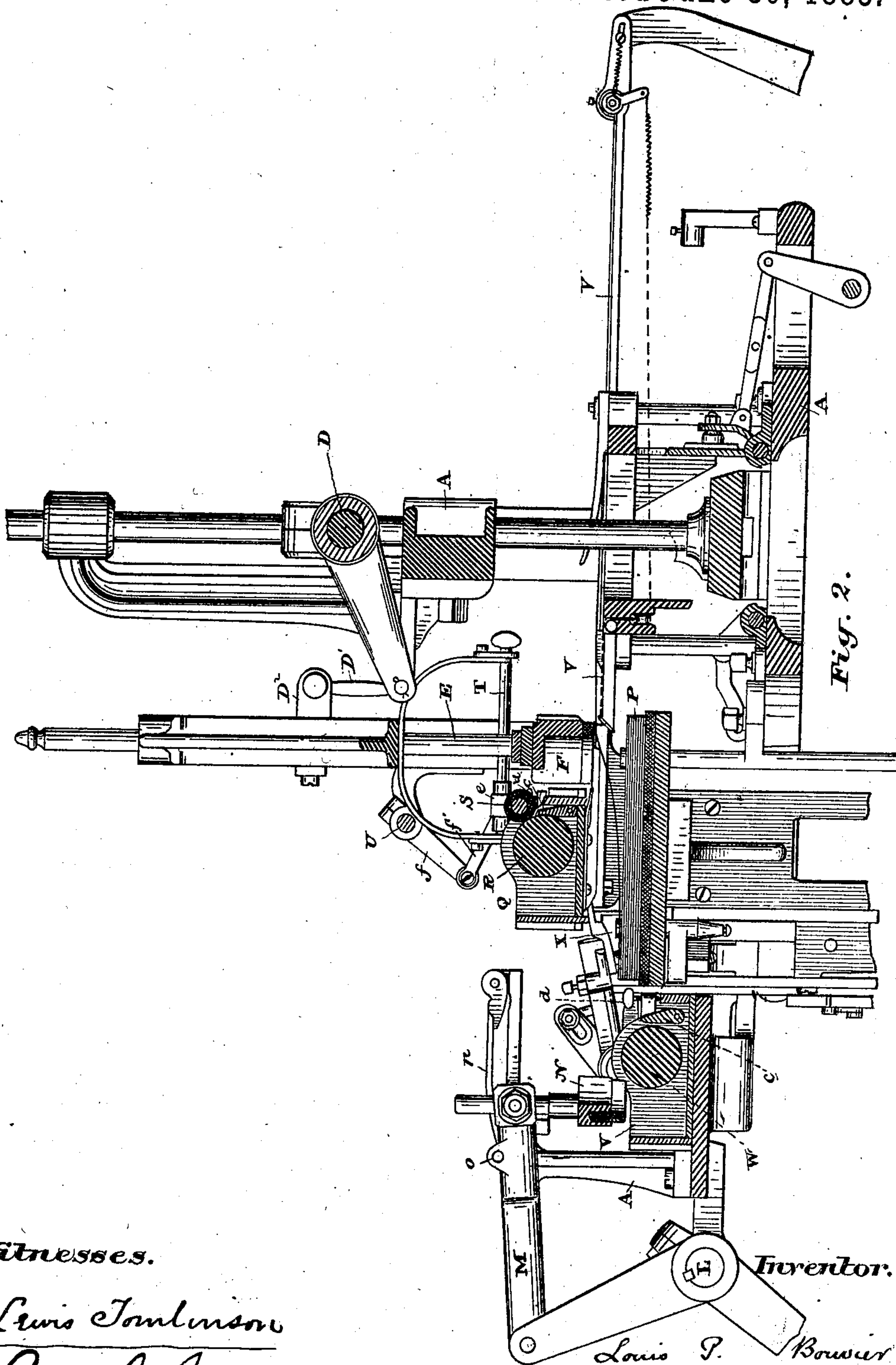
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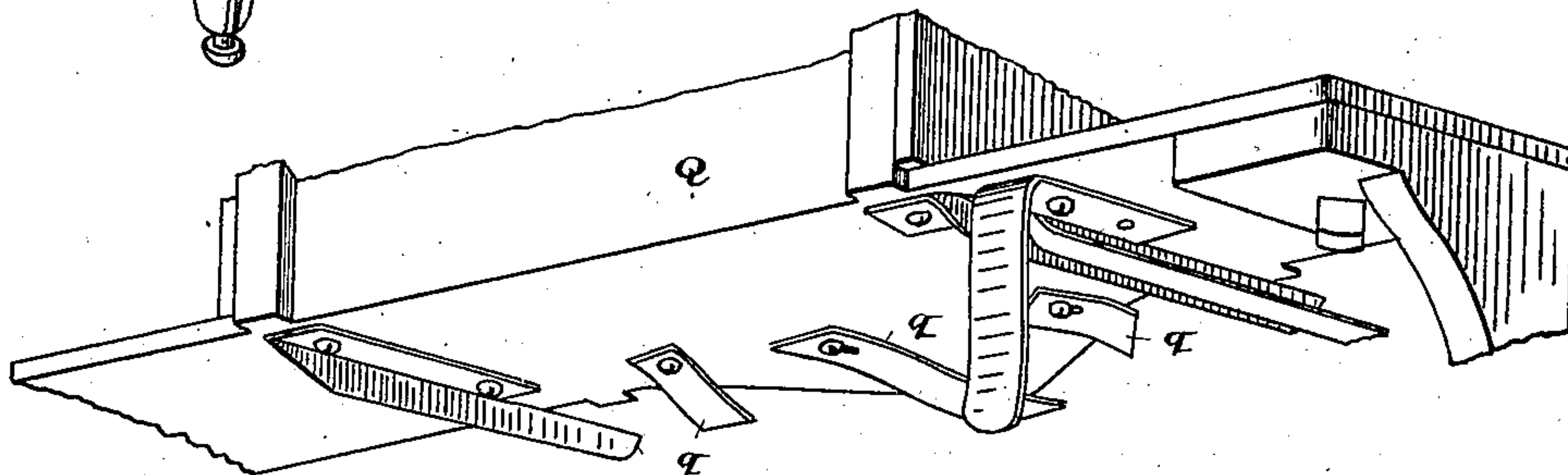
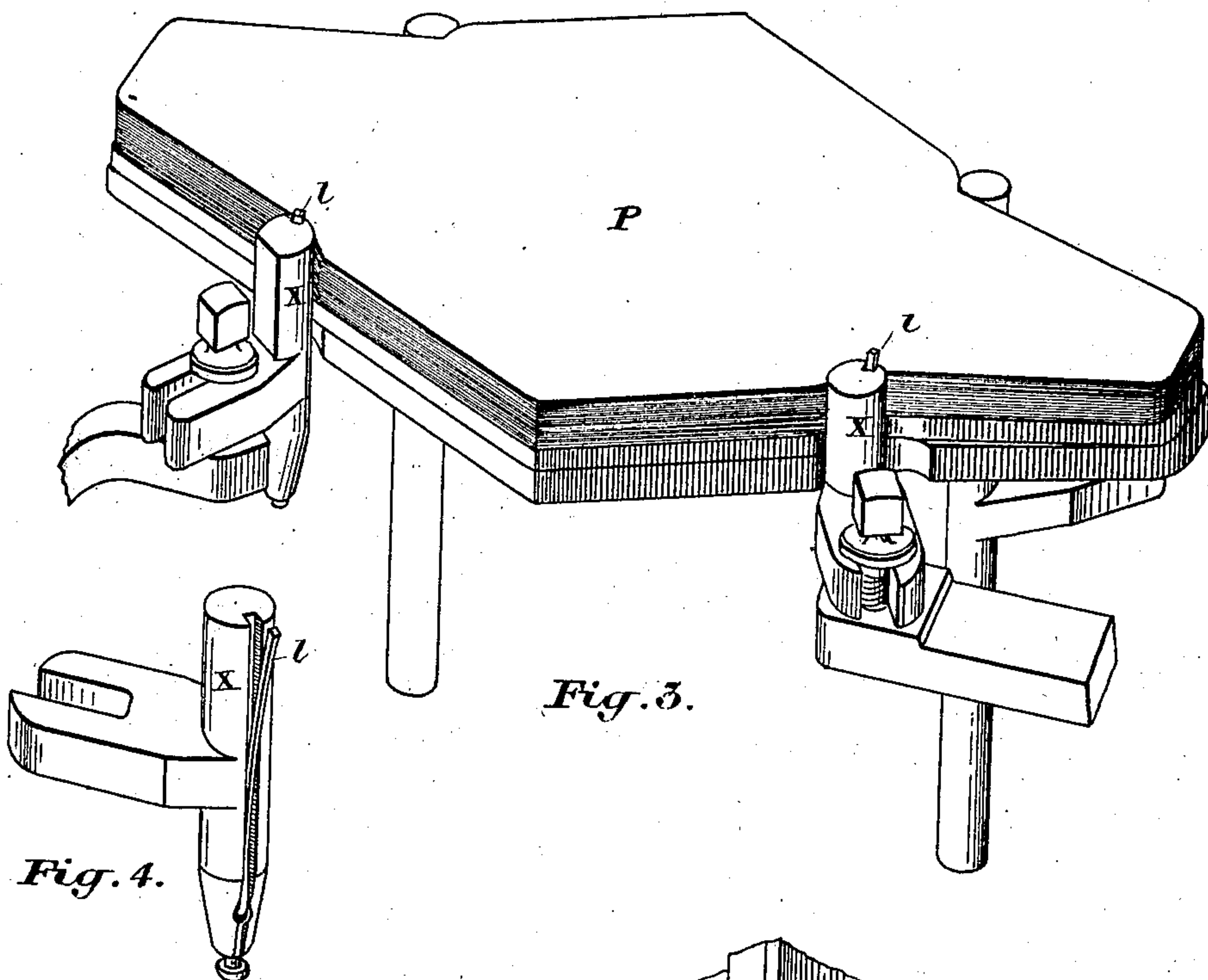
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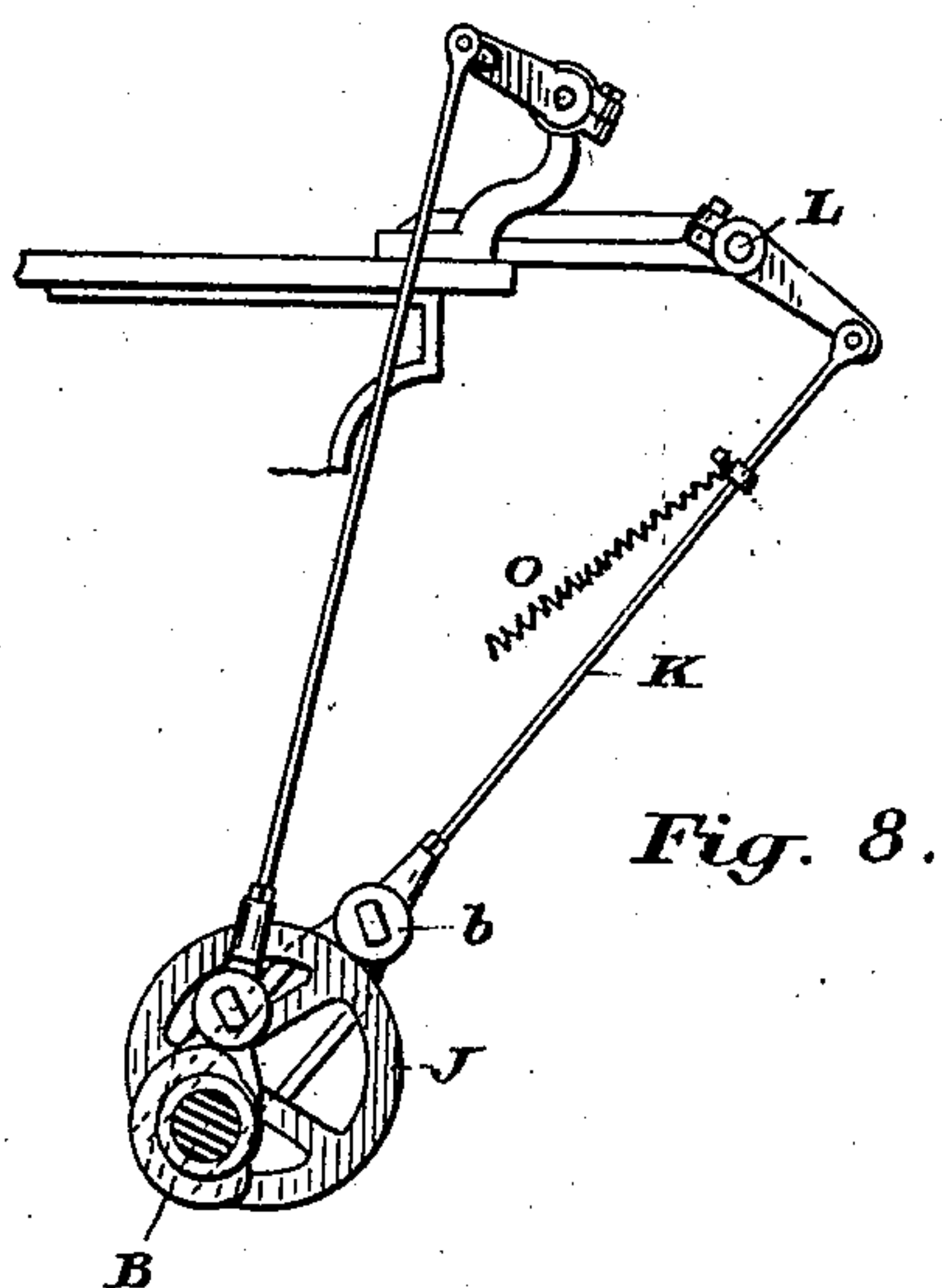
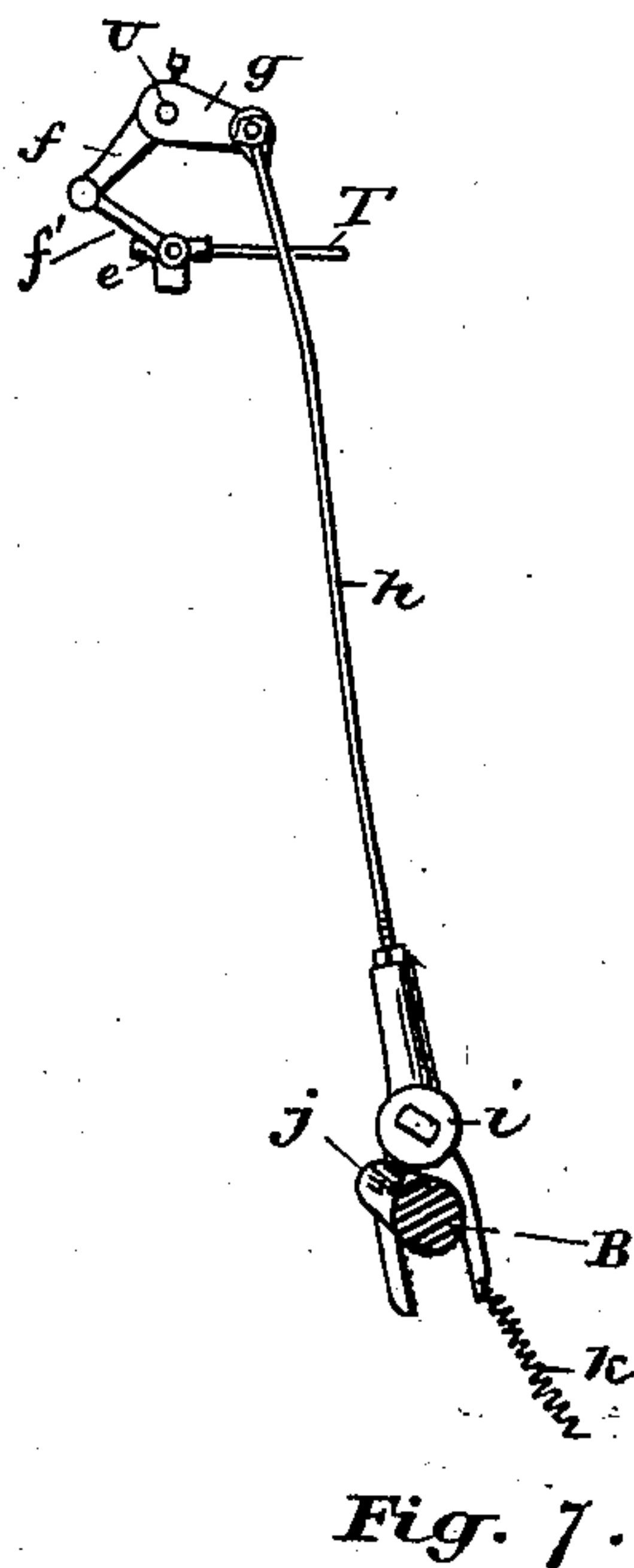
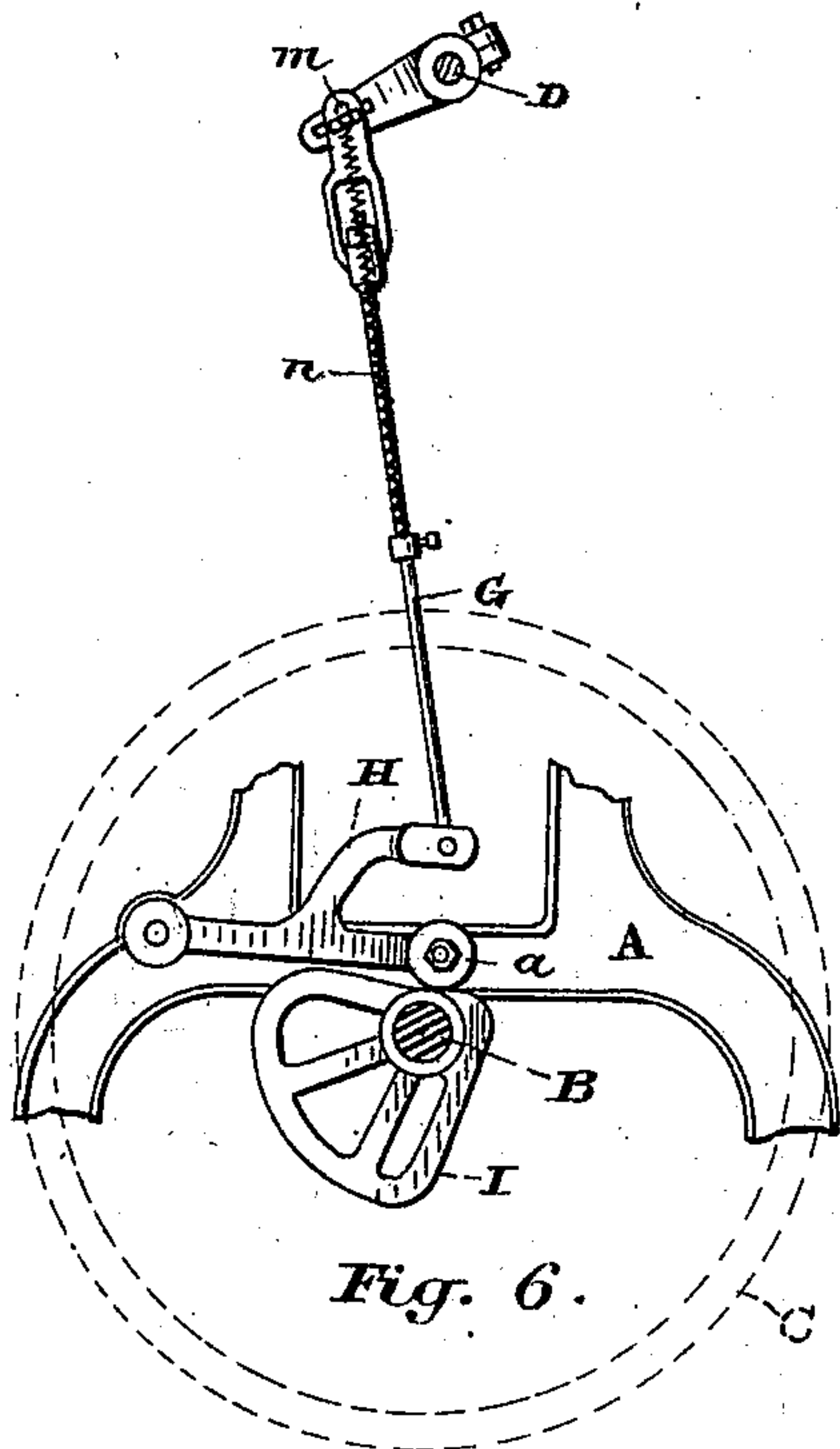
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6 Sheets—Sheet 4.

L. P. BOUVIER.
ENVELOPE MACHINE.

No. 321,183.

Patented June 30, 1885.



Witnesses.

Lewis Toulminson
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(No Model.)

6 Sheets—Sheet 5.

L. P. BOUVIER.
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No. 321,183.

Patented June 30, 1885.

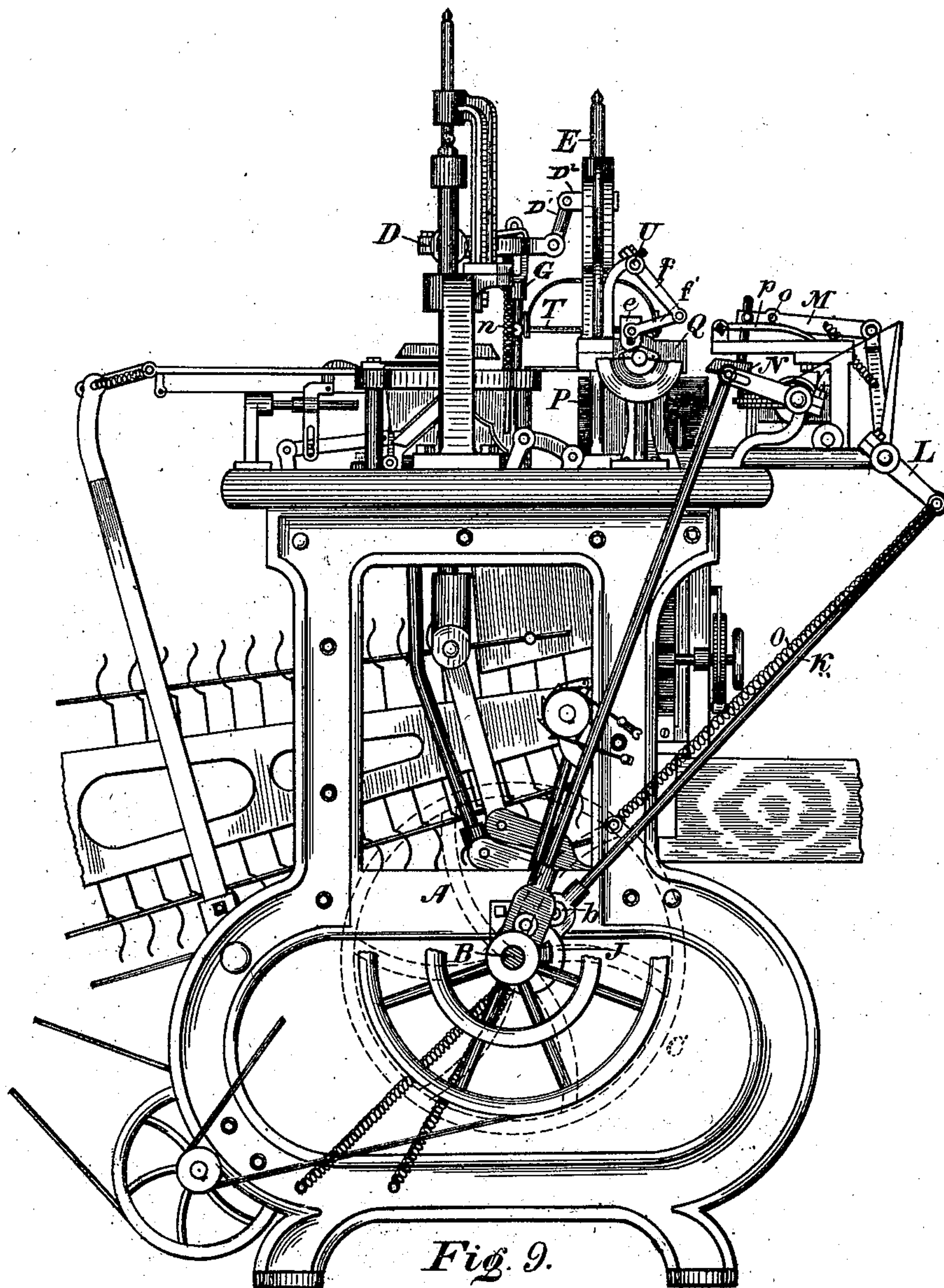


Fig. 9.

Witnesses.
Charles C. Baldwin
John G. Ridout

Inventor:
Louis P. Bouvier.
by Donald C. Ridout
Atty

(No Model.)

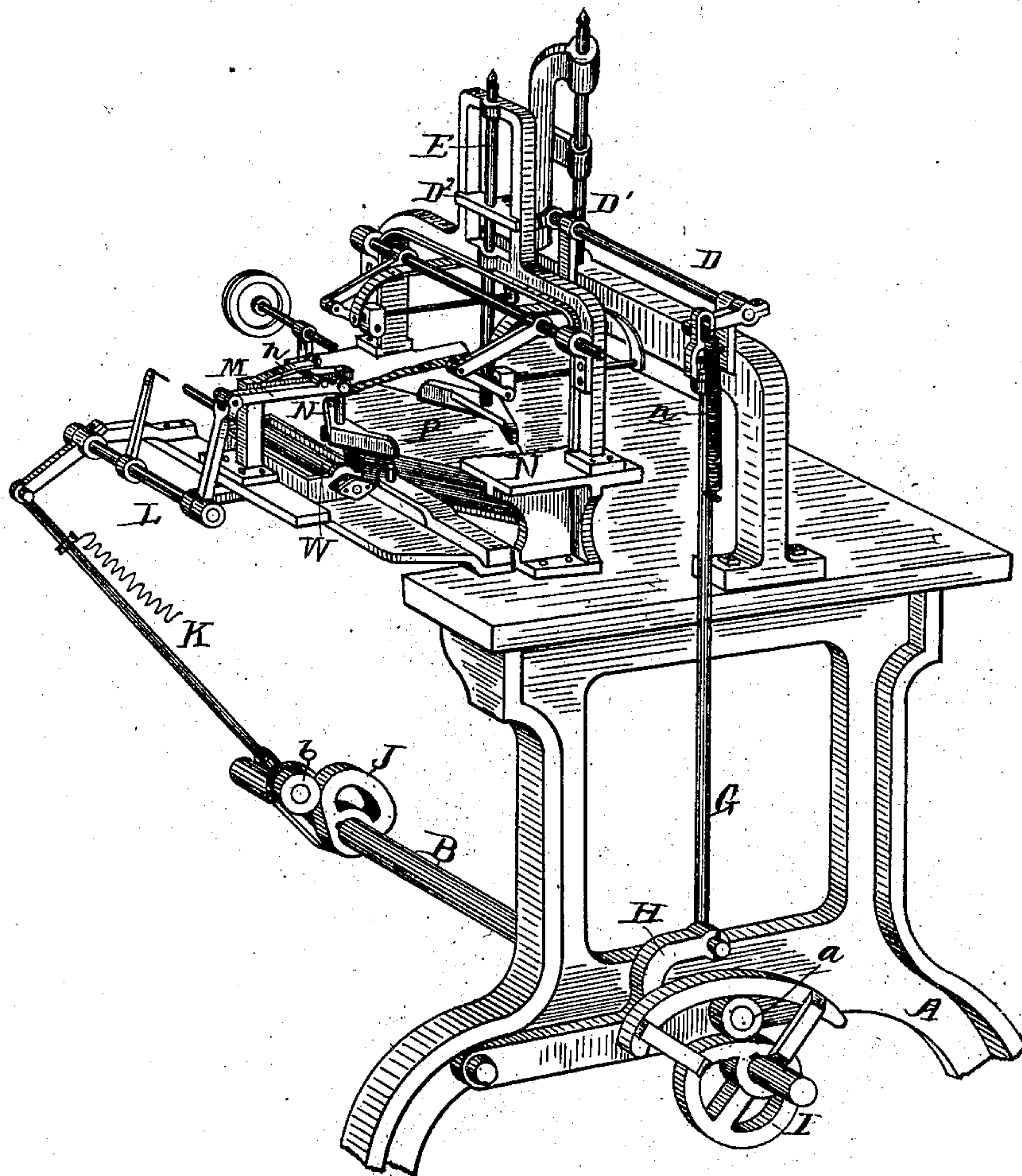
6 Sheets—Sheet 6.

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No. 321,183.

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Fig 10.



Witnesses.
W. J. Robertson
W. B. Hillyard.

Inventor.
Louis P. Bouvier
By Donald G. Ridout & Co
Attorneys

UNITED STATES PATENT OFFICE.

LOUIS P. BOUVIER, OF TORONTO, ONTARIO, CANADA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF THREE-FOURTHS TO JOHN FITZALLEN ELLIS, PHILIP THOMAS PERROTT, AND THOMAS JAMES CLARK, ALL OF SAME PLACE.

ENVELOPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 321,183, dated June 30, 1885.

Application filed September 24, 1883. (No model.) Patented in England January 30, 1884, No 2,409.

To all whom it may concern:

Be it known that I, LOUIS PETER BOUVIER, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, machinist, have invented certain new and useful Improvements in Envelope-Machines; and I do hereby declare that the following is a clear, full, and exact description of the same.

The object of the invention is to produce an envelope-machine which will gum, fold, and finish the greatest possible number of envelopes with the least possible jar on the machine; and it consists, essentially, in arranging the gumming and picking-up mechanism in the manner hereinafter explained.

Figure 1 is a perspective view of a portion of the machine, showing the gum-dishes, gumming-rollers, and other mechanism for gumming or picking up the blank. Fig. 2 is a vertical longitudinal cross-section of the complete machine. Fig. 3 is a perspective detail showing the blanks with posts for holding them in position. Fig. 4 is a perspective detail of one of the front posts, showing its spring. Fig. 5 is a perspective detail, showing a bottom view of the gum-dish, which is situated over the pile of blanks, and exhibiting the springs arranged to throw the blank off the picker.

Fig. 6 is a detail of the cam mechanism and pitman for operating the picker. Fig. 7 is a detail showing the pitman and cam for operating the distributing-roller. Fig. 8 is a detail showing the mechanism for operating the auxiliary gummer. Fig. 9 is a side elevation of the machine, showing the various operating parts in connection with the main drive-shaft. Fig. 10 is a perspective showing the pickers and the mechanism for operating the same.

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

A is the main frame of the machine.

B is the main driving-shaft, suitably journaled in the frame A, and provided with a balance-wheel, C. This shaft is propelled by any suitable motor, and has attached to it all the cams necessary to produce the different motions in the machine; but as my invention relates only to that portion of the machine

which gums and places the blanks on the carriers it will not be necessary in this specification to explain the various motions produced by the revolving of the driving-shaft B. It will be sufficient for my purpose to show the connection between this shaft and the parts involved in my invention.

D is a rock-shaft, one arm of which is connected by link D' and cross-head D², as shown in Figs. 2 and 10, to the spindle E of the vertically-operating picker F. The outer end of this rock-shaft D is connected by a pitman, G, to one branch of a bifurcated arm, H, which is pivoted on the frame A, the other branch of the said arm being provided with a friction-roller, *a*, situated immediately below the end of the pitman G, and arranged to rest upon the cam I, which is keyed or otherwise fastened to the shaft B. Thus when this shaft revolves the cam I acts against the friction-roller *a*, which in following the form of the cam I imparts a rocking movement to the rock-shaft D (see Figs. 6 and 10) and through it causes the picker or gummer F (see Figs. 2 and 10) to rise and fall, as and for the purpose hereinafter more particularly explained.

The other end of the driving-shaft B has attached to it a cam, J, (see Figs. 8 and 10,) which is arranged to act against the friction-roller *b*. This roller is attached to a pitman, K, which connects with an arm of the rock-shaft L. The other arm of this rock-shaft L has hinged to it the bar M, (see Figs. 2 and 10,) the other end of which is connected to and is designed to support the auxiliary gummer N. The cams I and J are so set on the shaft B that when the cam I has thrown the picker F the full length of its downward stroke the cam J has caused, through its connections, the auxiliary gummer to reach and act upon the top blank, as hereinafter explained. A spring, O, attached to the pitman K, holds the friction-roller *b* against the cam J.

P represents the pile of blanks, and Q the gum-dish, located immediately above the pile of blanks. (See Figs. 1 and 2.)

R is a gumming-roller, suitably journaled within the gumming-dish Q and caused to re-

volve, so that its upper surface shall travel away from the edge of the gum-dish next to the picker F.

c is a scraper pivoted within the gum-dish V, located in front of the pile of blanks, and which may be provided with any well-known means of adjustment for regulating the amount of gum carried up by the roller; but as such means form no part of my invention, it is unnecessary to describe them here. Owing to the direction in which the roller W revolves, the scraper *c* removes from the said roller any fiber which may have adhered to the gumming-roller when the distributing-roller last touched it. A clean surface on the gumming-roller is thereby insured.

The distributing-roller S is carried in suitable guide-blocks, *e*, supported by the horizontal rods T. These rods T extend from the gum-dish Q to a point beyond the back of the picker F, and are at such a distance apart that the said picker works freely between them.

U is a rock-shaft, suitably journaled in brackets attached to the main frame A and located immediately above the gum-dish Q. This rock-shaft is provided with arms *f*, connected to the links *f'*, attached to the guide-blocks *e*, and an arm, *g*, having a pitman, *h*, attached to it. The lower end of this pitman is bifurcated to fit over the shaft B, and is provided with a friction-roller, *i*, arranged to come in contact with the eccentric *j*, which is keyed or otherwise fastened to the said shaft B. (See Fig. 7.) The spring *k*, the lower end of which is attached to the frame A, keeps the friction-roller *i* against the cam *j*. The cam *j* is so set on the shaft B that when the cam I, attached to the same shaft, has thrown the picker F to the full extent of its upward stroke, the cam *j* has, through its connection with the distributing-roller S, as already described, thrown the said distributing-roller across the plane of the picker F, the said picker being at this period in such a position that the distributing-roller S comes in contact with its bottom surface. The cam *j* is shaped, as shown, so that this motion is very rapid, causing the distributing-roller S to pass over the bottom surface of the picker F and return instantaneously, the stroke being thus very short and quick. Gum is applied to the bottom surface of the picker during the short period that it takes to change its upward into a downward movement.

Q is a gum-dish (see Figs. 1 and 2) located immediately over the pile of blanks, and containing the gumming-roller R, which is caused to revolve in the same direction as the gumming-roller W, and is also provided with a scraper, *c*, which scrapes the roller R in the same manner as the other scraper acts on the roller W.

Having now described the general construction of the parts of the machine involved in my invention, I shall proceed to describe briefly the operation of that portion of the machine to which my invention relates.

The pile of blanks P is carried in an elevator operated and constructed in the usual manner, except that the front guide-posts, X, are provided with spring-wires *l*, designed to hold the top blank tightly against the back guide-posts, in order to insure that the top blank shall always be in a position to receive the gum from the picker. When the picker F has received gum from the distributing-roller S, it immediately descends upon the pile of blanks P, gumming the back flap of the top blank, and at this period it rests upon the pile of blanks, against which it is compressed by the downward action of the pitman G, which is connected to an arm on the rock-shaft D by a pin, *m*, passing through a slot in the pitman and connected to the pitman by a spring, *n*. (See Fig. 6.) This slotted connection and spring permit the pitman G to descend after the downward movement of the picker F has been arrested by coming in contact with the pile of blanks. (See Figs. 6 and 10.) When thus descending, the pitman G, being connected, as described, by the spring *n* to the arm of the rock-shaft D, a pressure is imparted upon the pile of blanks by the picker F sufficiently strong to hold the blanks during the period that the auxiliary gummer N performs its function, but without arresting the motion of the shaft B. After applying gum to the seal-flap of the blank the auxiliary gummer N is by the action of its cam J thrown back into contact with the gumming-roller W. After passing over the top surface of this gumming-roller W the pin *o*, which is attached to the bar M, has been carried past the back end of the curved bridge *p*. When the auxiliary gummer N is caused by its cam J to travel toward the pile of blanks, the pin *o* mounts the bridge *p*, thereby carrying with it the auxiliary gummer N, keeping it clear of the gumming-roller W, and raising it to a point above the top of the pile of blanks. The inner end of the bridge *p* is at such a point that when the pin *o* reaches it the auxiliary gummer N is located immediately over the seal-flap of the top blank, and as the pin *o* falls over the inner end of the bridge *p* the auxiliary gummer comes in contact with the pile of blanks, and the pin *o* at the same time is carried below the inner edge of the bridge *p*, so that on its return-stroke the gummer N is brought into contact with the gumming-roller W and receives a fresh supply of gum. When the picker F has rested sufficiently long on the pile of blanks to allow the auxiliary gummer N to apply gum to the seal-flap of the top blank, its cam I causes it to ascend, the gum on the bottom surface of the picker causing the top blank to adhere to the picker, which thereby carries the top blank sufficiently high to permit the carrier V to pass below it. (See Fig. 2.)

As I claim nothing in the operation of these carriers, and as their operation will be well understood by those skilled in envelope-machines, it is not necessary to show or describe

the mechanism for operating them; but in order to insure the easy delivery of the top blank onto the carriers, I place on the bottom surface of the gum-dish Q spring-fingers *q*, (for detail see Fig. 5,) which come in contact with the top blank as it is raised by the picker and impart a gentle yet positive elastic force against the blank, causing it to descend onto the carriers, as desired.

I am aware of the patent to Swift and Swift, No. 173,870, and make no claim to the construction shown therein as forming a part of my invention, as the gummer or picker was not designed to form a holdfast for the blank while the auxiliary gummer is gumming its seal-flap, this function being performed by a stencil-plate attached to the guides carrying the auxiliary gummer. By my construction and arrangement the main gummer performs the function of a holdfast for the blank while the auxiliary gummer is carried over the seal-flap of the blank, dropped onto the same, and drawn therefrom, thereby doing away with any intermediate device for holding the blank during the gumming of its seal-flap.

What I claim as my invention is—

1. In an envelope-machine, the vertically-reciprocating picker arranged to gum and raise one side of the top blank, in combination with the reciprocating auxiliary gummer constructed to fall directly upon the edge of the seal-flap, and mechanism, substantially as described, for drawing said auxiliary gummer off the flap while the picker is resting on the blank, as set forth.

2. The gum-dish Q, located immediately over the pile of blanks, and the vertically-reciprocating picker supplied with gum from said gum-dish and arranged to carry the gum to one flap of the blanks, in combination with the second gum-dish located in front of the pile of blanks and provided with a gum-supplying surface, as W, on a level with the upper blank, and an auxiliary gummer arranged to be carried from said gum-dish to a point directly over the seal-flap of the blank and dropped thereon, and then drawn therefrom in a hori-

zontal plane while the said picker is resting upon and holding the blank, substantially as described.

3. In an envelope-machine having a gumming-dish located over the pile of blanks, a vertically-reciprocating picker arranged to gum and pick up one side of the top blank sufficiently high to permit the carriers to pass below it, in combination with a spring finger or fingers placed on the bottom of the gum-dish, so that the blank carried up against it by the picker is pushed off the picker onto the carriers with a positive yet gentle elastic force.

4. In an envelope-machine, the vertically-reciprocating gummer arranged to gum one side of the top blank, in combination with the auxiliary reciprocating gummer for gumming the seal-flap, and mechanism, substantially as described, constructed to carry said gummer from the gum-dish to the edge of said flap, and then lower it directly upon the same and draw it off while the gummer is resting on the blanks, substantially as set forth.

5. In an envelope-machine having a gum-dish located over the pile of blanks, the vertically-reciprocating picker constructed and arranged to gum and raise one side of the top blank, and the roller arranged to convey the gum from the gum-dish to the under side of the picker, in combination with the reciprocating auxiliary gummer, the second gum-dish located near another edge of the blank and carrying a roller whose upper surface is substantially on a level with the top blank, and mechanism, substantially as described, for carrying said auxiliary gummer over the edge of the blank and free from contact with the same, and then dropping said gummer upon the blank and drawing it therefrom in a horizontal position while the picker is resting on the other edge, as set forth.

Toronto, September 15, 1883.

L. P. BOUVIER.

In presence of—

CHAS. C. BALDWIN,
LEWIS TOMLINSON.