

(No Model.)

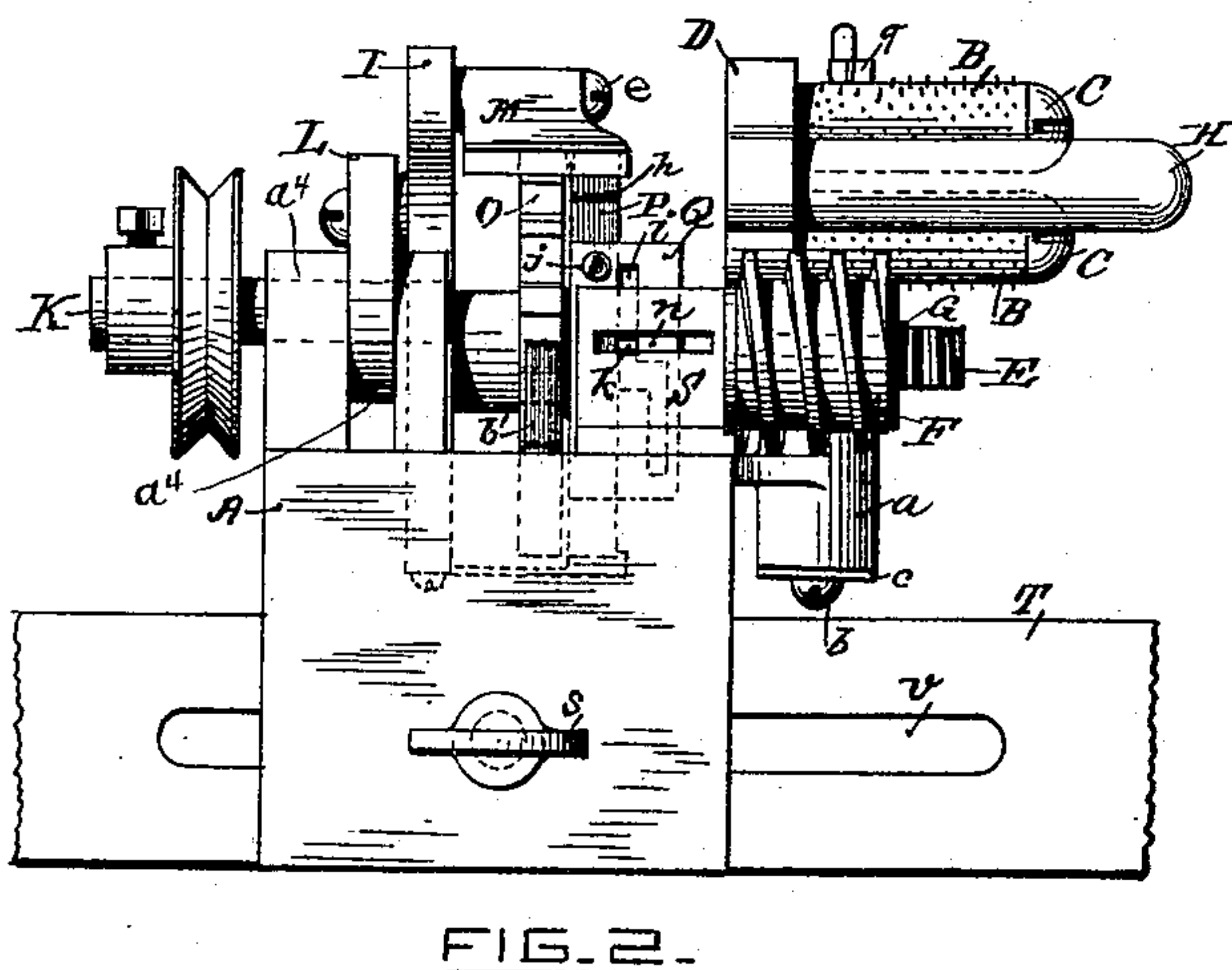
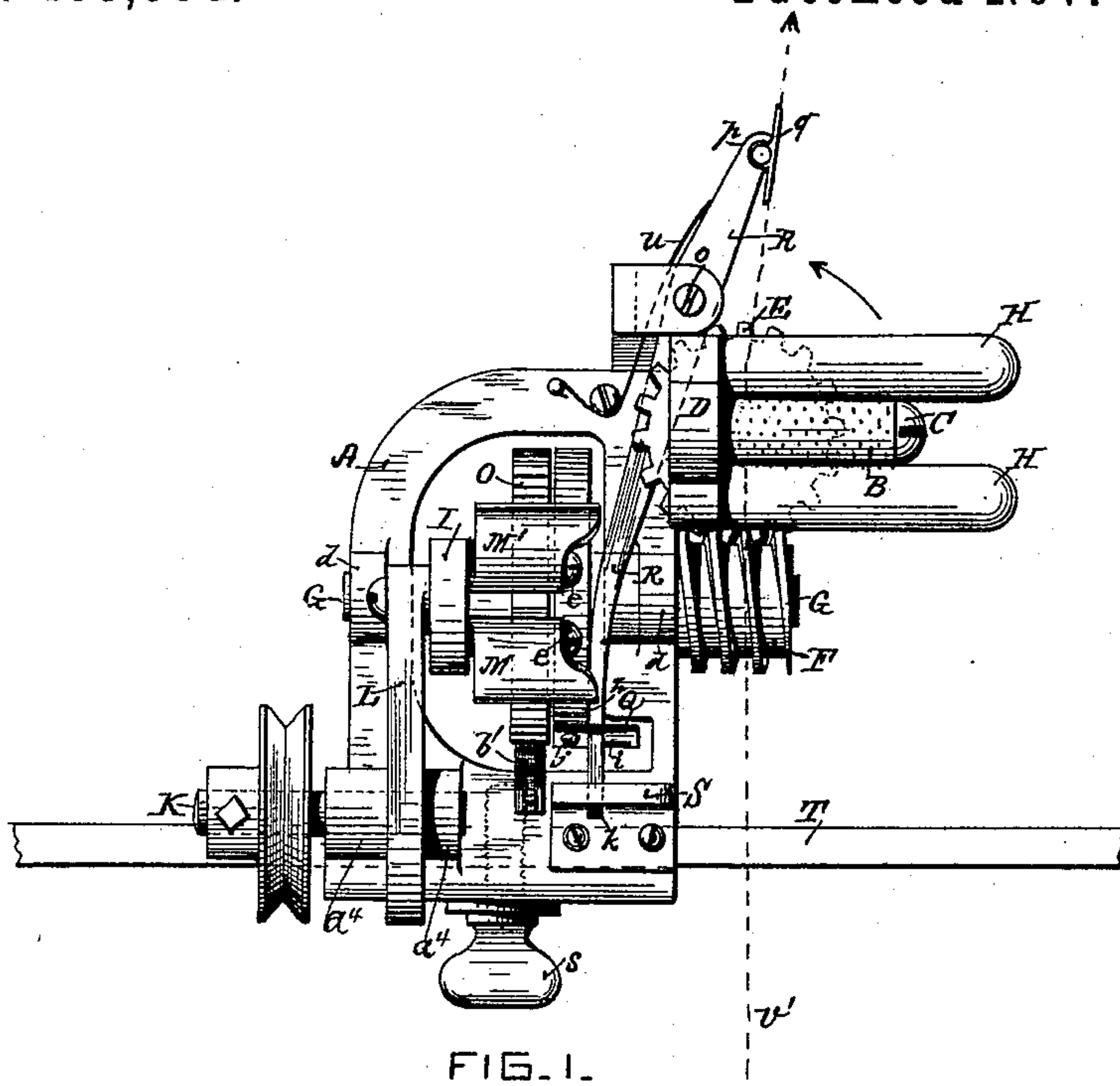
3 Sheets—Sheet 1.

S. SCHOLFIELD.

MECHANISM FOR GUIDING THE EDGES OF TEXTILE WEBS.

No. 463,584.

Patented Nov. 17, 1891.



WITNESSES:

Chas. F. Schuch
James W. Brannan

INVENTOR:

Socrates Scholfield

(No Model.)

3 Sheets—Sheet 2.

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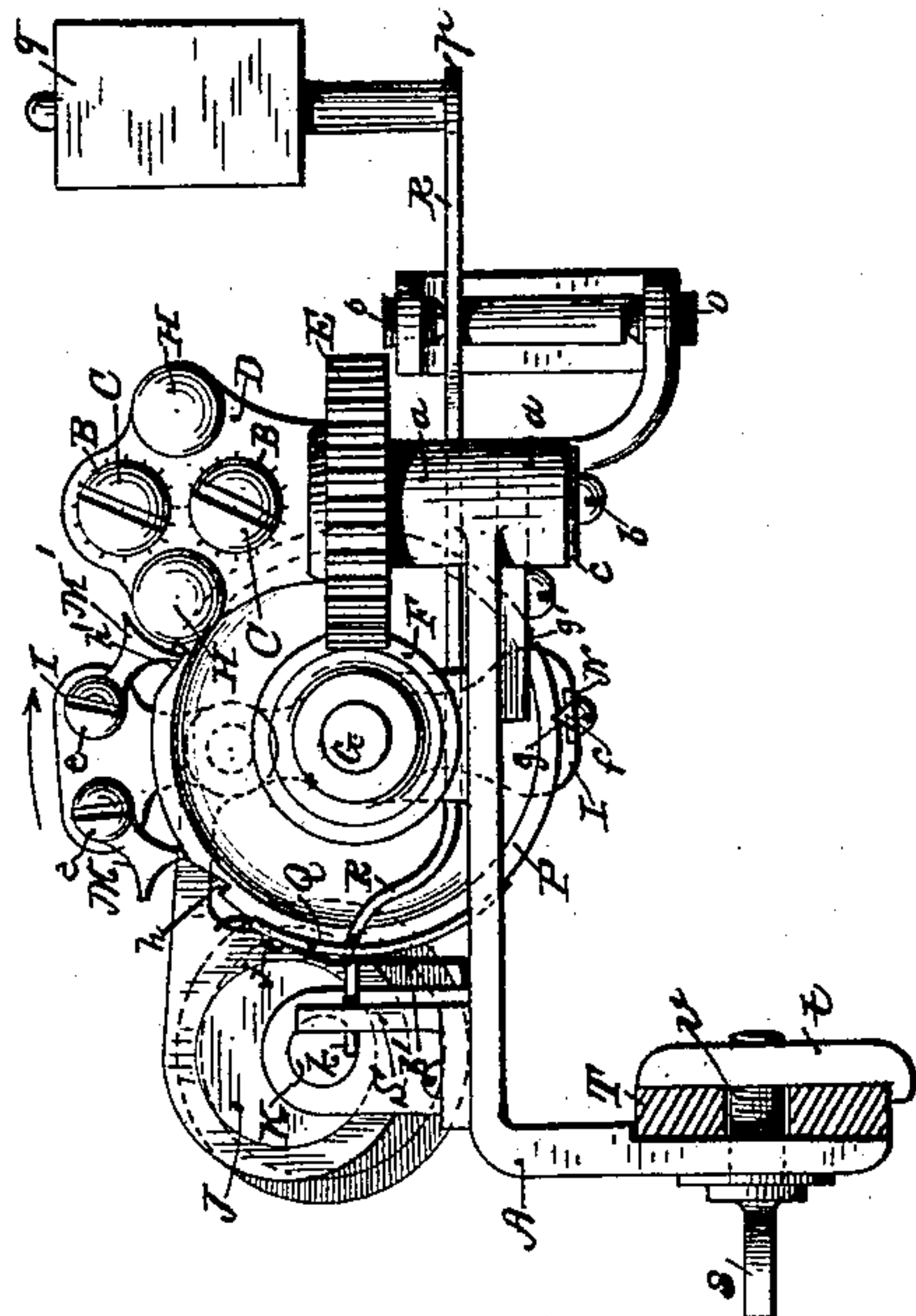


FIG. 3.

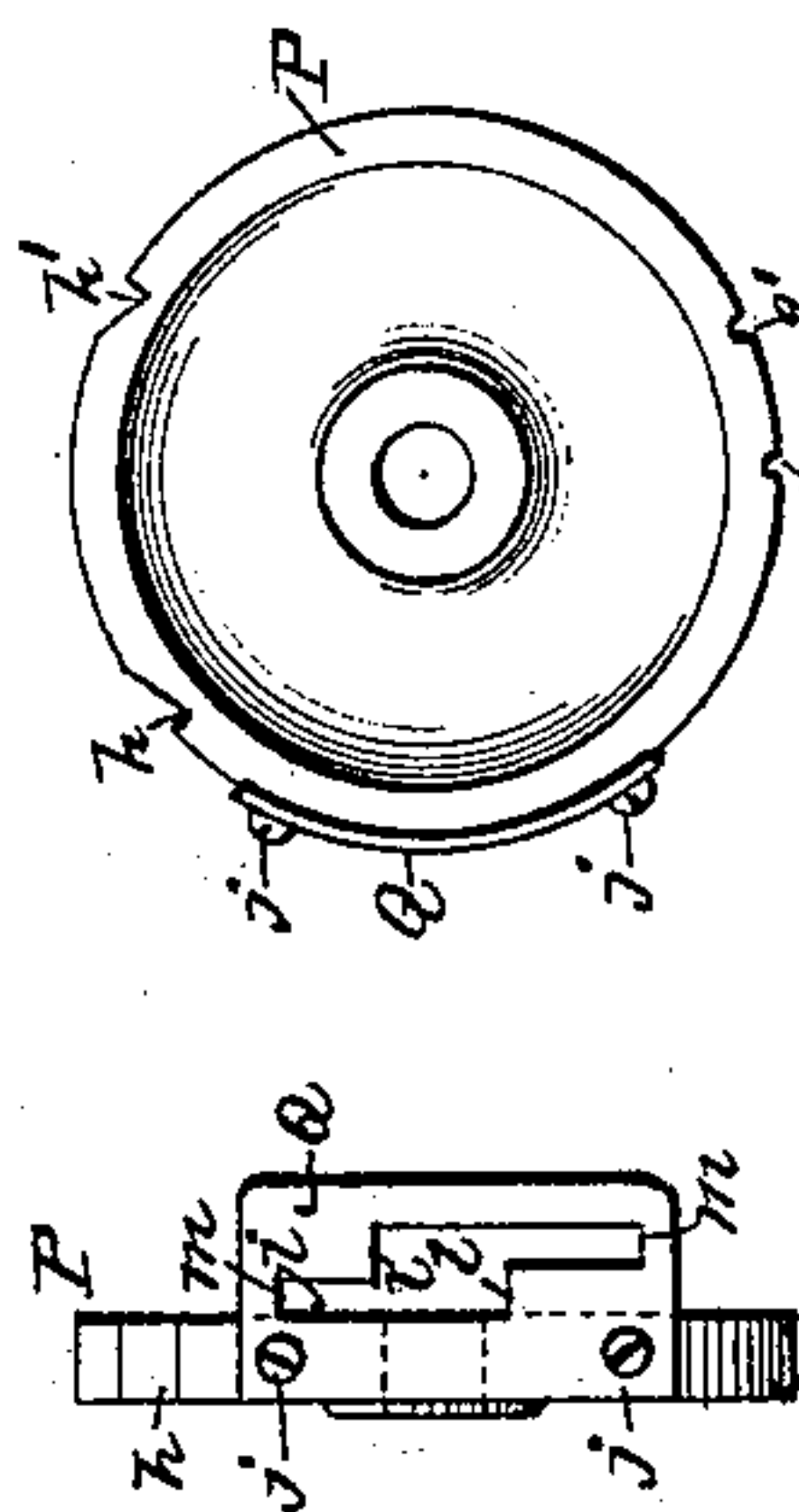


FIG. 5.

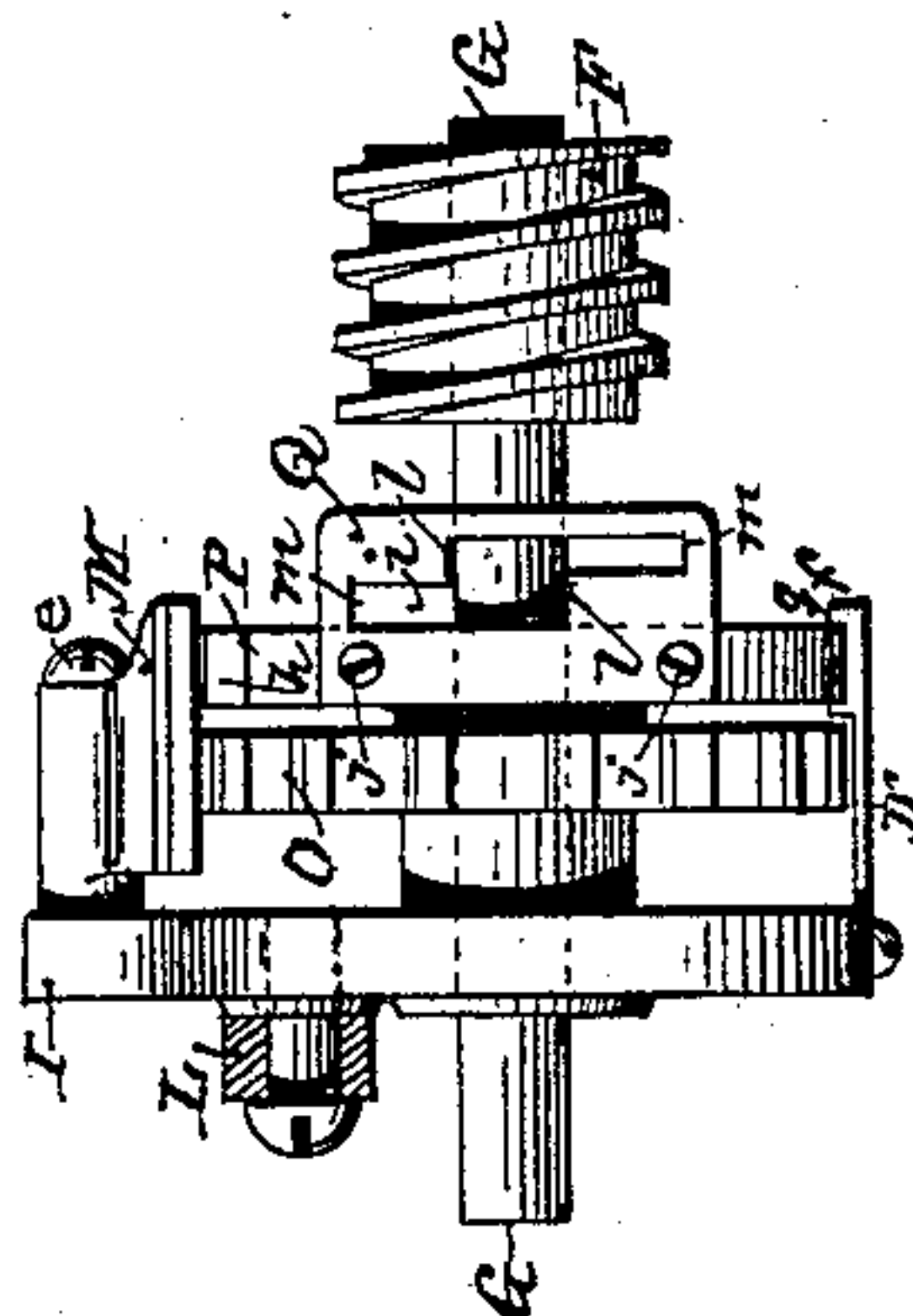


FIG. 6.

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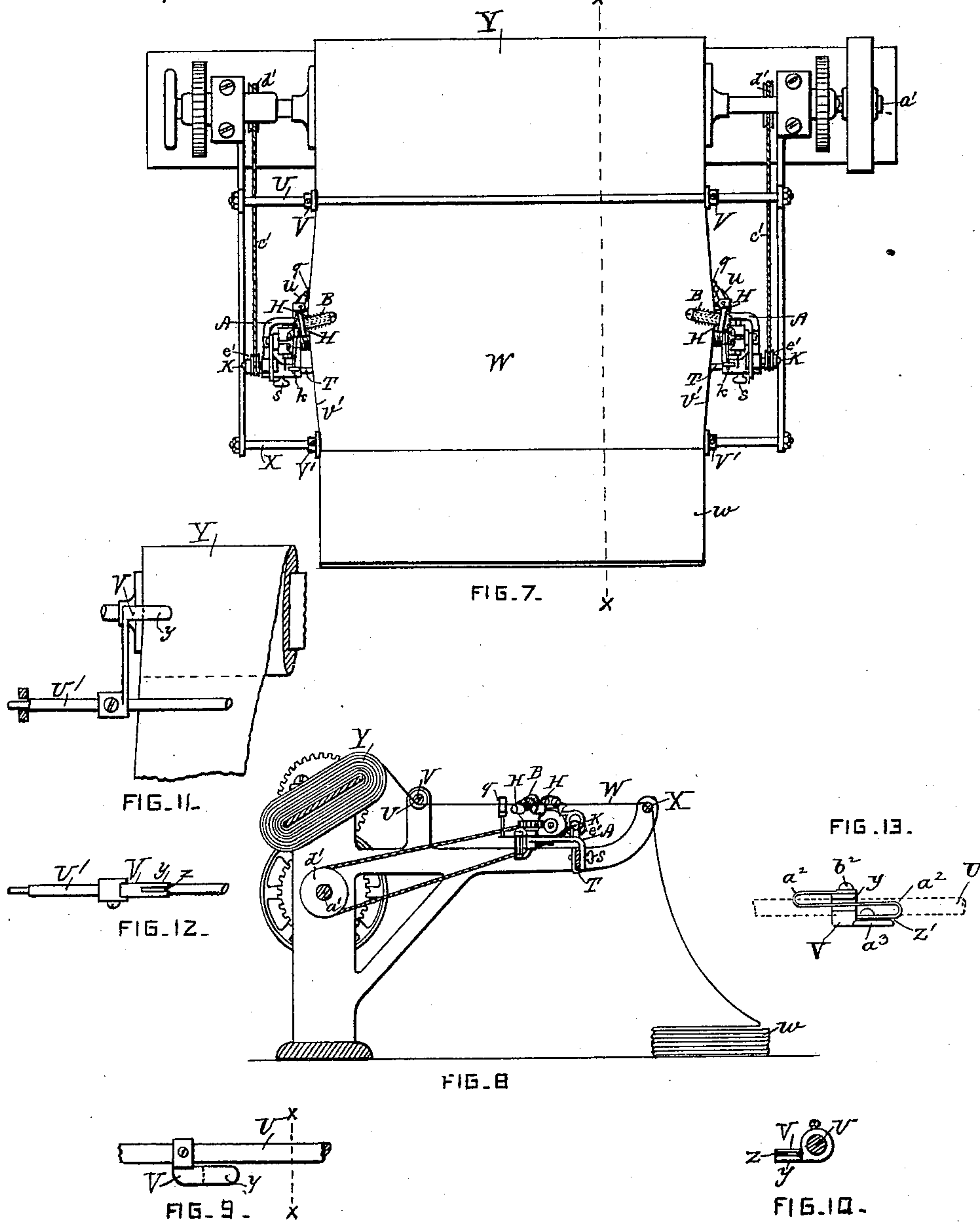
3 Sheets—Sheet 3.

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No. 463,584.

Patented Nov. 17, 1891.



WITNESSES.

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MECHANISM FOR GUIDING THE EDGES OF TEXTILE WEBS.

SPECIFICATION forming part of Letters Patent No. 463,584, dated November 17, 1891.

Application filed October 7, 1886. Serial No. 215,627. (No model.)

To all whom it may concern:

Be it known that I, SOCRATES SCHOLFIELD, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Mechanism for Guiding the Edges of Textile Webs, of which the following is a specification.

In feeding webs of cloth to cloth-finishing machines it is very desirable to have the fabric fed into the machine in such a manner that the edges of the web will run in a true line, and it is the object of my invention to provide an improved automatic mechanism for properly guiding the said edges; and my invention consists in a guide-roller held upon a roller-support which is adapted for angular movement to change the direction of the axis of the guide-roller and reversing devices in operative connection with the roller-support, in combination with a driving means for the reversing devices and a bearing for the driving means, from which, as a resisting base, movement is imparted to the reversing devices, the said bearing being independent of the angular movement of the roller-support, and also in the combination therewith of a supplementary guide for the edge of the web, and in the improved connection between the reversing devices and the roller-support.

In the drawings, Figure 1 is a plan of a web-guiding machine embodying my improvement, the running edge of the web being indicated by the broken line. Fig. 2 represents an elevation of the machine taken from the side at which the web is to enter the same. Fig. 3 represents an elevation of the machine taken from that side which is directed toward the axis of the web. Figs. 4, 5, and 6 are detail views, illustrating the preferred construction of the reversible mechanical movement. Fig. 7 is a plan showing the application of my improvement to a package-winding machine. Fig. 8 is a vertical section taken in the line xx of Fig. 7. Fig. 9 is a detail view showing a modification of the supplementary guide for holding the edge of the web back to the true line. Fig. 10 represents a section taken in the line xx of Fig. 10, showing also the end of the supplementary guide. Figs. 11, 12, and 13 are detail views illustrating modifications

of the supplementary guide and the projecting pivot-supported guide-rollers.

In the accompanying drawings, A is the movable frame of the web-guiding machine.

B B are projecting guide-rollers, the peripheries of which are set with spurs of wire, as in the rollers of loom-templates, the said projecting guide-rollers being arranged to turn loosely upon the studs C C, which are securely held in the head D, the said head being pivoted to the frame A by means of a downwardly-extending stem, which passes through a central perforation in the hub a of the frame, and also provided with a gear E, a segment of which engages with the worm F, secured to the shaft G, so that upon turning the shaft G angular movement will be imparted to the head D and rollers B B. The head D is also provided with the projecting bars H H, which are arranged at opposite sides of the rollers B and parallel with the same, and which serve to guide the edge portion of the web along the arc of a segment of either of the rollers B, as most suitable.

The head D, which carries the rollers B, is secured loosely to the hub a of the frame A by means of the screw b and washer c , the screw b being made to enter the lower end of the pivot-stem of the head D.

Upon the shaft G, which turns in the bearings $d d$ of the frame A, is loosely placed the vibrating lever I, from which operative connection is made to the eccentric J upon the driving-shaft K by means of the connecting-rod L, the said shaft K being held in the bearing a' , which constitutes a resisting base for the opposite action of the eccentric J upon the lever I through the intervening connecting-rod L. At the upper end of the vibrating lever I are secured the loose ratchet-catches M M', by means of the screw-studs e , and to the lower end of the said lever is secured the flat spring N, having a triangular head or engaging end f .

Adjacent to the lever I on the shaft G is secured the ratchet-wheel O, and at the opposite side of the said ratchet-wheel on the shaft G is loosely placed the ratchet-guard P, which is provided at the lower side of its edge with the V-shaped notches $g g'$, which are adapted to receive the upper or engaging edge of the

angular head *f* of the spring N, and at the upper side of its edge with the notches *h h'*, which are adapted to receive the lower or engaging edge of the ratchet-catches M M', respectively, and allow them to engage with the teeth of the ratchet-wheel O upon the proper movement of the guard P, which, through the action of the spring N, partakes of the vibrating movement of the lever I, except when the normal movement of the guard P with the lever I is obstructed by the action of the detector-lever R, so as to throw the engaging angle of the head *f* of the spring N out of the notch *g* or *g'*, as the case may be, into its opposite notch.

Upon the edge of the guard P, at a point between the notch *g* and the adjacent notch *h*, is placed the guard-regulating plate Q, which is provided with the offset-slot *i*, and is secured to the edge of the guard by means of the screws *j j*. The slot *i* is adapted to receive the laterally-moving end *k* of the detector-lever R, and the distance from the shoulder *l* to the end *m* of each arm of the offset-slot is properly made equal to the vibrating movement imparted to the periphery of the guard P, through the action of the spring N and its engaging notch, plus the thickness of the end *k* of the lever R, the said lever being supported in the lateral slot *n* made in the stand S against movement with the regulating-plate Q upon contact therewith. The detector-lever R is loosely pivoted between the center pointed screws *o o*, and is provided at its end *p* with attached guide-plate *q*, which presents a comparatively broad surface to the edge of the web, and at the back of the said lever is placed the slight wire spring *u*, which serves to hold the guide *q* in a forward position.

The ratchet-wheel O of the reversing mechanical movement may be termed the "reversible" member and the vibrating ratchet-catches M M' and the vibrating guard P the "engaging" member, the said members constituting essential features of a mechanical movement for oppositely changing the direction of the action of a machine in accordance with the controlling movement of a detector or governor; but in carrying out my invention I do not limit myself to reversing devices of ratchet construction, but include in the term "reversing devices" in the claim the reversible and engaging devices of whatever nature, which are employed instead of ratchet devices, for automatically reversing the action of a machine, the particular construction of the reversible and engaging members not constituting an essential feature of my improvement.

The frame A, when arranged in a working machine, may be secured to a flat holding-bar T, which is provided with a slot *v*, adapted for the lateral adjustment of the frame A and its attached mechanism by means of a thumb-screw *s* and clamping-nut *t*.

Upon the rod U, Fig. 7, which forms a fixed

portion of the machine to which my improved web-guiding mechanism is attached, and around a portion of the periphery of which the web is made to pass, is placed the adjustable guide V, which is to be set in the true guiding-line for the edge of the web, which is nearer than the guide-plate *q* to the axis of the said web.

The guide V, instead of being attached to the rod U, which is separate from the frame A, may be attached to an extension of the said frame and may be made of any form of construction adapted to hold the edge of the web slightly back from its outward position at the detector-guide *q*, to the face of which it is brought by means of the action of the roller B, when properly inclined to the axis of the web, by the action of the power-dispensing mechanical movement. The line followed by the edges of a web, when in a packaging-winder provided with my improved web-guiding machine, is shown in Figs. 7 and 8, the edge *v'* of the web W first passing from the loosely-folded pile *w* over the rod X, between the edge guides V' V', thence passing over the projecting bars H H and under the intermediate roller B, being thus guided around the lower portion of the periphery of the said roller, and thence inwardly to the true-line guide V and onto the packaging-roll Y, touching in its course the face of the detector-guide *q*, the movement of which by means of the spring *u* and the edge of the web will cause the required variation or change in the angle of the axis of the roller B with the axis of the web. Whenever the edge *v'* fails to touch the face of the detector-guide *q*, the end *k* of the detector-lever R will be thrown by the action of the spring *u* into line with the upper portion of the offset-slot *i*, thus controlling the relative position of the vibrating movement of the guard P with the lever I, so that the ratchet-catch M' will be caused to enter the notch *h'* of the guard and to engage with the teeth of the ratchet-wheel O to turn the said ratchet-wheel O, shaft G, and worm F in the direction of the arrow shown in Fig. 3, thus causing the angular movement of the worm-gear E, head D, and the attached roller B in the direction of the arrow shown in Fig. 1, until the roller B has become sufficiently inclined to the axis of the web to cause the edge of the web to be forced against the face of the detector-guide *q* sufficiently to cause the end *k* of the lever R to be brought to an intermediate position in the slot *u* of the stand S, in which position the catches M M' will be prevented from action upon the teeth of the ratchet-wheel O to turn the worm F, and thus vary the inclination of the roller B. By reason of the lifting action of the guard P upon the said catches, and in case the said roller has been moved so far as to subsequently cause the edge *v'* of the web by its pressure against the face of the detector-guide *q* to force the end *k* of the detector-le-

ver R into the line of the lower portion of the slot i , then the head f of the bearing-spring N will be shifted over to the notch g' , thus changing the relative position of the guard P and the catches M M', so that the catch M will now be brought into action upon the ratchet-teeth of the wheel O to cause a reverse movement of the head D and roller B, which will have the effect of drawing the edge of the web back until the lever R is again brought to the intermediate point, at which point the vibrating catches M M' will cease to act upon the teeth of the ratchet-wheel. The edge v' of the web, as shown in Fig. 7, is carried by the action of the inclined roller B slightly beyond the proper running line for guidance upon the rolled package Y, and is brought back to the said line and there held by means of the stationary guide V. Thus the necessary slight variation in the action of the roller B upon the edge of the web will be corrected by the guide V.

The duplicate rollers B B (shown one above the other in Figs. 2 and 3) are adapted for action upon both edges of the web at the same time, as is desirable in the case of a longitudinally-folded web, one of the said edges being made to pass under the upper roller B and the other to pass over the lower roller; but for guiding a single edge either of the rollers B may be used, as most convenient. The shaft G is to be frictionally held from being turned in either direction by the normal vibration of the lever I not accompanied with the engagement of one of the catches with ratchet-wheel, and this may be desirably accomplished by means of the spring b' , which is attached to the upper side of the frame A and presses against the ends of the teeth of the ratchet-wheel O.

The guide V (shown in Figs. 7 and 8) is simply a flanged collar held in position upon the rod U by means of an adjusting-screw v^4 ; but in some cases it is desirable to clasp both sides of the web at its edge, and such a guide is shown in Figs. 9 and 10, the laterally-projecting portion y being slotted, as shown in end view, Fig. 10, and by dotted line in Fig. 9. The edge of the web will thus be prevented from curling over at the guide, the slot z being properly made about the width of the thickness of the cloth, or, instead of a slotted device, spring-pressure may be brought to bear upon the surface of the web at and near the guided edge of the same for this purpose, as in Fig. 13, which shows the flat spring a^2 secured to the projecting portion of the guide by means of the screw b^2 and having an opening z' between the spring a^2 and the projecting lip a^3 for the insertion of the edge of the web.

The slotted guide V (shown in Figs. 10 and 11) may be constructed as shown in Figs. 12 and 13, in which the guide V is shown as attached to a loosely-held pivot-rod U', so that the slotted portion y may move up and down with the oval surface of the package Y, and

in this manner the ends of the package will be wound up true and even.

Instead of the rollers B set with spurs, as shown and described, rollers having any suitable friction-surface may be employed and a rubber-covered or other frictional surface for securing a firm lateral hold upon the fabric, and may be held in firm contact therewith.

My improvement may be advantageously employed without the guide V, which guide is more especially desirable in feeding cloth to drying and tentering machines in which the edge of the web must be fed to the hooks or clips in a true line; but for other ordinary purposes the said guide may be omitted, the automatic regulating movement of the pivoted roller B or its equivalent serving to keep the edge of the web sufficiently near to the true line.

The shaft K, Fig. 7, which serves to operate the power-dispensing mechanical movement, is driven from the shaft a' of the winding-machine by means of the pulleys d' and e' and the connecting-band c' .

I am aware that a swiveling bracket having a feeler jointed thereto for bearing against the edge of the web, and a feed-roller adapted for movement with the swiveling bracket are shown and described in English Patent No. 3,239 of 1882, in combination with a reversing mechanical movement actuated by the rotary movement of the feed-roller, which has its axis supported by the swiveling bracket, so as to move angularly therewith. Therefore I make no claim that includes a reversing mechanical movement, having its driving roller or shaft supported by the swiveling bracket and adapted for angular movement therewith, as shown in said Letters Patent; but in my invention the reversing devices which serve to change the direction of the axis of the guide-roller are actuated by means of a shaft or its equivalent driven roller having a bearing, from which, as a resisting base, the power is applied to the reversing devices, the said bearing being independent of the angular movement of the support for the guide-roller.

I claim as my invention—

1. The combination, with a guide-roller adapted to guide the movement of the edge of the web, a roller-support which is adapted for angular movement to change the direction of the axis of the guide-roller, and reversing devices in operative connection with the said roller-support, of a driving means for actuating the reversing devices and a bearing for the driving means, from which as a resisting base the power is applied to the reversing devices, the said bearing being independent of the angular movement of the roller-support, substantially as described.

2. The combination, with a guide-roller adapted to guide the movement of the edge of the web, a roller-support which is adapted for angular movement to change the direction of the axis of the guide-roller and reversing

devices in operative connection with the said roller-support, of a driving means for actuating the reversing devices, a bearing for the driving means from which, as a resisting base, the power is applied to the reversing devices, the said bearing being independent of the angular movement of the roller-support, and a detector which engages with the reversing devices upon a variation in the running edge of the web, substantially as described.

3. The combination, with a guide-roller adapted to guide the movement of the edge of the web, a roller-support which is adapted for angular movement to change the direction of the axis of the guide-roller, reversing devices in operative connection with the said

roller-support, a driving means for actuating the reversing devices, and a bearing for the driving means from which, as a resisting base, the power is applied to the reversing devices, the said bearing being independent of the angular movement of the roller-support, of a detector which bears against the edge of the web and engages with the reversing devices, and a guide for holding the edge of the web back to the true line after the edge of the web passes the detector, substantially as described.

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Witnesses:

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JAMES W. BEAMAN.